

Los Alamos County
Department of Public Utilities

Electric Distribution
Reliability

October, 2025

Dennis G Astley

Acting Deputy Utility Manager
Electric Distribution

<u>Total # Accounts</u>	9045	
Total Interruptions	36	
<u>Sum Customer Interruption Durations</u>	15097:28:00	hours:min:sec
<u>#Customers Interrupted</u>	8567.0	
SAIFI	0.95	int./cust.
SAIDI	1:40	hours:min
WEATHER SAIDI	0:00	
CAIFI	0.420%	
CAIDI	1:45	hours:min
ASAI	99.9992%	

- **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)

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

- **ASAI – Average System Availability Index**
A measure of the average service availability (Per unit)
$$\text{ASAI} = \frac{\text{(Service hours available)}}{\text{(Customer demand hours)}} = \frac{8760 - \text{SAIDI}}{8760}$$

Electric Distribution Reliability Study Twelve Month Outage History							Prepared by Dennis G Astley Acting Deputy Utility Manager			
<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>Customers Affected (Meters)</u>	<u>Combined Customer Outage Durations</u>	<u>Total Outage H:M:S</u>	<u>Running SAIDI</u>
11/4/2024	Utilities	13	TREE	8:02	9:00	0:58	625	604:10:00	604:10:00	0:04:00
11/4/2024	Utilities	13	TREE	8:02	9:40	1:38	675	1102:30:00	1706:40:00	0:11:19
11/7/2024	Utilities	WR2	WEATHER	0:00	4:45	4:45	6	28:30:00	1735:10:00	0:11:31
11/19/2024	Utilities	13	TREE	8:36	9:10	0:34	43	24:22:00	1759:32:00	0:11:40
12/18/2024	Utilities	WR1	URD Failure	6:00	6:50	0:50	15	12:30:00	1772:02:00	0:11:45
1/9/2025	Utilities	ELK RIDGE	Unknown	18:00	19:00	1:00	6	6:00:00	1778:02:00	0:11:48
1/30/2025	Utilities	15	Unknown	11:30	12:15	0:45	30	22:30:00	1800:32:00	0:11:57
3/1/2025	Utilities	13	Unknown	12:45	15:00	2:15	25	56:15:00	1856:47:00	0:12:19
3/14/2025	Utilities	ELK RIDGE	WEATHER	10:30	11:08	0:38	20	12:40:00	1869:27:00	0:12:24
3/18/2025	Utilities	13	TREE	15:30	16:30	1:00	25	25:00:00	1894:27:00	0:12:34
3/19/2025	Utilities	WR2	URD Failure	21:30	4:20	6:50	22	150:20:00	2044:47:00	0:13:34
3/25/2025	Utilities	WR2	URD Failure	20:00	1:45	5:45	79	454:15:00	2499:02:00	0:16:35
3/31/2025	Utilities	16	URD Failure	18:00	21:00	3:00	692	2076:00:00	4575:02:00	0:30:21
5/5/2025	Utilities	15	WEATHER	3:26	7:15	3:49	16	61:04:00	4636:06:00	0:30:45
5/8/2025	Utilities	14	URD Failure	9:07	10:00	0:53	20	17:40:00	4653:46:00	0:30:52
6/8/2025	Utilities	WR2	URD Failure	5:00	8:00	3:00	15	45:00:00	4698:46:00	0:31:10
6/8/2025	Utilities	WR2	URD Failure	5:00	10:00	5:00	20	100:00:00	4798:46:00	0:31:50
6/8/2025	Utilities	WR2	URD Failure	5:00	13:00	8:00	5	40:00:00	4838:46:00	0:32:06
6/19/2025	Utilities	WR1	OH Failure	16:00	17:30	1:30	10	15:00:00	4853:46:00	0:32:12
7/16/2025	Utilities	16	Weather	9:25	10:15	0:50	10	8:20:00	63:20:00	0:00:25
7/22/2025	Utilities	13	OH Failure	12:25	13:20	0:55	1675	1535:25:00	1535:25:00	0:10:11
7/22/2025	Utilities	13	Transformer Failure	17:30	18:45	1:15	10	12:30:00	12:30:00	0:00:05
7/28/2025	Utilities	15	Weather	16:05	18:00	1:55	1	1:55:00	6411:56:00	0:42:32
8/8/2025	Utilities	WR1	Transformer Failure	3:20	6:00	2:40	2612	6965:20:00	13377:16:00	1:28:44
8/12/2025	Utilities	WR2	Vehicle	10:00	11:00	1:00	961	961:00:00	14338:16:00	1:35:07
8/25/2025	Utilities	WR1	weather	19:22	20:10	0:48	949	759:12:00	15097:28:00	1:40:09
9/25/2025	Utilities	WR1	weather	0:00	0:00	0:00	0	0:00:00	15097:28:00	1:40:09

CIRCUIT SAIDI IS CALCULATED ACCORDING TO THE NUMBER OF CUSTOMERS IN EACH CIRCUIT RESPECTIVELY												
Running SAIDI Circuit 13	Running SAIDI Circuit 14	Running SAIDI Circuit 15	Running SAIDI Circuit 16	Running SAIDI Circuit 17	Running SAIDI Circuit 18	Running SAIDI Circuit EA4 & ELK RIDGE	Running SAIDI Circuit WR1	Running SAIDI Circuit WR2	Monthly SAIDI		Monthly Customer Minutes out of service	WEATHER SAIDI
0:21:54										0:04:00		
0:39:58										0:07:19		
								0:01:47		0:00:11		0:00:11
0:00:53									NOVEMBER	0:00:10	0:11:40	
							0:00:47		DECEMBER	0:00:05	0:00:05	
						0:02:11				0:00:02		
		0:00:43							JANUARY	0:00:09	0:00:11	
0:02:02										0:00:22		
0:00:54						0:04:36				0:00:05		0:00:05
										0:00:10		
								0:09:23		0:01:00		
								0:28:22		0:03:01		
			1:07:37						MARCH	0:13:46	0:18:24	
		0:01:57								0:00:24		0:00:24
	0:01:58								MAY	0:00:07	0:00:31	
								0:02:49		0:00:18		
								0:06:15		0:00:40		
								0:02:30		0:00:16		
							0:00:56		JUNE	0:00:06	0:01:20	
			0:00:16						JULY	0:00:03		
0:55:40										0:10:11		
0:00:27										0:00:05		
		0:00:04								0:00:01	0:10:20	0:00:04
								7:14:53		0:46:12		
								1:00:00		0:06:22		
								0:47:24		0:05:02		
								0:00:00		0:00:00		
1:05:42	0:01:58	0:00:43	1:07:37	#REF!	#REF!	0:06:47	8:04:00	1:51:05	Total	0:32:12		0:00:41
1655	539	1875	1842	209	213	165	1586	961	9045			
NUMBER OF CUSTOMERS BY CIRCUIT												

CIRCUIT SAIDI IS CALCULATED ACCORDING TO THE NUMBER OF CUSTOMERS IN EACH CIRCUIT RESPECTIVELY												
Running SAIDI Circuit 13	Running SAIDI Circuit 14	Running SAIDI Circuit 15	Running SAIDI Circuit 16	Running SAIDI Circuit 17	Running SAIDI Circuit 18	Running SAIDI Circuit EA4 & ELK RIDGE	Running SAIDI Circuit WR1	Running SAIDI Circuit WR2	Monthly SAIDI		Monthly Customer Minutes out of service	WEATHER SAIDI
0:21:54										0:04:00		
0:39:58										0:07:19		
								0:01:47		0:00:11		0:00:11
0:00:53									NOVEMBER	0:00:10	0:11:40	
							0:00:47		DECEMBER	0:00:05	0:00:05	
						0:02:11				0:00:02		
		0:00:43							JANUARY	0:00:09	0:00:11	
0:02:02										0:00:22		
0:00:54						0:04:36				0:00:05		0:00:05
										0:00:10		
								0:09:23		0:01:00		
								0:28:22		0:03:01		
			1:07:37						MARCH	0:13:46	0:18:24	
		0:01:57								0:00:24		0:00:24
	0:01:58								MAY	0:00:07	0:00:31	
								0:02:49		0:00:18		
								0:06:15		0:00:40		
								0:02:30		0:00:16		
							0:00:56		JUNE	0:00:06	0:01:20	
			0:00:16						JULY	0:00:03		
0:55:40										0:10:11		
0:00:27										0:00:05		
		0:00:04								0:00:01	0:10:20	0:00:04
								7:14:53		0:46:12		
								1:00:00		0:06:22		
								0:47:24		0:05:02		
								0:00:00		0:00:00		
1:05:42	0:01:58	0:00:43	1:07:37	#REF!	#REF!	0:06:47	8:04:00	1:51:05	Total	0:32:12		0:00:41
1655	539	1875	1842	209	213	165	1586	961	9045			
NUMBER OF CUSTOMERS BY CIRCUIT												

EACH POINT IS A MONTHLY SAIDI HISTORY
60 MINUTES = LACDPU SAIDI BENCHMARK

SAIDI = STANDARD AVERAGE INTERRUPTION DURATION

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

