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Report is required by: OAR 860-023-0151

Statute

Order

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Other

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List Key Words for this report. We use these to improve search results.

Electric Service Reliability Annual Report

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Send confidential information, voluminous reports, or energy utility Results of Operations Reports to PUC Filing Center, PO Box 1088, Salem, OR 97308-1088 or by delivery service to 201 High Street SE Suite 100, Salem, OR 97301.

CONNIE ASCHENBRENNER
Rate Design Senior Manager
caschenbrenner@idahopower.com

April 30, 2024

VIA ELECTRONIC FILING

puc.FilingCenter@puc.oregon.gov

Re: RE90(12) - Idaho Power Company's Electric Service Reliability Annual Report for the Year 2023

Filing Center:

Pursuant to OAR 860-023-0151, Idaho Power Company transmits for electronic filing its Electric Service Reliability Annual Report for the Year 2023.

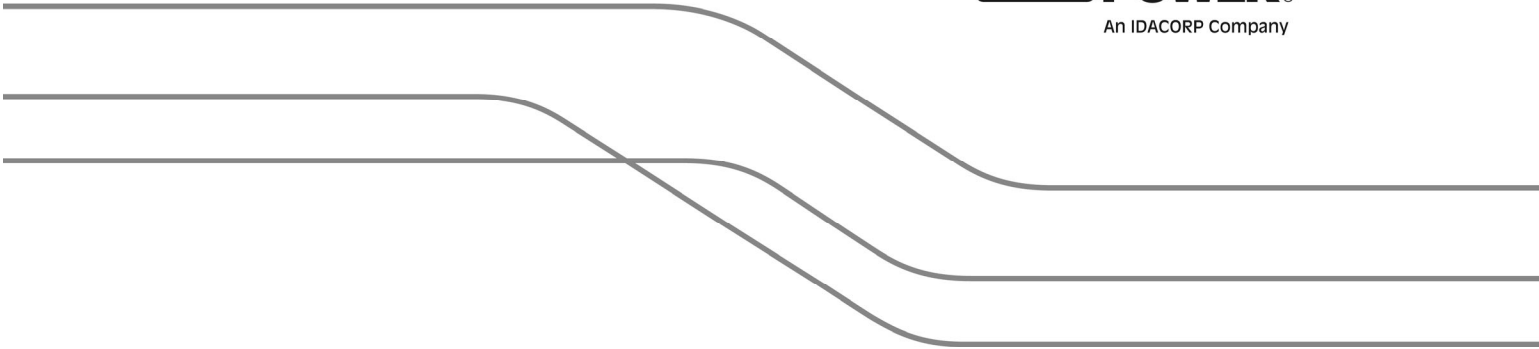
If you have any substantive questions, please call Jon Axtman at 208-388-5036.

Very truly yours,

A handwritten signature in blue ink that reads "Connie Aschenbrenner".

Connie Aschenbrenner

CA:sg
Enclosure



**Idaho Power Company
2023 Electric Service
Reliability Annual Report**

April 2024
2024 Idaho Power

CONTENTS

Figures.....	ii
Tables.....	iii
Executive Summary	1
Definitions.....	3
System SAIDI, SAIFI and MAIFI _E	5
System SAIDI.....	5
System SAIFI.....	6
System MAIFI _E	7
Sustained Interruption Event Causes	9
Circuit SAIDI, SAIFI and MAIFI _E	13
Five Years of Circuit SAIDI.....	13
Five Years of Circuit SAIFI.....	25
Five Years of Circuit MAIFI _E	37
2023 Descending Indices by Circuit.....	49
Appendix.....	53
Circuit Reference Information	53
Five Years of System Pole and Trench Miles.....	54
2023 Major Event Day System Summary	55
2023 Major Event Day Feeder Summary	55
Five Years of Major Event Days	55
Cause Category Translation.....	56
Maps.....	57

FIGURES

Figure 1 Five Years of System SAIDI.....	5
Figure 2 Five Years of System SAIFI.....	6
Figure 3 Five Years of System MAIFI _E	7
Figure 4 Five Years of Sustained Interruption Events by Cause	10
Figure 5 2023 Ranking of Sustained Interruption Event Causes	12
Figure 6 Five Years of Circuit SAIDI.....	24
Figure 7 Five Years of Circuit SAIFI	36
Figure 8 Five Years of Circuit MAIFI _E	48
Figure 9 2023 Descending SAIDI by Circuit	50
Figure 10 2023 Descending SAIFI by Circuit	51
Figure 11 2023 Descending MAIFI _E by Circuit	52
Figure 12 Five Years of MEDs.....	55

TABLES

Table 1 Five Years of System SAIDI	5
Table 2 Five Years of System SAIFI.....	6
Table 3 Five Years of System MAIFI _E	7
Table 4 Five Years of Sustained Interruption Event Causes	9
Table 5 2023 Sustained Interruption Event Cause Ranking.....	11
Table 6 Five Years of Circuit SAIDI.....	13
Table 7 Five Years of Circuit SAIFI.....	25
Table 8 Five Years of Circuit MAIFI _E	37
Table 9 2023 Descending Indices by Circuit.....	49
Table 10 Circuit Reference Information.....	53
Table 11 Five Years of System Pole and Trench Miles.....	54
Table 12 2023 MED System Summary	55
Table 13 2023 MED Feeder Summary	55
Table 14 Cause Category Translation.....	56

EXECUTIVE SUMMARY

The information in this document presents Idaho Power's 2023 Electric Service Reliability Annual Report in accordance with OAR 860-023-0151. The report discusses the performance of Idaho Power's Oregon electric service through a narrative summary and includes several tables and figures.

At year-end 2023, Idaho Power served 20,025 customers from 63 distribution circuits served by 29 substations in the far central-eastern portion of Oregon. The composite performance of the circuits in 2023 included the following:

- 717 sustained (greater than five minutes) interruption events
- 26,113 customer interruptions
- 58,206 customer hours out
- System Average Interruption Frequency Index (SAIFI) of 1.30
- System Average Interruption Duration Index (SAIDI) of 2.91 hours
- Momentary Average Interruption Event Frequency Index (MAIFI_E) of 2.61

Idaho Power used the calculation of a threshold for major event days (MEDs) as defined in the Institute of Electrical and Electronic Engineers (IEEE) Standard 1366 and monitored its Oregon service area for MED occurrences. All the indices at the circuit and system levels in this report are shown with and without MED events for years 2019-2023.

Idaho Power's 2023 threshold in Oregon for a major event day (T_{MED}) per the IEEE 1366 definition was a daily SAIDI of 9.06 minutes per customer. With the additional criterion of a daily customer average interruption duration index (CAIDI) of 5 hours (300 minutes) per OAR 860-023-0161, Idaho Power experienced 1 major event day in its Oregon service area in 2023. Idaho Power's calculated T_{MED} for 2024 in Oregon is 9.82 minutes per customer. The calculation of the T_{MED} and identification of major event days is done while considering all of Idaho Power's Oregon customers.

Compared to 2022, Idaho Power's Oregon service area SAIFI increased by 0.52 interruptions per customer from 0.78 in 2022 to 1.30 in 2023. The average duration of sustained outages also increased compared to last year; SAIDI increased by 0.86 hours per customer from 2.04 in 2022 to 2.91 in 2023. Finally, MAIFI_E increased in 2023 compared to 2022 by 0.64 momentary interruption events per customer from 1.97 in 2022 to 2.61 in 2023.

The attached charts and tables show Idaho Power's Oregon system performance over the previous five years for SAIFI, SAIDI and MAIFI_E at the system and circuit level in accordance with OAR 860-023-0151 (2)(a). In addition to the reliability indices, a summary of sustained interruption causes is shown at the system level in accordance with OAR 860-023-0151 (2)(b).

A table translating Idaho Power's cause categories to the cause categories listed in OAR 860-023-0151 (2)(b) can be found in the Appendix. The Appendix also includes supplemental information such as substation, voltage, operating area, and customers connected for each distribution circuit in accordance with OAR 860-023-0151 (2)(h). A map is also provided which shows the distribution circuits in Idaho Power's service area with Oregon customers in accordance with OAR 860-023-0151 (2)(g).

Idaho Power collects detailed outage information for all sustained outage events through its Outage Management System (OMS). Historical data from the OMS is stored and circuit performance is analyzed for the prioritization of capital projects to improve reliability. Idaho Power also continues to utilize data from its Smart Grid Monitoring system to calculate MAIFI_E as it has in past years.

Idaho Power continues to implement programs and projects to improve customer service and electric service reliability. Company programs related to electric service reliability include the annual Oregon safety inspection/reliability patrols, the line clearing and vegetation management program, the pole inspection and treatment program, and annual maintenance and capital projects that replace aging assets and improve reliability.

DEFINITIONS

CAIDI – Customer Average Interruption Duration Index; the average duration that a customer experienced per sustained outage (greater than 5 minutes).

CHO – Customer Hours Out; CMI divided by 60.

CI – Customer Interruptions; the total number of customer interruptions from sustained outages (greater than 5 minutes).

CMI – Customer Minutes of Interruption; the total number of customer minutes of interruption from sustained outages (greater than 5 minutes). This is calculated as the product of customer interruptions and outage duration in minutes.

IEEE – The Institute of Electrical and Electronic Engineers.

IEEE 1366 – The Institute of Electrical and Electronic Engineers (IEEE) Standard 1366 entitled *IEEE Guide for Electric Power Distribution Reliability Indices* (the 2012 edition), approved on May 14, 2012 by IEEE-SA Standards Board.

MAIFI_E – Momentary Average Interruption Event Frequency Index; the average number of momentary interruption events per customer (less than or equal to 5 minutes).

Major Event – An event that exceeds the reasonable design and/or operational limits of the electric power system. A major event includes at least one major event day (MED).

MED – Major Event Day; a day when the daily SAIDI exceeds a predefined threshold value.

MedEx – Major Event Day Excluded; this suffix is used after a reliability index to indicate major event days are excluded. For example, SAIFI MedEx is SAIFI excluding major event days.

OMS – Outage Management System; refers to Idaho Power’s system for distribution system mobile workforce, switching and outage event tracking.

Operating Area – Idaho Power’s customers in Oregon are split into two operating areas: 1) the Jordan Valley region of the reporting area served by the Canyon Operations Center in Caldwell, ID and 2) the rest of the reporting area served by the Western Operations Center in Payette, ID. Approximately 97% of Idaho Power’s customers in Oregon are within the Western operating area, while the remaining 3% of Idaho Power’s customers in Oregon are within the Canyon operating area.

Reporting Area – Idaho Power’s entire service area in Oregon.

SAIDI – System Average Interruption Duration Index; the average duration from all sustained outages that a customer experienced per year (greater than 5 minutes).

SAIFI – System Average Interruption Frequency Index; the average frequency of sustained outages that a customer experienced per year (greater than 5 minutes).

SGM – Smart Grid Monitor; refers to Idaho Power’s system for monitoring momentary interruption events on its distribution network.

T_{MED} – A major event day threshold value.

SYSTEM SAIDI, SAIFI AND MAIFI_E

System SAIDI

Year	2019	2020	2021	2022	2023
SAIDI	2.01	3.09	3.69	2.05	2.91
SAIDI MedEx	1.70	2.87	3.69	2.05	2.73

Table 1 Five Years of System SAIDI

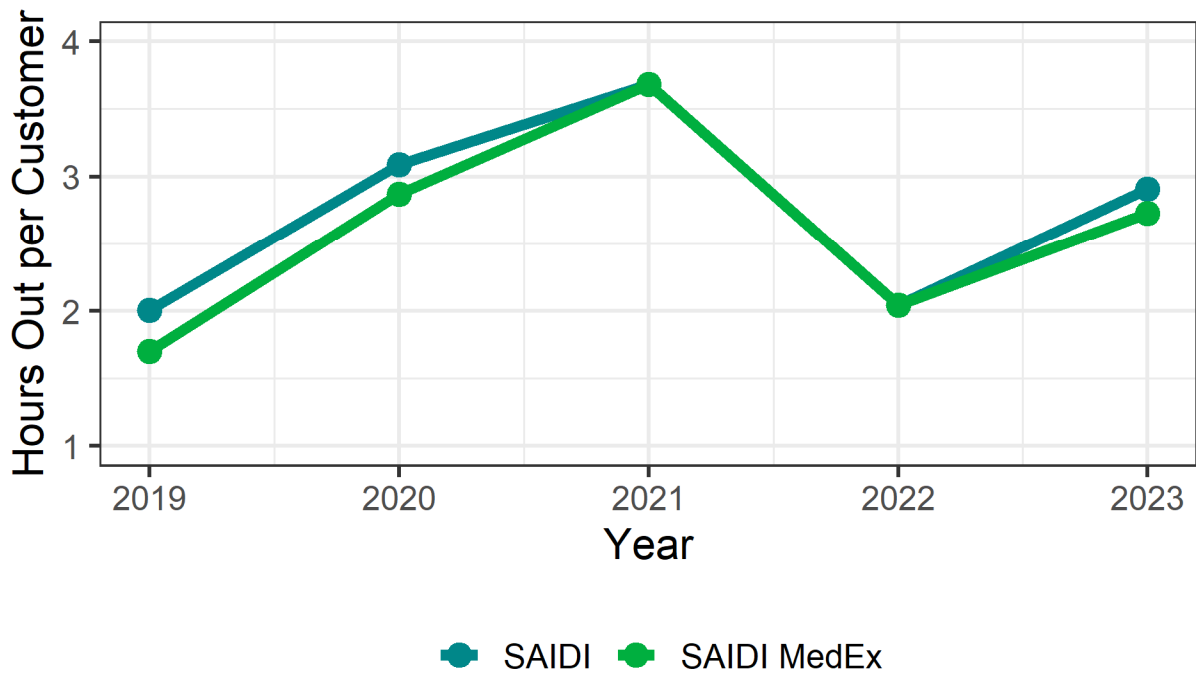


Figure 1 Five Years of System SAIDI

System SAIFI

Year	2019	2020	2021	2022	2023
SAIFI	0.63	0.97	1.48	0.78	1.30
SAIFI MedEx	0.63	0.94	1.48	0.78	1.28

Table 2 Five Years of System SAIFI

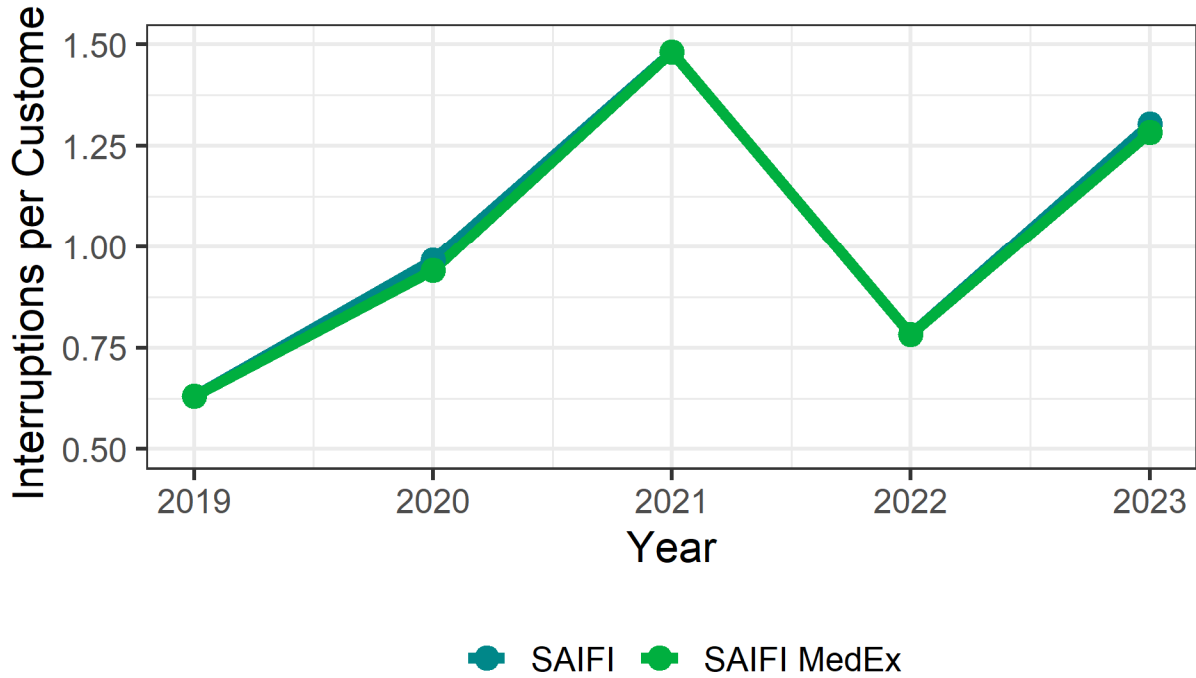


Figure 2 Five Years of System SAIFI

System MAIFI_E

Year	2019	2020	2021	2022	2023
MAIFI _E	2.28	2.07	1.80	1.97	2.61
MAIFI _E MedEx	2.28	2.07	1.80	1.97	2.59

Table 3 Five Years of System MAIFI_E

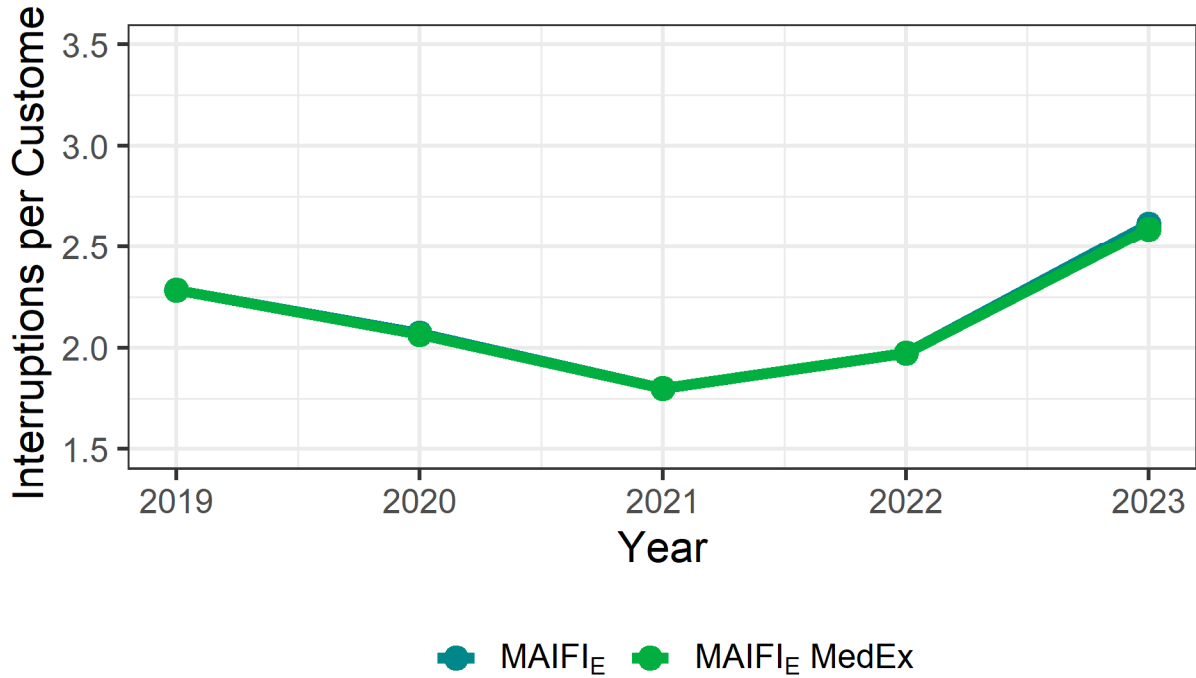


Figure 3 Five Years of System MAIFI_E

Sustained Interruption Event Causes

Cause	Number of Sustained Interruption Events					Percent of Total Sustained Interruption Events				
	2019	2020	2021	2022	2023	2019	2020	2021	2022	2023
Distribution – Equipment	172	150	197	130	169	25.2%	21.5%	25.3%	20.7%	23.6%
Distribution – Lightning	23	8	16	8	28	3.4%	1.1%	2.1%	1.3%	3.9%
Distribution – Other	46	41	27	29	34	6.7%	5.9%	3.5%	4.6%	4.7%
Distribution – Planned	119	133	125	121	127	17.4%	19.0%	16.0%	19.3%	17.7%
Distribution – Public	54	54	69	67	54	7.9%	7.7%	8.9%	10.7%	7.5%
Distribution – Unknown	62	99	108	106	96	9.1%	14.2%	13.9%	16.9%	13.4%
Distribution – Vegetation	91	120	128	68	79	13.3%	17.2%	16.4%	10.8%	11.0%
Distribution – Weather (Non-Lightning)	25	17	7	23	19	3.7%	2.4%	0.9%	3.7%	2.6%
Distribution – Wildlife	82	55	73	64	81	12.0%	7.9%	9.4%	10.2%	11.3%
Loss of Supply – Substation	3	2	5	4	11	0.4%	0.3%	0.6%	0.6%	1.5%
Loss of Supply – Transmission	6	20	24	8	19	0.9%	2.9%	3.1%	1.3%	2.6%
Total	683	699	779	628	717	100.0%	100.0%	100.0%	100.0%	100.0%

Table 4 Five Years of Sustained Interruption Event Causes

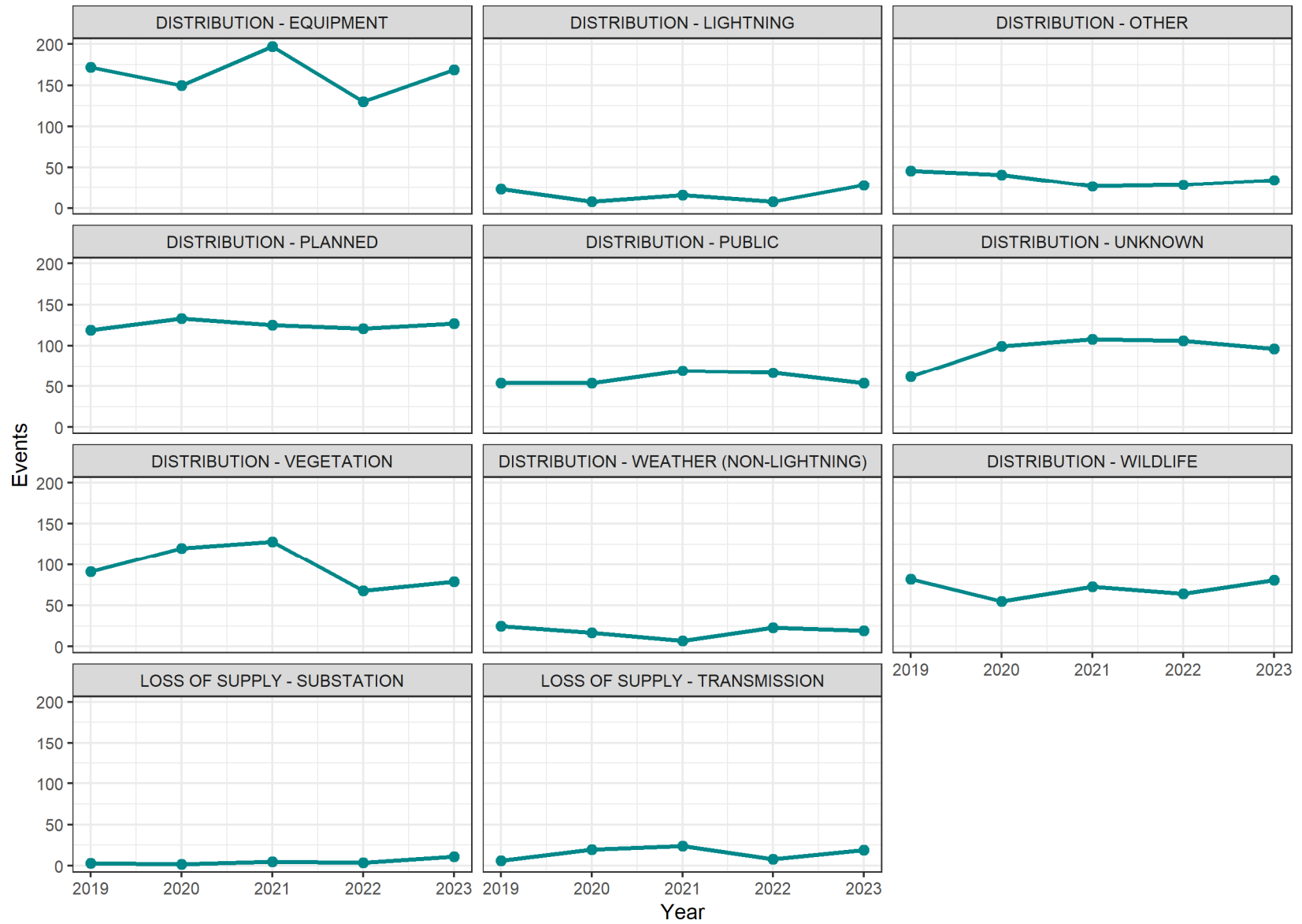


Figure 4 Five Years of Sustained Interruption Events by Cause

Cause	Events	Hours Out	Event Ranking	Hours Out Ranking
Distribution – Equipment	169	2,191.2	1	1
Distribution – Lightning	28	111.7	8	7
Distribution – Other	34	90.0	7	9
Distribution – Planned	127	673.5	2	2
Distribution – Public	54	137.4	6	6
Distribution – Unknown	96	221.9	3	4
Distribution – Vegetation	79	222.1	5	3
Distribution – Weather (non-Lightning)	19	107.7	9	8
Distribution – Wildlife	81	189.2	4	5
Loss of Supply – Substation	11	24.6	10	11
Loss of Supply – Transmission	19	84.4	9	10
Total	717	4,053.8		

Table 5 2023 Sustained Interruption Event Cause Ranking

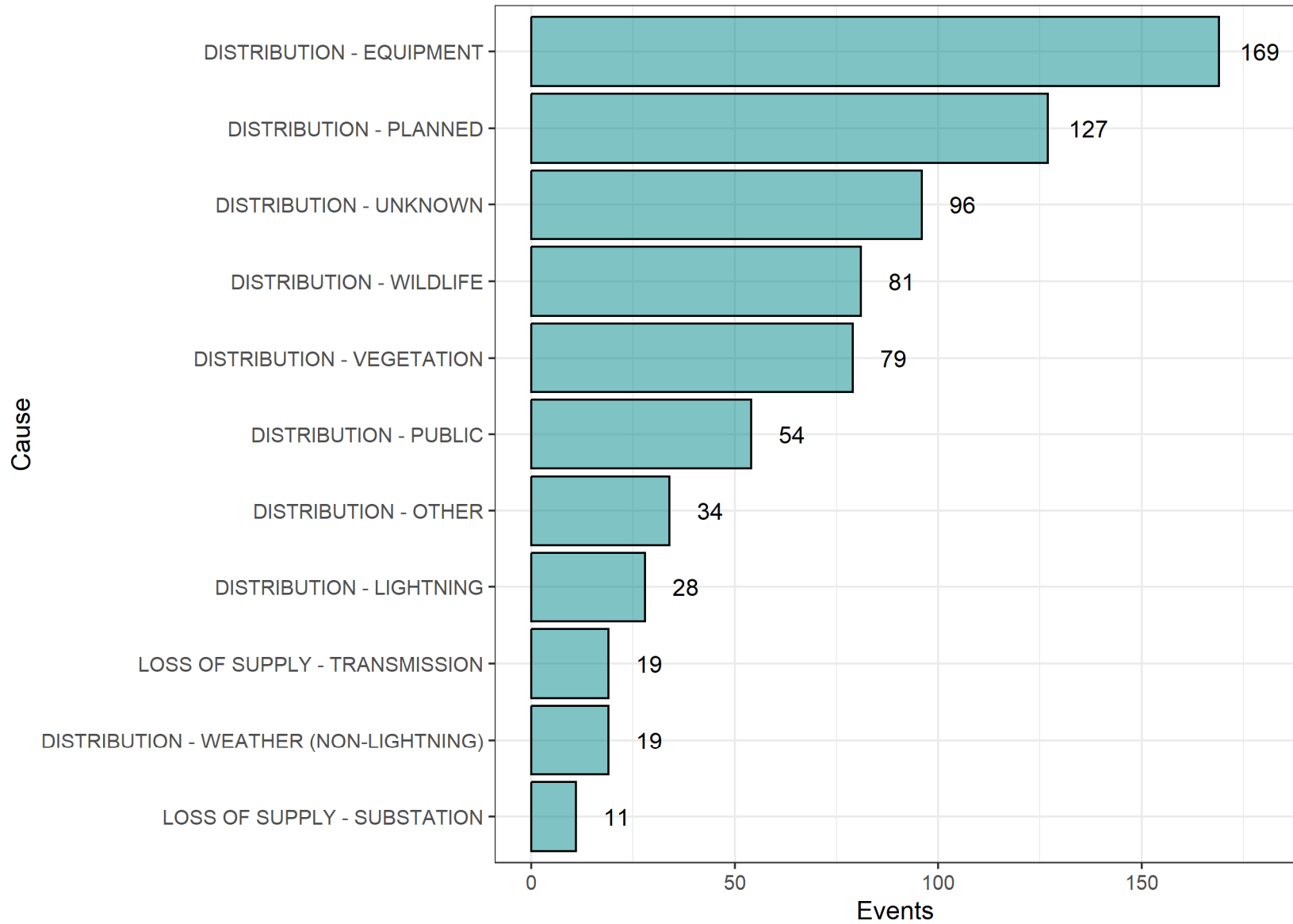


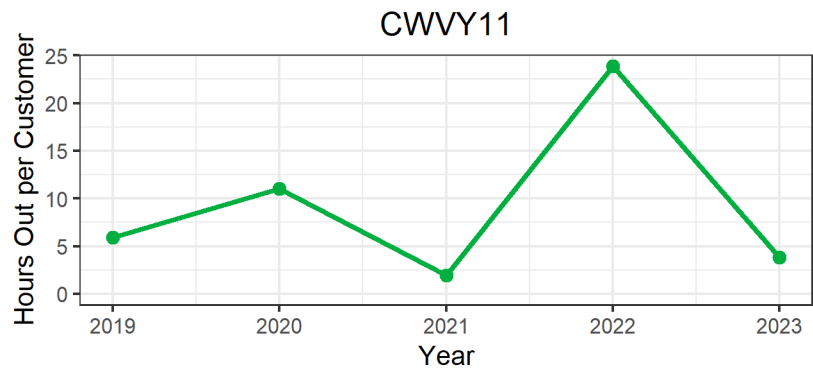
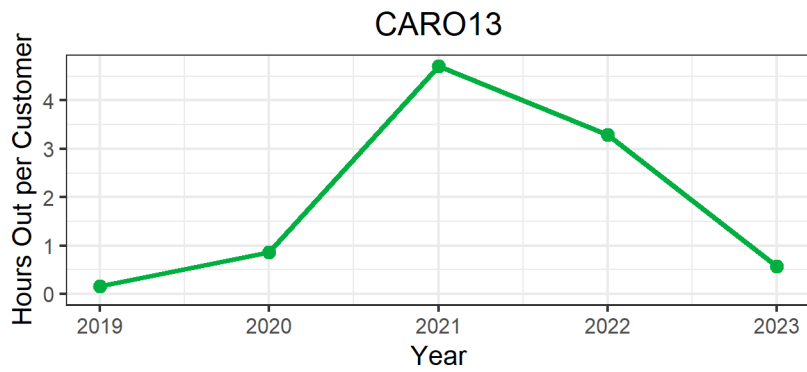
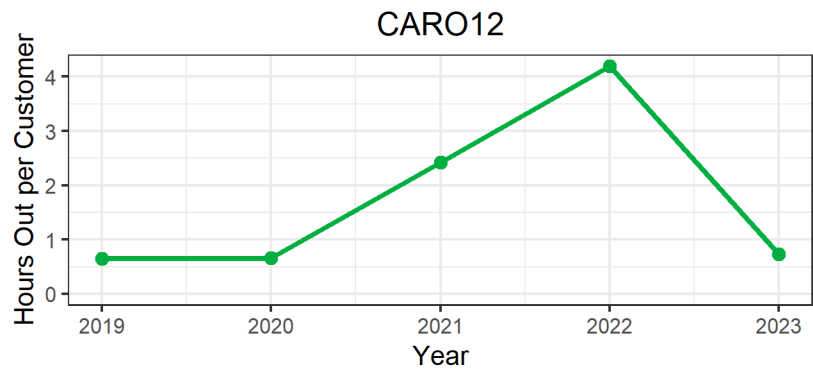
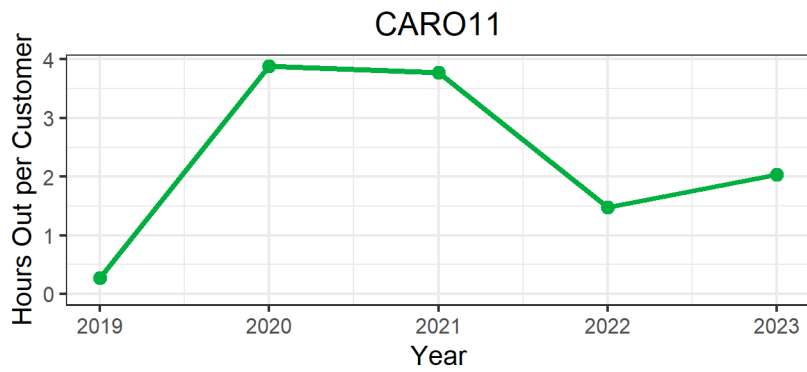
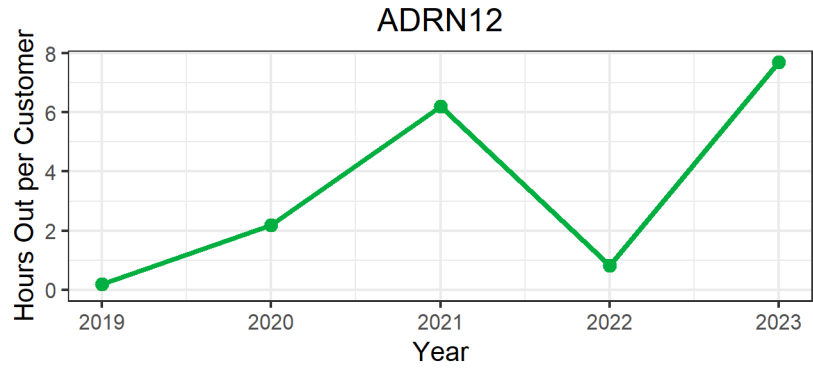
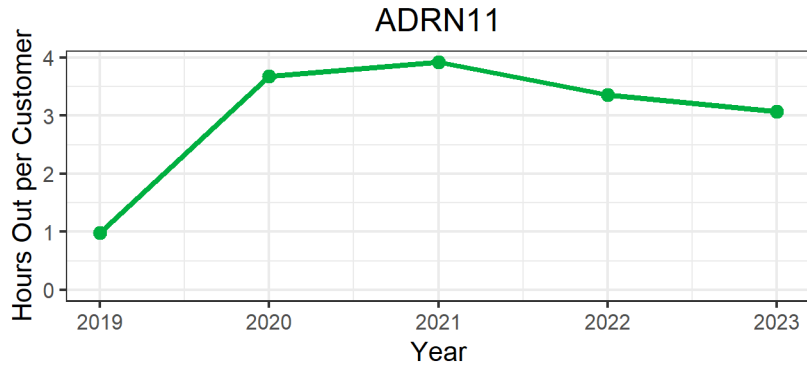
Figure 5 2023 Ranking of Sustained Interruption Event Causes

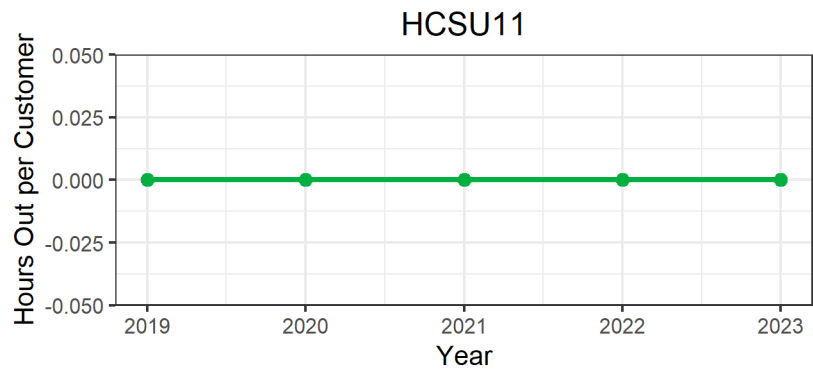
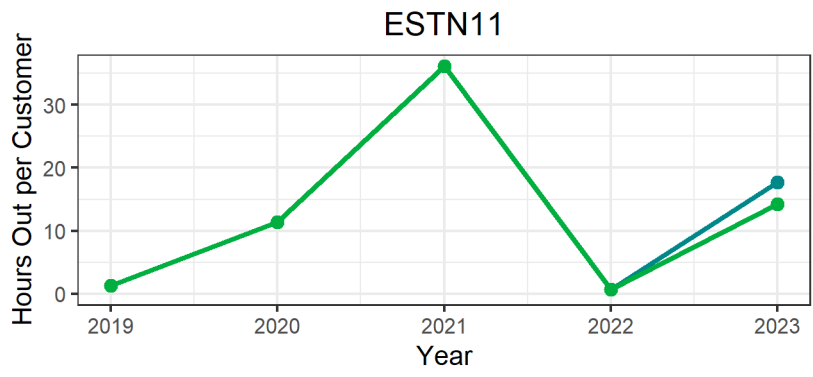
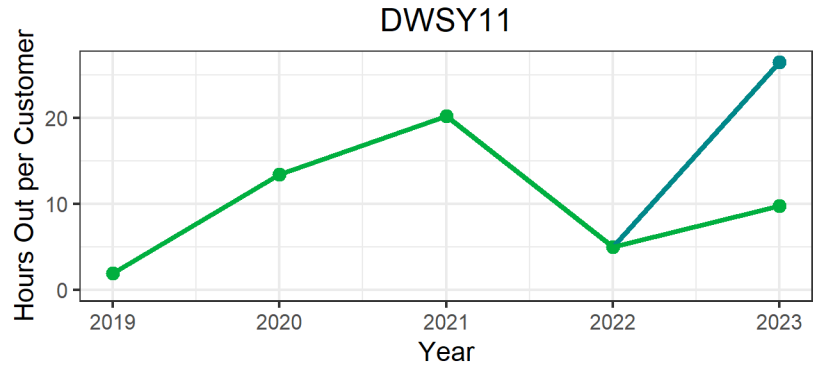
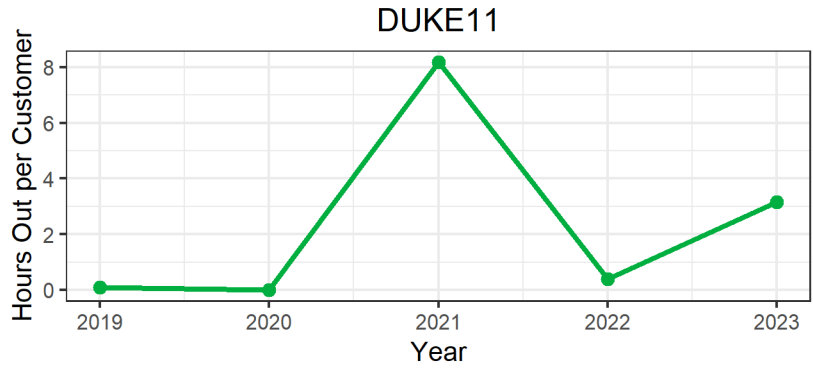
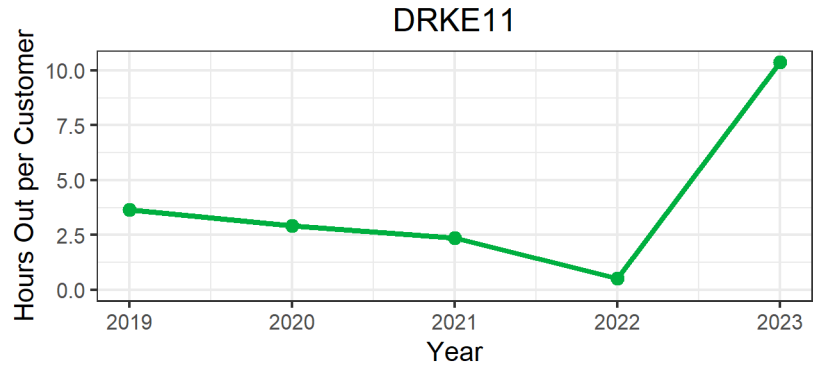
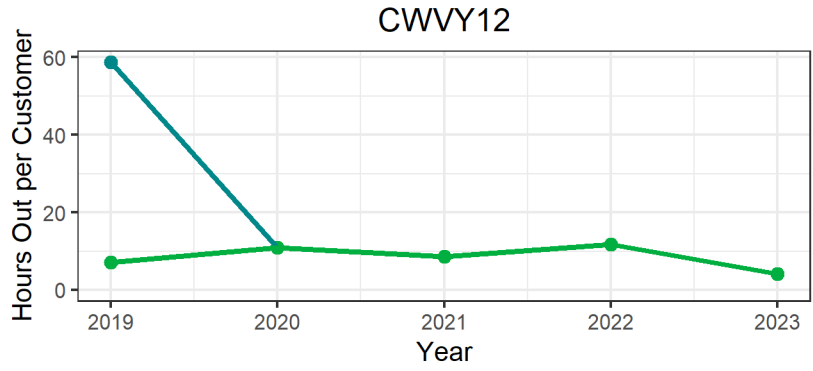
CIRCUIT SAIDI, SAIFI AND MAIFI_E

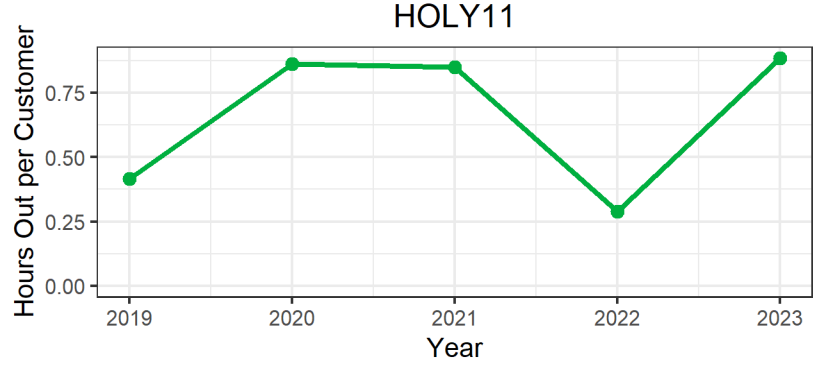
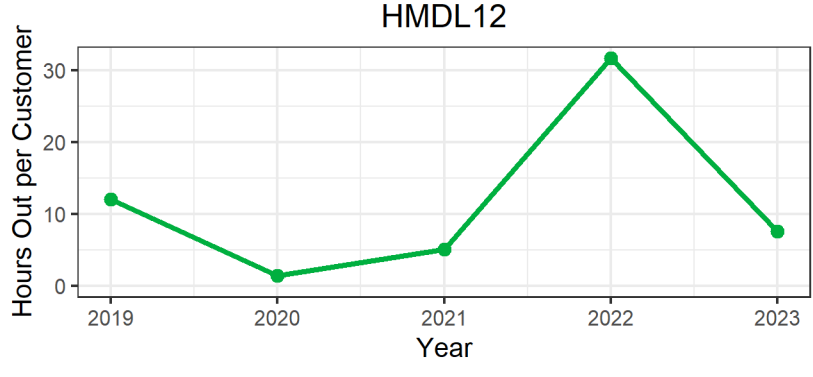
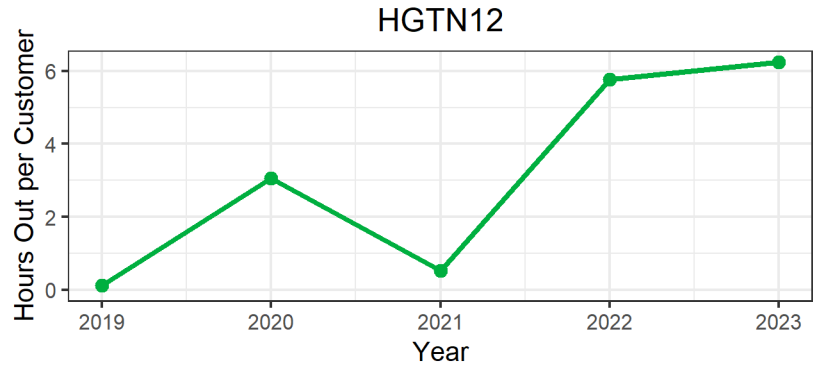
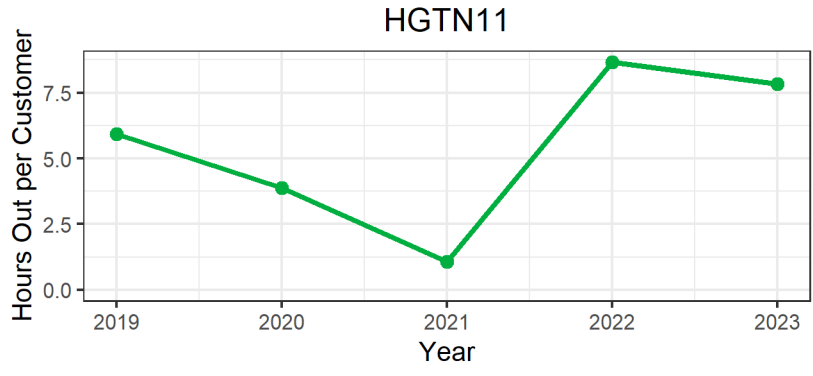
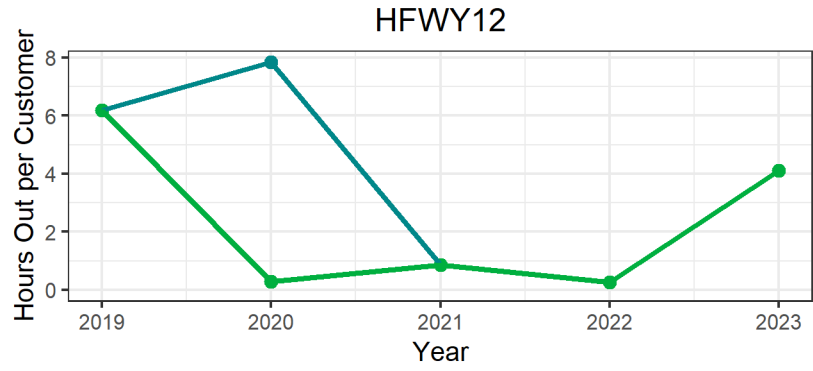
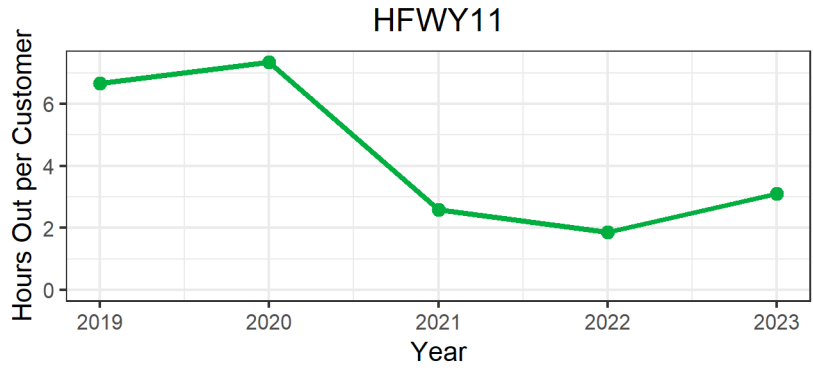
Five Years of Circuit SAIDI

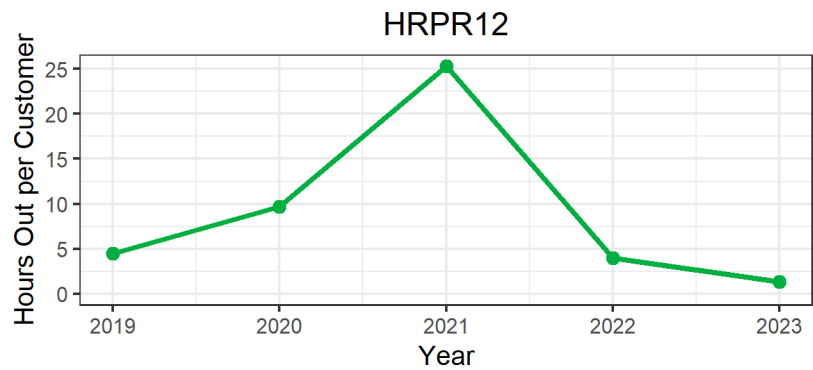
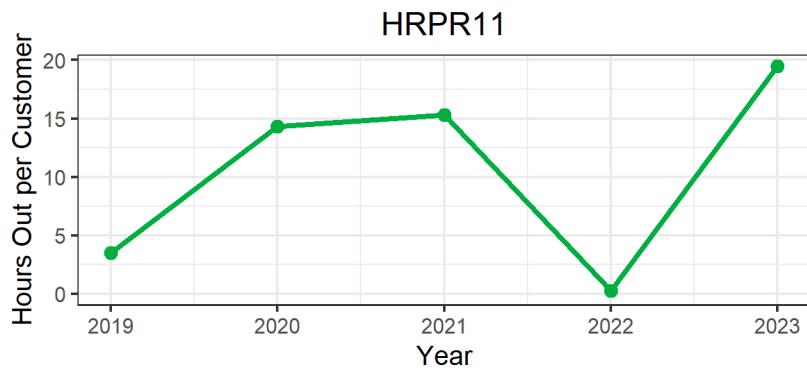
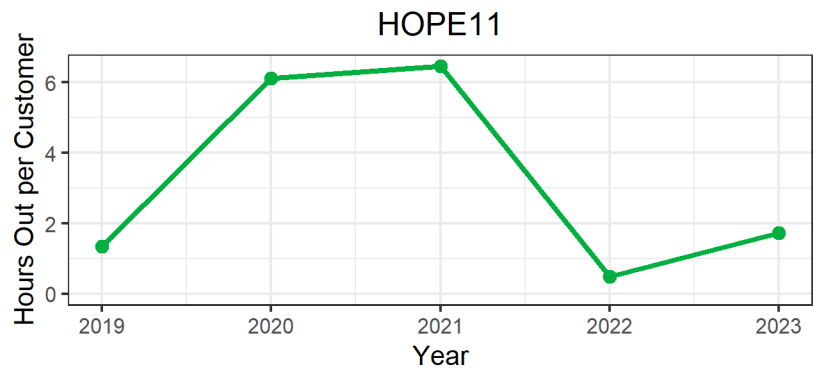
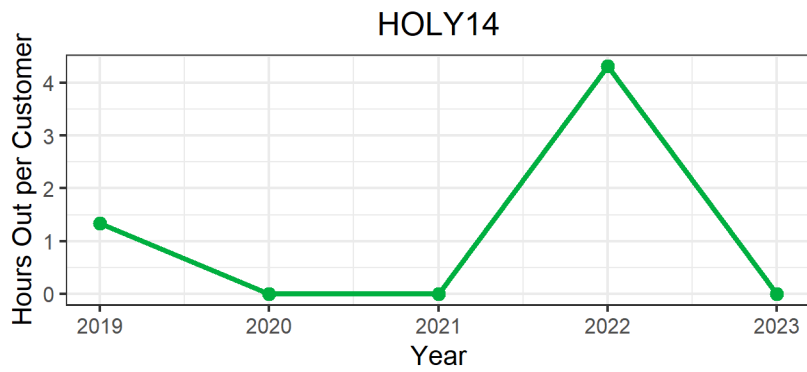
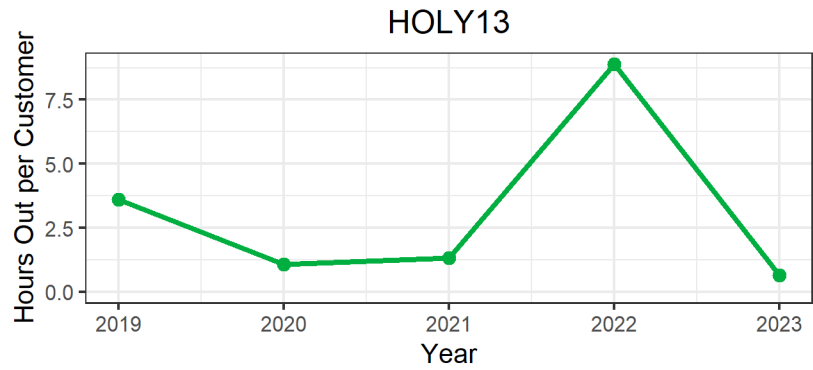
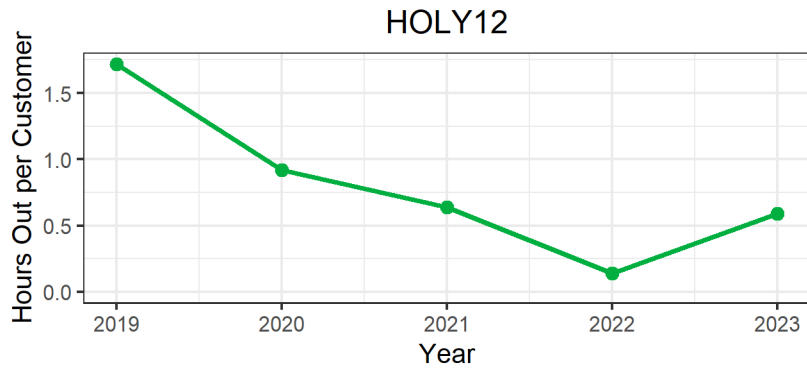
Circuit	2019	2020	2021	2022	2023	2023 MedEx
ADRN11	0.99	3.68	3.93	3.36	3.07	3.07
ADRN12	0.19	2.19	6.21	0.82	7.70	7.70
CARO11	0.28	3.89	3.78	1.48	2.03	2.03
CARO12	0.65	0.66	2.42	4.20	0.73	0.73
CARO13	0.16	0.86	4.71	3.33	0.57	0.57
CWVY11	5.93	11.00	1.96	23.89	3.86	3.86
CWVY12	59.83	10.99	8.55	11.77	4.08	4.08
DRKE11	3.70	2.93	2.35	0.53	10.38	10.38
DUKE11	0.11	0.00	8.18	0.39	3.16	3.16
DWSY11	1.94	13.44	20.21	5.01	26.50	9.78
ESTN11	1.27	11.40	36.14	0.67	17.65	14.27
HCSU11	0.00	0.00	0.00	0.00	0.00	0.00
HFVY11	6.70	7.36	2.58	1.86	3.09	3.09
HFVY12	6.20	7.84	0.86	0.26	4.11	4.11
HGTN11	6.00	3.88	1.06	8.67	7.83	7.83
HGTN12	0.13	3.06	0.52	5.77	6.25	6.25
HMDL12	12.11	1.43	5.10	31.71	7.57	7.57
HOLY11	0.43	0.86	0.85	0.29	0.88	0.88
HOLY12	1.72	0.92	0.64	0.14	0.59	0.59
HOLY13	3.69	1.08	1.35	8.90	0.65	0.65
HOLY14	1.33	0.00	0.00	4.32	0.00	0.00
HOPE11	1.36	6.11	6.46	0.49	1.73	1.73
HRPR11	3.66	14.32	15.33	0.29	19.49	19.49
HRPR12	4.54	9.70	25.32	3.98	1.33	1.33
JMSN11	6.41	3.50	2.09	5.19	3.36	3.36
JMSN12	1.18	2.15	4.34	0.91	2.54	2.54
JNTA11	1.31	10.89	20.88	1.80	7.35	3.91
JNTA12	1.33	12.08	34.56	0.06	13.79	10.47
JNVY11	0.17	17.02	0.09	0.16	5.23	5.23
JNVY12	0.10	16.29	2.64	2.90	5.15	5.15
JNVY31	6.40	19.07	13.73	7.17	2.93	2.93
MRBT41	2.61	4.15	5.28	2.98	3.25	3.25
MRBT42	1.78	0.00	6.29	7.15	1.99	1.99
NYSA11	3.23	0.10	1.42	0.35	2.95	2.95
NYSA12	1.12	0.20	3.49	2.40	4.70	4.70
NYSA13	0.77	1.71	0.72	1.84	6.16	6.16
NYSA14	1.21	0.31	2.14	0.04	3.80	3.80
NYSA15	0.00	0.00	329.78	1.49	11.76	11.76
OBPR11	0.00	0.00	0.00	0.00	2.28	2.28
OIDA11	1.73	2.77	3.05	1.80	0.09	0.09
OIDA12	5.58	0.00	0.00	0.00	1.42	1.42
ONTO14	0.04	0.00	0.00	0.00	0.28	0.28
ONTO18	0.55	0.03	0.32	0.11	0.37	0.37
ONTO19	0.59	0.55	2.52	0.13	0.49	0.49
ONTO20	0.63	0.98	0.54	0.36	0.67	0.67
ONTO23	0.00	0.00	1.23	0.55	0.00	0.00
ONTO24	2.13	0.48	1.94	2.05	0.29	0.29
ONTO25	1.50	0.03	0.11	1.81	0.04	0.04
OYDM11	2.97	0.00	3.87	0.33	0.00	0.00
PNCK11	1.38	27.39	0.00	3.07	3.85	3.85
PNCK12	0.00	4.48	12.97	1.06	6.73	6.73
PRMA12	0.23	0.00	6.61	60.76	8.35	8.35
PRMA42	0.89	5.95	12.50	3.25	2.19	2.19
RKVL11	0.30	17.07	0.05	1.71	13.93	13.93
UNTY11	0.30	5.99	2.37	7.38	11.09	11.09
UNTY12	0.81	6.85	7.66	0.59	11.32	11.32
VALE11	0.33	0.10	4.10	0.30	0.05	0.05
VALE12	0.00	0.00	0.70	0.23	0.02	0.02
VALE13	0.34	3.42	3.15	0.08	1.40	1.40
VALE14	0.31	3.14	1.68	0.58	7.13	7.13
VALE15	0.26	0.48	1.18	1.24	0.25	0.25
WESR13	1.37	1.04	5.26	7.64	7.98	7.98
WESR14	1.62	1.71	8.70	6.46	5.00	5.00

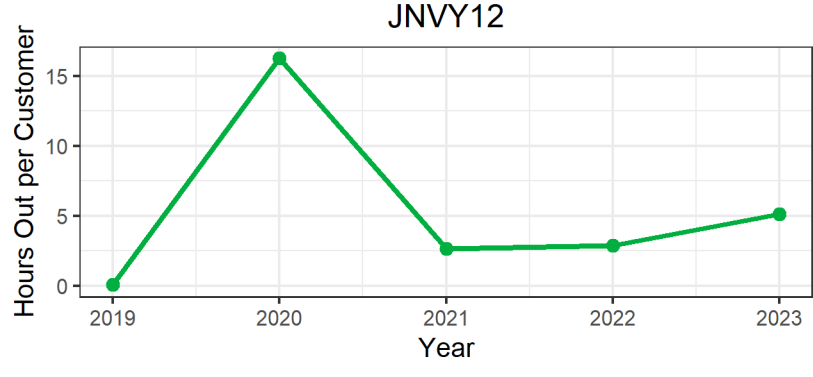
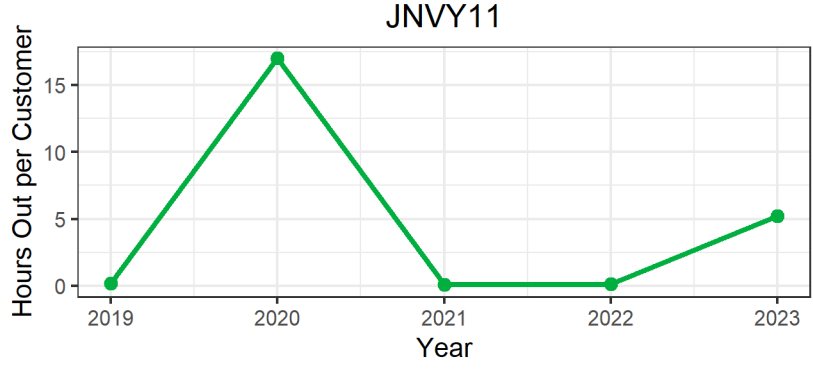
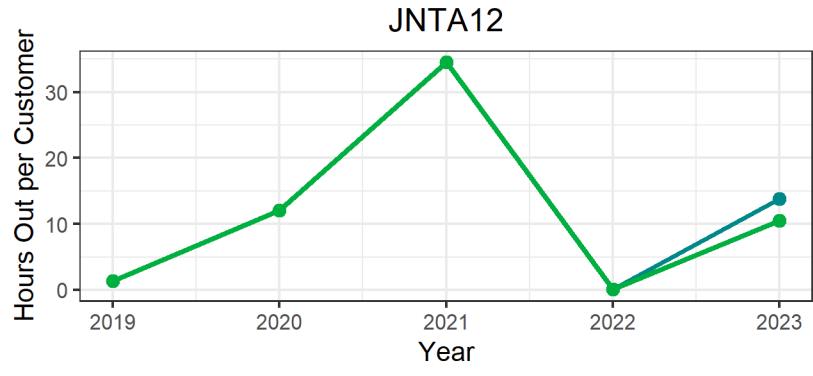
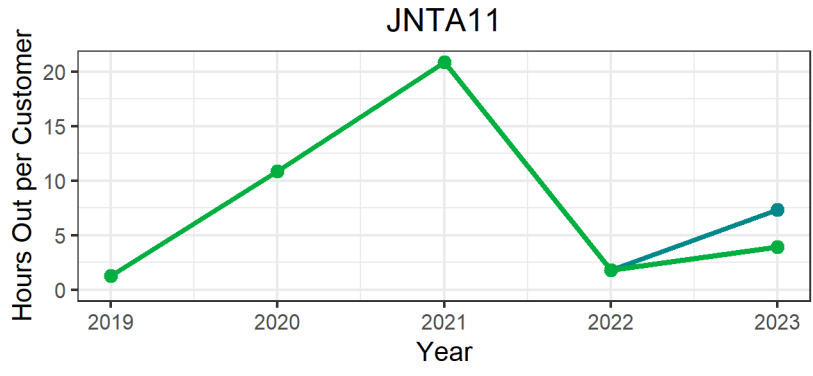
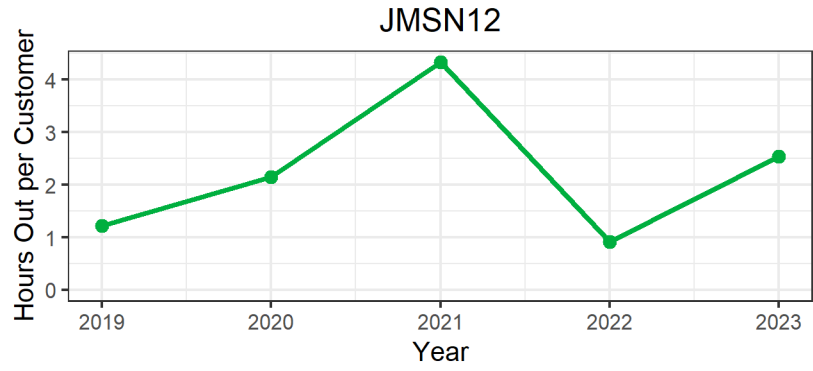
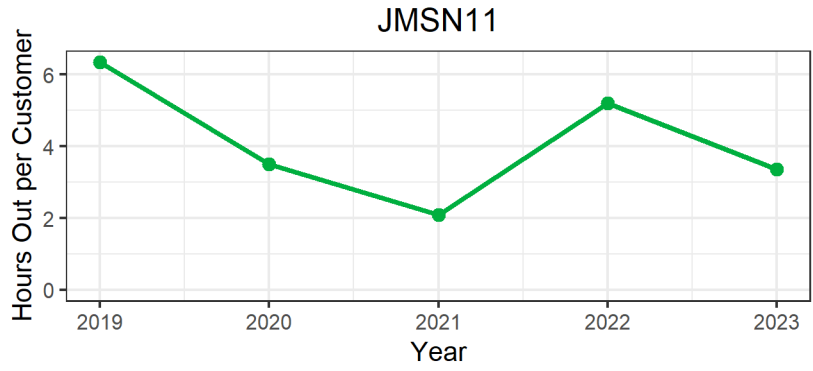
Table 6 Five Years of Circuit SAIDI

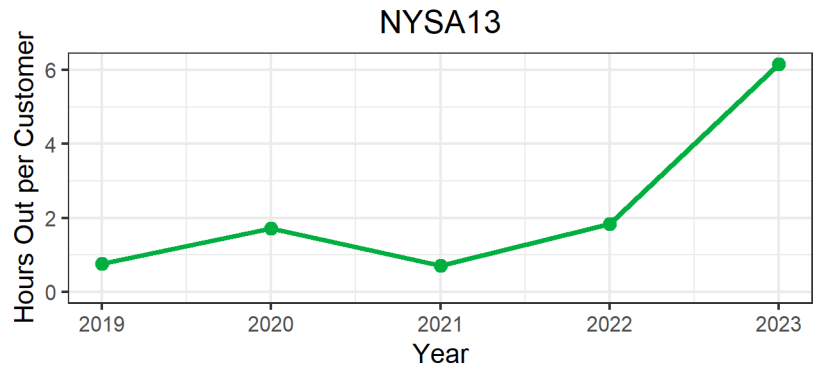
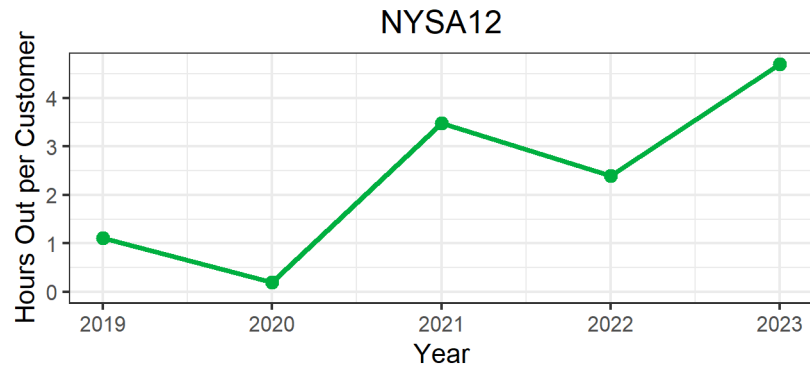
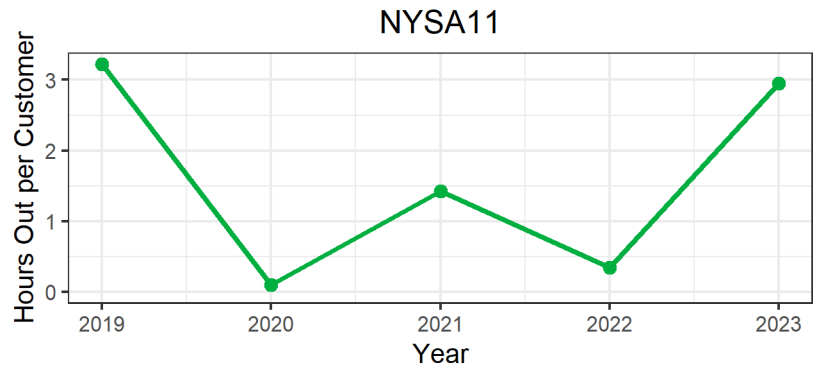
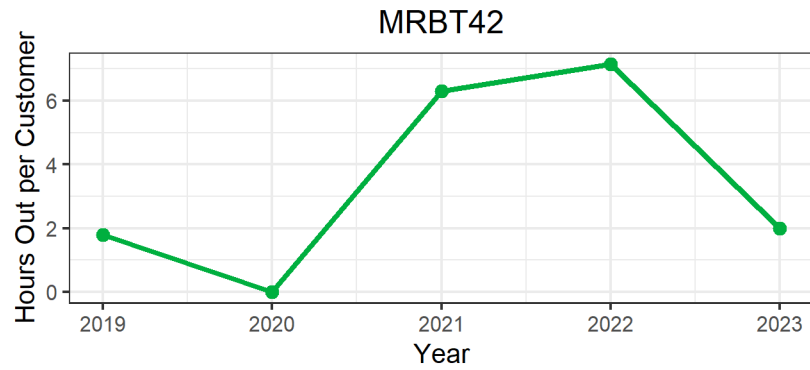
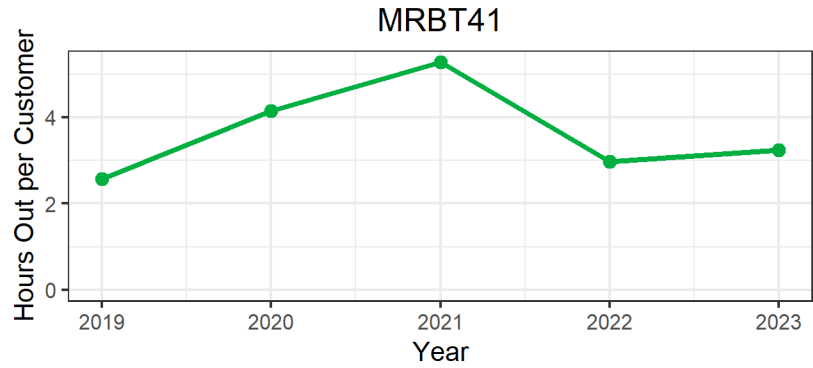
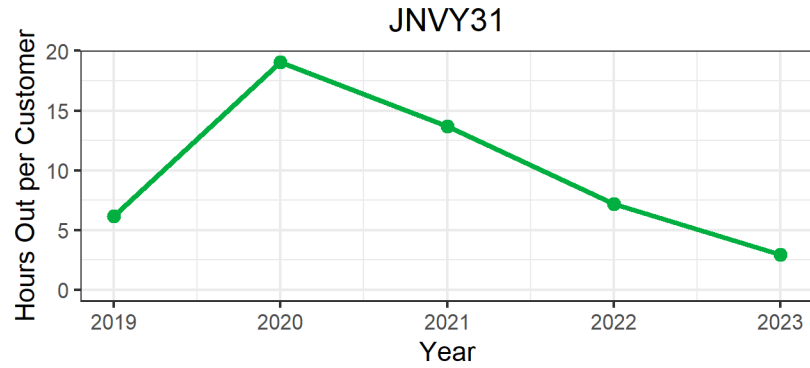


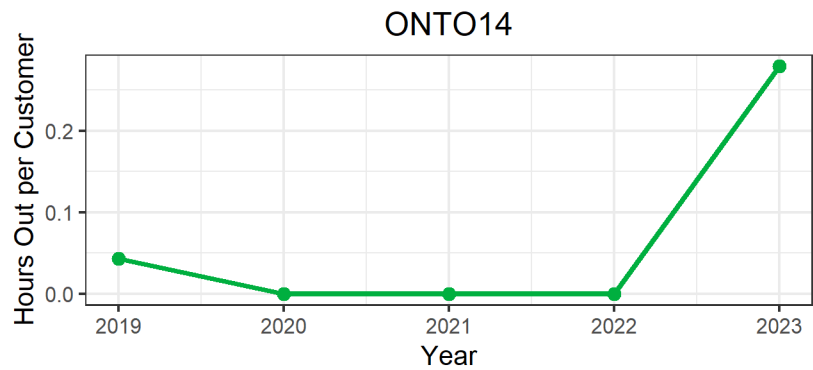
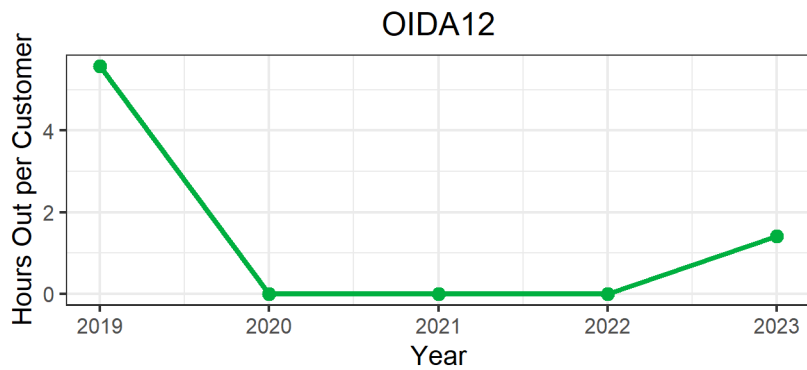
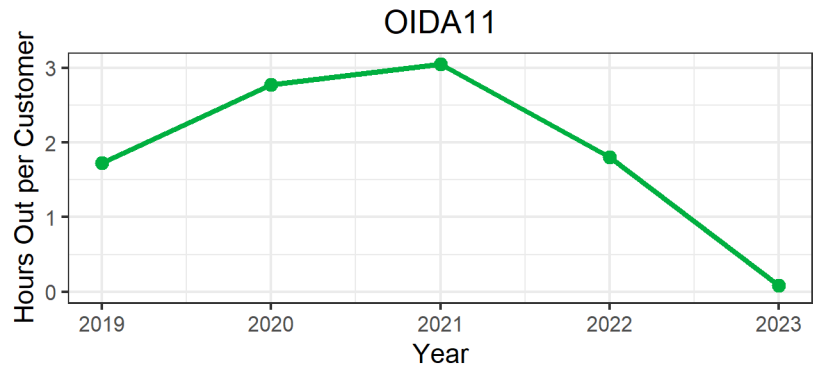
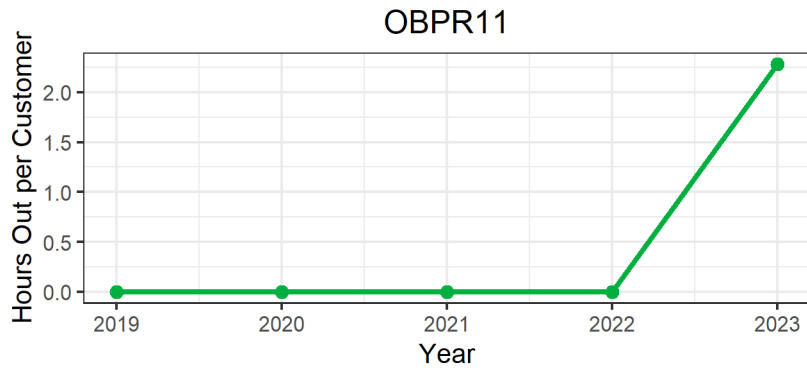
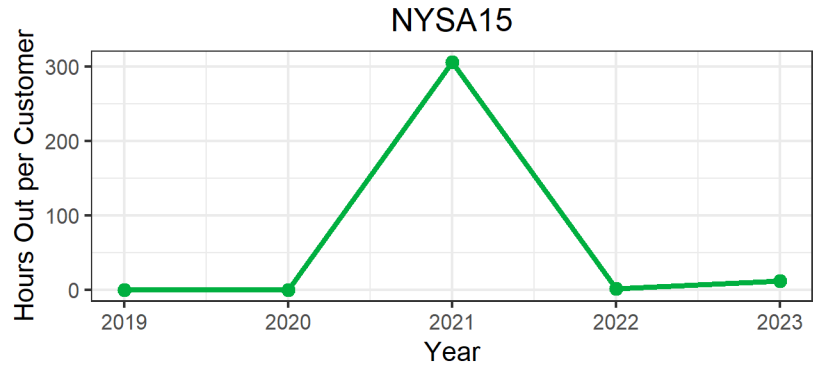
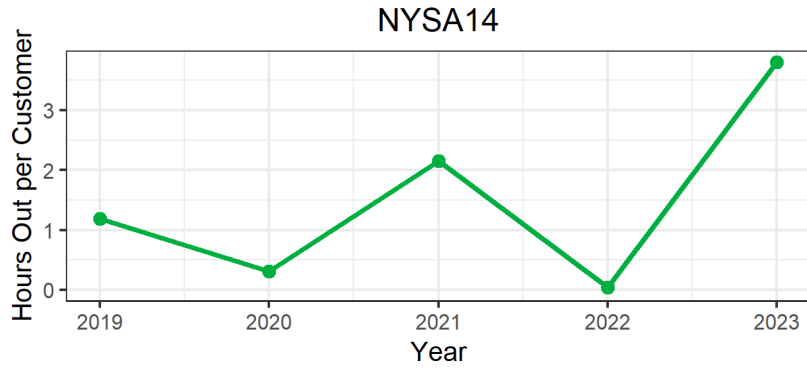


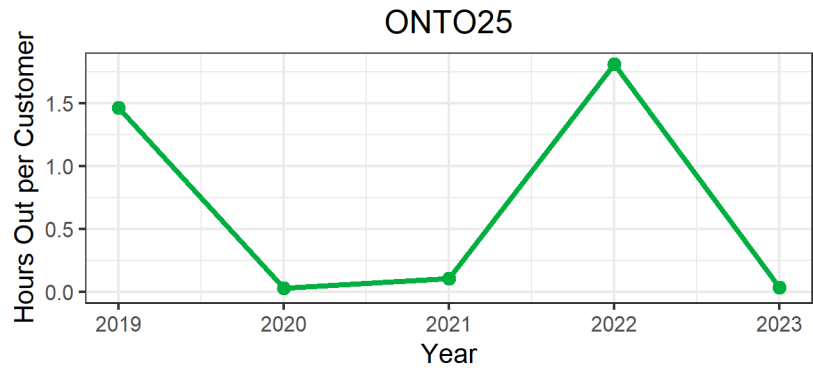
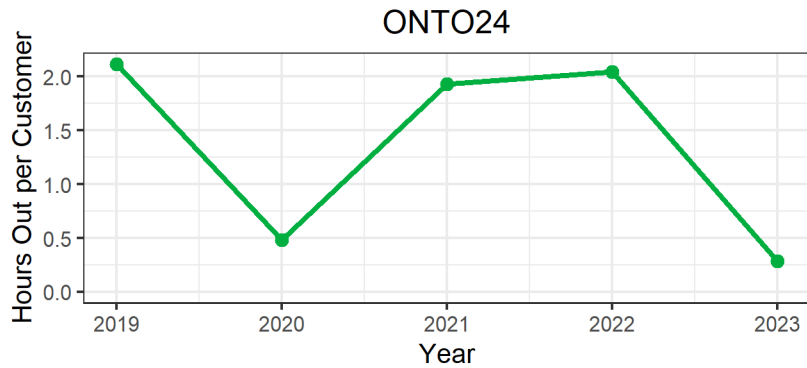
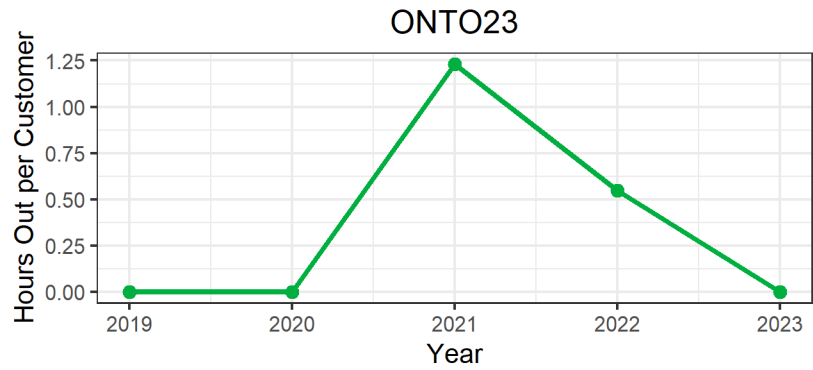
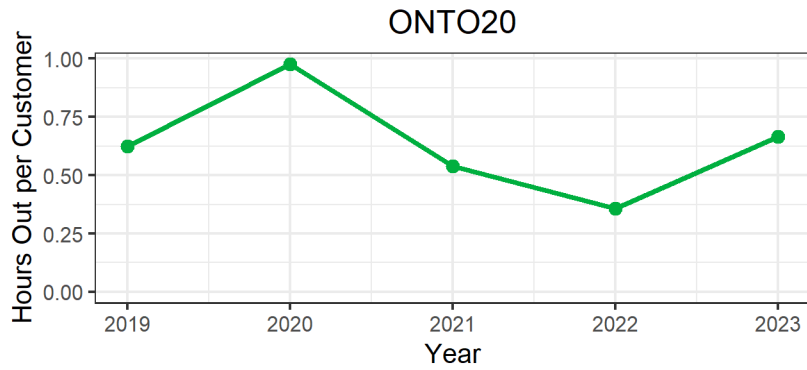
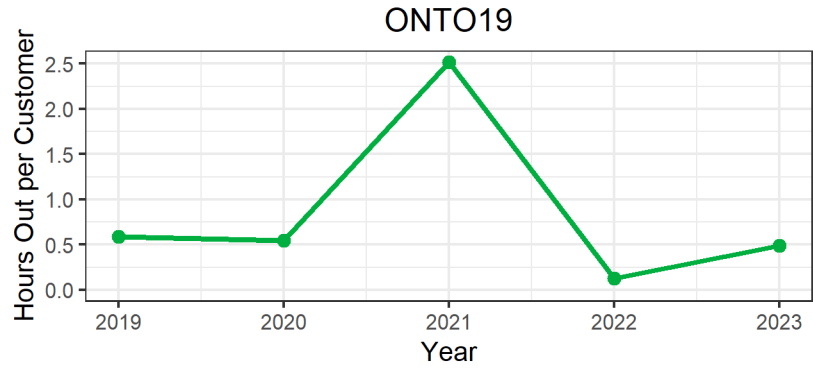
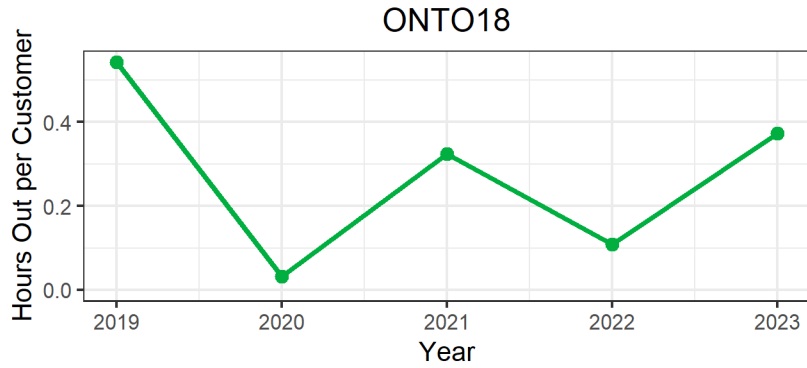


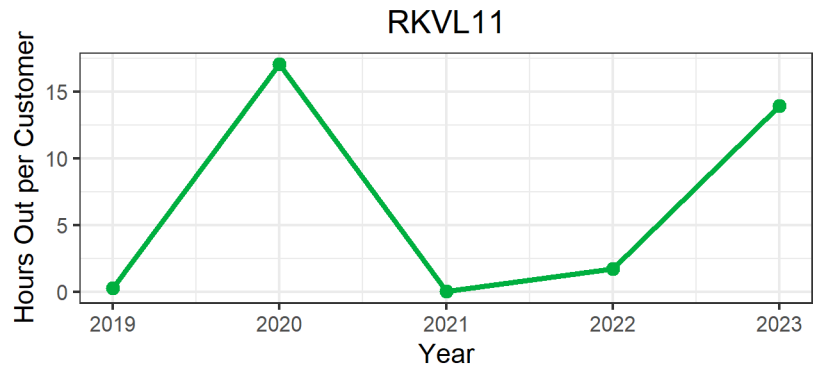
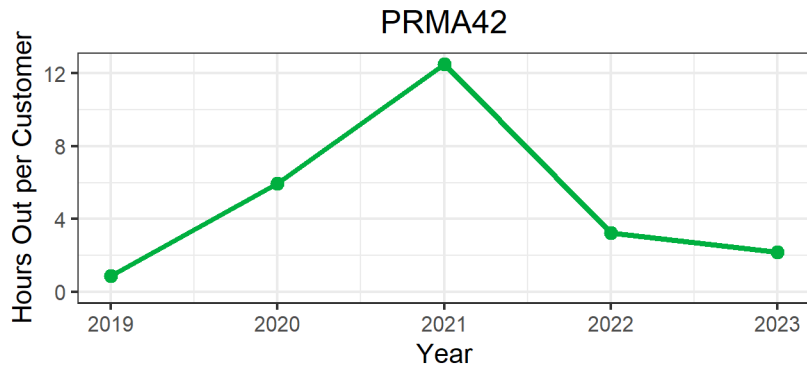
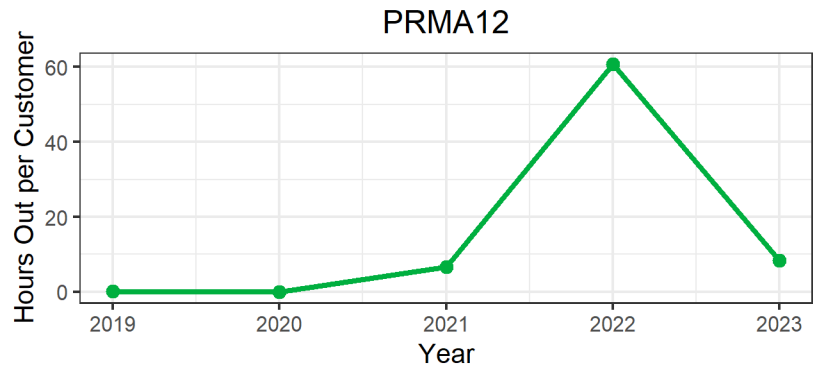
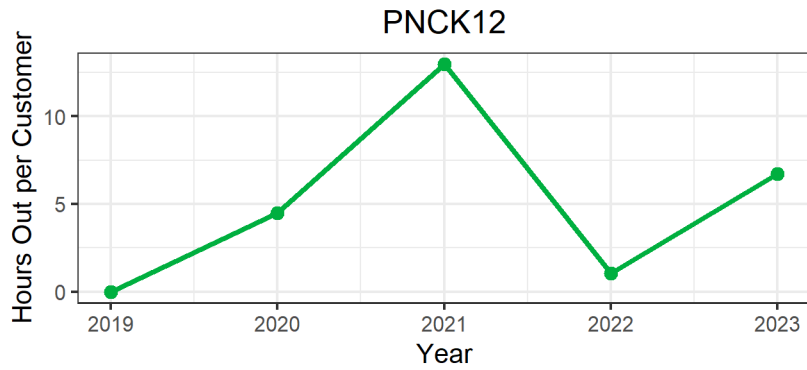
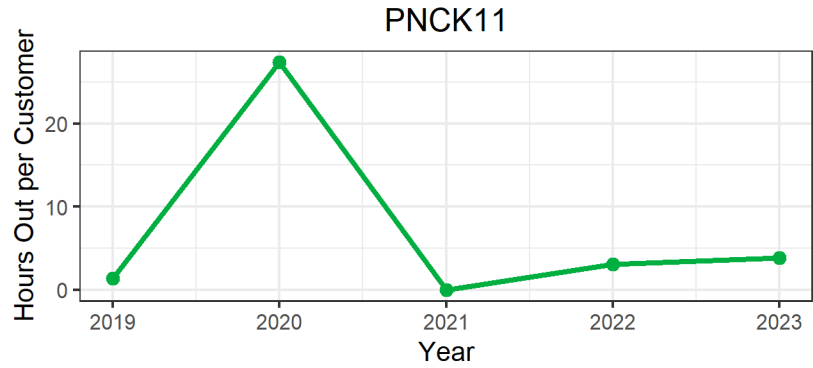
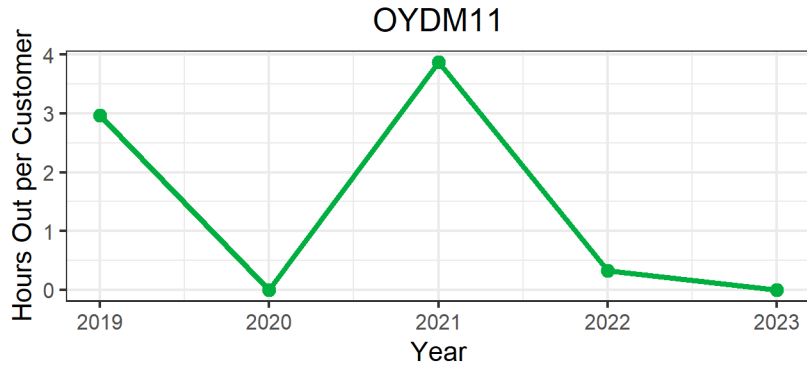


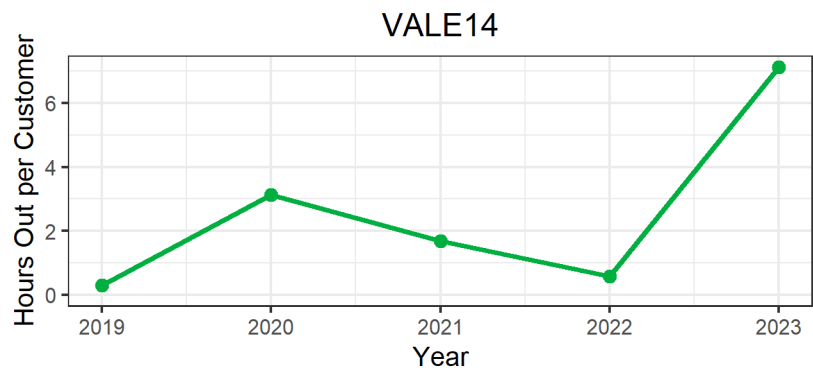
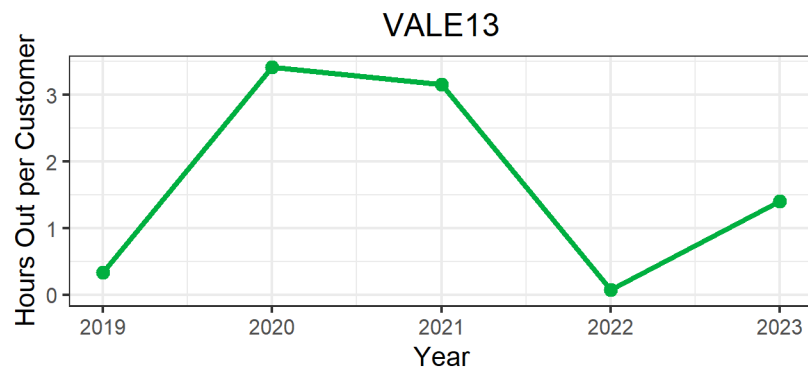
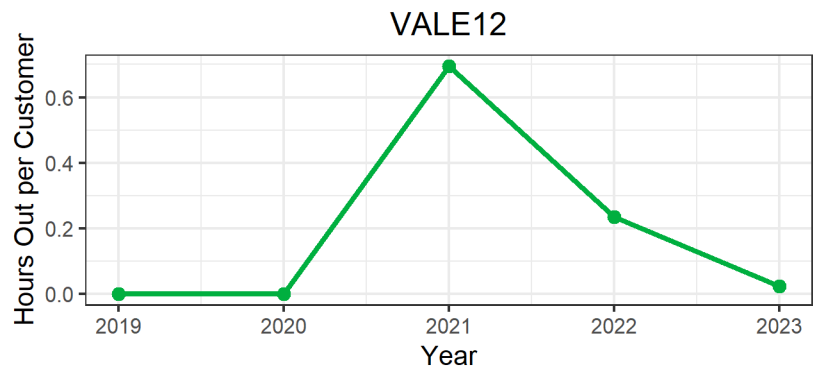
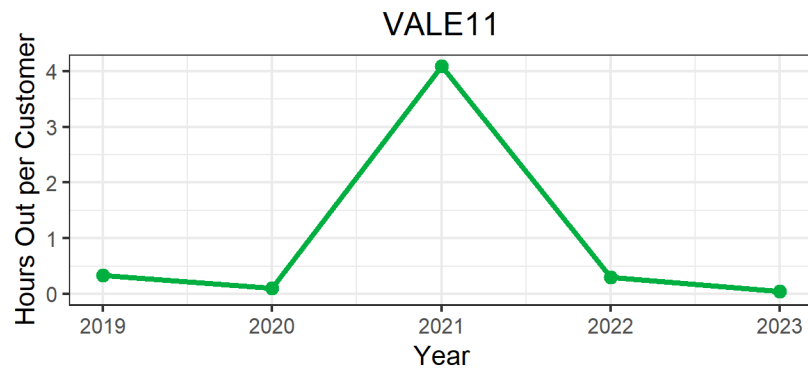
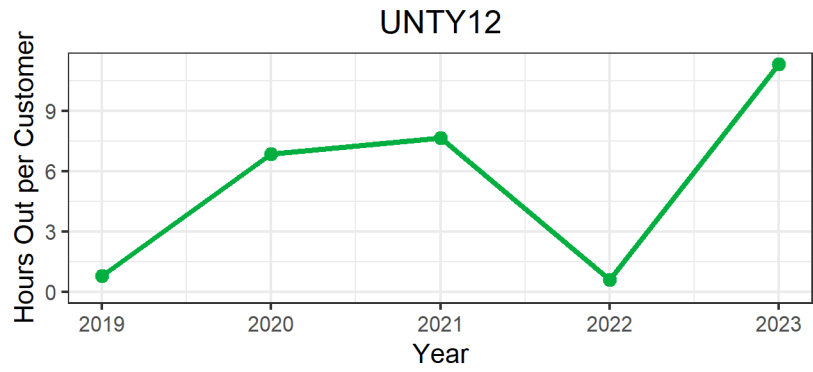
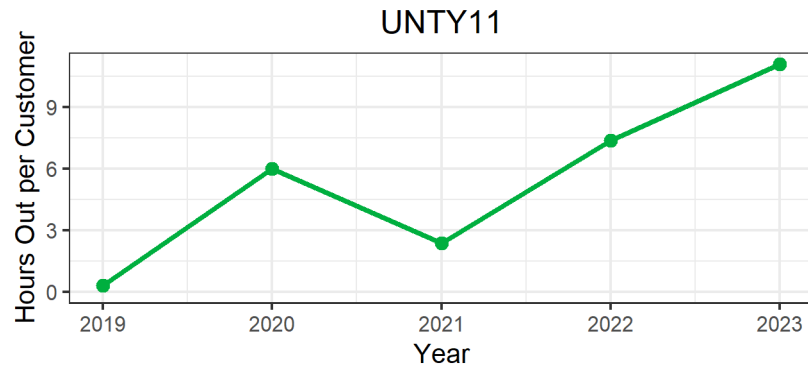












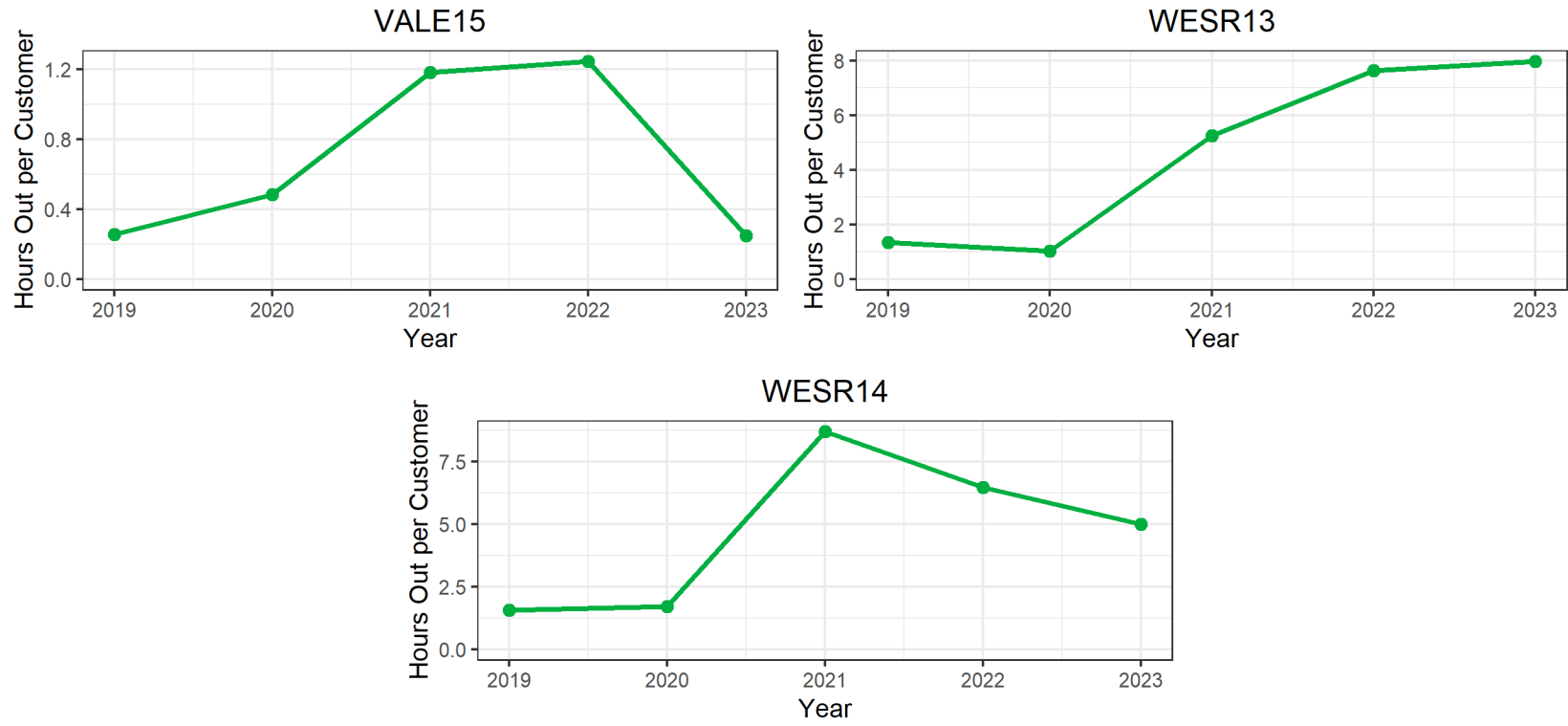
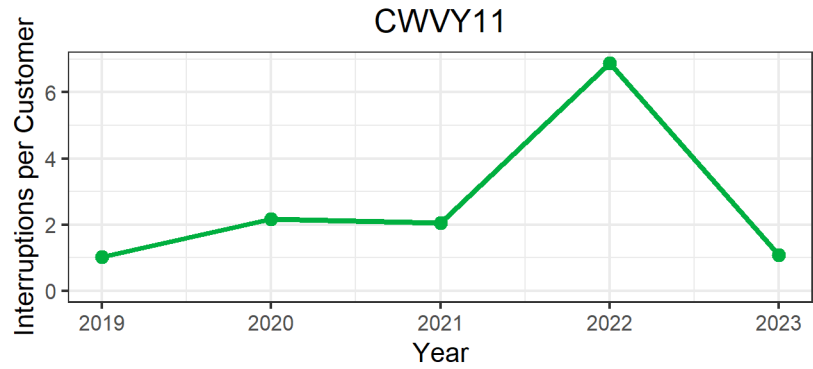
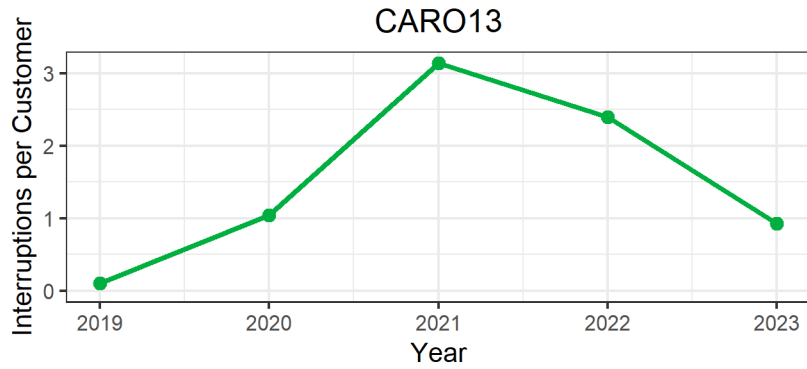
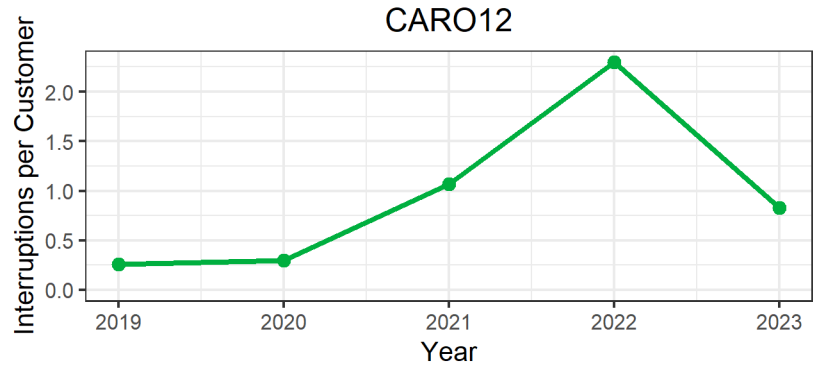
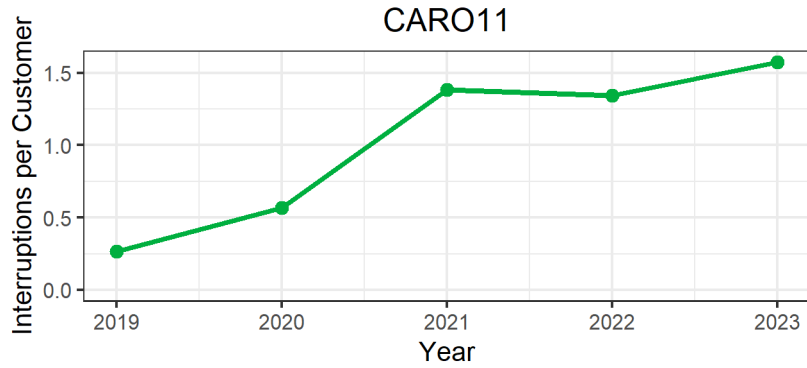
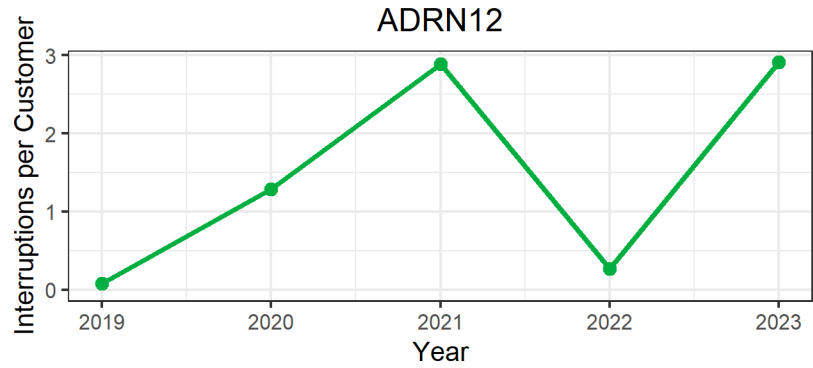
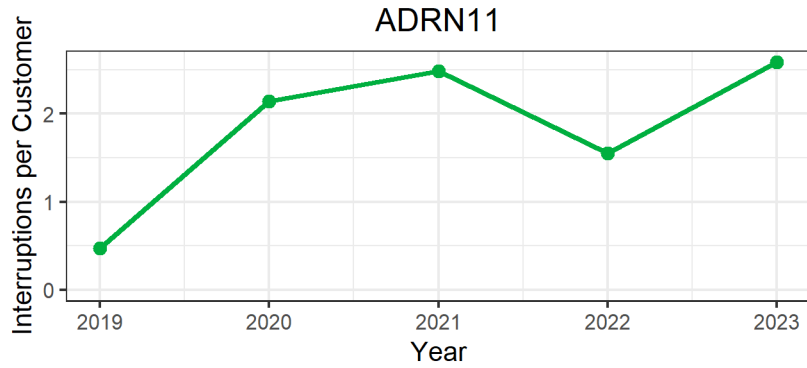


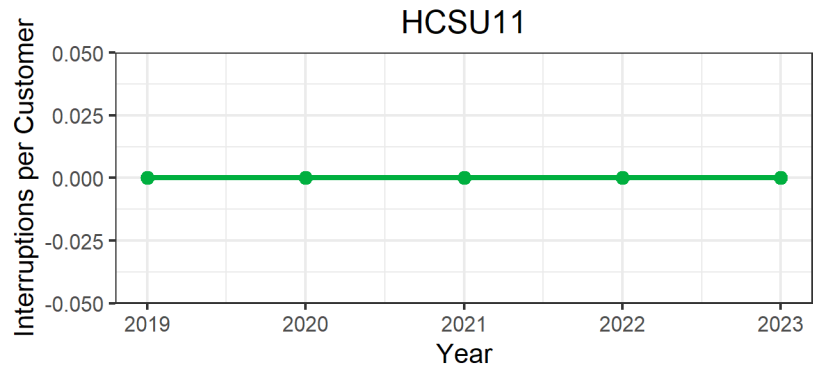
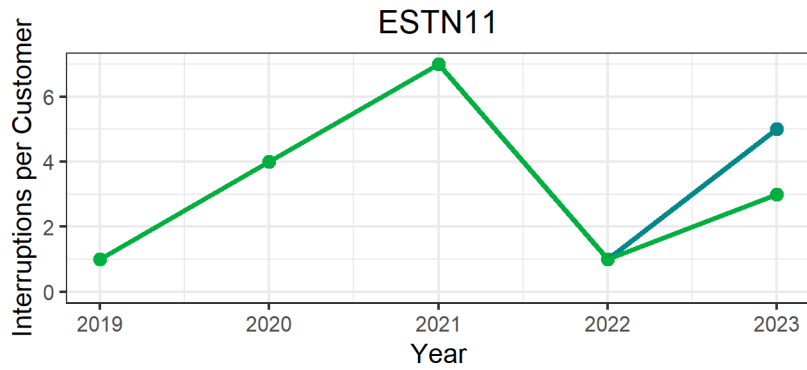
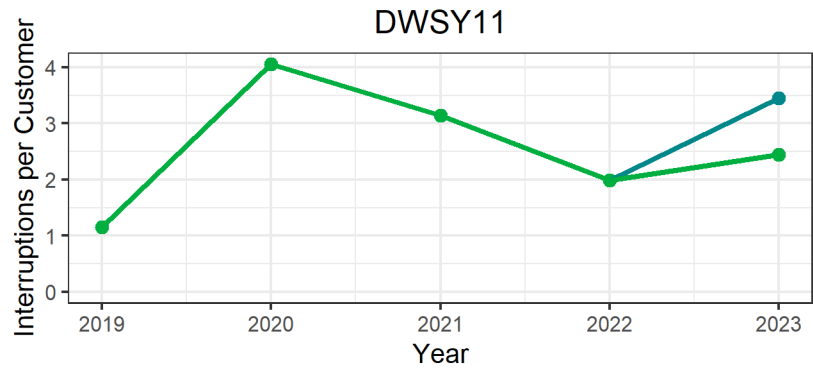
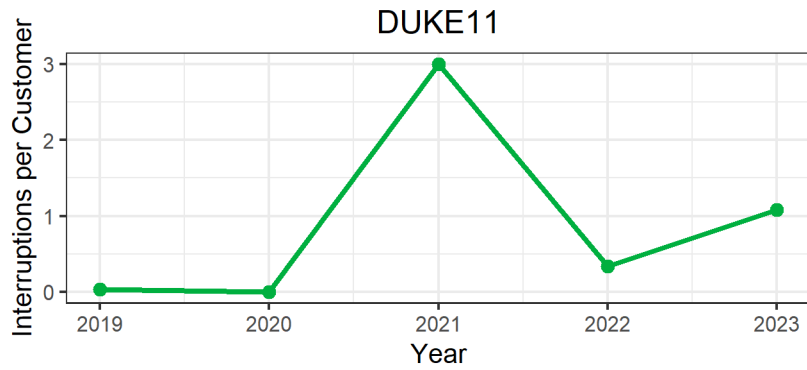
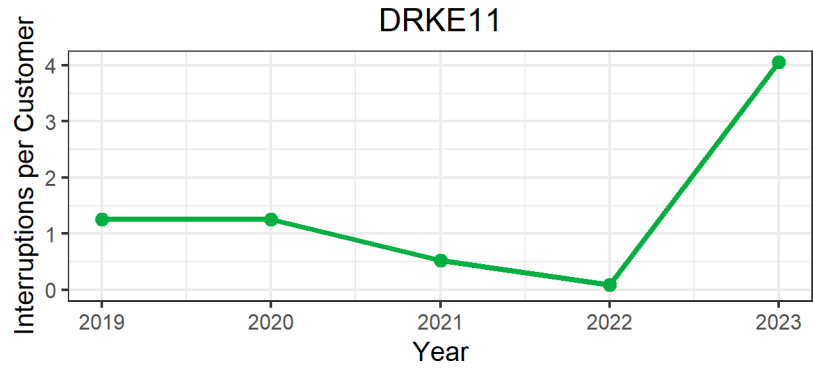
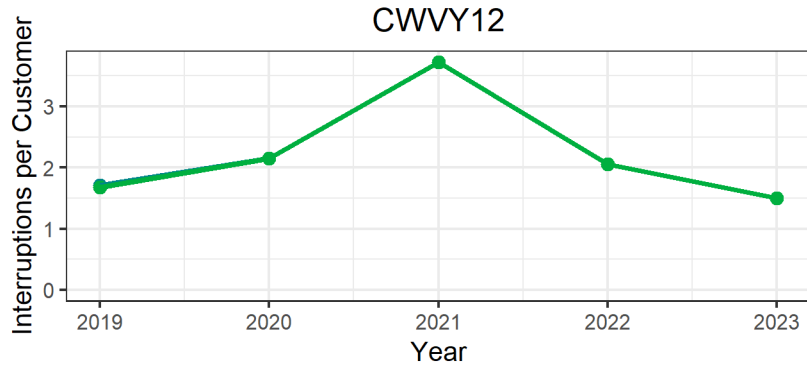
Figure 6 Five Years of Circuit SAIDI

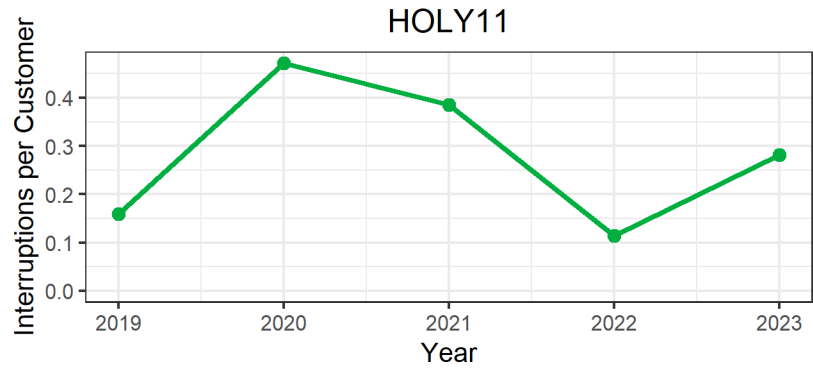
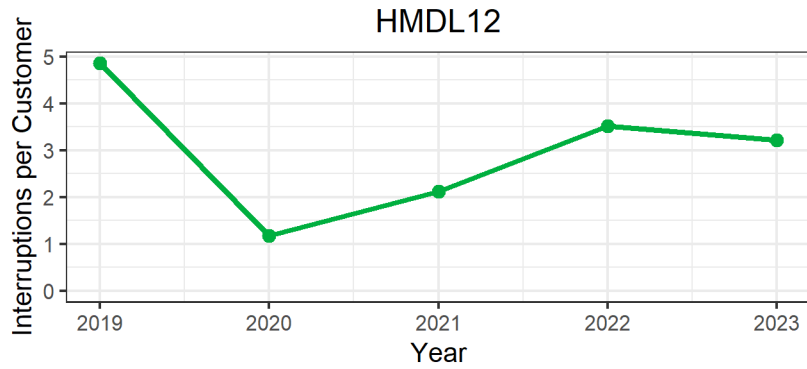
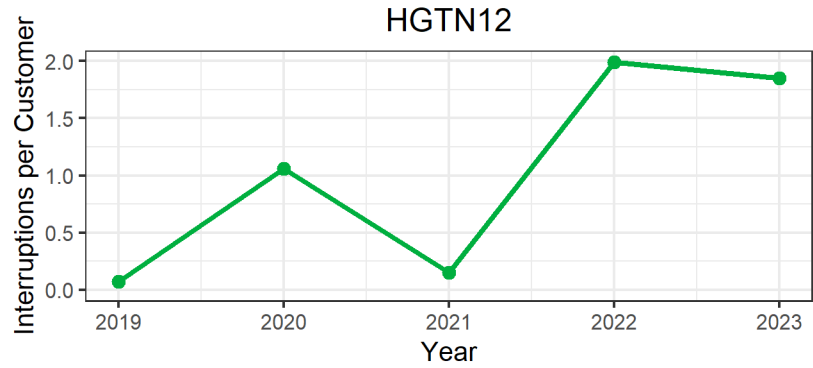
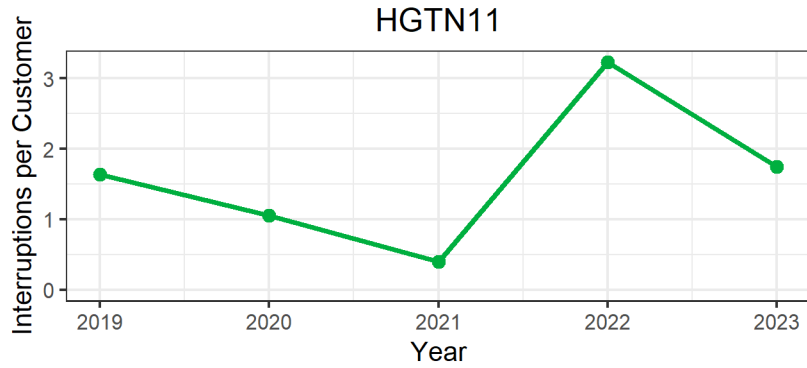
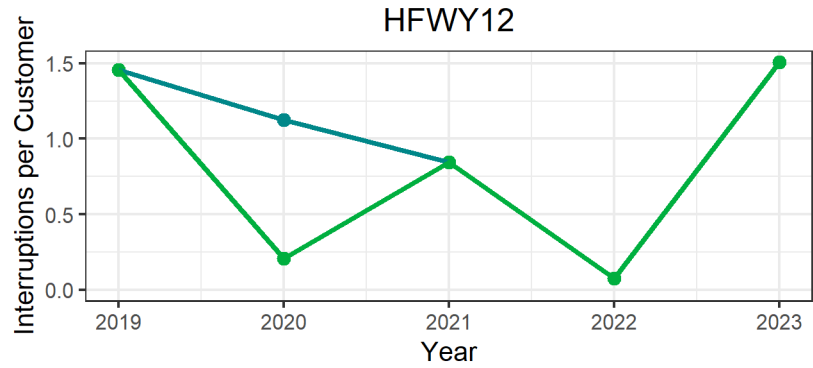
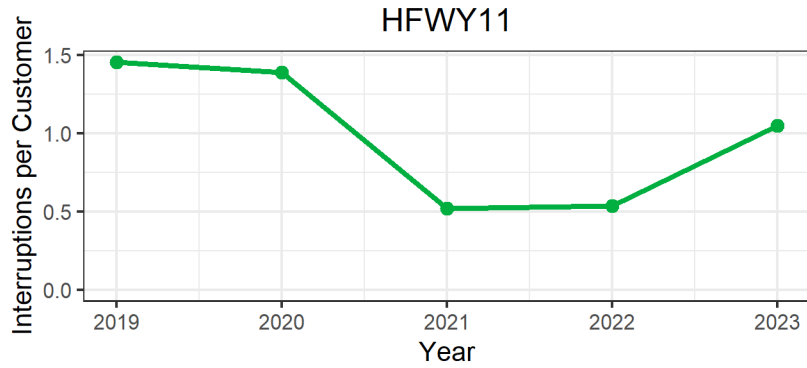
Five Years of Circuit SAIFI

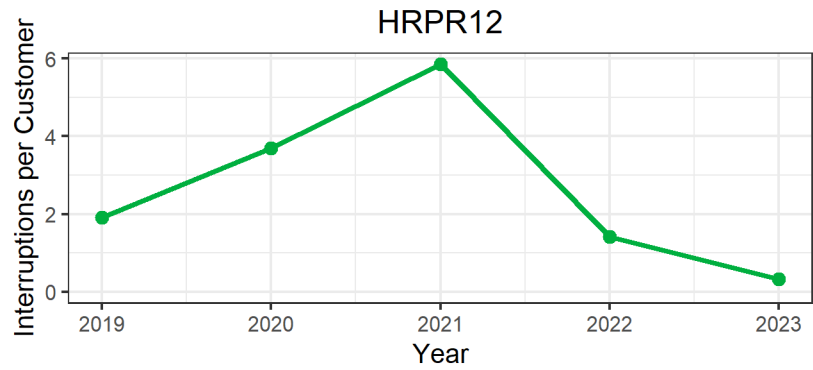
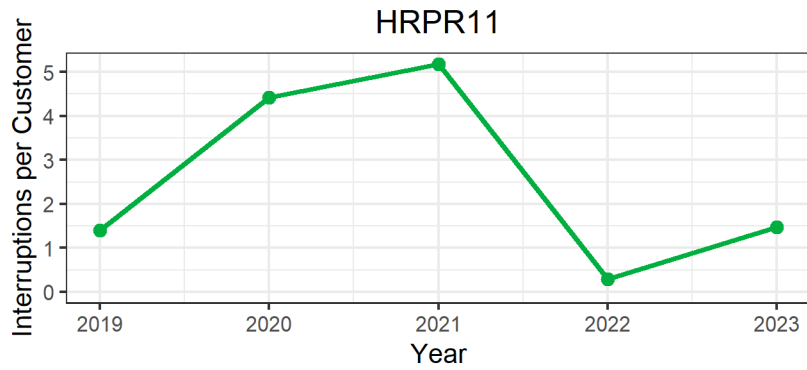
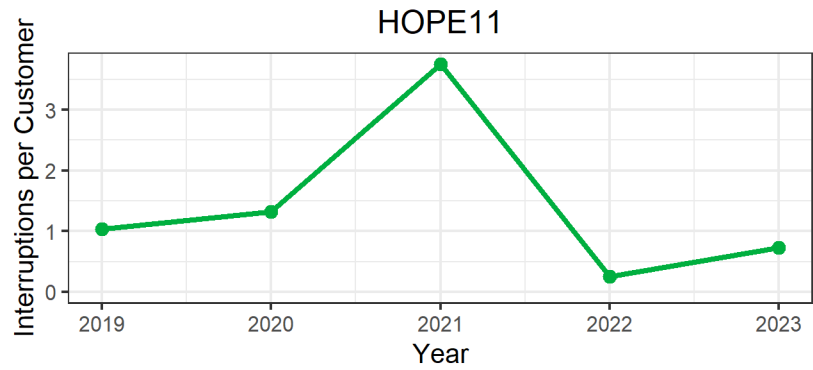
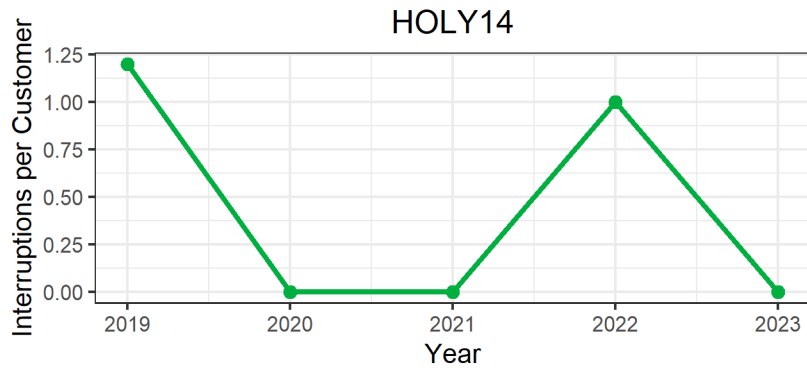
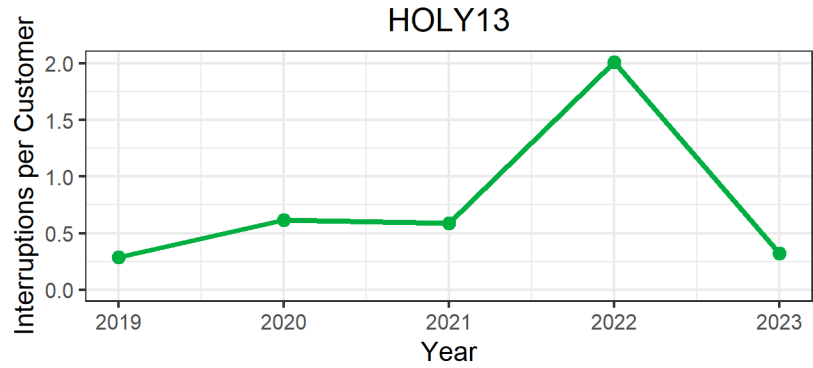
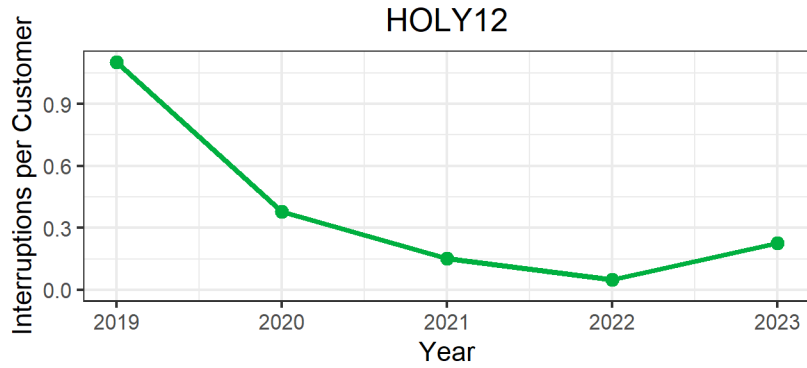
Circuit	2019	2020	2021	2022	2023	2023 MedEx
ADRN11	0.48	2.14	2.49	1.55	2.59	2.59
ADRN12	0.08	1.29	2.90	0.27	2.91	2.91
CARO11	0.27	0.57	1.38	1.35	1.57	1.57
CARO12	0.26	0.30	1.07	2.30	0.83	0.83
CARO13	0.10	1.04	3.14	2.43	0.93	0.93
CWVY11	1.02	2.17	2.05	6.88	1.09	1.09
CWVY12	1.74	2.15	3.73	2.05	1.50	1.50
DRKE11	1.27	1.25	0.52	0.09	4.06	4.06
DUKE11	0.04	0.00	3.00	0.34	1.08	1.08
DWSY11	1.16	4.06	3.14	1.99	3.45	2.45
ESTN11	1.00	4.00	7.00	1.00	5.00	3.00
HCSU11	0.00	0.00	0.00	0.00	0.00	0.00
HFVY11	1.46	1.39	0.52	0.54	1.05	1.05
HFVY12	1.46	1.13	0.85	0.08	1.51	1.51
HGTN11	1.65	1.06	0.40	3.23	1.74	1.74
HGTN12	0.08	1.06	0.15	1.99	1.85	1.85
HMDL12	4.89	1.17	2.12	3.52	3.22	3.22
HOLY11	0.17	0.47	0.39	0.11	0.28	0.28
HOLY12	1.10	0.38	0.15	0.05	0.23	0.23
HOLY13	0.30	0.61	0.59	2.01	0.32	0.32
HOLY14	1.20	0.00	0.00	1.00	0.00	0.00
HOPE11	1.05	1.32	3.75	0.25	0.73	0.73
HRPR11	1.47	4.42	5.18	0.29	1.47	1.47
HRPR12	1.91	3.68	5.86	1.42	0.33	0.33
JMSN11	0.34	1.88	2.24	1.62	1.79	1.79
JMSN12	0.33	1.12	2.29	0.35	1.18	1.18
JNTA11	1.02	3.16	3.05	0.48	4.22	2.18
JNTA12	1.02	3.19	4.09	0.10	4.79	2.83
JNVY11	0.20	4.14	0.02	0.05	2.16	2.16
JNVY12	0.05	3.86	1.00	2.31	4.79	4.79
JNVY31	0.86	4.57	1.38	1.14	1.81	1.81
MRBT41	1.59	2.03	1.09	0.94	1.69	1.69
MRBT42	1.55	0.00	1.27	1.45	1.18	1.18
NYSA11	1.44	0.05	0.76	0.12	2.10	2.10
NYSA12	1.24	1.02	2.39	1.43	2.53	2.53
NYSA13	0.34	0.78	0.30	1.00	3.44	3.44
NYSA14	1.29	0.23	1.38	0.03	2.34	2.34
NYSA15	0.00	0.00	1.85	1.38	2.85	2.85
OBPR11	0.00	0.00	0.00	0.00	1.00	1.00
OIDA11	1.15	1.63	2.08	1.13	0.05	0.05
OIDA12	2.00	0.00	0.00	0.00	1.00	1.00
ONTO14	0.06	0.00	0.00	0.00	0.15	0.15
ONTO18	0.30	0.02	0.18	0.04	1.06	1.06
ONTO19	0.31	0.19	0.70	0.06	0.32	0.32
ONTO20	0.35	0.49	0.24	0.10	0.33	0.33
ONTO23	0.00	0.00	0.46	0.27	0.00	0.00
ONTO24	1.39	0.38	1.21	1.31	0.18	0.18
ONTO25	1.08	0.04	0.05	0.44	0.01	0.01
OYDM11	0.93	0.00	1.00	0.14	0.00	0.00
PNCK11	0.35	4.82	0.00	0.95	1.04	1.04
PNCK12	0.00	1.00	2.00	0.50	3.00	3.00
PRMA12	1.00	0.00	4.67	2.67	3.33	3.33
PRMA42	0.30	2.15	6.51	1.55	1.61	1.61
RKVL11	0.03	5.22	0.03	0.47	2.91	2.91
UNTY11	0.16	2.10	2.12	2.05	4.49	4.49
UNTY12	0.21	1.65	2.92	0.10	3.72	3.72
VALE11	0.14	0.03	2.94	0.11	0.06	0.06
VALE12	0.00	0.00	1.02	0.21	0.02	0.02
VALE13	0.18	0.54	1.67	0.04	1.05	1.05
VALE14	0.12	1.67	1.66	0.26	1.91	1.91
VALE15	0.12	0.20	1.32	0.89	0.15	0.15
WESR13	0.78	0.61	2.62	2.42	2.48	2.48
WESR14	1.23	1.29	3.89	2.47	2.56	2.56

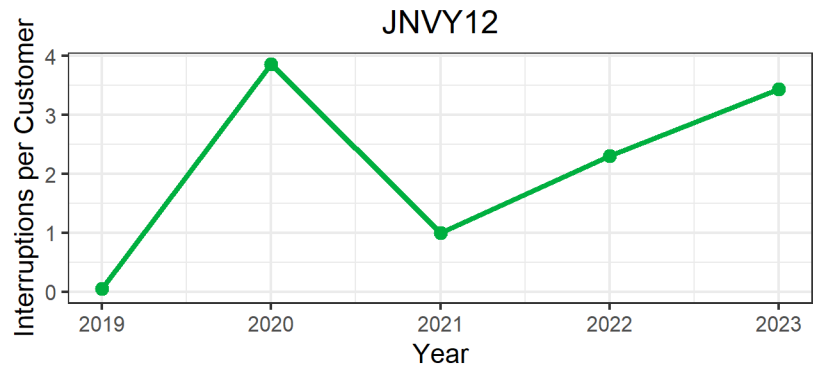
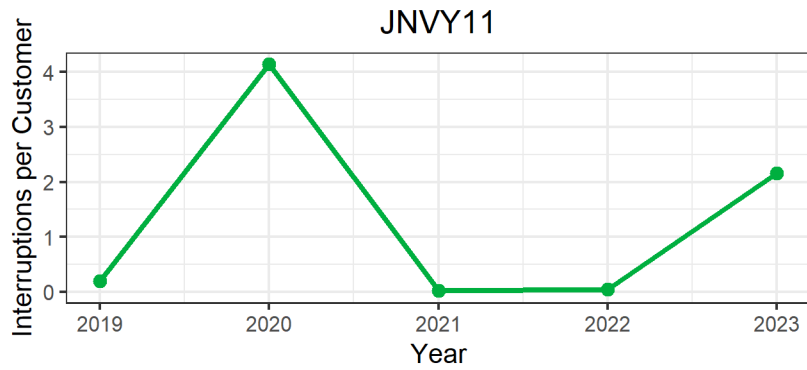
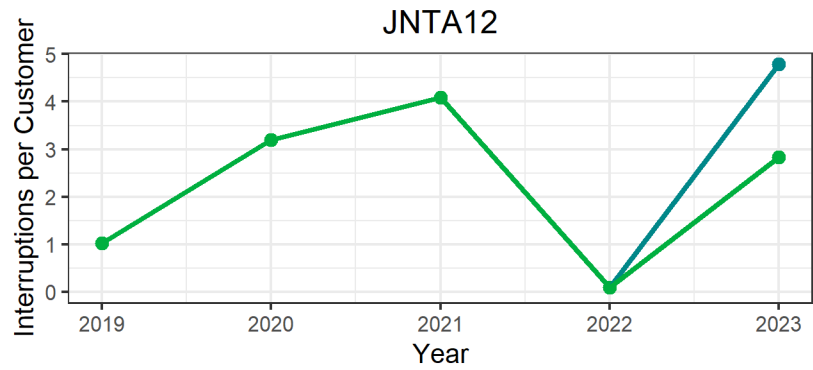
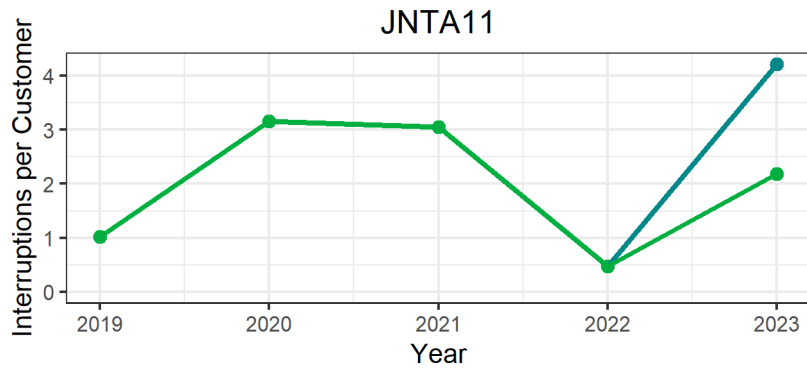
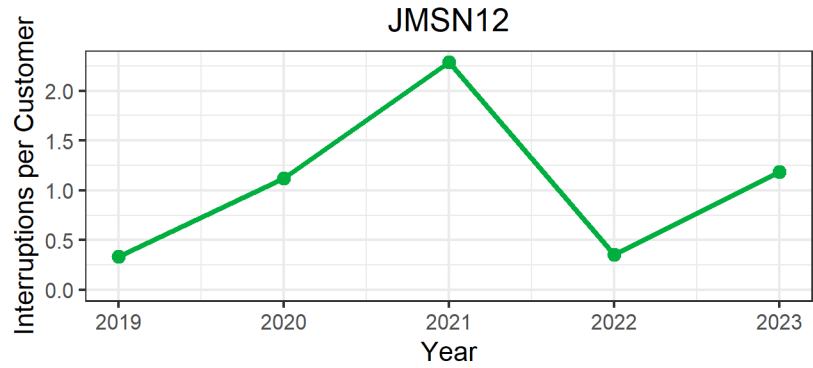
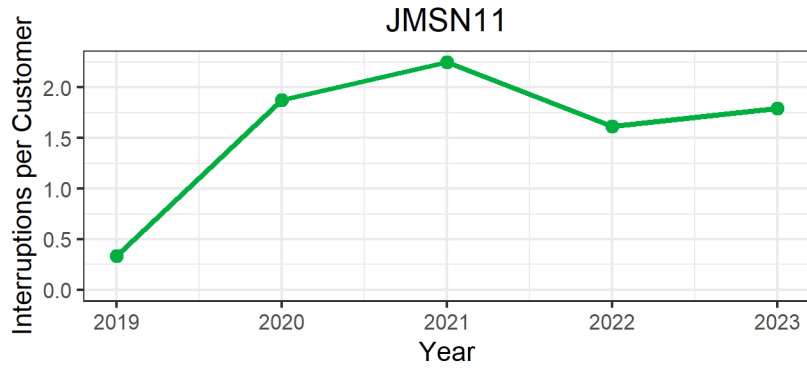
Table 7 Five Years of Circuit SAIFI

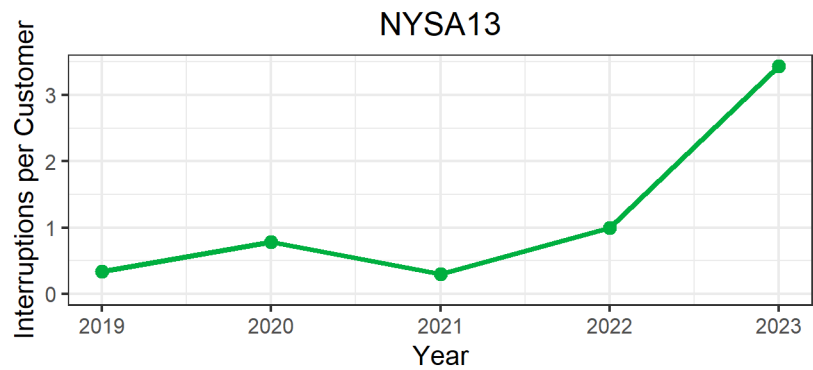
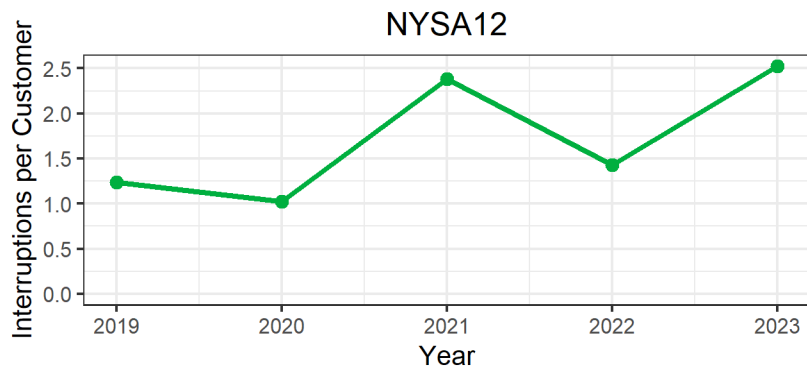
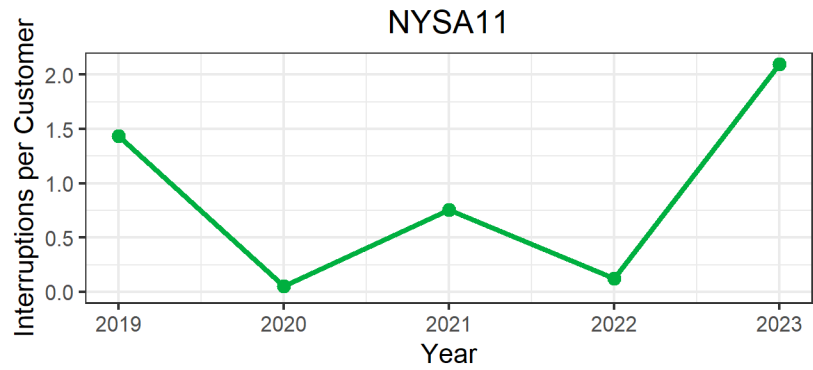
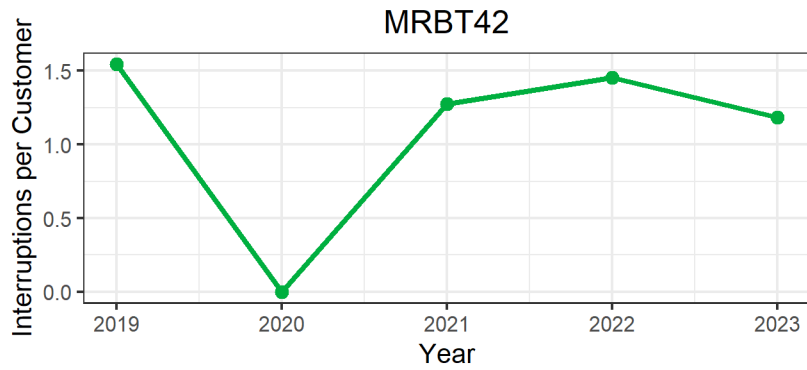
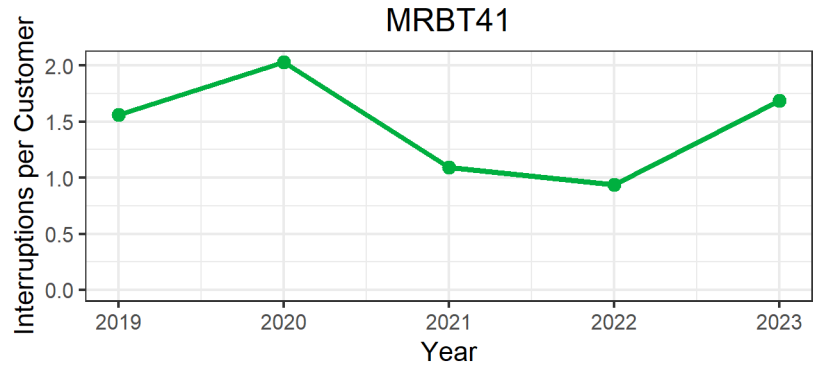
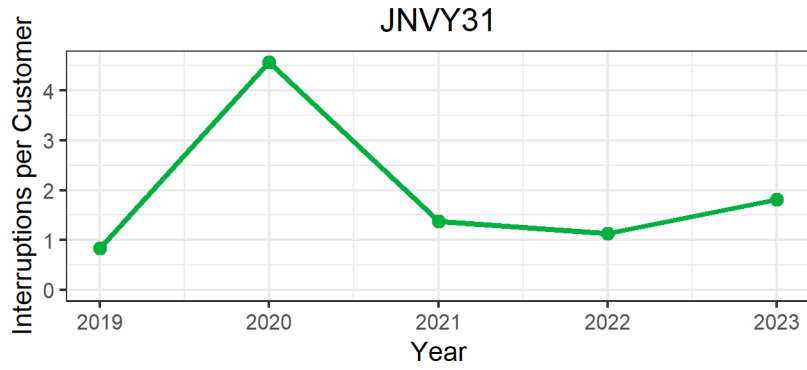


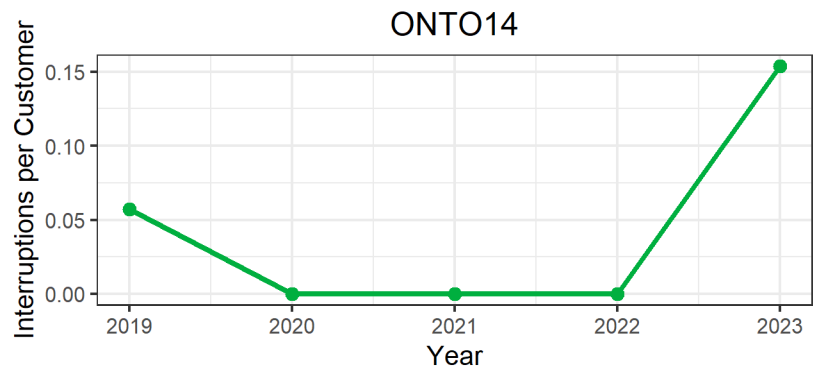
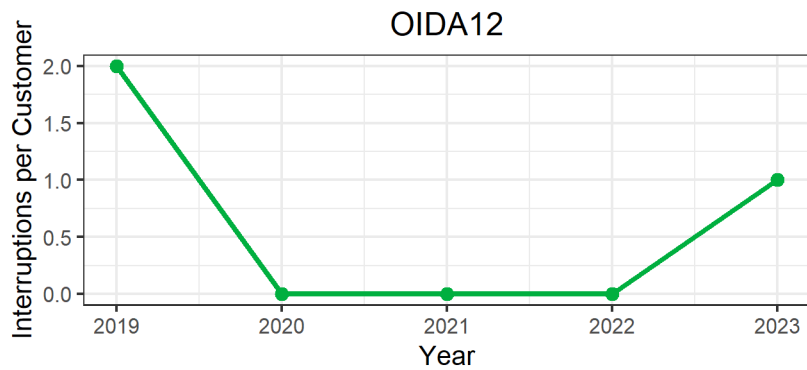
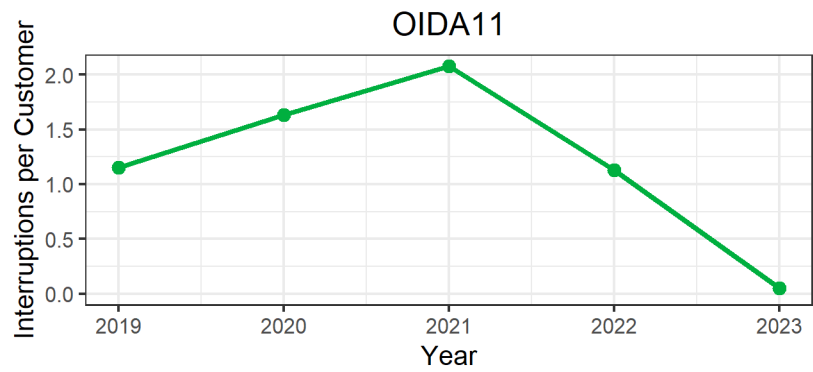
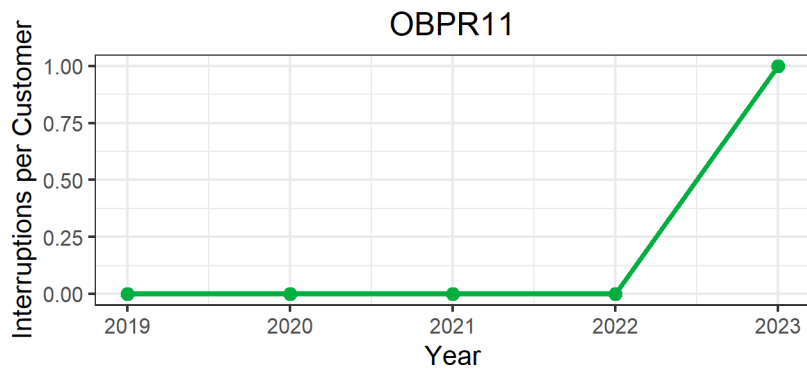
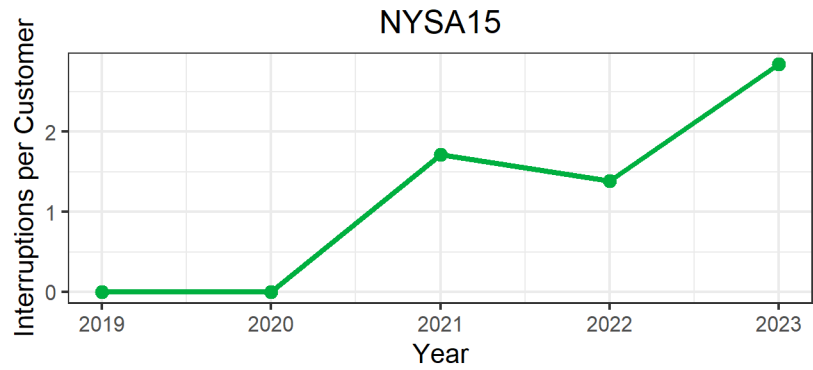
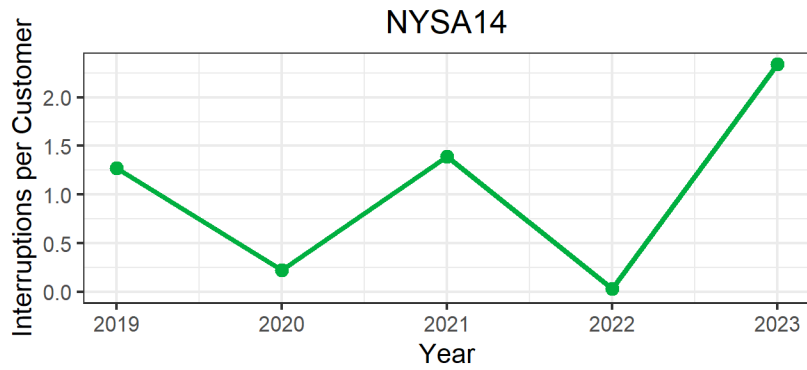


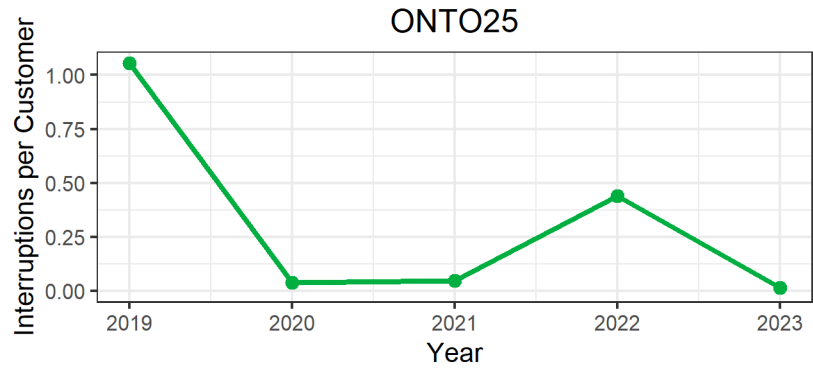
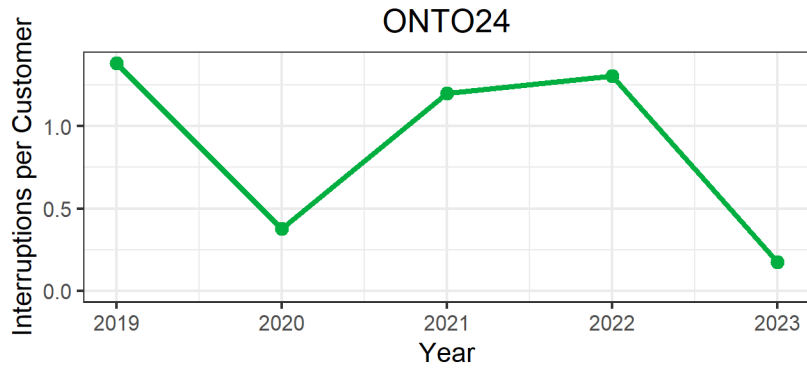
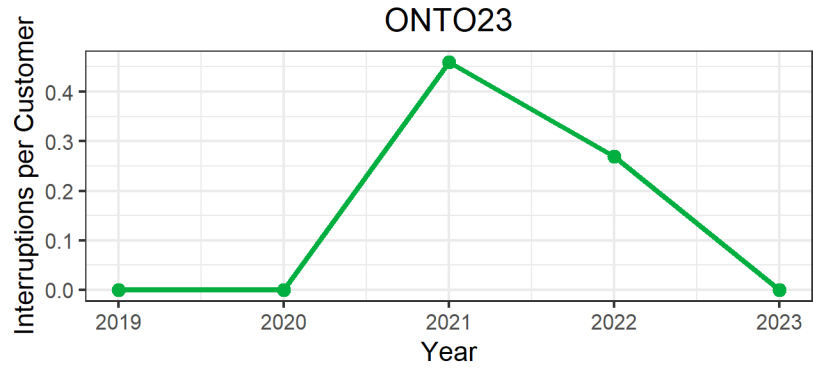
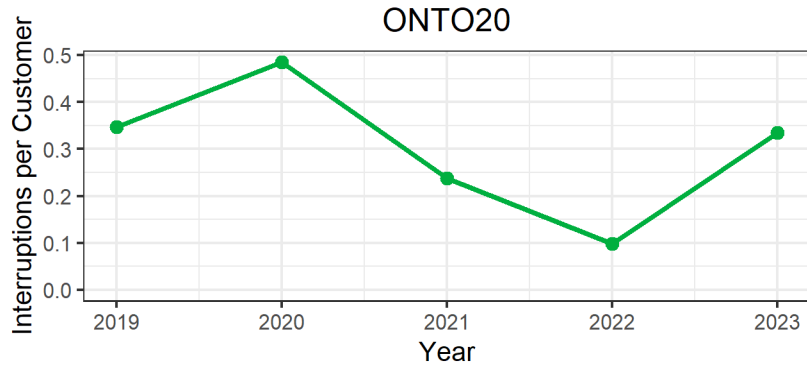
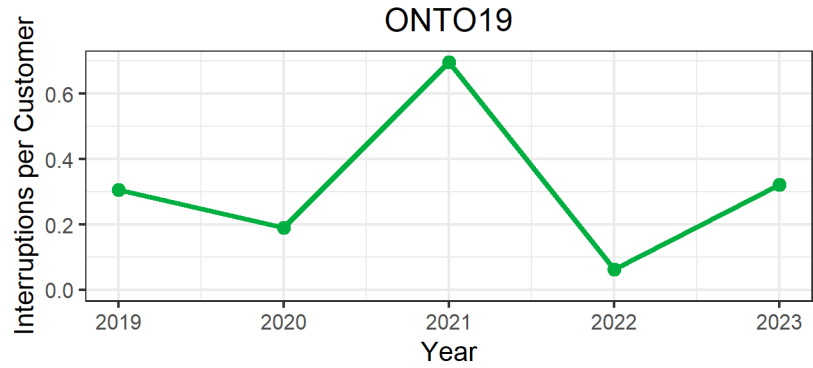
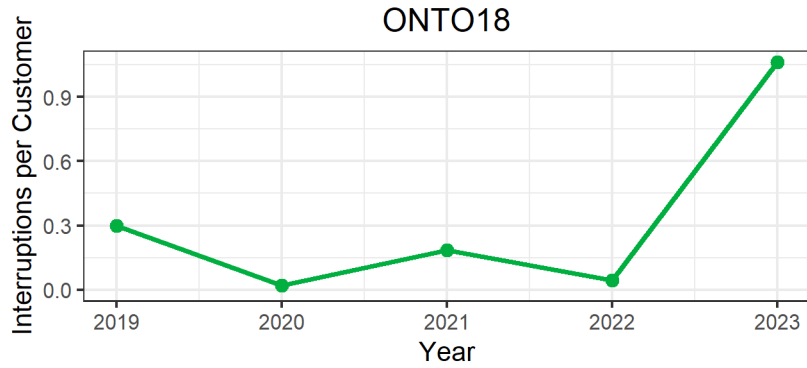


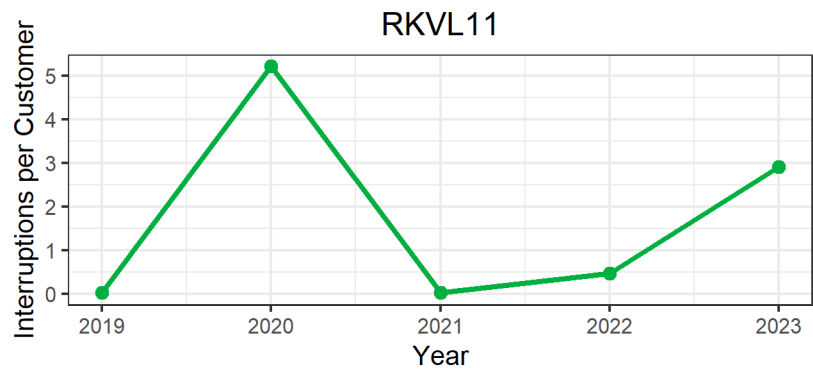
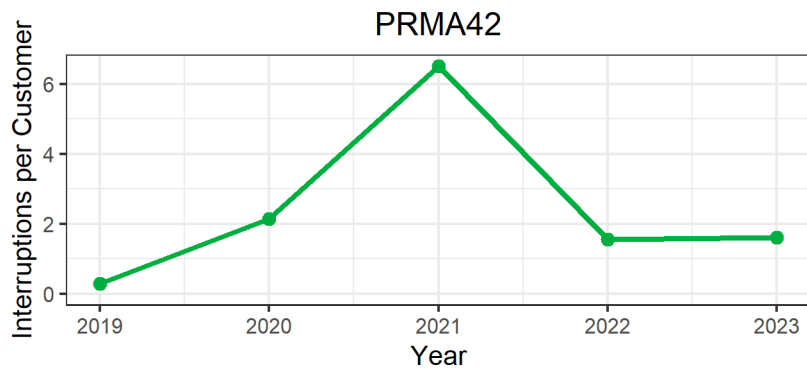
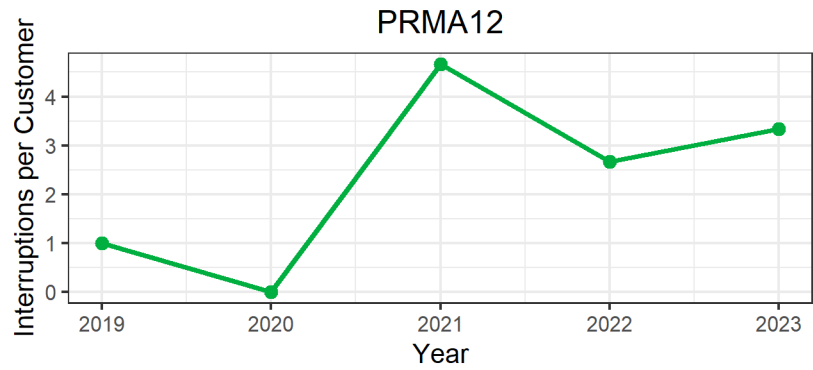
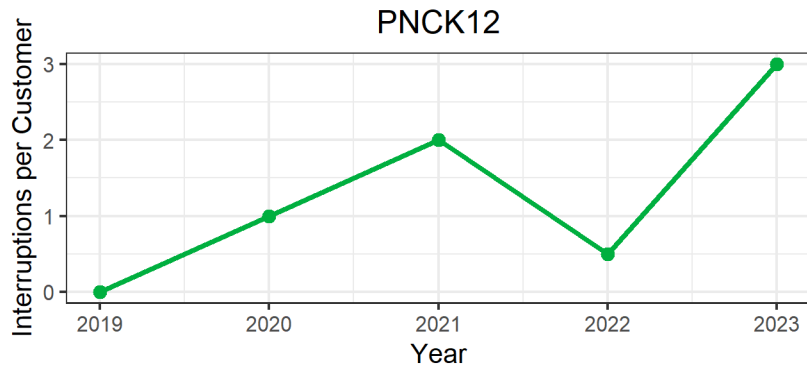
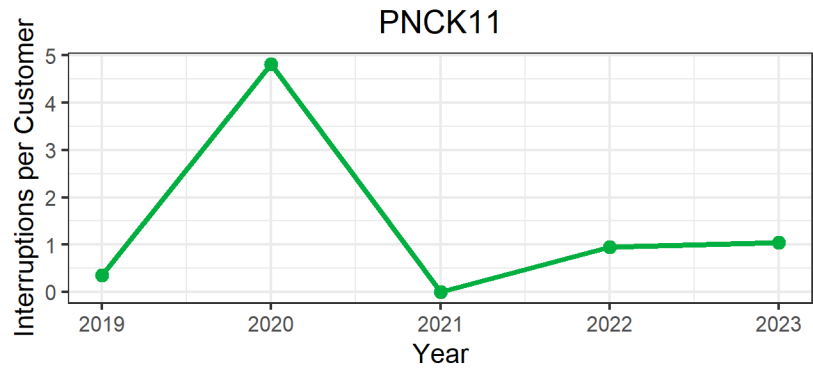
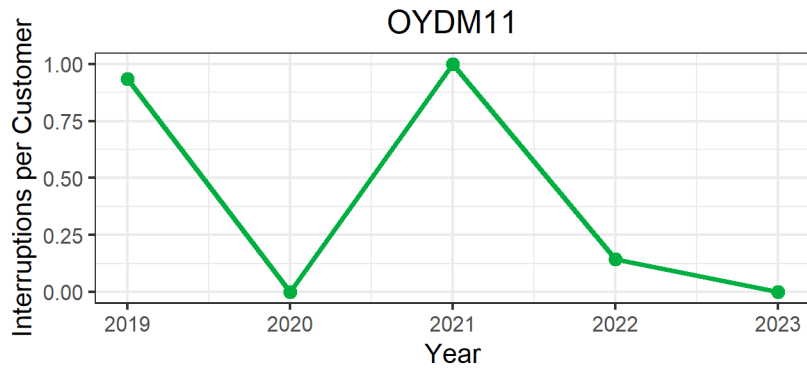


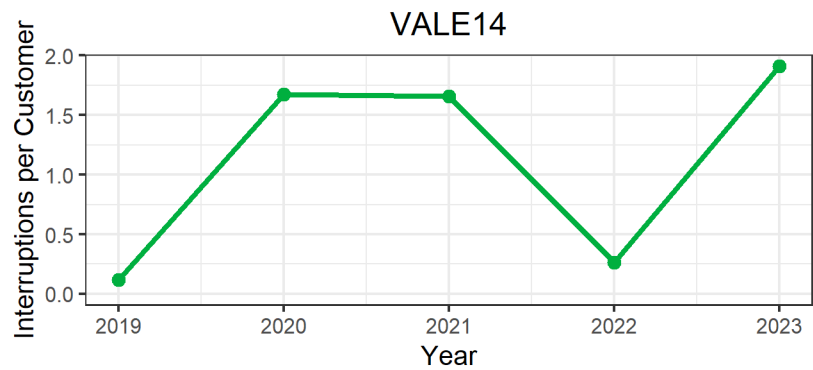
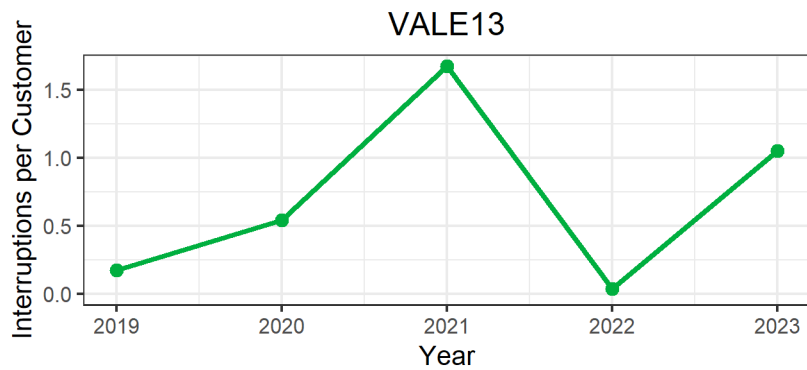
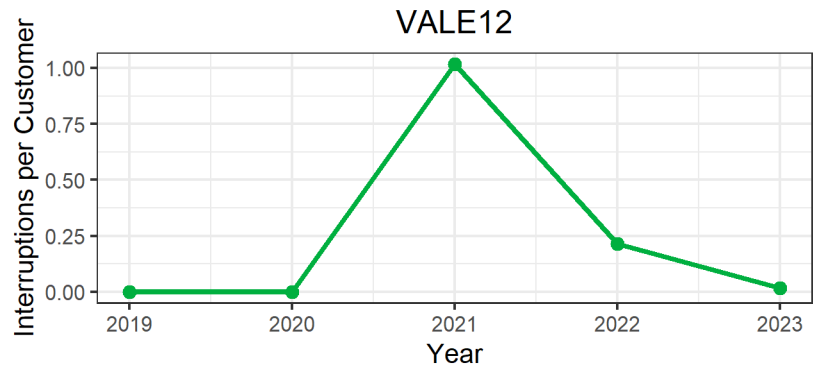
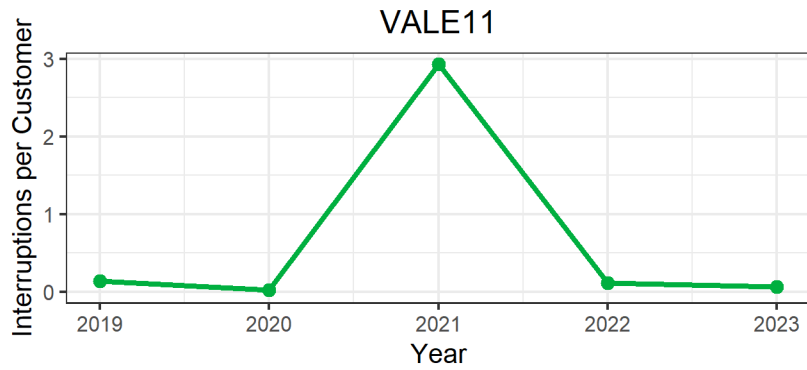
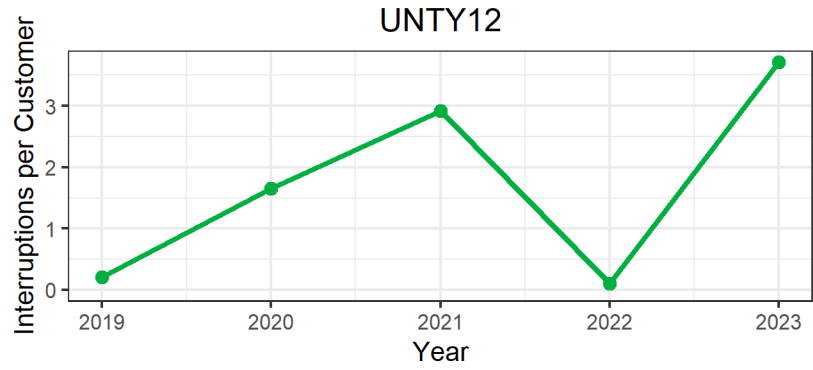
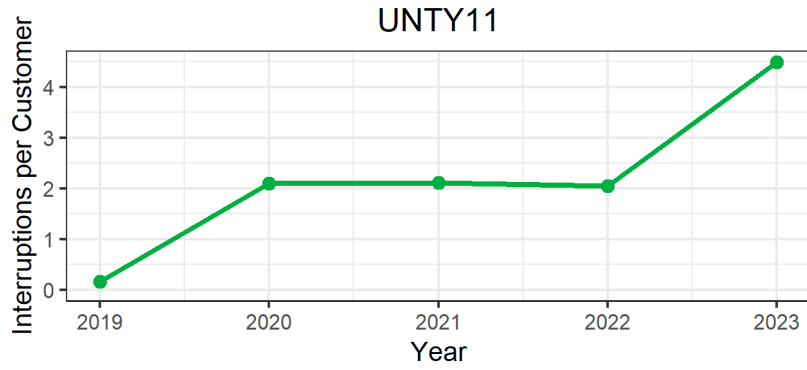












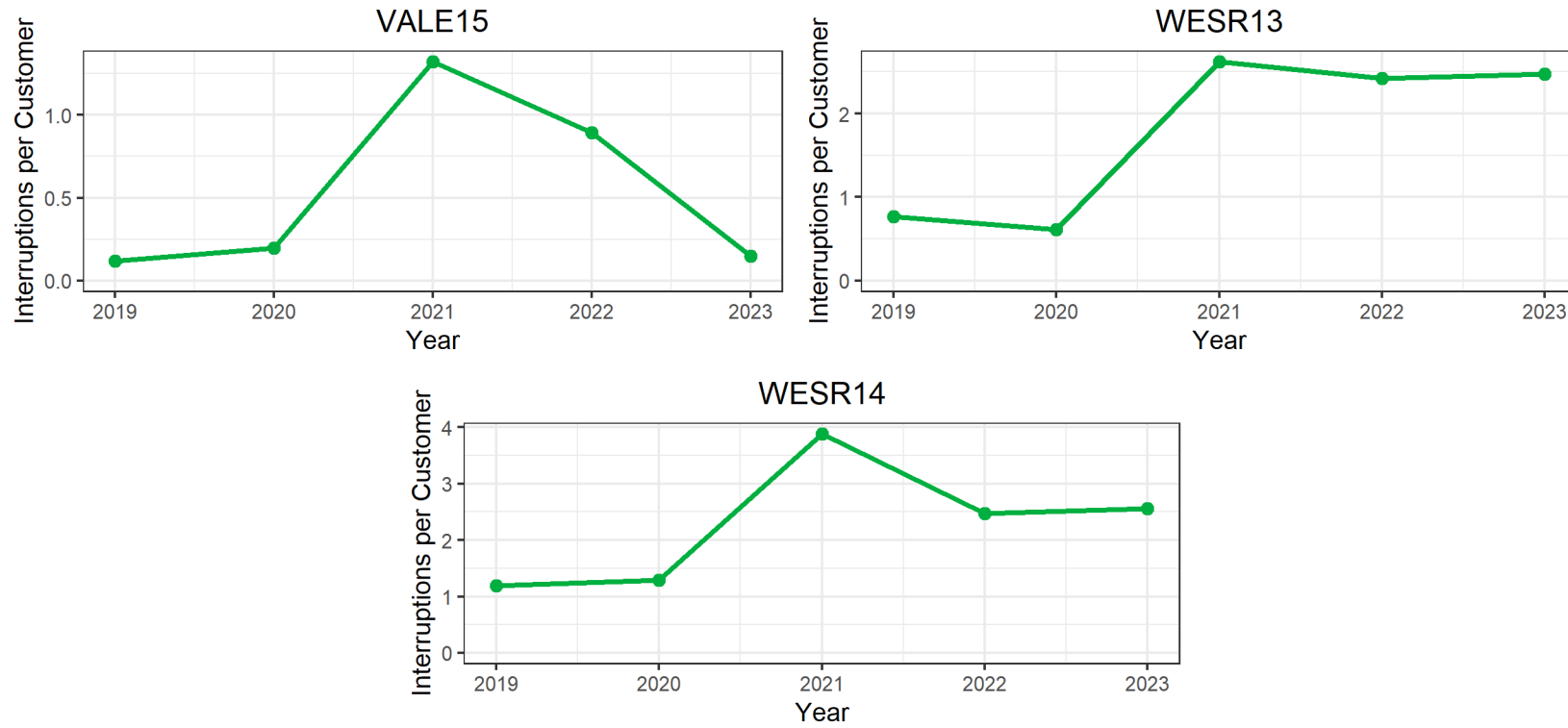
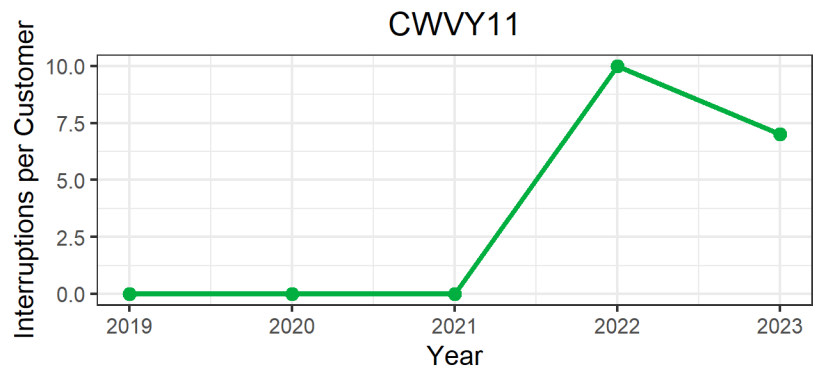
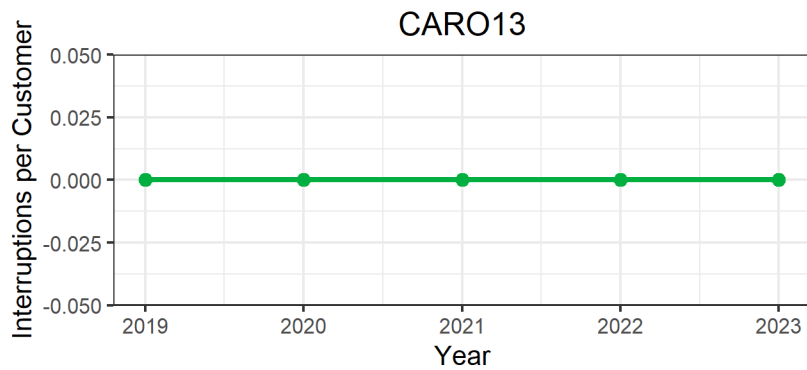
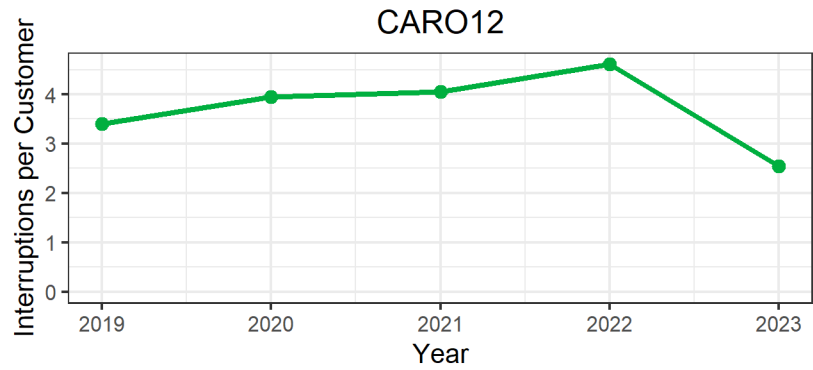
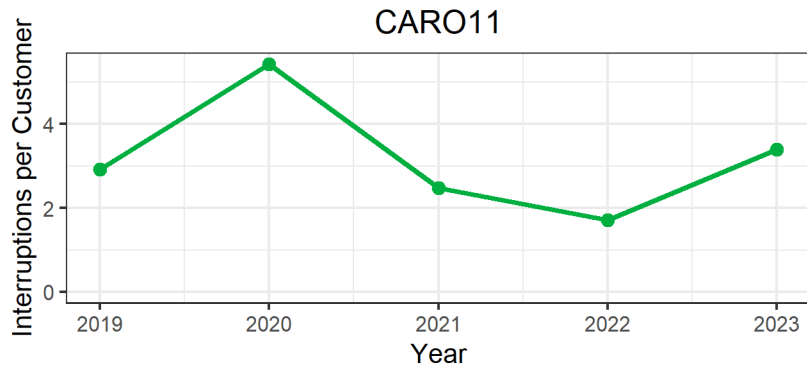
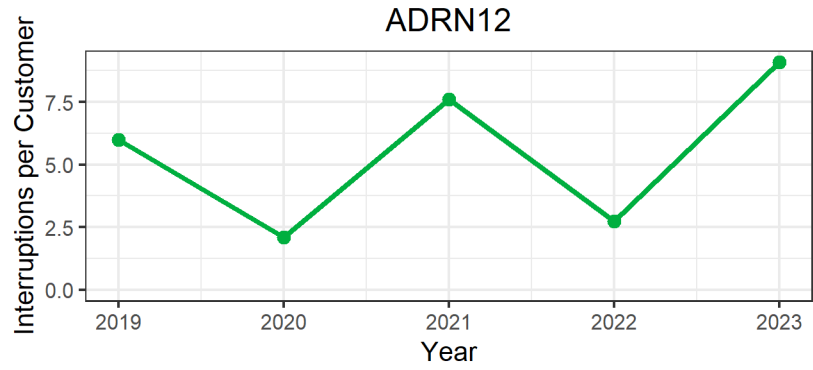
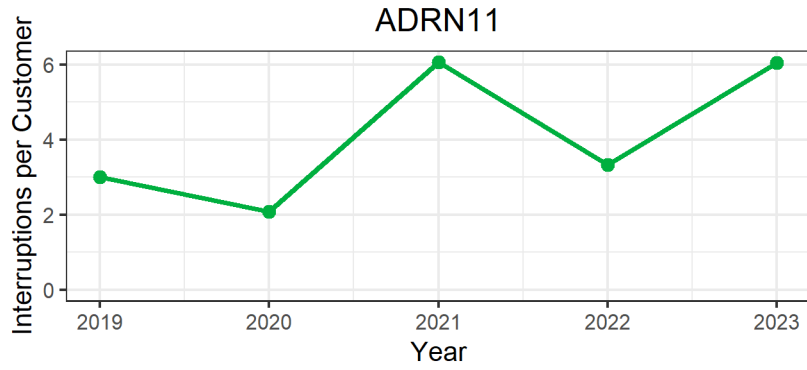


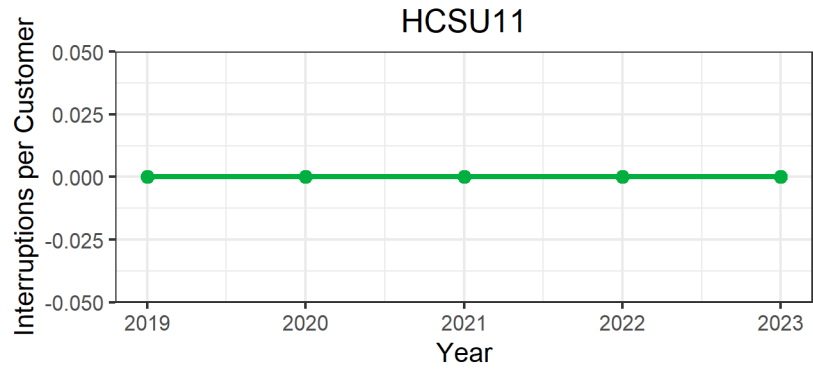
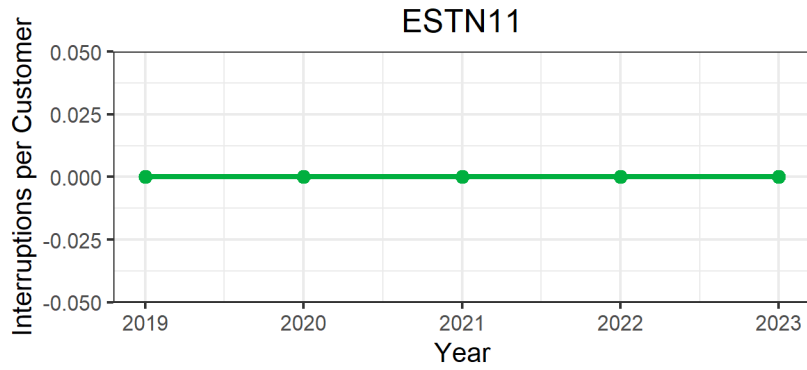
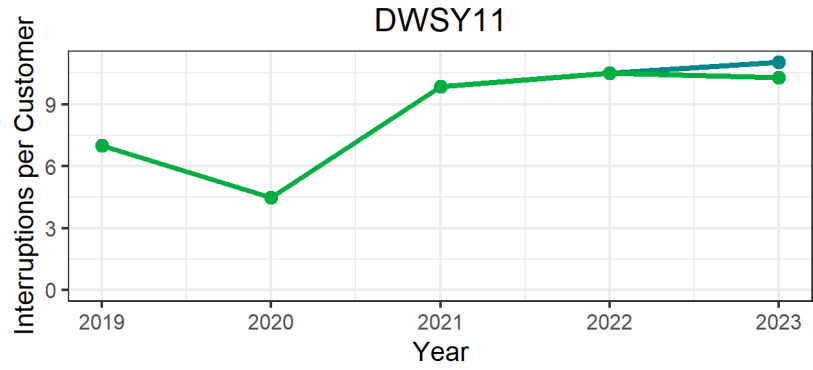
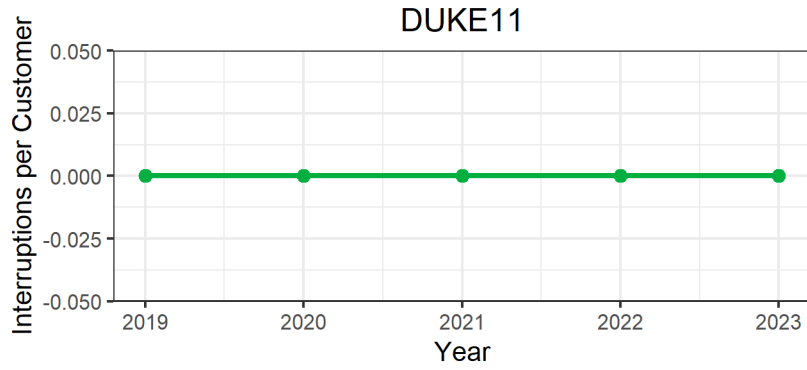
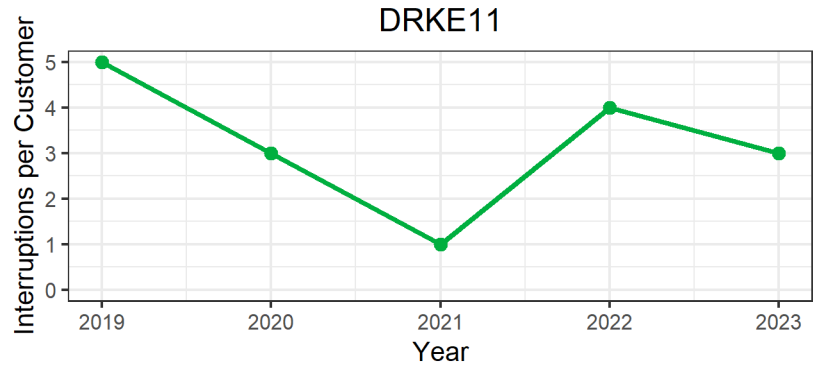
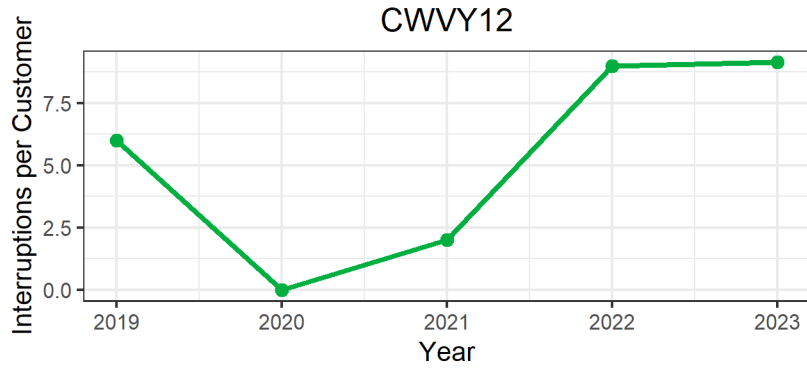
Figure 7 Five Years of Circuit SAIFI

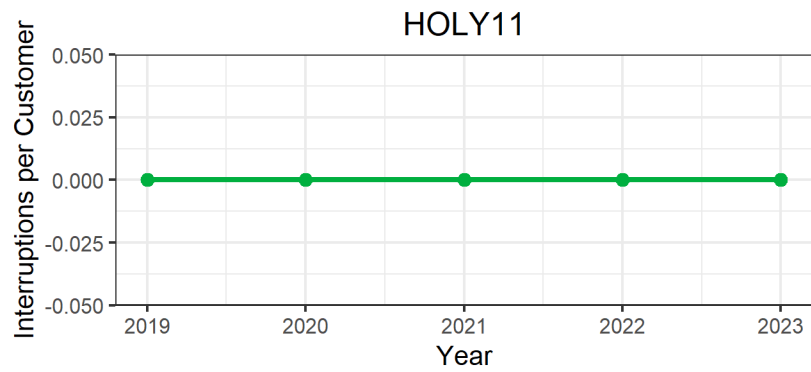
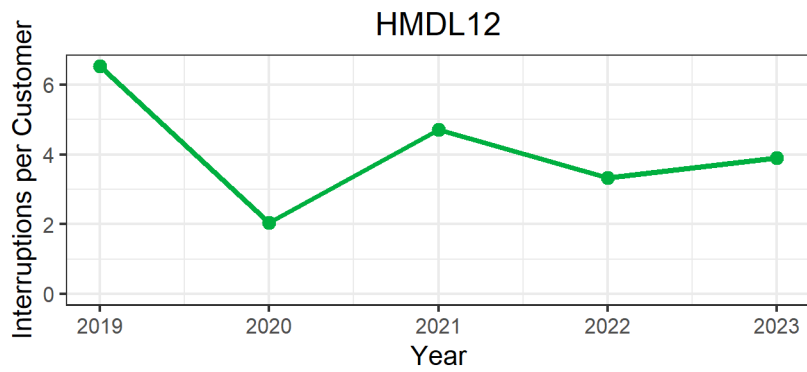
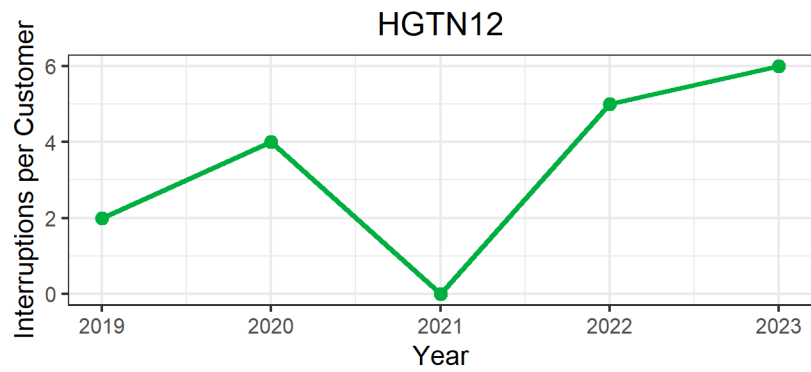
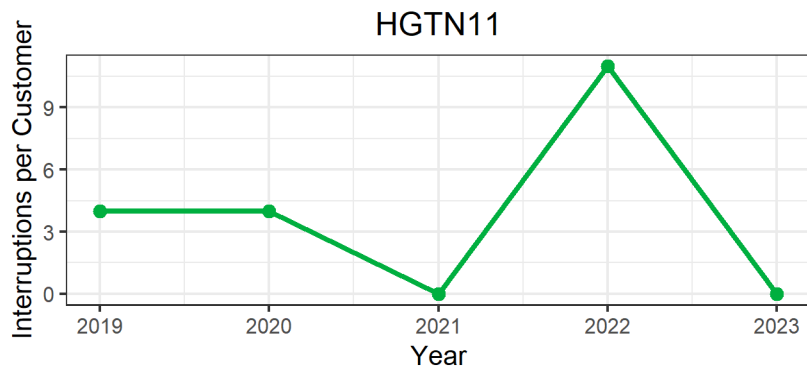
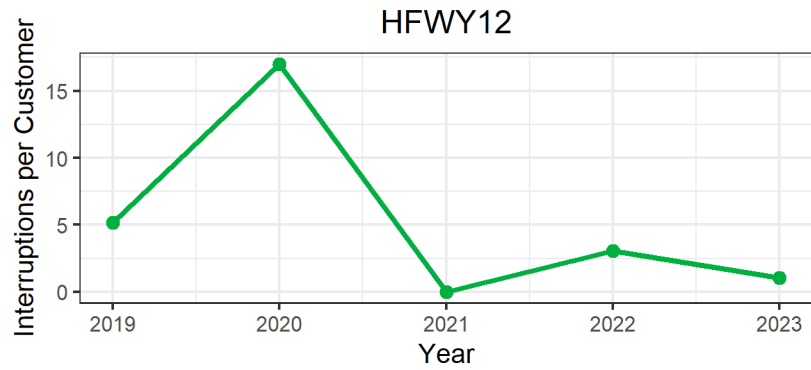
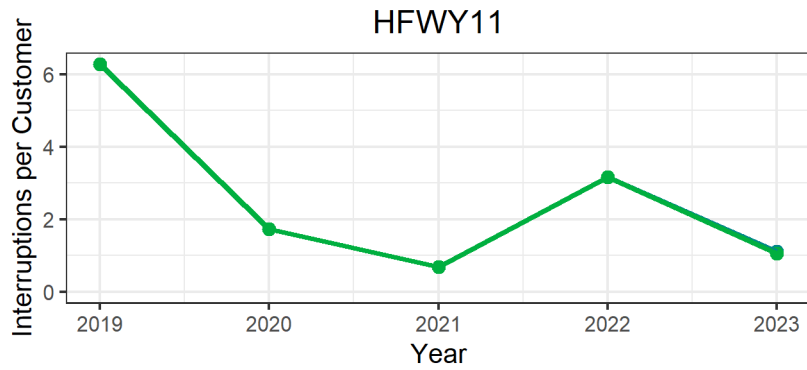
Five Years of Circuit MAIFI_E

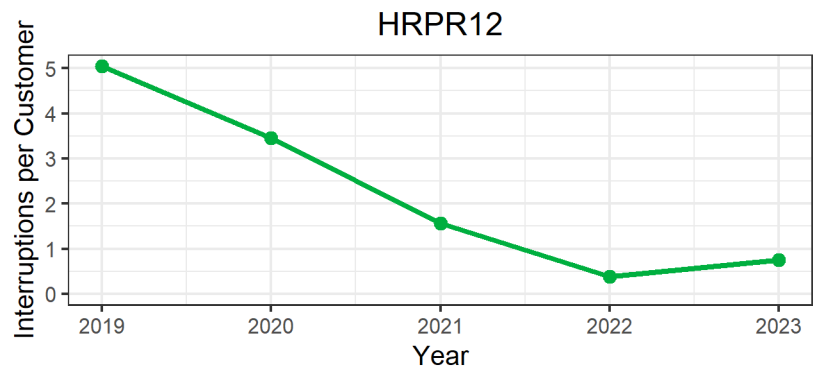
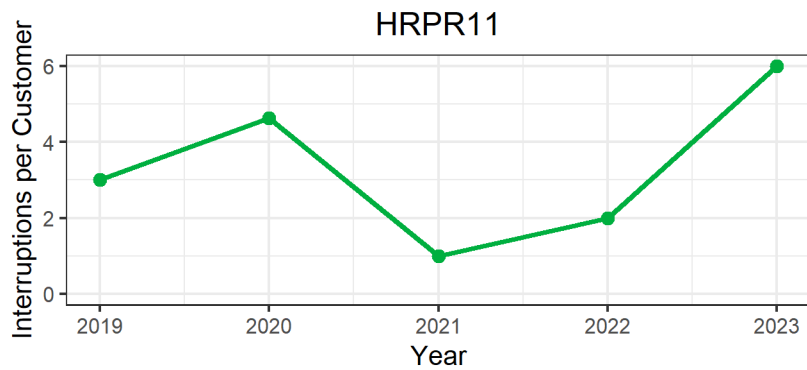
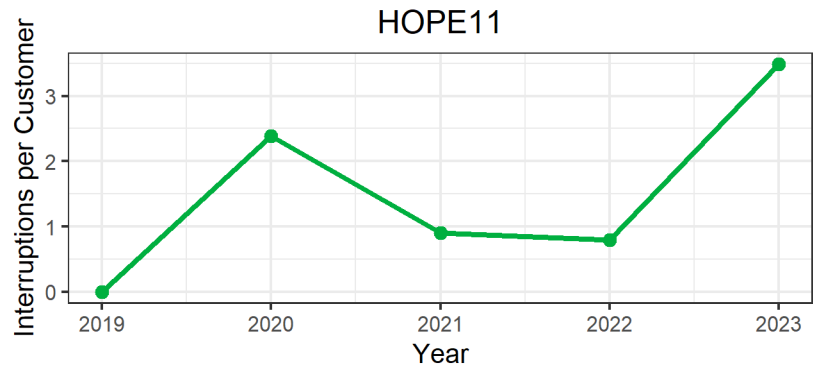
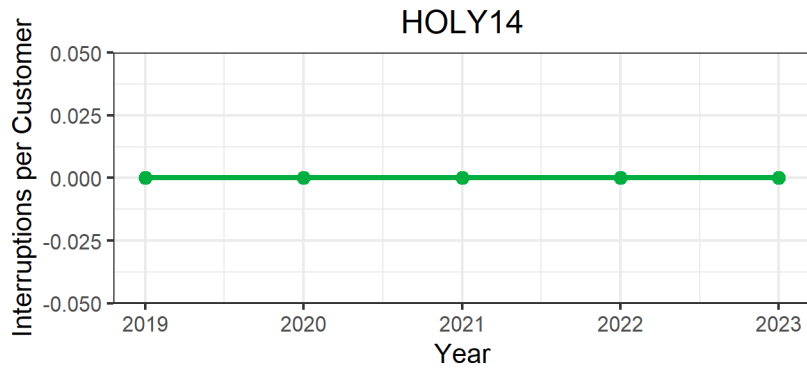
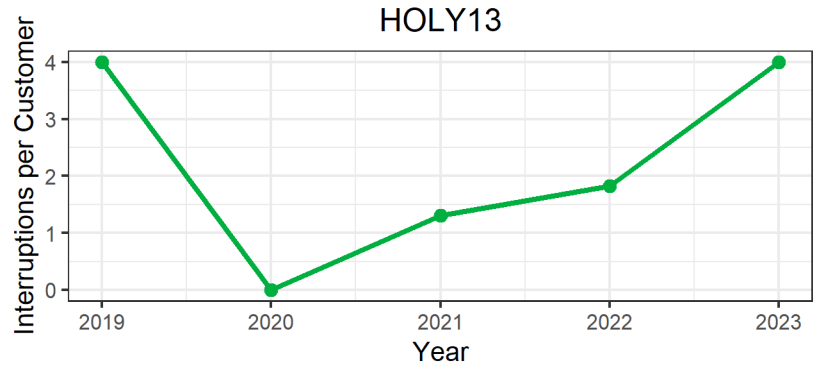
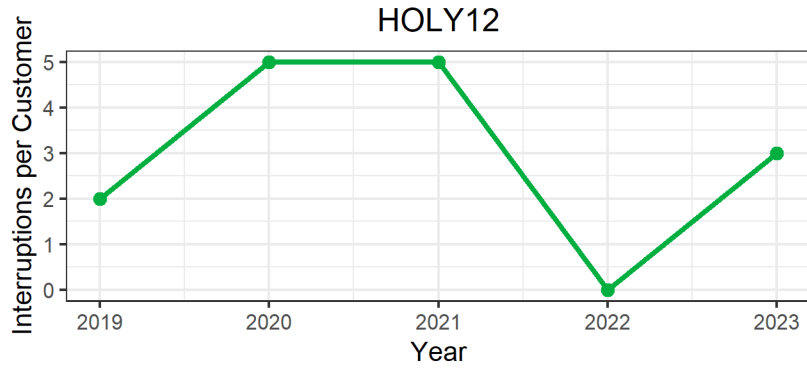
Circuit	2019	2020	2021	2022	2022	2023 MedEx
ADRN11	3.00	2.09	6.07	3.34	6.04	6.04
ADRN12	6.00	2.09	7.59	2.73	9.10	9.10
CARO11	3.10	5.43	2.48	1.71	3.40	3.40
CARO12	3.38	3.95	4.05	4.61	2.54	2.54
CARO13	0.00	0.00	0.00	0.00	0.00	0.00
CWVY11	0.00	0.00	0.00	10.00	7.00	7.00
CWVY12	6.00	0.00	2.00	9.00	9.15	9.15
DRKE11	5.00	3.00	1.00	4.00	3.00	3.00
DUKE11	0.00	0.00	0.00	0.00	0.00	0.00
DWSY11	7.85	4.48	9.85	10.52	11.05	10.30
ESTN11	0.00	0.00	0.00	0.00	0.00	0.00
HCSU11	0.00	0.00	0.00	0.00	0.00	0.00
HFVY11	6.29	1.73	0.70	3.16	1.11	1.07
HFVY12	5.17	17.00	0.00	3.04	1.03	1.03
HGTN11	4.00	4.00	0.00	11.00	0.00	0.00
HGTN12	2.00	4.00	0.00	5.00	6.00	6.00
HMDL12	6.52	2.04	4.71	3.33	3.91	3.91
HOLY11	0.00	0.00	0.00	0.00	0.00	0.00
HOLY12	2.00	5.00	5.00	0.00	3.00	3.00
HOLY13	4.00	0.00	1.31	1.82	4.00	4.00
HOLY14	0.00	0.00	0.00	0.00	0.00	0.00
HOPE11	0.00	2.39	0.91	0.80	3.49	3.49
HRPR11	3.00	4.63	1.00	2.00	6.00	6.00
HRPR12	5.03	3.45	1.57	0.39	0.76	0.76
JMSN11	0.94	0.87	0.98	8.12	6.31	6.31
JMSN12	7.00	4.00	4.00	0.00	0.00	0.00
JNTA11	9.00	3.00	1.00	7.00	8.00	8.00
JNTA12	10.00	8.00	14.00	25.00	16.67	16.33
JNVY11	7.00	0.00	2.51	0.76	0.00	0.00
JNVY12	3.00	1.00	4.00	2.00	5.00	5.00
JNVY31	5.00	4.46	12.13	8.98	6.18	5.18
MRBT41	1.00	3.00	5.00	3.00	3.00	3.00
MRBT42	1.00	2.00	6.00	3.00	3.00	3.00
NYSA11	1.00	2.00	0.00	1.00	0.00	0.00
NYSA12	0.00	0.00	3.00	0.07	2.08	2.08
NYSA13	1.00	0.52	3.47	0.51	2.87	2.87
NYSA14	1.00	0.00	3.51	0.00	1.76	1.76
NYSA15	0.00	0.00	0.00	0.00	0.00	0.00
OBPR11	0.00	0.00	0.00	0.00	0.00	0.00
OIDA11	0.00	3.00	0.00	2.00	4.00	4.00
OIDA12	0.00	0.00	0.00	0.00	0.00	0.00
ONTO14	1.00	0.00	0.00	0.00	0.00	0.00
ONTO18	4.00	3.00	1.00	0.00	0.00	0.00
ONTO19	1.72	1.34	1.28	0.49	0.61	0.61
ONTO20	2.00	1.00	0.00	0.00	3.00	3.00
ONTO23	0.00	0.00	1.00	0.00	0.00	0.00
ONTO24	0.00	0.68	0.00	1.40	0.00	0.00
ONTO25	0.00	0.00	1.00	2.00	1.00	1.00
OYDM11	0.00	0.00	0.00	0.00	0.00	0.00
PNCK11	4.00	5.00	0.00	0.00	0.00	0.00
PNCK12	0.00	0.00	0.00	0.00	0.00	0.00
PRMA12	0.00	0.00	0.00	1.00	0.00	0.00
PRMA42	6.24	3.15	4.47	2.46	10.50	10.50
RKVL11	6.00	3.00	4.00	3.00	0.00	0.00
UNTY11	7.00	8.05	4.00	11.00	6.05	6.05
UNTY12	0.00	0.00	0.00	0.00	0.00	0.00
VALE11	1.00	1.00	0.39	2.48	0.29	0.29
VALE12	0.00	0.00	0.00	0.00	0.00	0.00
VALE13	0.91	2.89	3.35	2.05	2.56	2.56
VALE14	0.00	0.12	2.00	0.00	10.00	10.00
VALE15	0.00	5.00	0.46	1.41	2.94	2.94
WESR13	4.26	1.26	3.00	1.46	0.98	0.98
WESR14	3.00	2.00	0.86	0.86	3.63	3.63

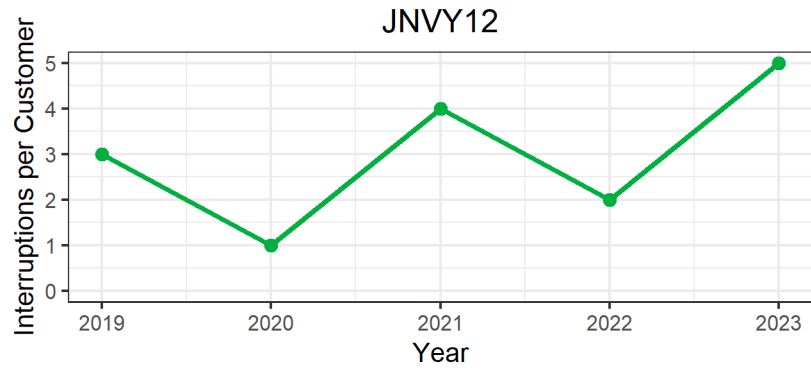
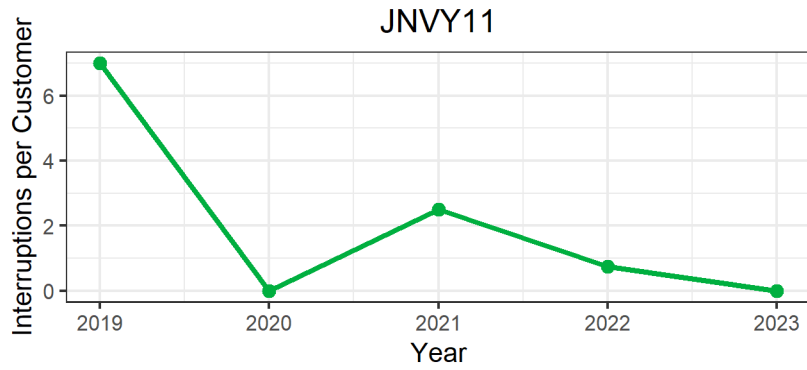
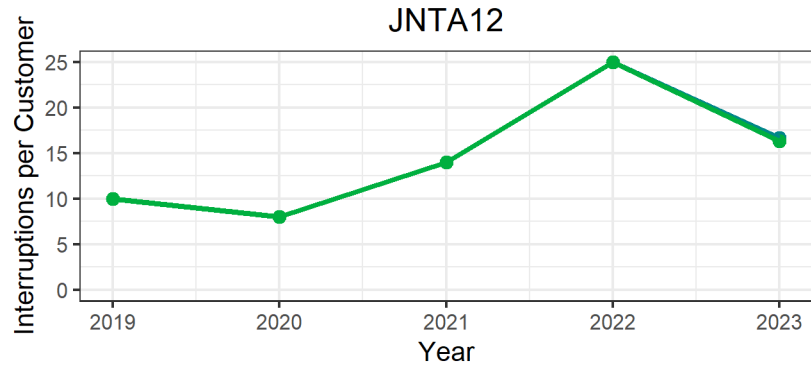
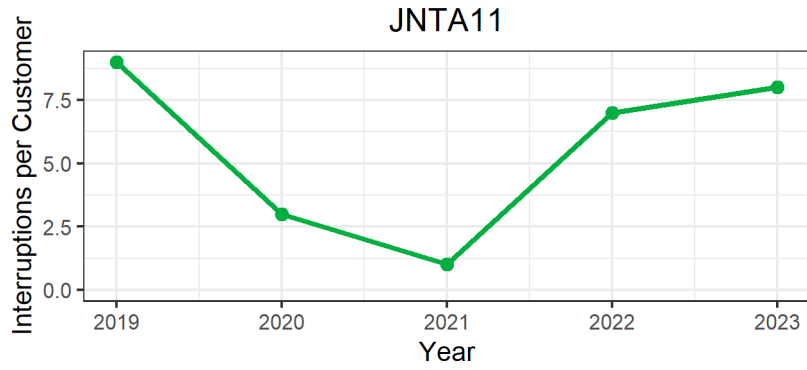
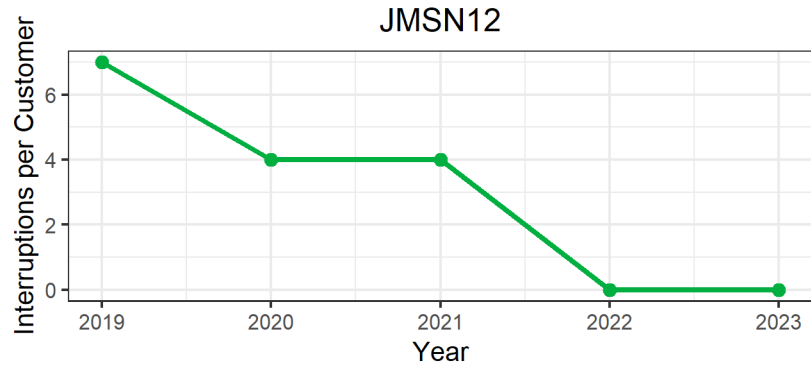
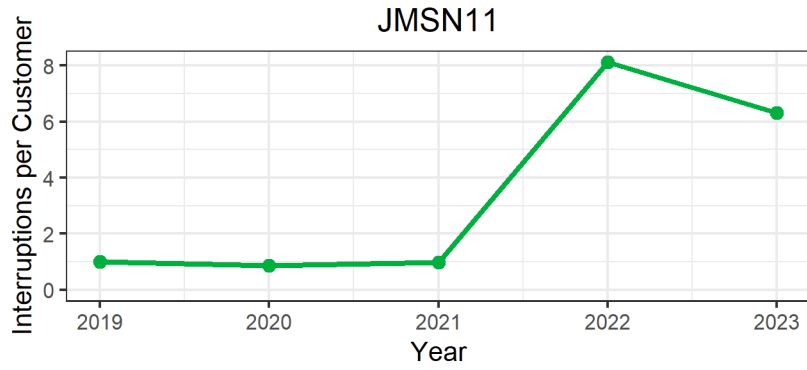
Table 8 Five Years of Circuit MAIFI_E

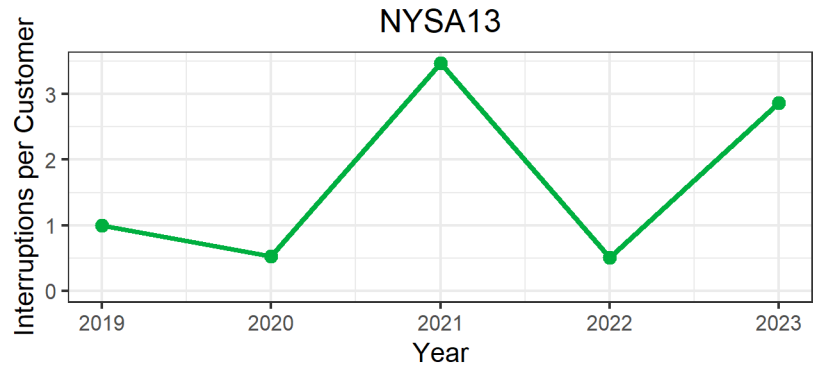
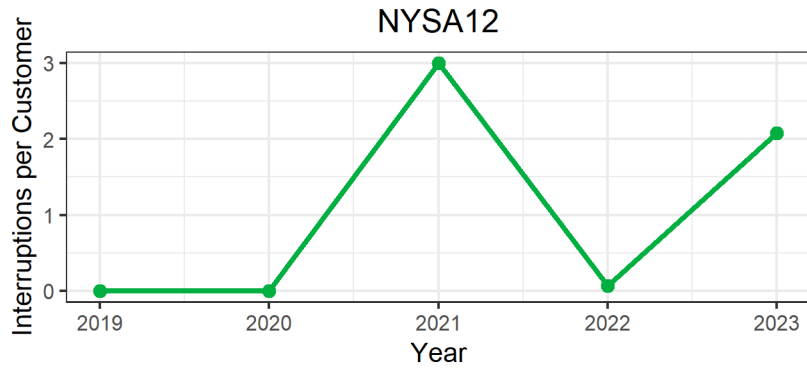
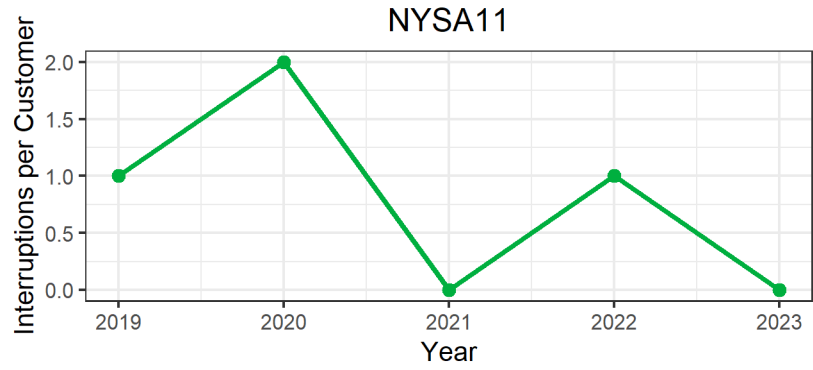
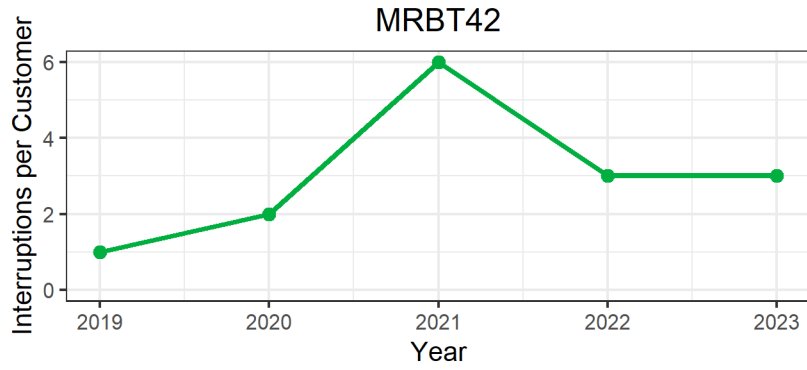
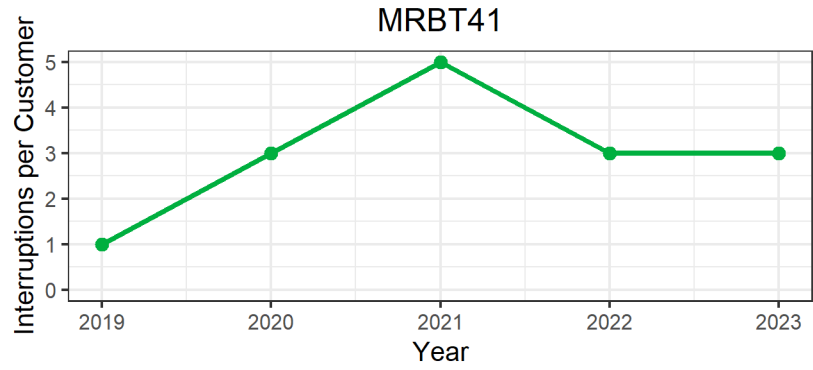
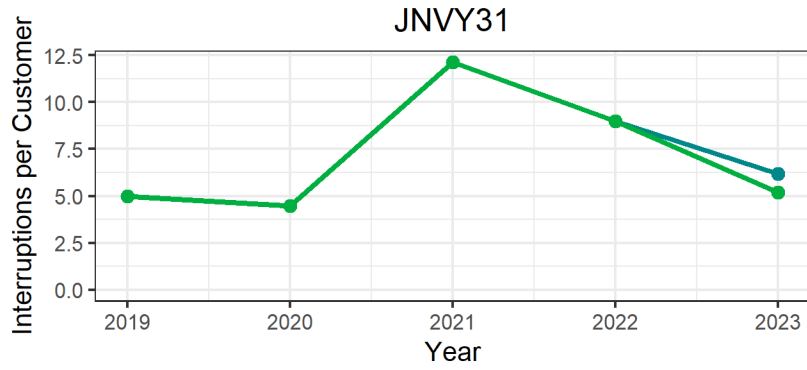


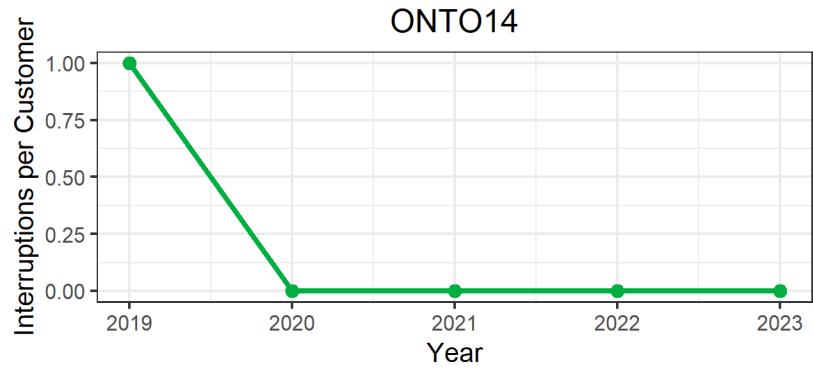
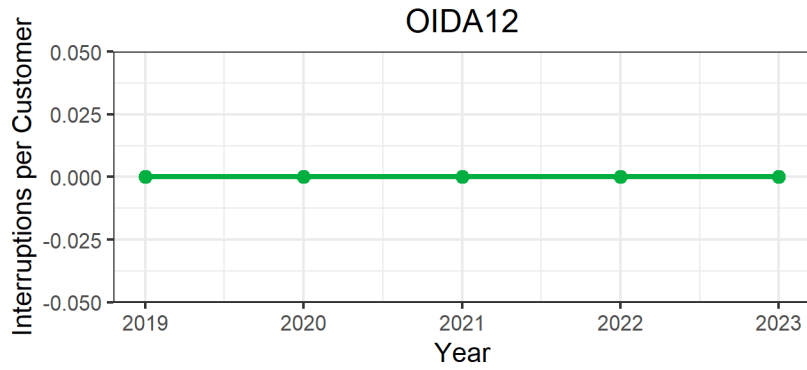
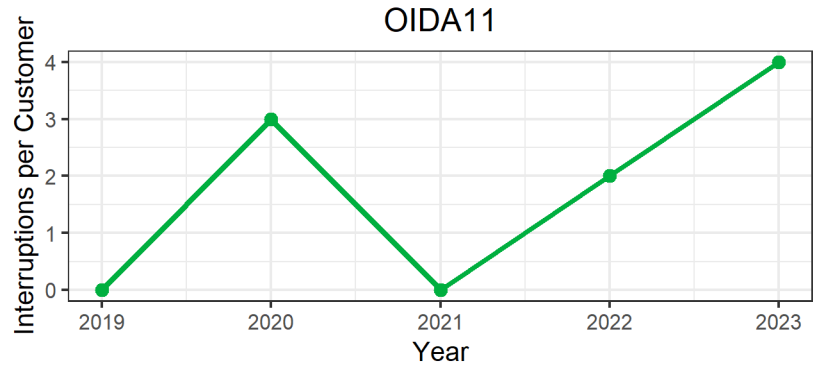
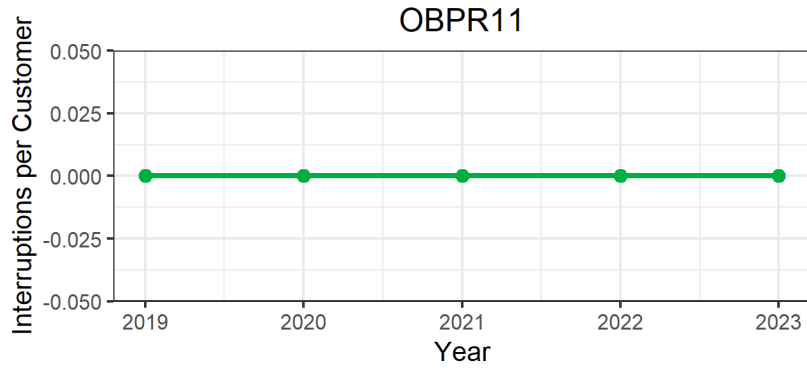
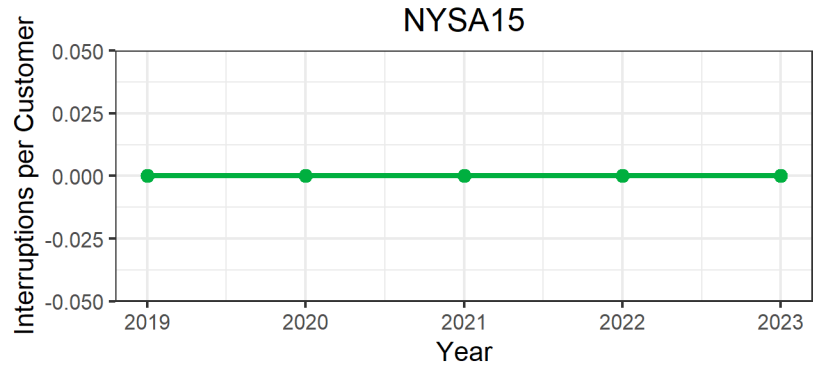
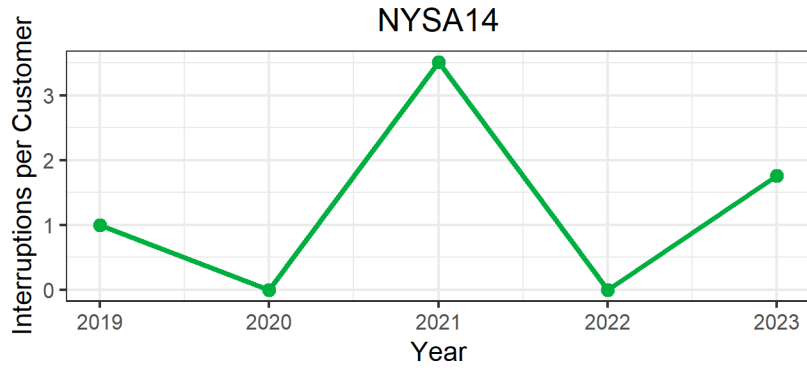


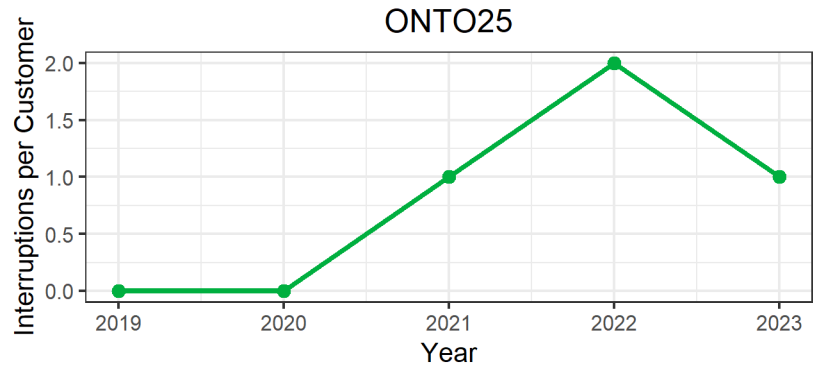
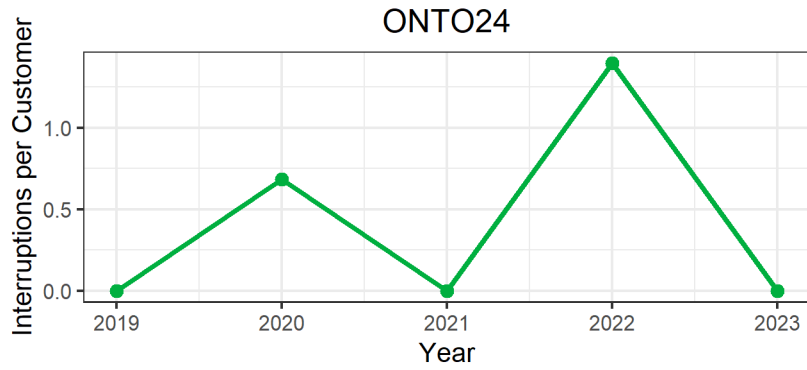
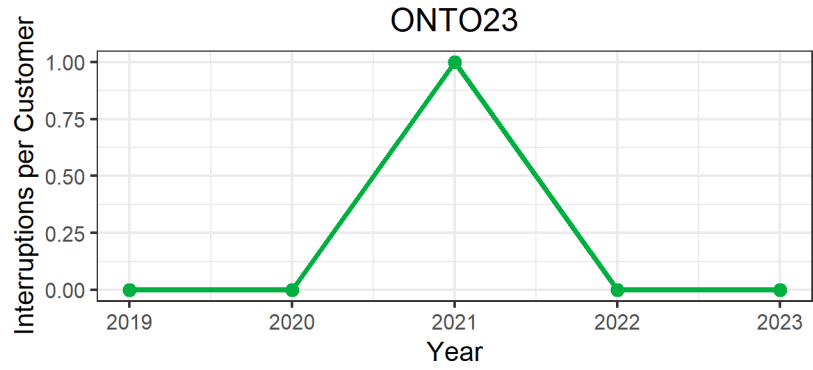
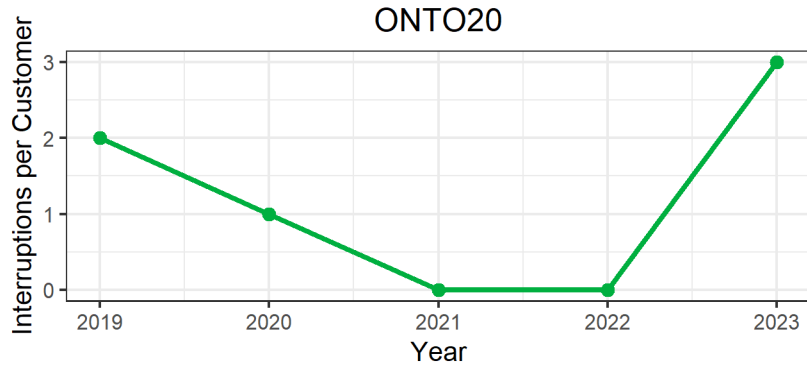
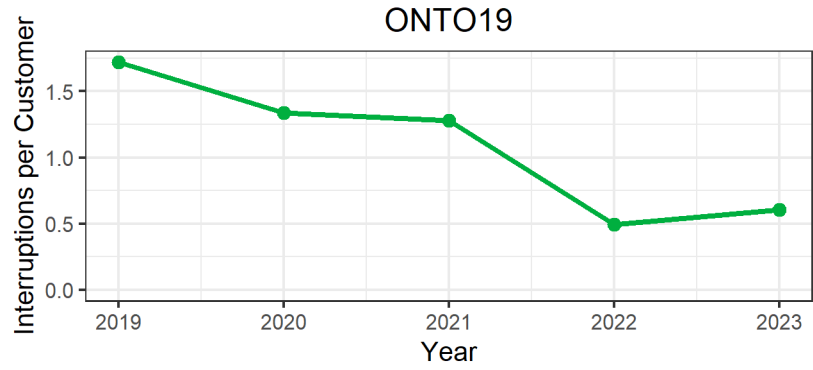
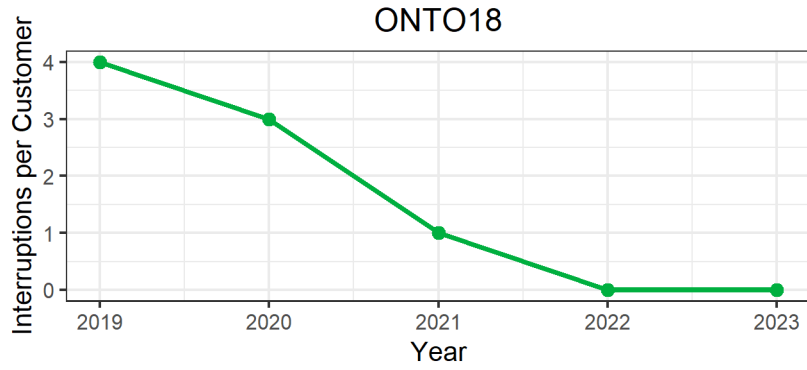


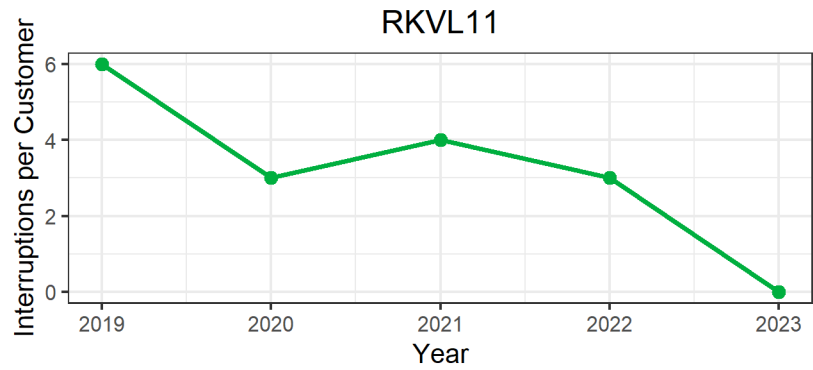
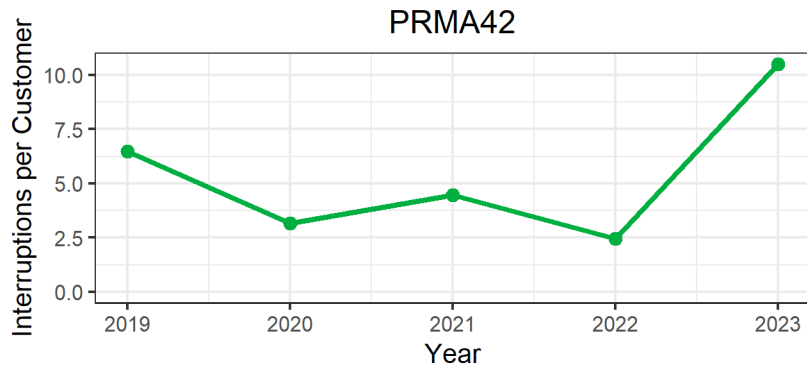
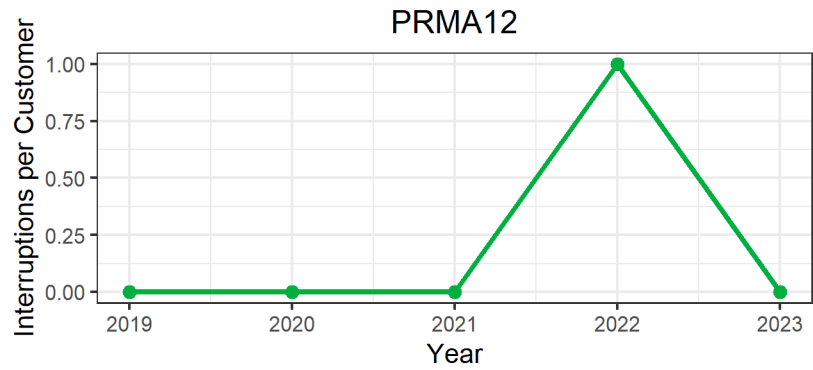
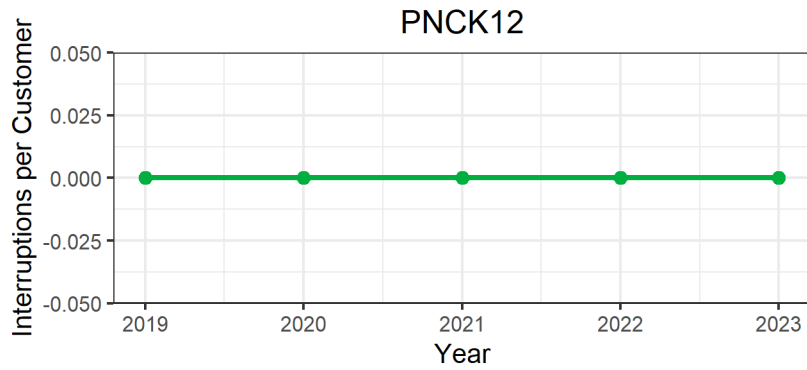
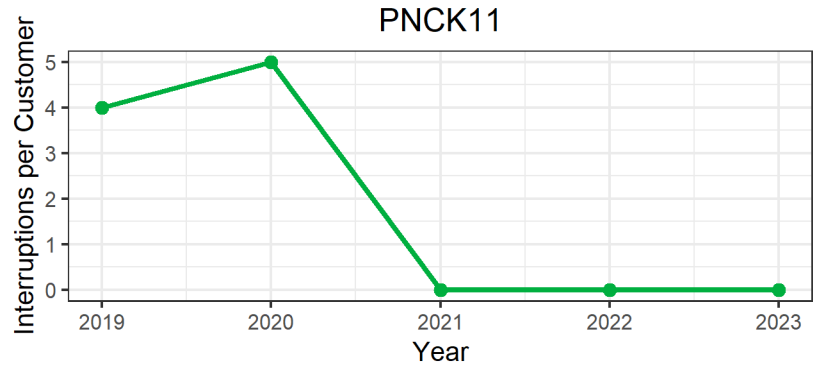
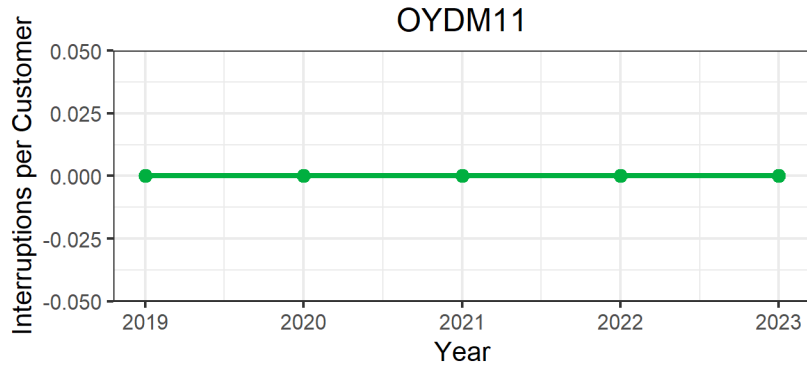


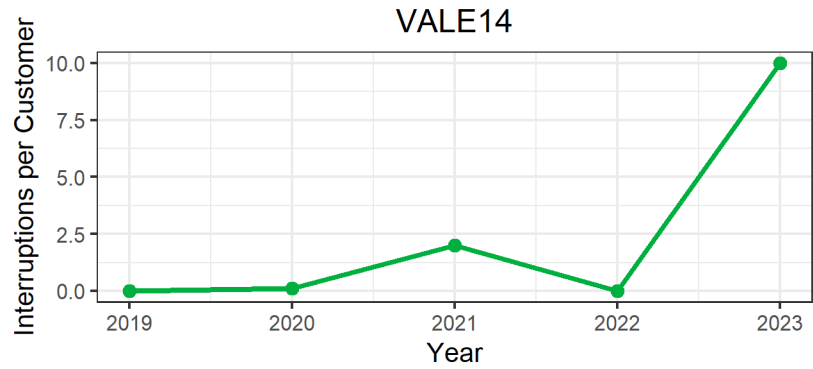
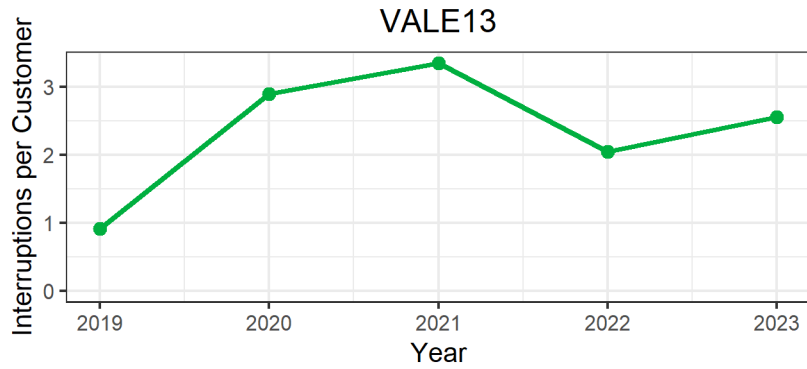
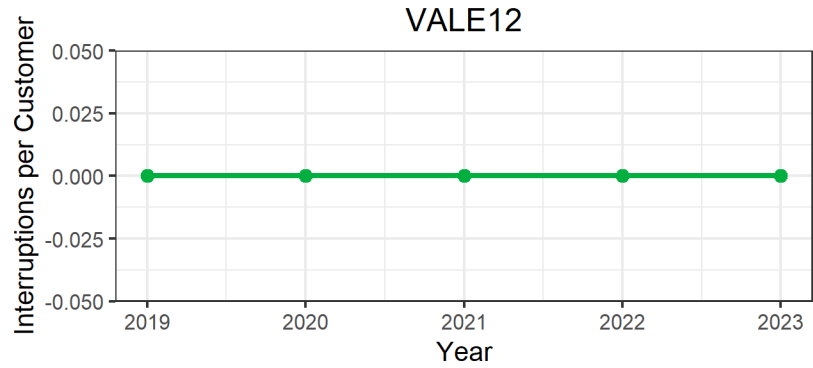
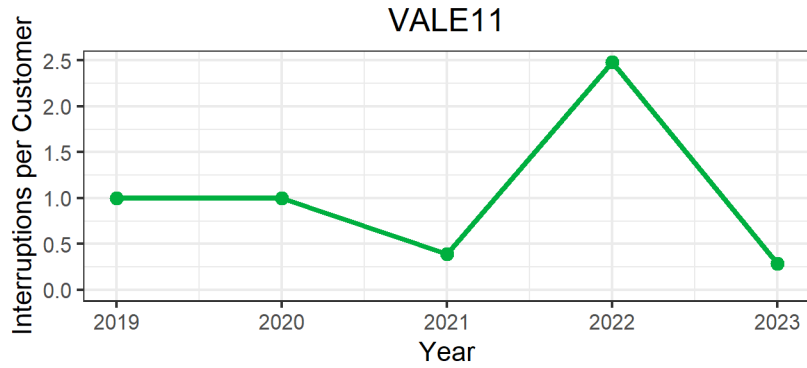
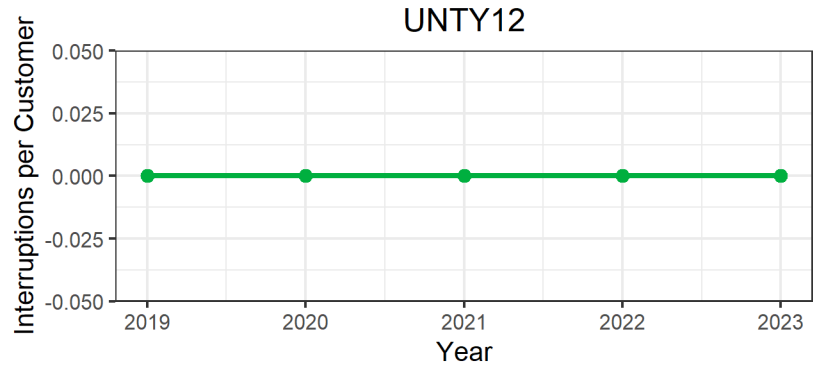
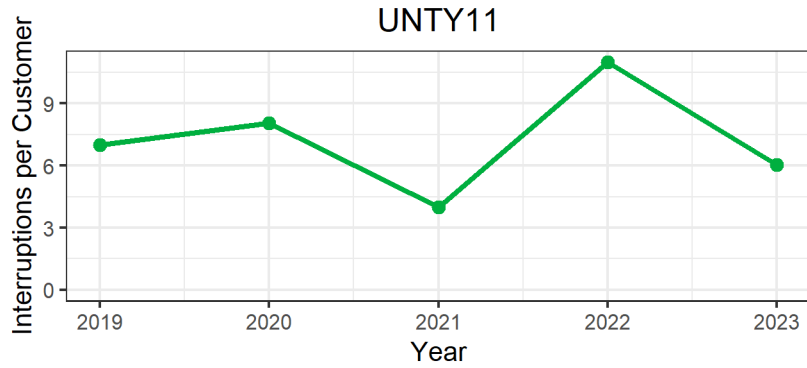












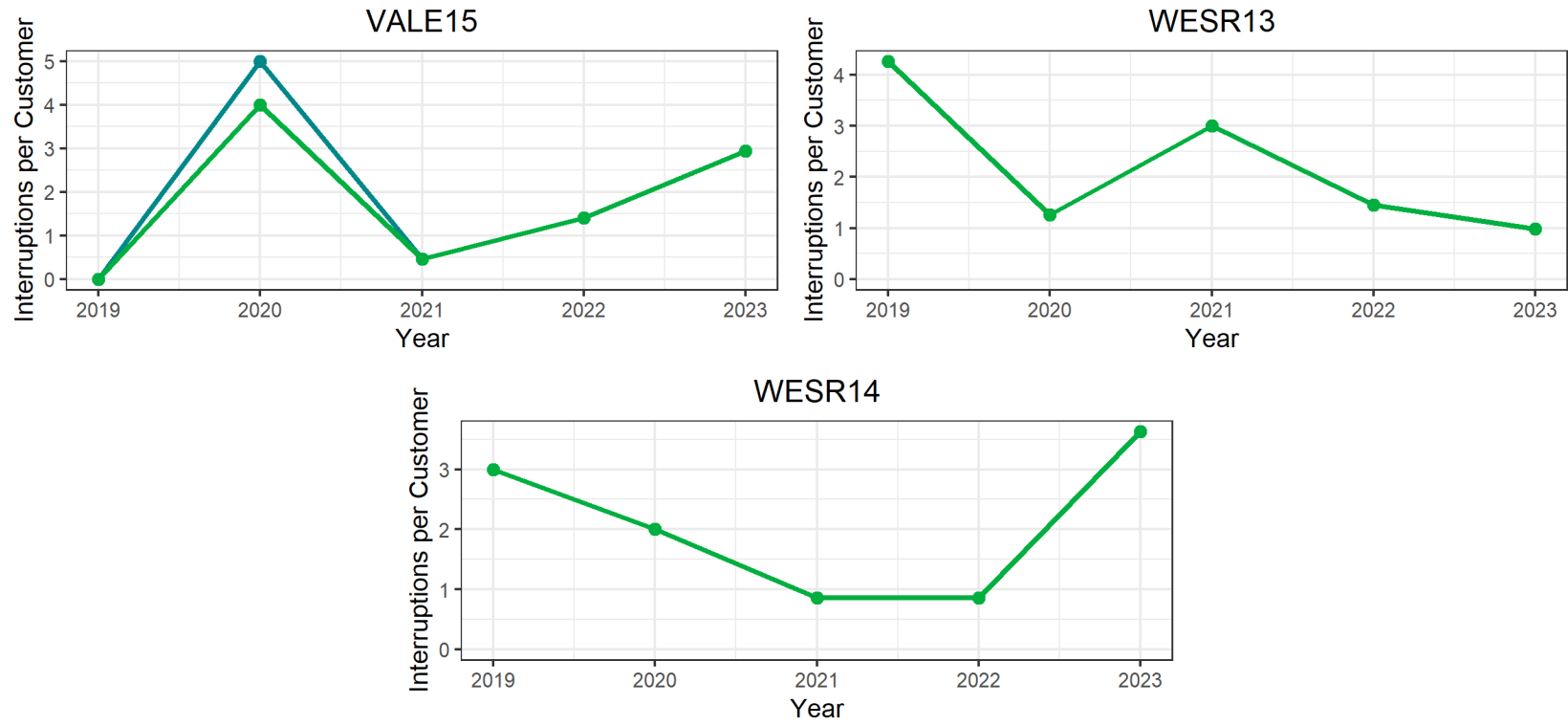


Figure 8 Five Years of Circuit MAIFI_E

2023 Descending Indices by Circuit

Circuit	SAIDI	SAIDI MedEx	Circuit	SAIFI	SAIFI MedEx	Circuit	MAIFI _E	MAIFI _E MedEx
DWSY11	26.50	9.78	ESTN11	5.00	3.00	JNTA12	16.67	16.33
HRPR11	19.49	19.49	JNTA12	4.79	2.83	DWSY11	11.05	10.30
ESTN11	17.65	14.27	UNTY11	4.49	4.49	PRMA42	10.50	10.50
RKVL11	13.93	13.93	JNTA11	4.22	2.18	VALE14	10.00	10.00
JNTA12	13.79	10.47	DRKE11	4.06	4.06	CWVY12	9.15	9.15
NYSA15	11.76	11.76	UNTY12	3.72	3.72	ADRN12	9.10	9.10
UNTY12	11.32	11.32	DWSY11	3.45	2.45	JNTA11	8.00	8.00
UNTY11	11.09	11.09	NYSA13	3.44	3.44	CWVY11	7.00	7.00
DRKE11	10.38	10.38	JNVY12	3.43	3.43	JMSN11	6.31	6.31
PRMA12	8.35	8.35	PRMA12	3.33	3.33	JNVY31	6.18	5.18
WESR13	7.98	7.98	HMDL12	3.22	3.22	UNTY11	6.05	6.05
HGTN11	7.83	7.83	PNCK12	3.00	3.00	ADRN11	6.04	6.04
ADRN12	7.70	7.70	ADRN12	2.91	2.91	HGTN12	6.00	6.00
HMDL12	7.57	7.57	RKVL11	2.91	2.91	HRPR11	6.00	6.00
JNTA11	7.35	3.91	NYSA15	2.85	2.85	JNVY12	5.00	5.00
VALE14	7.13	7.13	ADRN11	2.59	2.59	HOLY13	4.00	4.00
PNCK12	6.73	6.73	WESR14	2.56	2.56	OIDA11	4.00	4.00
HGTN12	6.25	6.25	NYSA12	2.53	2.53	HMDL12	3.91	3.91
NYSA13	6.16	6.16	WESR13	2.48	2.48	WESR14	3.63	3.63
JNVY11	5.23	5.23	NYSA14	2.34	2.34	HOPE11	3.49	3.49
JNVY12	5.15	5.15	JNVY11	2.16	2.16	CARO11	3.40	3.40
WESR14	5.00	5.00	NYSA11	2.10	2.10	DRKE11	3.00	3.00
NYSA12	4.70	4.70	VALE14	1.91	1.91	HOLY12	3.00	3.00
HFVY12	4.11	4.11	HGTN12	1.85	1.85	MRBT41	3.00	3.00
CWVY12	4.08	4.08	JNVY31	1.81	1.81	MRBT42	3.00	3.00
CWVY11	3.86	3.86	JMSN11	1.79	1.79	ONTO20	3.00	3.00
PNCK11	3.85	3.85	HGTN11	1.74	1.74	VALE15	2.94	2.94
NYSA14	3.80	3.80	MRBT41	1.69	1.69	NYSA13	2.87	2.87
JMSN11	3.36	3.36	PRMA42	1.61	1.61	VALE13	2.56	2.56
MRBT41	3.25	3.25	CARO11	1.57	1.57	CARO12	2.54	2.54
DUKE11	3.16	3.16	HFVY12	1.51	1.51	NYSA12	2.08	2.08
HFVY11	3.09	3.09	CWVY12	1.50	1.50	NYSA14	1.76	1.76
ADRN11	3.07	3.07	HRPR11	1.47	1.47	HFVY11	1.11	1.07
NYSA11	2.95	2.95	JMSN12	1.18	1.18	HFVY12	1.03	1.03
JNVY31	2.93	2.93	MRBT42	1.18	1.18	ONTO25	1.00	1.00
JMSN12	2.54	2.54	CWVY11	1.09	1.09	WESR13	0.98	0.98
OBPR11	2.28	2.28	DUKE11	1.08	1.08	HRPR12	0.76	0.76
PRMA42	2.19	2.19	ONTO18	1.06	1.06	ONTO19	0.61	0.61
CARO11	2.03	2.03	VALE13	1.05	1.05	VALE11	0.29	0.29
MRBT42	1.99	1.99	HFVY11	1.05	1.05	CARO13	0.00	0.00
HOPE11	1.73	1.73	PNCK11	1.04	1.04	DUKE11	0.00	0.00
OIDA12	1.42	1.42	OBPR11	1.00	1.00	ESTN11	0.00	0.00
VALE13	1.40	1.40	OIDA12	1.00	1.00	HCSU11	0.00	0.00
HRPR12	1.33	1.33	CARO13	0.93	0.93	HGTN11	0.00	0.00
HOLY11	0.88	0.88	CARO12	0.83	0.83	HOLY11	0.00	0.00
CARO12	0.73	0.73	HOPE11	0.73	0.73	HOLY14	0.00	0.00
ONTO20	0.67	0.67	ONTO20	0.33	0.33	JMSN12	0.00	0.00
HOLY13	0.65	0.65	HRPR12	0.33	0.33	JNVY11	0.00	0.00
HOLY12	0.59	0.59	ONTO19	0.32	0.32	NYSA11	0.00	0.00
CARO13	0.57	0.57	HOLY13	0.32	0.32	NYSA15	0.00	0.00
ONTO19	0.49	0.49	HOLY11	0.28	0.28	OBPR11	0.00	0.00
ONTO18	0.37	0.37	HOLY12	0.23	0.23	OIDA12	0.00	0.00
ONTO24	0.29	0.29	ONTO24	0.18	0.18	ONTO14	0.00	0.00
ONTO14	0.28	0.28	ONTO14	0.15	0.15	ONTO18	0.00	0.00
VALE15	0.25	0.25	VALE15	0.15	0.15	ONTO23	0.00	0.00
OIDA11	0.09	0.09	VALE11	0.06	0.06	ONTO24	0.00	0.00
VALE11	0.05	0.05	OIDA11	0.05	0.05	OYDM11	0.00	0.00
ONTO25	0.04	0.04	VALE12	0.02	0.02	PNCK11	0.00	0.00
VALE12	0.02	0.02	ONTO25	0.01	0.01	PNCK12	0.00	0.00
HCSU11	0.00	0.00	HCSU11	0.00	0.00	PRMA12	0.00	0.00
HOLY14	0.00	0.00	HOLY14	0.00	0.00	RKVL11	0.00	0.00
ONTO23	0.00	0.00	ONTO23	0.00	0.00	UNTY12	0.00	0.00
OYDM11	0.00	0.00	OYDM11	0.00	0.00	VALE12	0.00	0.00

Table 9 2023 Descending Indices by Circuit

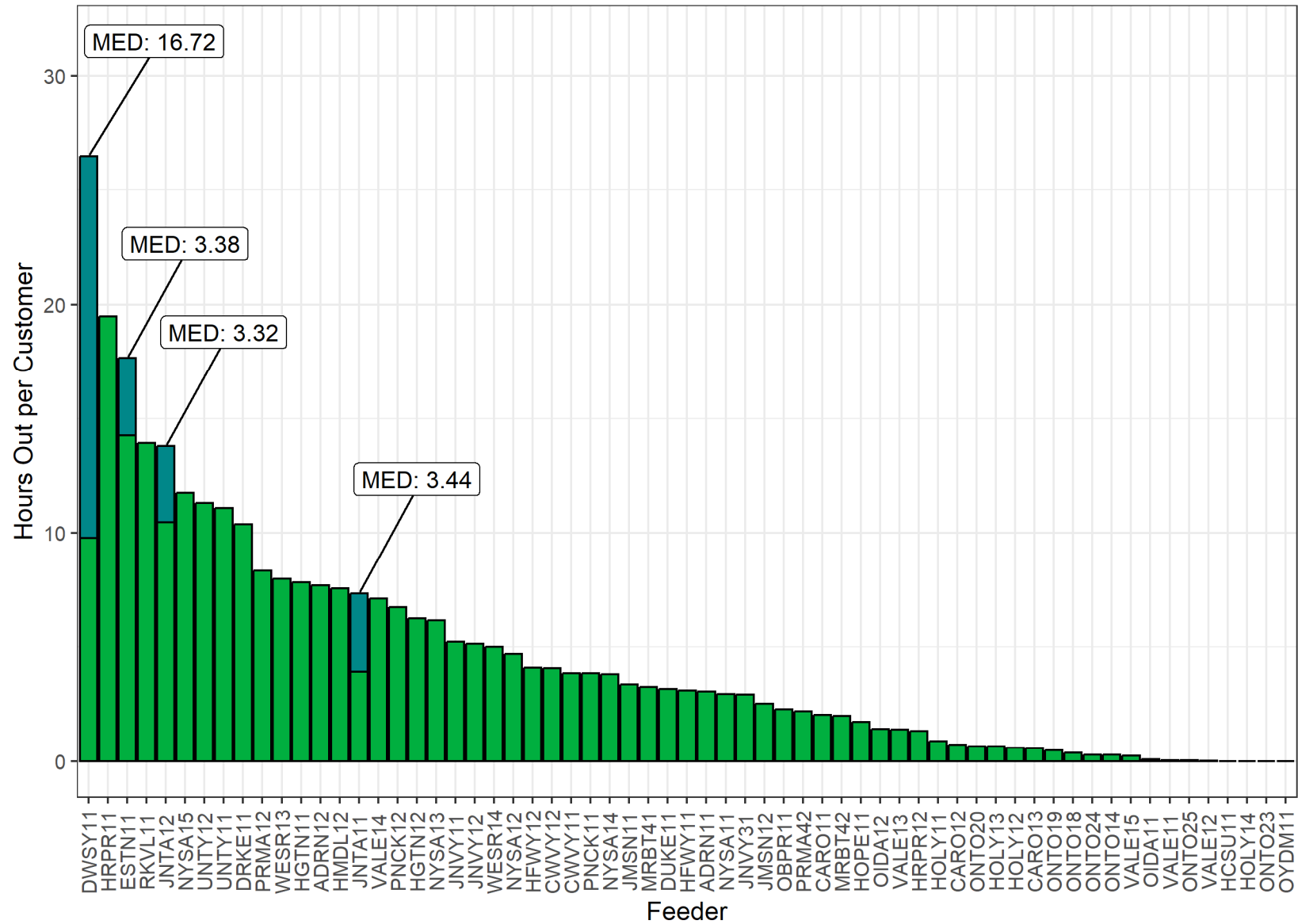


Figure 9 2023 Descending SAIDI by Circuit

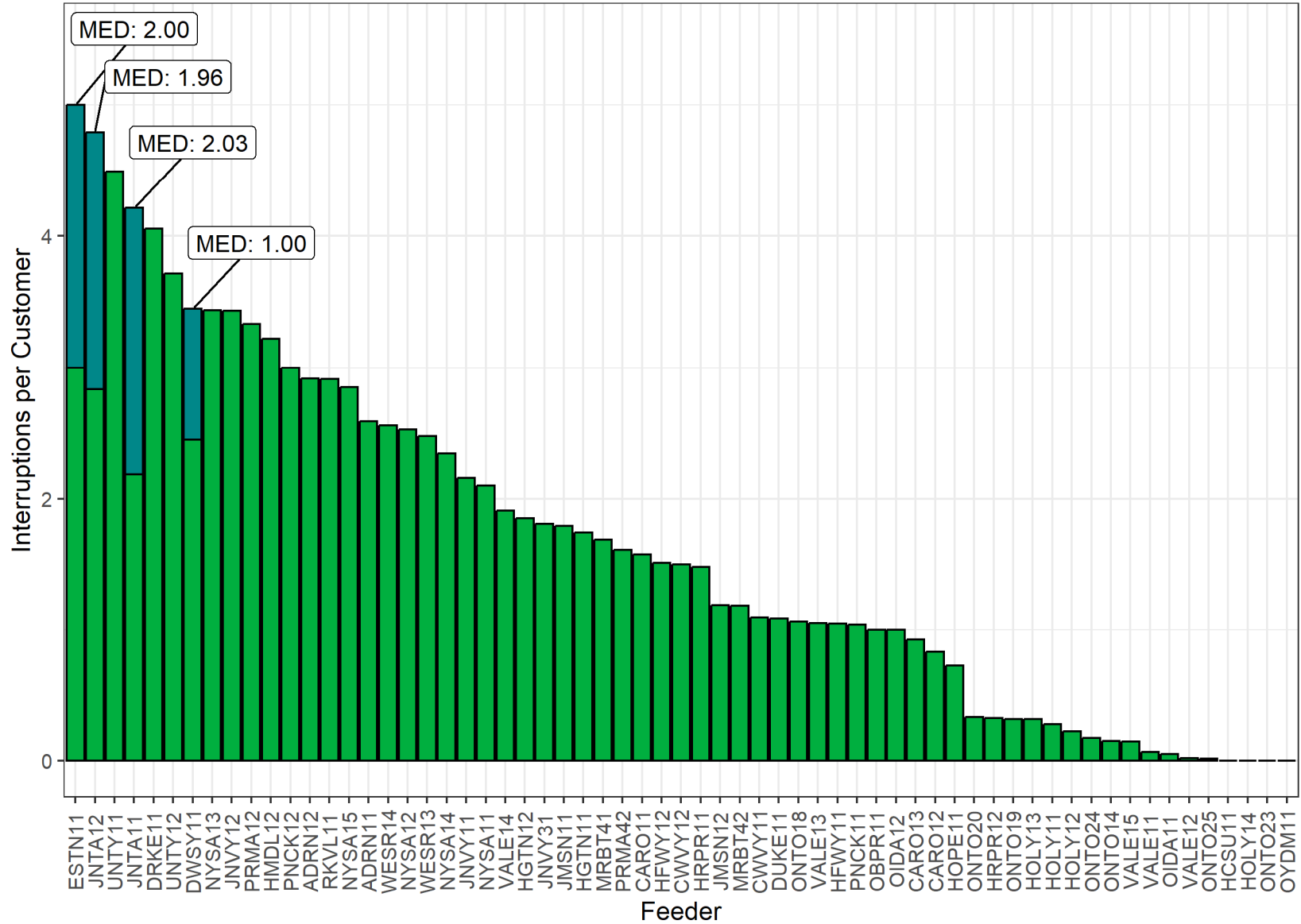


Figure 10 2023 Descending SAIFI by Circuit

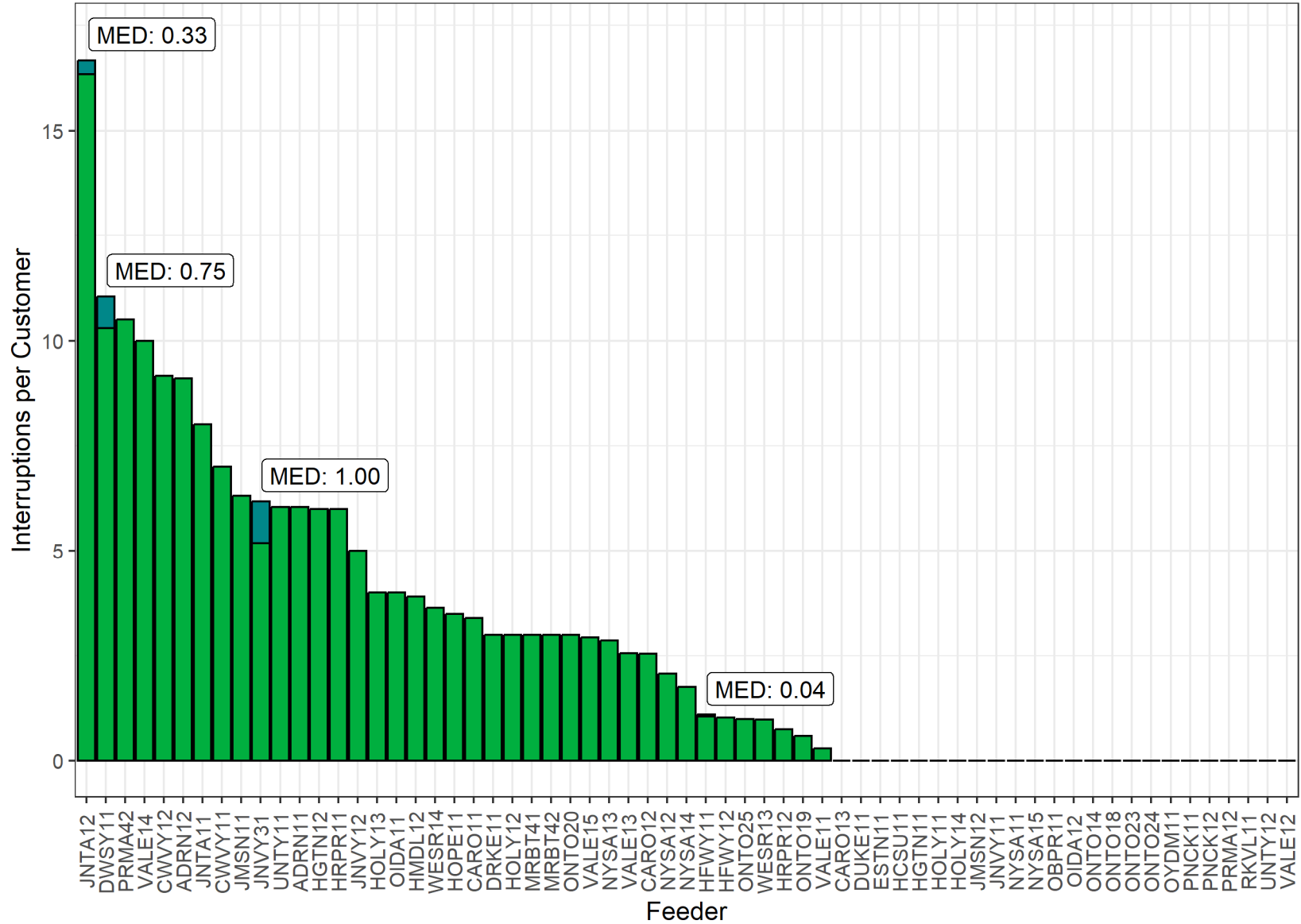


Figure 11 2023 Descending MAIFIE by Circuit

APPENDIX

Circuit Reference Information

Circuit	Substation	Operating Area	Voltage (kV)	Customers*
ADRN11	Adrian	Western	12.5	425
ADRN12	Adrian	Western	12.5	625
CARO11	Cairo	Western	12.5	1270
CARO12	Cairo	Western	12.5	89
CARO13	Cairo	Western	12.5	738
CWVY11	Cow Valley	Western	12.5	44
CWVY12	Cow Valley	Western	12.5	113
DRKE11	Durkee	Western	12.5	159
DUKE11	Duke	Western	12.5	48
DWSY11	Drewsey	Western	12.5	192
ESTN11	Easton	Western	12.5	2
HCSU11	Hells Canyon	Western	12.5	2
HFWD11	Halfway	Western	12.5	789
HFWD12	Halfway	Western	12.5	563
HGTN11	Huntington	Western	12.5	90
HGTN12	Huntington	Western	12.5	439
HMDL12	Homedale	Canyon	12.5	161
HOLY11	Holly	Western	12.5	202
HOLY12	Holly	Western	12.5	79
HOLY13	Holly	Western	12.5	181
HOLY14	Holly	Western	12.5	5
HOPE11	Hope	Western	12.5	158
HRPR11	Harper	Western	12.5	116
HRPR12	Harper	Western	12.5	194
JMSN11	Jamieson	Western	12.5	403
JMSN12	Jamieson	Western	12.5	239
JNTA11	Juntura	Western	12.5	65
JNTA12	Juntura	Western	12.5	53
JNVY11	Jordan Valley	Canyon	12.5	89
JNVY12	Jordan Valley	Canyon	12.5	104
JNVY31	Jordan Valley	Canyon	25.0	350
MRBT41	Malheur Butte	Western	34.5	32
MRBT42	Malheur Butte	Western	34.5	11
NYSA11	Nyssa	Western	12.5	848
NYSA12	Nyssa	Western	12.5	333
NYSA13	Nyssa	Western	12.5	818
NYSA14	Nyssa	Western	12.5	257
NYSA15	Nyssa	Western	12.5	13
OBPR11	Oxbow	Western	12.5	1
OIDA11	Ore-Ida	Western	12.5	754
OIDA12	Ore-Ida	Western	12.5	1
ONTO14	Ontario	Western	12.5	39
ONTO18	Ontario	Western	12.5	916
ONTO19	Ontario	Western	12.5	1893
ONTO20	Ontario	Western	12.5	1209
ONTO23	Ontario	Western	12.5	54
ONTO24	Ontario	Western	12.5	733
ONTO25	Ontario	Western	12.5	549
OYDM11	Owyhee Dam	Western	12.5	14
PNCK11	Pine Creek	Western	12.5	102
PNCK12	Pine Creek	Western	12.5	2
PRMA12	Parma	Western	12.5	3
PRMA42	Parma	Western	34.5	200
RKVL11	Rockville	Canyon	12.5	33
UNTY11	Unity	Western	12.5	150
UNTY12	Unity	Western	12.5	243
VALE11	Vale	Western	12.5	1051
VALE12	Vale	Western	12.5	55
VALE13	Vale	Western	12.5	678
VALE14	Vale	Western	12.5	326
VALE15	Vale	Western	12.5	482
WESR13	Weiser	Western	12.5	202
WESR14	Weiser	Western	12.5	36

Table 10 Circuit Reference Information

*Some circuits have customers in Idaho and Oregon. The counts are for Oregon customers only as of 12/31/2023.

Five Years of System Pole and Trench Miles

Year	Overhead (OH) Pole Miles	Underground (UG) Trench Miles	Distribution All Miles	Transmission Line (Structure/Pole) Miles*	Percent OH / UG
2023	2,108.1	104.9	2,213.0	757.8	95%/5%
2022	2,108.4	99.9	2,208.3	757.6	95%/5%
2021	2,113.5	97.4	2,210.9	757.6	95%/5%
2020	2,113.2	94.0	2,207.2	757.3	95%/5%
2019	2,113.6	100.8	2,214.4	757.3	95%/5%

Table 11 Five Years of System Pole and Trench Miles

*Transmission line miles include some lines that do not directly serve customer load.

2023 Major Event Day System Summary

Date	Cause	Oregon Customers (C)	Customer Minutes of Interruption (CMI)	Customer Interruptions (CI)	SAIDI in Minutes (CMI/C)	SAIFI (CI/C)	CAIDI in Minutes (CMI/CI)
2023-03-15	Loading/Unloading (Snow, Ice)	19,788	210,544	396	10.64	0.02	640

Table 12 2023 MED System Summary

2023 Major Event Day Feeder Summary

Date	Feeder	Oregon Customers (C)	Customer Minutes of Interruption (CMI)	Customer Interruptions (CI)	SAIDI in Minutes (CMI/C)	SAIFI (CI/C)	CAIDI in Minutes (CMI/CI)
2023-03-15	DWSY11	192	192,384	192	1002	1.00	1002
2023-03-15	ESTN11	2	304	4	152	2.00	76
2023-03-15	JNTA11	65	9,880	130	152	2.00	76
2023-03-15	JNTA12	53	8,056	106	152	2.00	76

Table 13 2023 MED Feeder Summary

Five Years of Major Event Days

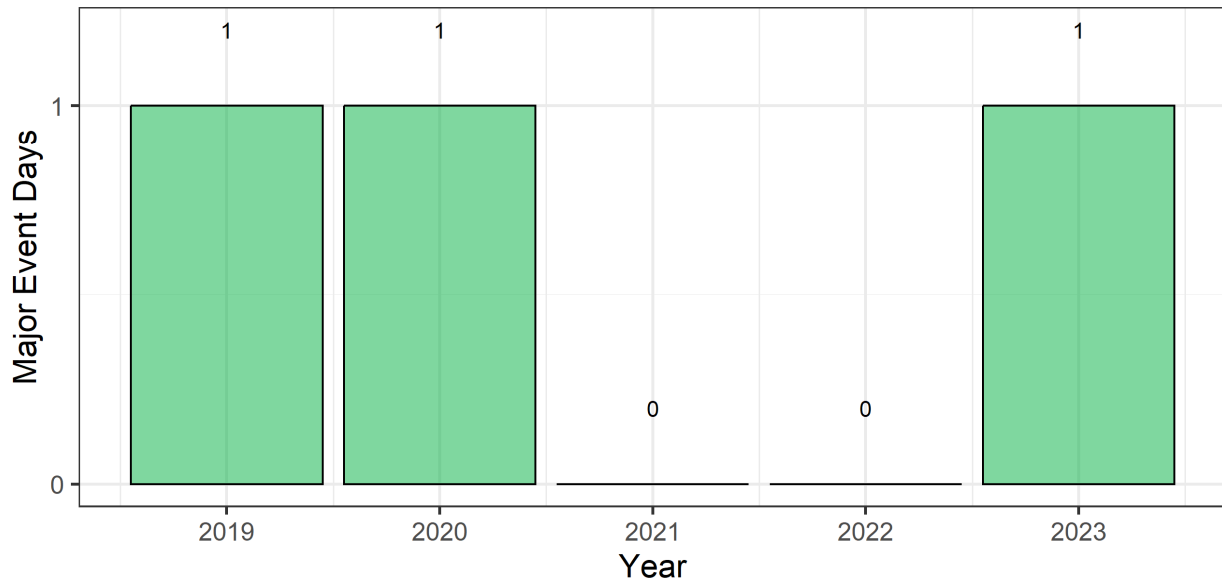


Figure 12 Five Years of MEDs

Cause Category Translation

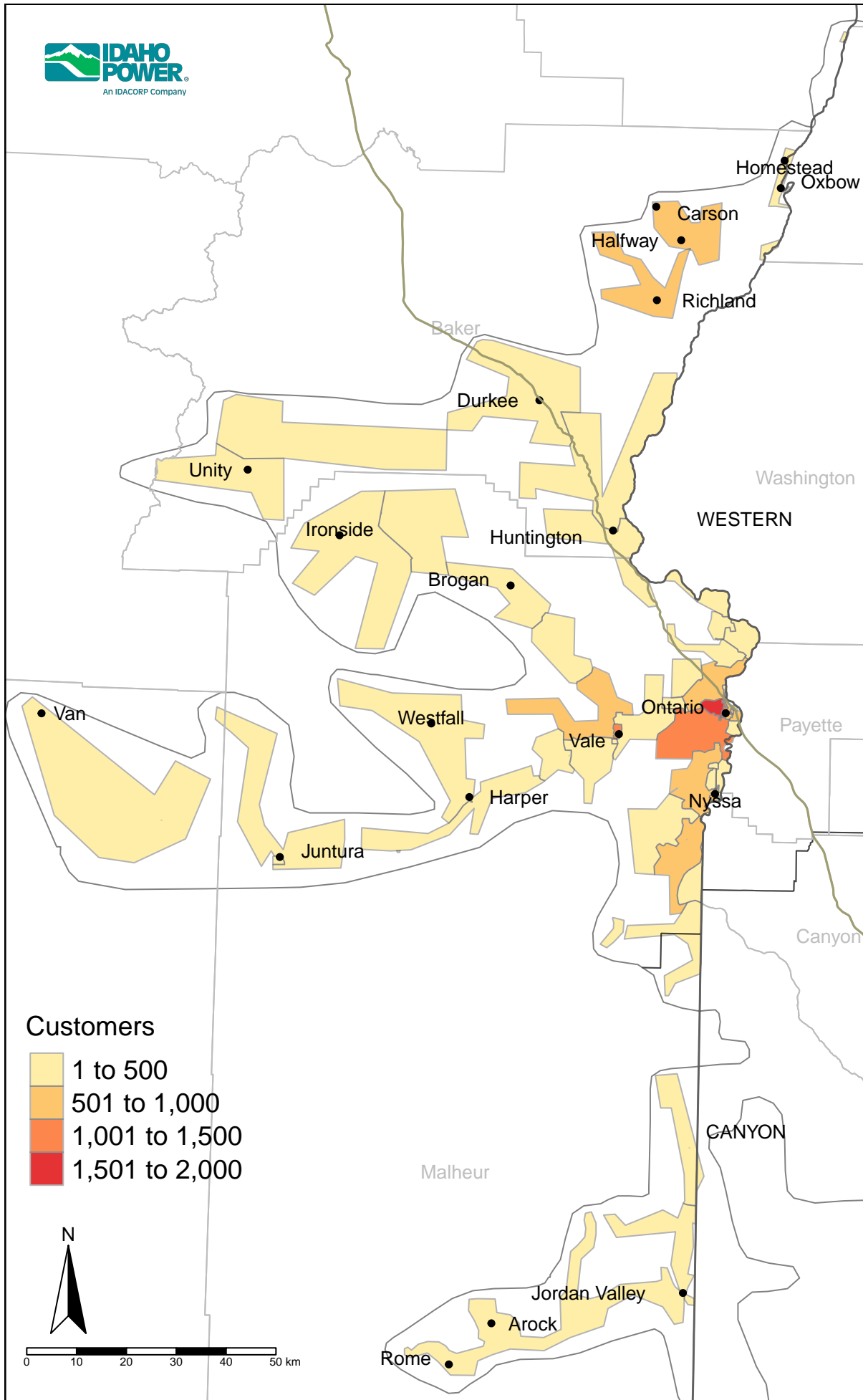
Idaho Power Cause	OAR 860-023-0151 (2)(b) Cause
Loss of Supply – Transmission*	Loss of Supply – Transmission
Loss of Supply – Station*	Loss of Supply – Substation
Corrosion/Rot	Distribution – Equipment
Electrical Failure	Distribution – Equipment
Loose Hardware	Distribution – Equipment
Mechanical Failure	Distribution – Equipment
Improper Installation	Distribution – Equipment
Contamination	Distribution – Equipment
Lightning	Distribution – Lightning
Other IPC Circuit	Distribution – Other
Other (Define in Comments)	Distribution – Other
Safety Precaution	Distribution – Other
Utility Operating Error	Distribution – Other
Planned Maintenance	Distribution – Planned
Structures (Signs, Buildings)	Distribution – Public
Construction/Dig-in	Distribution – Public
Foreign Object (Pipe, Kite, Tree Trim)	Distribution – Public
Vandalism	Distribution – Public
Vehicle Collision	Distribution – Public
Momentary (Tripping)	Distribution – Unknown
Unknown	Distribution – Unknown
Tree/Vegetation	Distribution – Vegetation
Loading/Unloading (Snow, Ice)	Distribution – Weather (Non-Lightning)
Unstable Earth	Distribution – Weather (Non-Lightning)
Load Shed/Transfer	Distribution – Weather (Non-Lightning)
Wildland/Building Fire	Distribution – Weather (Non-Lightning)
Overload/Cold Load	Distribution – Weather (Non-Lightning)
Bird – NonRaptor	Distribution – Wildlife
Bird – Raptor	Distribution – Wildlife
Large Animal (Livestock)	Distribution – Wildlife
Small Animal	Distribution – Wildlife

Table 14 Cause Category Translation

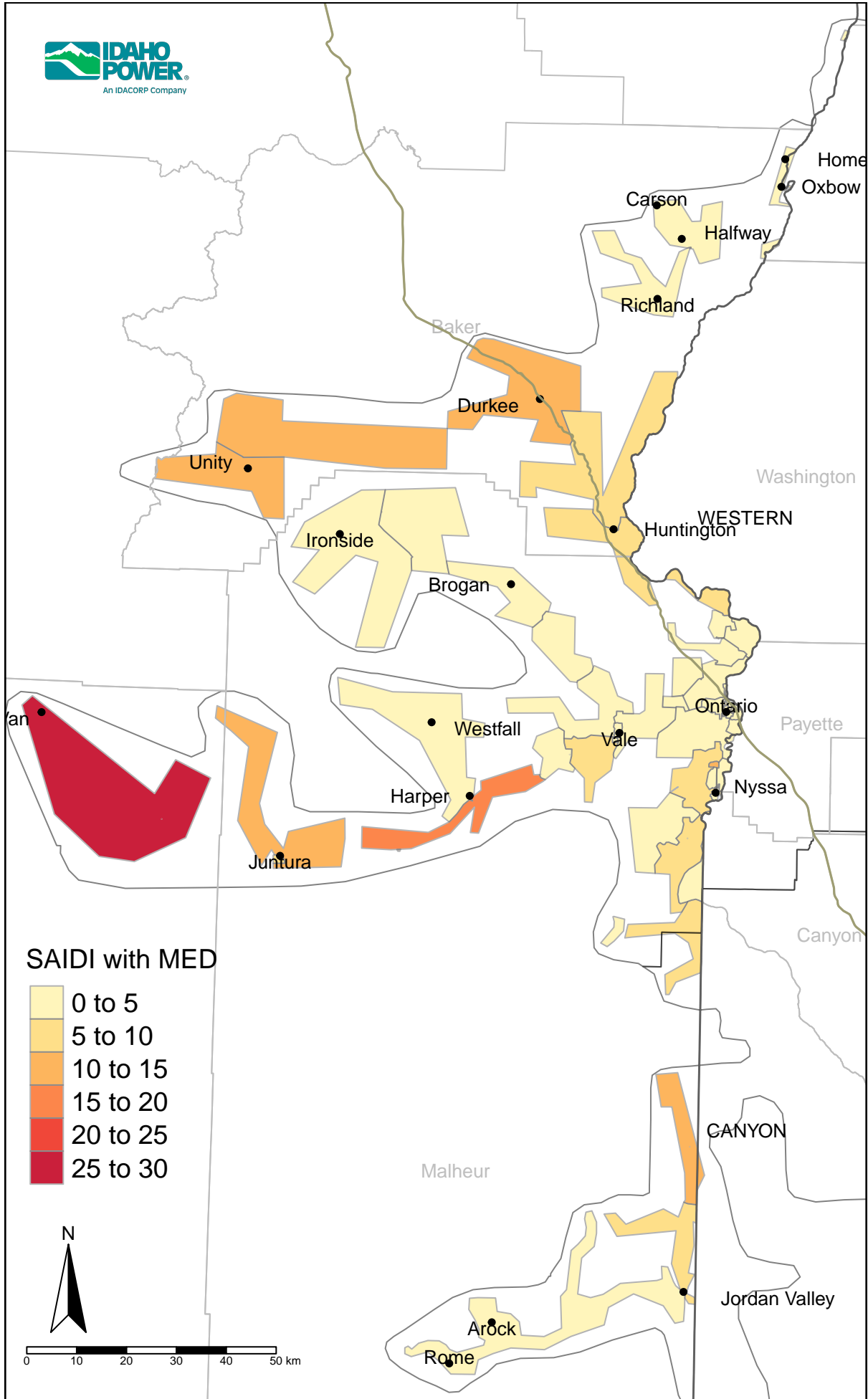
*These are also identified from the Idaho Power SYSTEM field. This field has values for “Transmission”, “Substation”, “Distribution Primary OH”, “Distribution Primary UG”, “Secondary/Service OH” and “Secondary/Service UG”. So, “Loss of Supply – Transmission” in this report includes events where the CAUSE field was “Loss of Supply – Transmission” **or** the SYSTEM field was “Transmission”, and “Loss of Supply – Substation” includes events where the CAUSE field was “Loss of Supply – Station” **or** the SYSTEM field was “Substation”.

MAPS

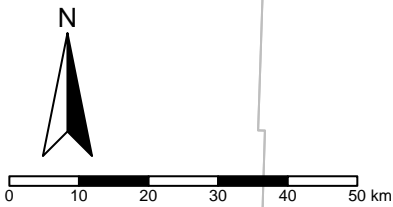
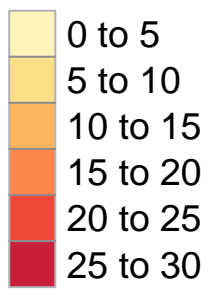
2023 Customers Oregon Area



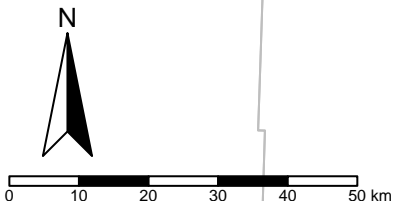
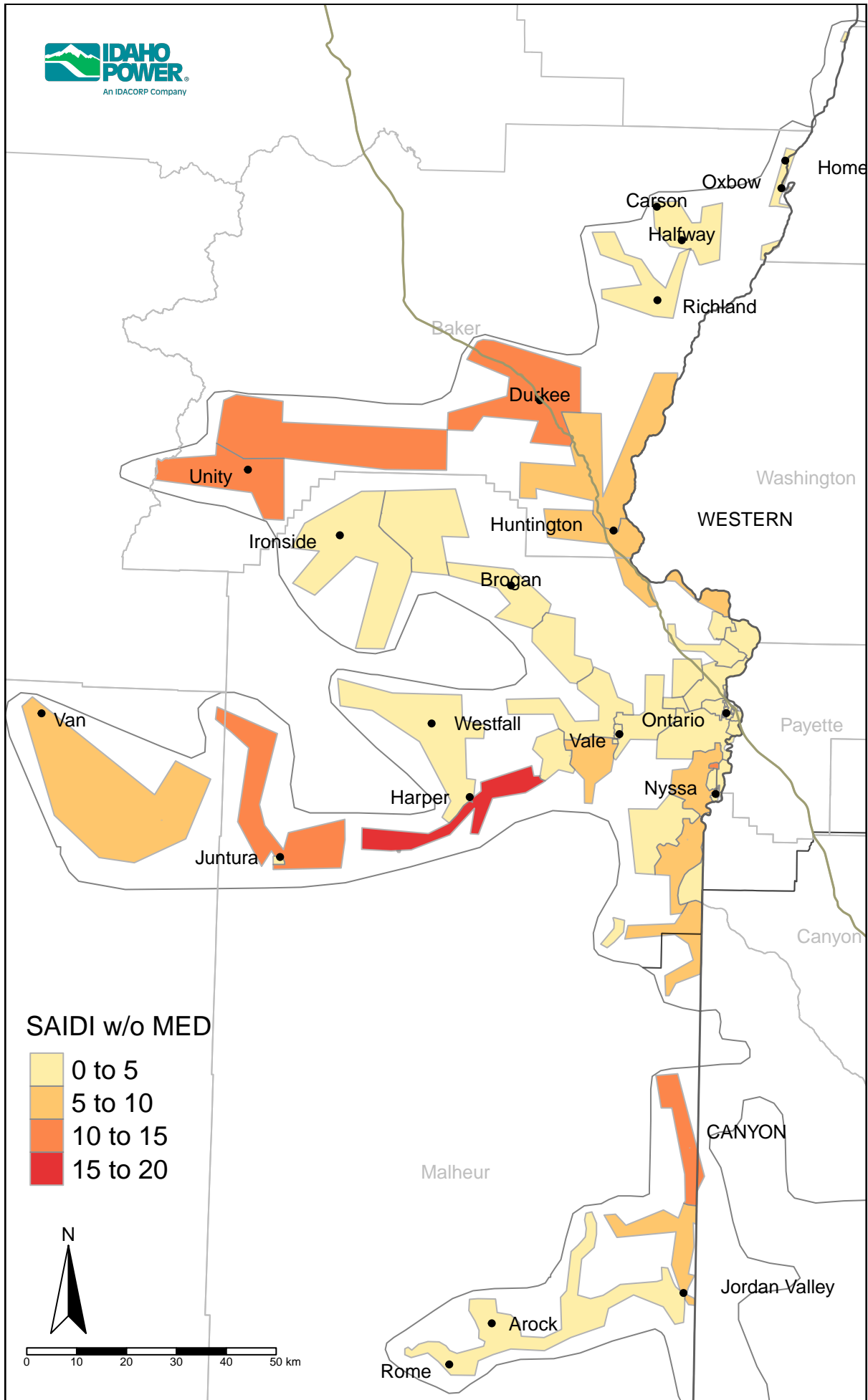
2023 SAIDI with MED Oregon Area



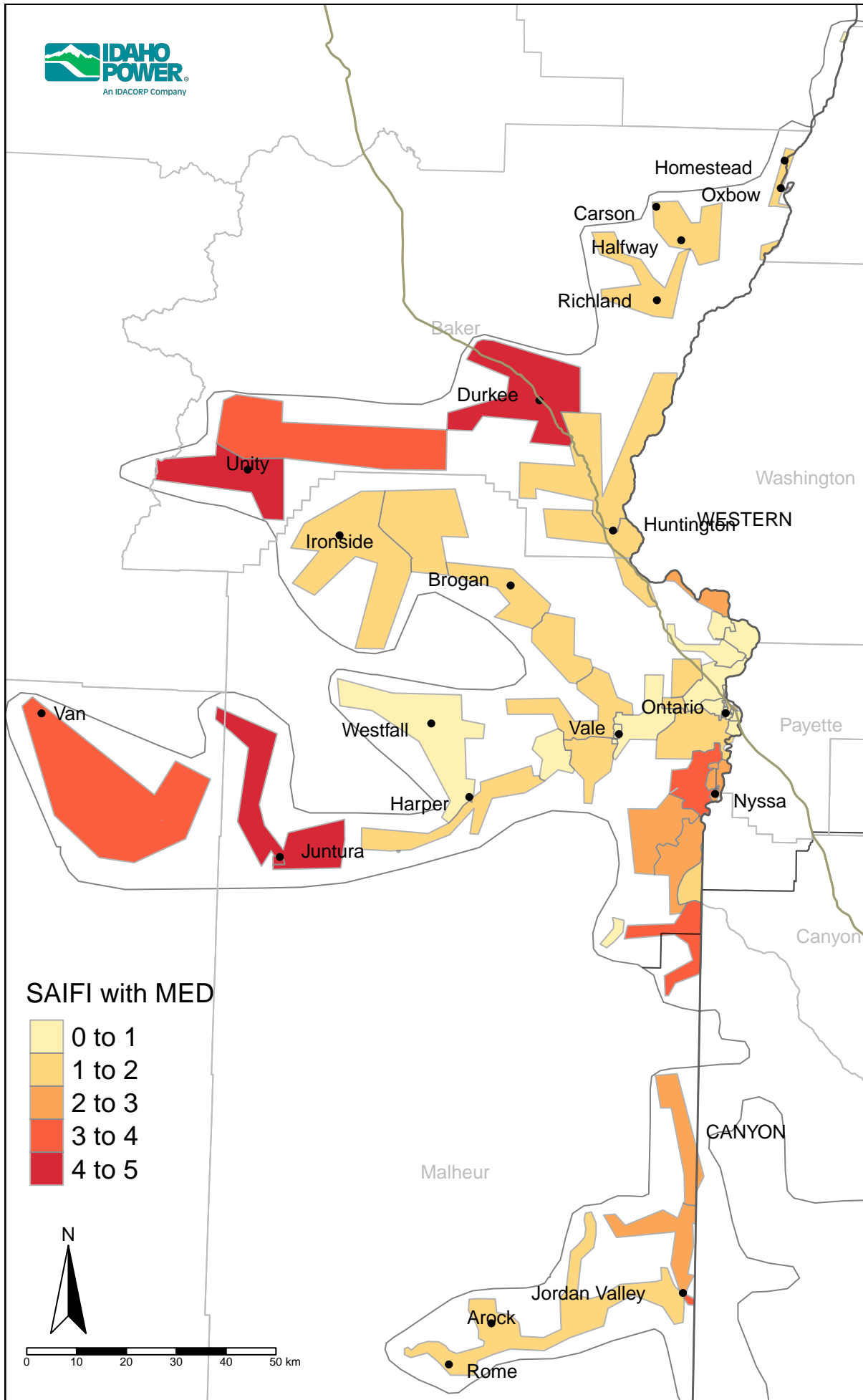
SAIDI with MED



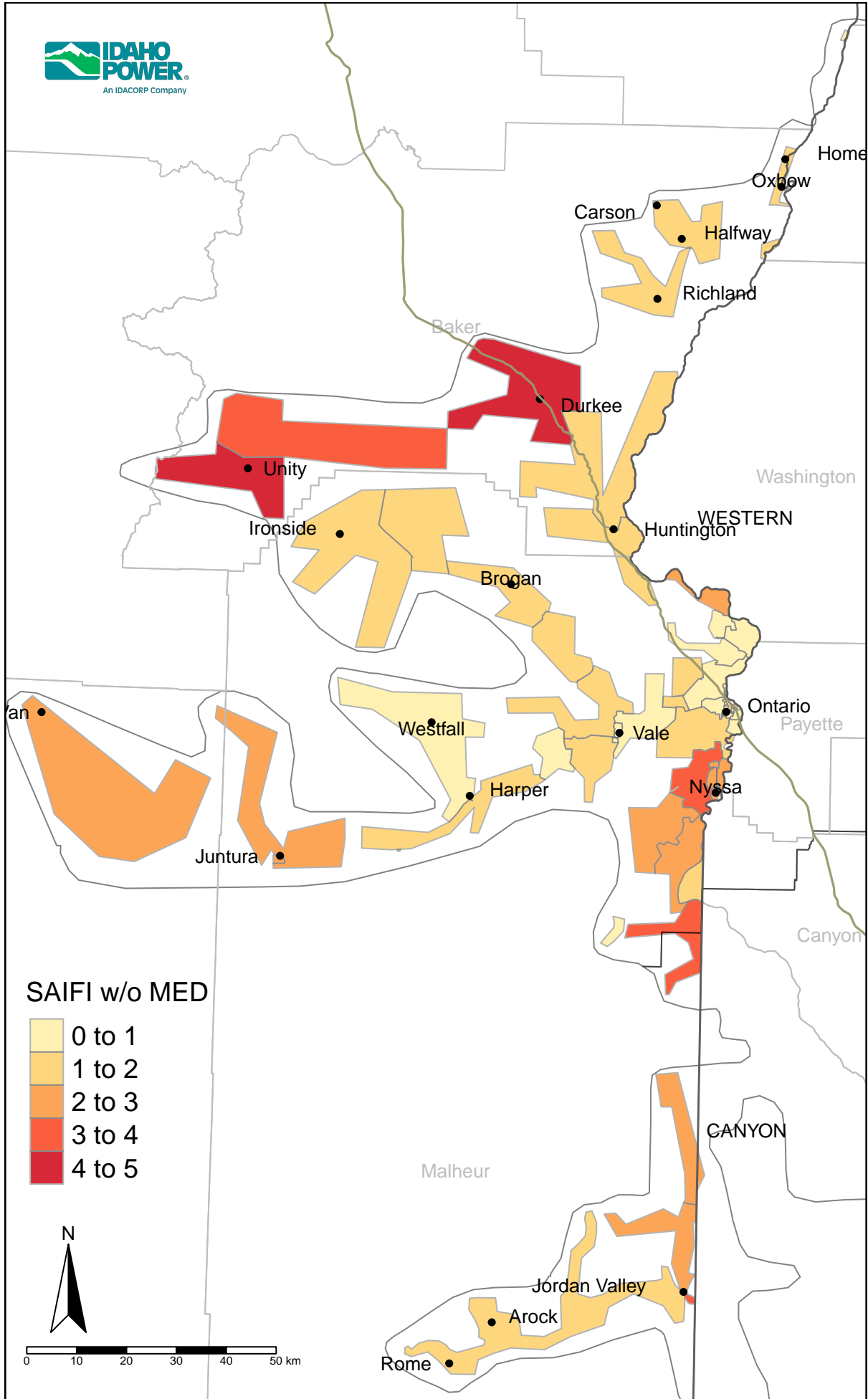
2023 SAIDI w/o MED Oregon Area



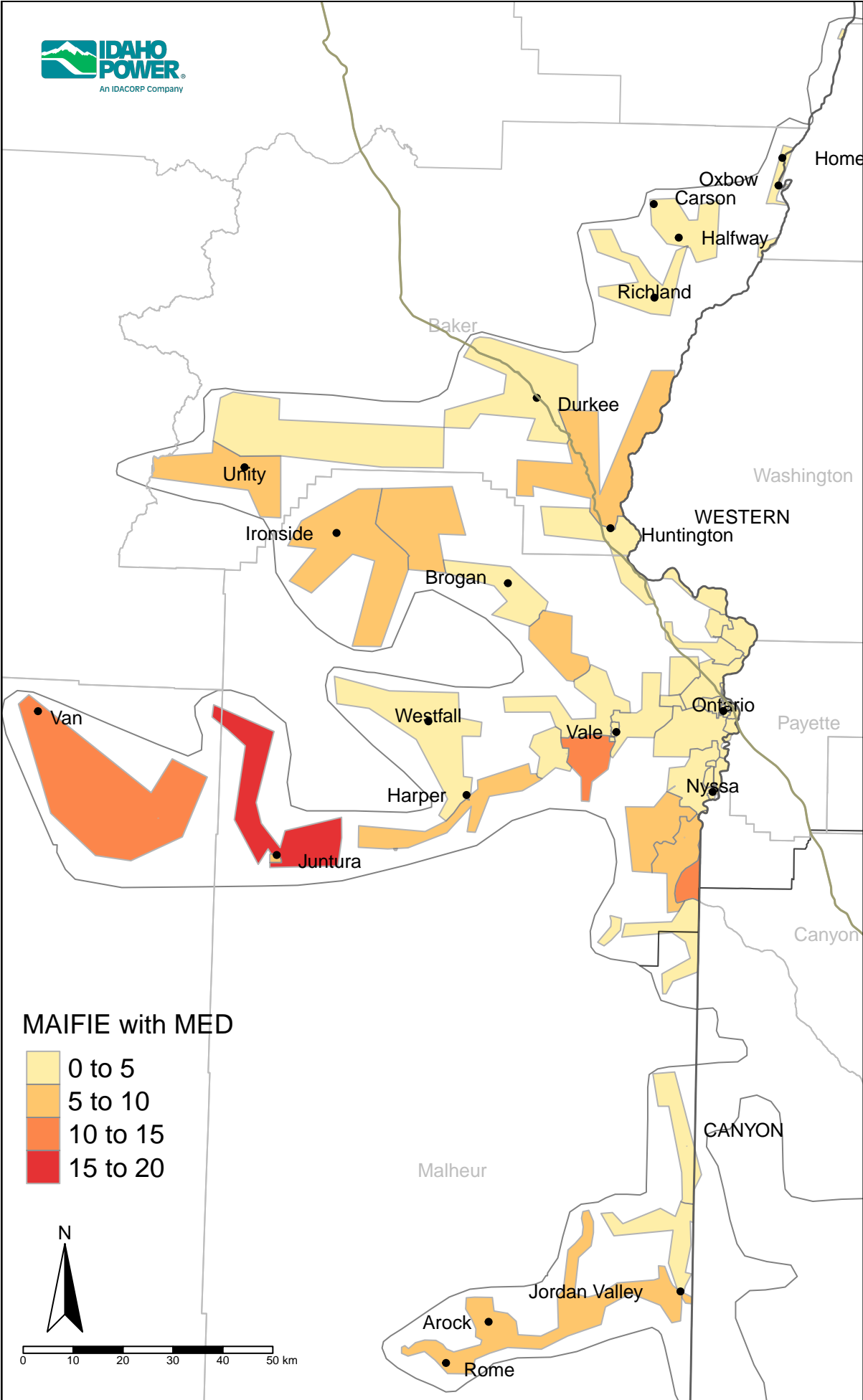
2023 SAIFI with MED Oregon Area



2023 SAIFI w/o MED Oregon Area



2023 MAIFIE with MED Oregon Area



2023 MAIFIE w/o MED Oregon Area

