

Meeting Connection

In compliance with Commission Decision D.16-01-008, PacifiCorp has scheduled a public in-person presentation to review the company's annual reliability report submitted to the Commission on July 29, 2024.

The meeting will take place virtually via the web link below but can also be attended via audio only.

Microsoft Teams meeting

Join on your computer or mobile app

[CA Reliability Meeting Tuesday - October 29, 2024](#)

Meeting ID: 227 929 480 094

Passcode: JvyB4j

Join with a video conferencing device

berkshirehathawayenergy@m.webex.com

Video Conference ID: 114 648 813 1

[Alternate VTC instructions](#)

Or call in (audio only)

[+1 563-275-5003](tel:+15632755003), [859403028#](tel:+15632755003) United States, Davenport

Phone Conference ID: 859 403 028#

Pacific Power's 2023 California Electric Reliability Report October 29, 2024



Introduction & Welcome

Kevin Benson: Director of Asset Risk

Proudly Serving Northern California



Service area

- Number of customers in the state: 46,669

Line miles

- Transmission, all states: 18,204
- Distribution, all states: 66,793

Number of employees

- 43 employees

California grants and charitable donations in 2023

- Corporate: \$47,228
- Pacific Power Foundation: \$28,128

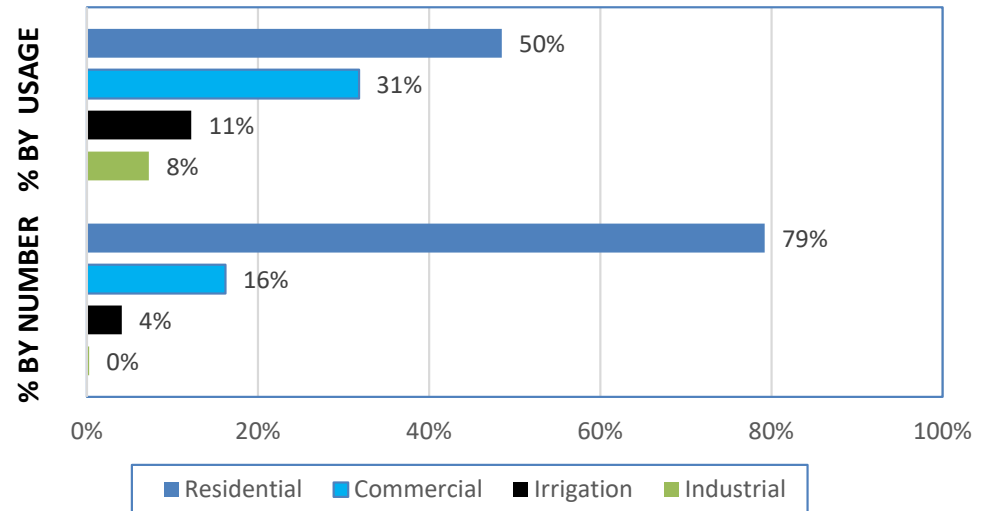
California property taxes and fees paid for 2023

- Franchise Tax: \$1,385,787
- Property Tax: \$4,069,481

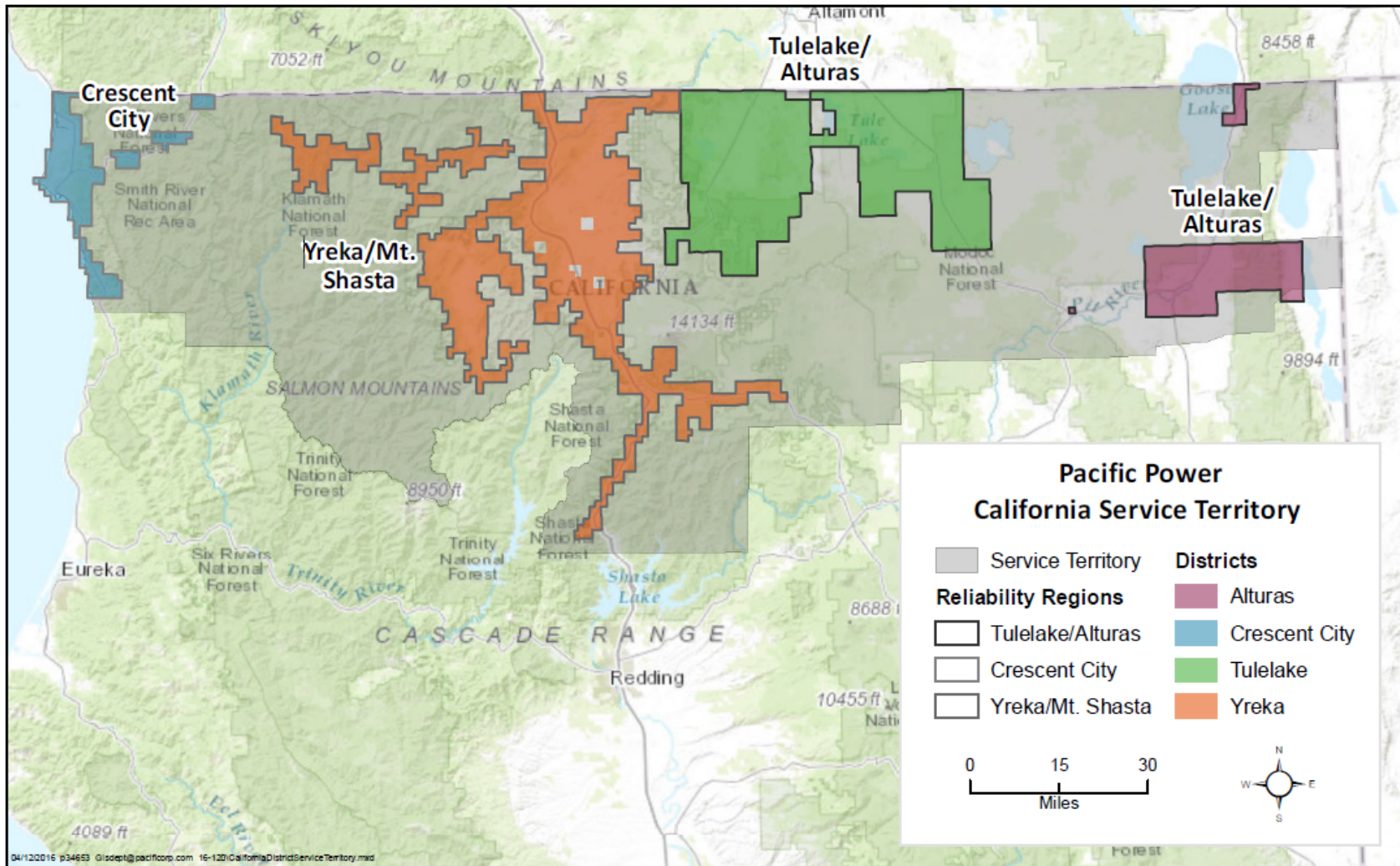
Proudly Serving Northern California



California customer mix by percentage



Service Territory



Promising Excellent Service

Our Customer Service Guarantees help ensure we're delivering to the highest standards.

Guarantees cover:

- Restoring power after outages
- Keeping appointments
- Switching on power
- Estimates for new power supply
- Billing questions
- Meter problems
- Planned interruptions

Should we fail to meet certain program features, you can file a claim and be eligible for a credit of \$50.

Concurrently Focused on Clean Energy Future

- Our 2023 Integrated Resource Plan identifies demand-side resources, renewable energy, storage and nuclear all with a goal of reduced carbon emissions consistent with state targets.
- See more at:
<https://www.pacificorp.com/energy/integrated-resource-plan.html>

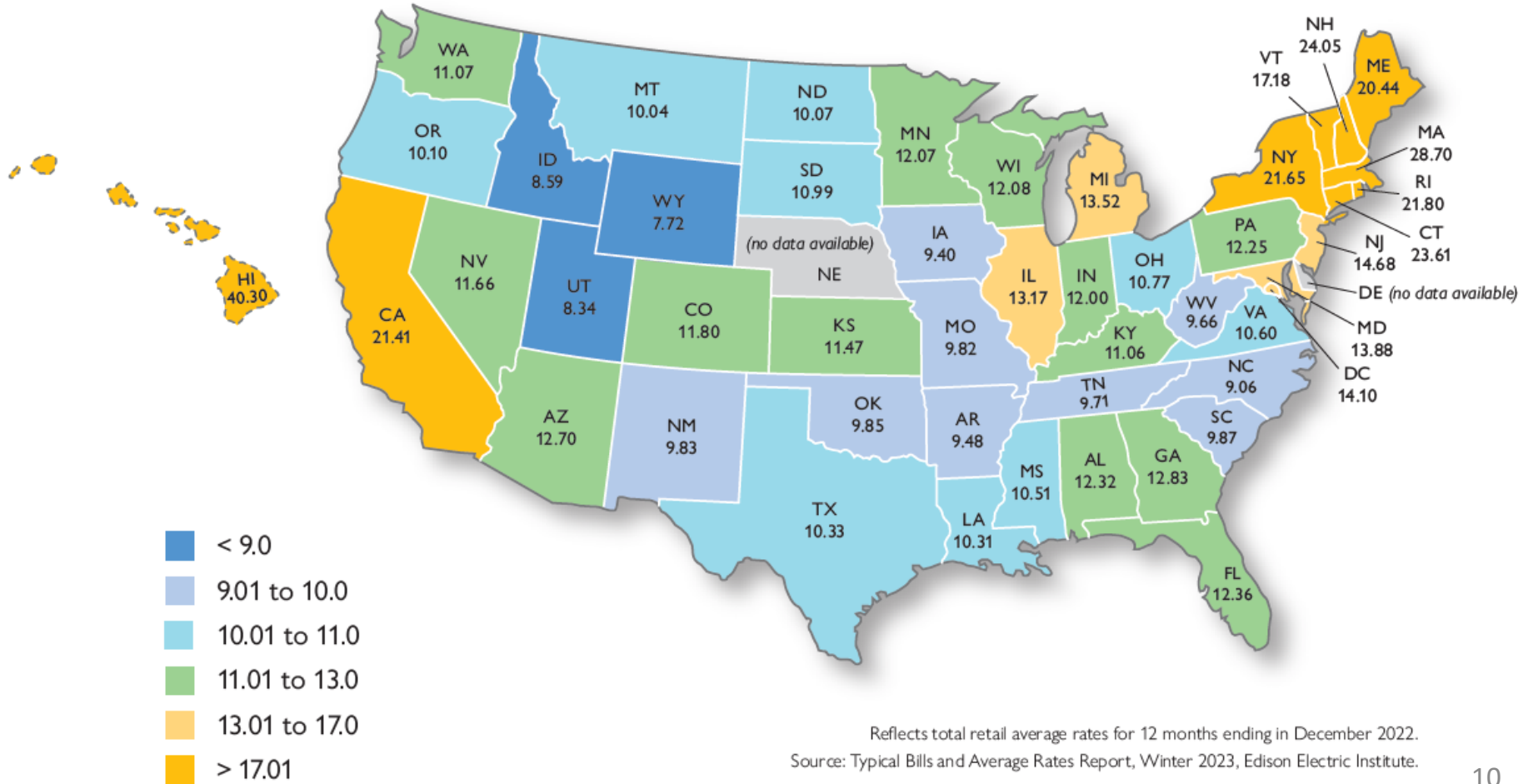
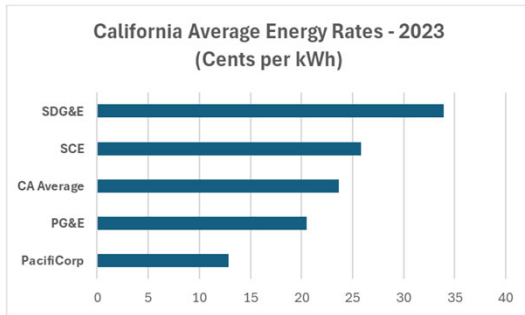
Planning for Improved Wildfire Resilience

Since 2019 PacifiCorp has been developing and implementing its Wildfire Mitigation Plan, including initiatives such as:

- Changing operational practices during periods of high risk
- Augmenting its emergency, meteorology and operational teams for real time response, including enhanced situational awareness
- Enhanced inspection, correction and vegetation management
- Hardening facilities for wildfire risk, including new protection control equipment and covered conductor

US Energy Prices

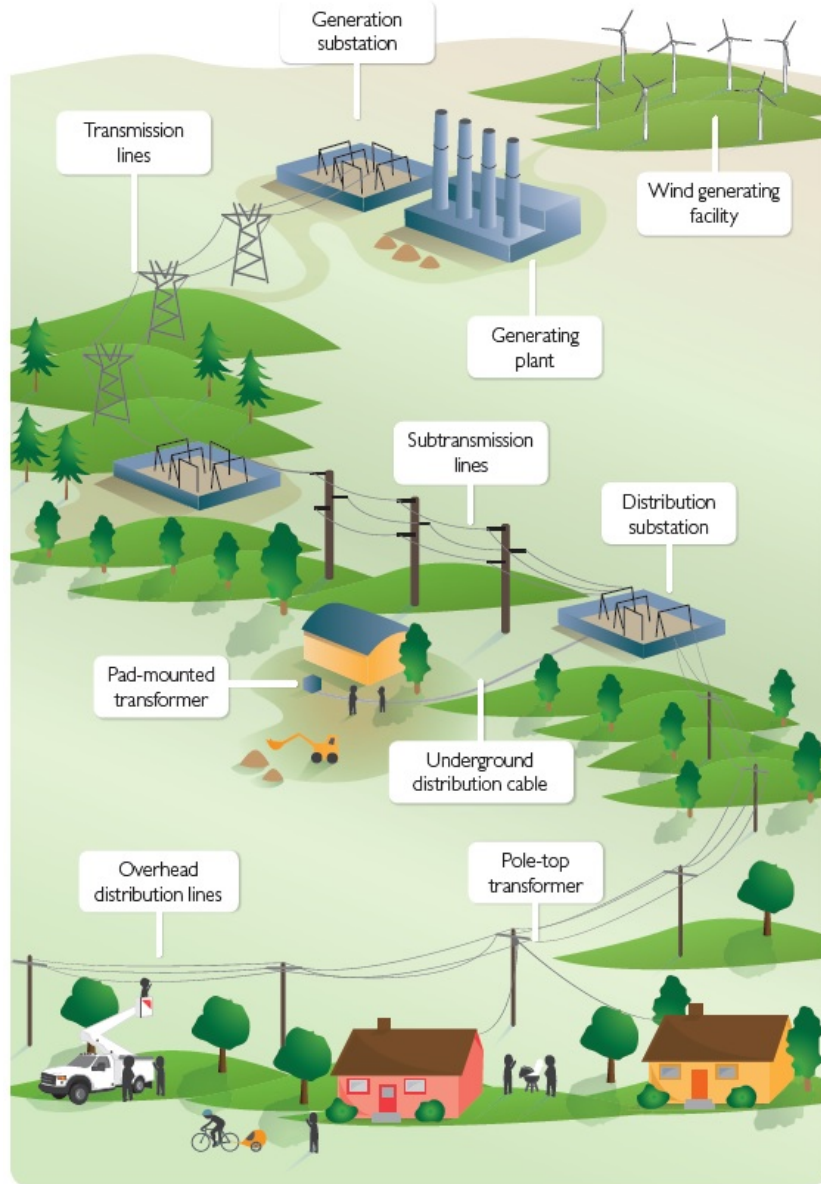
Total retail average rates by state
(cents per kilowatt-hour)



Reflects total retail average rates for 12 months ending in December 2022.
Source: Typical Bills and Average Rates Report, Winter 2023, Edison Electric Institute.

Delivering Reliable Electric Service

Power Delivery System



Restoring power



The drawing above depicts our priorities during an outage.

- 1 Dispatch crews and assess conditions for public and crew safety.
- 2 Patrol lines and check substations.
- 3 Clear downed power lines.
- 4 Restore power to the greatest number of people as quickly as possible through first clearing transmission lines that can serve multiple substations.
- 5 Restore power to substations that convert high-voltage power to levels people can safely use at home.
- 6 Restore power to concentrated areas through distribution and tap lines. Distribution lines travel from the substations to neighborhoods and serve between 1,000 and 3,000 customers. Tap lines then feed into pockets of 20 to 30 homes.
- 7 Restore power to individual (typically suburban or rural) homes and businesses. This task usually takes the longest.

Why Are There Power Interruptions?

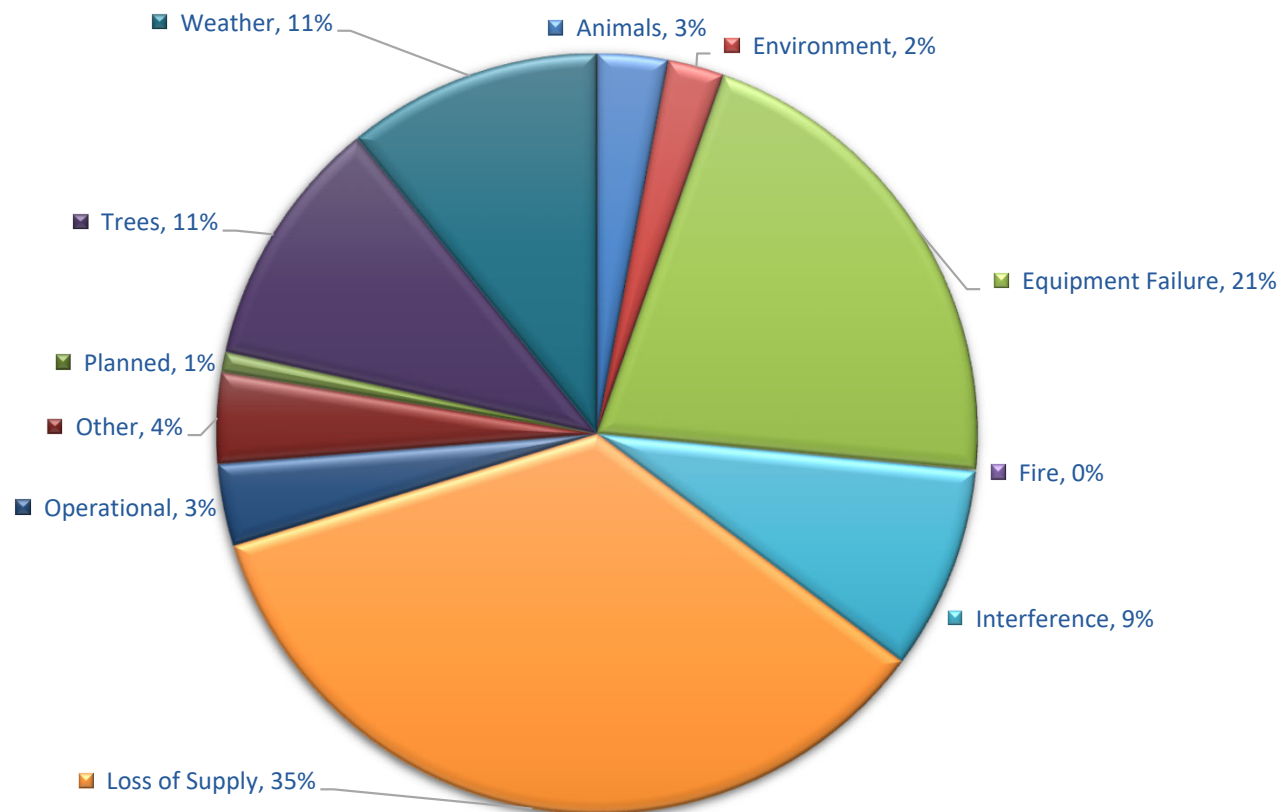
- Faults occur when unexpected objects contact the power lines or when equipment fails
- An outage is a designed response to a fault event. If the fuses or other protective devices didn't exist, the system would create bigger outages and pose safety risks
- When possible, we attempt to respond to certain faults by having equipment de-energize and then quickly re-energize, which may cause a short interruption in power, but avoids the time it takes for a crew to respond
- In other cases, a trouble-man or crew response will be required and the restoration time will vary depending on what work is required
- Normally, outages impact small numbers of customers, however sometimes these events can occur on the transmission system or in a substation and they will affect larger amounts of customers, as shown on the previous slide

Key Causes of Power Outages

- Weather and its effects: trees or branches knocked down by wind, snow or ice into power lines
- Lightning strikes a transformer or other electrical facilities
- Car accidents where utility poles are knocked over or sway enough to knock the lines together and trip off the circuit
- Equipment overload, especially on hot days when air conditioning is cranked up, or during extremely cold weather when electric heaters are turned on all over the system
- Animals that contact the lines
- Digging too close to lines or cutting into a line
- Sometimes the outage is a result of a circuit overload within your own home. Check your fuses and breakers first. If they continue to trip off, call a local electrician to handle the problem.

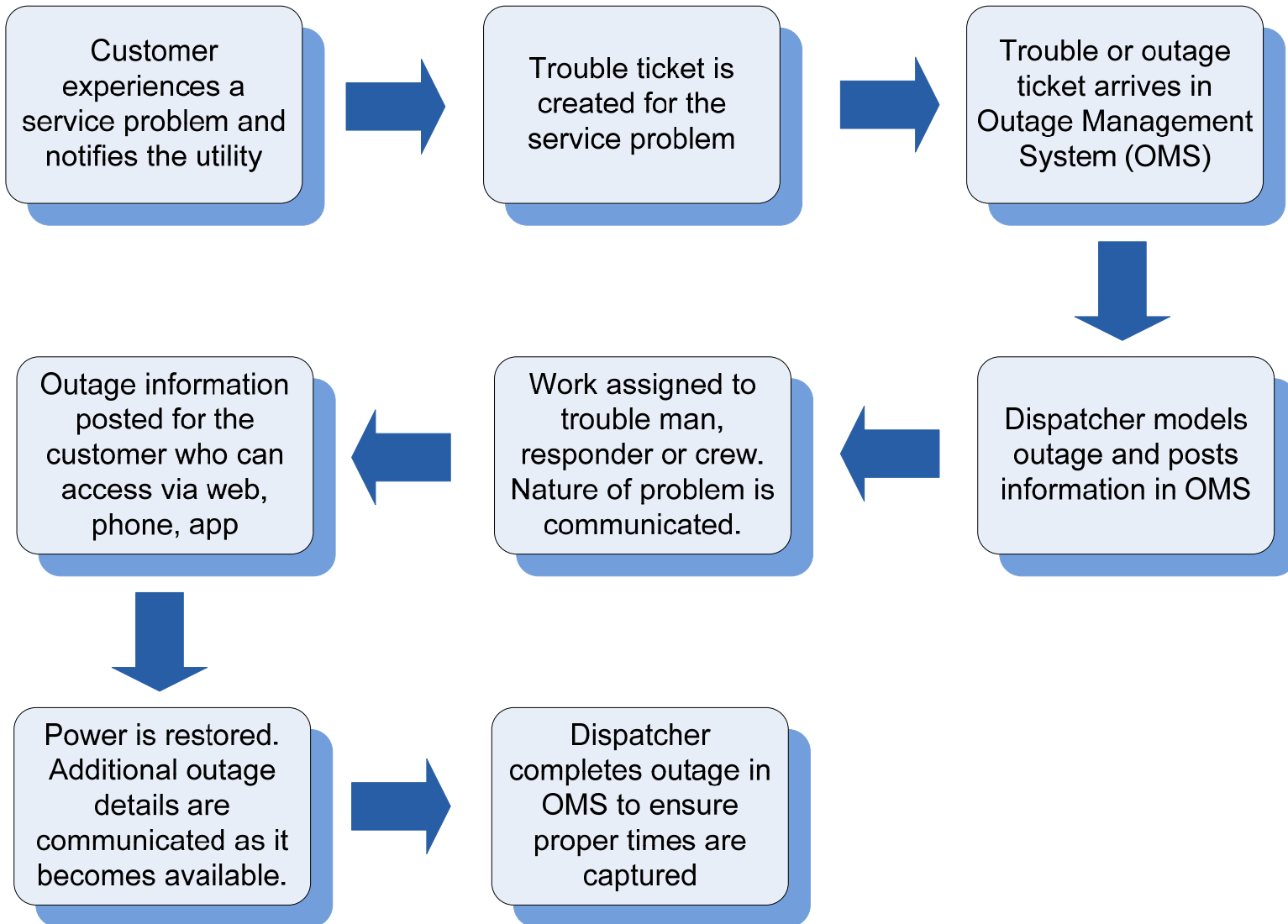
California Outages by Cause

Cause Analysis - Underlying SAIDI (minutes)



Customer and Company Communication Processes

Typical Outage Restoration Process



Outage Map

pacificpower.net/outages



MY ACCOUNT **OUTAGES & SAFETY** SAVINGS & ENERGY CHOICES Q ☎ 📍 SIGN IN

Outages & Safety

- Report outage or check status
- Streetlight outages
- Storms & emergencies
- Home & work safety
- Wildfire safety
- Reliability
- Tree pruning & planting

Outages & safety

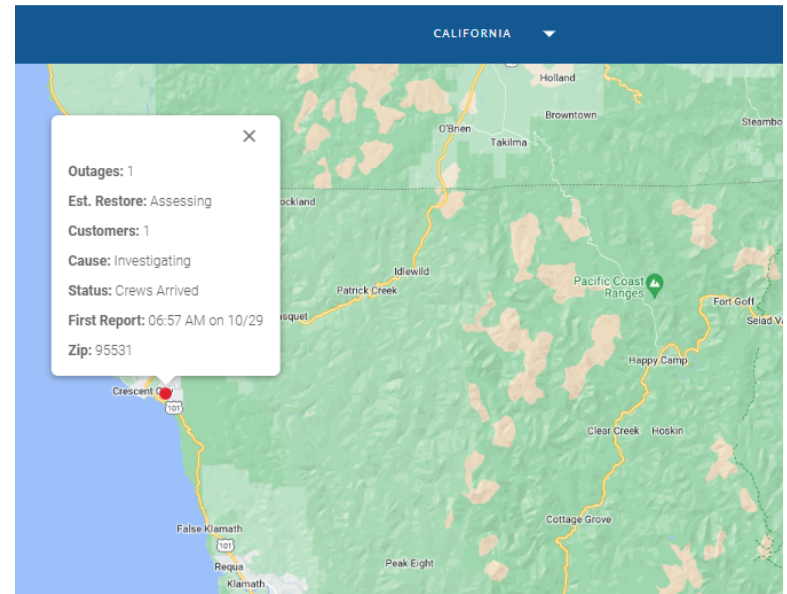
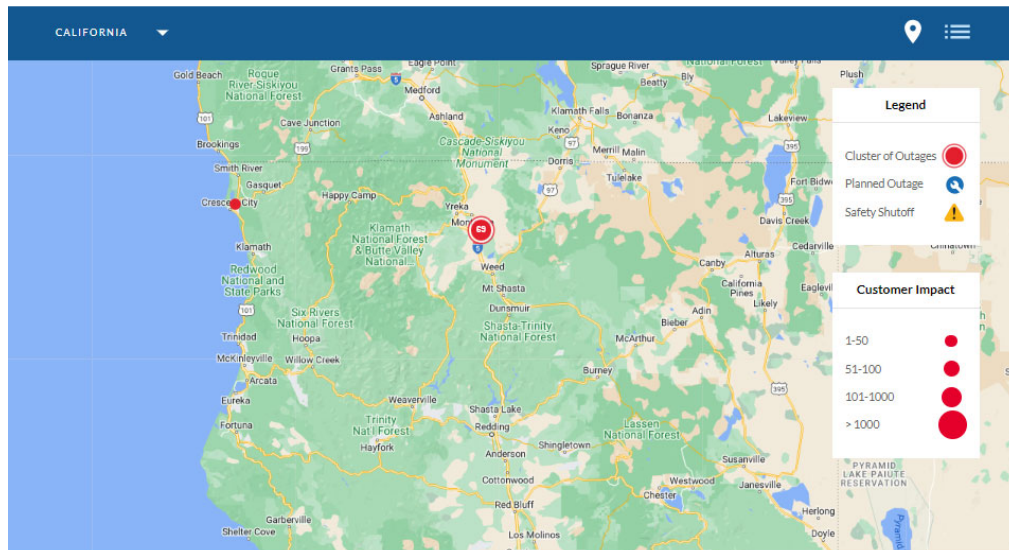
Power out? We'll fix it as quickly and safely as possible.

See the outage map below.

You can report an outage using the button or text OUT to 722797. As a reminder, never touch or go near a downed power line.

[REPORT OUTAGE / CHECK STATUS](#)

There are 5 outages in California affecting 70 customers



Last updated Tuesday, October 29 10:45 AM, 2024

Outage Updates Your Way

Receive alerts to stay informed of outages that affect you. Sign up for alerts by text, email or phone at

PacificPower.net/Alerts

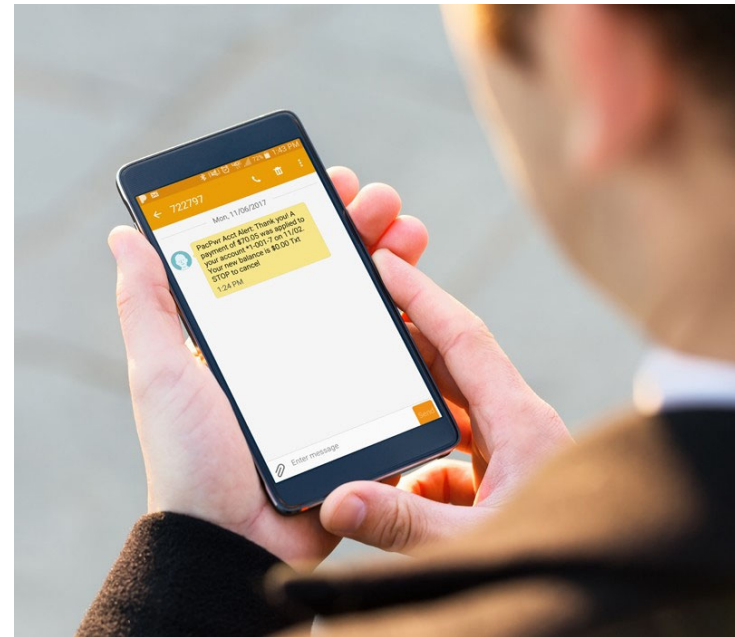
Use our Pacific Power mobile app to track outages, update your contact information and more.

Download from your app store or

PacificPower.net/App



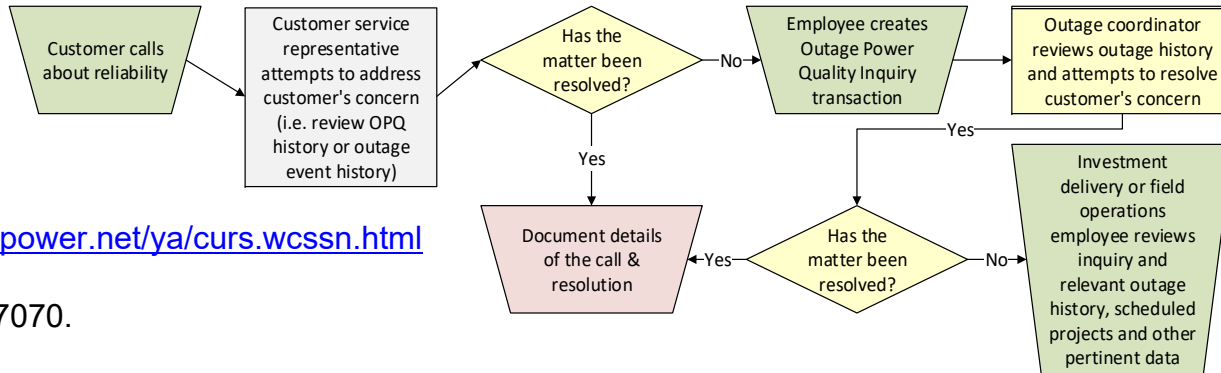
Text OUT to 722797 to report your outage, or STAT to check status.



Customers can always reach us by phone at 1-877-508-5088.

Customer Reliability Communications

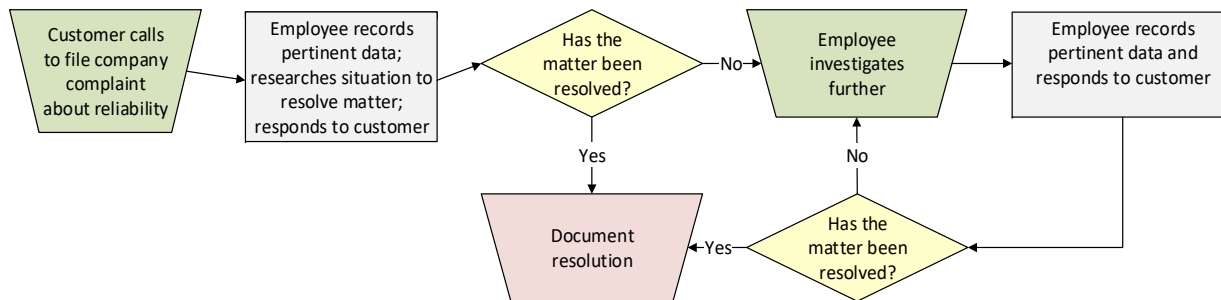
Outage Power Quality Inquiry



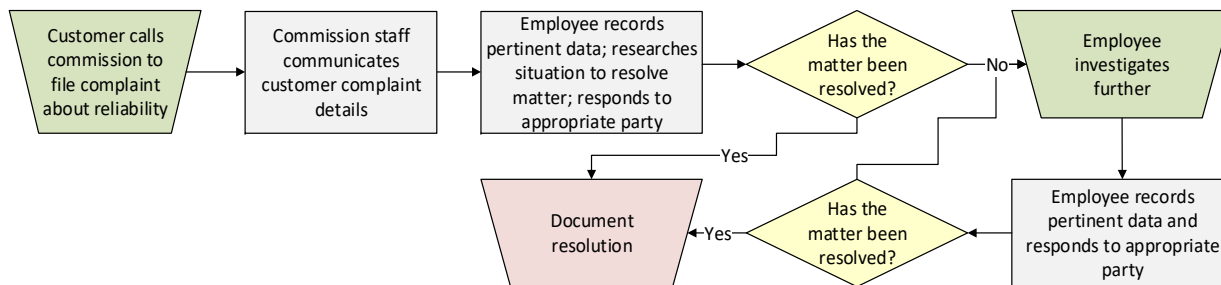
<https://www.pacificpower.net/ya/curs.wcssn.html>

Or call 1-888-221-7070.

1-800 Complaint



Commission Complaint



Measuring and Improving Reliability

Outage Classifications

The company classifies outages according to industry definitions, in Institute of Electrical and Electronics Engineers (IEEE) standards.

Momentary Outage

An outage less than 5 minutes in duration.

Sustained Outage

An outage equal to or greater than 5 minutes in duration.

Planned Outage

Outages which are customer or public official-requested or where the company has provided notice to the customer.

Major Event

A set of outages which occurred during a specific time and location and, once combined, exceeds historically expected outage duration (SAIDI) for at least one day (as defined in IEEE 1366-2012)

Standard Reliability Measures

SAIDI - (system average interruption duration index)

The average duration summed for all sustained outages a customer experiences in a given time-frame.

SAIFI - (system average interruption frequency index)

The frequency of all sustained outages that the average customer experiences during a given time-frame.

CAIDI - (customer average interruption duration index)

The result of dividing the duration of the average customer's sustained outages by frequency of outages for that average customer. It represents the average duration of an outage.

MAIFie - (momentary average interruption event frequency index)

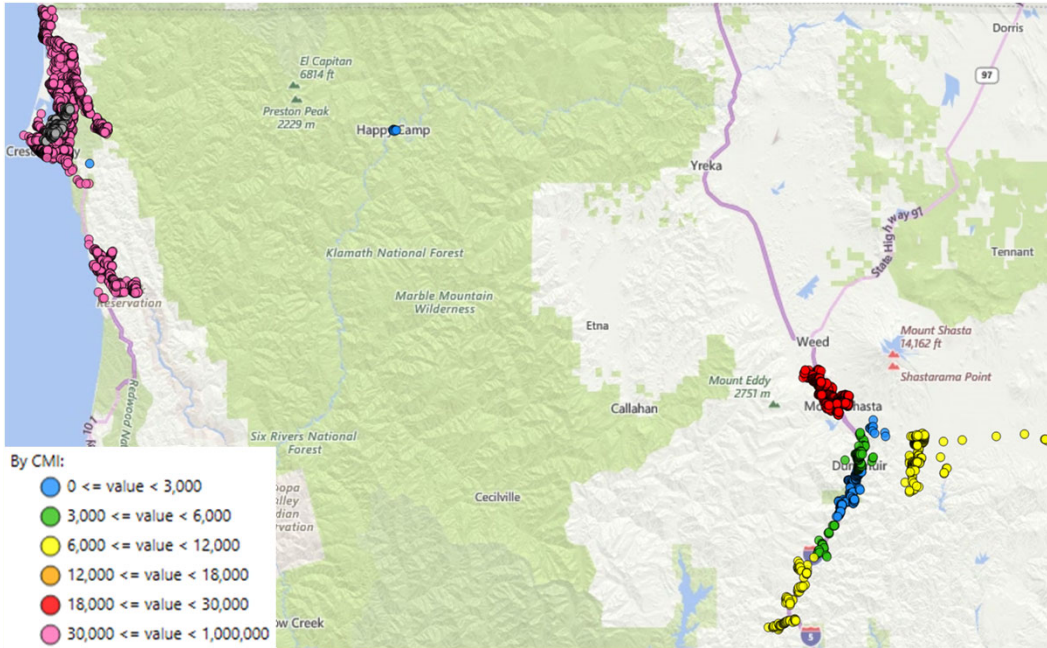
The frequency of all momentary interruption events (< 5 minutes) that the average customer experiences during a given time-frame.

Major Events

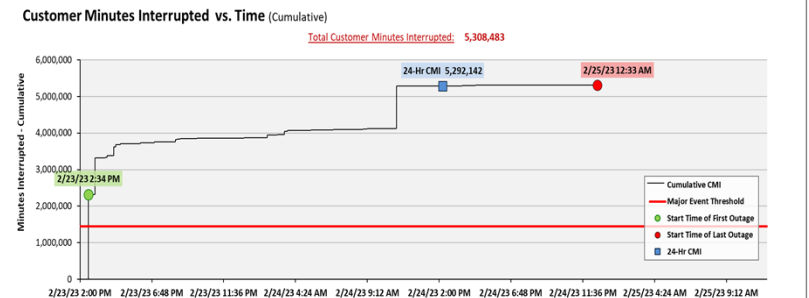
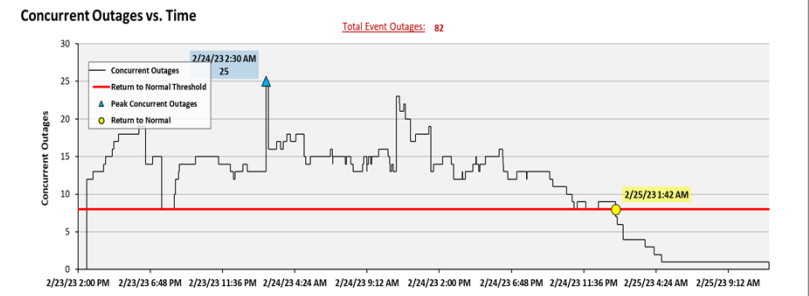
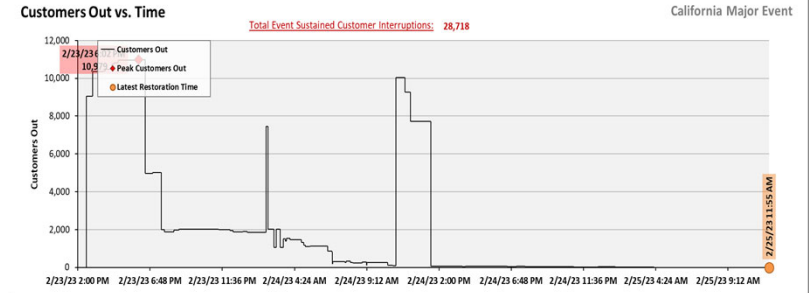
2023 Major Event Summary								
Date	District	Cause	Customers out for a duration of:					
			5 min - 3 hrs.	3 - 24 hrs.	24 - 48 hrs.	48 - 72 hrs.	72 - 96 hrs.	96 + hrs.
January 4, 2023	Crescent City	Wind	891	942	14	-	-	-
January 8, 2023	California (State)	Wind, Snow, Sleet, and Blizzard; Loss of Transmission Line	10,723	2,751	7	-	-	-
February 23-25, 2023	California (State)	Snow, Sleet, and Blizzard; Loss of Transmission Line	16,869	11,830	19	-	-	-
March 7, 2023	Crescent City	Loss of Transmission Line	10,228	-	-	-	-	-
March 9, 2023	California (State)	Wind, Snow, Sleet, and Blizzard; Loss of Transmission Line	14,251	1,878	156	-	-	-
March 28, 2023	California (State)	Loss of Transmission Line	9,628	14,036	305	33	-	-
August 18, 2023 – September 1, 2023	Crescent City	Emergency Damage Repair	68	802	536	777	3,605	8,028

Major Event Example

February 23-25, 2023: Winter Storm



Outage Cause Impact During the Major Event		
Outage Cause	Total Customer Minutes Lost	Total Customers Impacted
WEATHER (SNOW, SLEET, WIND)	75%	39%
LOSS OF TRANSMISSION LINE	21%	57%
TREE - NON-PREVENTABLE	4%	2%
OTHER	<1%	2%



Slide 25

BK(0

Waiting for updated map and legend

Benson, Kevin (PacifiCorp), 2024-10-18T20:16:32.675

Improving Reliability

- Reliability Work Includes:

- 1) Installation or replacement of devices, such as fuses, recloser or breaker, that can limit how much of the circuit may be involved when a fault event occurs
- 2) Replacement of equipment which may no longer be functioning in a reliable manner, as an example, replacing deteriorated underground cable
- 3) Hardening the circuit so that it is more resilient to events which could result in a fault, such as targeted tree trimming or animal guarding

- Cost Effective Improvements

- 1) evaluates performance across the system, and
- 2) determines for historic outages what actions could be taken to either eliminate them or minimize the effect for the specific cause, then
- 3) it calculates a cost per avoided customer minute interrupted, and
- 4) rank orders the most impactful and lowest cost projects, then
- 5) constructs the work and evaluates the effectiveness of the project.

History of Improving Reliability in California

Annually the company evaluates the system's performance and looks for opportunities to improve reliability based upon outage events; this assessment has led to these projects below.

Year	California Circuit Projects
2015	5
2016	12
2017	8
2018	12
2019	9
2020	6
2021	6
2022	8
2023	6

Reliability Current Efforts

■ Worst Performing Circuits

We calculate a performance indicator value for each circuit that

- considers how long the customers were without power (SAIDI),
- how many times they have been interrupted for both sustained (SAIFI) and
- short outages (MAIFI).

This metric excludes outages which are Planned, Transmission, or Major Events.

■ Targeted Reliability Projects

In addition, the company also selects other projects that are targeted to improve reliability, building on the success we've had with our reliability program

Improving Reliability

Three Selected Worst Performing Circuits

Top 3 Worst Performing Circuits			
Circuit Name	South (5G99)	Patrick's Creek (6R3)	Redwood (5R195)
District	Yreka/Mt. Shasta	Crescent City	Crescent City
Customer Count	65	15	551
Substation Name	Shotgun Creek	Patrick's Creek	Patrick's Creek
Circuit Miles	16 miles	7 miles	26 miles
% OH	91%	~100%	72%
% UG	9%	<1%	28%
# Breaker/Recloser Operations	89	0	214
CPI99 Baseline	345	270	185
Preferred Baseline	276	216	148

Reliability Performance Measure

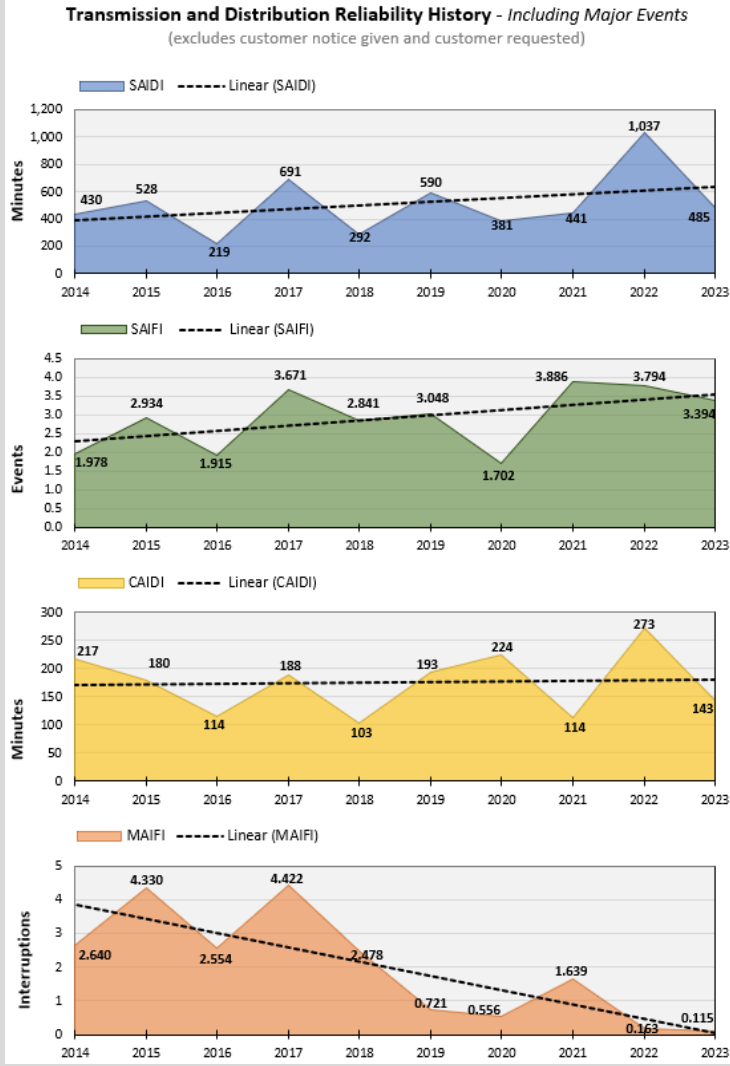
Target Performance Measure

State & District Performance

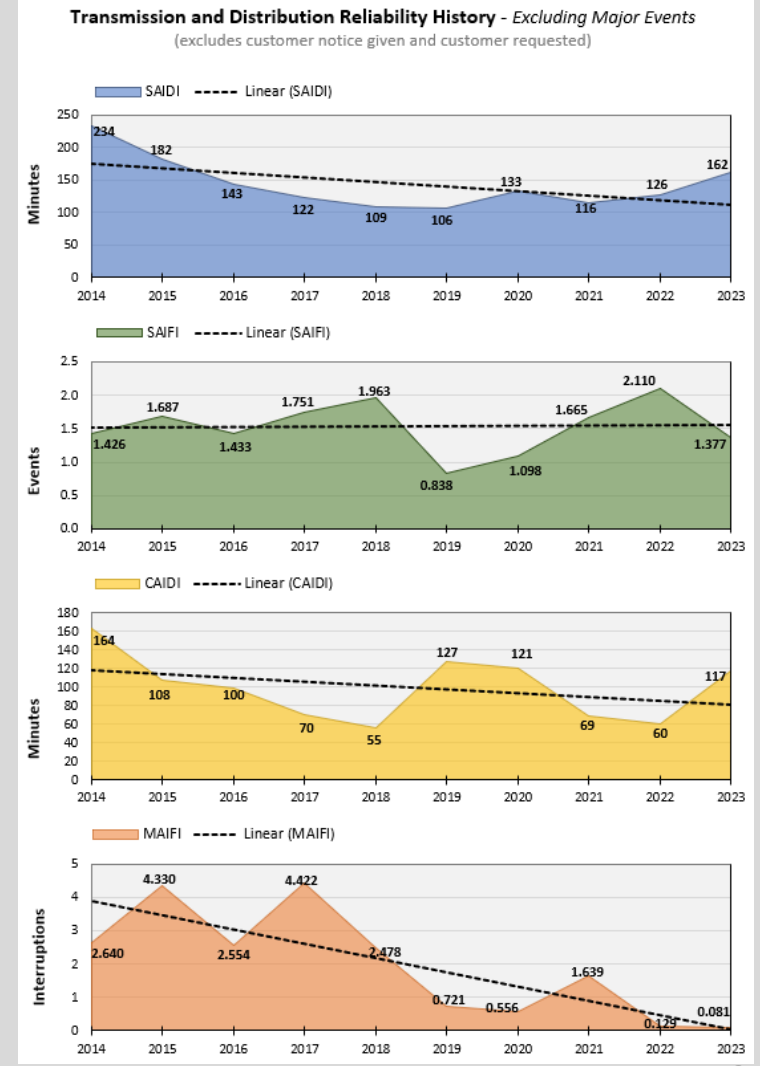
10 Year State Reliability Results

Combined - Transmission and Distribution

Including Major Events



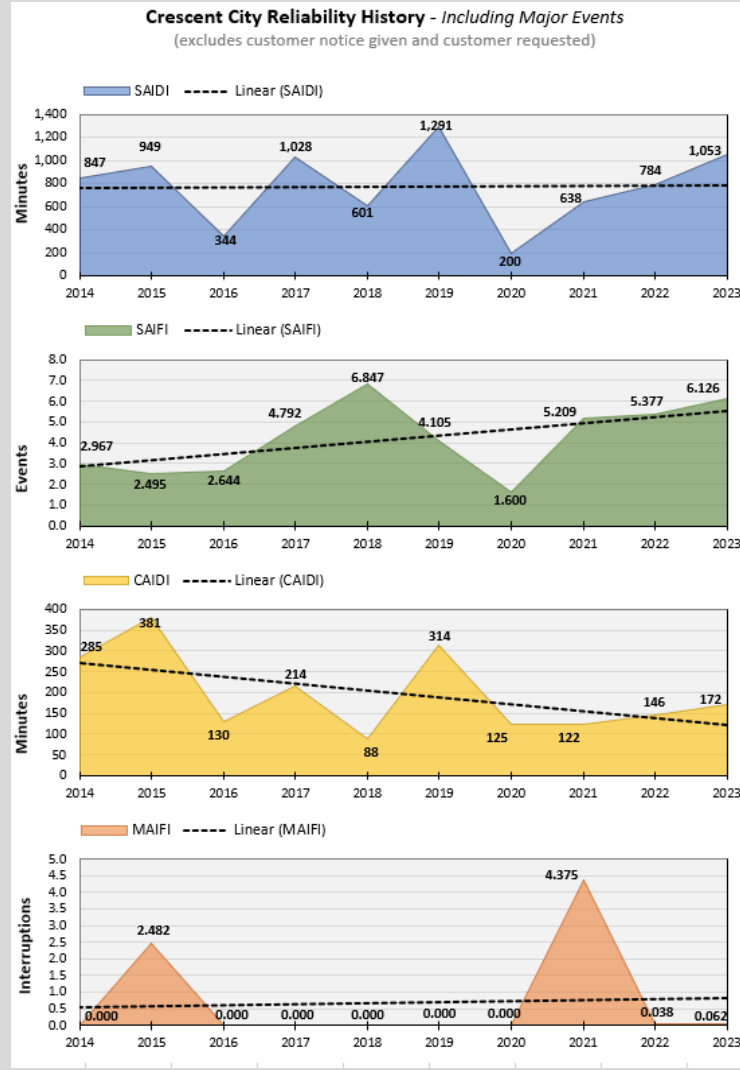
Excluding Major Events



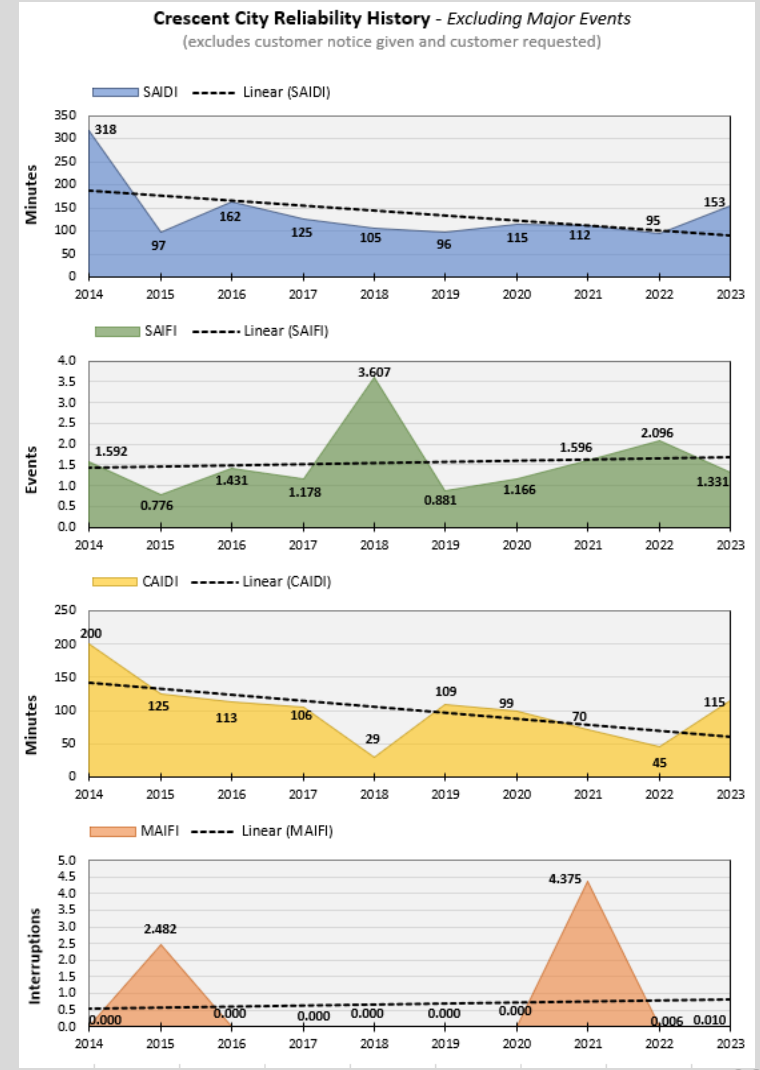
10 Year Crescent City Reliability Results

Combined - Transmission and Distribution

Including Major Events



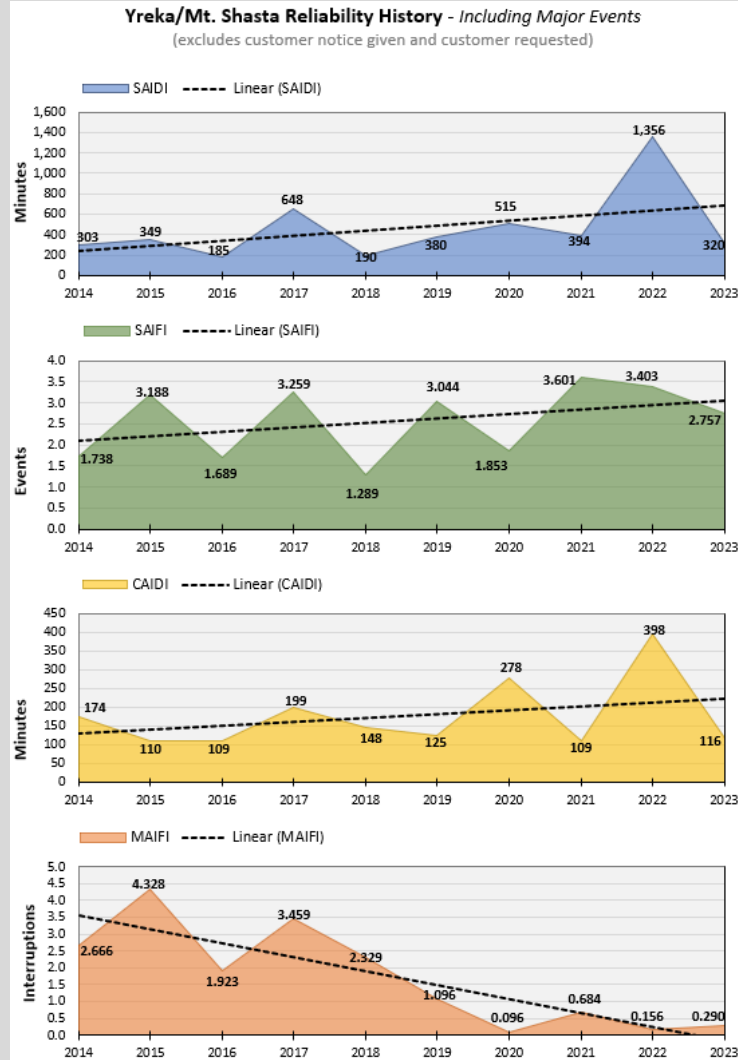
Excluding Major Events



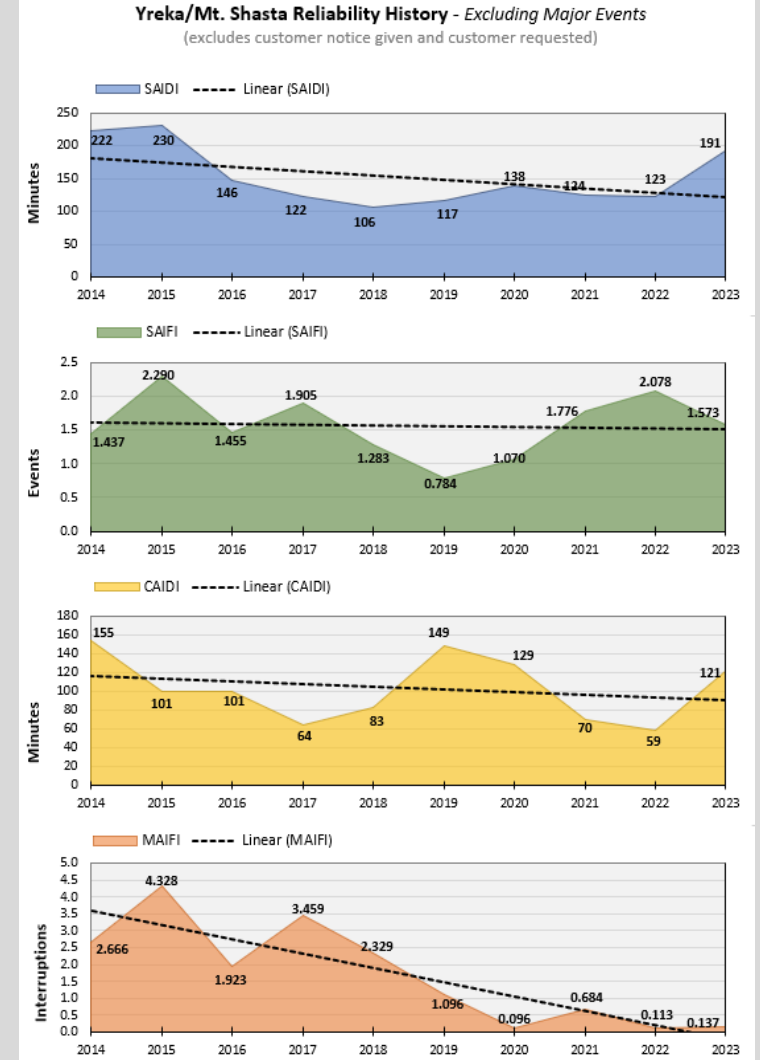
10 Year Yreka/Mt. Shasta Reliability Results

Combined - Transmission and Distribution

Including Major Events



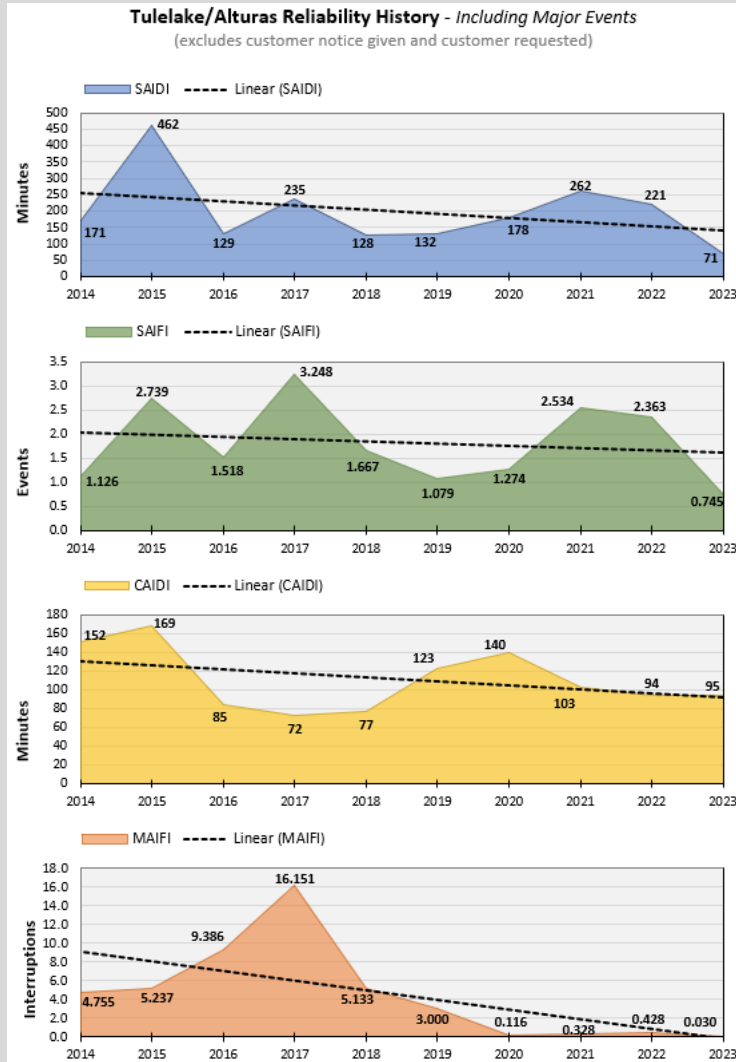
Excluding Major Events



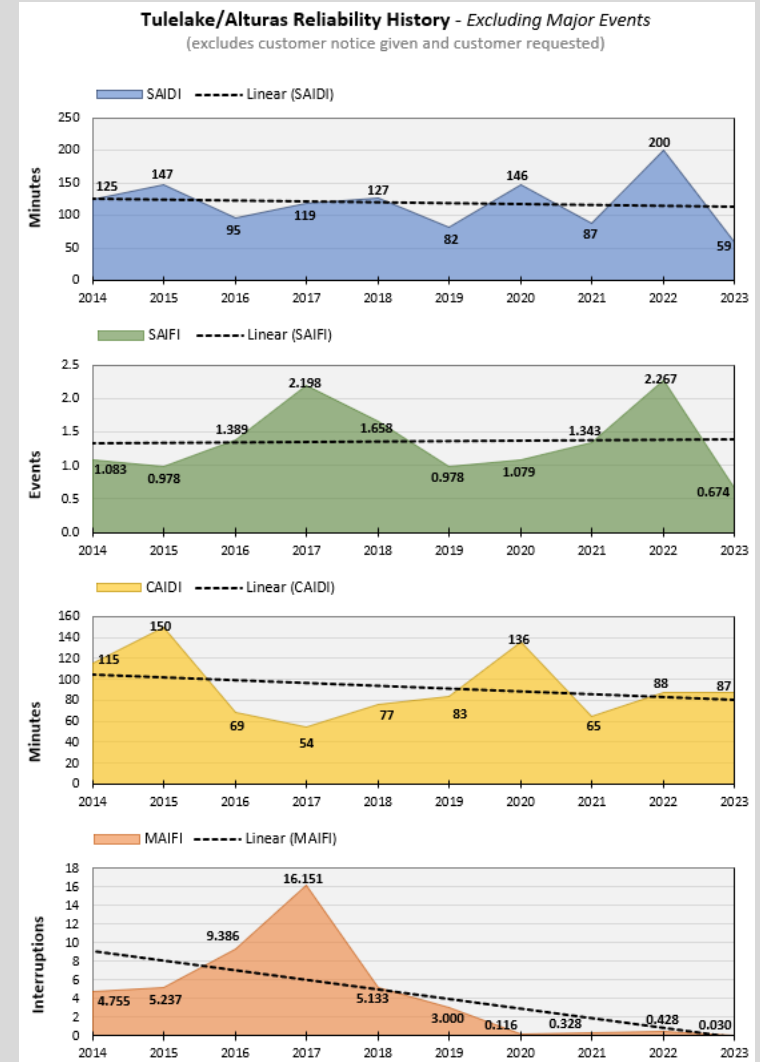
10 Year Tulelake/Alturas Reliability Results

Combined - Transmission and Distribution

Including Major Events



Excluding Major Events



Summary

- The company has made cost effective improvements to deliver higher reliability while minimizing cost impacts to customers
- We have shown demonstrated improvements as measured by industry indices
- We intend to continue to improve the service reliability you receive
- We welcome the opportunity to talk with customers about reliability
- Thank you for your attention!

Website Information

- Information on reliability and annual reports
 - <https://www.pacificpower.net/outages-safety/reliability/california-reliability-report.html>
- Real-time outage viewer and other outage information
 - <https://www.pacificpower.net/outages-safety.html>
- Contact us
 - <https://csapps.pacificpower.net/public/about/contact-us>
 - Jill Drinkwater: Regional Business Manager Northern California
Jill.Drinkwater@pacificorp.com