Annual Electric Reliability Report 2024

(Prepared: April 2025)

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Corona Utilities Department

Contents

Definitions

Sustained Interruption Event

- Outage lasting longer than 5 minutes as defined in IEEE std. 1366 2003.

Momentary Interruption Event

- Outage lasting 5 minutes or less as defined in IEEE std. 1366 2003. The event includes all momentary interruptions occurring within 5 minutes of the first interruption. For example, when an interrupting device operates two, three, or four times and then holds, it is considered a single event.

SAIDI - System Average Interruption Duration Index

- The amount of time on average a customer was without power in a year due to sustained interruptions (measured in minutes per customer).
- = $\frac{\text{Outage duration multiplied by the customers affected for all } \textbf{\textit{sustained interruptions}}}{\text{Total number of customers served}}$

SAIFI - System Average Interruption Frequency Index

- The number of times an average customer was without power in a year due to service interruptions lasting more than 5 minutes (measured in interruptions per customer).
- = $\frac{\text{The number of customers which had } \textbf{\textit{sustained interruptions}}}{\text{Total number of customers served}}$

CAIDI - Customer Average Interruption Duration Index

- The average time required to restore service for a sustained outage.
- = $\frac{\text{Outage duration multiplied by the customers affected for all } \textbf{\textit{sustained interruptions}}}{\text{Total number of customers which had } \textbf{\textit{sustained interruptions}}}$

MAIFI - Momentary Average Interruption Event Frequency Index

- The number of times an average customer was without power in a year due to service interruptions lasting 5 minutes or less (measured in interruptions per customer).
- = $\frac{\text{The number of customers which had } \textbf{\textit{momentary interruption events}}}{\text{Total number of customers served}}$
- MAIFI can be calculated by one of two methods. Using the number of momentary interruptions or the number of momentary events. This report calculates MAIFI_E using momentary events. The event includes all momentary interruptions occurring within 5 minutes of the first interruption. For example, when an automatic interrupting device opens and then recloses two, or three times before it remains closed, it is considered a single event.

Introduction

The City of Corona Utilities Department (CUD) strives to provide reliable, uninterrupted service to our bundled Electric Utility customers. The following report details the work accomplished in 2024 in support of this goal. This report also provides data detailing the reliability of CUD's system as measured by standard industry metrics such as the System Average Interruption Duration Index (SAIDI), the System Average Interruption Frequency Index (SAIFI), the Customer Average Interruption Duration Index (CAIDI), and the Momentary Average Interruption Event Frequency Index (MAIFI).

In 2024, the total duration of CUD's outages decreased by 77% from 2023, however, the number of customers impacted increased. CUD interruptions were above the national average by 43% as measured by SAIDI and below the national average by 35% as measured by CAIDI. CUD's system average interruption frequency (SAIFI) was 121% above the national average. Comparison for MAIFI is not available, as it is not measured nationally

These metrics tell us that in 2024, the average amount of time a CUD customer was without power was 43% higher than the national average but customer power was restored 35% times faster than the national average. The frequency of these outages in 2024 was 121% higher than the national average.

CUD relies on Southern California Edison (SCE) to provide transmission of power to our points of interconnection, and therefore outages impacting SCE may also affect CUD. In 2024, 100% of outages impacting CUD customers were due to SCE outages.

CUD will continue to strive to provide the most reliable service to our customers by conducting regular preventative maintenance services and by replacing equipment as it reaches its useful life.

Equipment Maintenance and Replacement

During the course of the year, CUD completed 279 inspections of electrical assets. This amounted to 100% of the planned inspections for the year. These preventative maintenance inspections identified repairs and replacements that will be completed proactively in 2025 to increase reliability. This includes grated lid replacements for 13 underground BURD Transformers (BT).

Above image: Pad-mounted equipment in the City of Corona's service area.

Reliability Overview

The Annual Interruption Report measures the performance of the electrical distribution system. This report provides a measure of CUD's system reliability for years 2014 through 2024.

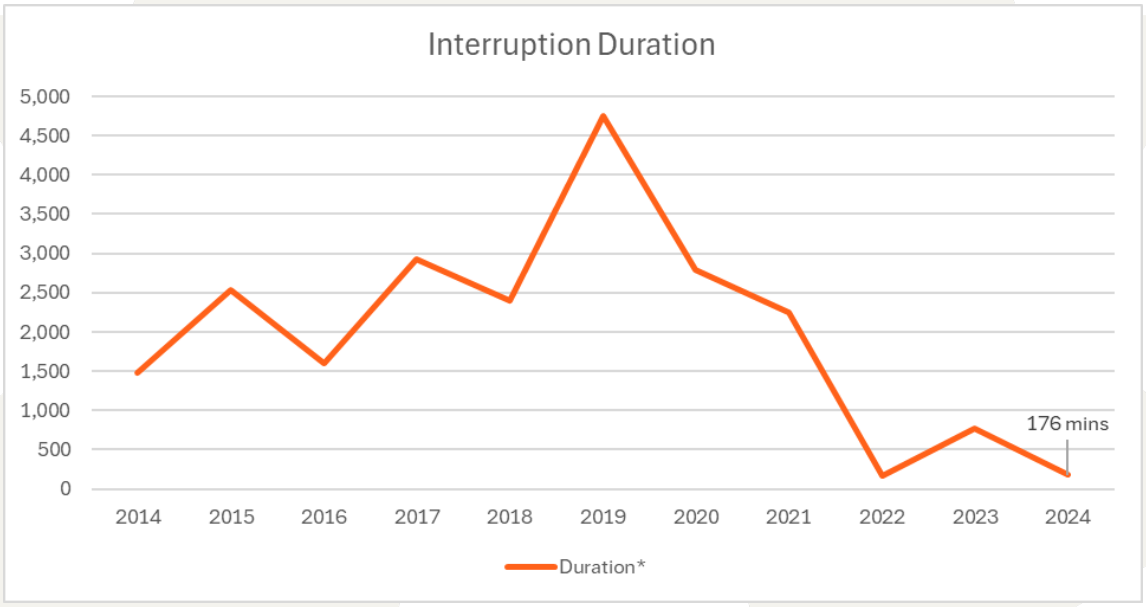
CUD provides electric service for over 1,800 Customers via five separate Points of Interconnection (POC). This includes the Crossings, Dos Lagos, Corona Pointe, Sunkist/Princeland, and Clearwater interconnections, each having its separate and respective Wholesale Distribution Access Tariff (WDAT) agreement with SCE.

From 2023 to 2024 the total number of customers increased by 0.2%.

ANNUAL SUMMARY (2014-2024)

Totals	#Int (ea)	Duration*	CMI**
2014	8	1,482	63,465
2015	16	2,532	604,514
2016	7	1,593	382,064
2017	23	2,925	2,108,742
2018	23	2,402	900,538
2019	21	4,755	3,524,568
2020	15	2,794	2,041,671
2021	21	2,246	641,678
2022	10	172	910,740
2023	6	770	230,135
2024	11	175	965,475

*Minutes
**Customer Minutes of Interruption = no. of customers impacted x duration of outage (min.)

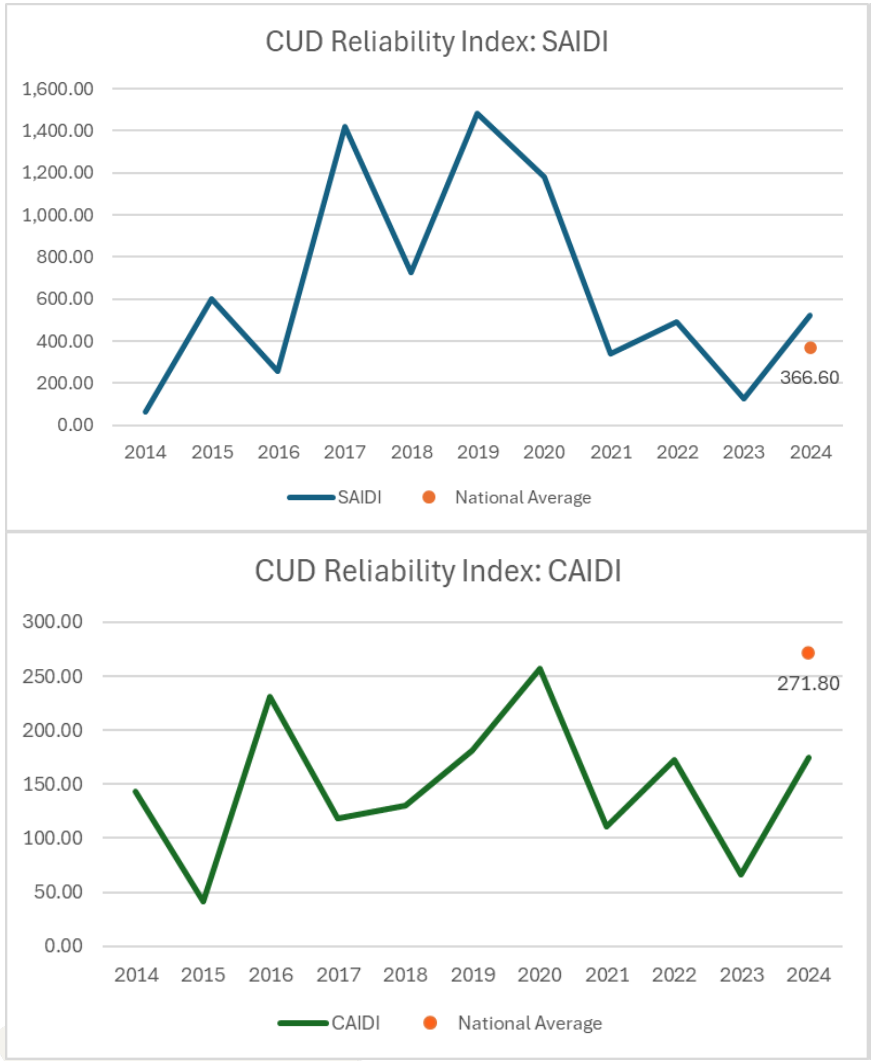


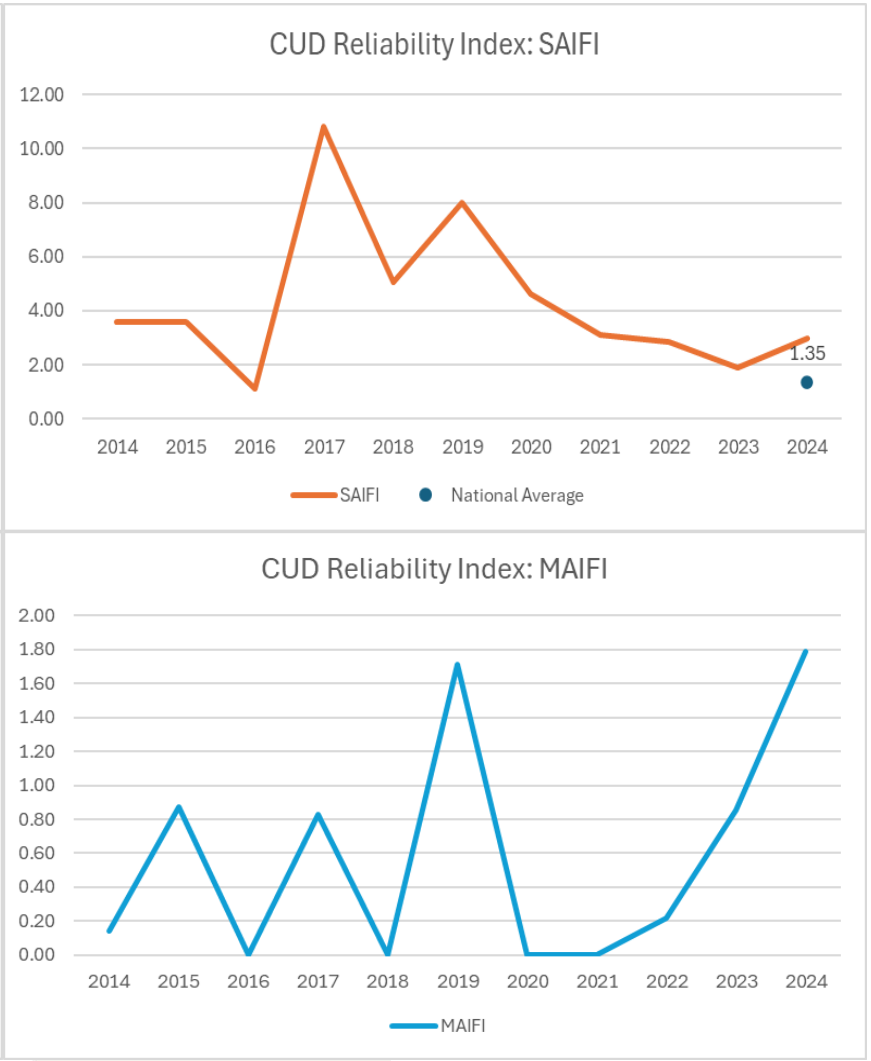
Reliability Indices

CUD 2014 - 2024 Annual Reliability Indices				
Yr / Month	**SAIDI**	**SAIFI**	**CAIDI**	**MAIFI**
2014	66.19	3.56	143.07	0.14
2015	601.51	3.56	41.37	0.87
2016	255.11	1.10	231.40	0.00
2017	1,418.30	10.81	118.41	0.83
2018	725.52	5.03	129.80	0.00
2019	1,485.60	7.99	180.69	1.71
2020	1,181.00	4.60	257.55	0.00
2021	340.90	3.12	111.25	0.00
2022	492.03	2.86	172.00	0.22
2023	124.60	1.89	65.90	0.86
2024	522.16	2.98	175.00	0.93
National Average	**366.60**	**1.35**	**271.80**	
2024 Comparison to National Average*	42%	121%	-36%	

*** In our comparison to the National Average, a negative number is better as it indicates that our electric reliability scores were better than the rest of the Nation as scored by the EIA.**

Reliability Indices Graph





Message from the Electric Utility Manager: Looking Ahead

Our goal at the City of Corona Utilities Department (CUD) is to provide reliable, uninterrupted service to our valued customers. Our annual preventive maintenance program ensures all equipment is thoroughly inspected to identify potential risks. Equipment is planned for replacement as it reaches its useful life, to avoid any unnecessary interruptions. Spare equipment is kept on hand to allow for rapid deployment in the event of an outage. Our promise is to do all we can to avoid unnecessary outages, and to turn power back on as quickly as possible when an emergency outage does occur.

One of the ways we plan to increase reliability is through the Electric Capacity Impact Study which began in March 2025. This study includes the development of a load flow model that will help CUD identify points in our infrastructure that may require upgrades to continue operating efficiently and reliably.

CUD is currently in the process of replacing 4 of our 7 capacitor banks. Capacitor banks enhance the functionality of our electrical distribution system and allow the system to provide more "real power" to customers. In the Sunkist/Princeland area, two 750 kVa transformers are slated for repair. In the Corona Pointe area, a 500 kVa transformer is planned for replacement. In the Dos Lagos area, we will be working to upgrade or replace cabling and elbows as needed. CUD is also working on an evaluation of our electric meters to upgrade infrastructure and meters systemwide.

Thank you for the opportunity to serve you and thank you for your continued support as we work toward providing the best service possible.

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