

Welcome

Liberty Utilities Reliability Reporting Workshop for 2021 Calendar Year

December 8, 2022



Liberty

Agenda

- Purpose of Workshops
- 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
- 139 employees currently, with 15 open positions
- Regulated by the California Public Utilities Commission (CPUC)





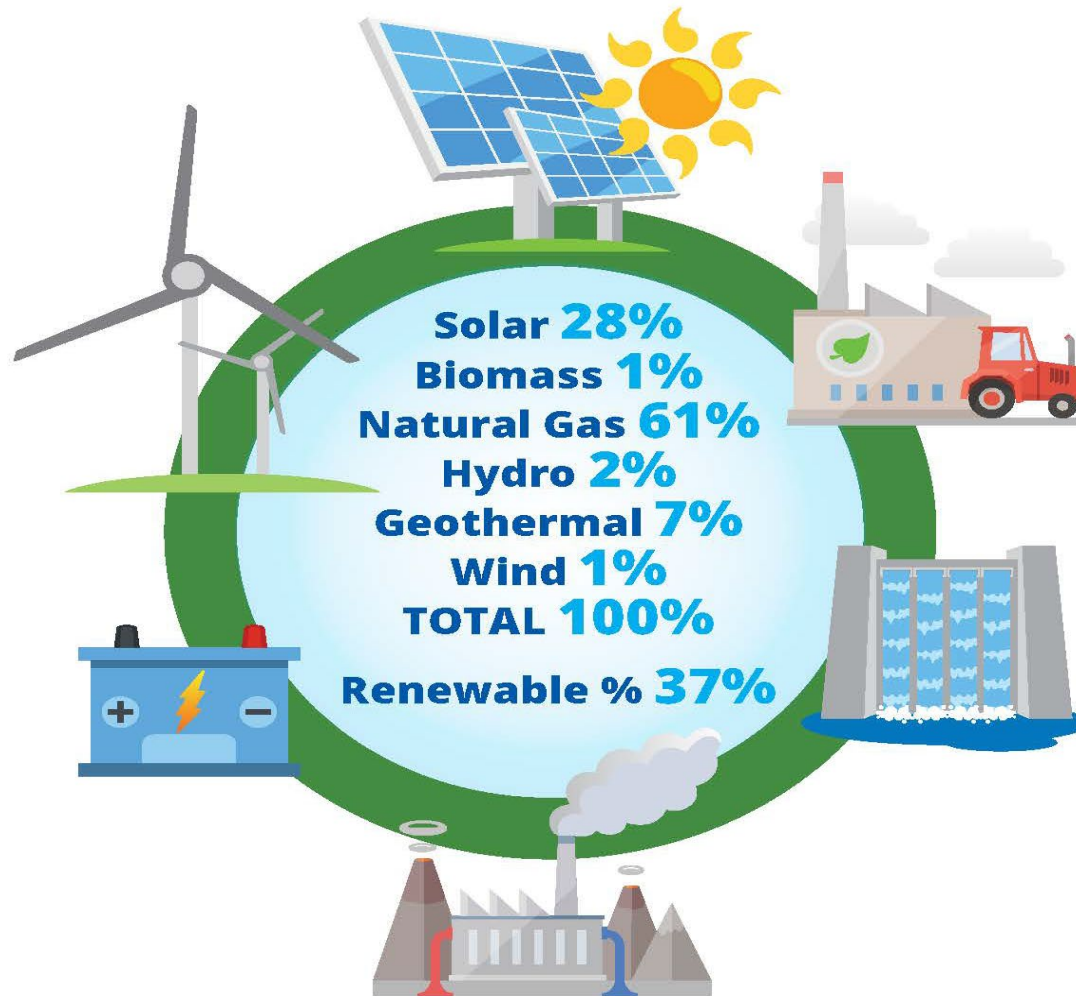
Service Territory Overview

- 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

Region	Incidents	Aff Served	%	Estimated Restoration Times
Alpine	0	0	477	0%
El Dorado	0	0	23721	0%
Mono	0	0	661	0%
Nevada	0	0	1310	0%
Placer	0	65	16614	0.4%
Plumas	0	0	1774	0%
Sierra	0	0	791	0%
Total	0	65	45348	0.1%

Liberty Utilities News & Events ▾ Energy Efficiency ▾ Renewable Energy ▾ Safety ▾ Emergencies Rates ▾ My Account ▾
& Outages ▾

Home > Residential > Emergencies > Outages Map

Customer Care: 1-800-782-2506 Emergencies & Outages: 1-844-245-6868

Outage Map

We work hard to provide our customers with safe and reliable service. Despite our best efforts to prevent outages, there are factors beyond our control that will occasionally knock out power. Scroll down to view map and outage information; be sure to refresh your page if you have this bookmarked.

We Are Social!
Get connected to Liberty Utilities

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Outages Map | Report an Outage | What To Do | Planned Outages | Storm Preparation | Emergency Disaster Relief



Outage Reporting and Tracking

Please Call 1-844-245-6868

The screenshot shows a web browser window with the following details:

- Browser: Internet Explorer
- Address Bar: <https://california.libertyutilities.com/south-lake-tahoe/residential/emergencies/electrical/outages-map.html#>
- Page Title: Outages Map
- Map: A map of California showing various regions. A red outline highlights a specific area in the north-central part of the state, including Modoc National Forest, Black Rock Desert - High Rock Canyon Emigrant..., and parts of Nevada and California.
- Table: A table with 5 columns: Region, Incidents, Aff Served, %, and Estimated Restoration Times. The data is as follows:

Region	Incidents	Aff Served	%	Estimated Restoration Times
	0	0	1	0%
Alpine	0	0	477	0%
El Dorado	0	0	23820	0%
Mono	0	0	662	0%
Nevada	0	0	1302	0%
Placer	0	0	16511	0%
Plumas	0	0	1777	0%
Sierra	0	0	789	0%
Total	0	0	45339	0%





Customer Notifications



Website
libertyutilites.com



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

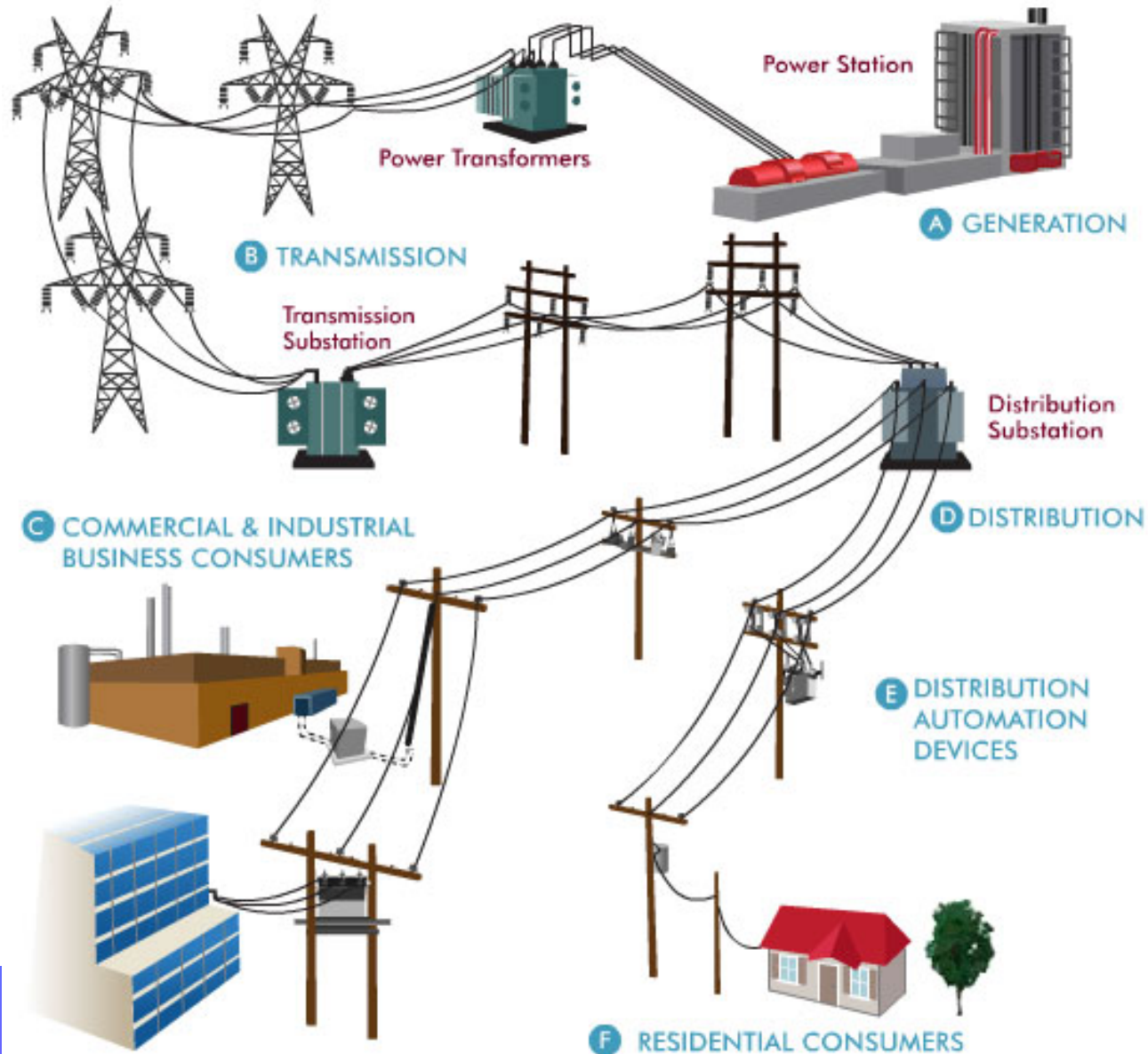


Facebook
Liberty Utilities - Tahoe





Power System Overview





Power Outage Causes

- ❖ Weather (wind, snow, ice build up, lightening)
- ❖ 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:

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

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

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

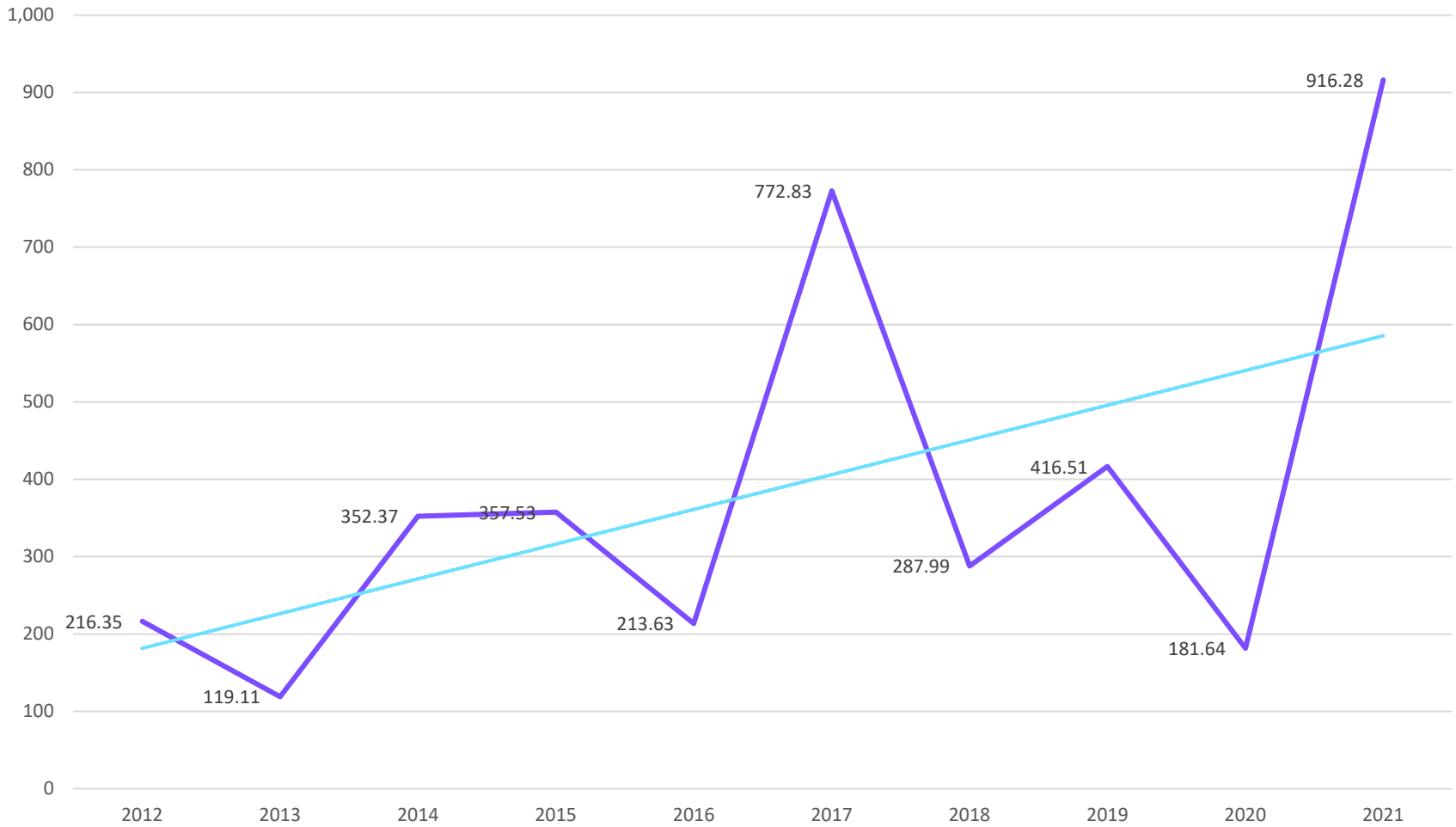
$$\text{MAIFI} = \frac{\text{Tot.No.of Customer Momentary Interruptions}}{\text{Total number of customers served}}$$





SAIDI System Performance

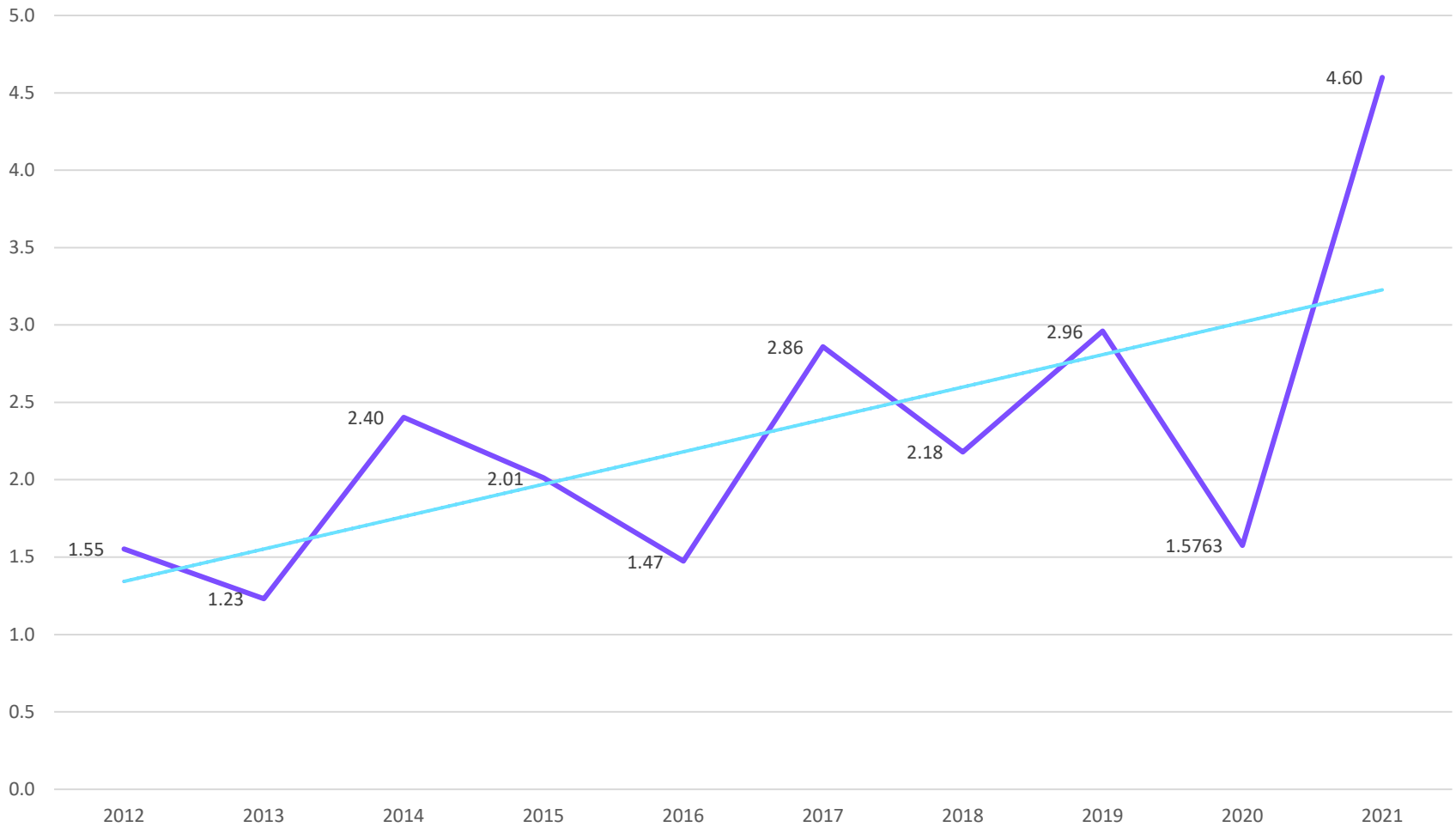
Distribution System Indices MED Excluded (SAIDI)





SAIFI System Performance

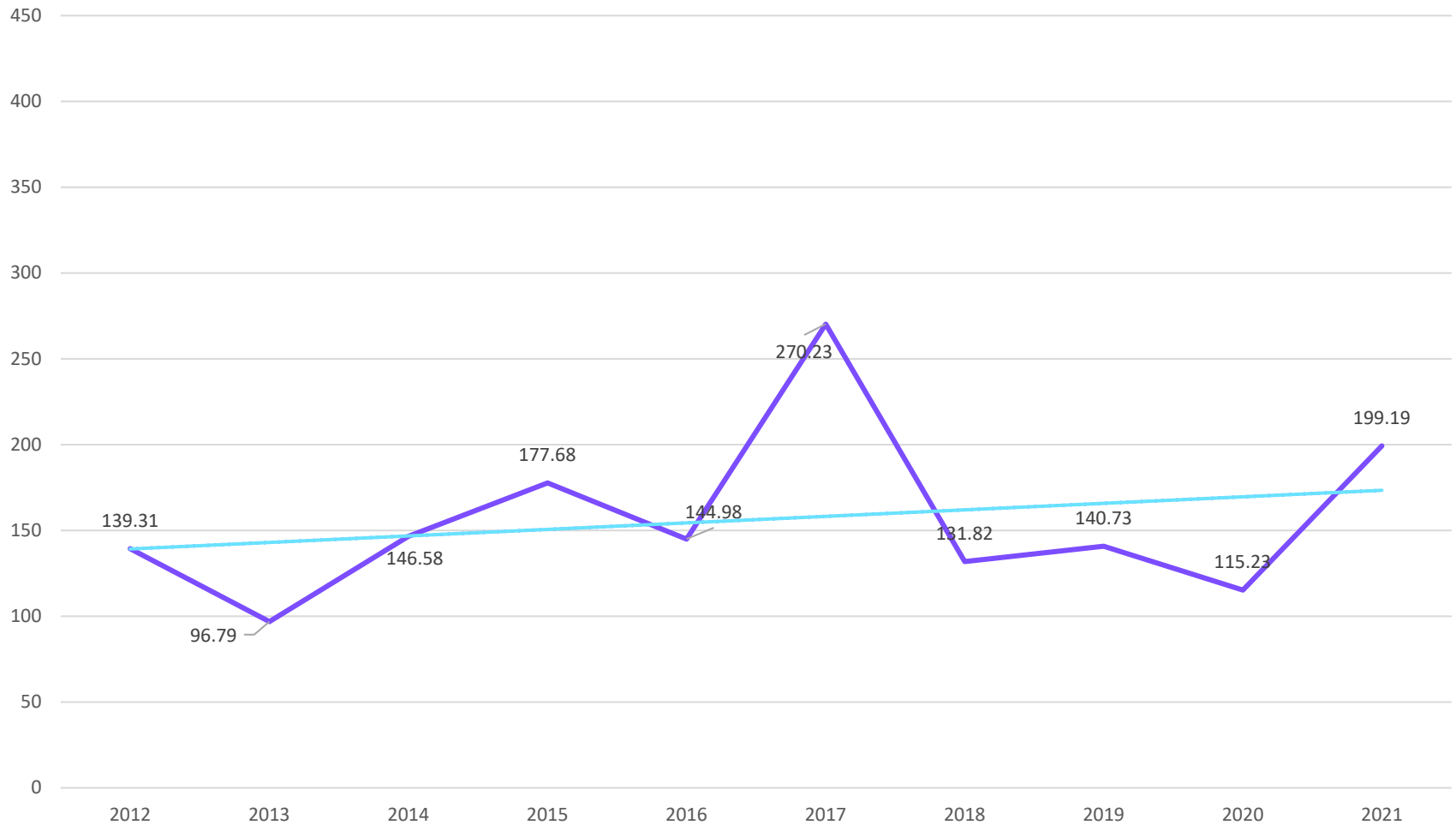
Distribution System Indices MED Excluded (SAIFI)





CAIDI System Performance

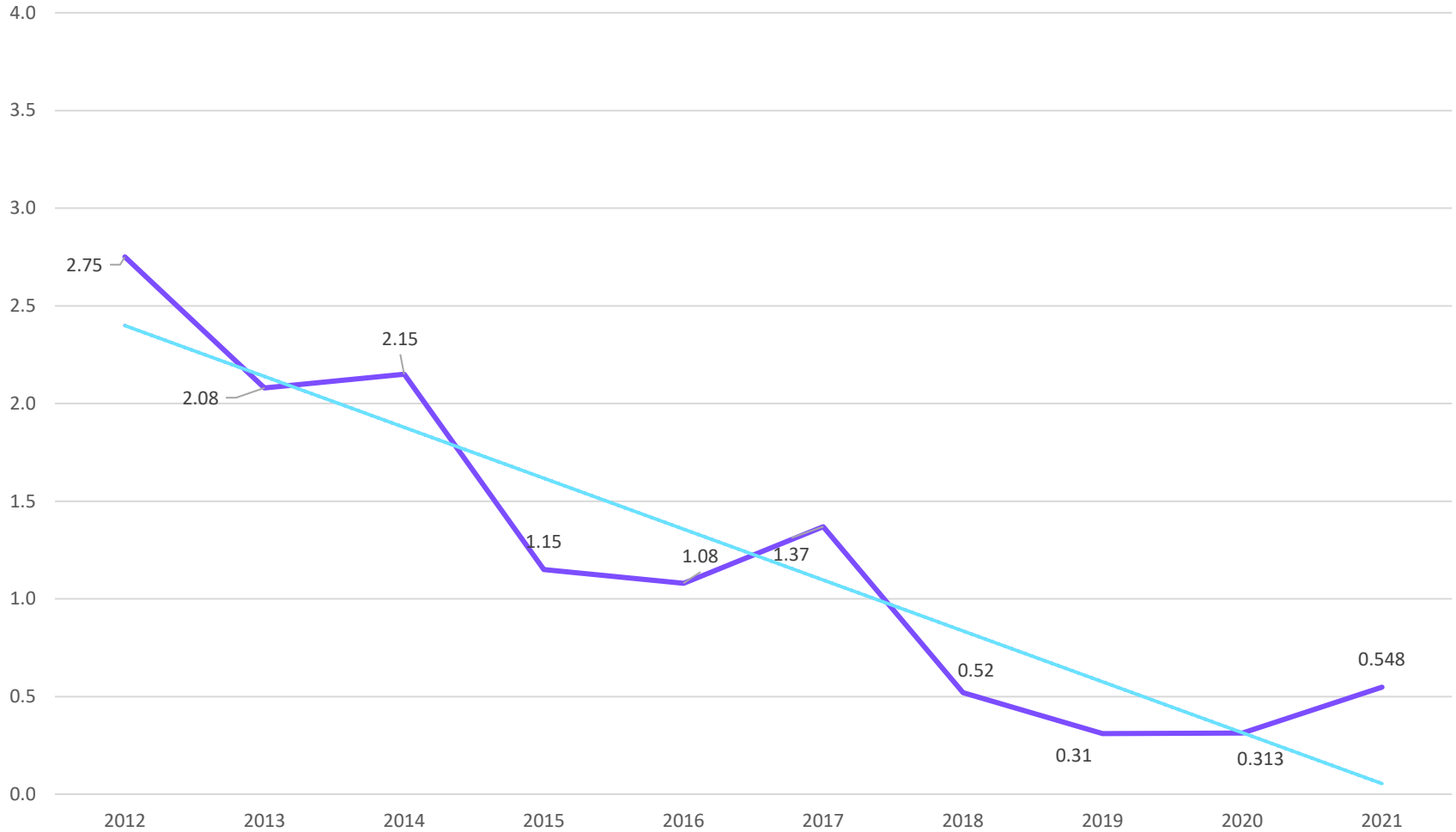
Distribution System Indices MED Excluded (CAIDI)





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	3029	6.38
3300	3562	Meyers	56.95	90.7%	9.3%	2	980	1.88

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

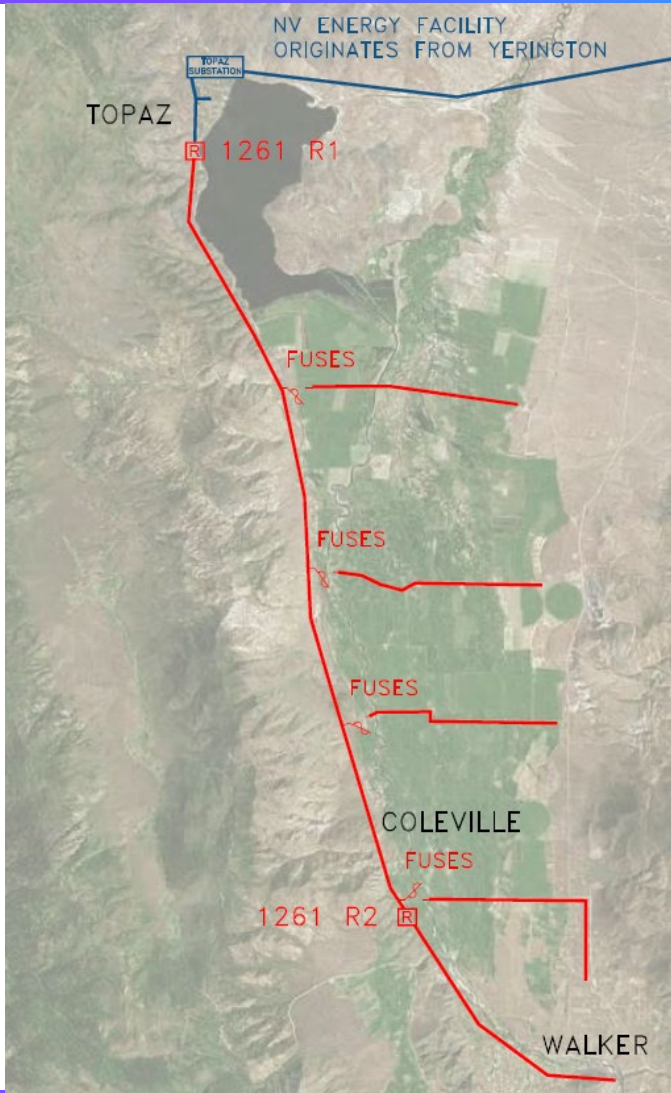
The preferred metric for this analysis is the 3 year average circuit level SAIDI in order to account for population discrepancies between urban and rural circuits.

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





Topaz 1261 Circuit



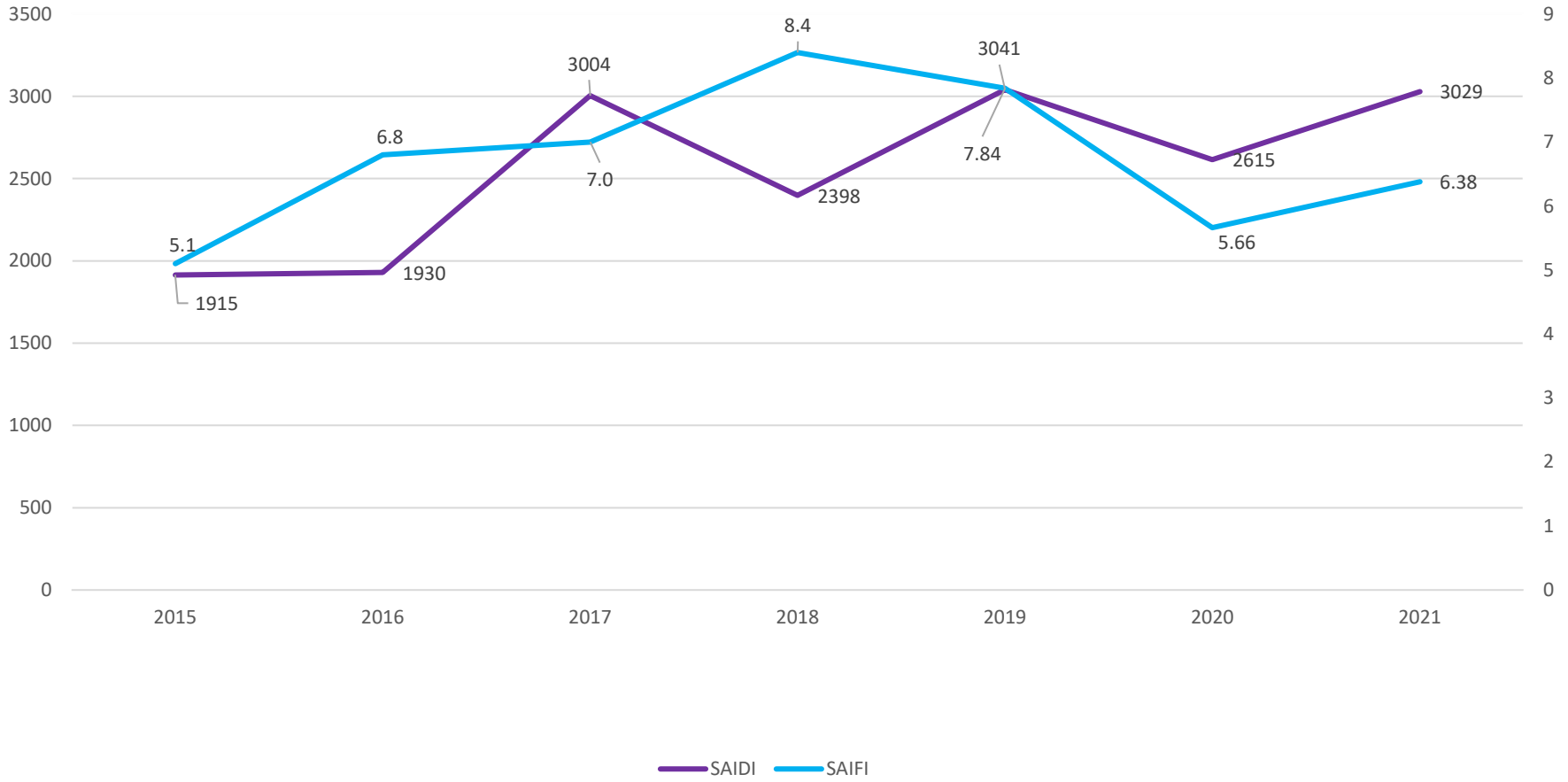
- Services Coleville, Walker
- Approximately 763 customers
- 1,408 poles
- 73.2 miles O/H
- 10.2 miles U/G
- Radial source from Smith Valley, NV





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

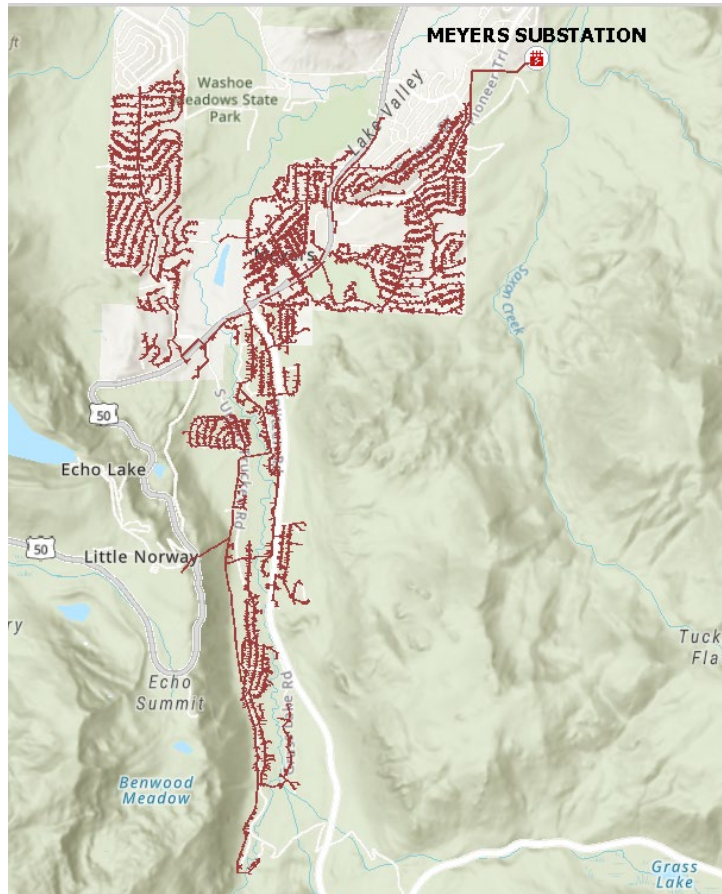
July 26, 2021

- ❑ 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



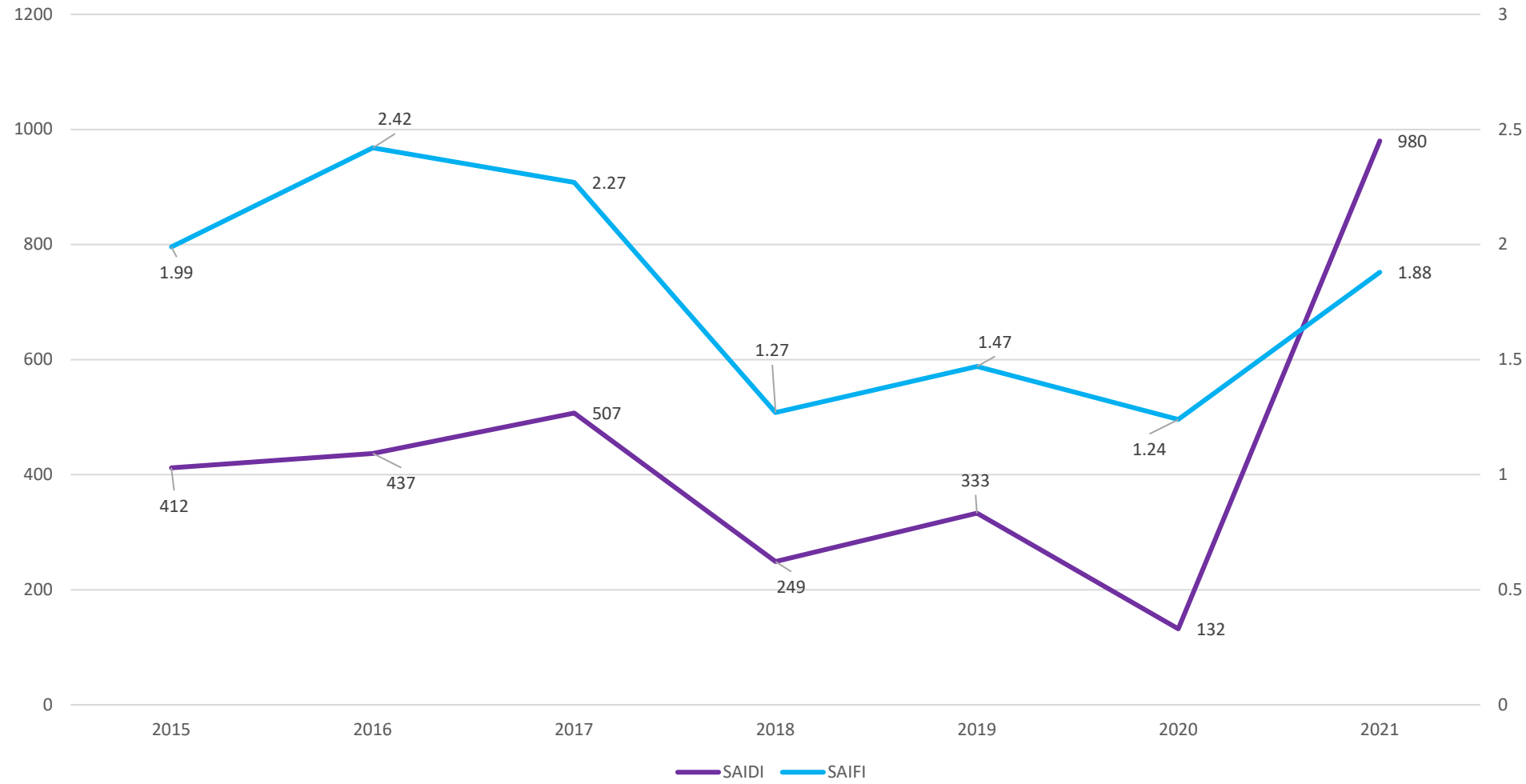
- Services Meyers
- Approximately 3,552 customers
- 2,046 poles
- 149.6 miles O/H
- 13.5 miles U/G
- Radial source from Meyers Substation





Reliability Trend

Meyers 3300 Reliability Metrics





Significant Outages

August 31, 2021

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

December 14, 2021

- Outage caused storm
- Fallen branch across circuit wired
- Outage Time – 2 hours and 1 minute until full restored





Reliability Improvements



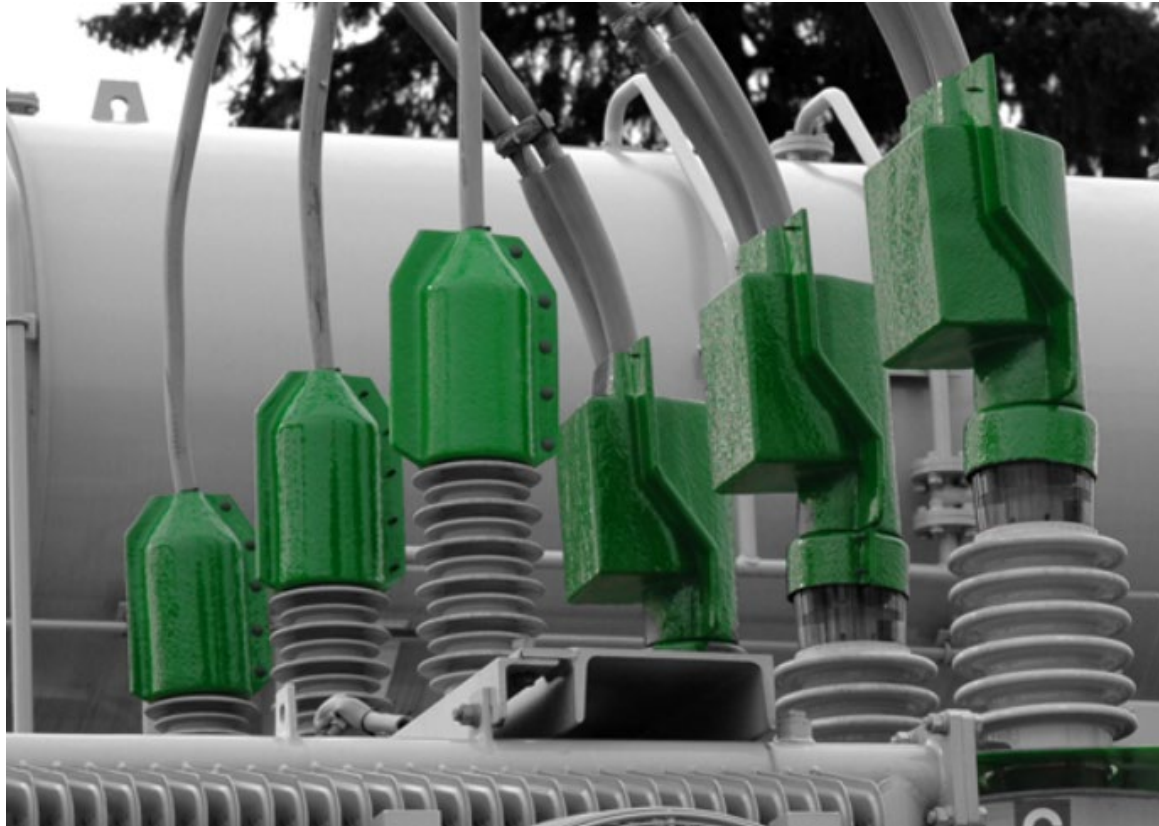
An aggressive Vegetation Management program – about \$14 million per year





Improved Animal Protection

Green Jacket Technology



This is being implemented into our new Kings Beach substation, as well as some of our existing substations





Wildfire Mitigation Plans

Several projects are underway to reduce fire risk



Some Projects include:

- Advanced weather monitoring
- Covered Conductor
- Expulsion fuse replacement
- Additional recloser installations



Thank you

Email: PowerQuality@libertyutilities.com

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

