2023 Electric System Reliability Performance Report

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Executive Summary

This report describes the Snohomish County PUD's (District) electric system reliability from January 1, 2023, through December 31, 2023.

In February of 2017, the District retired the legacy Outage Reporting System (ORS) as the system of record when the new Outage Management System (OMS) was put into service. In conjunction with the adoption of OMS as the system of record, several significant changes occurred.

The number of outages recorded in 2017 and beyond increased as compared to previous years because outage records are automatically generated in OMS, rather than the manual process required by ORS. IEEE recognizes this phenomenon as typical and provides a calculation method for an 'uplift factor', described in IEEE Standard 1782, as a means of allowing a more accurate comparison of records prior to an OMS implementation, to post-OMS data. This 'uplift factor' has been applied to the data prior to OMS data. The 'uplift" factor is no longer used because in 2023 the previous five year data is post 2017. Appendix C provides additional data on historical performance without the uplift factor applied.

Before OMS, manually tracking outages in ORS was suspended during declared major events, and high-level estimates of outages were used. Because of the ability to record all outages in OMS, the District has adopted the IEEE defined term, Major Event Day (MED). This allows outages occurring during non-routine conditions to be differentiated from daily operations. MEDs are defined in IEEE Guideline 1366 "Guide for Electric Power Distribution Reliability Indices."

In addition to tracking outages during non-routine conditions, the District now tracks planned outages, although neither planned outages nor those occurring on MEDs will be included in the District's SAIDI, SAIFI and CAIDI system indices, and are listed separately. This will allow these reliability indices to reflect reliability experienced under routine conditions to better reveal trends in daily operation, which could be skewed by major events or construction.

District customers lost power for an average of 111.9 minutes (SAIDI) in 2023 during routine operation. This is lower than the adjusted five-year average of 116.5 minutes. The average length of time required to restore power after an outage was 102.1 minutes (CAIDI) in 2023 during routine operation. This is lower than the adjusted five-year average of 108.7 minutes. District customers lost power an average of 1.1 times (SAIFI) in 2023 during routine operation. This is higher than the adjusted five-year average of 1.07 interruptions.

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1 Background

1.1 Introduction

Understanding the causes of outages and developing methods or programs to reduce their rate of occurrence are two of the most important goals in the operation of any electric utility. This report identifies the causes of the outages in 2023 and their impacts on system reliability.

The District receives power from the Bonneville Power Administration (BPA) at three delivery points, the BPA Murray, SnoKing, and Snohomish substations. Transmission lines from those substations deliver power at 115 kV to 92 substations and switching stations in the District's service area. A typical distribution substation has four 12.47 kV circuits and serves an average of 4,000 customers. The District's service territory includes long circuits in the eastern and northern areas of the county, with high tree exposure through rural areas. These circuits experience relatively more outages. The urban and suburban areas in Everett and the south county area typically have shorter circuits and fewer outages.

1.2 Statistical indicators used

The District measures electric system reliability using indices defined by the Institute of Electrical and Electronics Engineers (IEEE). The definitions come from the current revision of IEEE Standard 1366- IEEE Guide for Electric Power Distribution Reliability Indices. The standard defines these indices as "sustained interruption indices," meaning a loss of service to one or more customers for more than five minutes. At present, the District defines an outage as a loss of service for one or more minutes.

SAIDI (System Average Interruption Duration Index)

This index measures the total duration of interruption for the average customer during a predefined period of time. It is commonly measured in customer minutes of interruption. Mathematically, this is calculated using the following equation:

$$\text{SAIDI} = \frac{\sum \text{Customer Interruption Durations}}{\text{Total Number of Customers Served}}$$

SAIDI can be calculated for any defined set of customers, such as all customers served from a specific circuit, all customers served from a specific substation, or for all District customers.

CAIDI (Customer Average Interruption Duration Index)

This index represents the average time required to restore service to customers after an interruption. Mathematically, this is calculated using the following equation:

$$\text{CAIDI} = \frac{\sum \text{Customer Interruption Durations}}{\text{Total Number of Customers Interrupted}}$$

CAIDI can also be calculated for any defined set of customers.

SAIFI (System Average Interruption Frequency Index)

This index indicates how often the average customer experiences a sustained interruption over a predefined period of time. Mathematically, this is calculated using the following equation:

$$\text{SAIFI} = \frac{\sum \text{Total Number of Customers Interrupted}}{\text{Total Number of Customers Served}}$$

Similar to SAIDI and CAIDI, SAIFI can be calculated for any defined set of customers.

MED (Major Event Day)

A Major Event Day is used to define a 24-hour period during which SAIDI exceeds a threshold, separating these statistics from those for typical day-to-day operations. This will prevent exceptional days from skewing statistics, allowing reliability analysis to be based on typical days. At the District, MEDs typically occur on snow or wind related days, causing significant tree related outages. The SAIDI threshold to distinguish a day as a MED is calculated using the equation:

$$\text{MED} = e^{(\alpha + 2.5\beta)}$$

Where α is the average of the logarithms of the daily non-zero SAIDI and β is the log-standard deviation of the daily SAIDI.

In 2023 the SAIDI threshold to distinguish a day as MED was found to be 15.42, and there were no days that exceeded that threshold.

1.3 Record-keeping

Until February 2017, the District used a computerized Outage Reporting System (ORS) to manually record information on outages occurring during routine operations. The District's practice was not to record outages that occurred during major events. This was done to alleviate the need for time spent recording outages, so that efforts could be focused on restoration.

Starting in February 2017, the District switched to using an Outage Management System (OMS). OMS automatically creates outage records based on customer calls, prediction rules, and switching operations regardless of a major event, on all days of the year. The purpose of this change is to be more consistent and comprehensive in outage information recording. The effect of implementing this new system has been an increase in recorded SAIDI and SAIFI, as all customer outages are now accounted for automatically.

In addition, ORS was not used to track planned outages. That capability is included in OMS, and planned outages are now recorded.

With the change to IEEE standard outage reporting, the MED threshold will be used to determine which outages are excluded from routine-operation statistics, rather than declared storms. MEDs will be included in their own category for record keeping.

2 System Reliability Statistics

2.1 Data for 2023

The tables below show the statistical data for outages in 2023, as well as average data for the five previous years. Refer to Section 1 for definitions of the terms SAIDI, CAIDI, and SAIFI.

The 2023 system SAIDI, CAIDI, and SAIFI values were lower than the five-year averages. Outages that occurred during a MED, prearranged/planned outages, and outages caused by another utility were excluded from these numbers but are shown in their own row for reference.

Table 2-1: General Descriptive Data

Year	2023
System Customers	382,404
Area Served	2,200 square miles

Table 2-2: Outage Data for 2023

(Sustained Outage > 1 Minute)

	SAIDI	CAIDI	SAIFI	Customer Outages
Distribution	101.6	107.4	0.95	361,733
Transmission	10.3	68.6	0.15	57,477
Overall	111.9	102.1	1.1	419,210
Planned, MED, or External	8.3	100.1	0.08	31,590
Total	120.2	101.9	1.18	450,801

Table 2-3: Five-Year Average Annual Outage Data for the Period 2018-2022 (Non-Adjusted)

(Sustained Outage > 1 Minute)

	SAIDI	CAIDI	SAIFI	Customer Outages
Distribution	108.7	112.2	0.97	356,518
Transmission	7.9	76.4	0.1	37,881
Overall	116.5	108.7	1.07	394,399
Planned, MED, or External	344.6	485.6	0.71	260,585
Total	461.1	258.8	1.78	654,984

2.2 Effect of Major Event Days on the District

MEDs are days in which the daily system SAIDI exceeds a calculated threshold. These are independent of declared major events, which had been used in the past to separate extreme outage days. MEDs are identified to allow study of the system's daily operation, without being influenced by a few large events.

Beginning in 2017, the District implemented OMS, which captures all outage information, including Major Event Days. In 2023 the SAIDI threshold to distinguish a day as MED was found to be 15.42 and there were no days that exceeded the threshold.

3 The Transmission System

3.1 Introduction

For consideration as a transmission outage, an outage must involve the operation of a 230 kV or 115 kV protective device, such as those operating circuit switcher or power circuit breaker. Transmission system outages usually have an impact on a significant number of customers, as all substations fed by that portion of the system are affected, and substation outages affect all customers fed by the station.

3.2 Outages

Of the seventeen (17) transmission system operations in 2023:

- Seven (7) resulted in sustained outages to District customers, which caused about four (4.2) million customer minutes of interruption (CMI). There were eleven (11) fewer operations and about twenty-eight (28) million fewer CMI than in 2022.

- Automatic switching schemes operated in eight (8) of the transmission system outages, two (2) of which were caused by temporary faults while the remaining six (6) were caused by permanent faults.

- Six (6) of the transmission outages were caused by trees and/or tree branches, five (5) were caused by equipment failure or malfunction, four (4) were caused by inadvertent operations (unintentional trips during maintenance testing, erroneous relay settings, switching error) and the remaining two (2) had an unknown cause (temporary faults).

Table 3-1 provides the summary information for each transmission or substation operation during 2023.

Table 3-1: Transmission Outages

Outage Number	Date	Line or Device	Substation(s)	Cause	CMI
1	2/26/2023	BPA Snoking-North Creek Line	Clearview, Cascade, Murphy's Corner, North Creek	Tree	1,242,852
2	02/27/2023	Beverly Park Transformer Bank #1	N/A	Inadvertent trip during relay maintenance	0
3	03/28/2023	BPA Snoking-Swamp Creek Line	N/A	Tree	0
4	04/30/2023	BPA Snoking-Brightwater Line	Park Ridge	Failed Insulator	391,133
5	05/16/2023	BPA Snohomish-Scott Line	Fifty-Second St, Waterfront	Unknown	Momentary
6	05/17/2023	Jackson Hydro Project Unit #3	N/A	Governor signal speed sensor failure	0
7	06/09/2023	BPA Snoking-Halls Lake #2 Line	Mountlake, Canyon Park, Fitzgerald	Tree	675,499
8	06/12/2023	BPA Murray-Stimson Crossing Line	Edgecomb, Smokey Point	Switching error	0
9	06/13/2023	BPA Snohomish-Jackon South Loop	Snohomish, West Monroe, Woods Creek, Sultan, Wallace River, Goldbar	Breaker cotter pin failure	592,375
10	08/03/2023	Jackson Hydro Project Unit #3	N/A	Governor malfunction	0
11	11/01/2023	Jackson Hydro Project 115kV bus	Wallace, Sultan, Goldbar	Inadvertent trip during PCB 1778 maintenance testing	153,366
12	11/11/2023	Swamp Creek-Brightwater Line	Floral Hills, York, Turner's Corner	Tree	Momentary
13	12/05/2023	East Arlington-Oso Line	Oso	Unknown	Momentary
14	12/08/2023	Delta-Stimson Crossing (D-M) Line	Central Marysville, Kellogg Marsh, North Marysville	Failed surge arrester	817,710
15	12/08/2023	Delta-Stimson Crossing (D-SC) Line	Tulalip, Village, Quil Ceda	Relay misoperation	0
16	12/27/2023	BPA Snohomish-Jackson North Loop	Three Lakes, Lake Chaplain	Tree	Momentary
17	12/27/2023	BPA Snohomish-Jackson South Loop	Snohomish, West Monroe, Woods Creek, Sky Valley, Sultan, Wallace River, Goldbar, Lake Chaplain	Tree	345,800

Transmission Outage Summaries:

1. **02/26/2023 BPA Snoking-North Creek Line Trip:** The line tripped due to a permanent 3-phase tree fault fault between Clearview and Cascade substations. Snoking PCB B-1582 tripped to lockout, the Auto-Transfer schemes at North Creek and Clearview restored service at those two substations, but Cascade and Murphy's Corner had to be manually restored by ECC after an extended outage.
2. **02/27/2023 Beverly Park Transformer Bank 1 Trip**: Relay techs were performing maintenance on the primary North Bus lockout relay when they accidentally triggered the breaker failure schemes for all the North Bus breakers, resulting in the trip of all the breakers adjacent to the North bus breakers as well as the bank breakers(5291,5294,5297,5300,5303,5305,5306 and 3017). The trip didn't result in any loss of load and the bank was restore to service after about a 9 minute outage.
3. **03/28/2023 BPA Snoking-Swamp Creek Line Trip**: The line tripped to lockout due to a permanent line-to-line (B-C) tree fault. There are no substations tapped off the line but the fallen tree resulted in 115kV wires down on the 12kV underbuild, tripping Floral Hills feeders 12-2063 and 12-2064.
4. **04/30/2023 BPA Snoking-Brightwater Line Trip**: The line tripped to lockout due a 3-phase fault, which was caused by a failed insultator. Park Ridge substation experienced a sustained outage as a result.
5. **05/16/2023 BPA Snohomish-Scott Line Trip**: The line tripped due to a temporary single-line-to-ground (C-G) fault, most likely caused by lightning as thunderstorm was reported in the area. Both terminals tripped and reclosed as designed and the 52nd St Auto-Sectionalizing scheme also operated as designed.
6. **05/17/2023 Jackson Hydro Project Unit #3 Trip**: Unit #3 governor signal 1 and signal 2 speed sensors failed; the generator relays tripped on reverse power. No loss of load occurred as a result.
7. **06/09/2023 BPA Snoking-Halls Lake #2 Line Trip**: The line tripped due to a permanent line-to-line (B-C) tree fault between BPA Snoking and Fitzgerald. The Mountlake Terrace Auto-Sectionalizing scheme operated as designed and service was restored at that substation, while Fitzgerald and Canyon Park experienced sustained outages.
8. **06/12/2023 BPA Murray-Stimson Crossing Line Trip**: The BPA Murray-Edgecomb section of the BPA Murray-Stimson Crossing line tripped when the new Edgecomb transformer bank #2 accidentally got energized while switching was being performed. The transformer which wasn't ready for energization, still had grounded copper mousing wire jumpered across its high-side terminations and Edgecomb was being energized radially from the BPA Murray terminal, with Smokey Point Switch 5714D open. This fault didn't result in any loss of load of Edgecomb bank #1 which was offloaded at the time of the event.
9. **06/13/2023 BPA Snohomish-Jackson Hydro South Loop Trip**: The line first tripped due to a temporary single-line-to-ground fault (A-G) and the BPA Snohomish-Sultan section of the line was automatically restored after the operation of the Sultan Auto-Sectionalizing scheme and a successful reclose of BPA Snohomish PCB B-485. At Jackson Hydro however, PCB 1779 tripped free to lockout despite the absence of a fault, 5 cycles after reclosing, which resulted in extended outages at Goldbar and Wallace River. It was determined after inspection and troubleshooting that a cotter pin for the inboard hinge pin on the trip latch assembly was most likely impinging on the main chassis; it was clipped back to prevent contact.
10. **08/03/2023 Jackson Hydro Project Unit #3 Trip**: Similar to the 5/17/23 event, the Governor failed to properly load the Generator and the generator relays tripped on reverse power. No loss of load occurred as a result of this event.
11. **11/01/2023 Jackson Hydro Bus Trip**: The high-impedance primary and backup bus differential relays (SEL-587Z) inadvertently operated and tripped the bus lockout relays when contact resistance testing was being performed as part of maintenance on 115kV PCB 1778. During the test, the contact resistance tester (DLRO) produced an AC sine wave momentarily into the CT circuits which was enough to pick up the differential tripping elements in the SEL-587Z relays. The South Loop was radially feeding Sultan, Goldbar and Wallace River at the time of the event, so all three substations experienced sustained outages.
12. **11/11/2023 Brightwater-Swamp Creek Line Trip**: The line tripped due to a permanent three-phase tree fault between York and Turners Corner. Floral Hills was automatically restored via its Auto-Transfer scheme and Turners Corner was also automatically restored via its Auto-Sectionalizing scheme. York substation, which was offline at the time for a reliability upgrade project didn't experience any outage.

13. **12/05/2023 East Arlington-Oso Line Trip**: The line tripped due to a temporary line-to-line (A-C) fault about 6.2 miles from East Arlington, both line breakers tripped and reclosed successfully; Oso sustained a momentary outage.
14. **12/08/2023 Delta-Stimson Crossing (D-M) Line Trip**: The line tripped due to a permanent single-line-to-ground (C-G) fault caused by a failed surge arrester at Stimson Crossing. Both terminals tripped to lockout and the Stimson Crossing terninal tripped 3 more times during failed attempts to restore the loop by ECC. The Kellogg Marsh Auto-Transfer scheme operated as designed and transferred that substation to the adjacent Murray-Snohomish Line after a momentary outage, but North Marysville and Central Marysville both experienced extended outages.
15. **12/08/2023 Delta-Stimson Crossing (D-SC) Line Trip**: The Delta terminal of the line tripped due ot a misoperation of the D-SC line relays during a re-ignition of a fault caused by a surge arrester on the adjacent D-M Line. Revised settings were implemented to fix the issue.
16. **12/27/2023 BPA Snohomish-Jackson North Loop Trip**: The line tripped due to a permanent line-to-line (C-A) tree fault between Lake Chaplain and Three Lakes substations. Both terminals of the line reclosed successfully after the Auto-Sectionalizing schemes at Three Lakes and Lake Chaplain operated as designed to isolate the fault and restore service at those substations after a momentary outage.
17. **12/27/2023 BPA Snohomish-Jackson South Loop Trip**: The line tripped due to a permanent line-to-line (B-C) tree fault between Jackson and Sultan. At the time of the event, Jackson Hydro Unit 2 and Unit 4 were generating and Lake Chaplain was being fed radially from Jackson, following the previous trip event the same morning on the Jackson North Loop. Unit 2 was tripped offline by its relays' overfrequency elements. The Unit 4 relays' overfrequency elements also tripped PCB 1778 (the unit remained online to provide station service). The Sultan Auto-Sectionalizing scheme operated as designed and the BPA-Snohomish-Sultan section of the South Loop was automatically restored. Jackson being isolated, as a result, Lake Chaplain, Goldbar and Wallace River all experienced extended outages.

4 The Distribution System

4.1 Introduction

This section describes outages on the District 12.47 kV distribution system. These outages are more frequent and involve fewer customers per event than most transmission system outages. While the number of outages are somewhat balanced between trees, animals, and equipment failures, most of the outage minutes are due to outages caused by trees and motor vehicle accidents. Animal and equipment failures often involve distribution transformers and affect a small number of customers. Damage caused by trees and motor vehicles is less discriminating and can affect infrastructure such as feeders and large branch circuits, which have larger customer impacts.

4.2 System Performance

4.2.1 Outage Causes

Figures 4-1 and 4-2 show the count of distribution outages by cause for 2023 and the average for the five-year period of 2018-2022. In 2023, 2,133 distribution outages were recorded during routine operation, compared to the five-year average of 2,467 annual outages. The percentages shown in Figures 4-1 and 4-2 are percentages of the total number of outages in each period. The District started tracking planned outages in 2017.

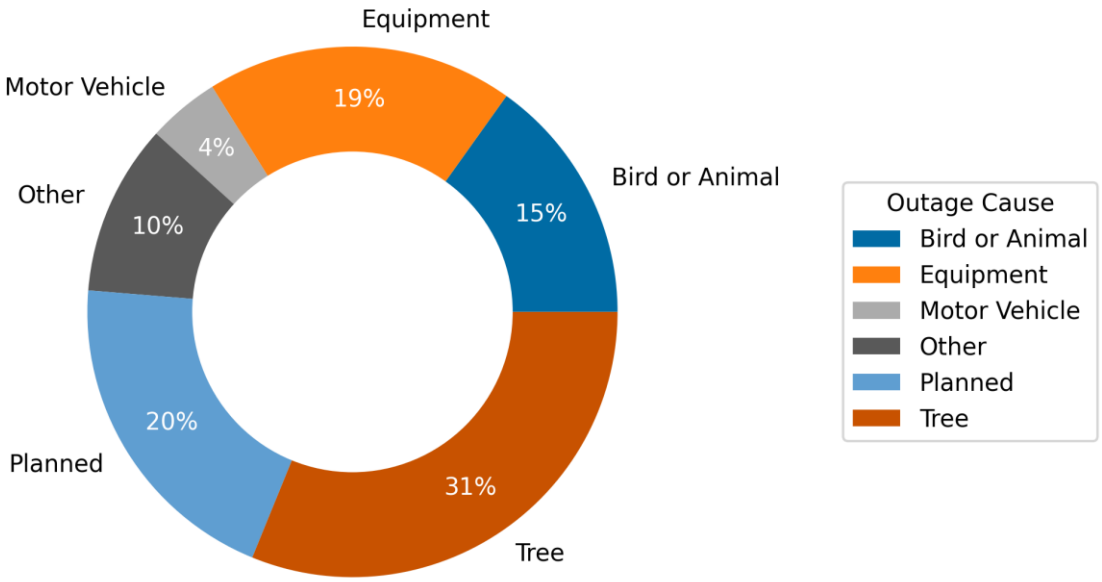

Figure 4-1: 2023 Distribution Outages by Cause

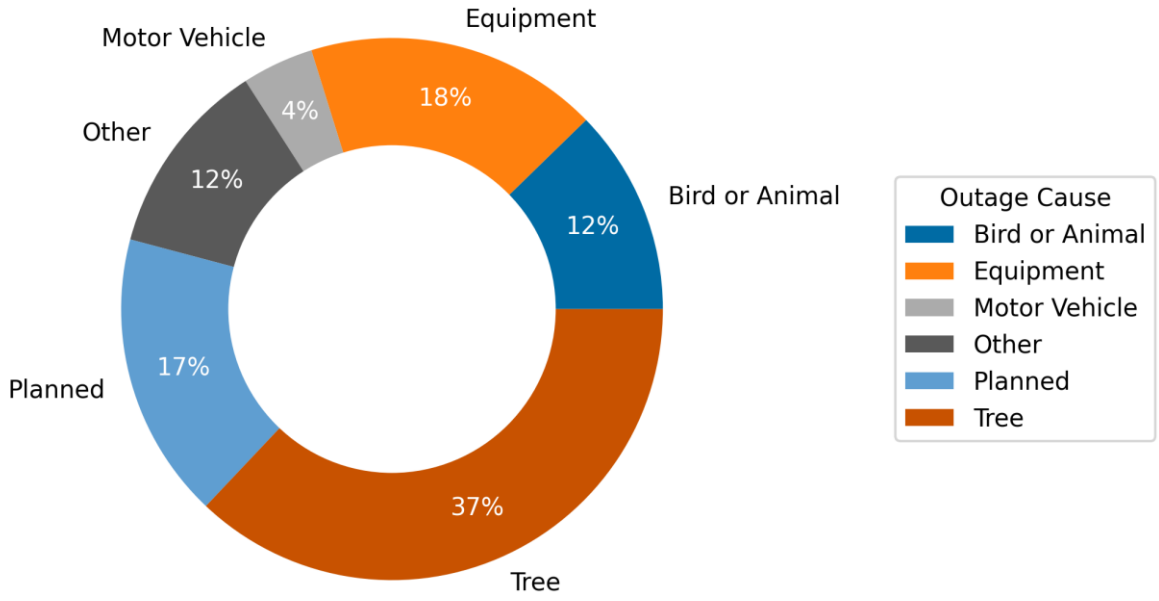

Figure 4-2: Five-Year Average Distribution Outages by Cause (2018-2022)

Figures 4-3 and 4-4 show the 2023 and five-year average percent of customer outage minutes by cause. District customers lost power for a combined total of 39,089,716 minutes in 2023 due to distribution outages, compared to the five-year average of 40,262,336 uplifted minutes. Both the number of outages and the customer minutes of outage are important parameters for planning effective outage impact reduction measures.

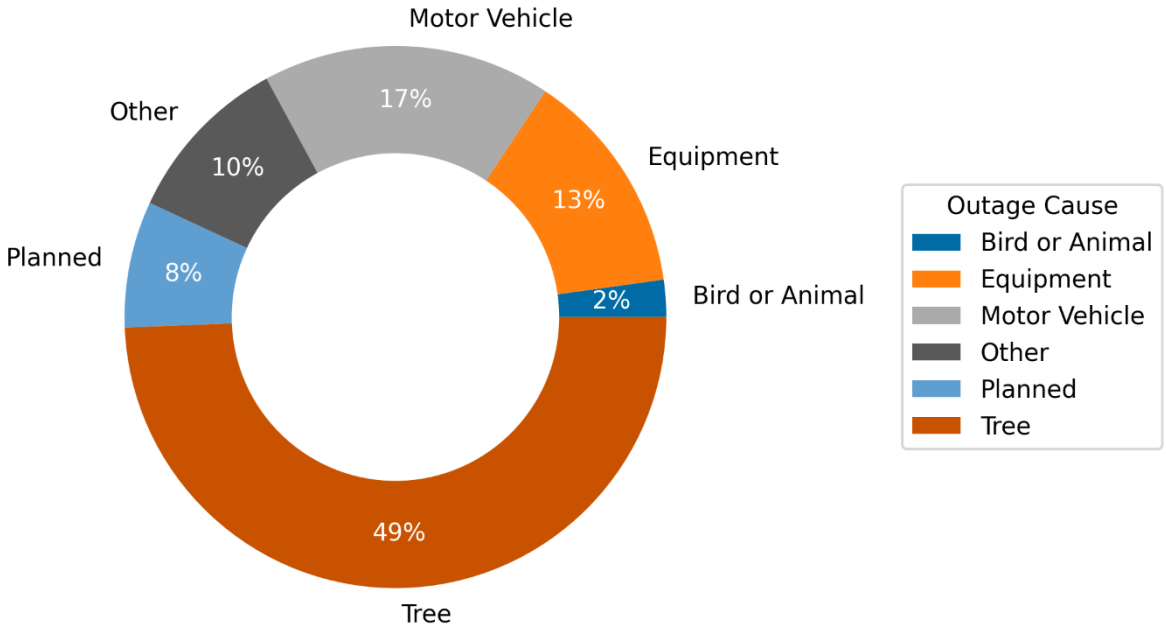

Figure 4-3: 2023 Distribution Outage Minutes by Cause

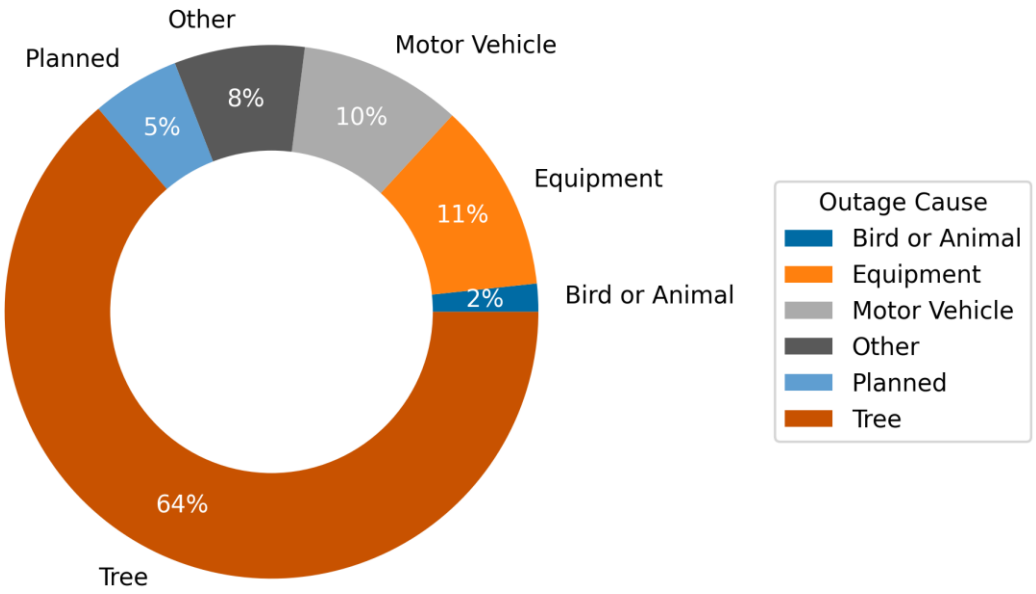

Figure 4-4: Five-Year Average Distribution Outage Minutes by Cause (2018-2022)

4.2.2 Explanation of Equipment Failure Category

Equipment failures may include any component of the distribution system, from primary overhead conductors, to fuses, transformers, insulators, and secondary service conductors. Figure 4-5 (blue bars) shows the number of recorded equipment failures by category during 2023. The ten most common types of equipment failure accounted for 503 outages in 2023. For comparison, Figure 4-5 (orange bars) shows the five-year average of the number of equipment failures for each category.

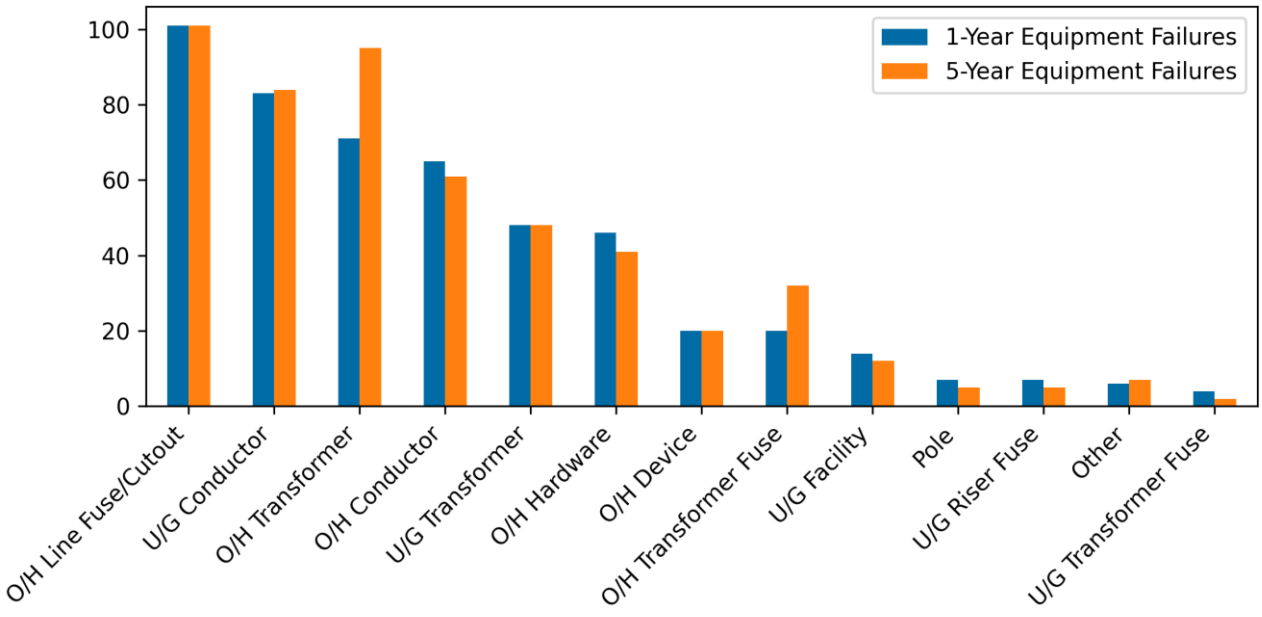

Figure 4-5: 2023 Equipment Failures

4.3 Urban, Suburban, Rural Classifications

IEEE Standard 1782 defines circuits as urban (greater than 150 customers per mile), suburban (between 150 and 50 customers per mile) and rural (less than 50 customers per mile). Classifying circuits indicates how susceptible those circuits are to having an outage. Shorter circuits are less likely to have an outage, due to less available exposure to faults. Conversely, longer circuits have more conductor, and thus are more likely to be damaged. To compare similar circuits, circuits are identified by performance based on circuit length. This table does not include outages that occurred during declared major events or planned outages.

Table 4-1: Circuit Classification Data

Classification (# of circuits)	Average Circuit Length	Average Number of Customers	Customers per Mile	Average SAIDI	Average SAIFI	# of Outages
Urban (39)	7.2 miles	1,360	223.9	61.9	0.53	123
Suburban (179)	13.6 miles	1,242	95.8	65.3	0.64	756
Rural (103)	33.6 miles	876	27.4	566.2	7.07	1249

4.4 Reliability Improvement Priority

Before 2017, the System Planning and Protection department used the "20 Worst Circuits" annually to target circuits for reliability improvements. This method had flaws. Typically, the same circuits would show up year after year due to their circuit length, rather than their relative reliability. There were also circuits on the list that had experienced no distribution outages, with all outage minutes caused by transmission outages. While valuable to know, that measure was irrelevant, as no distribution improvements would improve the reliability of the circuit. In 2017, an objective metric to help prioritize feeders for reliability work was developed comparing SAIDI normalized by circuit length and SAIFI. The metric is based on distribution outages only, allowing results to guide engineers to help decide which distribution changes should be prioritized to improve reliability. For this list, the circuit SAIDI and SAIFI were based on the number of customers on their original circuit. The OMS system has a design flaw when counting CMI for outages that involve multiple circuits. This happens when a breaker opens while a circuit is picking up a second circuit. This causes highly inaccurate reliability statistics for circuits with this type of outage. This should reduce the impact of the OMS design flaw on our reliability statistics.

$$rank(d,f) = \frac{d - \mu_d}{\sigma_d} + \frac{f - \mu_f}{\sigma_f}$$

Where 'd' is the circuit SAIDI divided by the circuit length, 'f' is the circuit SAIFI, 'μ' is the mean, and 'σ' is the standard deviation

Table 4-2: Circuit Reliability Improvement Priority for 2023

Rank	Feeder	Substation	Length	SAIFI	SAIDI	Incident Count	Customers	Score
1	12-0134	Mountlake	4.8	3.02	663.7	4	667	9.57
2	12-2062	Floral Hills	12.6	3.06	1032.5	5	1,140	6.09
3	12-2036	Lake Chaplain	50.0	7.32	1168.8	24	712	5.77
4	12-3178	Quil Ceda	48.1	7.52	875.5	29	1,350	5.60
5	12-5208	Sunset	41.0	7.30	645.9	27	1,384	5.29
6	12-1530	South Camano	28.9	7.12	503.3	19	700	5.24
7	12-1310	Oso	12.1	2.02	910.1	4	145	4.87
8	12-1732	Paine Field	4.2	0.63	354.6	1	139	4.38
9	12-1842	Waterfront	2.7	1.00	215.0	1	1,164	4.36
10	12-5510	Fitzgerald	4.3	3.01	227.5	4	237	4.25
11	12-1429	Turners Corner	20.4	2.08	1285.5	9	592	4.18
12	12-5509	Fitzgerald	1.4	1.00	102.0	1	7	4.10
13	12-0221	Perrinville	7.7	3.03	360.7	5	1,085	3.93
14	12-0507	Tulalip	32.4	5.13	622.3	15	1,073	3.83
15	12-1533	South Camano	36.4	5.08	704.0	25	1,082	3.81
16	12-1431	Turners Corner	26.6	4.85	571.3	10	815	3.76
17	12-6039	Twin City	16.3	4.47	389.7	12	215	3.62
18	12-2048	Richmond Park	6.2	0.97	406.8	3	902	3.49
19	12-1593	Sultan	25.5	5.06	347.7	17	587	3.45
20	12-2899	Gibson	5.6	1.47	315.8	3	1,001	3.32

Appendix A

District Outage Management System

These tables include outages that occurred on both the transmission system and on the distribution system. They do not include outages that occurred during declared major events or planned outages.

Table A-1: Substation Metrics

This table shows the substation reliability metrics for 2023 and the previous five year average.

Substation	Period	Customers	Outages	CMI	SAIDI	SAIFI	CAIDI
20th Ave	2023	2,500	6.0	58,260	23.3	0.40	58.6
20th Ave	2018-2022	2,462	9.2	182,318	73.9	1.17	63.1
52nd St	2023	3,798	19.0	85,898	22.6	0.26	87.8
52nd St	2018-2022	3,517	17.0	217,985	62.1	0.60	104.1
Alderwood	2023	3,238	8.0	3,480	1.1	0.02	65.7
Alderwood	2018-2022	3,754	9.6	98,118	25.1	0.39	64
Ballinger	2023	3,954	20.0	243,315	61.5	0.97	63.2
Ballinger	2018-2022	3,720	17.4	323,672	87.0	0.94	92.6
Brier	2023	5,961	28.0	434,294	72.9	0.91	80.3
Brier	2018-2022	5,832	27.2	657,703	113.0	1.54	73.5
Bunk Foss	2023	2,323	21.0	140,892	60.7	0.87	69.9
Bunk Foss	2018-2022	2,253	25.8	140,119	62.2	0.82	75.6
Canyon Park	2023	5,401	18.0	924,171	171.1	1.97	86.9
Canyon Park	2018-2022	5,233	19.8	184,802	35.5	0.57	62.9
Cascade	2023	10,441	10.0	89,134	8.5	0.33	26.1
Cascade	2018-2022	10,005	7.4	421,405	41.2	0.27	155.3
Casino	2023	3,822	15.0	420,619	110.1	2.02	54.6
Casino	2018-2022	3,783	9.4	196,756	51.7	0.41	125.4
Cedar Valley	2023	2,438	8.0	165,523	67.9	0.48	140.2
Cedar Valley	2018-2022	2,217	4.0	162,864	70.2	0.74	95.1
Central Marysville	2023	5,524	24.0	663,601	120.1	2.32	51.8
Central Marysville	2018-2022	5,396	19.2	144,687	26.6	0.40	67.3
Clearview	2023	5,044	66.0	763,027	151.3	1.84	82.4
Clearview	2018-2022	4,776	82.8	1,280,268	267.9	2.73	98.3
Delta	2023	1,224	3.0	898	0.7	0.01	81.6
Delta	2018-2022	1,101	8.2	20,927	18.5	0.11	168.9
Eagle Creek	2023	9,589	95.0	1,269,810	132.4	1.09	121.1
Eagle Creek	2018-2022	8,931	136.2	2,068,958	231.3	2.04	113.5
East Marysville	2023	11,936	39.0	1,116,538	93.5	0.94	99.4
East Marysville	2018-2022	11,221	32.2	654,418	57.9	0.54	108.1
Edgecomb	2023	4,092	19.0	309,677	75.7	0.22	342.2
Edgecomb	2018-2022	3,658	21.0	177,694	48.4	0.48	100.1

Substation	Period	Customers	Outages	CMI	SAIDI	SAIFI	CAIDI
Esperance	2023	6,344	18.0	43,677	6.9	0.38	18
Esperance	2018-2022	6,016	18.4	191,723	32.0	0.25	125.5
Everett	2023	5,894	15.0	20,643	3.5	0.04	90.9
Everett	2018-2022	5,277	17.2	271,529	51.8	0.49	105.2
Fitzgerald	2023	1,183	7.0	152,133	128.6	1.44	89.3
Fitzgerald	2018-2022	1,111	3.2	59,199	53.8	0.86	62.6
Five Corners	2023	5,606	36.0	386,522	68.9	0.60	114.9
Five Corners	2018-2022	5,543	17.8	142,871	25.7	0.36	70.9
Floral Hills	2023	8,969	23.0	1,407,149	156.9	0.74	210.6
Floral Hills	2018-2022	8,562	32.8	561,650	65.9	0.70	94.2
Fobes	2023	4,724	19.0	411,230	87.1	0.75	116
Fobes	2018-2022	4,617	25.6	198,394	43.2	0.52	82.4
Frontier	2023	7,748	15.0	211,911	27.4	0.07	374.4
Frontier	2018-2022	7,567	23.0	362,386	48.0	0.75	64.3
Gibson	2023	7,382	20.0	1,444,102	195.6	0.78	250.8
Gibson	2018-2022	7,037	22.8	303,903	42.9	0.47	90.4
Glenwood	2023	5,627	15.0	167,819	29.8	0.37	81.4
Glenwood	2018-2022	5,605	21.6	202,081	36.0	0.70	51.3
Goldbar	2023	2,819	59.0	1,147,752	407.1	3.20	127.4
Goldbar	2018-2022	2,761	80.6	3,267,865	1177.0	3.07	383.3
Granite Falls	2023	7,047	122.0	1,924,299	273.1	1.75	156.4
Granite Falls	2018-2022	6,819	121.6	2,380,209	347.3	2.24	154.9
Harbour Pointe	2023	5,091	3.0	299,129	58.8	0.15	393.1
Harbour Pointe	2018-2022	5,064	6.6	129,490	25.6	0.37	69.2
Hardeson	2023	0	0.0	0	0.0	0.00	0
Hardeson	2018-2022	32	0.2	199	6.2	0.01	496.5
Hartford	2023	4,526	43.0	237,552	52.5	0.33	159.6
Hartford	2018-2022	4,186	70.6	777,164	184.0	1.26	145.7
Hilton Lake	2023	6,787	12.0	162,401	23.9	0.25	94.9
Hilton Lake	2018-2022	6,645	17.6	470,371	70.8	1.18	60.2
Kellogg Marsh	2023	5,419	20.0	1,331,506	245.7	0.57	433
Kellogg Marsh	2018-2022	5,328	16.8	248,250	44.1	0.48	92.8
Lake Chaplain	2023	818	28.0	890,479	959.8	8.40	114.2
Lake Chaplain	2018-2022	591	22.6	431,290	720.3	6.60	109.1
Lake Goodwin	2023	5,386	64.0	391,251	72.6	0.72	100.9
Lake Goodwin	2018-2022	5,192	91.8	1,222,792	234.6	2.28	103
Lake Serene	2023	6,282	11.0	205,028	32.6	0.18	183.7
Lake Serene	2018-2022	6,134	13.4	234,272	37.9	0.39	96.8
Lake Stevens	2023	8,050	52.0	1,161,729	144.3	1.08	133.5
Lake Stevens	2018-2022	7,269	40.8	707,752	95.9	0.88	108.6
Lynnwood	2023	4,904	25.0	221,109	45.0	0.85	53.2
Lynnwood	2018-2022	4,862	25.2	206,148	42.7	0.42	101.7

Substation	Period	Customers	Outages	CMI	SAIDI	SAIFI	CAIDI
Maplewood	2023	4,411	16.0	467,092	105.9	1.35	78.3
Maplewood	2018-2022	4,396	23.6	304,469	69.2	0.53	131.7
Mariner	2023	5,427	9.0	10,806	2.0	0.06	35.7
Mariner	2018-2022	5,224	9.8	98,496	18.8	0.33	56.3
Martha Lake	2023	6,479	12.0	46,324	7.1	0.04	161.4
Martha Lake	2018-2022	6,133	22.0	524,444	86.4	0.87	99.4
Meadowdale	2023	5,008	17.0	16,867	3.4	0.01	237.6
Meadowdale	2018-2022	4,924	22.4	251,600	51.1	0.78	65.9
Mountlake	2023	6,082	24.0	644,885	106.0	0.69	153.4
Mountlake	2018-2022	6,499	35.6	279,585	43.3	0.36	121.1
Mukilteo	2023	4,360	12.0	103,596	23.8	0.45	52.7
Mukilteo	2018-2022	4,326	15.8	126,592	29.2	0.63	46.3
Murphy'S Corner	2023	4,714	9.0	119,172	25.3	0.41	61.8
Murphy'S Corner	2018-2022	4,668	9.2	112,807	24.1	0.39	62
North Alderwood	2023	1,941	1.0	34,476	17.8	0.29	60.3
North Alderwood	2018-2022	818	1.6	24,862	34.2	0.29	118.3
North Camano	2023	3,024	25.0	415,905	137.5	1.56	88.2
North Camano	2018-2022	2,951	37.2	579,723	195.0	1.85	105.6
North Creek	2023	7,196	11.0	202,397	28.1	0.07	375.5
North Creek	2018-2022	7,081	10.0	95,869	13.5	0.12	108.8
North Marysville	2023	2,915	12.0	65,607	22.5	0.25	89.5
North Marysville	2018-2022	2,821	10.0	35,476	12.6	0.33	37.7
North Mountain	2023	1,937	40.0	750,692	387.6	2.63	147.6
North Mountain	2018-2022	1,893	58.4	1,053,536	554.4	2.71	204.6
North Stanwood	2023	5,868	4.0	3,096	0.5	0.00	147.4
North Stanwood	2018-2022	6,940	94.2	1,358,167	195.9	1.41	138.7
Norton Ave	2023	3,357	1.0	1,928	0.6	0.00	241
Norton Ave	2018-2022	3,171	5.6	38,446	12.3	0.16	79.2
Olivia Park	2023	4,834	5.0	9,350	1.9	0.01	275
Olivia Park	2018-2022	4,623	12.8	103,062	22.2	0.34	65.7
Oso	2023	457	18.0	229,276	501.7	2.13	235.2
Oso	2018-2022	412	13.6	177,480	411.5	3.30	124.8
Paine Field	2023	8,792	13.0	548,797	62.4	0.73	85.4
Paine Field	2018-2022	8,629	17.4	404,011	46.8	0.56	84.1
Park Ridge	2023	5,104	30.0	674,300	132.1	1.68	78.5
Park Ridge	2018-2022	4,846	28.0	305,925	62.8	0.60	105.3
Perrinville	2023	4,573	18.0	684,693	149.7	1.41	106.5
Perrinville	2018-2022	4,500	26.8	261,190	57.8	0.84	68.6
Picnic Point	2023	3,849	31.0	248,289	64.5	0.90	71.4
Picnic Point	2018-2022	3,792	27.6	232,849	61.5	0.55	112.7
Pinehurst	2023	6,080	12.0	31,184	5.1	0.03	174.2
Pinehurst	2018-2022	6,747	31.6	456,848	67.6	0.67	100.2

Substation	Period	Customers	Outages	CMI	SAIDI	SAIFI	CAIDI
Polaris	2023	4,362	7.0	114,240	26.2	0.11	247.8
Polaris	2018-2022	4,116	8.2	64,443	14.5	0.20	71.6
Portage	2023	2,396	19.0	135,156	56.4	0.90	62.9
Portage	2018-2022	2,567	35.8	444,600	175.1	2.20	79.5
Quil Ceda	2023	2,891	32.0	1,183,683	409.4	3.99	102.7
Quil Ceda	2018-2022	2,842	31.8	444,488	155.2	1.58	98.4
Richmond Park	2023	3,558	35.0	613,576	172.4	1.50	114.8
Richmond Park	2018-2022	3,218	29.4	325,255	102.6	0.76	134.4
Silver Lake	2023	6,188	12.0	36,150	5.8	0.05	119.3
Silver Lake	2018-2022	6,155	16.2	357,139	58.2	0.67	86.7
Smokey Point	2023	5,179	13.0	291,622	56.3	0.86	65.3
Smokey Point	2018-2022	4,398	12.4	337,119	75.9	1.05	72
Snohomish	2023	3,148	33.0	161,801	51.4	1.18	43.5
Snohomish	2018-2022	3,102	30.4	185,020	59.6	0.92	65.1
South Camano	2023	3,909	58.0	1,390,937	355.8	3.38	105.3
South Camano	2018-2022	3,811	73.0	1,650,297	434.8	3.08	141.2
Stimson Crossing	2023	1,864	29.0	405,521	205.1	1.07	191.2
Stimson Crossing	2018-2022	1,845	33.8	553,341	298.6	2.83	105.7
Sultan	2023	3,092	61.0	585,882	189.5	3.07	61.7
Sultan	2018-2022	3,108	51.0	1,346,679	437.6	3.41	128.5
Sunset	2023	4,065	50.0	1,076,273	264.8	3.00	88.3
Sunset	2018-2022	3,965	57.8	993,122	249.3	2.28	109.3
Tenth Street	2023	4,360	12.0	29,676	6.8	0.06	112
Tenth Street	2018-2022	4,198	11.0	289,364	69.1	0.58	120
Thrashers Corner	2023	6,901	11.0	355,180	51.5	0.75	68.8
Thrashers Corner	2018-2022	6,678	13.6	383,993	56.7	0.42	135.1
Three Lakes	2023	4,160	98.0	1,165,534	280.2	2.65	105.6
Three Lakes	2018-2022	4,237	106.2	1,545,179	358.9	3.45	104
Tulalip	2023	2,245	25.0	775,603	345.5	3.04	113.7
Tulalip	2018-2022	2,277	22.6	385,417	168.5	1.26	133.3
Turners Corner	2023	2,279	37.0	1,529,957	671.3	4.17	160.9
Turners Corner	2018-2022	2,483	43.6	449,356	181.1	1.23	147.4
Twin City	2023	7,378	80.0	1,279,442	173.4	1.43	121.4
Twin City	2018-2022	0	0.0	0	0.0	0.00	0
Village	2023	2,150	23.0	134,708	62.7	0.29	214.5
Village	2018-2022	2,108	24.8	211,052	99.0	1.11	89.4
Wallace River	2023	1,945	26.0	484,386	249.0	2.94	84.6
Wallace River	2018-2022	1,461	18.2	213,947	145.7	0.73	200.4
Waterfront	2023	3,057	5.0	153,415	11.3	0.03	336.2
Waterfront	2018-2022	3,071	8.0	123,092	40.0	0.41	96.8
West Monroe	2023	7,705	41.0	528,106	68.5	0.99	69.4
West Monroe	2018-2022	7,464	41.6	450,458	60.2	0.48	126.3

Substation	Period	Customers	Outages	CMI	SAIDI	SAIFI	CAIDI
Westgate	2023	4,269	18.0	146,416	34.3	0.22	153.5
Westgate	2018-2022	4,200	18.2	237,272	46.0	0.44	103.5
Woods Creek	2023	4,748	63.0	1,485,633	312.9	2.81	111.5
Woods Creek	2018-2022	5,808	93.8	2,293,743	392.0	2.71	144.6
York	2023	5,999	17.0	715,056	119.2	1.63	73.1
York	2018-2022	5,906	34.6	788,612	133.1	2.04	65.3

Table A-2: Circuit Metrics

This table shows the circuit reliability metrics for 2023 and the previous five year average.

Substation	Circuit	Period	Customers	Outages	CMI	SAIDI	SAIFI	CAIDI
20th Ave	12-1493	2023	26	0.0	0	0.0	0.00	0.0
20th Ave	12-1493	2018-2022	29	0.0	0	0.0	0.00	0.0
20th Ave	12-1494	2023	7	0.0	0	0.0	0.00	0.0
20th Ave	12-1494	2018-2022	4	0.0	0	0.0	0.00	0.0
20th Ave	12-1495	2023	16	0.0	0	0.0	0.00	0.0
20th Ave	12-1495	2018-2022	18	0.2	115	9.6	0.30	32.0
20th Ave	12-1496	2023	27	0.0	0	0.0	0.00	0.0
20th Ave	12-1496	2018-2022	23	0.4	40	1.8	0.05	33.2
20th Ave	12-2723	2023	600	1.0	1,067	1.8	0.02	97.0
20th Ave	12-2723	2018-2022	595	3.8	2,690	4.5	0.05	87.6
20th Ave	12-2724	2023	411	0.0	0	0.0	0.00	0.0
20th Ave	12-2724	2018-2022	404	0.4	312	0.8	0.01	74.2
20th Ave	12-2725	2023	1,003	1.0	3,776	3.8	0.01	472.0
20th Ave	12-2725	2018-2022	970	1.4	107,228	107.6	1.25	85.9
20th Ave	12-2726	2023	393	4.0	53,417	134.6	2.46	54.7
20th Ave	12-2726	2018-2022	389	2.8	45,402	119.7	2.21	54.1
52nd St	12-0183	2023	619	5.0	50,689	43.8	0.58	75.0
52nd St	12-0183	2018-2022	590	2.8	33,345	56.8	1.10	51.9
52nd St	12-0184	2023	1,289	2.0	1,877	1.8	0.01	125.1
52nd St	12-0184	2018-2022	1,201	4.0	38,310	29.9	0.33	89.5
52nd St	12-0185	2023	722	5.0	22,307	31.0	0.35	89.6
52nd St	12-0185	2018-2022	718	5.2	98,396	137.6	1.03	132.9
52nd St	12-0186	2023	922	7.0	11,025	12.0	0.04	290.1
52nd St	12-0186	2018-2022	914	5.0	47,934	52.1	0.30	176.5
Alderwood	12-0116	2023	772	2.0	681	1.2	0.03	45.4
Alderwood	12-0116	2018-2022	605	1.8	3,467	4.9	0.01	445.9
Alderwood	12-0117	2023	1,367	4.0	2,529	1.8	0.02	74.4
Alderwood	12-0117	2018-2022	1,266	1.8	18,750	13.3	0.27	50.1
Alderwood	12-0132	2023	304	0.0	0	0.0	0.00	0.0
Alderwood	12-0132	2018-2022	1,550	2.8	53,752	42.3	0.51	82.6
Alderwood	12-0141	2023	965	2.0	270	0.3	0.00	67.5
Alderwood	12-0141	2018-2022	960	3.2	22,149	23.9	0.46	52.2
Ballinger	12-0258	2023	477	1.0	90	0.2	0.01	30.0
Ballinger	12-0258	2018-2022	485	4.8	45,174	94.8	1.60	59.4
Ballinger	12-0259	2023	713	6.0	61,168	85.4	1.21	70.6
Ballinger	12-0259	2018-2022	709	2.6	61,951	87.0	1.04	83.7
Ballinger	12-0260	2023	1,165	5.0	83,184	71.5	1.01	70.8
Ballinger	12-0260	2018-2022	1,101	3.6	11,085	10.0	0.09	111.5
Ballinger	12-0261	2023	1,481	8.0	98,873	62.2	1.13	54.8

Substation	Circuit	Period	Customers	Outages	CMI	SAIDI	SAIFI	CAIDI
Ballinger	12-0261	2018-2022	1,371	6.4	205,461	146.4	1.35	108.8
Ballinger	12-5578	2023	1	0.0	0	0.0	0.00	0.0
Ballinger	12-5578	2018-2022	1	0.0	0	0.0	0.00	0.0
Brier	12-0501	2023	1,770	3.0	23,869	13.5	0.06	207.6
Brier	12-0501	2018-2022	1,770	6.2	169,101	94.6	1.23	76.9
Brier	12-0502	2023	1,170	4.0	2,973	2.5	0.01	330.3
Brier	12-0502	2018-2022	1,097	5.2	68,795	60.6	0.72	84.1
Brier	12-0503	2023	1,478	10.0	76,423	51.5	1.08	47.5
Brier	12-0503	2018-2022	1,455	7.4	245,068	168.7	2.49	67.8
Brier	12-0504	2023	1,487	10.0	70,308	46.0	1.06	43.6
Brier	12-0504	2018-2022	1,411	8.2	171,893	119.8	1.32	90.4
Bunk Foss	12-4111	2023	781	5.0	48,231	60.0	1.01	59.1
Bunk Foss	12-4111	2018-2022	767	5.2	20,540	27.0	0.62	43.6
Bunk Foss	12-4112	2023	677	6.0	38,746	57.5	1.02	56.6
Bunk Foss	12-4112	2018-2022	652	7.0	8,971	13.5	0.42	31.8
Bunk Foss	12-4113	2023	468	3.0	36,453	77.2	0.26	296.4
Bunk Foss	12-4113	2018-2022	446	5.4	52,058	113.5	0.96	117.8
Bunk Foss	12-4114	2023	370	7.0	17,462	47.2	1.06	44.5
Bunk Foss	12-4114	2018-2022	360	8.2	58,550	160.7	1.81	88.6
Canyon Park	12-1093	2023	1,209	7.0	283,818	233.2	2.99	78.0
Canyon Park	12-1093	2018-2022	901	6.4	34,806	30.6	0.55	55.8
Canyon Park	12-1094	2023	1,188	3.0	556,756	468.6	4.58	102.4
Canyon Park	12-1094	2018-2022	1,177	3.6	25,531	21.6	0.76	28.3
Canyon Park	12-1095	2023	1,528	7.0	83,332	54.2	1.01	53.6
Canyon Park	12-1095	2018-2022	1,433	7.6	113,010	76.4	0.69	110.1
Canyon Park	12-1096	2023	1,098	0.0	0	0.0	0.00	0.0
Canyon Park	12-1096	2018-2022	1,066	1.2	11,049	10.1	0.36	28.0
Canyon Park	12-3488	2023	343	1.0	265	0.7	0.00	265.0
Canyon Park	12-3488	2018-2022	390	1.0	405	1.1	0.00	246.5
Cascade	12-2087	2023	2,441	4.0	8,801	3.6	0.02	157.2
Cascade	12-2087	2018-2022	1,786	1.6	2,039	0.9	0.01	175.8
Cascade	12-2088	2023	2,973	4.0	58,573	19.7	1.04	19.0
Cascade	12-2088	2018-2022	2,798	4.0	287,559	98.0	0.42	232.4
Cascade	12-2089	2023	2,034	1.0	10,964	5.1	0.09	56.8
Cascade	12-2089	2018-2022	1,915	0.6	125,174	62.0	0.70	88.1
Cascade	12-2090	2023	2,920	1.0	10,796	3.7	0.03	140.2
Cascade	12-2090	2018-2022	2,918	1.2	6,634	2.7	0.02	144.7
Casino	12-0308	2023	940	3.0	167,962	170.3	1.91	89.0
Casino	12-0308	2018-2022	1,027	2.8	43,276	46.1	0.69	66.4
Casino	12-0309	2023	387	3.0	4,694	12.2	2.07	5.9
Casino	12-0309	2018-2022	374	1.0	715	1.9	0.01	136.7
Casino	12-0310	2023	1,195	4.0	74,330	62.1	1.03	60.5

Substation	Circuit	Period	Customers	Outages	CMI	SAIDI	SAIFI	CAIDI
Casino	12-0310	2018-2022	1,199	2.0	1,694	1.4	0.01	145.7
Casino	12-0311	2023	1,260	5.0	173,633	137.8	3.01	45.8
Casino	12-0311	2018-2022	1,257	3.6	151,071	120.1	0.71	168.1
Cedar Valley	12-5372	2023	1,127	4.0	163,806	146.3	1.05	139.9
Cedar Valley	12-5372	2018-2022	1,089	0.8	9,839	8.8	0.27	31.9
Cedar Valley	12-5373	2023	992	4.0	1,717	1.7	0.01	171.7
Cedar Valley	12-5373	2018-2022	966	2.4	122,036	123.5	0.86	143.1
Cedar Valley	12-5374	2023	105	0.0	0	0.0	0.00	0.0
Cedar Valley	12-5374	2018-2022	105	0.0	0	0.0	0.00	0.0
Cedar Valley	12-5375	2023	298	0.0	0	0.0	0.00	0.0
Cedar Valley	12-5375	2018-2022	203	0.6	4,822	62.4	0.65	95.7
Cedar Valley	12-5376	2023	1	0.0	0	0.0	0.00	0.0
Cedar Valley	12-5376	2018-2022	1	0.0	0	0.0	0.00	0.0
Central Marysville	12-1419	2023	1,170	7.0	68,252	55.6	1.03	53.9
Central Marysville	12-1419	2018-2022	1,145	3.4	50,477	43.4	0.50	87.3
Central Marysville	12-1420	2023	1,307	6.0	81,733	62.3	1.04	59.8
Central Marysville	12-1420	2018-2022	1,259	4.6	6,961	5.3	0.04	123.1
Central Marysville	12-1421	2023	1,620	3.0	63,830	39.5	2.01	19.6
Central Marysville	12-1421	2018-2022	1,589	5.2	66,412	41.2	0.73	56.4
Central Marysville	12-1422	2023	1,356	7.0	61,566	45.3	1.02	44.4
Central Marysville	12-1422	2018-2022	1,328	6.0	20,838	15.5	0.25	62.2
Clearview	12-0584	2023	1,586	18.0	514,460	322.7	2.62	123.3
Clearview	12-0584	2018-2022	319	16.6	251,214	165.8	1.79	92.8
Clearview	12-0585	2023	1,119	19.0	33,637	31.1	0.38	81.4
Clearview	12-0585	2018-2022	1,118	15.0	40,350	36.2	0.31	118.4
Clearview	12-0586	2023	468	5.0	1,546	2.2	0.01	193.2
Clearview	12-0586	2018-2022	1,521	16.0	204,403	213.2	2.83	75.3
Clearview	12-0587	2023	1,665	24.0	213,384	127.4	2.79	45.7
Clearview	12-0587	2018-2022	1,692	35.2	784,301	466.5	4.73	98.6
Delta	12-3653	2023	160	2.0	490	3.2	0.06	54.4
Delta	12-3653	2018-2022	78	5.2	19,335	222.8	1.24	180.2
Delta	12-3654	2023	18	0.0	0	0.0	0.00	0.0
Delta	12-3654	2018-2022	15	0.0	0	0.0	0.00	0.0
Delta	12-3655	2023	210	0.0	0	0.0	0.00	0.0
Delta	12-3655	2018-2022	209	1.6	384	1.8	0.02	96.0
Delta	12-3656	2023	813	1.0	408	0.5	0.00	204.0
Delta	12-3656	2018-2022	698	1.0	508	0.6	0.00	216.9
Delta	12-3657	2023	11	0.0	0	0.0	0.00	0.0
Delta	12-3657	2018-2022	11	0.4	699	36.8	0.19	194.2
Eagle Creek	12-0986	2023	1,157	2.0	35,311	28.9	0.18	157.6
Eagle Creek	12-0986	2018-2022	1,108	3.8	96,048	86.5	1.42	61.0
Eagle Creek	12-0987	2023	840	2.0	105,750	112.6	0.35	320.5

Substation	Circuit	Period	Customers	Outages	CMI	SAIDI	SAIFI	CAIDI
Eagle Creek	12-0987	2018-2022	671	2.4	13,003	16.9	0.47	35.8
Eagle Creek	12-0988	2023	1,637	26.0	275,253	167.3	1.75	95.6
Eagle Creek	12-0988	2018-2022	1,499	33.2	485,300	308.3	3.00	102.9
Eagle Creek	12-0989	2023	959	3.0	11,588	12.1	0.09	131.7
Eagle Creek	12-0989	2018-2022	943	5.2	72,160	75.6	1.29	58.6
Eagle Creek	12-2617	2023	1,538	31.0	390,169	251.9	2.10	119.8
Eagle Creek	12-2617	2018-2022	1,455	38.6	936,843	617.7	4.45	138.9
Eagle Creek	12-2618	2023	940	20.0	303,702	311.2	1.60	194.9
Eagle Creek	12-2618	2018-2022	1,040	36.0	359,490	373.7	2.58	145.0
Eagle Creek	12-2619	2023	1,681	10.0	146,735	79.9	1.14	70.4
Eagle Creek	12-2619	2018-2022	1,463	16.6	106,044	66.7	0.68	98.4
Eagle Creek	12-2620	2023	420	1.0	1,302	3.1	0.15	21.0
Eagle Creek	12-2620	2018-2022	411	0.4	69	0.2	0.00	172.2
East Marysville	12-0002	2023	697	12.0	191,695	273.5	0.98	277.8
East Marysville	12-0002	2018-2022	663	12.8	70,596	102.3	0.33	307.8
East Marysville	12-0037	2023	1,826	5.0	521,272	276.8	2.07	133.8
East Marysville	12-0037	2018-2022	1,641	8.0	202,260	114.7	2.06	55.6
East Marysville	12-0038	2023	2,283	6.0	20,295	8.5	0.12	69.7
East Marysville	12-0038	2018-2022	1,581	4.4	228,552	101.8	0.62	164.0
East Marysville	12-0070	2023	2,082	5.0	375,660	180.4	3.02	59.7
East Marysville	12-0070	2018-2022	2,021	2.2	2,518	1.2	0.01	91.3
East Marysville	12-0115	2023	1,378	3.0	664	0.5	0.00	221.3
East Marysville	12-0115	2018-2022	1,378	1.0	3,308	2.4	0.01	236.3
East Marysville	12-5203	2023	1,513	1.0	414	0.3	0.01	46.0
East Marysville	12-5203	2018-2022	1,486	0.6	386	0.3	0.00	321.3
East Marysville	12-5204	2023	1,898	7.0	6,538	3.3	0.03	114.7
East Marysville	12-5204	2018-2022	1,717	3.2	146,798	83.7	0.46	183.7
Edgecomb	12-4831	2023	248	0.0	0	0.0	0.00	0.0
Edgecomb	12-4831	2018-2022	200	1.4	24,821	55.6	0.87	63.7
Edgecomb	12-4832	2023	1,614	5.0	4,843	3.0	0.01	220.1
Edgecomb	12-4832	2018-2022	1,437	7.2	26,634	17.4	0.22	78.3
Edgecomb	12-4833	2023	1,432	1.0	702	0.5	0.00	117.0
Edgecomb	12-4833	2018-2022	1,340	2.0	18,282	13.4	0.21	64.7
Edgecomb	12-4834	2023	443	13.0	304,132	675.8	1.95	346.8
Edgecomb	12-4834	2018-2022	414	10.4	107,957	253.3	1.99	127.0
Edgecomb	12-6059	2023	0	0.0	0	0.0	0.00	0.0
Edgecomb	12-6059	2018-2022	0	0.0	0	0.0	0.00	0.0
Edgecomb	12-6060	2023	0	0.0	0	0.0	0.00	0.0
Edgecomb	12-6060	2018-2022	0	0.0	0	0.0	0.00	0.0
Edgecomb	12-6061	2023	0	0.0	0	0.0	0.00	0.0
Edgecomb	12-6061	2018-2022	0	0.0	0	0.0	0.00	0.0
Edgecomb	12-6062	2023	0	0.0	0	0.0	0.00	0.0

Substation	Circuit	Period	Customers	Outages	CMI	SAIDI	SAIFI	CAIDI
Edgecomb	12-6062	2018-2022	0	0.0	0	0.0	0.00	0.0
Edgecomb	12-6063	2023	0	0.0	0	0.0	0.00	0.0
Edgecomb	12-6063	2018-2022	0	0.0	0	0.0	0.00	0.0
Esperance	12-0687	2023	1,671	1.0	832	0.5	0.00	104.0
Esperance	12-0687	2018-2022	1,684	3.4	1,292	0.8	0.00	174.4
Esperance	12-0688	2023	1,152	1.0	109	0.1	0.00	109.0
Esperance	12-0688	2018-2022	1,163	3.4	41,778	36.1	0.54	67.2
Esperance	12-0689	2023	1,264	9.0	22,461	17.6	0.07	236.4
Esperance	12-0689	2018-2022	1,242	7.4	104,181	81.1	0.55	147.8
Esperance	12-1597	2023	2,101	7.0	20,275	9.1	1.04	8.7
Esperance	12-1597	2018-2022	1,838	4.2	44,473	23.0	0.10	230.0
Everett	12-0100	2023	378	0.0	0	0.0	0.00	0.0
Everett	12-0100	2018-2022	378	1.0	18,989	50.3	0.62	80.9
Everett	12-0101	2023	439	0.0	0	0.0	0.00	0.0
Everett	12-0101	2018-2022	251	1.4	44,301	190.9	0.95	201.7
Everett	12-0112	2023	974	9.0	11,274	11.6	0.18	65.2
Everett	12-0112	2018-2022	829	7.4	129,587	136.0	1.23	110.4
Everett	12-0113	2023	360	2.0	818	2.3	0.01	163.6
Everett	12-0113	2018-2022	361	2.4	4,832	13.4	0.07	198.9
Everett	12-0118	2023	1,334	3.0	7,621	5.9	0.03	195.4
Everett	12-0118	2018-2022	1,323	2.0	28,480	21.4	0.42	51.1
Everett	12-0119	2023	1,132	1.0	930	0.8	0.01	93.0
Everett	12-0119	2018-2022	1,101	1.8	14,753	13.2	0.11	122.6
Everett	12-0121	2023	409	0.0	0	0.0	0.00	0.0
Everett	12-0121	2018-2022	261	0.2	2,051	6.2	0.04	144.5
Everett	12-0122	2023	346	0.0	0	0.0	0.00	0.0
Everett	12-0122	2018-2022	328	1.0	28,536	84.5	0.61	138.6
Everett	12-3702	2023	28	0.0	0	0.0	0.00	0.0
Everett	12-3702	2018-2022	27	0.0	0	0.0	0.00	0.0
Fitzgerald	12-5508	2023	827	1.0	84,941	101.2	1.00	101.0
Fitzgerald	12-5508	2018-2022	790	2.8	56,223	69.0	1.09	63.6
Fitzgerald	12-5509	2023	7	1.0	816	116.6	1.14	102.0
Fitzgerald	12-5509	2018-2022	9	0.0	0	0.0	0.00	0.0
Fitzgerald	12-5510	2023	237	4.0	58,420	246.5	3.27	75.3
Fitzgerald	12-5510	2018-2022	219	0.4	2,976	11.6	0.24	48.6
Fitzgerald	12-5511	2023	72	1.0	7,956	103.3	1.01	102.0
Fitzgerald	12-5511	2018-2022	4	0.0	0	0.0	0.00	0.0
Five Corners	12-1282	2023	1,081	5.0	540	0.5	0.01	41.5
Five Corners	12-1282	2018-2022	1,065	5.8	89,504	83.4	1.12	74.5
Five Corners	12-1283	2023	1,806	13.0	302,481	166.7	1.18	140.8
Five Corners	12-1283	2018-2022	1,755	4.2	42,570	23.7	0.22	108.9
Five Corners	12-1284	2023	913	7.0	55,179	60.0	1.05	56.9

Substation	Circuit	Period	Customers	Outages	CMI	SAIDI	SAIFI	CAIDI
Five Corners	12-1284	2018-2022	868	0.8	1,224	1.3	0.01	165.3
Five Corners	12-1285	2023	1,794	11.0	28,322	15.8	0.13	121.6
Five Corners	12-1285	2018-2022	1,770	7.0	9,573	5.4	0.23	23.2
Floral Hills	12-2062	2023	1,136	5.0	1,177,034	1032.5	3.06	336.9
Floral Hills	12-2062	2018-2022	1,163	10.6	290,151	257.4	2.44	105.5
Floral Hills	12-2063	2023	2,961	8.0	57,822	19.1	0.10	196.7
Floral Hills	12-2063	2018-2022	2,642	9.6	70,477	24.9	0.14	180.1
Floral Hills	12-2064	2023	1,886	4.0	935	0.5	0.01	66.8
Floral Hills	12-2064	2018-2022	1,668	6.4	57,553	33.1	0.12	270.1
Floral Hills	12-2065	2023	2,824	6.0	171,358	60.6	1.02	59.5
Floral Hills	12-2065	2018-2022	2,695	6.2	143,470	52.0	0.95	54.7
Fobes	12-0398	2023	1,980	3.0	80,033	40.3	0.16	250.9
Fobes	12-0398	2018-2022	1,850	8.2	35,239	17.9	0.25	72.5
Fobes	12-0399	2023	953	6.0	232,094	243.3	2.01	121.3
Fobes	12-0399	2018-2022	947	5.2	51,758	55.1	0.68	80.8
Fobes	12-0400	2023	1,250	4.0	98,227	77.8	1.03	75.4
Fobes	12-0400	2018-2022	1,174	7.4	86,448	72.6	0.85	85.5
Fobes	12-0401	2023	522	6.0	876	1.7	0.02	79.6
Fobes	12-0401	2018-2022	509	4.8	24,948	48.0	0.53	90.6
Frontier	12-0533	2023	1,992	7.0	26,443	13.3	0.05	254.3
Frontier	12-0533	2018-2022	1,672	9.0	106,162	56.3	0.88	63.7
Frontier	12-0534	2023	1,424	1.0	243	0.2	0.00	243.0
Frontier	12-0534	2018-2022	1,469	5.4	64,199	44.8	1.62	27.7
Frontier	12-0535	2023	2,621	1.0	83,626	31.9	0.07	454.5
Frontier	12-0535	2018-2022	2,475	4.6	89,566	34.3	0.21	165.9
Frontier	12-0536	2023	1,700	6.0	101,599	59.7	0.16	366.8
Frontier	12-0536	2018-2022	1,645	4.0	102,459	61.9	0.63	97.9
Gibson	12-2897	2023	3,123	6.0	1,072,259	341.3	1.30	262.4
Gibson	12-2897	2018-2022	2,800	8.2	163,625	55.3	0.55	100.1
Gibson	12-2898	2023	1,825	6.0	54,811	29.7	0.10	293.1
Gibson	12-2898	2018-2022	1,512	6.0	31,320	17.6	0.43	40.9
Gibson	12-2899	2023	980	3.0	316,112	315.8	1.47	215.2
Gibson	12-2899	2018-2022	987	2.0	58,504	59.7	0.50	120.2
Gibson	12-2900	2023	1,394	5.0	920	0.7	0.01	54.1
Gibson	12-2900	2018-2022	1,273	6.6	50,454	38.4	0.34	112.3
Glenwood	12-0592	2023	1,072	8.0	163,411	152.4	1.90	80.1
Glenwood	12-0592	2018-2022	1,081	6.6	72,402	66.8	1.04	64.2
Glenwood	12-0593	2023	1,051	4.0	2,239	2.1	0.01	248.8
Glenwood	12-0593	2018-2022	1,033	5.4	17,807	17.3	0.44	39.5
Glenwood	12-0594	2023	2,514	3.0	2,169	0.9	0.00	180.8
Glenwood	12-0594	2018-2022	2,415	8.8	102,873	41.4	0.92	45.2
Glenwood	12-0595	2023	957	0.0	0	0.0	0.00	0.0

Substation	Circuit	Period	Customers	Outages	CMI	SAIDI	SAIFI	CAIDI
Glenwood	12-0595	2018-2022	977	0.8	8,999	9.9	0.10	97.6
Goldbar	12-0554	2023	2,032	45.0	1,066,920	521.0	2.87	181.4
Goldbar	12-0554	2018-2022	1,956	57.6	2,815,632	1398.7	3.63	385.7
Goldbar	12-0555	2023	769	13.0	24,252	31.5	0.39	81.7
Goldbar	12-0555	2018-2022	737	22.8	452,205	594.0	1.61	368.0
Granite Falls	12-0808	2023	618	17.0	96,662	152.7	2.71	56.3
Granite Falls	12-0808	2018-2022	520	14.4	126,529	221.1	1.15	193.1
Granite Falls	12-0809	2023	1,315	29.0	611,459	476.6	2.84	168.0
Granite Falls	12-0809	2018-2022	1,238	18.6	400,026	313.0	2.30	136.2
Granite Falls	12-0810	2023	1,095	25.0	888,749	804.3	3.80	211.8
Granite Falls	12-0810	2018-2022	1,049	38.2	972,251	903.1	5.45	165.6
Granite Falls	12-0811	2023	872	22.0	81,780	93.5	0.47	200.9
Granite Falls	12-0811	2018-2022	854	9.0	45,109	39.2	0.17	227.2
Granite Falls	12-4612	2023	461	3.0	570	1.2	0.01	95.0
Granite Falls	12-4612	2018-2022	452	2.8	21,414	46.8	0.23	205.0
Granite Falls	12-4613	2023	965	5.0	8,342	8.6	0.04	245.4
Granite Falls	12-4613	2018-2022	591	7.6	36,245	47.8	0.50	96.1
Granite Falls	12-4614	2023	320	1.0	21,252	66.6	1.01	66.0
Granite Falls	12-4614	2018-2022	259	2.2	8,009	27.8	0.35	79.5
Granite Falls	12-4615	2023	1,389	20.0	215,485	154.5	1.42	108.9
Granite Falls	12-4615	2018-2022	1,157	28.8	770,625	560.1	3.73	150.1
Harbour Pointe	12-2277	2023	1,200	0.0	0	0.0	0.00	0.0
Harbour Pointe	12-2277	2018-2022	1,269	1.8	58,580	63.1	0.93	67.4
Harbour Pointe	12-2278	2023	645	0.0	0	0.0	0.00	0.0
Harbour Pointe	12-2278	2018-2022	620	0.2	0	0.0	0.00	0.0
Harbour Pointe	12-2279	2023	559	1.0	249,137	444.9	1.00	443.3
Harbour Pointe	12-2279	2018-2022	558	1.8	588	1.1	0.01	127.8
Harbour Pointe	12-2280	2023	637	2.0	49,992	80.4	0.32	251.2
Harbour Pointe	12-2280	2018-2022	633	1.4	3,278	5.4	0.03	193.3
Harbour Pointe	12-4674	2023	807	0.0	0	0.0	0.00	0.0
Harbour Pointe	12-4674	2018-2022	826	0.8	32,013	39.1	0.67	58.5
Harbour Pointe	12-4675	2023	286	0.0	0	0.0	0.00	0.0
Harbour Pointe	12-4675	2018-2022	327	0.2	2,043	6.2	0.03	232.1
Harbour Pointe	12-4677	2023	850	0.0	0	0.0	0.00	0.0
Harbour Pointe	12-4677	2018-2022	857	0.4	32,989	39.9	0.42	95.9
Hardeson	12-4557	2023	6	0.0	0	0.0	0.00	0.0
Hardeson	12-4557	2018-2022	1	0.0	0	0.0	0.00	0.0
Hardeson	12-4558	2023	11	0.0	0	0.0	0.00	0.0
Hardeson	12-4558	2018-2022	13	0.0	0	0.0	0.00	0.0
Hardeson	12-4559	2023	25	0.0	0	0.0	0.00	0.0
Hardeson	12-4559	2018-2022	28	0.2	199	9.0	0.02	496.5
Hartford	12-3117	2023	980	14.0	120,489	122.1	0.54	226.5

Substation	Circuit	Period	Customers	Outages	CMI	SAIDI	SAIFI	CAIDI
Hartford	12-3117	2018-2022	931	32.2	518,956	538.3	3.16	170.5
Hartford	12-3118	2023	478	6.0	622	1.3	0.02	77.8
Hartford	12-3118	2018-2022	589	7.4	68,050	178.6	2.33	76.8
Hartford	12-3119	2023	824	8.0	25,330	30.5	0.12	250.8
Hartford	12-3119	2018-2022	797	8.6	45,368	56.1	0.21	273.7
Hartford	12-3120	2023	1,549	8.0	28,488	17.9	0.07	245.6
Hartford	12-3120	2018-2022	1,234	18.8	107,149	72.6	0.69	104.6
Hartford	12-3327	2023	604	5.0	60,713	95.8	1.14	84.1
Hartford	12-3327	2018-2022	561	3.6	37,641	61.2	0.32	191.1
Hilton Lake	12-0497	2023	1,421	4.0	158,985	109.6	1.16	94.3
Hilton Lake	12-0497	2018-2022	1,404	4.6	171,699	122.4	1.29	94.7
Hilton Lake	12-0498	2023	877	0.0	0	0.0	0.00	0.0
Hilton Lake	12-0498	2018-2022	785	1.6	48,714	55.7	1.02	54.6
Hilton Lake	12-0499	2023	2,342	4.0	1,173	0.5	0.01	73.3
Hilton Lake	12-0499	2018-2022	2,254	6.8	134,887	57.8	0.92	62.7
Hilton Lake	12-0500	2023	2,108	4.0	2,243	1.1	0.00	224.3
Hilton Lake	12-0500	2018-2022	2,095	4.6	115,071	55.2	1.43	38.6
Kellogg Marsh	12-0904	2023	1,173	4.0	3,818	3.3	0.04	88.8
Kellogg Marsh	12-0904	2018-2022	1,136	2.2	14,274	12.2	0.10	122.2
Kellogg Marsh	12-0905	2023	2,086	13.0	1,325,687	634.6	1.45	438.8
Kellogg Marsh	12-0905	2018-2022	2,036	9.4	136,998	60.1	0.92	65.1
Kellogg Marsh	12-0906	2023	1,187	3.0	2,001	1.7	0.01	181.9
Kellogg Marsh	12-0906	2018-2022	1,165	4.4	80,172	67.9	0.38	176.6
Kellogg Marsh	12-0907	2023	949	0.0	0	0.0	0.00	0.0
Kellogg Marsh	12-0907	2018-2022	866	0.8	16,805	18.5	0.06	321.1
Lake Chaplain	12-2034	2023	100	2.0	23,040	228.1	1.01	225.9
Lake Chaplain	12-2034	2018-2022	98	3.4	42,696	587.2	6.08	96.6
Lake Chaplain	12-2035	2023	2	2.0	137,818	0.0	0.00	0.0
Lake Chaplain	12-2035	2018-2022	2	1.2	53,362	9.0	0.50	18.0
Lake Chaplain	12-2036	2023	543	24.0	729,621	876.8	6.52	134.5
Lake Chaplain	12-2036	2018-2022	459	18.0	335,231	677.4	5.48	123.6
Lake Goodwin	12-0379	2023	1,022	17.0	40,706	36.6	0.30	120.8
Lake Goodwin	12-0379	2018-2022	977	18.6	169,024	169.0	1.52	111.3
Lake Goodwin	12-0380	2023	1,266	12.0	123,621	68.1	0.27	253.3
Lake Goodwin	12-0380	2018-2022	1,139	22.0	400,323	321.1	2.77	115.8
Lake Goodwin	12-0381	2023	1,006	4.0	37,015	46.0	0.63	73.4
Lake Goodwin	12-0381	2018-2022	974	12.2	190,213	191.1	2.27	84.2
Lake Goodwin	12-0382	2023	912	8.0	25,638	28.1	1.11	25.3
Lake Goodwin	12-0382	2018-2022	893	14.8	250,269	275.6	3.50	78.6
Lake Goodwin	12-0383	2023	1,093	23.0	164,271	148.5	1.39	106.8
Lake Goodwin	12-0383	2018-2022	990	24.0	212,805	202.3	1.38	147.0
Lake Serene	12-0337	2023	1,231	0.0	0	0.0	0.00	0.0

Substation	Circuit	Period	Customers	Outages	CMI	SAIDI	SAIFI	CAIDI
Lake Serene	12-0337	2018-2022	1,208	3.0	38,380	31.2	0.43	73.0
Lake Serene	12-0338	2023	1,365	2.0	15,005	11.0	0.09	116.3
Lake Serene	12-0338	2018-2022	1,276	2.2	78,127	57.2	0.41	139.1
Lake Serene	12-0339	2023	1,229	3.0	161	0.1	0.00	40.2
Lake Serene	12-0339	2018-2022	1,167	2.8	15,725	13.0	0.25	51.0
Lake Serene	12-0340	2023	1,808	4.0	35,454	23.0	0.06	407.5
Lake Serene	12-0340	2018-2022	2,336	5.0	101,716	42.9	0.43	99.9
Lake Serene	12-5205	2023	860	2.0	154,408	175.5	1.02	172.3
Lake Serene	12-5205	2018-2022	0	0.4	323	0.4	0.00	94.9
Lake Stevens	12-0124	2023	1,867	32.0	996,352	532.2	2.97	179.4
Lake Stevens	12-0124	2018-2022	1,764	27.4	655,227	356.4	2.99	119.4
Lake Stevens	12-0125	2023	2,606	15.0	151,555	55.0	1.11	49.5
Lake Stevens	12-0125	2018-2022	2,440	10.6	42,944	12.6	0.34	37.4
Lake Stevens	12-0273	2023	1,030	2.0	292	0.3	0.00	97.3
Lake Stevens	12-0273	2018-2022	379	1.4	370	0.5	0.00	109.0
Lake Stevens	12-0274	2023	2,356	3.0	13,530	5.7	0.04	161.1
Lake Stevens	12-0274	2018-2022	2,027	1.4	9,211	4.3	0.05	96.0
Lynnwood	12-0724	2023	1,414	5.0	18,408	11.7	0.12	99.5
Lynnwood	12-0724	2018-2022	1,622	5.2	69,468	45.1	0.27	166.5
Lynnwood	12-0725	2023	828	11.0	133,659	161.2	3.08	52.3
Lynnwood	12-0725	2018-2022	820	7.2	39,493	48.0	0.50	96.1
Lynnwood	12-0726	2023	861	4.0	12,103	14.1	0.10	145.8
Lynnwood	12-0726	2018-2022	865	3.0	68,780	80.8	0.77	104.8
Lynnwood	12-0727	2023	1,293	4.0	56,815	43.9	1.03	42.8
Lynnwood	12-0727	2018-2022	1,284	7.8	15,023	11.6	0.09	128.7
Lynnwood	12-4867	2023	340	1.0	124	0.4	0.01	31.0
Lynnwood	12-4867	2018-2022	339	1.8	3,001	8.9	0.12	73.3
Maplewood	12-0343	2023	1,778	10.0	353,536	199.1	2.44	81.6
Maplewood	12-0343	2018-2022	1,741	5.6	135,446	77.1	0.73	106.3
Maplewood	12-0344	2023	1,047	1.0	108	0.1	0.00	27.0
Maplewood	12-0344	2018-2022	1,112	5.4	9,295	9.0	0.06	138.6
Maplewood	12-0345	2023	776	1.0	282	0.4	0.00	282.0
Maplewood	12-0345	2018-2022	752	7.0	46,709	60.5	0.40	151.4
Maplewood	12-0346	2023	808	4.0	113,166	140.1	2.01	69.6
Maplewood	12-0346	2018-2022	800	5.4	11,618	14.4	0.19	75.7
Mariner	12-3346	2023	250	1.0	6,750	27.3	1.01	27.0
Mariner	12-3346	2018-2022	250	0.0	0	0.0	0.00	0.0
Mariner	12-3347	2023	1,711	4.0	1,497	0.9	0.00	374.3
Mariner	12-3347	2018-2022	1,134	6.4	59,800	36.3	0.66	55.0
Mariner	12-3348	2023	1,312	3.0	1,999	1.5	0.03	48.8
Mariner	12-3348	2018-2022	1,340	1.2	25,334	18.9	0.46	40.9
Mariner	12-3349	2023	698	0.0	0	0.0	0.00	0.0

Substation	Circuit	Period	Customers	Outages	CMI	SAIDI	SAIFI	CAIDI
Mariner	12-3349	2018-2022	699	0.6	237	0.4	0.00	108.8
Mariner	12-3391	2023	1,382	1.0	560	0.4	0.01	70.0
Mariner	12-3391	2018-2022	1,375	1.6	13,124	10.3	0.04	288.9
Martha Lake	12-0073	2023	2,350	5.0	3,300	1.4	0.02	76.7
Martha Lake	12-0073	2018-2022	3,099	7.8	295,784	88.2	0.86	103.1
Martha Lake	12-0074	2023	21	1.0	782	35.5	1.05	34.0
Martha Lake	12-0074	2018-2022	23	0.6	2,462	16.9	0.28	60.1
Martha Lake	12-0251	2023	1,233	3.0	34,000	27.4	0.13	213.8
Martha Lake	12-0251	2018-2022	1,007	5.4	91,305	80.6	1.54	52.4
Martha Lake	12-0466	2023	1,504	3.0	8,242	5.5	0.04	132.9
Martha Lake	12-0466	2018-2022	1,334	7.8	134,527	93.8	0.47	200.0
Martha Lake	12-5695	2023	1,338	0.0	0	0.0	0.00	0.0
Martha Lake	12-5695	2018-2022	0	0.4	366	0.3	0.00	57.2
Meadowdale	12-1837	2023	1,947	2.0	4,818	2.5	0.01	219.0
Meadowdale	12-1837	2018-2022	1,861	5.8	34,250	18.2	0.41	44.0
Meadowdale	12-1838	2023	1,328	1.0	6,696	5.0	0.01	837.0
Meadowdale	12-1838	2018-2022	1,304	2.8	39,839	30.5	0.66	46.5
Meadowdale	12-1839	2023	1,141	10.0	4,223	3.7	0.03	124.2
Meadowdale	12-1839	2018-2022	1,138	8.8	60,923	56.0	0.95	58.8
Meadowdale	12-1840	2023	575	4.0	1,130	2.0	0.01	161.4
Meadowdale	12-1840	2018-2022	565	4.8	80,345	141.0	1.72	82.1
Mountlake	12-0133	2023	1,702	5.0	3,651	2.1	0.01	173.9
Mountlake	12-0133	2018-2022	1,476	8.6	8,037	5.1	0.08	62.0
Mountlake	12-0134	2023	946	4.0	442,700	663.7	3.02	219.8
Mountlake	12-0134	2018-2022	1,782	4.2	68,922	71.2	0.43	166.8
Mountlake	12-0135	2023	1,643	2.0	16,943	10.3	0.05	190.4
Mountlake	12-0135	2018-2022	1,675	6.6	54,489	30.6	0.41	74.9
Mountlake	12-0136	2023	2,037	13.0	181,591	89.5	1.03	87.3
Mountlake	12-0136	2018-2022	2,022	16.2	148,136	72.9	0.51	141.9
Mukilteo	12-0128	2023	1,234	5.0	12,772	10.2	0.08	131.7
Mukilteo	12-0128	2018-2022	1,216	2.6	66,868	54.2	0.92	59.2
Mukilteo	12-0129	2023	957	4.0	55,268	57.8	1.05	54.9
Mukilteo	12-0129	2018-2022	957	4.2	25,785	26.9	0.26	101.8
Mukilteo	12-0600	2023	1,291	1.0	256	0.2	0.00	64.0
Mukilteo	12-0600	2018-2022	1,275	4.6	17,745	14.3	0.71	20.1
Mukilteo	12-4523	2023	857	2.0	35,300	41.3	1.00	41.2
Mukilteo	12-4523	2018-2022	852	4.4	16,194	18.9	0.53	36.0
Murphy'S Corner	12-1748	2023	1,911	3.0	117,365	61.4	1.00	61.3
Murphy'S Corner	12-1748	2018-2022	1,922	1.4	21,852	11.4	0.42	27.2
Murphy'S Corner	12-1749	2023	1,387	3.0	898	1.2	0.01	128.3
Murphy'S Corner	12-1749	2018-2022	1,408	4.8	20,927	14.7	0.25	59.7
Murphy'S Corner	12-1750	2023	696	1.0	102	0.1	0.00	34.0

Substation	Circuit	Period	Customers	Outages	CMI	SAIDI	SAIFI	CAIDI
Murphy'S Corner	12-1750	2018-2022	672	1.6	9,085	13.3	0.41	32.7
Murphy'S Corner	12-1751	2023	968	2.0	807	0.6	0.00	201.8
Murphy'S Corner	12-1751	2018-2022	542	1.4	60,943	63.0	0.39	159.5
North Alderwood	12-0509	2023	896	0.0	0	0.0	0.00	0.0
North Alderwood	12-0509	2018-2022	410	0.8	8,882	21.8	0.14	150.7
North Alderwood	12-0510	2023	207	1.0	34,476	70.6	1.17	60.3
North Alderwood	12-0510	2018-2022	180	0.6	85	0.5	0.02	28.8
North Alderwood	12-0511	2023	276	0.0	0	0.0	0.00	0.0
North Alderwood	12-0511	2018-2022	84	0.0	0	0.0	0.00	0.0
North Alderwood	12-0512	2023	211	0.0	0	0.0	0.00	0.0
North Alderwood	12-0512	2018-2022	52	0.2	15,895	345.6	3.21	107.5
North Camano	12-0313	2023	948	7.0	105,051	110.2	1.01	109.2
North Camano	12-0313	2018-2022	875	13.4	165,335	178.5	1.66	107.5
North Camano	12-0314	2023	106	0.0	0	0.0	0.00	0.0
North Camano	12-0314	2018-2022	100	2.6	3,441	33.1	0.11	308.0
North Camano	12-0315	2023	505	12.0	195,275	382.1	3.96	96.5
North Camano	12-0315	2018-2022	476	8.8	123,499	246.8	2.63	93.7
North Camano	12-0316	2023	1,450	6.0	115,579	79.4	1.19	66.7
North Camano	12-0316	2018-2022	1,376	12.4	287,447	200.3	1.83	109.2
North Camano	12-0329	2023	0	0.0	0	0.0	0.00	0.0
North Camano	12-0329	2018-2022	0	0.0	0	0.0	0.00	0.0
North Creek	12-1410	2023	1,780	2.0	11,866	6.7	0.02	395.5
North Creek	12-1410	2018-2022	1,381	2.8	12,225	7.0	0.05	143.5
North Creek	12-1411	2023	1,286	0.0	0	0.0	0.00	0.0
North Creek	12-1411	2018-2022	1,315	0.6	24,693	19.0	0.11	176.6
North Creek	12-1412	2023	1,659	6.0	17,842	10.8	0.08	135.2
North Creek	12-1412	2018-2022	1,482	3.8	50,482	31.7	0.38	83.3
North Creek	12-1413	2023	1,706	3.0	172,689	101.3	0.22	458.1
North Creek	12-1413	2018-2022	1,633	2.0	7,619	4.5	0.03	150.0
North Creek	12-3733	2023	727	0.0	0	0.0	0.00	0.0
North Creek	12-3733	2018-2022	719	0.8	851	1.3	0.00	305.3
North Marysville	12-0142	2023	292	1.0	20,440	70.2	1.00	70.0
North Marysville	12-0142	2018-2022	292	1.2	1,494	5.3	0.03	175.5
North Marysville	12-0143	2023	799	1.0	13,644	16.1	0.05	332.8
North Marysville	12-0143	2018-2022	799	0.6	3,058	3.8	0.01	324.8
North Marysville	12-0144	2023	1,087	5.0	19,399	17.8	0.25	71.3
North Marysville	12-0144	2018-2022	1,060	2.8	7,840	7.3	0.64	11.5
North Marysville	12-0254	2023	685	5.0	12,124	17.5	0.18	94.7
North Marysville	12-0254	2018-2022	641	5.4	23,084	35.5	0.37	94.8
North Mountain	12-2514	2023	1,462	23.0	636,980	433.0	2.76	156.8
North Mountain	12-2514	2018-2022	1,403	35.0	544,825	380.3	2.27	167.6
North Mountain	12-2515	2023	463	17.0	113,712	245.6	2.21	111.2

Substation	Circuit	Period	Customers	Outages	CMI	SAIDI	SAIFI	CAIDI
North Mountain	12-2515	2018-2022	445	23.0	494,940	1077.8	4.00	269.5
North Mountain	12-2516	2023	1	0.0	0	0.0	0.00	0.0
North Mountain	12-2516	2018-2022	2	0.2	52	26.2	0.20	131.0
North Stanwood	12-0996	2023	243	0.0	0	0.0	0.00	0.0
North Stanwood	12-0996	2018-2022	231	6.4	25,621	108.4	1.37	79.2
North Stanwood	12-0997	2023	708	1.0	1,212	1.7	0.02	85.0
North Stanwood	12-0997	2018-2022	672	11.8	91,596	135.4	1.75	77.3
North Stanwood	12-0998	2023	2,124	0.0	0	0.0	0.00	0.0
North Stanwood	12-0998	2018-2022	1,638	18.2	241,377	125.4	1.28	98.0
North Stanwood	12-0999	2023	2,014	2.0	840	0.0	0.00	0.0
North Stanwood	12-0999	2018-2022	1,955	29.6	609,327	306.6	1.77	173.1
North Stanwood	12-3204	2023	2,185	1.0	1,044	0.6	0.00	174.0
North Stanwood	12-3204	2018-2022	1,944	28.2	390,244	184.0	1.08	170.6
Norton Ave	12-0588	2023	1	0.0	0	0.0	0.00	0.0
Norton Ave	12-0588	2018-2022	76	0.0	0	0.0	0.00	0.0
Norton Ave	12-0589	2023	995	0.0	0	0.0	0.00	0.0
Norton Ave	12-0589	2018-2022	989	1.0	26,325	26.9	0.21	126.6
Norton Ave	12-0590	2023	1,219	1.0	1,928	1.6	0.01	241.0
Norton Ave	12-0590	2018-2022	1,206	2.2	3,398	2.9	0.22	12.9
Norton Ave	12-0591	2023	1,093	0.0	0	0.0	0.00	0.0
Norton Ave	12-0591	2018-2022	845	2.4	8,723	10.1	0.02	423.9
Olivia Park	12-2576	2023	1,582	0.0	0	0.0	0.00	0.0
Olivia Park	12-2576	2018-2022	1,414	1.6	20,574	13.8	0.44	31.7
Olivia Park	12-2577	2023	789	3.0	3,902	4.9	0.02	205.4
Olivia Park	12-2577	2018-2022	779	6.2	23,354	30.3	0.35	86.1
Olivia Park	12-2578	2023	1,046	1.0	5,364	5.1	0.01	447.0
Olivia Park	12-2578	2018-2022	1,039	1.6	18,503	19.9	0.28	71.8
Olivia Park	12-2579	2023	1,405	1.0	84	0.1	0.00	28.0
Olivia Park	12-2579	2018-2022	1,361	3.4	40,630	29.6	0.30	99.3
Oso	12-1309	2023	308	14.0	97,310	311.9	2.07	150.4
Oso	12-1309	2018-2022	204	8.2	43,927	159.0	1.50	105.9
Oso	12-1310	2023	144	4.0	131,966	910.1	2.26	402.3
Oso	12-1310	2018-2022	136	4.8	37,942	267.6	2.86	93.5
Paine Field	12-0385	2023	275	1.0	576	2.2	0.01	192.0
Paine Field	12-0385	2018-2022	266	1.0	1,192	4.5	0.66	6.8
Paine Field	12-0386	2023	113	0.0	0	0.0	0.00	0.0
Paine Field	12-0386	2018-2022	112	0.4	90	0.8	0.00	227.1
Paine Field	12-0387	2023	1,636	4.0	22,014	13.5	0.09	155.0
Paine Field	12-0387	2018-2022	1,631	5.8	79,516	48.6	0.82	59.2
Paine Field	12-0388	2023	810	1.0	44,550	55.1	1.00	55.0
Paine Field	12-0388	2018-2022	614	1.2	8,985	14.7	0.21	69.7
Paine Field	12-1729	2023	1,874	4.0	7,455	4.0	0.03	152.1

Substation	Circuit	Period	Customers	Outages	CMI	SAIDI	SAIFI	CAIDI
Paine Field	12-1729	2018-2022	1,872	2.6	52,605	29.2	0.45	65.3
Paine Field	12-1730	2023	1,599	1.0	108,868	68.0	1.00	68.0
Paine Field	12-1730	2018-2022	1,604	3.8	130,962	81.8	0.95	86.2
Paine Field	12-1731	2023	2,338	1.0	316,048	135.1	1.60	84.7
Paine Field	12-1731	2018-2022	2,296	2.0	130,427	56.2	0.36	156.5
Paine Field	12-1732	2023	143	1.0	49,286	354.6	0.63	560.1
Paine Field	12-1732	2018-2022	143	0.6	234	1.6	0.01	233.2
Park Ridge	12-2319	2023	372	1.0	14,547	39.1	1.00	39.0
Park Ridge	12-2319	2018-2022	364	2.2	15,004	44.0	0.96	45.8
Park Ridge	12-2320	2023	862	6.0	54,754	59.9	1.15	51.9
Park Ridge	12-2320	2018-2022	778	4.2	50,456	60.3	0.50	120.7
Park Ridge	12-2321	2023	1,602	4.0	87,146	54.2	0.38	142.2
Park Ridge	12-2321	2018-2022	1,501	2.6	62,533	39.2	0.22	176.7
Park Ridge	12-2322	2023	1,062	13.0	4,545	4.2	0.03	122.8
Park Ridge	12-2322	2018-2022	905	15.0	96,684	94.2	0.94	99.7
Park Ridge	12-4183	2023	1,094	6.0	513,308	455.5	5.78	78.8
Park Ridge	12-4183	2018-2022	893	4.0	81,249	76.1	0.78	97.4
Perrinville	12-0092	2023	768	2.0	3,790	4.9	0.03	172.3
Perrinville	12-0092	2018-2022	761	5.6	74,505	97.5	2.17	44.9
Perrinville	12-0093	2023	1,222	5.0	17,708	14.5	0.07	218.6
Perrinville	12-0093	2018-2022	1,194	7.2	87,014	73.6	0.74	99.9
Perrinville	12-0126	2023	1,492	6.0	271,223	181.4	2.02	89.6
Perrinville	12-0126	2018-2022	1,391	8.6	65,389	44.0	0.51	87.0
Perrinville	12-0221	2023	1,089	5.0	391,972	361.3	3.04	118.7
Perrinville	12-0221	2018-2022	989	5.4	34,281	31.8	0.48	65.6
Picnic Point	12-1414	2023	680	16.0	72,785	106.3	0.65	164.3
Picnic Point	12-1414	2018-2022	670	10.4	65,387	96.7	0.96	101.0
Picnic Point	12-1415	2023	1,181	7.0	170,312	152.7	2.67	57.3
Picnic Point	12-1415	2018-2022	1,155	7.0	67,907	58.6	0.77	76.2
Picnic Point	12-1416	2023	1,455	7.0	4,936	3.4	0.04	83.7
Picnic Point	12-1416	2018-2022	1,396	8.4	92,289	64.8	0.28	231.6
Picnic Point	12-1417	2023	521	1.0	256	0.4	0.00	128.0
Picnic Point	12-1417	2018-2022	516	1.8	7,266	14.0	0.25	57.1
Pinehurst	12-0147	2023	797	1.0	72	0.1	0.00	18.0
Pinehurst	12-0147	2018-2022	736	5.2	34,831	43.7	0.66	66.7
Pinehurst	12-0148	2023	1,304	1.0	702	0.5	0.00	702.0
Pinehurst	12-0148	2018-2022	1,311	4.8	31,200	24.1	0.29	82.5
Pinehurst	12-0149	2023	1,742	2.0	890	0.5	0.00	178.0
Pinehurst	12-0149	2018-2022	1,734	6.4	170,860	98.6	1.06	93.2
Pinehurst	12-0220	2023	1,058	5.0	23,399	21.3	0.11	201.7
Pinehurst	12-0220	2018-2022	1,023	5.0	16,469	15.6	0.06	268.3
Pinehurst	12-3350	2023	1,852	3.0	6,121	4.5	0.04	115.5

Substation	Circuit	Period	Customers	Outages	CMI	SAIDI	SAIFI	CAIDI
Pinehurst	12-3350	2018-2022	1,857	10.2	203,488	110.2	0.95	115.7
Polaris	12-4500	2023	562	0.0	0	0.0	0.00	0.0
Polaris	12-4500	2018-2022	563	0.8	9,558	18.3	0.51	35.7
Polaris	12-4501	2023	1,439	6.0	38,306	26.6	0.19	140.8
Polaris	12-4501	2018-2022	1,400	4.4	20,405	14.2	0.05	303.0
Polaris	12-4502	2023	1,535	0.0	0	0.0	0.00	0.0
Polaris	12-4502	2018-2022	1,973	1.8	25,883	16.1	0.28	56.8
Polaris	12-4503	2023	739	1.0	75,934	103.0	0.26	401.8
Polaris	12-4503	2018-2022	5	1.2	8,597	6.1	0.04	143.7
Portage	12-3502	2023	211	0.0	0	0.0	0.00	0.0
Portage	12-3502	2018-2022	179	4.2	7,975	43.3	2.79	15.5
Portage	12-3503	2023	270	2.0	344	1.3	0.01	172.0
Portage	12-3503	2018-2022	258	7.4	41,234	156.7	4.68	33.5
Portage	12-3504	2023	979	11.0	130,788	130.9	2.09	62.5
Portage	12-3504	2018-2022	980	19.6	340,416	350.2	2.61	134.1
Portage	12-3505	2023	913	6.0	4,024	4.4	0.06	71.9
Portage	12-3505	2018-2022	1,163	4.4	36,456	34.1	1.01	33.9
Quil Ceda	12-3177	2023	325	0.0	0	0.0	0.00	0.0
Quil Ceda	12-3177	2018-2022	325	1.0	797	2.5	0.03	81.5
Quil Ceda	12-3178	2023	1,348	29.0	1,182,010	875.6	8.53	102.7
Quil Ceda	12-3178	2018-2022	1,330	23.4	335,988	248.8	1.95	127.7
Quil Ceda	12-3179	2023	32	0.0	0	0.0	0.00	0.0
Quil Ceda	12-3179	2018-2022	33	0.4	477	23.6	0.35	66.9
Quil Ceda	12-3180	2023	1,158	3.0	1,673	1.4	0.01	104.6
Quil Ceda	12-3180	2018-2022	1,139	7.0	107,227	93.5	1.63	57.5
Richmond Park	12-0232	2023	823	10.0	223,003	272.0	5.18	52.5
Richmond Park	12-0232	2018-2022	806	8.4	109,528	134.1	1.11	121.1
Richmond Park	12-0233	2023	1,103	14.0	16,638	15.1	0.17	90.9
Richmond Park	12-0233	2018-2022	1,090	11.0	136,717	126.1	0.87	145.0
Richmond Park	12-2048	2023	791	3.0	366,967	406.8	0.97	419.4
Richmond Park	12-2048	2018-2022	363	3.6	36,506	72.5	0.78	93.5
Richmond Park	12-5217	2023	763	8.0	6,968	9.1	0.04	204.9
Richmond Park	12-5217	2018-2022	754	6.4	42,504	56.5	0.28	201.5
Silver Lake	12-0239	2023	1,730	1.0	119	0.1	0.00	17.0
Silver Lake	12-0239	2018-2022	1,675	3.0	48,189	28.2	0.42	67.5
Silver Lake	12-0240	2023	1,041	4.0	7,821	7.5	0.03	237.0
Silver Lake	12-0240	2018-2022	1,032	3.2	59,986	59.0	0.66	89.9
Silver Lake	12-0253	2023	1,737	4.0	2,314	1.3	0.02	79.8
Silver Lake	12-0253	2018-2022	1,730	7.2	207,649	122.2	1.41	86.4
Silver Lake	12-0267	2023	803	0.0	0	0.0	0.00	0.0
Silver Lake	12-0267	2018-2022	833	1.6	10,621	13.1	0.11	119.7
Silver Lake	12-0290	2023	839	3.0	25,896	30.5	0.28	110.7

Substation	Circuit	Period	Customers	Outages	CMI	SAIDI	SAIFI	CAIDI
Silver Lake	12-0290	2018-2022	846	1.2	30,694	36.1	0.28	130.3
Smokey Point	12-1507	2023	397	0.0	0	0.0	0.00	0.0
Smokey Point	12-1507	2018-2022	392	1.8	23,003	60.6	1.14	53.2
Smokey Point	12-1508	2023	935	3.0	25,380	25.7	0.41	62.7
Smokey Point	12-1508	2018-2022	881	1.0	16,067	17.7	0.23	78.1
Smokey Point	12-1509	2023	1,784	5.0	240,560	142.9	2.13	67.2
Smokey Point	12-1509	2018-2022	1,372	6.8	111,474	68.0	1.32	51.6
Smokey Point	12-1510	2023	770	2.0	25,240	22.5	0.43	52.6
Smokey Point	12-1510	2018-2022	961	1.8	38,530	36.7	0.66	55.2
Smokey Point	12-5696	2023	32	0.0	0	0.0	0.00	0.0
Smokey Point	12-5696	2018-2022	30	0.0	0	0.0	0.00	0.0
Smokey Point	12-5697	2023	1	0.0	0	0.0	0.00	0.0
Smokey Point	12-5697	2018-2022	1	0.0	0	0.0	0.00	0.0
Smokey Point	12-5698	2023	1,249	0.0	0	0.0	0.00	0.0
Smokey Point	12-5698	2018-2022	1,263	0.6	15,067	12.1	0.09	134.3
Smokey Point	12-5699	2023	102	3.0	442	3.3	0.03	110.5
Smokey Point	12-5699	2018-2022	102	0.0	0	0.0	0.00	0.0
Snohomish	12-0103	2023	505	5.0	2,561	5.0	0.06	85.4
Snohomish	12-0103	2018-2022	485	3.4	45,797	91.1	1.56	58.4
Snohomish	12-0104	2023	582	11.0	107,178	183.5	5.13	35.8
Snohomish	12-0104	2018-2022	550	9.2	30,821	54.0	1.01	53.2
Snohomish	12-0123	2023	1,426	8.0	2,273	1.6	0.02	78.4
Snohomish	12-0123	2018-2022	1,439	5.2	8,753	6.1	0.04	141.3
Snohomish	12-0151	2023	620	9.0	49,789	80.0	1.07	74.9
Snohomish	12-0151	2018-2022	596	12.4	93,452	154.2	2.06	74.8
South Camano	12-1530	2023	698	19.0	352,467	503.5	8.21	61.3
South Camano	12-1530	2018-2022	644	18.0	330,914	489.4	4.26	114.9
South Camano	12-1531	2023	495	1.0	120	0.2	0.01	40.0
South Camano	12-1531	2018-2022	451	2.6	33,005	67.8	0.58	116.3
South Camano	12-1532	2023	1,615	13.0	119,486	73.3	0.32	226.3
South Camano	12-1532	2018-2022	1,536	19.0	583,517	367.5	2.08	176.3
South Camano	12-1533	2023	1,071	25.0	918,864	849.2	6.40	132.6
South Camano	12-1533	2018-2022	1,012	33.2	696,785	665.7	4.30	154.8
Stimson Crossing	12-3090	2023	45	0.0	0	0.0	0.00	0.0
Stimson Crossing	12-3090	2018-2022	42	0.8	1,579	36.1	0.61	58.8
Stimson Crossing	12-3091	2023	1,311	19.0	300,831	210.8	1.20	175.8
Stimson Crossing	12-3091	2018-2022	1,277	24.6	359,369	277.1	2.86	96.9
Stimson Crossing	12-3092	2023	248	2.0	2,952	12.0	0.08	147.6
Stimson Crossing	12-3092	2018-2022	253	1.8	93,916	378.1	4.06	93.2
Stimson Crossing	12-3093	2023	262	8.0	101,738	400.5	1.57	254.3
Stimson Crossing	12-3093	2018-2022	260	6.4	31,068	121.8	0.87	139.8
Sultan	12-1593	2023	580	17.0	204,197	347.9	6.07	57.3

Substation	Circuit	Period	Customers	Outages	CMI	SAIDI	SAIFI	CAIDI
Sultan	12-1593	2018-2022	536	10.0	149,249	262.7	4.06	64.8
Sultan	12-1594	2023	381	10.0	126,605	328.8	1.24	264.9
Sultan	12-1594	2018-2022	361	9.0	243,259	655.1	1.66	394.6
Sultan	12-1595	2023	1,453	30.0	153,871	105.3	1.54	68.6
Sultan	12-1595	2018-2022	2,008	25.6	859,702	586.2	4.43	132.3
Sultan	12-1596	2023	656	2.0	41,720	63.8	0.18	362.8
Sultan	12-1596	2018-2022	629	3.2	71,563	111.1	0.82	135.5
Sunset	12-5208	2023	1,377	27.0	893,896	645.9	7.30	88.5
Sunset	12-5208	2018-2022	1,283	22.2	612,309	454.2	4.35	104.5
Sunset	12-5209	2023	710	4.0	86,817	121.4	0.63	191.2
Sunset	12-5209	2018-2022	677	8.2	138,467	197.1	1.04	188.9
Sunset	12-5210	2023	551	4.0	6,512	11.7	0.07	176.0
Sunset	12-5210	2018-2022	530	8.4	34,965	63.4	0.24	263.1
Sunset	12-5211	2023	340	4.0	22,617	65.6	1.02	64.3
Sunset	12-5211	2018-2022	316	5.4	50,704	151.6	0.52	289.8
Sunset	12-5212	2023	1,051	11.0	66,431	62.5	1.16	53.7
Sunset	12-5212	2018-2022	1,000	13.4	117,188	110.7	1.72	64.4
Tenth Street	12-0298	2023	1,013	0.0	0	0.0	0.00	0.0
Tenth Street	12-0298	2018-2022	1,017	1.6	8,775	8.7	0.21	40.9
Tenth Street	12-0299	2023	1,016	1.0	892	0.8	0.00	223.0
Tenth Street	12-0299	2018-2022	1,053	1.8	13,512	13.3	0.26	51.3
Tenth Street	12-0300	2023	1,556	6.0	1,286	0.8	0.01	80.4
Tenth Street	12-0300	2018-2022	1,349	5.4	245,032	172.2	1.07	161.1
Tenth Street	12-0301	2023	702	5.0	27,498	39.1	0.35	112.2
Tenth Street	12-0301	2018-2022	703	2.2	22,045	31.4	0.61	51.5
Thrashers Corner	12-0275	2023	331	0.0	0	0.0	0.00	0.0
Thrashers Corner	12-0275	2018-2022	330	0.8	12,447	41.9	0.48	87.4
Thrashers Corner	12-0276	2023	1,139	5.0	216,000	189.6	3.13	60.5
Thrashers Corner	12-0276	2018-2022	1,116	3.4	55,026	50.4	0.79	63.7
Thrashers Corner	12-0277	2023	1,843	2.0	1,266	0.7	0.00	180.9
Thrashers Corner	12-0277	2018-2022	1,840	3.0	60,757	32.9	0.14	242.8
Thrashers Corner	12-0278	2023	1,484	2.0	125,977	85.1	1.02	83.7
Thrashers Corner	12-0278	2018-2022	1,287	2.2	244,187	164.8	0.90	182.3
Thrashers Corner	12-3471	2023	80	2.0	11,937	149.2	0.98	153.0
Thrashers Corner	12-3471	2018-2022	84	0.6	9,005	112.1	2.46	45.5
Thrashers Corner	12-3472	2023	1,934	0.0	0	0.0	0.00	0.0
Thrashers Corner	12-3472	2018-2022	1,478	3.0	972	0.6	0.00	119.8
Thrashers Corner	12-3473	2023	63	0.0	0	0.0	0.00	0.0
Thrashers Corner	12-3473	2018-2022	28	0.6	1,599	30.5	0.45	68.2
Thrashers Corner	12-3474	2023	11	0.0	0	0.0	0.00	0.0
Thrashers Corner	12-3474	2018-2022	12	0.0	0	0.0	0.00	0.0
Three Lakes	12-1818	2023	803	17.0	226,579	281.1	1.60	175.9

Substation	Circuit	Period	Customers	Outages	CMI	SAIDI	SAIFI	CAIDI
Three Lakes	12-1818	2018-2022	709	23.4	379,147	526.1	2.51	209.4
Three Lakes	12-1819	2023	1,177	23.0	193,974	163.6	2.37	69.0
Three Lakes	12-1819	2018-2022	1,116	18.8	215,787	185.4	2.80	66.2
Three Lakes	12-1820	2023	1,586	47.0	568,095	355.9	3.55	100.4
Three Lakes	12-1820	2018-2022	1,679	49.2	797,011	471.6	4.53	104.2
Three Lakes	12-1821	2023	741	11.0	176,886	296.8	2.14	138.5
Three Lakes	12-1821	2018-2022	697	14.8	153,234	208.8	2.83	73.8
Tulalip	12-0505	2023	239	4.0	14,710	70.0	1.09	64.2
Tulalip	12-0505	2018-2022	309	2.4	16,433	64.2	0.26	247.6
Tulalip	12-0506	2023	402	3.0	92,944	230.6	2.10	109.9
Tulalip	12-0506	2018-2022	398	2.8	13,359	33.5	0.64	52.7
Tulalip	12-0507	2023	1,054	15.0	667,703	622.3	5.35	116.2
Tulalip	12-0507	2018-2022	1,043	10.6	320,706	306.7	1.88	162.8
Tulalip	12-0508	2023	562	3.0	246	0.4	0.01	82.0
Tulalip	12-0508	2018-2022	552	6.8	34,919	63.5	1.10	57.7
Turners Corner	12-1428	2023	169	4.0	3,907	23.1	0.30	78.1
Turners Corner	12-1428	2018-2022	162	2.8	42,064	258.4	3.68	70.1
Turners Corner	12-1429	2023	606	9.0	774,198	1307.8	2.83	461.9
Turners Corner	12-1429	2018-2022	597	10.8	72,814	122.3	0.51	240.1
Turners Corner	12-1430	2023	844	14.0	283,937	447.1	5.86	76.3
Turners Corner	12-1430	2018-2022	825	15.0	143,132	171.9	1.36	126.5
Turners Corner	12-1431	2023	840	10.0	467,915	574.1	4.98	115.3
Turners Corner	12-1431	2018-2022	819	12.6	190,618	229.0	1.20	190.2
Turners Corner	12-4310	2023	42	0.0	0	0.0	0.00	0.0
Turners Corner	12-4310	2018-2022	45	2.4	728	15.5	0.29	54.2
Twin City	12-6028	2023	655	5.0	3,987	5.8	0.04	147.7
Twin City	12-6028	2018-2022	655	0.0	0	0.0	0.00	0.0
Twin City	12-6029	2023	632	0.0	0	0.0	0.00	0.0
Twin City	12-6029	2018-2022	632	0.0	0	0.0	0.00	0.0
Twin City	12-6030	2023	2,330	33.0	753,742	321.8	1.16	277.6
Twin City	12-6030	2018-2022	2,330	0.0	0	0.0	0.00	0.0
Twin City	12-6031	2023	0	0.0	0	0.0	0.00	0.0
Twin City	12-6031	2018-2022	0	0.0	0	0.0	0.00	0.0
Twin City	12-6032	2023	0	0.0	0	0.0	0.00	0.0
Twin City	12-6032	2018-2022	0	0.0	0	0.0	0.00	0.0
Twin City	12-6035	2023	0	0.0	0	0.0	0.00	0.0
Twin City	12-6035	2018-2022	0	0.0	0	0.0	0.00	0.0
Twin City	12-6036	2023	1,338	7.0	3,121	2.2	0.01	195.1
Twin City	12-6036	2018-2022	1,338	0.0	0	0.0	0.00	0.0
Twin City	12-6037	2023	1,976	23.0	432,834	213.4	3.35	63.8
Twin City	12-6037	2018-2022	1,976	0.0	0	0.0	0.00	0.0
Twin City	12-6038	2023	0	0.0	0	0.0	0.00	0.0

Substation	Circuit	Period	Customers	Outages	CMI	SAIDI	SAIFI	CAIDI
Twin City	12-6038	2018-2022	0	0.0	0	0.0	0.00	0.0
Twin City	12-6039	2023	202	12.0	85,758	398.9	4.62	86.4
Twin City	12-6039	2018-2022	202	0.0	0	0.0	0.00	0.0
Village	12-4304	2023	405	5.0	13,191	32.5	0.17	188.4
Village	12-4304	2018-2022	395	4.0	19,188	48.9	0.33	147.4
Village	12-4305	2023	1,709	17.0	121,151	70.6	0.32	217.5
Village	12-4305	2018-2022	1,649	18.8	191,517	112.3	1.31	86.0
Village	12-4306	2023	4	0.0	0	0.0	0.00	0.0
Village	12-4306	2018-2022	4	0.4	88	22.1	0.30	73.7
Village	12-4307	2023	21	1.0	366	15.9	0.04	366.0
Village	12-4307	2018-2022	16	1.6	259	13.7	0.19	73.5
Wallace River	12-4485	2023	418	14.0	133,805	317.1	1.82	174.5
Wallace River	12-4485	2018-2022	394	8.6	104,595	252.8	0.89	282.7
Wallace River	12-4486	2023	0	0.0	0	0.0	0.00	0.0
Wallace River	12-4486	2018-2022	1	0.4	16	15.8	0.40	39.5
Wallace River	12-4487	2023	1,388	11.0	312,657	205.6	1.95	105.6
Wallace River	12-4487	2018-2022	160	9.2	109,336	103.7	0.60	173.1
Waterfront	12-1842	2023	1,164	1.0	118,789	0.0	0.00	0.0
Waterfront	12-1842	2018-2022	1,172	2.6	106,052	92.3	0.96	96.3
Waterfront	12-1843	2023	906	4.0	34,626	38.6	0.11	336.2
Waterfront	12-1843	2018-2022	904	0.2	142	0.2	0.00	89.0
Waterfront	12-1846	2023	409	0.0	0	0.0	0.00	0.0
Waterfront	12-1846	2018-2022	412	2.0	5,744	14.0	0.07	188.6
Waterfront	12-1847	2023	603	0.0	0	0.0	0.00	0.0
Waterfront	12-1847	2018-2022	601	3.2	11,154	18.6	0.25	74.7
West Monroe	12-0631	2023	680	5.0	2,517	3.7	0.03	109.4
West Monroe	12-0631	2018-2022	645	2.0	5,285	8.1	0.24	33.6
West Monroe	12-0632	2023	1,556	4.0	29,632	20.5	0.06	336.7
West Monroe	12-0632	2018-2022	1,410	7.6	28,381	19.9	0.29	68.9
West Monroe	12-0633	2023	1,119	7.0	13,135	11.7	1.04	11.2
West Monroe	12-0633	2018-2022	761	7.0	54,727	53.0	0.53	99.9
West Monroe	12-0634	2023	339	7.0	92,581	270.7	4.09	66.1
West Monroe	12-0634	2018-2022	334	7.6	118,262	352.8	2.55	138.4
West Monroe	12-3360	2023	727	10.0	272,799	373.2	3.71	100.7
West Monroe	12-3360	2018-2022	644	9.8	60,404	85.5	0.97	88.3
West Monroe	12-3361	2023	1,093	2.0	115,080	105.1	2.00	52.5
West Monroe	12-3361	2018-2022	1,074	1.6	34,588	33.4	0.48	68.8
West Monroe	12-3362	2023	1,383	2.0	288	0.2	0.00	48.0
West Monroe	12-3362	2018-2022	1,281	3.6	130,149	96.6	0.26	377.5
West Monroe	12-3363	2023	876	4.0	2,074	2.4	0.02	109.2
West Monroe	12-3363	2018-2022	856	2.4	18,663	23.9	0.07	366.7
Westgate	12-0404	2023	800	4.0	5,865	7.3	0.02	308.7

Substation	Circuit	Period	Customers	Outages	CMI	SAIDI	SAIFI	CAIDI
Westgate	12-0404	2018-2022	896	3.2	63,086	78.8	0.94	83.7
Westgate	12-0405	2023	993	8.0	127,988	128.8	0.79	162.2
Westgate	12-0405	2018-2022	818	5.0	82,918	41.0	0.41	100.0
Westgate	12-0406	2023	1,452	3.0	1,636	1.1	0.01	181.8
Westgate	12-0406	2018-2022	1,324	5.2	81,467	56.2	0.45	124.2
Westgate	12-0407	2023	989	3.0	10,927	10.7	0.13	79.8
Westgate	12-0407	2018-2022	990	4.8	9,800	9.9	0.07	150.7
Woods Creek	12-1808	2023	1,894	12.0	270,813	184.5	2.55	72.4
Woods Creek	12-1808	2018-2022	1,835	34.2	1,090,610	578.3	3.78	153.1
Woods Creek	12-1809	2023	1,661	33.0	745,994	444.0	4.10	108.4
Woods Creek	12-1809	2018-2022	1,403	35.6	682,211	437.2	2.69	162.5
Woods Creek	12-1810	2023	1,348	8.0	337,940	293.1	1.05	279.8
Woods Creek	12-1810	2018-2022	1,025	7.4	87,267	69.6	0.84	83.1
Woods Creek	12-1811	2023	1,182	10.0	130,886	110.3	1.26	87.3
Woods Creek	12-1811	2018-2022	1,149	16.6	433,655	372.6	2.95	126.3
York	12-5392	2023	1,565	5.0	395,874	252.1	1.04	242.3
York	12-5392	2018-2022	1,512	8.0	88,417	57.1	1.07	53.4
York	12-5393	2023	1,856	4.0	49,880	26.9	1.00	26.7
York	12-5393	2018-2022	1,825	4.6	133,048	72.2	1.43	50.4
York	12-5394	2023	1,758	2.0	218,846	122.8	1.91	64.3
York	12-5394	2018-2022	1,600	6.8	251,080	143.8	2.04	70.4
York	12-5395	2023	778	6.0	50,456	64.1	3.66	17.5
York	12-5395	2018-2022	725	15.2	316,067	411.6	5.51	74.8

Appendix B

Historical Data: SAIDI, CAIDI, and SAIFI

No uplift factor was applied to these historical metrics.

Table B-1: SAIDI 1991 - 2023

Year	Distribution	Transmission	Overall	Excluded Outages	Overall (Everything)
1991	68.3	27.7	96	180	276
1992	95.3	5.5	101.4	82.3	183.7
1993	87.4	9.8	97.2	1136.2	1233.5
1994	60.2	41.5	101.7	9.2	110.9
1995	81.6	12.9	94.5	359.5	454
1996	52.1	8.5	60.6	60.7	121.1
1997	47.7	2.8	50.5	43.8	94.3
1998	47.9	24.3	72.2	40.4	112.6
1999	46.2	17.3	63.5	134.1	236.1
2000	52.5	3.1	55.6	147.3	219.4
2001	34.6	14.7	49.3	7.4	88.8
2002	32.4	21.8	54.2	25.5	89.8
2003	31.7	19.9	52.6	105.1	185.9
2004	35.9	4.2	40.1	237.8	287.2
2005	57.3	6.8	64.1	0	74.7
2006	50.6	17.7	68.3	567.2	684.2
2007	38.4	28.8	67.3	188.8	274.8
2008	41.6	8.4	50	33.8	97.2
2009	49.8	15.3	65.1	0	76.4
2010	69.1	10.9	79.9	34.2	114.1
2011	77.2	6.2	83.3	0	83.3
2012	63.2	8.4	71.6	44.2	115.9
2013	63.7	20.8	84.5	0	84.5
2014	90.3	21.8	112	116.9	228.9
2015	64.1	16.9	81	1312.1	1390.1
2016	57.5	2.1	59.6	77	136.6
2017	117.7	11.9	129.6	43.9	173.6
2018	86.9	5.4	92.4	172.5	264.9
2019	84.8	6.5	91.3	33.5	124.9
2020	107.1	16.5	123.6	139.1	262.6
2021	131.3	6.5	137.9	505	642.9
2022	133.5	4.2	137.7	866.4	1004.1
2023	101.6	10.3	111.9	8.3	120.2
5-Year Average (2018-2022)	108.7	7.9	116.5	344.6	461.1

Table B-2: CAIDI 1991 - 2023

Year	Distribution	Transmission	Overall	Excluded Outages	Overall (Everything)
1991	91.0	62.0	80.0	175.0	124.0
1992	100.7	31.6	90.1	235.0	128.0
1993	93.4	38.7	81.7	1001.9	530.7
1994	78.8	163.0	99.9	96.5	99.6
1995	89.9	68.0	86.1	197.7	155.7
1996	81.0	48.7	74.1	84.0	78.7
1997	78.6	23.6	69.5	117.0	85.7
1998	77.8	74.8	76.8	98.8	83.5
1999	73.3	198.0	88.5	155.2	107.9
2000	97.0	44.4	90.9	132.2	118.9
2001	66.5	57.1	63.4	56.2	63.5
2002	66.4	149.8	85.6	94.8	87.4
2003	88.8	88.9	88.8	107.4	106.8
2004	75.1	35.6	67.3	286.5	157.0
2005	83.6	42.5	75.8	0.0	76.5
2006	94.7	54.7	79.7	301.5	217.3
2007	76.2	164.6	99.0	220.9	158.5
2008	86.6	47.0	75.8	148.7	73.0
2009	86.8	51.9	75.0	0.0	74.1
2010	106.4	68.2	98.9	141.4	108.7
2011	112.7	40.6	99.6	0.0	99.6
2012	101.8	33.4	82.0	108.2	190.2
2013	104.3	95.7	102.0	0.0	102.0
2014	117.8	70.4	104.2	338.4	205.8
2015	100.3	79.0	94.9	699.4	509.2
2016	106.2	27.7	96.4	160.4	124.2
2017	98.0	51.7	90.7	168.8	102.1
2018	106	78.7	103.9	236.5	163.6
2019	108.2	86.6	106.3	230.3	124.3
2020	105.2	114.5	106.4	261.9	155.2
2021	109.5	71.0	106.7	530.1	286.4
2022	130.4	35	120.3	735.6	432.4
2023	107.4	68.6	102.1	100.1	101.9
5-Year Average (2018-2022)	112.2	76.4	108.7	485.6	258.8

Table B-3: SAIFI 1991 - 2023

Year	Distribution	Transmission	Overall	Excluded Outages	Overall (Everything)
1991	0.75	0.45	1.20	1.03	2.23
1992	0.95	0.17	1.13	0.35	1.48
1993	0.94	0.26	1.19	1.13	2.32
1994	0.76	0.26	1.02	0.10	1.11
1995	0.91	0.19	1.10	1.82	2.92
1996	0.64	0.17	0.82	0.72	1.54
1997	0.61	0.12	0.73	0.37	1.10
1998	0.62	0.32	0.94	0.41	1.35
1999	0.63	0.09	0.72	0.86	2.19
2000	0.54	0.07	0.61	1.11	1.85
2001	0.26	0.52	0.78	0.13	1.40
2002	0.49	0.15	0.63	0.27	1.03
2003	0.37	0.22	0.59	0.98	1.74
2004	0.47	0.12	0.58	0.83	1.52
2005	0.69	0.16	0.85	0.00	0.98
2006	0.53	0.33	0.86	1.88	3.15
2007	0.50	0.18	0.68	1.19	2.13
2008	0.48	0.18	0.66	0.23	1.35
2009	0.57	0.30	0.87	0.00	1.03
2010	0.65	0.16	0.81	0.24	1.05
2011	0.68	0.15	0.84	0.00	0.84
2012	0.62	0.25	0.87	0.41	1.28
2013	0.61	0.22	0.83	0.00	0.83
2014	0.77	0.31	1.08	0.35	1.47
2015	0.64	0.21	0.85	1.88	2.73
2016	0.55	0.08	0.63	0.48	1.11
2017	1.20	0.23	1.43	0.26	1.70
2018	0.82	0.07	0.89	0.73	1.62
2019	0.78	0.08	0.86	0.15	1.0
2020	1.02	0.14	1.16	0.53	1.69
2021	1.20	0.09	1.29	0.95	2.24
2022	1.02	0.12	1.14	1.18	2.32
2023	0.95	0.15	1.10	0.08	1.18
5-Year Average (2018-2022)	0.97	0.10	1.07	0.71	1.78