



LAKE WORTH BEACH

Electric
UtilitiesSM

CITIZEN OWNED ENERGY

Electric Reliability Presentation

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CAIDI - Customer Average Interruption Duration Index

The average time to restore service to interrupted customers within a specified area of service over a given period of time.

SAIDI – System Average Interruption Duration Index

The average minutes of service interruption duration per customer served within a specified area of service over a given period of time.

SAIFI – System Average Interruption Frequency Index

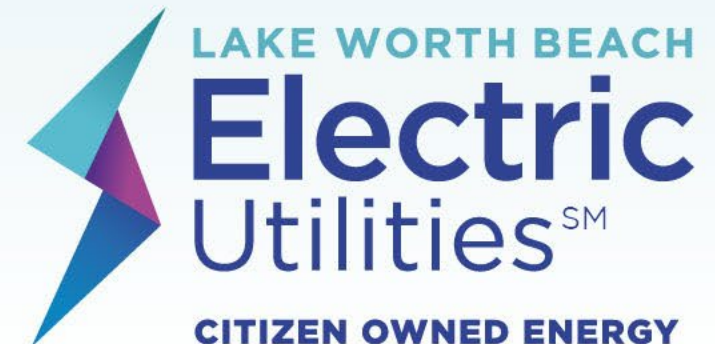
The average number of Service Interruptions per customer within a specified area of service over a given period of time.

MAIFI – Momentary Average Interruption Event Frequency Index

The average number of Momentary Interruption Events recorded on primary circuits for a specified area of service over a given period of time.

L-Bar – Average Duration of Outage Events

The sum of each outage event duration for all outage events occurring during a given time period, divided by number of outage events over the same time period within a specific area of service.



SAIFI – Measures the average frequency of interruptions for the average customer.

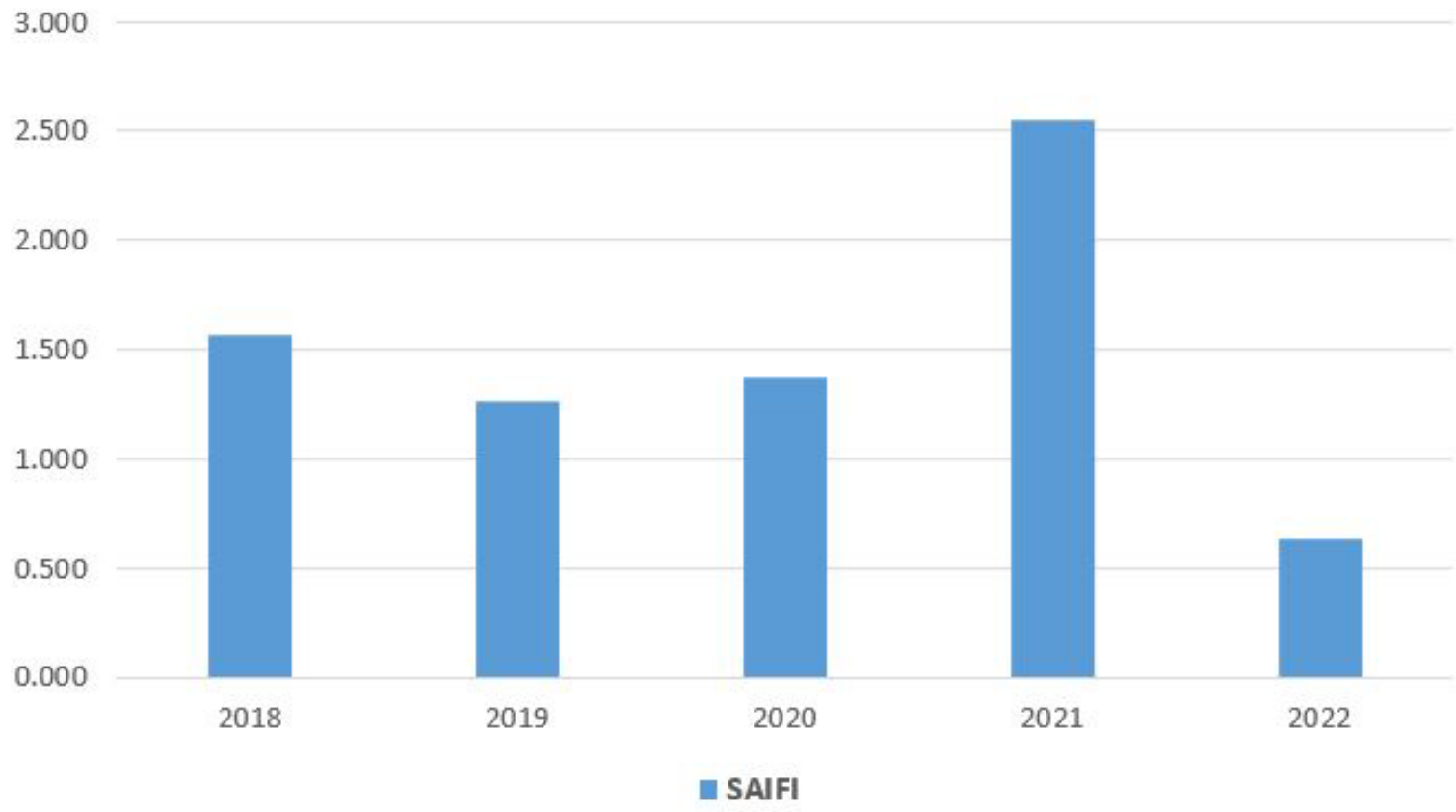
	YEAR TO DATE JUNE RELIABILITY NUMBERS				
	2018	2019	2020	2021	2022
SAIFI	1.561	1.259	1.377	2.544	0.634
% Change		-19.3%	9.4%	84.7%	-75.1%

$$\frac{\text{Customers that experienced an outage}}{\text{Number of customers served}}$$

$$\frac{17,386}{27,437} = 0.634$$

YTD last year was 69,493 impacted

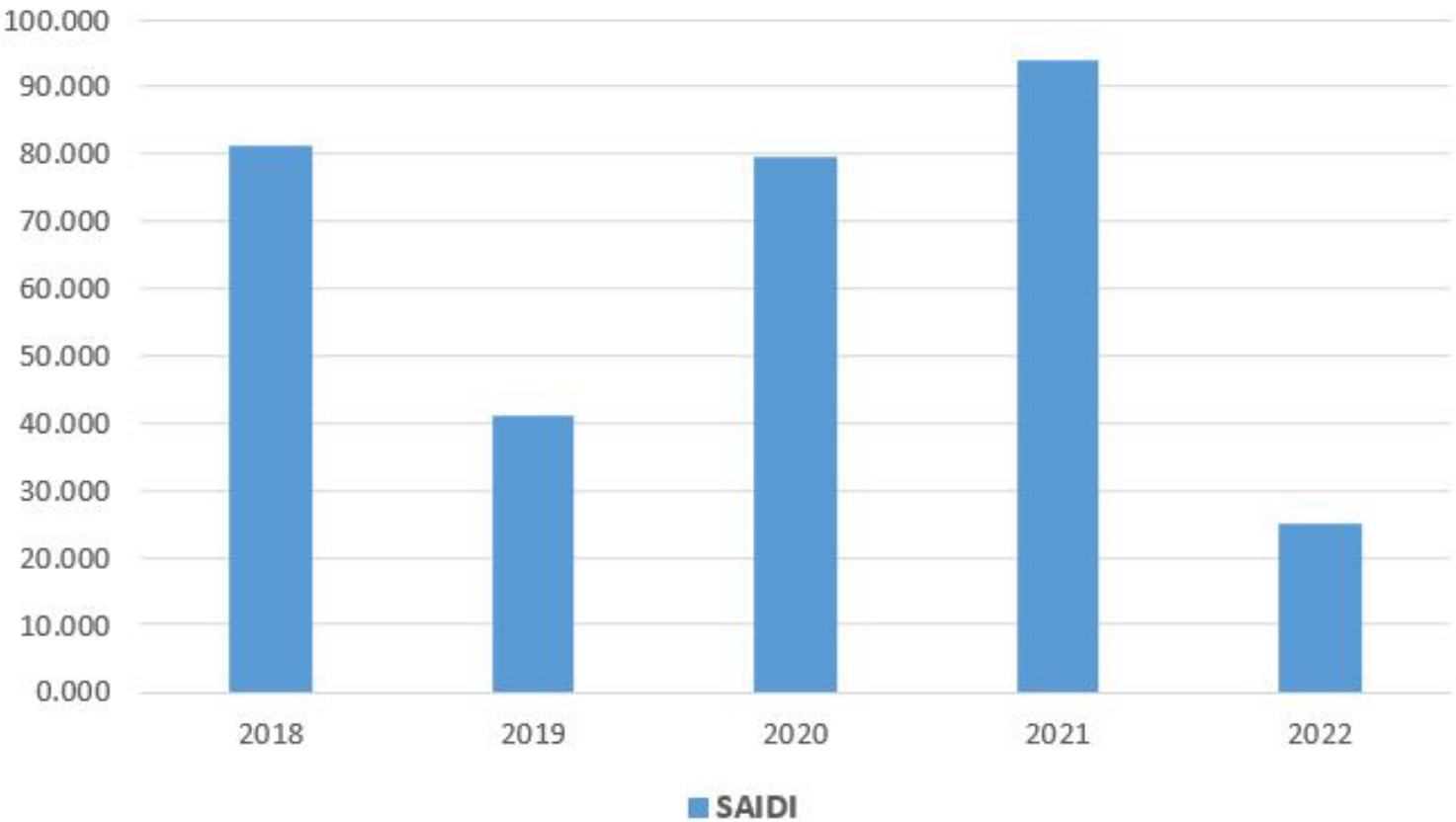
YEAR TO DATE JUNE RELIABILITY NUMBERS



SAIDI – Measures the average duration of interruptions for the average customer

	YEAR TO DATE JUNE RELIABILITY NUMBERS				
	2018	2019	2020	2021	2022
SAIDI	81.408	41.247	79.518	94.089	25.074
% Change		-49.3%	92.8%	18.3%	-73.4%

YEAR TO DATE JUNE RELIABILITY NUMBERS



Customer minutes of interruption (CMI) equals the number of customers out times the duration of the outage in minutes.
1 customer out of 100 minutes = 100 CMI
10 customers out for 10 minutes = 100 CMI

$$\frac{\text{Customer minutes of interruption}}{\text{Number of customers served}}$$

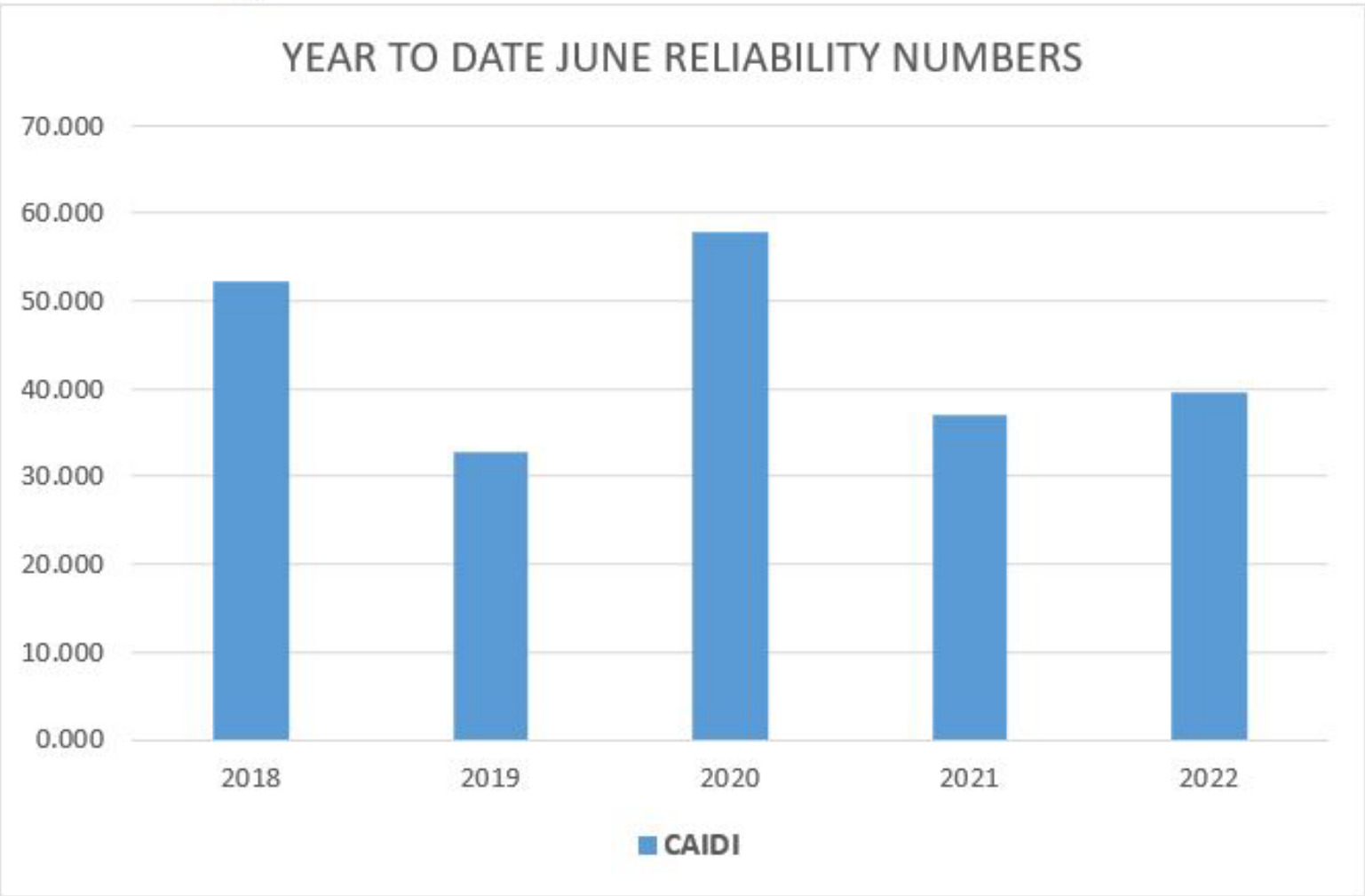
$$\frac{687,955}{27,437} = 25.074$$

YTD last year was 2,570,600 CMI



CAIDI – Measures the average repair time experienced by the average interrupted customer

	YEAR TO DATE JUNE RELIABILITY NUMBERS				
	2018	2019	2020	2021	2022
CAIDI	52.165	32.768	57.742	36.991	39.569
% Change		-37.2%	76.2%	-35.9%	7.0%

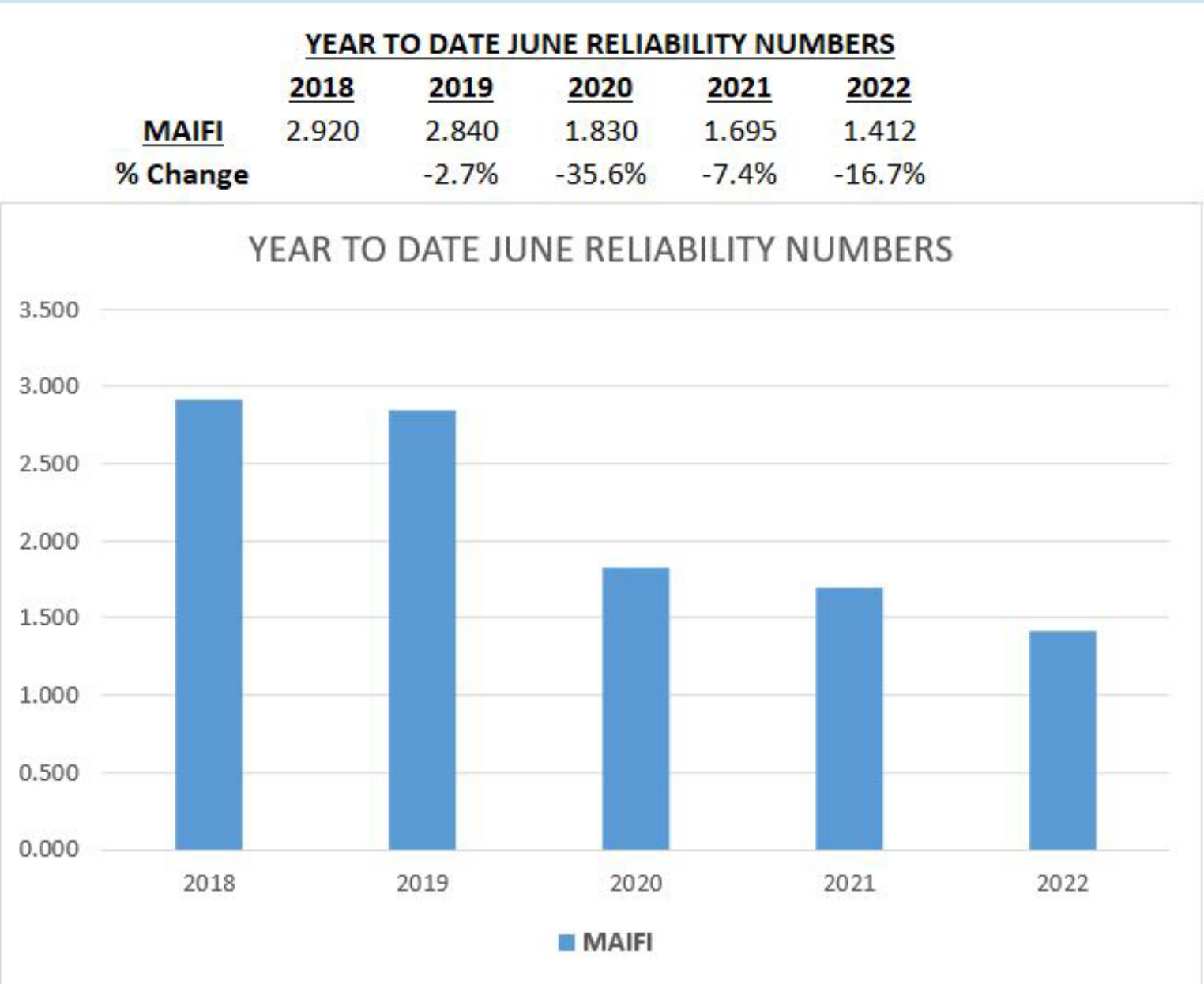


$$\frac{\text{SAIDI}}{\text{SAIFI}} = \text{CAIDI}$$

$$\frac{25.074}{0.634} = 36.569$$



MAIFI – measures the average frequency of momentary interruption events for the average customer.



Customers that experienced a momentary
Number of customers served

$$\frac{38,746}{27,437} = 1.412$$



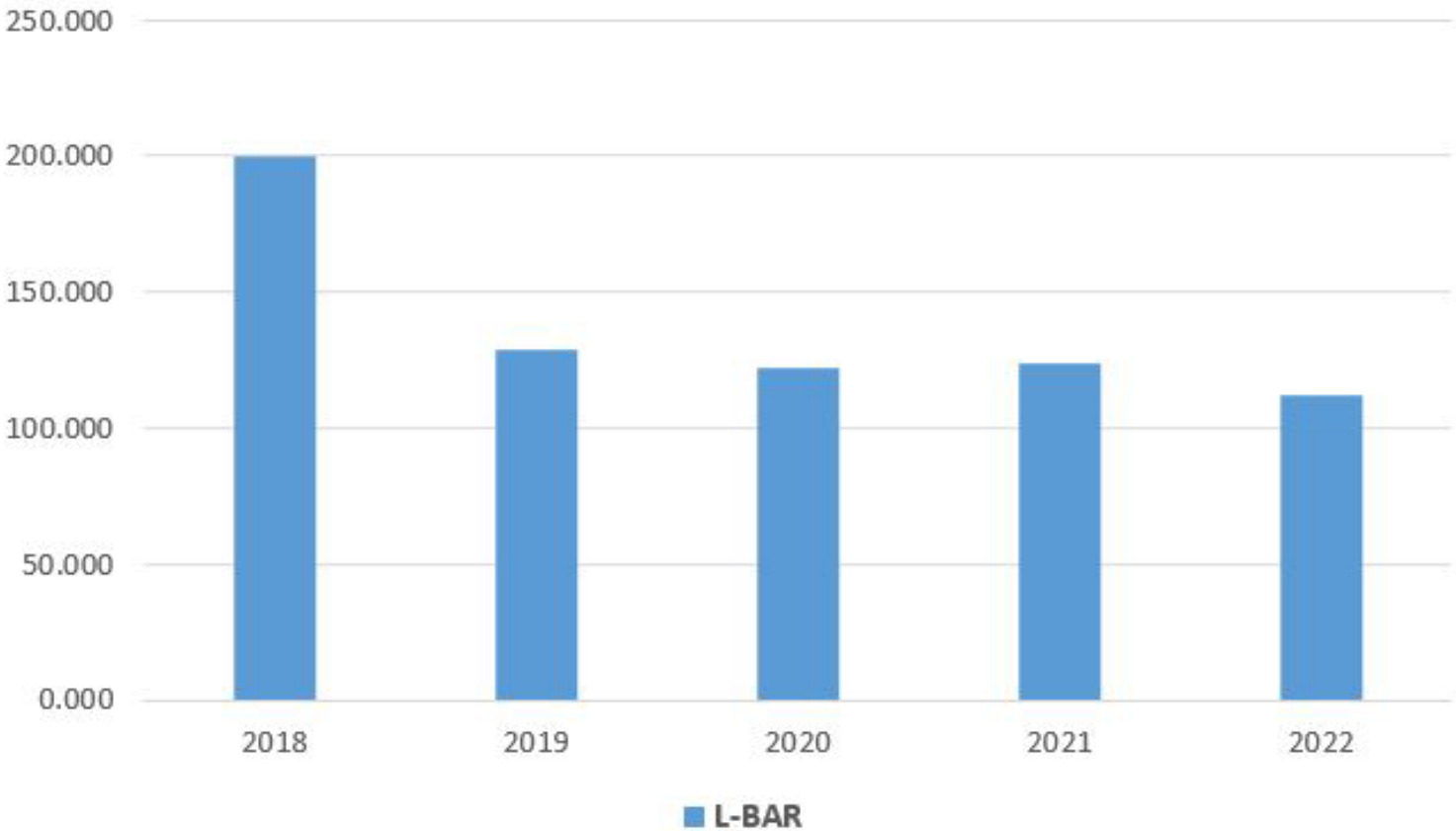
L-BAR – Measures the average length of a single outage

	YEAR TO DATE JUNE RELIABILITY NUMBERS				
	2018	2019	2020	2021	2022
L-BAR	199.795	128.294	121.626	123.853	111.888
% Change		-35.8%	-5.2%	1.8%	-9.7%

$$\frac{\text{Sum of each outage in minutes}}{\text{Number of outages}}$$

$$\frac{13,986}{125} = 111.888$$

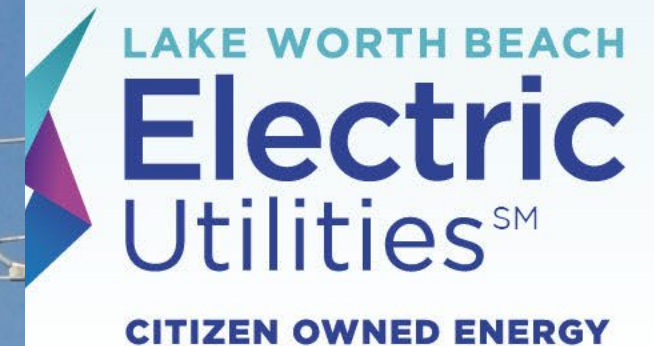
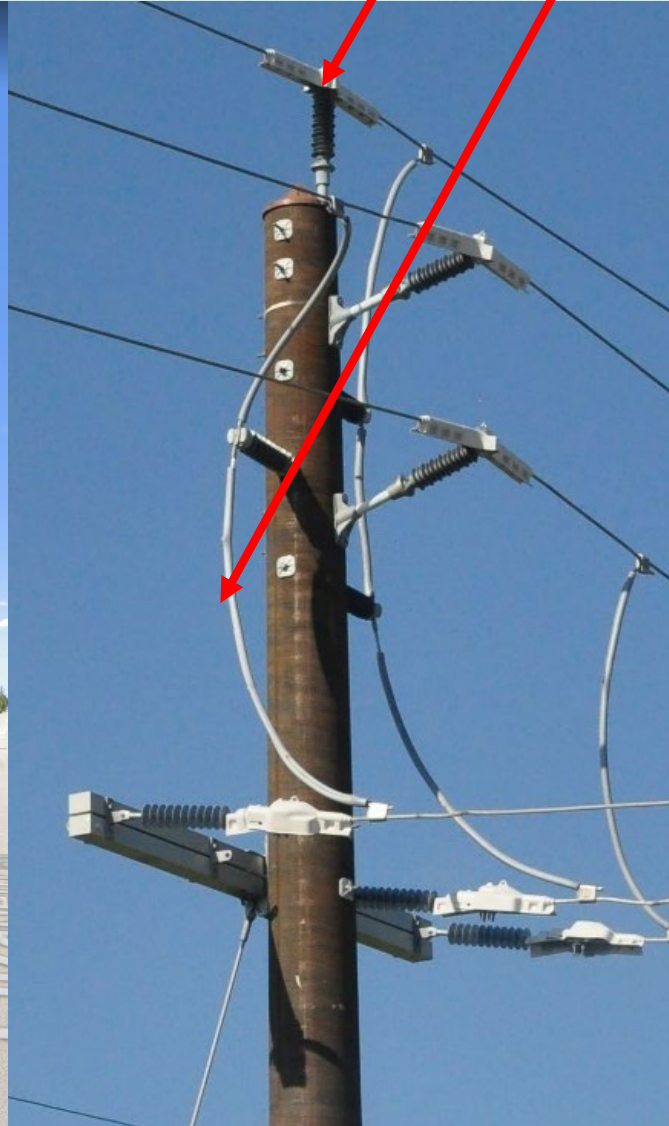
YEAR TO DATE JUNE RELIABILITY NUMBERS



Projects underway that are driving the numbers down...

Animal Guard covering energized connection

GreyEEL – Conductor cover on jumpers



Mid-point Reclosers – smaller circuits



Pole wraps – prevent animals
Fault Indicators



Increased vegetation maintenance

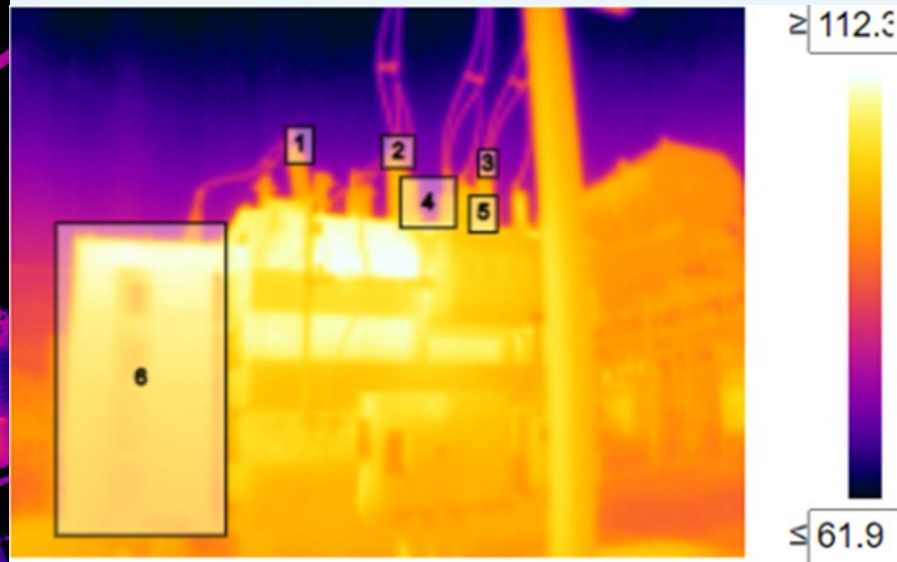
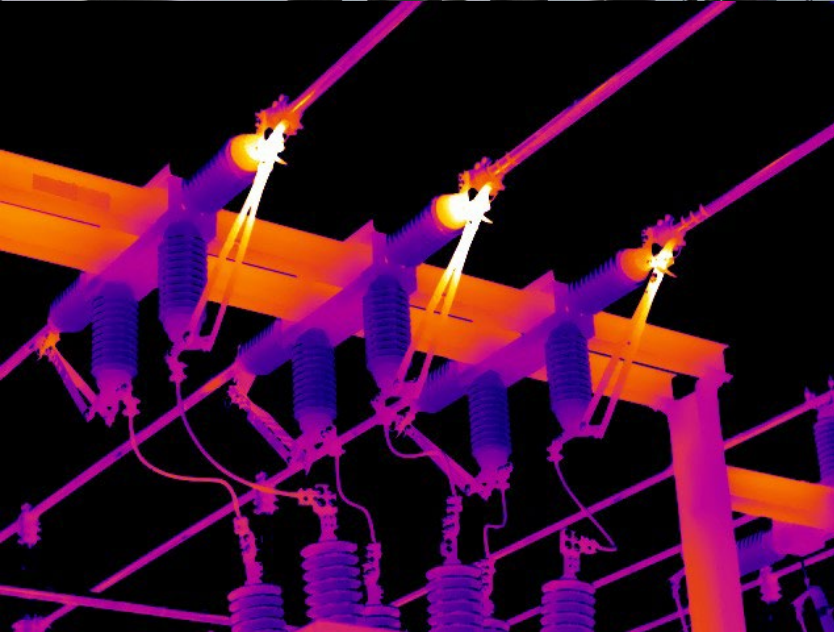


Limit fault current and improve power quality

IR Infrared Thermography



Continuous Transformer Monitoring





Thank you... Questions?

