

STATUS REPORTS

ELECTRIC RELIABILITY

Los Alamos County Utilities



Electric Distribution Reliability

June 14,, 2017

Stephen Marez
Senior Engineer

Twelve Month History	MAY 2017	
Total # Accounts	9045	
Total # Interruptions	42	
Sum Customer Interruption Durations	5397:27:00	hours:min:sec
# Customers Interrupted	4407	
SAIFI(APPA AVG. = 1.0)	.49	int./cust.
SAIDI (APPA AVG. = 1:00)	:35	hours:min
CAIDI	1:13	hours:min/INT
ASAI	99.9997%	% 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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							<u>Customers</u>	<u>Combined Customer</u>		
<u>Date</u>	<u>Call Rcd.</u>	<u>Circuit</u>	<u>Cause</u>	<u>Start Time</u>	<u>End Time</u>	<u>Duration</u>	<u>Affected (Meters)</u>	<u>Outage Durations</u>	<u>Total Outage H:M:S</u>	<u>Running SAIDI</u>
6/9/2016	Utilities	13	Planned	9:00	10:00	1:00	27	27:00:00	27:00:00	0:00:11
6/9/2015	Utilities	14	URD Failure	1:45	4:00	2:15	24	54:00:00	81:00:00	0:00:32
6/10/2016	Utilities	WR2	Planned	9:00	11:00	2:00	17	34:00:00	115:00:00	0:00:46
6/23/2016	Utilities	WR2	Weather	19:00	0:00	5:00	4	20:00:00	135:00:00	0:00:54
7/12/2016	Utilities	16	URD Failure	1:44	3:00	1:16	306	387:36:00	522:36:00	0:03:29
7/15/2016	Utilities	13	URD Failure	10:30	13:30	3:00	88	264:00:00	786:36:00	0:05:14
7/15/2016	Dispatch	WR1	URD Failure	21:40	0:00	2:20	21	49:00:00	835:36:00	0:05:34
7/16/2016	Utilities	14	Animal	12:00	13:22	1:22	537	733:54:00	1569:30:00	0:10:27
7/19/2016	Utilities	18	Planned	0:00	5:00	5:00	4	20:00:00	1589:30:00	0:10:35
7/19/2016	Utilities	E4A	HUMAN	16:30	22:30	6:00	3	18:00:00	1607:30:00	0:10:42
7/20/2016	Utilities	13	Unknown	20:00	20:45	0:45	20	15:00:00	1622:30:00	0:10:48
7/27/2016	Utilities	14	URD Failure	8:17	9:30	1:13	120	146:00:00	1768:30:00	0:11:47
7/28/2016	Dispatch	WR1	URD Failure	2:30	5:30	3:00	12	36:00:00	1804:30:00	0:11:58
8/3/2016	Utilities	13	Planned	9:00	10:15	1:15	13	16:15:00	1820:45:00	0:12:05
8/10/2016	Utilities	17	URD Failure	3:10	3:30	0:20	209	69:40:00	1890:25:00	0:12:32
8/10/2016	Utilities	WR1	Planned	9:00	10:20	1:20	8	10:40:00	1901:05:00	0:12:37
8/11/2016	Utilities	WR1	Planned	9:00	11:00	2:00	6	12:00:00	1913:05:00	0:12:41
8/16/2016	Utilities	WR1	URD Failure	12:30	13:00	0:30	80	40:00:00	1953:05:00	0:12:57
9/23/2016	Utilities	18	Planned	9:00	10:25	1:25	3	4:15:00	1957:20:00	0:12:59
10/3/2016	Utilities	WR2	HUMAN	11:00	12:05	1:05	16	17:20:00	1974:40:00	0:13:06
10/22/2016	Utilities	14	HUMAN	10:53	11:52	0:59	539	530:01:00	2504:41:00	0:16:37
10/28/2016	Utilities	WR1	URD Failure	21:20	22:30	1:10	15	17:30:00	2522:11:00	0:16:44
11/2/2016	Utilities	14	URD Failure	17:47	18:40	0:53	129	113:57:00	2636:08:00	0:17:29
11/10/2016	Utilities	17	URD Failure	8:15	12:30	4:15	6	25:30:00	2661:38:00	0:17:39
11/15/2016	Utilities	14	Planned	8:30	9:30	1:00	54	54:00:00	2715:38:00	0:18:01
11/28/2016	Utilities	15	Unknown	6:00	6:45	0:45	25	18:45:00	2734:23:00	0:18:08
11/28/2016	Utilities	15	Unknown	6:00	8:05	2:05	25	52:05:00	2786:28:00	0:18:29
11/28/2016	Utilities	14	URD Failure	10:15	14:15	4:00	6	24:00:00	2810:28:00	0:18:39
12/16/2016	Utilities	13	Tree	9:17	13:00	3:43	13	48:19:00	2858:47:00	0:18:58
12/17/2016	Utilities	13	OH Failure	9:17	10:30	17:00	10	170:00:00	3028:47:00	0:20:05
1/1/2017	Utilities	15	Animal	13:00	13:45	0:45	25	18:45:00	3047:32:00	0:20:13
1/16/2016	Utilities	13	Weather	20:15	23:59	3:44	5	18:40:00	3066:12:00	0:20:20
1/29/2017	Utilities	15	Animal	2:20	3:00	0:40	1145	763:20:00	3829:32:00	0:25:24
1/29/2017	Utilities	15	Animal	2:20	3:15	0:55	131	120:05:00	3949:37:00	0:26:12
1/29/2017	Utilities	15	Animal	2:20	3:40	1:20	72	96:00:00	4045:37:00	0:26:50
1/29/2017	Utilities	15	Animal	2:20	4:30	2:10	527	1141:50:00	5187:27:00	0:34:25
3/6/2017	Utilities	WR1	OH Failure	8:00	9:30	1:30	5	7:30:00	5194:57:00	0:34:28
4/27/2017	Utilities	16	URD Failure	9:00	10:00	1:00	70	70:00:00	5264:57:00	0:34:56
4/29/2017	Utilities	16	URD Failure	0:00	5:00	5:00	7	35:00:00	5299:57:00	0:35:09
5/6/2017	Utilities	WR1	Animal	9:35	10:30	0:55	30	27:30:00	5327:27:00	0:35:20
5/15/2017	Utilities	16	URD Failure	12:15	13:15	1:00	40	40:00:00	5367:27:00	0:35:36
5/6/2017	Utilities	WR1	Planned	9:00	12:00	3:00	10	30:00:00	5397:27:00	0:35:48

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>
0:00:58	0:06:01										
							0:07:10 0:15:35		JULY	0:00:54	135:00:00
0:10:25			0:12:39								
							0:01:51				
	1:27:42				0:05:38	0:08:18					
0:10:58											
	1:43:58						0:03:12		AUGUST	0:11:04	1017:54:00
0:11:33				0:20:00							
							0:03:37 0:04:04 0:05:35				
					0:06:50				SEPTEMBER OCTOBER	0:00:59 0:00:02	148:35:00 4:15:00
								2:03:02			
	2:42:58						0:00:40		NOVEMBER	0:03:45	564:51:00
	2:55:39			0:27:19							
	3:01:39										
		0:00:36 0:02:16									
	3:04:20								DECEMBER	0:01:55	288:17:00
0:13:18 0:19:28									JANUARY	0:01:27	218:19:00
0:00:41		0:00:36									0:00:07
		0:24:29 0:28:20 0:31:25 1:08:02									
			0:02:17 0:03:25				0:00:17		FEBRUARY MARCH	0:14:19 0:00:03	2158:40:00 7:30:00
									APRIL	0:00:42	105:00:00
			0:01:18				0:01:02 0:02:11		MAY	0:00:39	70:00:00
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	0:35:48	0:00:15

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

