

# Welcome

## Liberty Utilities Reliability Reporting Workshop for 2022 Calendar Year

**December 07, 2023**



**Liberty**

# Agenda

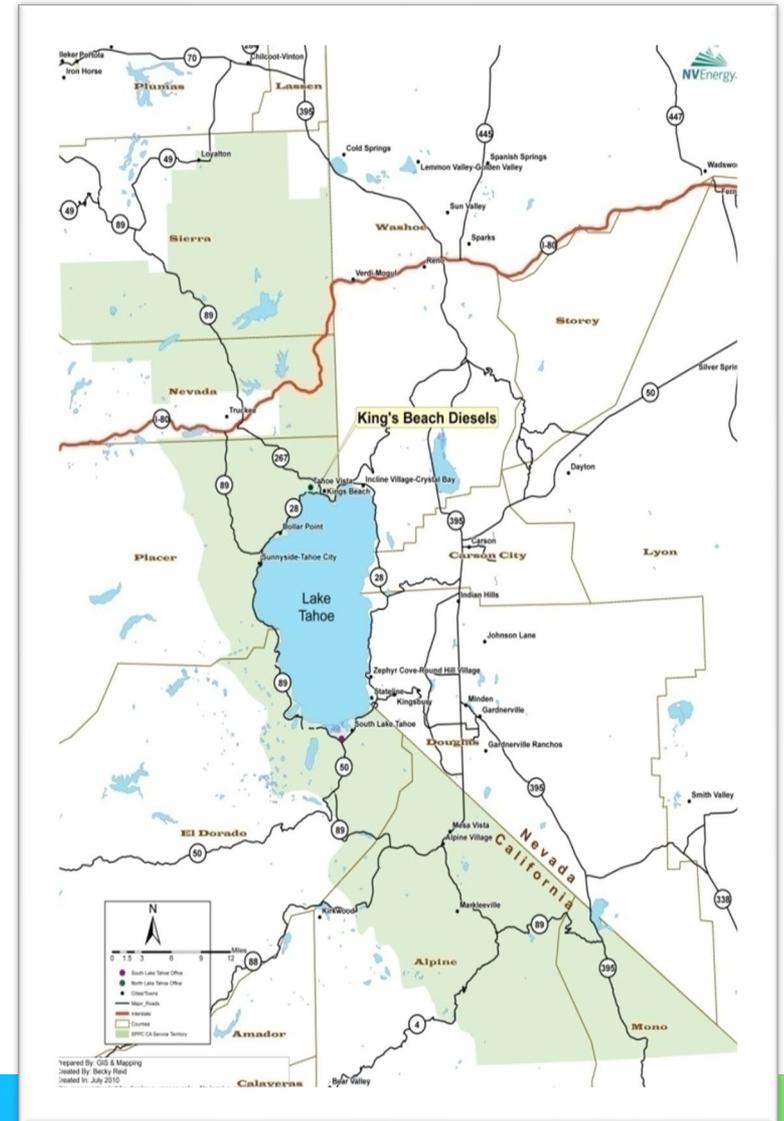
- System Overview
- Key Utility Initiatives
- Reliability Performance
- Questions





# Service Territory Overview

- Purchased NV Energy's (SPPCo) California service territory in 2011
- 1,482 square miles; 49,000 customers
- Two office locations: South Lake Tahoe and Tahoe Vista
- Pay \$2.8 million in annual property taxes and franchise fees in 7 counties
- 127 employees currently, with 14 open positions
- Regulated by the California Public Utilities Commission (CPUC)
- Winter Peaking Utility





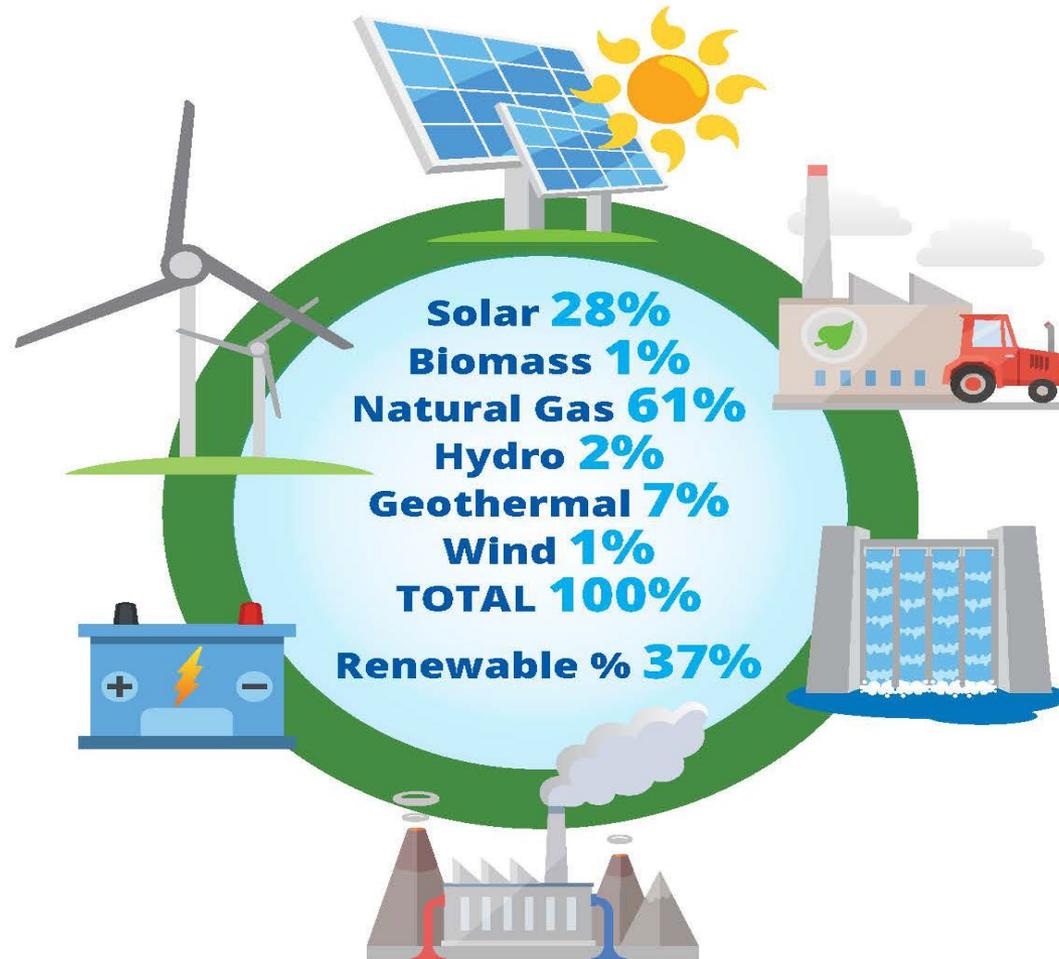
# Service Territory Overview

- 2078 Total Circuit Miles
  - 96 Overhead Transmission
  - 1417 Overhead Distribution
  - 565 Underground Distribution
- 12 Substations
- 12MW of Emergency Diesel Generation
- Max System Load: 144.5 MW (Dec 2012)
- 88% Residential, 12% Commercial





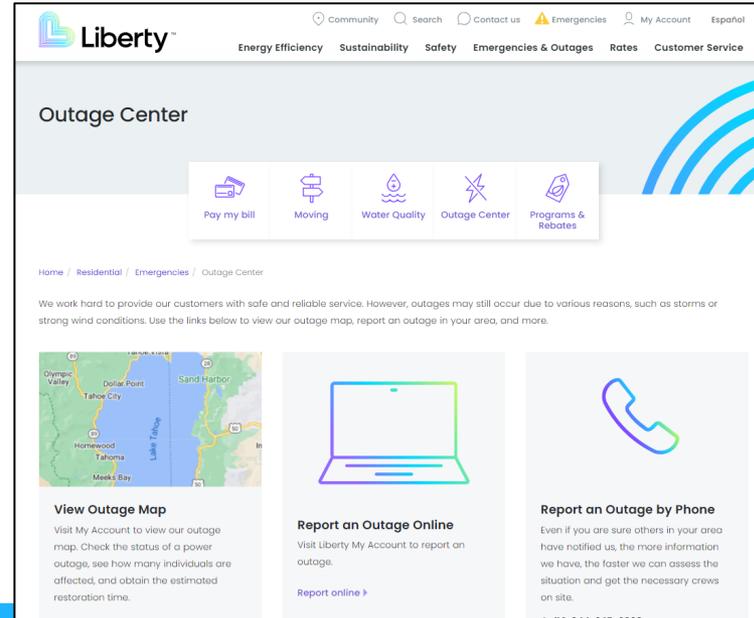
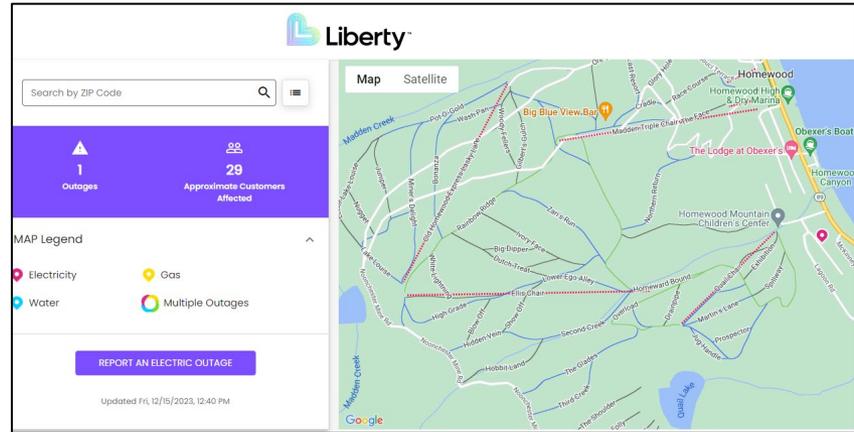
# Where Does The Power Come From





# Factors for Customer Satisfaction

- Reliability
- Safe Service
- Outage Notification







# Customer Notifications



Twitter  
[@LibertyUtil\\_CA](https://twitter.com/LibertyUtil_CA)



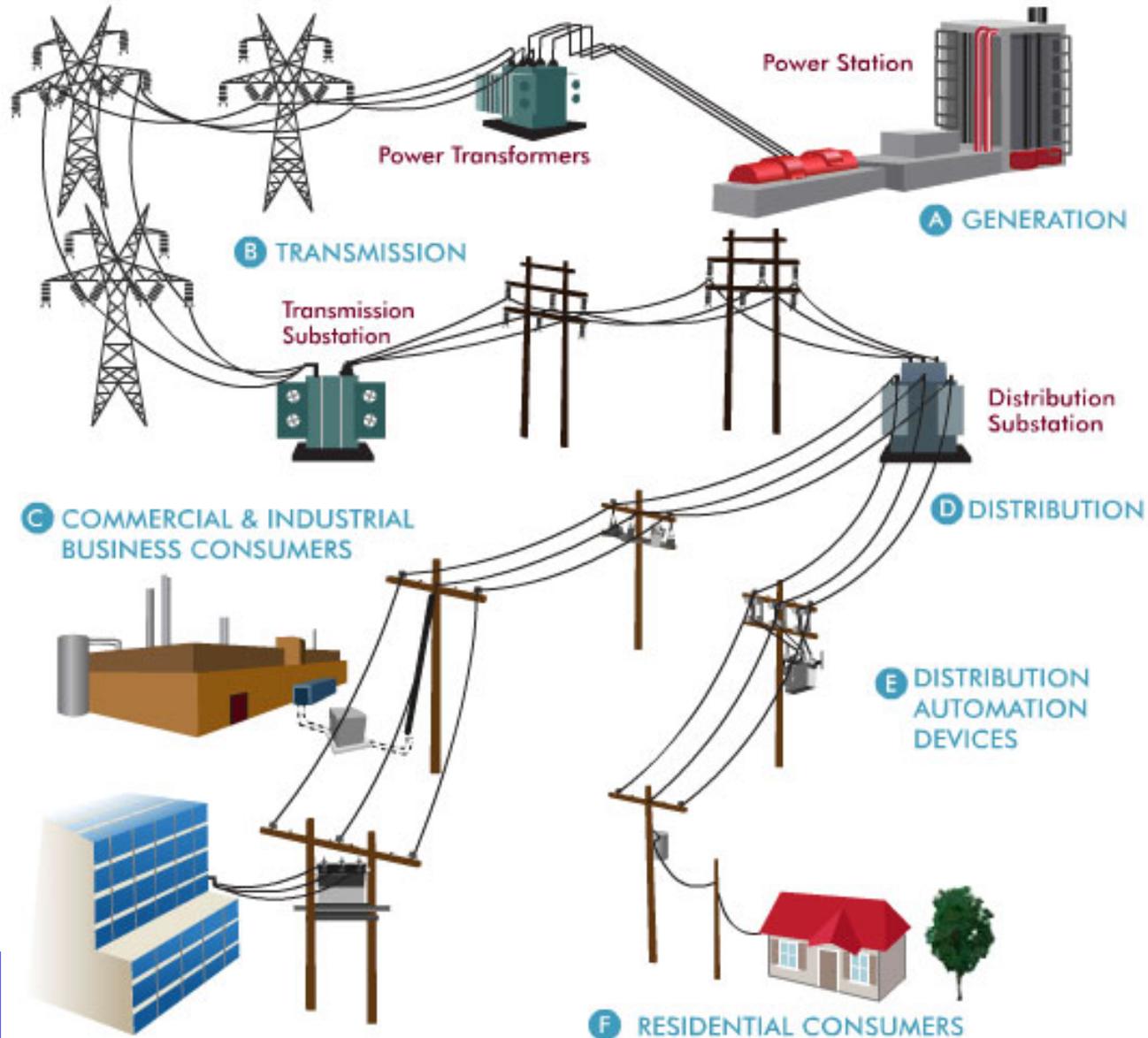
Facebook  
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**Website:** [LibertyUtilities.com](http://LibertyUtilities.com)





# Power System Overview





# Power Outage Causes

- ❖ Weather (wind, snow, ice build up, lightning)
- ❖ Animals (birds, squirrels, snakes)
- ❖ Third Party Damage (motor vehicle accident)
- ❖ Equipment Failure (cable faults, transformer)
- ❖ Vegetation (trees, wildfire)
- ❖ Loss of Source Power from NV Energy





# Momentary vs. Sustained



## Momentary

Outages that are less than or equal to 5 minutes in duration

**Ex:** Tree branches contact a power line, burns the branch clear, and the circuit recloses automatically

## Sustained

Outages that are greater than 5 minutes in duration

**EX:** Tree falls through the power line and must be removed before re-energizing the line



# Planned vs Major Outages

## Planned Outage

- Outages where a customer or public official has made a request, or Liberty has provided notification
- These are excluded from reliability metrics

## Major Event

- Institute of Electrical and Electronic Engineers (IEEE) standard 1366-2012, a set of outages that exceed the historically expected outage duration (SAIDI) for at least one day





# Measuring Reliability

Every outage is analyzed to determine the following metrics:

$$\text{SAIDI} = \frac{\textit{Total of Customer Interruption Durations}}{\textit{Total number of customers served}}$$

$$\text{SAIFI} = \frac{\textit{Total Number of Customers Interrupted}}{\textit{Total number of customers served}}$$

$$\text{CAIDI} = \frac{\textit{Total Customer Interruption Durations}}{\textit{Total Number of Customer Interruptions}}$$

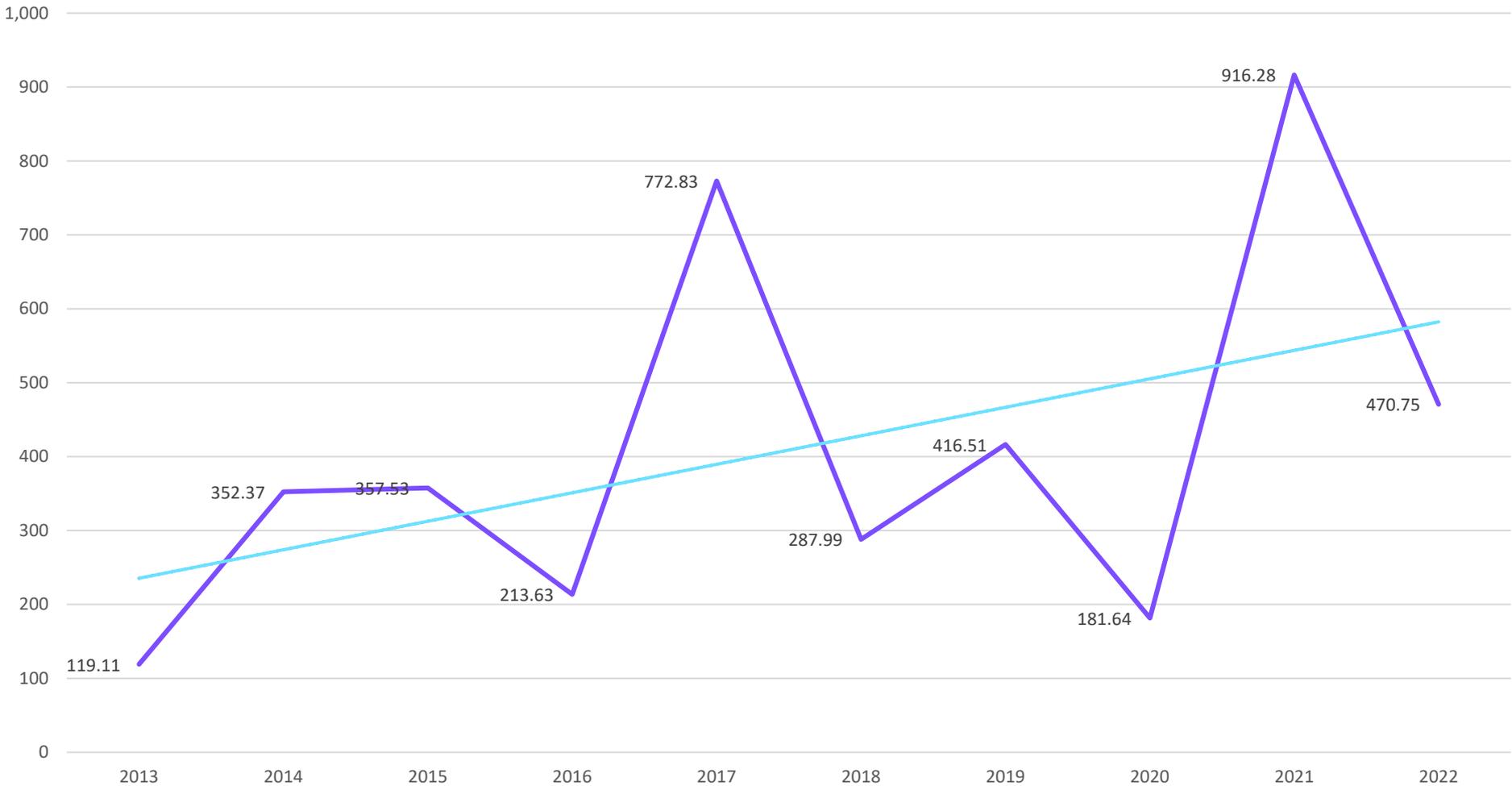
$$\text{MAIFI} = \frac{\textit{Tot.No.of Customer Momentary Interruptions}}{\textit{Total number of customers served}}$$





# SAIDI System Performance

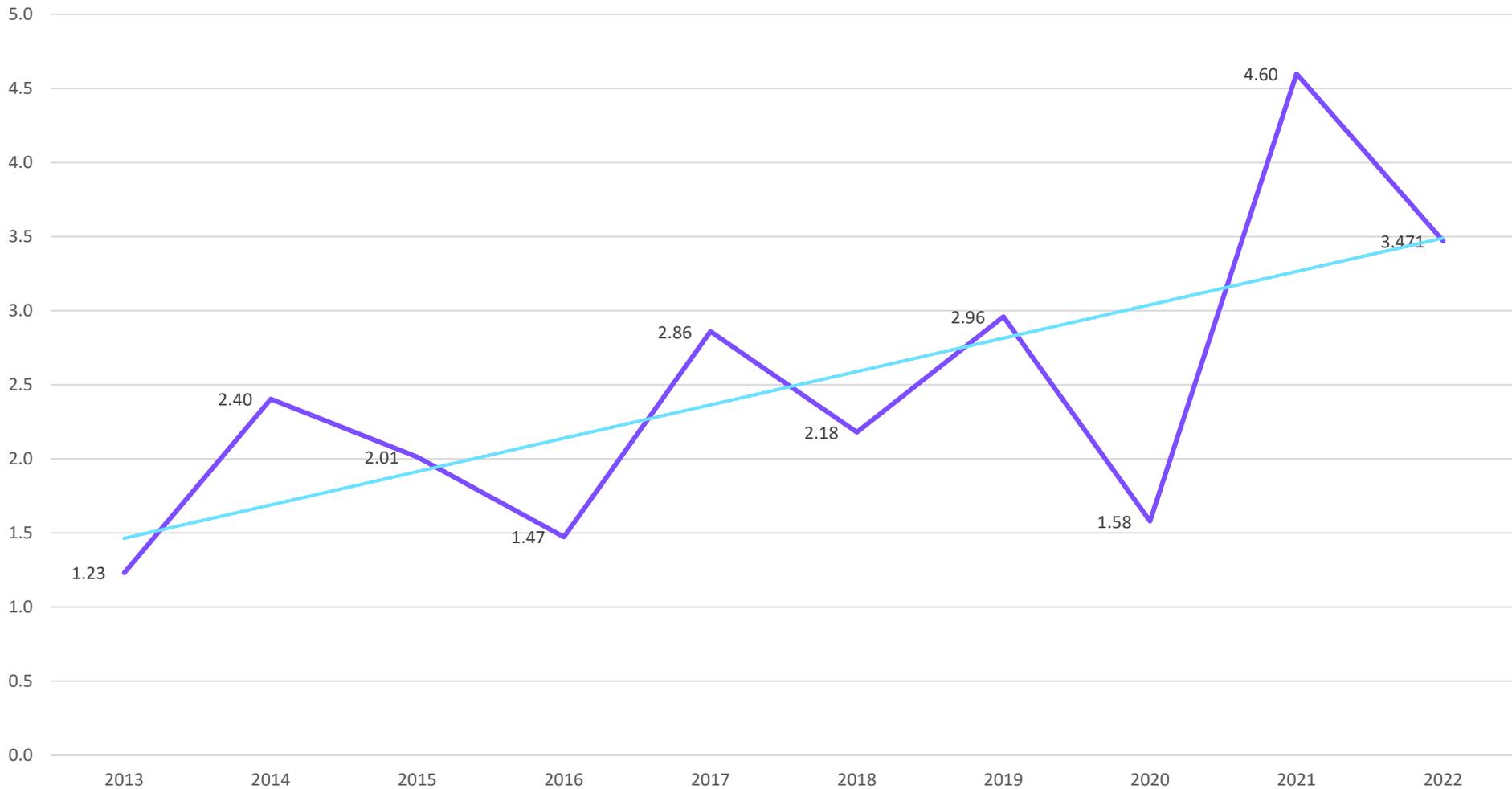
Distribution System Indices MED Excluded (SAIDI)





# SAIFI System Performance

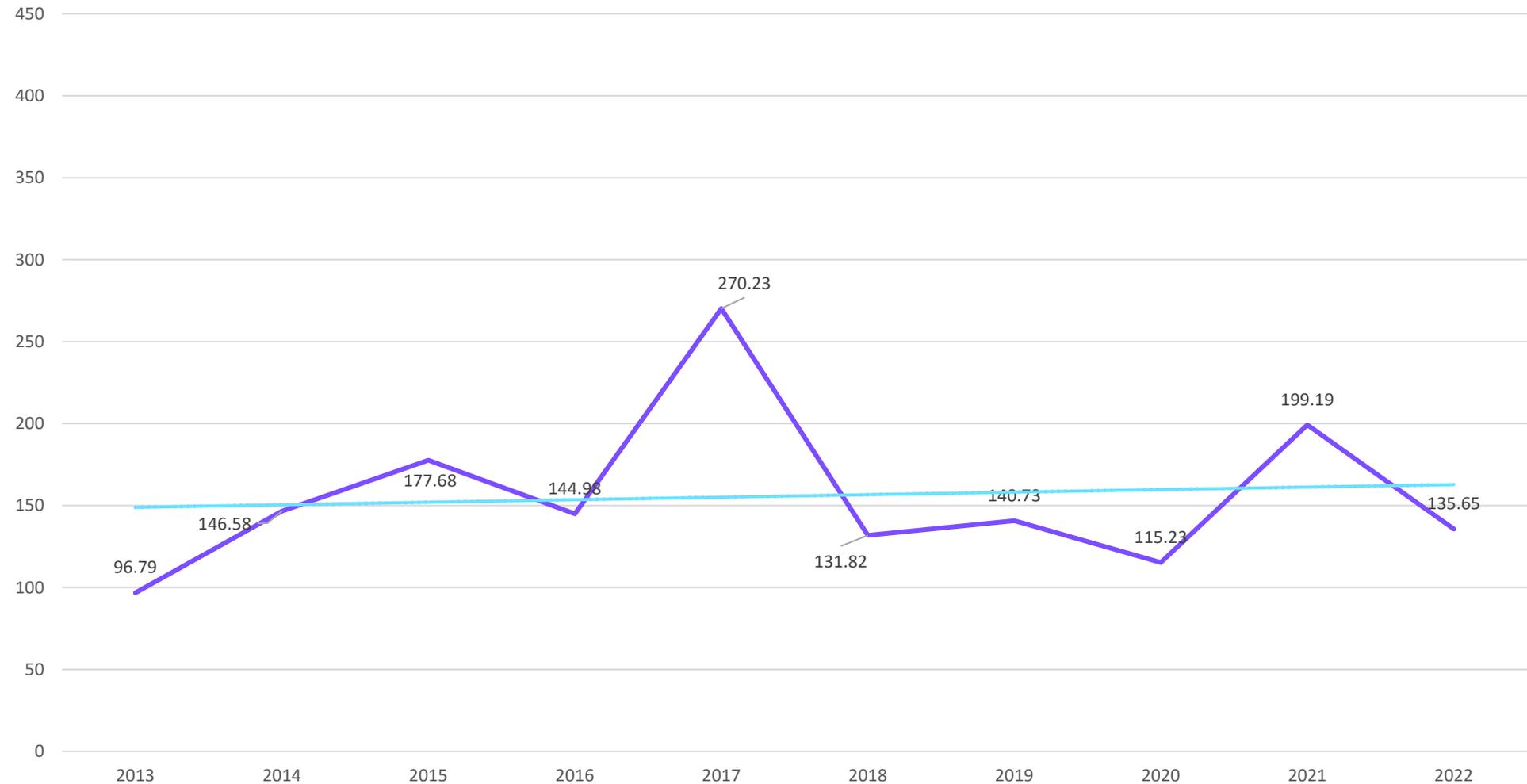
Distribution System Indices MED Excluded (SAIFI)





# CAIDI System Performance

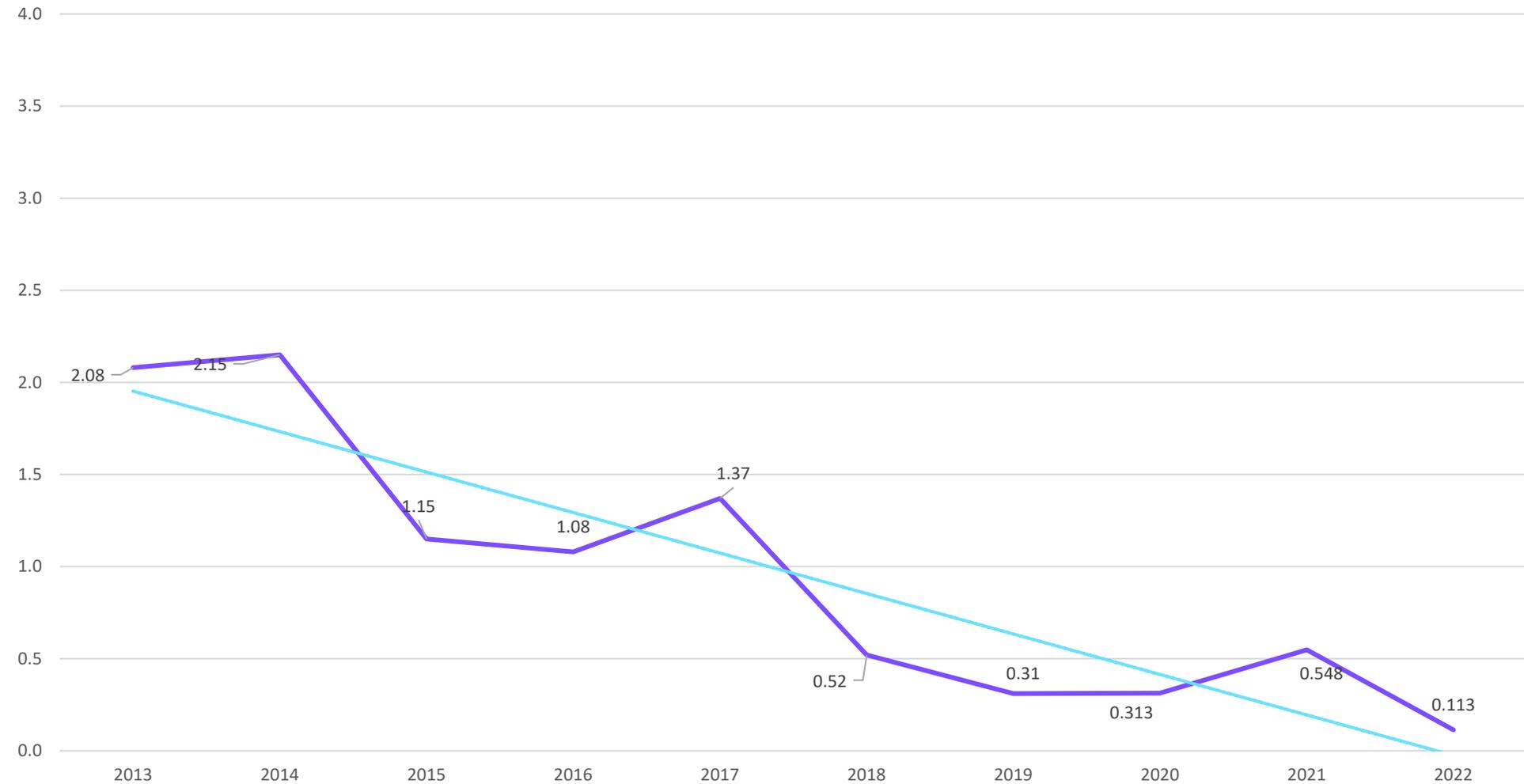
Distribution System Indices MED Excluded (CAIDI)





# MAIFI System Performance

Distribution System Indices MED Excluded (MAIFI)





# Worst Performing Circuits

Circuit	Customers	Substation	Circuit Miles	OH	UG	Circuit Outages	Circuit SAIDI	Circuit SAIFI
1261*	845	Topaz	56.98	75.6%	24.4%	3	2313	5.59
3300	3562	Meyers	56.95	90.7%	9.3%	2	1868	1.88

Analysis of worst performing circuits excludes planned and Major Event outages.

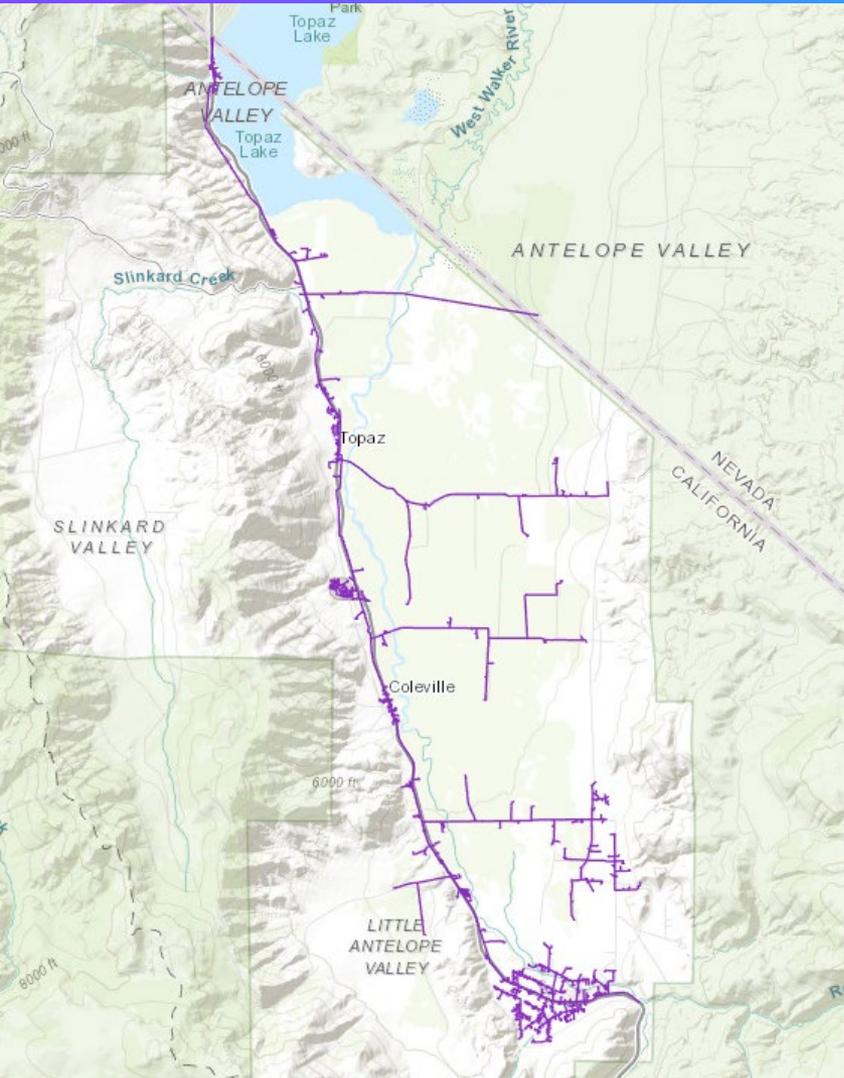
The preferred metric for this analysis is the 3 year average circuit level SAIDI in order to account for population discrepancies between urban and rural circuits.

\*Circuit that has been identified as deficient in the previous year's report.





# Topaz 1261 Circuit



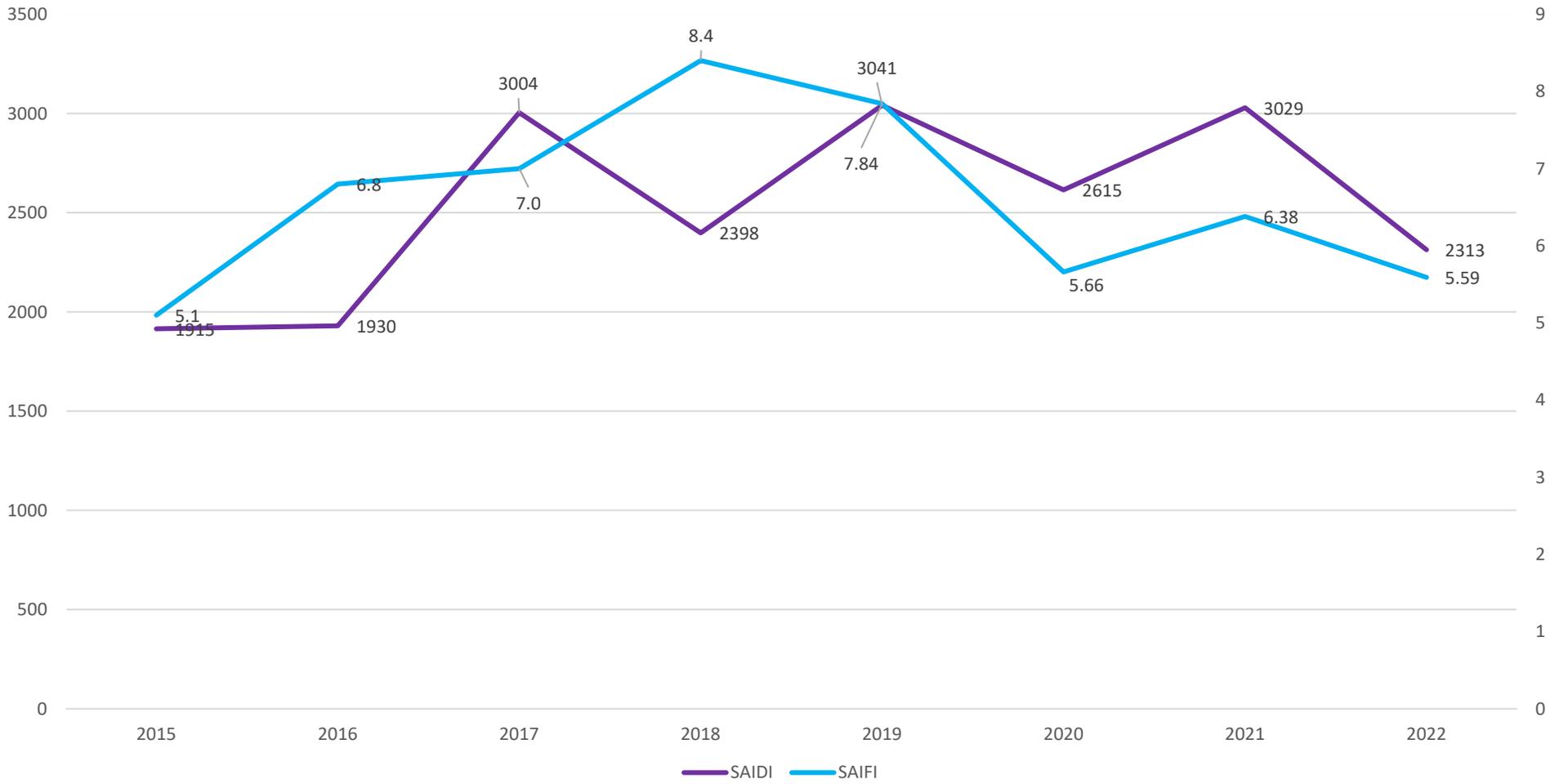
- Services Coleville, Walker
- Approximately 763 customers
- 1,408 poles
- 73.6 miles O/H
- 10.2 miles U/G
- Radial source from Smith Valley, NV





# Reliability Trend

Topaz 1261 Reliability Metrics





# Significant Outages

## July 22, 2021

- ❑ Outage caused by fire
- ❑ Entire circuit de-energized from NVE substation
- ❑ Outage Time – 9 hours until fully restored

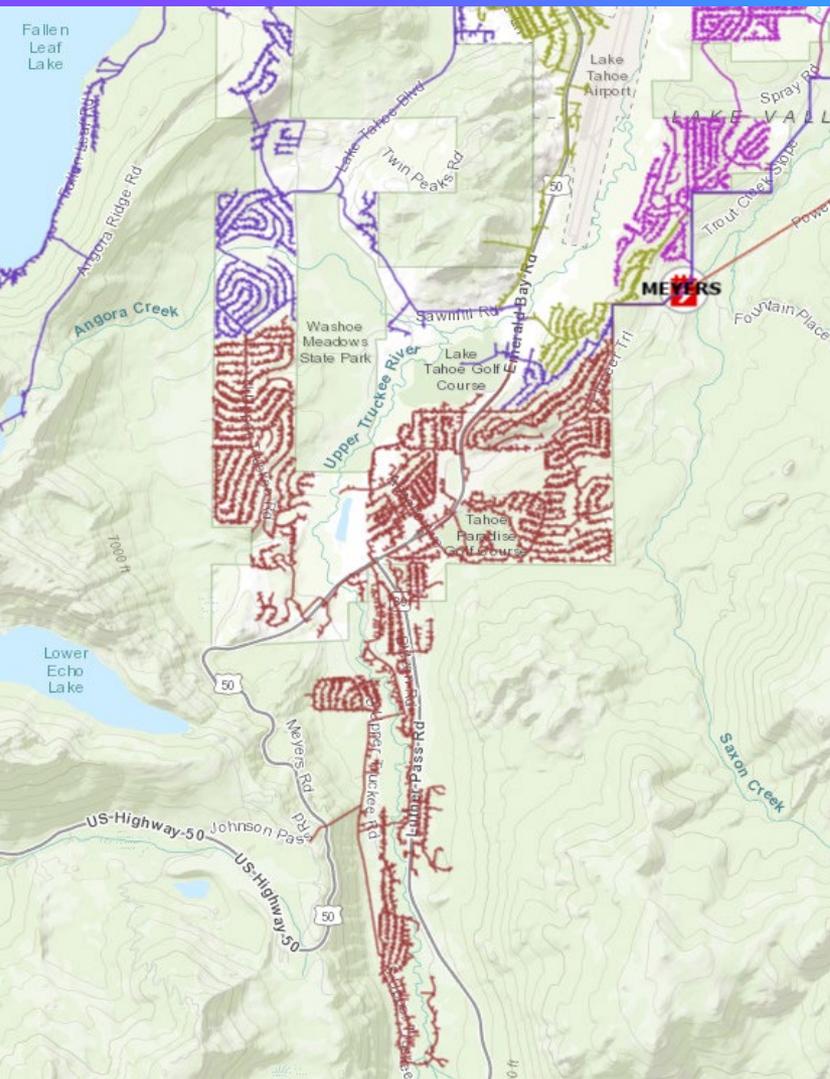
## July 26, 2021

- ❑ Loss of source from NVE substation due to equipment failure
- ❑ Resulted in entire circuit outage
- ❑ Outage Time – 10 hours and 39 minutes until fully restored





# Meyers 3300 Circuit



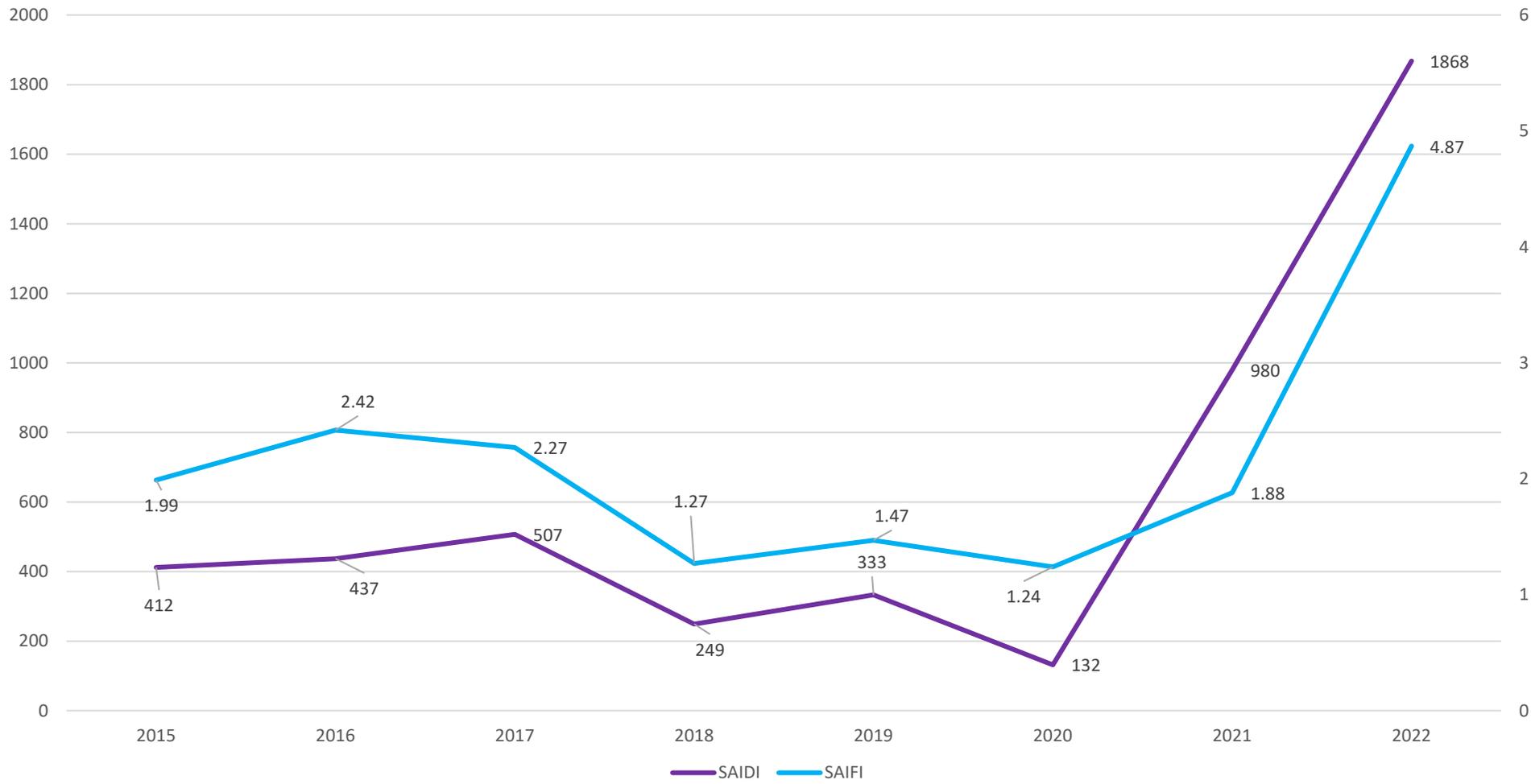
- Services South Lake Tahoe east of Echo Lake
- Approximately 3603 customers
- 2071 Poles
- 52.2 miles O/H distribution
- 5.3 miles U/G distribution





# Reliability Trend

Meyers 3300 Reliability Metrics





# Significant Outages

## December 13, 2022

- Outage caused by storm
- Fallen trees across multiple circuit sections
- Outage Time – 28 hours and 19 minute until fully restored

## August 31, 2021

- Outage cause by fire
- Requested de-energization of circuit due to Caldor fire
- Outage Time – 24 hours





# Reliability Improvements



**An aggressive Vegetation Management program – about \$13 million per year**





# Improved Animal Protection

## Green Jacket Technology



Installed on all our existing substations to prevent animal contact





# Wildfire Mitigation Plans

Several projects are underway to reduce fire risk



## **Some Projects include:**

- Advanced weather monitoring
- Covered Conductor
- Sensitive Relay Profile
- Additional recloser installations



# Thank you

Email: [PowerQuality@libertyutilities.com](mailto:PowerQuality@libertyutilities.com)

Or call Customer Service at  
1-800-782-2506

