



2023 Wildfire Data Analysis

July 10, 2024
RRC Meeting

Steve Ashbaker
Reliability Initiatives Director

Wildfire Data Analysis Trends

- Total reported incidents by years
- Total incidents by voltage class
- Average duration in hours of line's removed from service by voltage and year
- Percentage of lines effected by voltage class
- Number outages caused by wildfires on lines part of the Major WECC Transfer Paths
- Number of incidents on BES lines by voltage class

Wildfire Data Analysis Trends

- Total Incidents per line section
- Average duration in hours of total reported incidents by voltage class
- Number of transmission line outages by reason for line removal
- Average amount of load dropped (in megawatts) per incident
- Average number of customers losing service per incident
- Number of outages associated with PSPS or state programs
- Wildfire location (latitude and longitude)

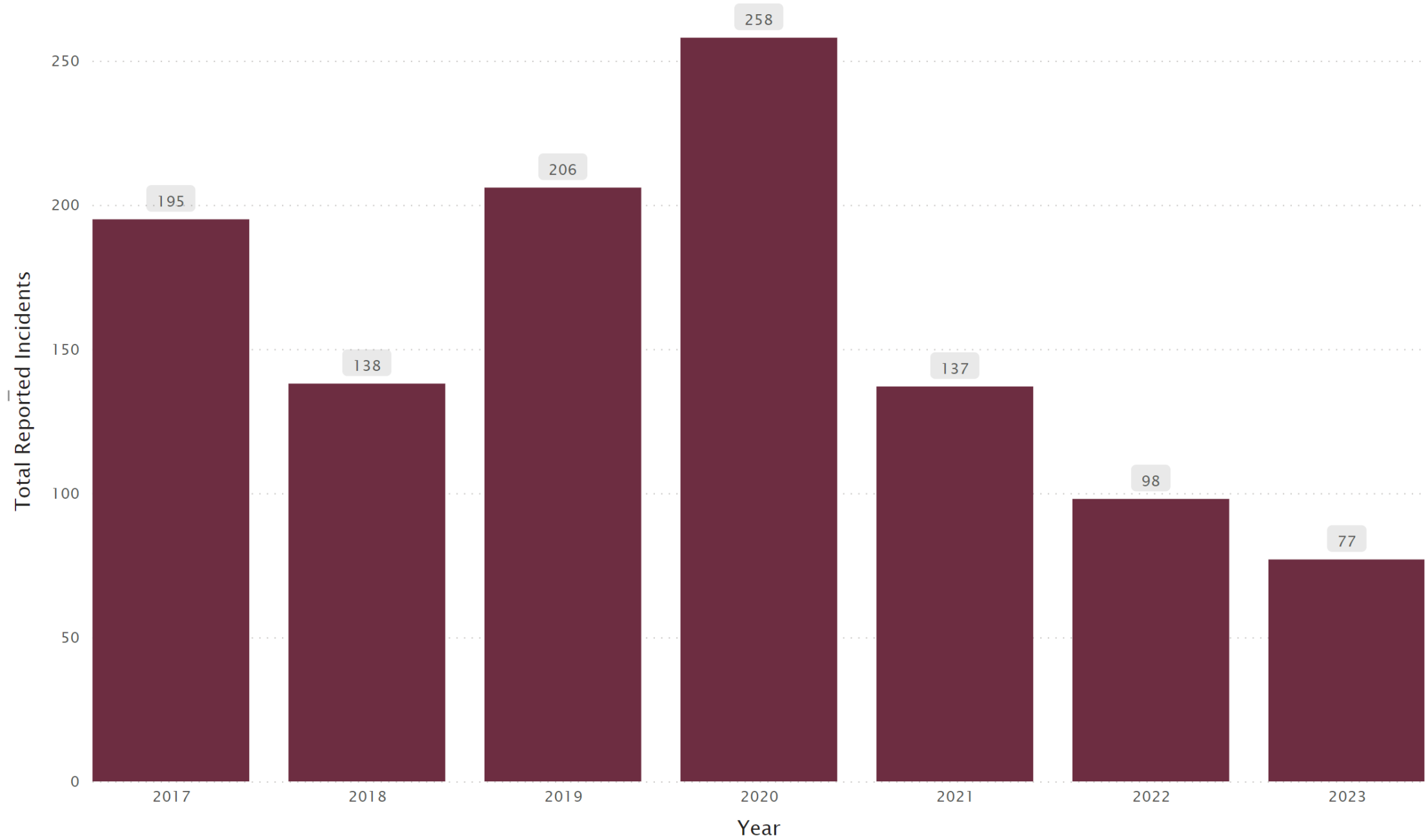
Participants Submitting Outages

- AVA
- BPA
- CHPD
- IPCO
- LDWP
- MATL
- NVE
- PAC
- PG&E
- PGE
- PSCO
- PSE
- SCE
- SCL
- SRP
- TEPC
- TPWR
- TSGT
- WACM
- WAUW

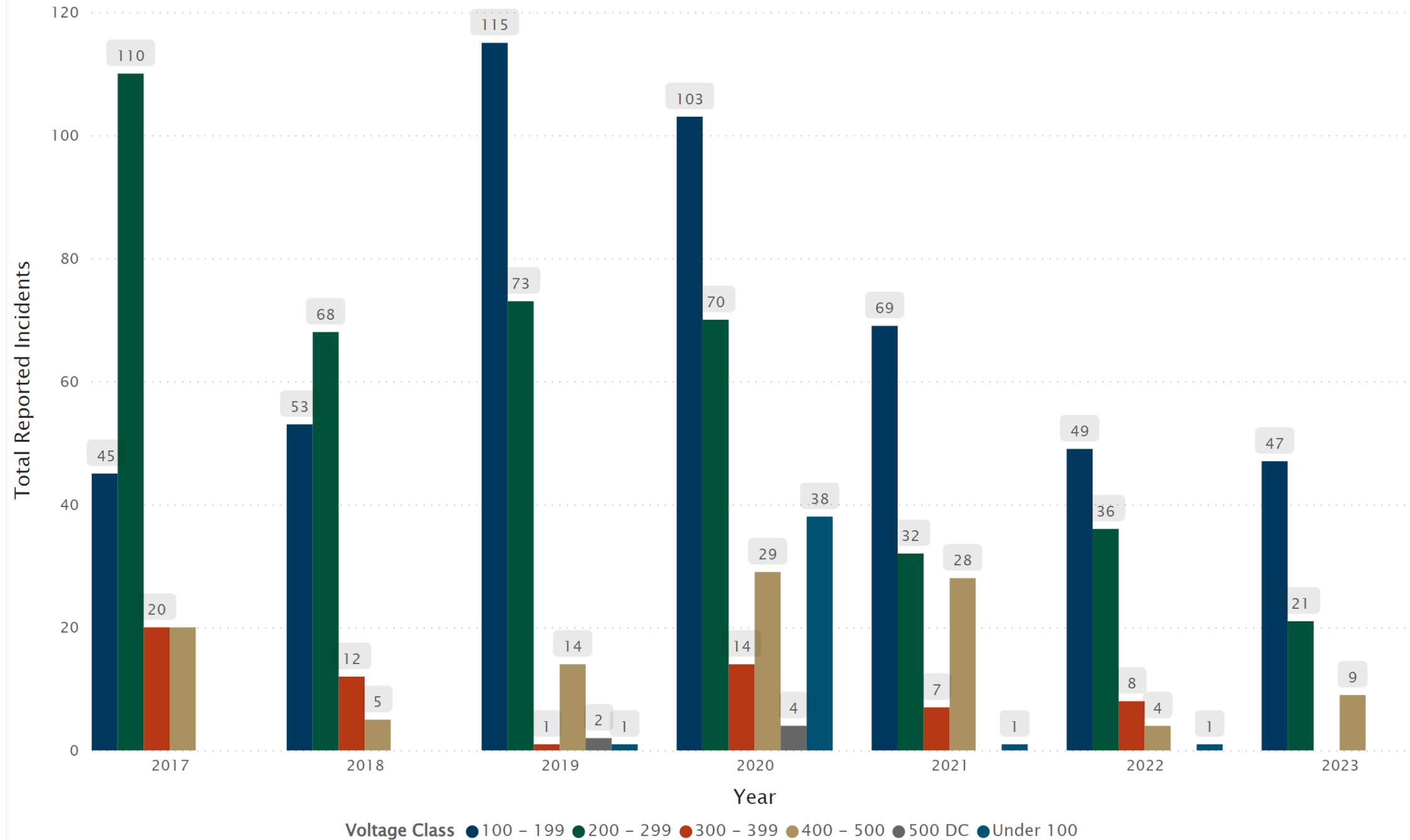
Wildfire DR Statistics

- Relevant data reporting timeline: July 11, 2022–December 31, 2023
- The 2023 Wildfire DR was sent to 43 Transmission Operators
- 20 entities reported events associated with fires during reporting period
 - 140 events reported for the 2023 WF DR relevant reporting period
 - 69 Fires (14 unknown) – July 12, 2022-December 31, 2024
 - Total number of events for the reporting period, January 1, 2017–December 31, 2023—1109
- 23 reported no outages associated with fires during reporting period
- 16 TOPs reported they have some form of PSPS program

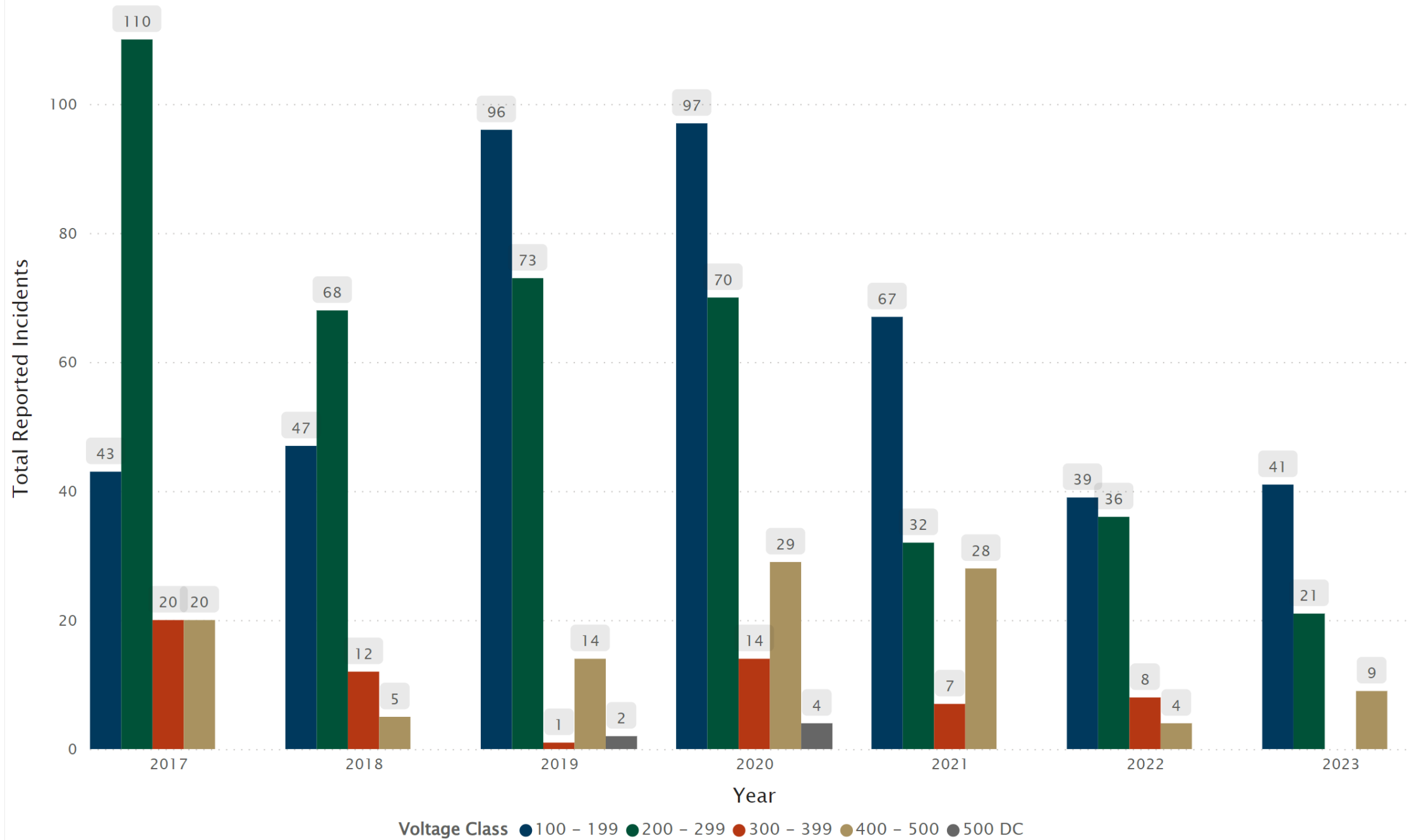
Total Reported Incidents 2017 – 2023



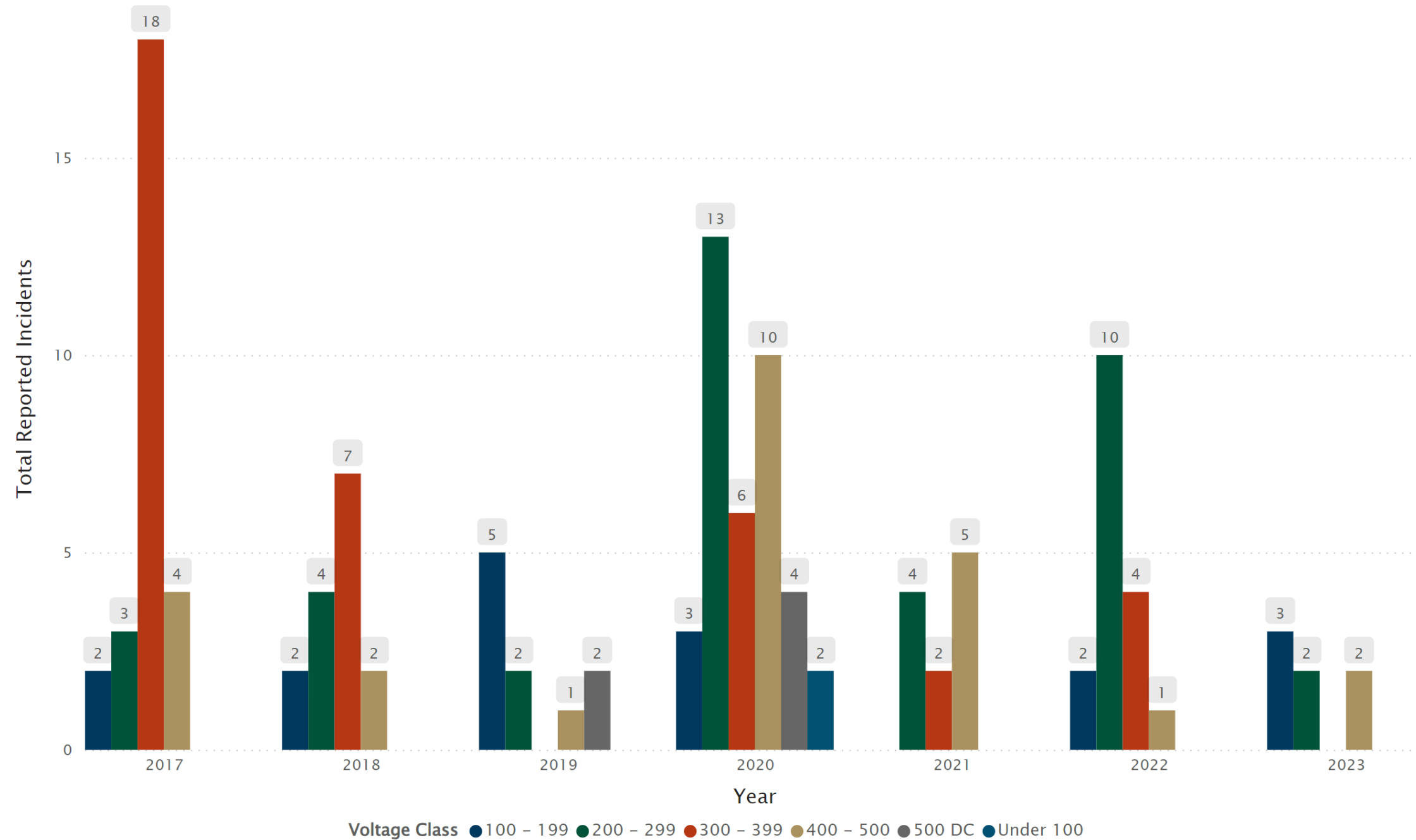
Total Reported Incidents by Voltage Class 2017 – 2023



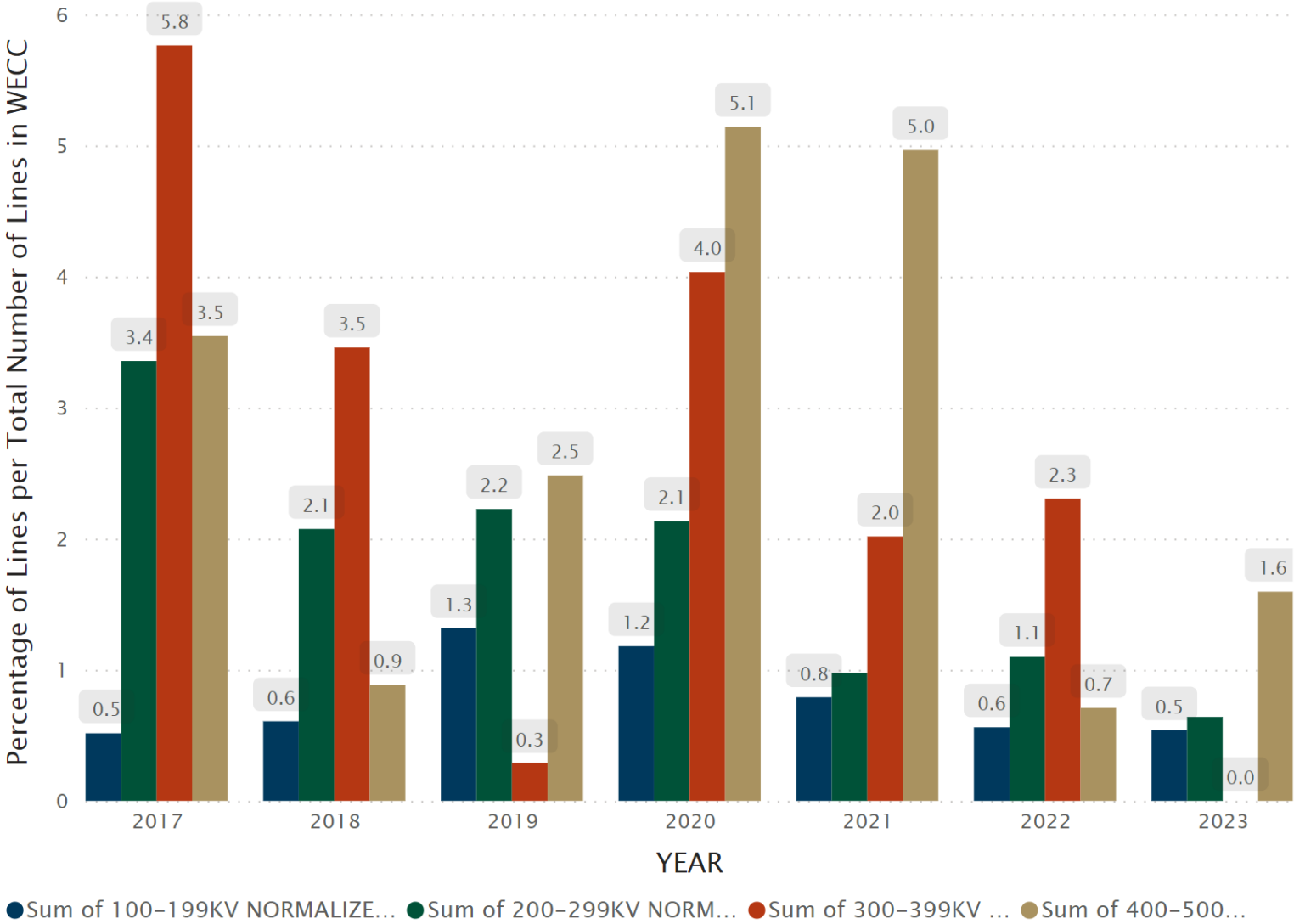
Total Reported Incidents on BES Lines by Voltage Class 2017 – 2023



Total Reported Incidents on WECC Major Paths by Voltage Class



Percentage of Lines Affected by Voltage Type

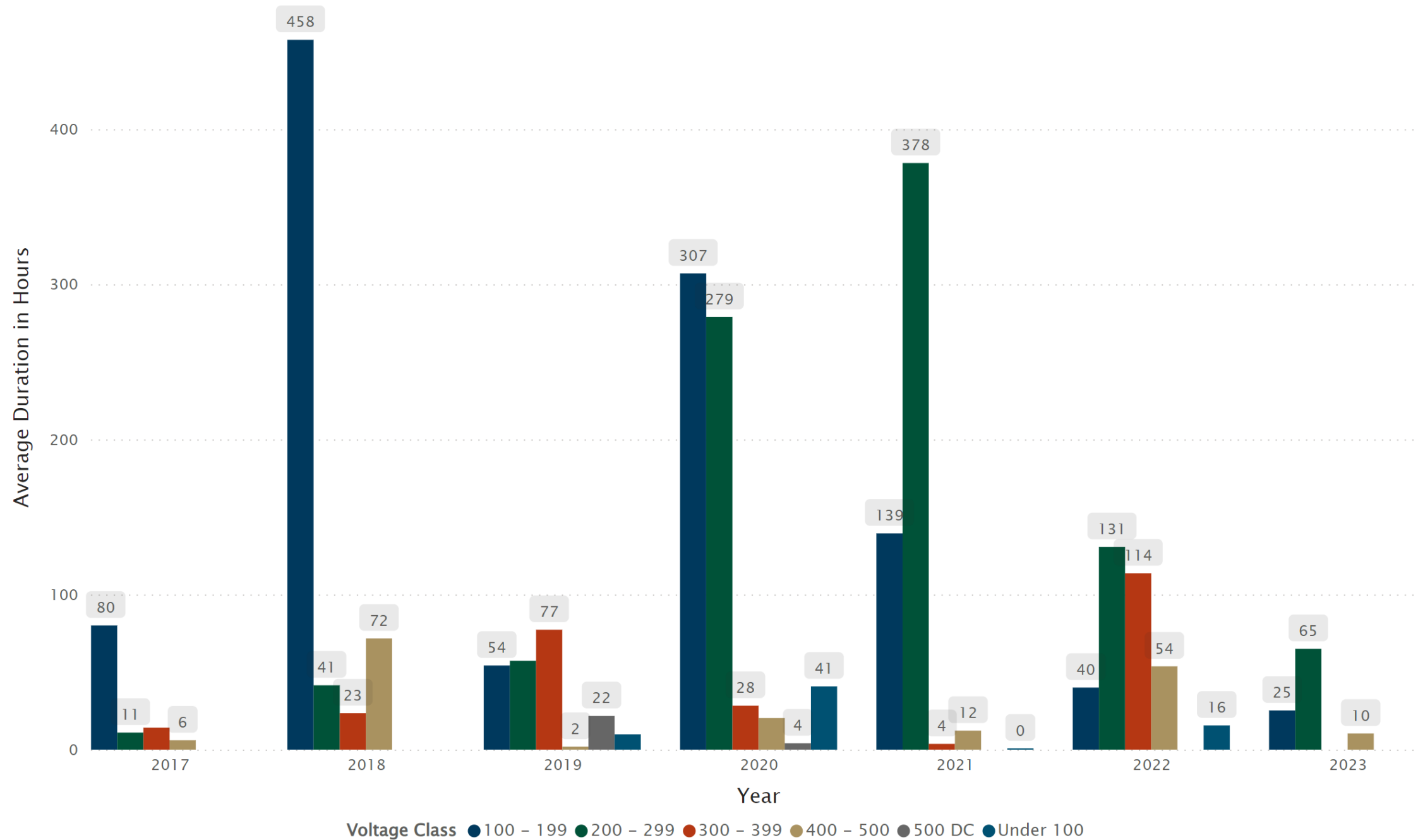


Normalizing the Data by Total Number of Lines in the Interconnection

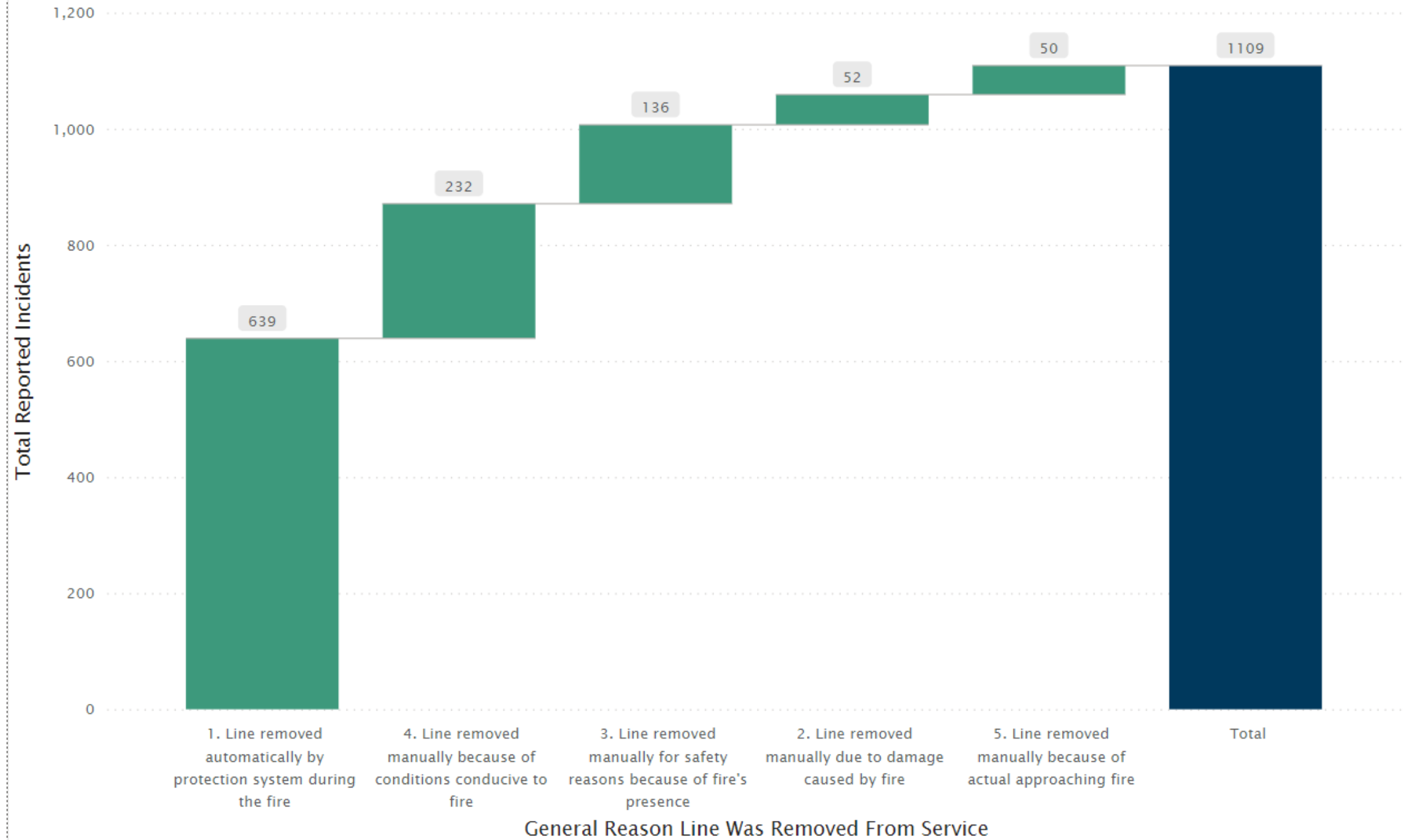
*(Count of Incidents/Count of Lines)*100 = Percentage of Lines per Total Lines in Each Voltage Class Affected*

VOLTAGE CLASS	TOTAL NUMBER OF LINES IN WECC
100-199	8726
200-299	3278
300-399	347
400-500	564

Average Duration in Hours of Total Reported Incidents by Voltage Class from 2017 – 2021



Total Number of Reported Incidents by Reason For Removal From Service



Total Amount of Load Dropped (MW)

WECC Major Path

BES Line

Voltage Class

Transmission Operator

All

All

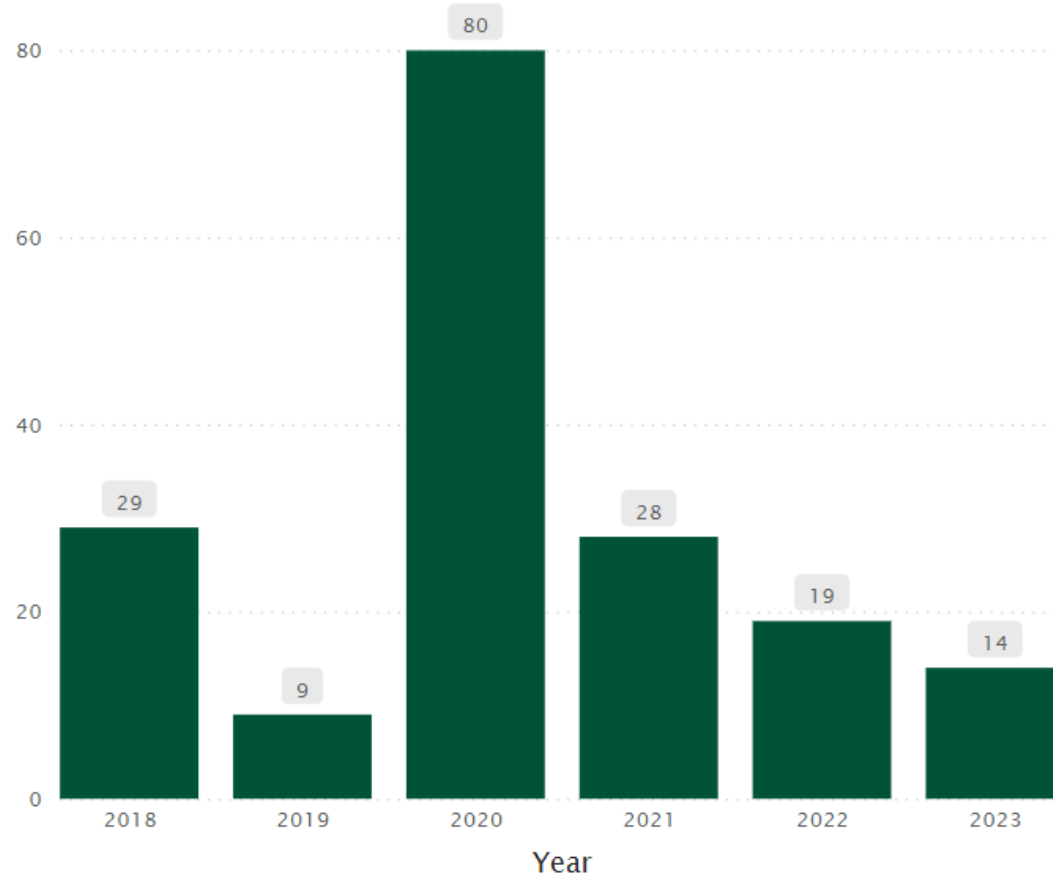
All

All

Number of Incidents Where Load was Dropped

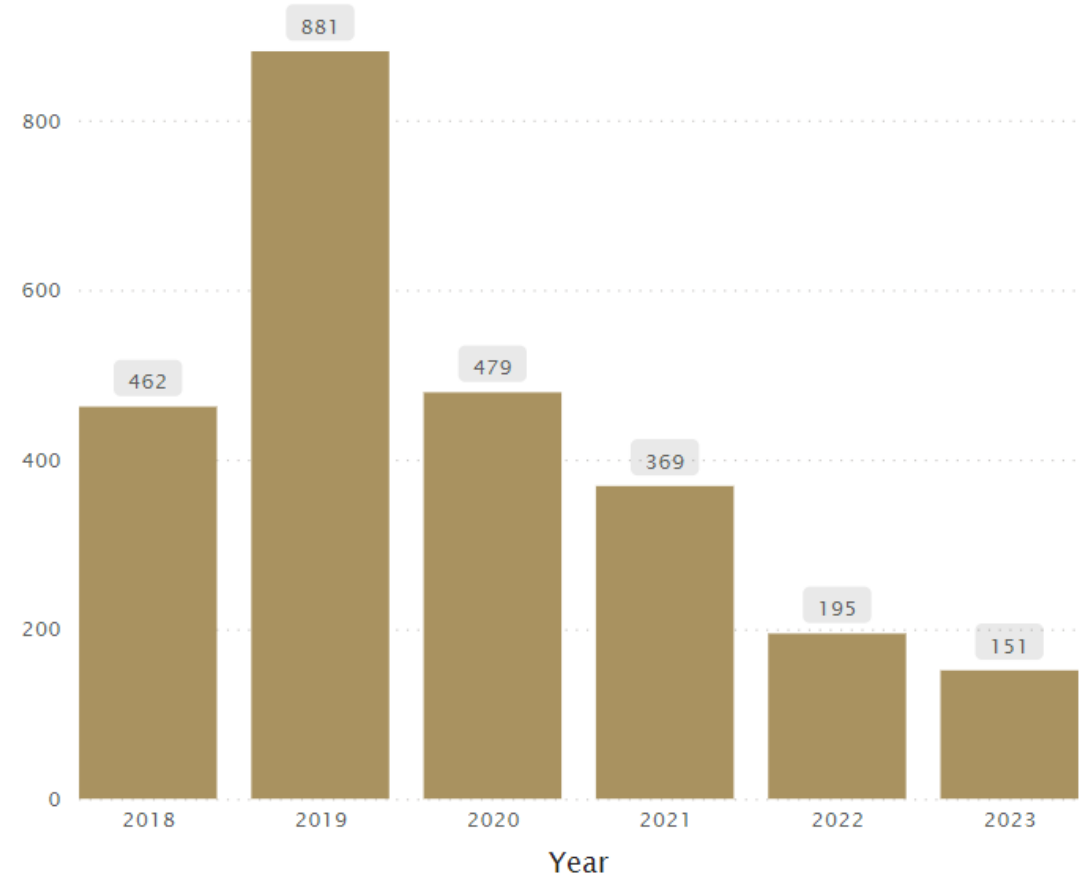


Count of Line Section Designation



Total Load Dropped

Average Amount of Load Dropped (MW)



Total Number of Customers Losing Service

WECC Major Path

All

BES Line

All

Voltage Class

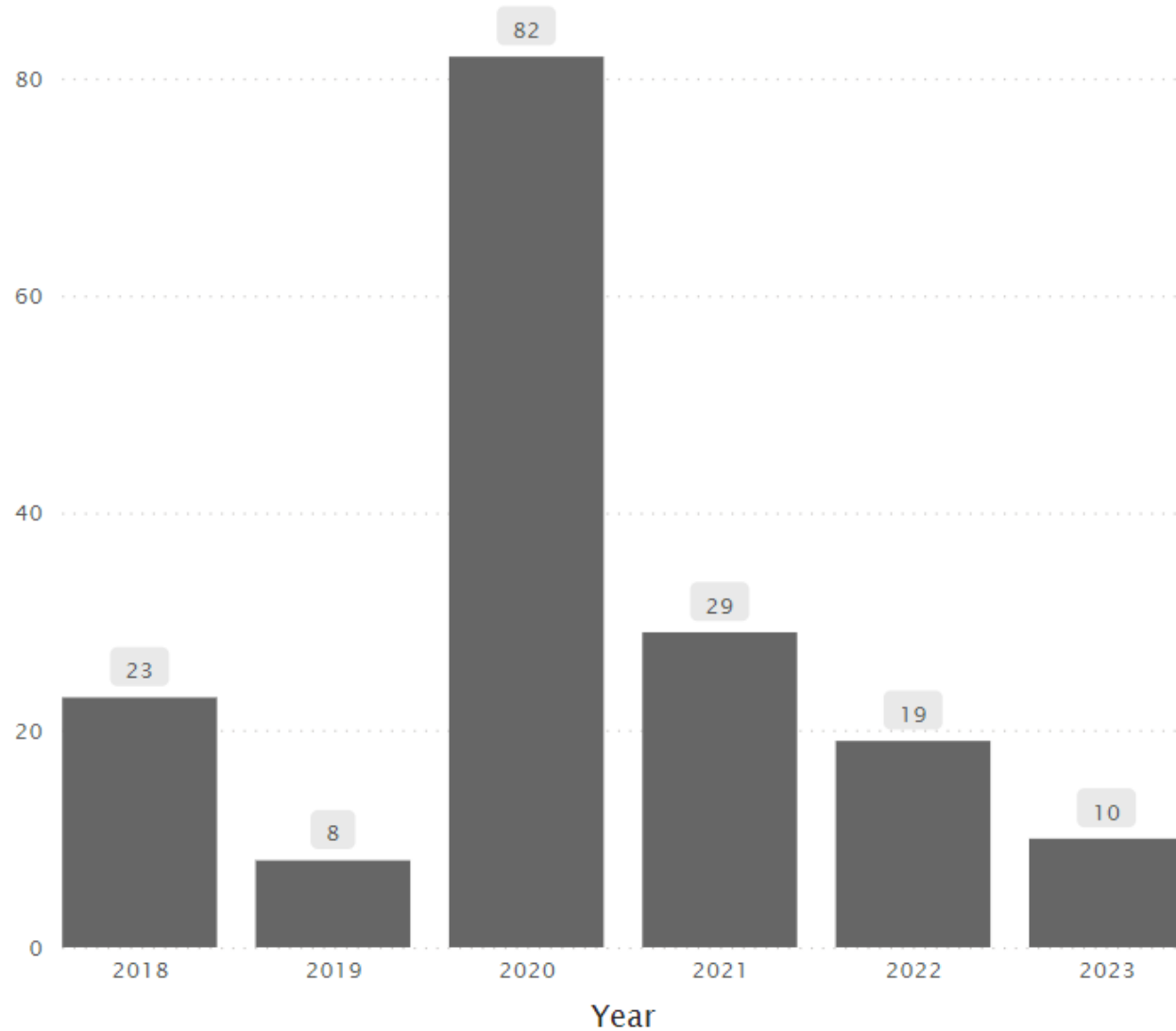
All

Transmission Operator

All

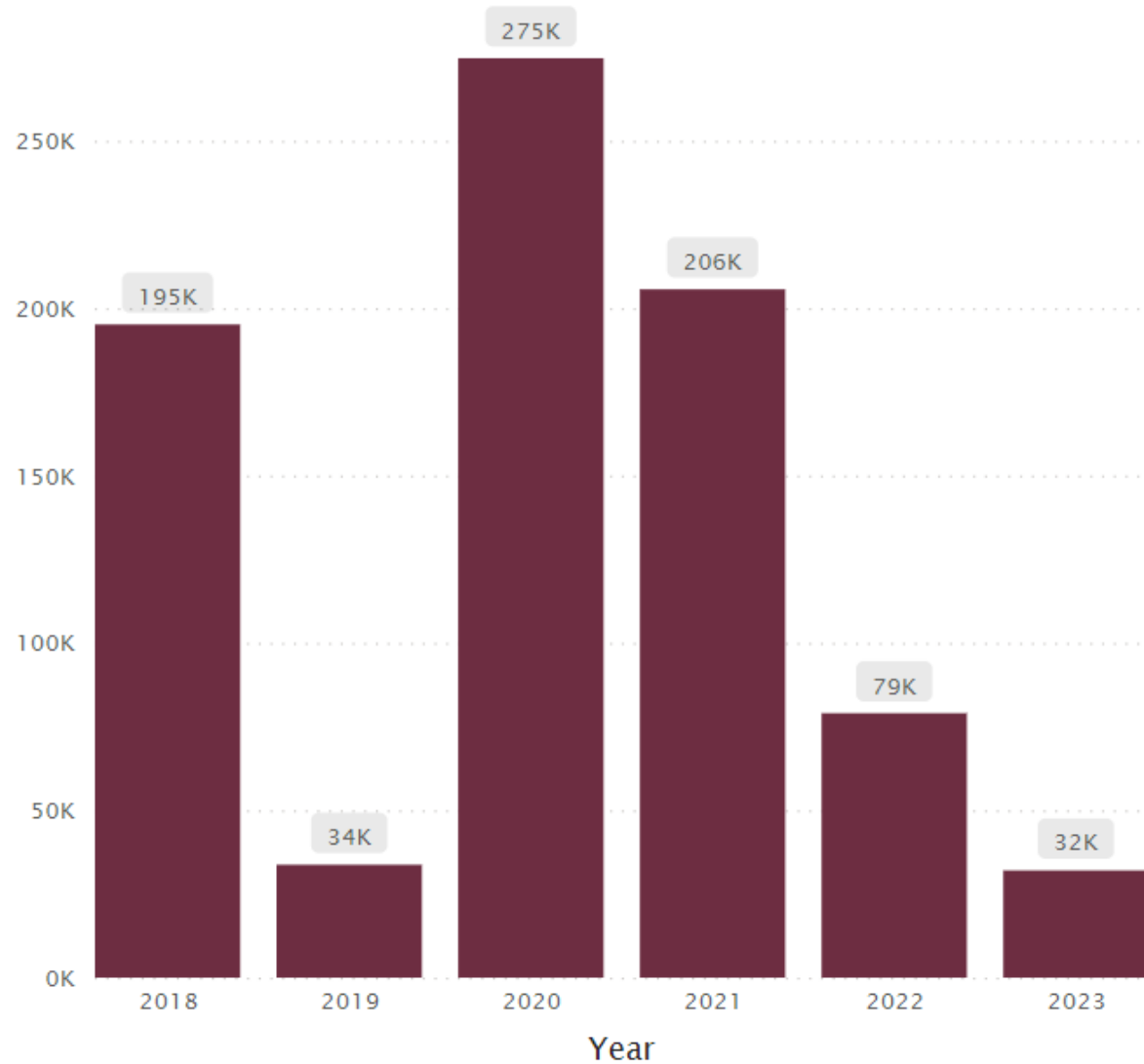
Number of Incidents Where Customers Were Lost

Average Number of Customers Losing Service



Total Number of Customers Lost

Average Number of Customers Losing Service



Wildfire DR Analysis Findings

- 64% of the outages reported were on 115- and 230-kV lines
- 21 entities reported events where they contributed to or caused wildfires (Jan 1, 2017–December 31, 2023)
 - 10 Events—January 1, 2017–July 11, 2022
 - 11 Events—July 12, 2022–December 31, 2023
 - Structure failure, jumpers, splices, bird strikes, animal caused, vehicles striking structures
- Analysis of data did not reveal significant impact to the BES facilities
- Based on the data provided, load loss across the relevant reporting period did not reveal any concerns

WF DR Analysis Findings

- There were no WECC Major Path limits exceeded
- There were no reports of extreme high/low voltage due to outages caused by wildfires
- There were no reports of extreme high/low frequency due to outages caused by wildfires

Wildfire DR Analysis Findings

- Adverse System Impacts/Special Circumstances
 - One small islanding event reported, isolating small pocket of distribution load and generation
 - 1150 MW power plant isolated due to multiple lines out of service (common corridor)
 - One RAS operation tripping 750 MW of generation was reported (RAS operated as designed)
 - Increased number of events due to small fires caused by pole fires reported
 - Five events reported where small fires were caused by animals and/or birds
 - Two events reported where fires were caused by vehicles striking structures



www.wecc.org