Docket UE-230522, Dockets UE-170033 and UG-170034 (consolidated), and Dockets UE-072300 and UG-072301 (consolidated)

Puget Sound Energy
2023 Service Quality Program and Electric Service Reliability Filing

Attachment A:
Service Quality and Electric Service Reliability Report

Puget Sound Energy
2023
Service Quality and Electric Service Reliability Report

Filed on March 27, 2024

PUGET SOUND ENERGY

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CHAPTER 1

INTRODUCTION

Service Quality and Electric Service Reliability Report

This Puget Sound Energy ("PSE" or the "Company") 2023 Service Quality and Electric Service Reliability Report meets PSE's Service Quality Program reporting requirements[1] and the electric service reliability reporting requirements set forth by the Washington Utilities and Transportation Commission.[2,3] To facilitate external review of PSE's service quality performance and electric service reliability performance, the two reporting were combined starting with the 2010 reporting year.[4] Starting from this reporting year, PSE is reporting its electric service reliability performance in accordance with the most current PSE's modified electric reliability monitoring and reporting plan that has been deemed consistent with WAC 480-100-393 and accepted by the Commission under Docket UE-230522[5].

Executive Summary

[1] The performance benchmark, calculation and reporting of each of the Service Quality Indices (SQIs) in this Report reflect all modifications regarding SQI mechanics stipulated in the Twelfth Supplemental Order of Dockets UE-011570 and UG-011571; Orders 1 and 2 of UE-031946; Orders 12, 14, 16, 17, 18, 19, 20, 21, 23, and 29 of consolidated Dockets UE-072300 and UG-072301; and Order 8 of Dockets UE-170033 and UG-170034.

[2] The Electric Service Reliability section of this Report reflects all of PSE's electric service reliability reporting requirements outlined in Docket UE-110060 and in the following sections of the electric service reliability WAC:

- WAC 480-100-388, Electric service reliability definitions,
- WAC 480-100-393, Electric service reliability monitoring and reporting plan,
- WAC 480-100-398, Electric service reliability reports.

[3] Two PSE commitments regarding the preparation of the Electric Service Reliability section, as outlined in Section F, Reporting of Customer Complaint Information, of Appendix D to Order 12 of consolidated Dockets UE-072300 and UG-072301 (Section F), are also satisfied in this annual report. 1) Chapter 3 Customer Electric Reliability Complaints section describes how the customer complaint information is used in PSE's circuit reliability evaluation. Appendix M details PSE's actions to resolve these complaints. 2) Prior to the filing of each annual report, PSE used to invite UTC staff and the Public Counsel Section of the Washington State Attorney General's Office ("Public Counsel") to discuss the format and content of the Electric Service Reliability section since the adoption of Order 12. However, as agreed to by Public Counsel, UTC staff and PSE at the March 13, 2012 meeting, an annual external review meeting of PSE's reliability results, prior to the filing, is not required. If, however, an external meeting on the format and content of PSE's Electric Service Reliability section is called for by an external party or PSE, then Public Counsel should be invited.

[4]The annual reporting of the Service Quality Program and the Electric Service Reliability was due separately before the UTC by February 15 and March 31 of each year, respectively. To facilitate external review, PSE filed a petition in October 2010 to consolidate the two reporting requirements, among other petition requests. The UTC granted PSE's petition in November 2010 (Order 17 of consolidated Dockets UE-072300 and UG-072301) and the reporting consolidation became effective for the 2010 performance periods and each report thereafter.

[5] UE-230522, PSE's 3rd Electric Service Reliability Monitoring and Reporting Plan pursuant to WAC 480-100-393, which is deemed consistent with WAC 480-100-393 and is accepted by the Commission on 10/25/2023..

As Washington State's oldest and largest energy utility, with a 6,000-square-mile service territory stretching across 10 counties, Puget Sound Energy serves approximately 1.2 million electric customers and about 900,000 natural gas customers primarily in the Puget Sound region of Western Washington. PSE is committed to providing energy that is clean, safe, reliable, affordable, and equitable. PSE meets the energy needs of its customers through cost-effective energy efficiency measures, procurement of sustainable energy resources, and far-sighted investment in the energy-delivery infrastructure. PSE employees are dedicated to providing quality customer service and to delivering energy that is safe, dependable, efficient, and environmentally responsible.

This Service Quality and Electric Service Reliability Report provides PSE's performance results for the following areas: service quality of PSE and its service providers, Customer Service Guarantee, Restoration Service Guarantees, and electric service reliability. For the 2023 reporting year, PSE's electric and natural gas service providers met all seven of the service provider indices. PSE met eight of its nine Service Quality Indices ("SQI") benchmarks but PSE did not meet the benchmark for the length of non-major-storm power outages, per year, per customer (SQI #3). See Table 1a: Service Quality and Electric Service Reliability and Service Provider Performance Metrics for a summary of these performance results.

While the length of power outages per year, per customer decreased in 2023 compared to 2022, outages caused by trees/vegetation and vehicle collisions with PSE equipment were significant contributors to the annual 2023 performance exceeding the SQI #3 benchmark of 155 minutes. There is no service-quality performance penalty associated with SQI #3, but PSE will provide customers a $50 account credit when PSE doesn't restore the customer's power within 24-consecutive hours during a non-major-storm power outage.[6] See the Service Guarantees section for further information.

Background

PSE first implemented its Service Quality Program (the "SQ Program") when the Washington Utilities and Transportation Commission ("UTC", "WUTC", or the "Commission") authorized the merger of Washington Natural Gas Company and Puget Sound Power & Light Company in 1997. The stated purpose of the SQ Program was to "provide a specific mechanism to assure customers that they will not experience deterioration in quality of service" and to "protect customers of PSE from poorly-targeted cost cutting."[7] The SQ Program has been further extended with various modifications to demonstrate PSE's continuous commitment to customer protection and quality service.[8]

[6] The SQI #3 SAIDI penalty mechanics was replaced on July 30, 2016, by PSE's 24-hour Restoration Service Guarantee available under PSE's electric Schedule 131, Restoration Service Guarantees, where a $50 credit is applied to customers' account if they experienced certain prolonged outages per the terms and conditions prescribed in Schedule 131.

[7] Under consolidated Dockets UE-951270 and UE-960195.

[8] Under Dockets UE-011570 and UG-011571 (consolidated), UE-072300 and UG-072301 (consolidated), and Dockets UE-170033 and UG-170034 (consolidated).

Service Quality Program

The Service Quality Program includes three components:

- **Service Quality Index ("SQI")**—PSE reports annually to the UTC on the final performance of these nine SQIs. [9] This document explains the SQIs, how they are calculated and PSE's performance on each of the SQIs for the 2023 reporting year.
- **Customer Service Guarantee ("CSG")**—The Customer Service Guarantee provides for a $50 credit when PSE misses an SQI #10 appointment based upon the conditions and terms outlined in PSE's electric and natural gas Schedules 130 Customer Service Guarantee. This Customer Service Guarantee has been available to all customers since the inception of PSE's Service Quality Program in 1997.
- **Restoration Service Guarantees ("RSG")**—The Restoration Service Guarantees provides for a $50 credit to a qualified PSE electric customer based upon the conditions and exceptions outlined in PSE's electric Schedule 131 Restoration Service Guarantees. There are two RSGs: the 120-hour restoration service guarantee during any storm event and the 24-hour restoration service guarantee during a non-major storm event. The 120-hour guarantee was established in 2008. The 24-hour guarantee became effective on January 1, 2017.

Service Provider Performance

In addition to these three components, the SQ Program also includes reporting of service quality performance of PSE's primary service providers. Seven Service Provider Indices ("SPIs") are tracked and reported in areas of kept appointments, construction standards compliance, reliability and service restoration. See Chapter 1, the Service Provider Performance section of this report for the results of these 2023 SPIs.

Annual UTC Service Quality Program and Electric Service Reliability Filing

The Service Quality and Electric Service Reliability Report is filed as Attachment A to PSE's Annual UTC Service Quality Program and Electric Service Reliability Filing. Besides the reporting of SQIs, SPIs CSG, and RSG; the SQ Program also requires the filing with the UTC of PSE's natural gas emergency response plans for outlying areas. These plans are filed concurrently with this report as Attachment B to the annual UTC compliance reporting filing. Also, being filed concurrently as Attachment C to this annual UTC filing is PSE's 2023 Critical Infrastructure Security Annual Report, which contains a discussion of PSE's cybersecurity and physical security policies and related information for 2023.

[9] The SQI Semi-Annual Report used to be filed in July of each reporting year; it is discontinued per Order 24/10 of the consolidated Dockets UE-220066, UG-220067, and UG-210918 approved by UTC on December 22, 2022.

Overview of Performance

Table 1a summarizes PSE's 2023 Service Quality Program and Electric Service Reliability performance, along with relevant service providers' performance metrics and the three service guarantees: Customer Service Guarantee, 24-hour Restoration Service Guarantee, and 120-hour Restoration Service Guarantee.

PSE met eight of the nine service-quality measurements and improved its performance for four indices 1) SQI #2, WUTC complaint ratio per 1,000 customers (2022 at 0.14 and 2021 at 0.11);2) SQI #6, Customer Access Center transactions customer satisfaction (2022 at 94% satisfaction and 2023 at 95% satisfaction); 3) SQI #5, percent of calls answered live within 60 seconds by our Customer Access Center.(2022 at 63% satisfaction and 2023 at 87%); and 4) SQI #11, Electric safety response time (2022 at 54 minutes and 2022 at 53 minutes). PSE did not meet the benchmark for SQI #3, length of power outages per year, per customer.

While PSE's SQI #3 performance improved in 2023 compared to 2021 and 2022 (2021 at 207 minutes, 2022 at 188 minutes, and 2023 at 167 minutes). Outages caused by trees/vegetation and vehicles collisions with PSE equipment were significant contributors to the annual 2023 performance exceeding the SQI #3 benchmark of 155 minutes. There is no performance penalty associated with this measurement, but PSE will provide customers a $50 account credit when PSE doesn't restore the customer's power within 24 consecutive hours during a non-major-storm power outage.

Table 1a: Service Quality and Electric Service Reliability and Service Provider Performance Metrics

Key Measurement	Type of Metric	Benchmark/Description	2023 Performance Results	Achieved
Customer Satisfaction				
WUTC complaint ratio	Service Quality Index #2	No more than 0.40 complaints per 1,000 customers, including all complaints filed with WUTC	0.11	☑
Customer Access Center transactions customer satisfaction	Service Quality Index #6	At least 90% satisfied (rating of 5 or higher on a 7-point scale)	95%	☑
Field service operations transactions customer satisfaction	Service Quality Index #8	At least 90% satisfied (rating of 5 or higher on a 7-point scale)	97%	☑
Customer Service				
Customer Access Center answering performance	Service Quality Index #5	At least 80% of calls answered by a live representative within 60 seconds of request to speak with live operator[10]	87%	☑
Operations Services—*Appointments*				
Appointments kept	Service Quality Index #10	At least 92% of appointments kept	99[11]	☑
Service provider appointments kept—Quanta Electric	Service Provider Index #3B[12]	At least 92% of appointments kept	98%	☑
Service provider appointments kept—Quanta Gas	Service Provider Index #3C	At least 92% of appointments kept	100%[13]	☑
Customer Service Guarantee	Service Guarantee #10	A $50 credit to customers when PSE fails to meet a scheduled SQI appointment	$18,100	--

[10] Benchmark revision per UTC Dockets UE-170033 and UG-170034 Order 08, dated December 5, 2017, for SQI #5 annual performance from 2021 and years after.
[11] Missed appointments by type are detailed in Appendix F: *Customer Service Guarantee Performance Detail*.
[12] There were no results for Service Provider Indices (SPI) #1A, #2A, #3A and #4A. These indices were assigned to a service provider, Pilchuck, which no longer works for PSE. PSE transitioned all natural gas construction and maintenance work to Quanta Gas as of April 30, 2011. Service Provider Indices #2B and #2C, Service Provider Customer Satisfaction, Quanta Electric and Quanta Gas, respectively, which were applicable in prior years' reports, have been terminated since the 2013 reporting period.
[13] Consistent with the benchmark measurement display (significant digits) actual performance results were rounded from 99.62%.

Key Measurement	Type of Metric	Benchmark/Description	2023 Performance Results	Achieved
Operations Services—*Gas*				
Gas safety response time	Service Quality Index #7	Average 55 minutes or less from customer call to arrival of field technician	33 minutes	☑
Secondary safety response time—Quanta Gas	Service Provider Index #4D	Within 60 minutes from first response assessment completion to second response arrival	53 minutes	☑
Service provider standards compliance—Quanta Gas	Service Provider Index #1C[14]	Level 1 ≤ 8 dev/1000 Level 2 ≤ 15 dev/1000 Level 3 ≤ 12 dev/1000	Level 1 0.85 Level 2 2.17 Level 3 1.01	☑
Operations Services—*Electric*				
Electric safety response time	Service Quality Index #11	Average 55 minutes or less from customer call to arrival of field technician	53 minutes	☑
Secondary core-hours, non-emergency safety response and restoration Time—Quanta Electric	Service Provider Index #4B	Within 250 minutes from the dispatch time to the restoration of non-emergency outage during core hours	240 minutes	☑
Secondary non-core-hours, non-emergency safety response and restoration time—Quanta Electric	Service Provider Index #4C	Within 316 minutes from the dispatch time to the restoration of non-emergency outage during non-core hours	253 minutes	☑
Service provider standards compliance—Quanta Electric	Service Provider Index #1B[15]	Level 1 ≤ 15 dev/1000 Level 2 ≤ 25 dev/1000 Level 3 ≤ 25 dev/1000	Level 1 3.43 Level 2 3.51 Level 3 8.28	☑
120-consecutive –hour power outage restoration guarantee	Service Guarantee #2	A $50 credit to eligible customers when experienced power outage is longer than 120 consecutive hours	$0	--
24-consecutive-hour non-major storm power outage restoration guarantee	Service Guarantee #3	A $50 credit to eligible customers when experienced power outage is longer than 24 consecutive hours during non-major storms	$2,500	--

[14] Level 1: Deviation from PSE Standards and/or current regulatory expectations that provide immediate and significant risk to product quality, safety or system integrity; or a combination/repetition of Level 2 deficiencies that indicate a critical failure of systems.
Level 2: Deviation from PSE Standards and/or current regulatory expectations that provide a potentially significant risk to product quality, safety or system integrity; or could potentially result in significant observations from a regulatory agency; or a combination/repetition of Level 3 deficiencies that indicate a failure of system(s).
Level 3: Observations of a less serious or isolated nature that are not deemed Level 1 or 2, but require correction or suggestions on how to improve systems or procedures that may be compliant but would benefit from improvement.
[15] See Footnote 10.

Key Measurement	Type of Metric	Benchmark/Description	2023 Performance Results	Achieved
Electric Service Reliability—*SAIFI & SAIDI*				
$SAIFI_{Total}$ Total (all outages current year) Outage Frequency—System Average Interruption Frequency Index (SAIFI)	**Reliability**	**Power interruptions per customer per year, including all types of outage event**	**1.3 interruptions**	**--**
$SAIFI_{SQI}$ SQI IEEE Non-Major-Storm (T_{MEDADJ}) SAIFI	**Service Quality Index #4**	**No more than 1.2 interruptions per year per customer, excluding days exceeding the T_{MEDADJ} threshold with catastrophic day adjustment**	**1.1 interruptions**	**☑**
$SAIDI_{Total}$ Total (all outages current year) Outage Duration–System Average Interruption Duration Index (SAIDI)	**Reliability**	**Outage minutes per customer per year, including all types of outage event**	**203 minutes**	**--**
$SAIDI_{SQI}$ SQI IEEE Non-Major-Storm (T_{MEDADJ}) SAIDI	**Service Quality Index #3**	**No more than 155 minutes per customer per year Outage minutes, excluding days exceeding the T_{MEDADJ} threshold with catastrophic day adjustment**	**167 minutes**	**☐**

Detailed monthly performance results and supplemental information can be found in the following appendices:

- **Appendix A: Monthly SQI Performance**—This appendix details monthly PSE SQI performance and the relevant performance of PSE's service providers. The attachments to this appendix provide information on the major outage event and localized electric emergency event days and the natural gas reportable incidents and control time. This appendix has three attachments:
  - **Attachment A to Appendix A**—Major Event and Localized Emergency Event Days (Affected Local Areas Only),
  - **Attachment B to Appendix A**—Major Event and Localized Emergency Event Days (Non Affected Local Areas Only), and
  - **Attachment C to Appendix A**—Gas Reportable Incidents and Control Time.
- **Appendix B: Certification of Survey Results—**The independent survey company, EMC Research, certified that all SQI-related customer surveys were conducted with applicable

guidelines and the results are unbiased and valid in accordance with the survey procedures established in consolidated Dockets UE-011570 and UG-011571[16].

- **Appendix C: Penalty Calculation**—No applicable penalty calculation for the 2023 SQI performance year.
- **Appendix D: Proposed Customer Notice (Report Card)—**This appendix presents PSE's proposed 2023 service performance customer notice report card. The report card is designed to inform customers of how well PSE delivers its services in key areas to its customers.
- **Appendix E: Disconnection Results**—This appendix provides the number of disconnections per 1,000 customers for non-payment of amounts due when the UTC disconnection policy would permit service curtailment.
- **Appendix F: Customer Service Guarantee Performance Detail**—This appendix details annual and monthly Kept Appointments and Customer Service Guarantee payment results by appointment type.
- **Appendix G: Customer Awareness of Service Guarantee**—This appendix presents the ways PSE makes customers aware of its Customer Service Guarantee and the results of the survey.

[16] PSE's compliance filing pursuant to paragraph 13 of Order 21 of Dockets UE-072300 and UG-072301 (consolidated), Granting in Part, and Denying in Part, Puget Sound Energy's Petition for Waiver and Suspension of Service Quality Index Nos. 6 AND 8 (June 21, 2013)

Detailed Electric system and reliability information is found in the following appendices:

- **Appendix H: Electric Reliability Terms and Definitions**—This appendix presents the terms and definitions found in this report.
- **Appendix I: Areas of Greatest Concern with Action Plan**— This appendix details the areas of greatest concern with an action plan.

Customer Notice of SQI Performance

Appendix D: **Proposed Customer Notice (Report Card**) is the proposed draft customer notice of PSE's 2023 SQI performance. After consultation with the UTC staff and Public Counsel, PSE will begin distributing the final SQI report card by June 25, 2024, as part of the customer billing package. The report card will be distributed to customers only after adequate consultation with Staff and Public Counsel, but no later than 90 days after PSE files its annual report. For the 2023 report card, PSE will start the distribution by June 25, 2024, based upon the filing date of this report on March 27, 2025.

Data and Reporting Issues

For the Service Quality Program reporting, there are no data gathering or reporting difficulties in 2023 and PSE does not any plans to alter its data gathering or reporting methods for 2024 or any future periods.

Unusual Event

- There are no unusual events that had a significant effect on 2023 service quality performance.

Service Quality Program and Electric Service Reliability Reporting Changes

The following changes became effective in 2023 per Docket UE-230522 and Order 24/10 of the consolidated Dockets UE-220066, UG-220067, and UG-210918 dated December 22, 2022 ("2022 GRC") where the UTC approved the Settlement Stipulation and Agreement on Revenue Requirement and all Other Issues Except Tacoma LNG and PSE's Green Direct Program ("Revenue Requirement Settlement").[17]

The SQ Program changes starting from the 2023 reporting year are:

- Docket UE-230522 – As outlined in PSE's 3rd Electric Service Reliability Monitoring and Reporting Plan, the reporting of the Customers Experiencing Multiple Interruptions ("CEMI") , SQI #3-SAIDI, and SQI #4-System Average Interruption Frequency Index ("SAIFI") is moved from the electric service reliability chapter to has been to the chapter where PSE reports all the SQI performances.

- SQI semi-annual UTC reporting that used to be due by July 30th of each year has been discontinued since January 2023.[18]

- SQI #4 SAIFI is to be computed using only the latest IEEE-1366 methodology for removing major event day outages with additional adjustment for catastrophic events starting from the

[17] The two SQI changes were discussed in PSE's 2022 GRC prefilled direct testimonies of its witnesses Mark Newton Lowry in Exh. MNL-1T, Catherine A. Koch in Exh. CAK-1T, and Jon A. Piliaris in Exh. JAP-1T. The Revenue Requirement Settlement incorporated the change in the SQ Program semi-annual reporting change at paragraph 56 and the SQI #4 change at paragraph 60.
[18] PSE's 2022 GRC prefilled direct testimonies, Piliaris, Exh. JAP-1T, page 62, lines 18-19

2023 performance year. This approach is consistent with the current SQI #3 SAIDI performance calculation. The SQI #4 benchmark will be at no more than 1.2 interruptions per year per customer.[19]

PSE's 3rd Electric Service Reliability Monitoring and Reporting Plan accepted by the UTC under Docket UE-230522 ("Plan") also provides the following updates:

- Establishing 2014 as the new baseline year - In the Plan, PSE updates the baseline year from 2003 to 2014. A baseline year is the specified year that may be used as a comparison for measuring electric service reliability in subsequent years per WAC 480-100-398(1). The prior baseline year is 20 years old and in those 20 years there has been continuous improvement in data recording and business processes which make 2003 technically not comparable to current results. As an example, PSE's 2013 implementation of its Outage Management System ("OMS"), Geographic Information System ("GIS"), and Customer Information System ("CIS) created data changes, making trends before 2014 not valuable.

- Allowing for flexibility in visualization/presentation of reliability performance results – The Plan does not provides the exact presentation of reporting elements but figures and tables will include the applicable baseline year results to aid the evaluation of the performance result.

- Enabling continuous improvement in methodologies to identify Areas of Greatest Concern – as defined in WAC 480-100-398(3) and WAC 480-100-393(3)(a), annually, PSE will identify areas of greatest concern. Usually these are considered poor performing circuits in PSE's electric service territory. In each annual filing PSE will explain methodology used to identify the areas of greatest concern for the year.

[19] PSE's 2022 GRC prefilled direct testimonies, Koch, Exh. Cak-1T, page 51, line 11

CHAPTER 2

SERVICE QUALITY PROGRAM[20] PSE has been meeting the Puget Sound region's energy needs for more than 150 years. PSE proudly embraces the responsibility of providing customers with safe, reliable, and reasonably-priced energy service.

This section summarizes the 2023 results of PSE's SQIs related to customer service, customer satisfaction, and operations services:

- WUTC Complaint Ratio (SQI #2)
- System Average Interruption Duration Index (SQI #3)
- System Average Interruption Frequency Index (SQI #4)
- Customer Access Center Answering Performance (SQI #5)
- Customer Access Center Transactions Customer Satisfaction (SQI #6)
- Gas Safety Response Time (SQI #7)
- Field Service Operations Transactions Customer Satisfaction (SQI #8)
- Appointments Kept (SQI #10)
- Electric Safety Response Time (SQI #11)
- Service Provider Performance
- Service Guarantees
- Customers Experiencing Multiple Interruptions

[20] Chapter title change per PSE's 3rd Electric Service Reliability Monitoring and Reporting Plan

WUTC Complaint Ratio (SQI #2)

Table 2a: WUTC Complaint Ratio for 2023

Key Measurement	Type of Metric	Benchmark/Description	2023 Performance Results	Achieved
Customer Satisfaction				
WUTC complaint ratio	**Service Quality Index #2**	**No more than 0.40 complaints per 1,000 customers, including all complaints filed with WUTC**	**0.11**	☑

Overview

Each year the WUTC receives complaints from PSE customers on a variety of topics. In 2023, there were 224 complaints, down from 285 in 2022. The 2022 SQI #2 complaint ratio was 0.14, while the 2023 complaint ratio was 0.11.

About the Benchmark

The WUTC complaint ratio is calculated by dividing the sum of all natural gas and electric complaints reported to the WUTC by the average monthly number of PSE customers. The quotient is then multiplied by 1,000. The formula follows:

$$\textit{WUTC complaint ratio} = \frac{\textit{electric and natural gas complaints recorded by WUTC}}{\textit{average monthly number of electric and natural gas customers}} \; \textit{X 1,000}$$

The average monthly customer count is the average of the total number of PSE customers, per month, during the reporting period.

Going Forward

PSE will continue identifying potential issues that could trigger customer complaints. The focus is on prevention of the cause of these issues through timely and accurate support for each customer. Areas of focus for 2023 include:

- Continue to focus on the WUTC "Consumer Upheld" complaint dispositions to identify root cause, to establish preventive and corrective actions, and follow-up to determine the effectiveness of the actions.
- Continue to improve PSE's company-wide customer experience by using knowledge gained in managing escalated complaints for training and education of others in PSE.
- Continue to work with the WUTC staff to make complaint response and resolution processes more efficient for the WUTC and PSE.

System Average Interruption Duration Index (SQI #3)

Table 2b: System Average Interruption Duration Results for 2023

Key Measurement	Type of Metric	Benchmark/Description	2023 Performance Results	Achieved
Electric Service Reliability				
Average Duration of Non-Major Event Day Interruptions per customer	**Service Quality Index #3**	**No more than 155 minutes per customer per year**	**167**	☐

Overview

System Average Interruption Duration Index ("SAIDI") measures the average number of electric service interruption minutes per electric customer per year. Most electric utilities use this measurement in reviewing the reliability of their electrical system, excluding interruptions that occur simultaneously to a significant portion of their customer base during extreme weather or other unusual events. The year end result of 167 minutes fell short of the 155 minute benchmark, however 2023 performance improved as compared to the 181 minutes in 2022. Outages caused by trees/vegetation and vehicles collisions with PSE equipment were significant contributors to the annual 2023 performance exceeding the SQI #3 benchmark of 155 minutes.

Chapter 3 provides more detail on electric service reliability performance and measures.

About the Benchmark

The SAIDI SQI is calculated by dividing the number of customer minutes interrupted by the total number of customers. The formula follows:

$$SAIDI = \frac{\Sigma\ Customer\ Minute\ Interruptions}{Average\ Annual\ Electric\ Customer\ Count}$$

Outages with durations 5 minutes or less and outages starting on Major Event Days are excluded from the performance calculation of this index per the electric power distribution reliability standard P1366, "Guide for Electric Distribution Reliability Indices", published by the Institutes of Electrical and Electronics Engineers ("IEEE"). This IEEE standard sets forth the above performance calculation and the removal of Major Event Day outages with additional adjustment for catastrophic events.

The average annual customer count is the average of the total monthly numbers of electric customers in January 2023 and December 2023.

Going Forward

PSE is actively taking steps to reduce the outage duration that customers experience. In order to reduce the outage duration, PSE has implemented and will continue these measures to help with this.

- Analytical tools to monitor and assess system performance to inform PSE of areas of greatest concern.
- A root cause analysis program to dig deeper into the causes of large or unusual events and identify potential future risk and opportunities for improvement.
- A grid modernization program to explore and implement new and advanced technologies that improve reliability, such as distributed energy resources, transmission line automation scheme, and battery storage to serve isolated customers during an outage.
- An asset management program which reduces the reliability risk by preventing or mitigating equipment failure through cost-effective maintenance and replacement programs such as cable remediation and pole replacement
- A long-range plan that continues the implementation of well-established electric system improvements. Through PSE's portfolio planning optimization process, reliability projects will continue to be chosen for implementation in a way that maximizes value and advances equity in serving its customers.

System Average Interruption Frequency Index (SQI #4)

Table 2c: System Average Frequency Results for 2023

Key Measurement	Type of Metric	Benchmark/Description	2023 Performance Results	Achieved
Electric Service Reliability				
Average Number of Non-Major Event Day Interruptions per customer	**Service Quality Index #4**	**No more than 1.2 interruptions per year**	**1.1**	☑

Overview

System Average Interruption Frequency Index ("SAIFI") measures the number of electric service interruptions per electric customer per year. Most electric utilities use this measurement in reviewing the reliability of their electrical system, excluding interruptions that occur simultaneously to a significant portion of their customer base during extreme weather or other unusual events. [21]

The year end result of 1.1 interruptions per year met the 1.2 interruptions per year benchmark. Chapter 3 provides more detail on electric service reliability performance and measures.

About the Benchmark

The SAIFI SQI is calculated by dividing the number of customers interrupted by the total number of customers. The formula follows:

$$SAIFI = \frac{\Sigma\, Number\ of\ Customer\ Interruptions}{Average\ Annual\ Electric\ Customer\ Count}$$

Outages with durations 5 minutes or less and outages starting on Major Event Days are excluded from this metric per IEEE electric power distribution reliability standard P1366, "Guide for Electric Distribution Reliability Indices".

The average customer count is the average of the monthly total numbers of electric customers in January 2023 and December 2023 for this reporting period.

[21] Per Order 24/10 of the consolidated Dockets UE-220066, UG-220067, and UG-210918 dated December 22, 2022, SQI SAIFI will be computed using only the latest electric power distribution reliability standard P1366, "Guide for Electric Distribution Reliability Indices", published by the Institutes of Electrical and Electronics ("IEEE"). This IEEE standard sets forth the above performance calculation, the removal of Major Event Day outages with additional adjustment for catastrophic events. The new SQI no. 4 benchmark will be at the average of no more than 1.2 interruptions per year per PSE electric-service customer.

Going Forward

PSE recognizes that continuous improvements are required to meet the SQI SAIFI benchmark. PSE will continue to implement several methods to help with this.

- Analytical tools to monitor and assess system performance to inform PSE of areas of greatest concern.
- A root cause analysis program to dig deeper into the causes of large or unusual events and identify potential future risk and opportunities for improvement.
- A grid modernization program to explore and implement new and advanced technologies that improve reliability, such as distributed energy resources, transmission line automation scheme, and battery storage to serve isolated customers during an outage.
- An asset management program which reduces the reliability risk by preventing or mitigating equipment failure through cost-effective maintenance and replacement programs such as cable remediation and pole replacement
- A long-range plan that continues the implementation of well-established electric system improvements. Through PSE's portfolio planning optimization process, reliability projects will continue to be chosen for implementation in a way that maximizes value and advances equity in serving its customers.

Customer Access Center Answering Performance (SQI #5)

Table 2b: Customer Access Center Answering Performance for 2023

Key Measurement	Benchmark	2023 Performance Results	Achieved
Customer Service			
Customer Access Center answering performance (SQI #5)	**At least 80% of calls answered by a live representative within 60 seconds of request to speak with live operator**	**87%**	☑

Overview

PSE's Customer Care Center (i.e. Customer Access Center) receives all of PSE's customer general inquiries and typically represents PSE to customers. Customers calling PSE have the option of going into an Interactive Voice Response ("IVR") system where they are able to perform self-serve transactions or to speak with a representative. PSE's customer service representatives ("CSRs") answer calls promptly providing customers with the information or assistance they require, including natural gas and electric emergencies. In 2023, the CSRs answered 87 percent of the calls within 60 seconds of customer requests, which didn't meet the benchmark of 80 percent.

About the Benchmark

The Customer Care Center call answering performance is measured from the time the customer initiated a request to speak with a CSR until a CSR arrived on the line. The annual performance is determined by the average of the 12 monthly call answering performance percentages. The calculation of the monthly answering performance is demonstrated through the following formula:

$$\textit{Monthly call answering performance} = \frac{\textit{aggregate number of calls answered by a company rep within 60 seconds}}{\textit{aggregate number of calls received}}$$

Busy Calls and Call Abandonment

PSE's phone system is configured with a backup system to handle overflow customer calls to 1-888-CALL-PSE. Overflow calls from PSE's main IVR system are routed to a separate IVR system provided by PSE's phone service vendor that enables customers to contact PSE through a different channel. PSE received about 2,018,000 customer calls via 1-888-CALL-PSE during 2023, 1 percent of the calls were abandoned by customers. All these 1-888-CALL-PSE calls went through either the main phone system or the overflow phone backup system and did not get the busy call signal.

Going Forward

PSE is engaged in initiatives to further the Customer Care Center's answering performance and ensure that the SQI #5 benchmark of 80% of calls being answered within 60 seconds will be achieved. In 2024, PSE will:

- Continue to deliver on-going agent training to improve proficiency and elevate the customer experience
- Continue to personalize the customer experience on PSE's website, presenting relevant self-service options and actionable information
- Continue to improve PSE's self-service options using customer data, allowing customers to complete various transactions online, 24 hours a day
- Continue to improve processes to optimize efficiency and leverage the information systems and technology
- Continue to improve the quality of each customer contact through the ongoing collaboration within the Customer Care Center

Customer Access Center Transactions Customer Satisfaction (SQI #6)

Table 2c: Customer Access Center Transactions Customer Satisfaction for 2023

Key Measurement	Type of Metric	Benchmark/Description	2023 Performance Results	Achieved
Customer Satisfaction				
Customer Access Center transactions customer satisfaction	**Service Quality Index #6**	**At least 90% satisfied (rating of 5 or higher on a 7-point scale)**	**95%**	☑

Overview

Most of the telephone calls to PSE's general customer help phone number 1-888-CALL-PSE are handled by PSE's Customer Care Center (*i.e.* Customer Access Center). EMC Research, an independent research company for PSE's Service Quality Program[22], conducted telephone surveys with PSE customers and prepared monthly and semi-annual reports on customer satisfaction regarding Customer Access Center transactions during the 2023 SQ Program reporting year. The independent survey-results found that 95 percent of customers surveyed were satisfied with the Customer Access Center's overall transaction performance (SQI #6). This is an increase of 1 percent from 2022.

About the Benchmark

An independent research company conducts phone surveys to customers who have made calls to PSE and asks the following questions:

> "Overall, how would you rate your satisfaction with this call to Puget Sound Energy? Would you say 7-completely satisfied, 1-not at all satisfied or some number in between?"

A customer is considered satisfied if they responded 5, 6 or 7. The annual performance is determined by the weighted monthly average percent of satisfied customers. The formula for the monthly percentage follows:

$$\textit{Monthly percentage of satisfied customers} = \frac{\textit{aggregate number of survey responses of 5,6 or 7}}{\textit{aggregate number of survey responses of 1, 2, 3, 4, 5, 6 or 7}}$$

[22] Per Order 21 in Dockets UE-072300 and UG-072301 (consolidated) issued by WUTC on April 8, 2013, EMC Research Inc. has been the exclusive survey company conducting and preparing the survey results for SQI #6 and #8. The methodology and procedures used by EMC Research Inc. was validated by Dr. MacLachlan of University of Washington as "being of high validity and reliability" as indicated in the Attachment A to PSE's compliance filing under Order 21 on June 21, 2013.

Going Forward

PSE recognizes that continuous improvements are required to maintain customer satisfaction.

PSE will continue to focus on improvement in customer satisfaction through quality assurance processes and technology enhancements, as well as on-going training and customer initiatives.

Gas Safety Response Time (SQI #7)

Table 2d: Gas Safety Response Time for 2023

Key Measurement	Type of Metric	Benchmark/Description	2023 Performance Results	Achieved
Operations Services				
Gas Safety Response Time	**Service Quality Index #7**	**Average 55 minutes or less from customer call to arrival of field technician**	**33 minutes**	☑

Overview

The primary responsibility of PSE's Gas First Response ("GFR") team is to respond to natural gas emergencies. In 2023, PSE responded to more than 20,000 emergency calls concerning natural gas safety with an average response time of 33 minutes. PSE responded to 94% of these gas emergencies within sixty minutes. These emergencies include reports of odors, third-party damage to PSE's system, and leaks and carbon monoxide concerns. The GFR team also supports local and state first-response organizations, such as fire departments. PSE has GFR personnel located throughout its service territory. These responders are available on a 24/7/365 basis.

In addition to responding to natural gas emergencies, the GFR team performs new customer meter service activation, including meter turn-ons and appliance light-ups; various natural gas system maintenance and inspection activities; adjusts and performs minor repairs on customer equipment; and monitors third-party construction excavation when it occurs near certain underground facilities.

The *Data and Reporting Issues* section describes the change in the collection and reporting of SQI #7 Gas safety response time.

About the Benchmark

The natural gas safety response time is calculated by logging the time each customer service call is created and the time the natural gas field technician arrives on site. The calculated response time for each service call is averaged for all emergency calls during the performance year to determine the overall annual performance.

$$\textit{Gas safety response time annual performance} = \frac{\textit{sum of all natural gas emergency response times}}{\textit{annual number of natural gas emergency calls received}}$$

Going Forward

PSE's natural gas emergency response process is continually assessed and improved where possible. Overall scheduling optimization that supports SQI #7 continues post-IWM implementation. The implementation of the after-hours emergency response call-out plan has improved dispatch cycle times and created a better distribution of work across the workforce.

Field Service Operations Transactions Customer Satisfaction (SQI #8)

Table 2e: Field Service Operations Transactions Customer Satisfaction for 2023

Key Measurement	Type of Metric	Benchmark/Description	2023 Performance Results	Achieved
Customer Satisfaction				
Field Service Operations transactions customer satisfaction	**Service Quality Index #8**	**At least 90% satisfied (rating of 5 or higher on a 7-point scale)**	**97%**	☑

Overview

EMC Research[23], an independent research company, conducts telephone surveys with PSE customers who have requested and received natural gas field service. In 2023, these surveys found that 97 percent of customers were satisfied with PSE's field service operations transaction performance.

About the Benchmark

Every week, EMC Research contacts randomly-selected customers who have called PSE the previous week and received natural gas field service. The firm prepares monthly and semi-annual reports on PSE's field service operations transaction performance.

Customers are asked a number of questions including the following question for the purpose of SQI #8:

> "Thinking about the entire service, from the time you first made the call until the work was completed, how would you rate your satisfaction with Puget Sound Energy? Would you say 7- completely satisfied, 1- not at all satisfied or some number in between?"

A customer is considered "satisfied" if they responded 5, 6 or 7.

The annual performance is determined by the weighted monthly average of percent of satisfied customers. The formula for the monthly percentage follows:

$$\textit{Monthly percent of satisfied customers} = \frac{\textit{aggregate number of survey responses of 5, 6 or 7}}{\textit{aggregate number of survey responses of 1, 2, 3, 4, 5, 6 or 7}}$$

[23] SQI-related customer surveys were conducted with applicable guidelines and the results are unbiased and valid in accordance with the survey procedures established in consolidated Dockets UE-011570 and UG-011571. EMC Research and the survey procedures used by EMC Research met these guidelines as detailed in PSE's compliance filing pursuant to the paragraph 13 of Order 21 of Dockets UE-072300 and UG-072301 (consolidated), Granting in Part, and Denying in Part, Puget Sound Energy, Inc's Petition for Waiver and Suspension of Service Quality Index Nos. 6 AND 8 (June 21, 2013).

Going Forward

PSE will be working to upgrade its current work management system in 2024-2025 to further improve service to its customers. Great customer service is a focal point for PSE field employees who strives to exceed customer expectations.

Appointments Kept (SQI #10)

Table 2f: Appointments Kept for 2023

Key Measurement	Type of Metric	Benchmark/Description	2023 Performance Results	Achieved
Operations Services				
Appointments kept	**Service Quality Index #10**	**At least 92% of appointments kept**	**99%**	☑

Overview

PSE provides its customers with a variety of scheduled service appointments including:

- **Permanent service**—Permanent natural gas service from an existing main or permanent electric secondary voltage service from existing secondary lines
- **Reconnection of existing service**—Reconnection following move-out, move-in or disconnection for non-payment
- **Natural gas diagnostic service request**—For water heater, furnace checkup, furnace not operating, other diagnostic or repair or follow-up appointments

Service appointments that involve safety do not require scheduling and are performed on a 24/7/365 basis. These non-scheduled services include restoring electric service or responding to a reported gas odor.

When a natural gas or electric customer requests a scheduled field service, PSE provides the customer with either a guaranteed appointment date and time-frame or a guaranteed commitment to provide service on or before a specified date.

In 2023, PSE achieved a result of 99% for this appointments kept SQI. Data on the 1% of the missed appointments and other appointment information by service type is detailed in Appendix F: *Customer Service Guarantee Performance Detail.*

About the Benchmark

The appointments kept SQI is calculated by dividing the number of appointments kept by the total number of appointments made. The formula follows:

$$\text{Appointments kept} = \frac{\text{annual appointments kept}}{\text{annual appointments missed + annual appointments kept}}$$

Appointments are considered missed when PSE does not arrive during the time period or on the agreed upon date except when the appointments have been missed due to the following reasons:

- The customer fails to keep the appointment
- The customer calls PSE to specifically request the appointment be rescheduled
- PSE reschedules the appointment because conditions at the customer site make it impractical to perform the service
- The appointment falls during an SQI Major Event[24] period

These types of appointments are not considered missed appointments but “excused” appointments. Appointments that were canceled by the customer, regardless of the customer’s reason, will be considered “canceled” appointments. Excused and canceled appointments are not counted as either kept or missed appointments. Additional appointments to complete repairs are considered new appointments.

Going Forward

PSE will continue to review the reasons for missed appointments and work to find solutions so that PSE can meet all its customer commitments

[24] Major Events occur when 5% or more electric customers are without power during a 24 hour period and associated carry-forward days that it will take to restore electric service to these customers, which are excluded from the performance calculations of SQI #4- SAIFI and SQI #11- Electric safety response time.

Electric Safety Response Time (SQI #11)

Table 2g: Electric Safety Response Time for 2023

Key Measurement	Type of Metric	Benchmark/Description	2023 Performance Results	Achieved
Operations Services				
Electric Safety Response Time	**Service Quality Index #11**	**Average 55 minutes or less from customer call to arrival of field technician**	**53 minutes**	☑

Overview

PSE responded to about 16,000 SQI #11 electric incidents in 2023 with an average response time of 53 minutes. PSE's EFR team has the primary responsibility of responding to electric outages and electric emergencies. Examples of the types of outages and emergency events that PSE responds to include: downed wires, equipment failures, car-pole accidents, bird and animal-related outages, trees or limbs on lines, third-party dig-ins, etc.

EFR personnel are located throughout PSE's service territory and are available to respond on a 24/7/365 basis. EFR's priority is to ensure public and worker safety and then to restore service to customers. After addressing safety concerns, service restoration is made through temporary or permanent repairs or reconfiguration of the electric system. If the repair is beyond the capability of EFR personnel, construction crews are called in to make permanent repairs.

Electric emergency response time is comprised of two components: dispatch time and on-site time. The time to dispatch an emergency is based on the required time to identify and secure a qualified electrical employee. On-site times are a measure of the drive time needed to get a qualified resource to the location of the electric emergency. However, this can be impacted by resource availability and starting location, the primary factors that affect this measure are traffic levels and traffic profiles. EFR drive times are also impacted by the weather itself- flooding, snow, fallen trees- reducing access and/or requiring rerouting to sites.

About the Benchmark

The electric safety response time for emergency incidents is calculated by logging the time of each customer service call and the time the EFR personnel arrives on site. The annual performance is determined by the average number of minutes from the time a customer calls to the arrival of the EFR personnel for electric safety incidents occurring during the performance year. The formula follows:

$$\textit{Annual electric safety response time} = \frac{\textit{sum of all response times}}{\textit{annual number of electric safety incidents}}$$

Certain incidents are excluded from the measurement if they occurred during the following days:

- SQI major events when 5% or more electric customers are without power during a 24-hour period and associated carry-forward days that it will take to restore electric service to these customers (“Major Events”).
- Localized emergency event days when all available EFR in a local area are dispatched to respond to service outages or safety incidents.

Going Forward

- PSE continues to evaluate staffing levels to ensure adequate support of both planned and unplanned workloads for the Electric First Response organization.
- PSE has implemented operational efficiency technology that will automate EFR callouts for all unplanned, emergency incidents across PSE’s service territory. The callout tool aims to streamline unplanned callouts for EFR and decrease the incident “dispatch” time. PSE is in the process of assessing and analyzing the benefits being delivered from this technology investment.

Service Provider Performance

Table 2h: Service Provider Performance for 2023

Key Measurement	Type of Metric	Benchmark/Description	2023 Performance Results	Achieved
Customer Services and Satisfaction and Operations Services				
Service provider standards compliance—Quanta Electric	Service Provider Index #1B[25]	Level 1 ≤ 15 dev/1000 Level 2 ≤ 25 dev/1000 Level 3 ≤ 25 dev/1000	Level 1 3.43 Level 2 3.51 Level 3 8.28	☑
Service provider standards compliance—Quanta Gas	Service Provider Index #1C[26]	Level 1 ≤ 8 dev/1000 Level 2 ≤ 15 dev/1000 Level 3 ≤ 12 dev/1000	Level 1 0.85 Level 2 2.17 Level 3 1.01	☑
Service provider appointments kept—Quanta Electric	Service Provider Index #3B[27]	At least 92% of appointments kept	98%	☑
Service provider appointments kept—Quanta Gas	Service Provider Index #3C	At least 92% of appointments kept	100%[28]	☑
Secondary safety response time—Quanta Gas	Service Provider Index #4D	Within 60 minutes from first response assessment completion to second response arrival	59 minutes	☑
Secondary core-hours, non-emergency safety response and restoration time—Quanta Electric	Service Provider Index #4B	Within 250 minutes from the dispatch time to the restoration of non-emergency outage during core hours	240 minutes	☑
Secondary non-core-hours, non-emergency safety response and restoration time—Quanta Electric	Service Provider Index #4C	Within 316 minutes from the dispatch time to the restoration of non-emergency outage during non-core hours	253 minutes	☑

[25] Level 1: Deviation from PSE Standards and/or current regulatory expectations that provide immediate and significant risk to product quality, safety or system integrity; or a combination/repetition of Level 2 deficiencies that indicate a critical failure of systems.
Level 2: Deviation from PSE Standards and/or current regulatory expectations that provide a potentially significant risk to product quality, safety or system integrity; or could potentially result in significant observations from a regulatory agency; or a combination/repetition of Level 3 deficiencies that indicate a failure of system(s).
Level 3: Observations of a less serious or isolated nature that are not deemed Level 1 or 2, but require correction or suggestions on how to improve systems or procedures that may be compliant but would benefit from improvement.
[26] See Footnote 17.
[27] There were no results for Service Provider Indices (SPI) #1A, #2A, #3A and #4A. These indices were assigned to a service provider, Pilchuck, which no longer works for PSE. PSE transitioned all natural gas construction and maintenance work to Quanta Gas as of April 30, 2011. Service Provider Indices #2B and #2C, Service Provider Customer Satisfaction, Quanta Electric and Quanta Gas, respectively, which were applicable in prior years' reports, have been terminated since the 2013 reporting period.
[28] Actual performance results were rounded from 99.6%.

Overview

This section details the service provider metrics relevant to PSE's SQ Program. PSE monitors and assesses the performance of its primary natural gas and electric service providers (Quanta Gas and Quanta Electric). The metrics address PSE standards compliance, new construction service appointments, and safety response and restoration time. Each measure is designed to monitor and improve PSE's service.

About the Benchmark

Service Provider Standards Compliance (SPI #1)—Service providers must achieve a level of conformance to PSE Standards, where the metric is segregated across three relative risk levels assigned to the construction inspection items to support the establishment of continuous improvement activities according to risk.

At Level 1, the deviation from PSE Standards and/or current regulatory expectations that provide immediate and significant risk to product quality, safety or system integrity; or a combination/repetition of Level 2 deficiencies that indicate a critical failure of systems. At Level 2, the deviation from PSE Standards and/or current regulatory expectations that provide a potentially significant risk to product quality, safety or system integrity; or could potentially result in significant observations from a regulatory agency; or a combination/repetition of Level 3 deficiencies that indicate a failure of system(s). Level 3 includes the observations of a less serious or isolated nature that are not deemed Level 1 or 2, but require correction or suggestions on how to improve systems or procedures that may be compliant but would benefit from improvement.

The benchmarks for the three levels are as follows:

Quanta Gas

- For Level 1 inspection items: ≤ 8 deviations/1000 items inspected
- For Level 2 inspection items: ≤ 15 deviations/1000 items inspected
- For Level 3 inspection items: ≤ 12 deviations/1000 items inspected

Quanta Electric

- For Level 1 inspection items: ≤ 15 deviations/1000 items inspected
- For Level 2 inspection items: ≤ 25 deviations/1000 items inspected
- For Level 3 inspection items: ≤ 25 deviations/1000 items inspected

Service Provider New Customer Construction Appointments Kept (SPI #3)—Quanta Gas and Quanta Electric must keep at least 92% of their new customer construction appointments.

Secondary Safety Response Time (SPI #4)—This SPI consists of three sub-indices:

- **Service Provider Indices #4B and #4C**—Quanta Electric's secondary safety response and restoration time during core and non-core hours, respectively. Quanta Electric must

respond and complete power restoration in less than 250 minutes on average during core hours (SPI #4B) and less than 316 minutes on average during non-core hours (SPI #4C). Core hours are 7:00 a.m.–3:30 p.m., Monday through Friday, except holidays. Restoration time is measured from the time a Quanta Electric crew is dispatched to the time the problem causing the interruption has been resolved and the line has been re-energized. Both the core-hours and non-core-hours measurements exclude emergency events and significant storm events.

- **Service Provider Index #4D**—Secondary safety response time—Quanta Gas. Quanta Gas must respond within 60 minutes on average from PSE's Gas First Response assessment completion to the service provider's secondary response arrival.

Service Provider Appointments and Related Penalties

Table 2i shows the number of new customer construction appointments completed by PSE service providers and the amount of penalties paid due to missed appointments.

Table 2i: Service Provider Appointments and Missed Appointment Penalties for 2023

Service Provider Appointments[29]				Missed Appointment Penalties		
Service Provider	**Electric**	**Natural Gas**	**Total**	**Electric**	**Natural Gas**	**Total**
Quanta Gas	N/A	4,352	4,352	N/A	$2,450	$2,450
Quanta Electric	6,758	N/A	6,758	$950	N/A	$950
Total	**6,758**	**4,352**	**11,110**	**$950**	**$2,450**	**$3,400**

Going Forward

- Identify areas of improvement to meet core-hour benchmark of 250 minutes
- Identify and implement improvements to customer scheduling for new construction

[29] 98 Excused appointments (82 electric and 16 natural gas) are not included in the totals shown in Table 2i. Missed appointments exclude appointments that are "excused" per APPENDIX 2 to Exhibit J (consolidated Dockets UE-011570 and UG-011571) as updated in the compliance filing per Order 25 of Consolidated Dockets UE-072300 and UG 072301.

Service Guarantees

Overview

PSE offers two types of service guarantees to its customers: Customer Service Guarantee (Service Guarantee #1) for a scheduled appointment and Restoration Service Guarantees (Service Guarantee #2 and Service Guarantee #3) for electric service restoration.

PSE promotes its Customer Service Guarantee and the Restoration Service Guarantees on pse.com, the back of billing stock, and on the billing/return envelope. It is also highlighted in the customer newsletter[30] as part of customer bill inserts. These promoting efforts are detailed in Appendix F: Customer Service Guarantee Performance Detail.

PSE also surveys its customers monthly about the Customer Service Guarantee. Appendix G discusses the ways PSE has made customers aware of its Customer Service Guarantee and the results of the customer awareness survey.

Customer Service Guarantee

The Customer Service Guarantee ("CSG") is designed to give customers a $50 missed appointment credit if PSE or its service providers fail to arrive by the mutually agreed upon time and date to provide one of the following types of service:

- **Permanent service**—Permanent natural gas service from an existing main or permanent electric secondary voltage service from existing secondary lines
- **Reconnection**—Reconnection following move-out, move-in or disconnection for non-payment
- **Natural gas diagnostic service request**—For water heater, furnace checkup, furnace not operating, other diagnostic or repair or follow-up appointments

This service appointment guarantee applies in the absence of Major Events, earthquakes, supply interruptions or other adverse events beyond PSE's control. In these cases, PSE will reschedule service appointments as quickly as possible.

The number of CSG by energy, service type, and month is detailed in Appendix F: *Customer Service Guarantee Performance Detail*. For additional details on the promotion and communication of CSG, see Appendix G: *Customer Awareness of Service Guarantee.*

[30] SQI settlement requirement: "A promotion of the customer service guarantee will be included in the customer newsletter at least three times per year."

Restoration Service Guarantees

PSE has two Restoration Service Guarantees ("RSG") under the conditions of electric Schedule 131 that provides a $50 credit to a qualified customer who experiences a prolonged outage during a non-storm event for more than 24 consecutive hours or is out of electric service for at least 120 consecutive hours for any outage. To receive the RSG credit, affected customers must report the outage or request the credit within seven days of their service restoration. The 120-hour Restoration Service Guarantee has been effective since November 1, 2008. The 24-hour Restoration Service Guarantee became effective on January 1, 2017, which was established to replace the SQI #3 SAIDI performance penalty mechanism.

Both Restoration Service Guarantees will be suspended if PSE lacks safe access to its facilities to perform the needed repair work. To receive either or both the service guarantee payments, affected customers must report the outage or apply within seven days after the restoration of their electric service. Outages caused, or restorations impeded, by Customer equipment are not eligible. If PSE cannot safely access its facilities, the 24-hour or 120-hour period begins when safe access is made available for personnel and equipment.

The maximum credit payment to customers for the 120-hour Restoration Service Guarantee is $1.5 million. There is no limit of PSE's 24-hour Restoration Service Guarantee credit payment to customers.

The availability of the 120-hour Restoration Service Guarantee is emphasized and messaged in PSE's phone system when customers call and report their outage during a major outage event, when 5% or more PSE electric customers are without power, or when PSE opens its Emergency Operations Center in response to a significant outage event.

Customer Service Guarantee Credits

In 2023, PSE credited customers a total of $18,100 for missing 362 of the 29,349 Customer Service Guarantee applicable appointments (i.e., SQI #10 appointments). While there were less applicable appointments, the number of Customer Service Guarantee Credits paid to customers is about the same. In 2022, PSE credited customers a total of $17,400 for missing 348 of the 31,538SQI #10 appointments.

Table 2j provides summary values of Service Guarantee counts and payments to customers in 2023 by service type.

Table 2j: 2023 PSE SQI #10 Appointment Count and Customer Service Guarantee Credits

	SQI #10 Appointment Counts[31]			Customer Service Guarantee Payments to Customers		
Service Type	**Electric**	**Natural Gas**	**Total**	**Electric**	**Natural Gas**	**Total**
Permanent Service	6,758	4,352	11,110	$950	$2,450	$3,400
Reconnection	1,819	5,932	7,751	$1,350	$4,500	$5,850
Diagnostic	N/A	10,488	10,488	N/A	$8,850	$8,850
Total	**8,577**	**20,772**	**29,349**	**$2,300**	**$15,800**	**$18,100**

Appendix F: *Customer Service Guarantee Performance Detail* provides additional detail on missed appointments along with the credits paid by month and appointment service type as of December 31, 2023.

Restoration Service Guarantee Credits

PSE is committed to reviewing all prolonged outages that may trigger the Restoration Service Guarantees and any customer requests for the RSG credit within 30 days of a request. In 2023, some customers experienced an extended outage and received a $50 RSG credit because PSE field personnel took longer to locate and repair the failed underground service or waited longer for the arrival of needed equipment.

The winter was harsh in the mountain regions and snow caused delays. Environmental conditions; such as posted avalanche danger, flooding, slide areas and blocked roads – can suspend the timeframe allowed for qualifying for the credit until the danger has cleared or safe access can be reestablished. If a crew needed other materials/equipment to complete the task and needed to go down for rest before returning – these affected customers are eligible for the RSG. With respect to underground facility outages--failing concentric neutrals that hamper locating faults in direct buried primary cable, or unmarked/poorly mapped handholes for secondary connections that hamper restoration efforts-- these affected customers are also eligible for the RSG. Available crews reaching work limits and the outage not being re-assigning to another crew is also a reason to have a credit payment to a customer if beyond 24 hours for restoration.

[31] 98 Excused appointments (82 electric and 16 natural gas) are not included in the totals shown in Table 2i. Missed appointments exclude appointments that are "excused" per APPENDIX 2 to Exhibit J (consolidated Dockets UE-011570 and UG-011571) as updated in the compliance filing per Order 25 of Consolidated Dockets UE-072300 and UG 072301.

Table 2k: 2023 PSE Restoration Service Credit Payment Count and Credit Payments

Key Measurement	Type of Metric	Benchmark/Description	No. of Customers	Restoration Service Guarantee Payments to Customers
120-consecutive – hour power outage restoration guarantee	**Service Guarantee #2**	**A $50 credit to eligible customers when experienced a power outage is longer than 120 consecutive hours**	**0**	**$0**
24-consecutive-hour non-major storm power outage restoration guarantee	**Service Guarantee #3**	**A $50 credit to eligible customers when experienced a power outage is longer than 24 consecutive hours during non-major storms**	**503**	**$2,500**
Total			**503**	**$2,500**

Customers Experiencing Multiple Interruptions

As agreed to in Order 29 of consolidated Dockets UE-072300 and UG-07230, PSE began tracking and reporting on Customers Experiencing Multiple Interruptions ("CEMI") in 2018. CEMI indicates the ratio of individual customers experiencing 0 to 11 or more sustained Non-Major Event Day ("Non-MED") interruptions to the average annual number of electric customers served.

Table 2n shows the 2023 PSE's Non-MED CEMI results. In 2023, 72 percent of customers experienced one or less outage, a decrease from 2022 when 76 percent of customers experience one or less outage.

Table 2n: Customer Experiencing Multiple Interruptions Results for 2023

Number of Interruptions	Number of customers experiencing interruptions	Percent of customers experiencing interruptions
0	543,458	44%
1	339,479	28%
2	193,616	16%
3	89,180	7%
4	31,765	3%
5	13,971	1%
6	6,519	1%
7	2,513	< 1%
8	840	< 1%
9	404	< 1%
10	243	< 1%
11+	248	< 1%

In addition to SAIDI and SAIFI, CEMI offers another perspective on the electric customer experience with respect to electric service reliability. This metric is primarily used to identify specific pockets of customers experiencing poor reliability that might not surface at system-wide or circuit level metrics. CEMI can more directly reflect how specific customers or pockets of customers experience reliability. In general, PSE aims to reduce the percentage of customers experiencing a high frequency of interruptions.

CEMI is one of the Poorest Performing Circuits ("PPC") criteria when planning for PSE's electric service reliability projects. In the latest three-year span of 2021-2023, circuits with customers experiencing 6 or more interruptions in a single year are flagged for review. The CEMI data along with other PPC information helps identify projects (underground conversion, reclosers, fusesavers, etc.) that reduce customers experiencing multiple interruptions.

CHAPTER 3

Electric Service Reliability

EXECUTIVE SUMMARY

Providing safe, reliable and efficient electric service at a reasonable cost is a top priority for PSE. As required by WAC 480-100-393 and 480-100-398 and per the newly Commission-accepted PSE's 3rd Modified Electric Reliability Monitoring and Reporting Plan ("Plan") under Docket UE-230522, this chapter details PSE's2023 electric service reliability related performance results and actions in addition to going-forward measures. This executive summary provides an overview of performance results. The body of the report contains further analysis and information as outlined in PSE's Plan. **Appendices H – I** also satisfy the requirements of the Plan.

The two most common industry methods for measuring electric reliability performance, and the metrics designated in this report as SQI #3 and #4, are System Average Interruption Duration Index ("SAIDI") and System Average Interruption Frequency Index ("SAIFI"). These metrics, along with Customers Experiencing Multiple Interruptions ("CEMI") and customer complaint metrics, help PSE understand the different ways customers experience reliability and changes in reliability. Though limited, reviewing these metrics over a period of years indicates trends and progress PSE is making to improve electric system reliability.

Both SAIDI and SAIFI vary greatly from year to year due to a number of factors, but primarily fluctuate due to differences in weather.

The length of power outages per customer has continued to decrease in 2023. SQI #3 SAIDI has dropped in the last three years: 207 minutes in 2021, 181 minutes in 2022, and now 167 minutes in 2023. Although there has been a decrease, the 2023 SAIDI performance still exceeded the SQI #3 SAIDI benchmark of 155 minutes. Three big contributors to outages impacting SQI #3 SAIDI and SQI #4 SAIFI performance in 2023 were trees/vegetation, equipment failures, and vehicle accidents.

The largest contributor to SQI #3 SAIDI and SQI #4 SAIFI performance results was tree/vegetation related outages. In November, there were pockets of wind and rain throughout the month causing trees/vegetation to fall onto the transmission system, resulting in long outages for many customers. In addition to the trees/vegetation related outages across several areas of the transmission

system, there were also many tree/vegetation related outages on the distribution system.

The second largest contributor was equipment failures, with about 27% of the Customer Minute Interruptions ("CMI") being related to underground primary conductor failing, compared to 17% in 2022. Over the last couple years, there has been an uptick in underground cable failures, specifically on aging direct buried underground cable. These cables, reaching end of life, are susceptible to multiple failures after failing the first time.

The third largest contributor was vehicle accidents. PSE saw a higher-than-normal amount of outages caused by vehicle accidents in the months of February, June, August, November, and December 2023. Vehicle accident-caused interruptions have been steadily increasing over the past few years, though no cause for this trend has been identified.

SUMMARY OF RELIABILITY PERFORMANCE

Per WAC 480-100-393(3)(a), Table 3a details PSE's full electric system reliability performance in 2023 for SAIDI and SAIFI:

- Annual total results include all sustained outages
- SQI results include all sustained outages, excluding Major Event Days
- SQI targets are those prescribed under PSE's Service Quality Program

Table 3a: 2023 Reliability Performance

	SAIDI	SAIFI
Annual Total	203	1.3
SQI Results	167	1.1
SQI Targets	155	1.2

SUMMARY OF CUSTOMER COMPLAINTS

Per WAC 480-100-398(4), Table 3b on the following page details the total number of customer complaints about electric service reliability, power quality, and Major Events in 2023. The complaints are differentiated between those filed with the Washington Utilities and Transportation Commission and PSE. Complaints are defined as the following:

- WUTC electric service quality complaints regarding outage duration, outage frequency, and power quality, excluding complaints related to a Major Event
- PSE Complaints are two or more inquiries received by PSE from the same customer regarding outage duration, outage frequency, and power quality in the reporting year and previous year, excluding the inquiries related to a Major Event
- Major Event complaints are a WUTC complaint or at least one of the two PSE inquiries which were recorded during the Major Event and up to one week of end of Major Event.

The WUTC complaint or one of the PSE inquiries must be regarding outage duration, outage frequency, or power quality

Table 3b: 2023 Customer Complaints

Complaint Type	WUTC	PSE
Reliability	16	6
Power Quality	7	4
Both Reliability and Power Quality	2	3
Major Event	3	7
Total	**28**	**20**

SUMMARY OF MAJOR EVENTS

Days that exceed the annual adjusted Major Event Day Threshold (T_{MEDADJ}) are excluded from the SAIDI and SAIFI performance calculation. PSE's SQI SAIDI and SAIFI calculation is based on the standard published by Institute of Electric and Electronics Engineers ("IEEE"). Per IEEE Standard 1366-2003-2.5 Beta methodology and PSE is allowed to adjust catastrophic days (T_{CAT}). A catastrophic day is defined as any day that exceeds the 4.5 Beta threshold.

Table 3c details the dates, causes, and affected areas of the 2023 days that exceeded the adjusted Major Event Day threshold. The 2023 T_{MEDADJ} was 8.0 minutes and the 2023 T_{CAT} was 116.25 minutes.

Table 3c: 2023 Major Event Days

Major Event Day	Daily SAIDI	Cause	Affected Areas
1/4/2023	12.88	Wind	King County
1/9/2023	10.02	Wind	King County
11/11/2023	12.75	Wind	Island, Pierce, Skagit, Thurston, and Whatcom Counties

SUMMARY OF ACTIONS MOVING FORWARD

Limitations of SAIDI as a Metric in Guiding Reliability Strategy

While used as an industry standard for monitoring performance trends in reliability over time, SAIDI is not perfect and may vary significantly from one measurement period to the next due to events that are random in nature, such as weather of varying extremes and motor vehicle accidents inflicting damage on electric system infrastructure. Due to significant variability from year-to-year in reported SAIDI performance, PSE utilizes additional metrics and analysis tools internally to inform planning of investments and programs to improve service reliability.

Metrics and Tools to Inform Reliability Strategy

PSE has many analytical tools and metrics to monitor and assess system performance to identify areas of improvement. These tools include:

- Delivery System Scorecard – developed in 2023 to incorporate system performance parameters and energy equity considerations into a holistic view, this tool supports needs identification and geospatial awareness to inform system planning decisions that ensure desired levels of benefit are provided to named communities.
- CEMI Histograms Report - shows the number of customer interruptions by area, informing system planners of locational needs for additional investments in reliability projects.
- Outage KPIs Dashboard – provides visualization of CMI, SAIDI, and SAIFI by different characteristics to enable system planners to more thoroughly understand reliability issues and develop projects that will most effectively address the reliability need.
- Poor Performing Circuit Dashboard – used to determine “circuits of greatest concern” by identifying circuits that exceed four or more of seven reliability thresholds. This tool increases the likelihood of developing projects to provide timely attention to emerging reliability concerns.
- SAIDI/SAIFI Real Time Summary Dashboard - shows the SAIDI and SAIFI in real time and is used on a frequent basis, including a monthly reliability review and root cause analysis meeting attended by personnel from across electric functional areas for operations, engineering and planning.

These tools and the data analytics and metrics produced are under continuous development, review and improvement. To support this continuous improvement, in 2023 PSE engaged Guidehouse, a consulting firm to conduct a reliability benchmarking study for the purpose of confirming PSE is using the best available metrics for informing reliability strategy decisions. This study compared PSE’s reliability reporting practices to those of 15 other utilities in the Northwest and Western regions of the United States, reviewed the national landscape of reliability reporting through a comparison to reliability reporting requirements in eight states outside of Washington that spanned the Midwest and east coast, plus conducted a review of reporting practices at seven additional utilities outside the Northwest. This study confirmed SAIDI and SAIFI are the industry standard, but acknowledged they are not fully controllable by the utility. Additional reliability metrics are emerging and Guidehouse made recommendations for PSE’s consideration going forward.

As informed by the benchmarking study, PSE is evaluating the following possible enhancements in reliability analysis going forward:

- Continuation of SAIDI and SAIFI as primary metrics, but with scheduled and customer outages tracked separately.

- Tracking of Customer Average Interruption Duration Index ("CAIDI") for greater insight to PSE's performance throughout the restoration process, which expands upon first response time currently tracked under Electric Safety Response Time SQI #11.
- Continued use of CEMI, with a focus on investments to improve the 10 worst performing circuits which can have a significant impact on overall reliability performance metrics.
- Considering approaches to weather normalization, such as benchmarking against neighboring utilities to understand the impacts of regional weather variations that are impacting other utilities as well.
- Dividing weather impacts into additional categories beyond Major Event Days, such as tracking minor storm separately from blue sky days to gain greater insight into system performance under varying levels of weather events.

These analysis tools, and additional metrics or methods that may be deployed as a part of PSE's continuous improvement efforts, will inform both operational actions and the planning of system investments for improved reliability, which are discussed in the following paragraphs.

Operational Actions to Improve Reliability

PSE employs a root cause analysis ("RCA") program to dig deeper into the causes of large and/or recurring events and identify potential future risks to reliability that can be mitigated through system investments and operational improvements. This program includes a monthly reliability performance review meeting attended by executive leadership and operations, engineering and system planning personnel from across PSE, and provides a feedback mechanism that informs adjustments to reliability programs and investments in response to changing circumstances.

Recent actions taken that have been an outcome of the RCA program include:

- Line spacers for reduced line slap – Outcome from this RCA program is significant with direct impact on electrical system reliability. It is an ongoing effort to identify and mitigate new line slap events. In 2023 PSE completed eight projects and assigned six new projects for implementation. The line spacers program minimizes customer interruptions and improves system reliability by allowing reclosers to work as intended to reduce the impact of sustained faults on main feeder lines.
- Switch replacement – The RCA program is focused on replacing obsolete live front switches with new dead front switches for the purpose of reducing outages caused by animals, foliage or contaminants which are more likely to cause outages on live front switches.
- Copper Napthenate ("Cu Nap") pole replacements – The RCA program started coordinating and monitoring replacement of Cu Nap treated poles following an incident in July 2023 that involved a failed transmission pole that was found to have a one inch hollow interior caused by fungi. PSE received more than two thousand poles between 2008 and 2010 that were treated with Cu Nap biodiesel. The purchase of poles with Cu

Nap treatment was subsequently suspended, but poles in service with the biodiesel treatment have reduced efficacy of protecting against a particular type of rot fungi. Seven transmission poles with this treatment type were replaced in areas critical for safety and reliability during 2023, and additional poles with the Cu Nap biodiesel treatment are being identified for replacement going forward.

- Outage data improvement – Additional engineering resources have been allocated within PSE to routinely review outage data and provide quality management of information as it is collected and before it is used by personnel in preparing reliability reporting and subsequent planning functions. This ensures consistency of reporting and improves effectiveness of reliability planning functions.

The monthly performance review meetings conducted by the RCA team and in-depth RCA investigations promote a culture of continuous improvement and maintain operational focus on maintaining reliable service to all customers served by PSE.

System Investments to Improve Reliability

Many investments in PSE's electric delivery system infrastructure contribute multiple benefits to grid operation. For example, a project replacing aging overhead conductor not only makes the system more resilient to high wind events and falling branches, but also increases system capacity for integrating distributed energy resources that can improve reliability through added operational flexibility.

As shared in the previous Service Quality and Electric Service Reliability Reports, system investments are evaluated based on plans and actions that provide energy that is reliable, resilient, clean, smart and flexible. **Figure 3a** illustrates PSE's grid modernization approach as a triangle of the identified service characteristics. While this chapter focuses on electric service reliability performance, actions and efforts discussed within also drive the multiple values of the adjacent characteristics.

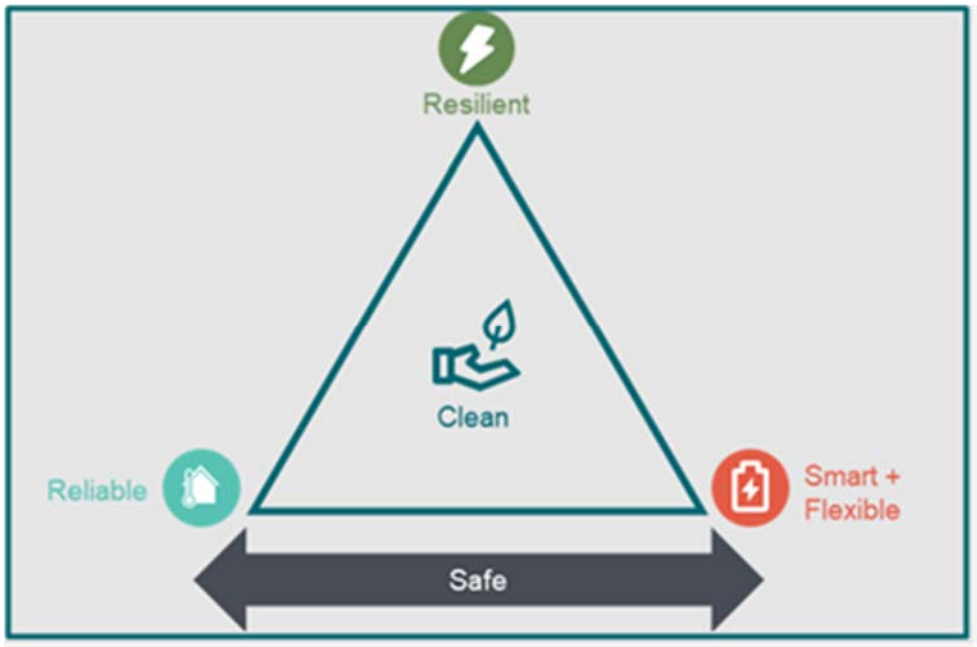

Figure 3a: PSE's grid modernization vision

Table 3d summarizes PSE's planned system investments that support improved electric system reliability. These investments support both clean energy transformation and reliability.

Table 3d: Planned Electric System Investments

Investment Category	Example Programs	Primary Benefits
Electric Maintenance	• Pole Inspections and Remediation • Substation Reliability	• Reliability • Avoided Outages
Capacity	• DER and Microgrid • Targeted Capacity • DER Enablement	• Clean Energy • Reliability
Automation	• Distribution and Transmission Automation • Substation Supervisory Control and Data Acquisition ("SCADA")	• Reliability • Customer Service Gaurantees • Customer Satisfaction • Operations Safety
Cable Remediation	• Cable Remediation	
Circuit Modernization	• Targeted Reliability • Underground Conversion	
Electric System Upgrades	• Fusesavers • Resilience Enhancement • Service Transformer Upgrade	
Submarine Cable Mitigation	• Submarine Cable Replacement	• Avoided Outages
Major Backbone Infrastructure	• Seabeck Area Reliability • Greenwater Tap Reliability	• Reliability • Capacity

Focus on Advancing Energy Equity

Through PSE's portfolio planning optimization process, reliability projects will continue to be chosen for implementation in a way that maximizes value and advances equity in serving all customers. PSE evaluates equity in the planning process with consideration of the four core tenets of energy justice: Recognition, Procedural, Distributional, and Restorative.

Investments in system reliability and resiliency are evaluated and prioritized utilizing PSE's investment decision optimization tool ("iDOT"), which has been enhanced to include equity-related benefits with input from PSE's Equity Advisory Group[32]. This tool will continue to be updated, including incorporation of outcomes of the Commission Staff-led process to refine methods for distributional equity analysis expected to be completed in 2024. Additionally, in 2023, PSE piloted a customer engagement framework to better understand the impacts and customer energy burdens from power outages occurring on a circuit that serves an area of vulnerable population and deepest need customers. This pilot informed development of an engagement approach to enable customers in highly impacted communities, who will be most impacted from PSE's electric delivery system planning decisions, to have the opportunity to participate in development of electric system planning solutions. Subsequent engagement is being planned in 2024 that will continue to advance community involvement in local energy delivery system planning.

Challenges to Maintaining Reliability Performance

As wildfire risk continues to increase across PSE's service territory, PSE has developed an extensive wildfire mitigation plan to reduce ignition risk associated with electric delivery. The mitigation plan includes, but is not limited to, enhanced protection settings, Public Safety Power Shutoff ("PSPS"), overhead to underground conversions, and installation of arc containing fuses. This mitigation plan has been a high priority for PSE to ensure the safety of customers and integrity of the system.

It is important for safety to take precedent in decision making related to wildfire risk mitigation, therefore in PSE's recently filed general rate case (Docket UE-24004) PSE proposes to remove outage durations associated with PSPS and outages occurring in areas with unsafe conditions that result in access to make repairs being prohibited by other agencies such as Washington State Department of Transportation or Natural Resources. Additionally, PSE is proposing to remove pre-scheduled outages from the metric, as customers have an opportunity to prepare for this type of event and find it less disruptive than an unplanned outage.

[32] A community stakeholder group that advises PSE on equitable delivery of benefits and burden reduction related to the clean electric energy transformation in PSE's implementation of Washington State's the Clean Energy Transformation Act.

If approved, these proposed changes will enable PSE to better measure and report true reliability performance during non-extreme unplanned events, not resilience during extreme events when PSE's ability to respond is encumbered. The changes will also isolate impacts of increased scheduled outages that are becoming necessary to prepare the grid to support growing load and integration of distributed resources as part of the clean energy transformation.

BASELINE YEAR

As agreed to in the settlement and final order of PSE's general rate case filing under Dockets UE-220066 and UG-220067, PSE established 2014 as its baseline ("Baseline") year. A multi-year trend of data collected with similar methods provides a more meaningful perspective on reliability performance versus comparison to a single year. Where data is available, trends will be compared to Baseline as well as the most recent seven years of performance.

TRENDS IN RELIABILITY MEASURES

Table 3e presents System Wide results for the most recent seven years of performance in comparison to Baseline.

Table 3e: System Wide SAIDI and SAIFI

Calendar Year	Annual Total SAIDI Results	Annual Non-Major SAIDI (SQI #3) Results	Annual Total SAIFI Results	Annual Non-Major SAIFI (SQI #4) Results
Baseline	540	153	1.9	1.0
2017	477	175	1.8	1.1
2018	434	145	1.5	1.0
2019	550	136	1.6	1.0
2020	414	165	1.7	1.0
2021	849	207	2.3	1.3
2022	447	181	1.7	1.0
2023	202	167	1.3	1.1

Non-Major Event SAIDI Performance (i.e., SQI #3)

In 2023, PSE's Non-Major Event Day ("Non-MED") SAIDI was 167 minutes compared to a target of 155 minutes.

Figure 3b on the following page shows the Non-MED SQI #3 SAIDI results for the past 7 years in comparison to the Baseline year of 153 SAIDI minutes and the SQI #3 Benchmark of 155 SAIDI minutes. The volatility is typically due to the number and severity of weather events that are not excluded from the metric because they do not qualify as Major Event Days but have a significant

impact nonetheless.

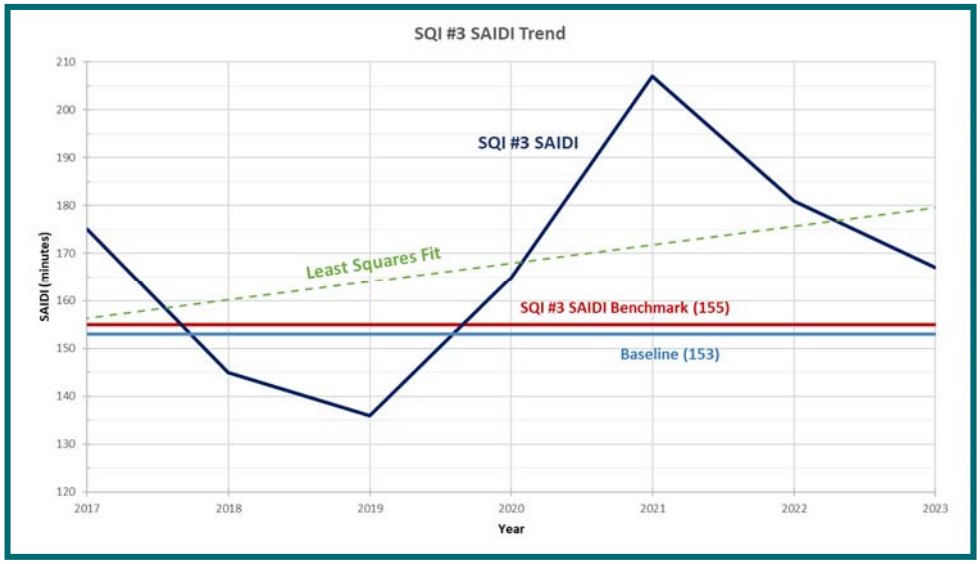

Figure 3b: Trend in SQI #3 SAIDI

Figure 3c shows the most significant increases and decreases in 2023 SQI #3 SAIDI minutes associated with outage cause categories as compared to the Baseline. Vegetation and equipment failures, primarily affected by weather events, were responsible for the majority of the increase between 2023 SQI #3 SAIDI and the baseline. Customer interruptions caused by unknown factors, which saw the largest decrease compared to the Baseline, has been declining steadily over the past few years, most likely as a result of improvements made in determining and categorizing outage cause types.

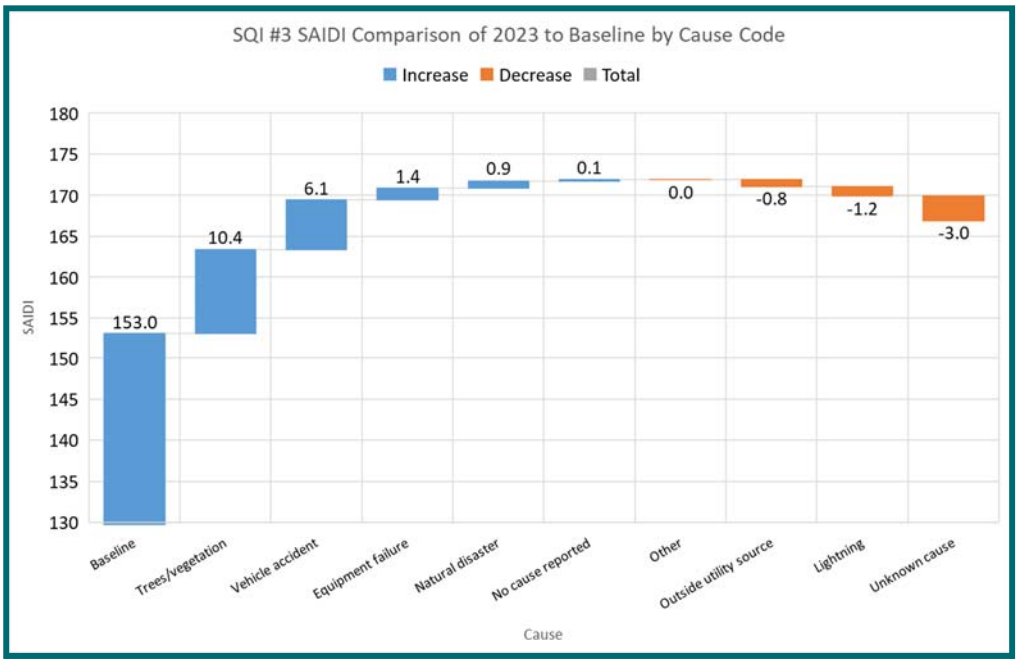

Figure 3c: 2023 SQI #3 SAIDI contribution by cause compared to the Baseline

Non-Major Event SAIFI Performance (i.e., SQI #4)

In 2023, PSE's Non-MED SAIFI was 1.1 interruptions compared to a target of 1.2 interruptions.

Figure 3d shows the most significant increases and decreases in 2023 SQI #4 SAIFI minutes associated with outage cause categories as compared to the Baseline. Equipment failure, tree/vegetation, and vehicle accidents were the most notable changes relative to the baseline. Vehicle accident caused interruptions have been steadily increasing over the past few years, though no cause for the trend has been identified. Customer interruptions caused by unknown factors has been declining steadily over the past few years, most likely as a result of improvements to categorizing cause types. Changes to trees and vegetation caused customer interruptions are primarily impacted by variations in weather.

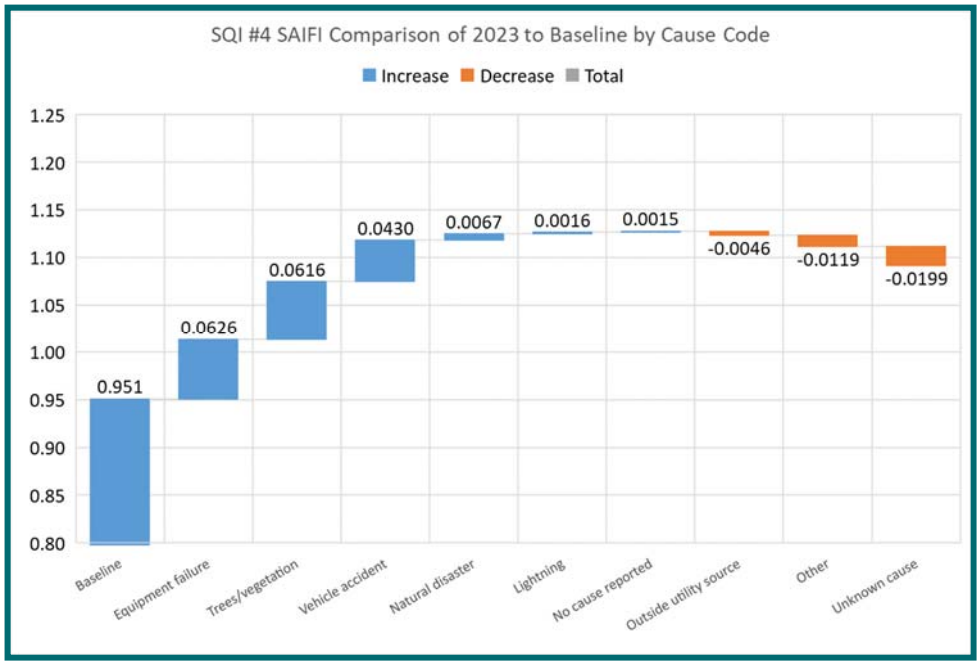

Figure 3d: 2023 SQI #4 SAIFI contribution by cause compared to the Baseline

Non-Major Event CEMI Performance

As agreed to in Dockets UE-072300 and UG-072301 Order 29, PSE began tracking and reporting on CEMI in 2018. **Figure 3e** on the following page shows PSE's Non-MED CEMI results for the last 6 years. As PSE did not start tracking CEMI until 2018, reporting the baseline year and the most recent 7 years of performance is not possible.

The results of 2023 show that 72 percent of customers experienced one or less outages, a decrease from 2022 when 76 percent of customers experienced one or less outages. In addition to SAIDI, which is largely dependent on the extent of damage, number of customers associated with a particular outage, and restoration duration, CEMI offers another perspective on the customer experience with respect to reliability. In general, PSE aims to reduce the percentage of customers experiencing a high frequency of interruptions. This metric is primarily used by PSE to identify specific pockets of customers experiencing poor reliability that might not surface at system-wide or

circuit level metrics, but also can more directly reflect how customers experience reliability.

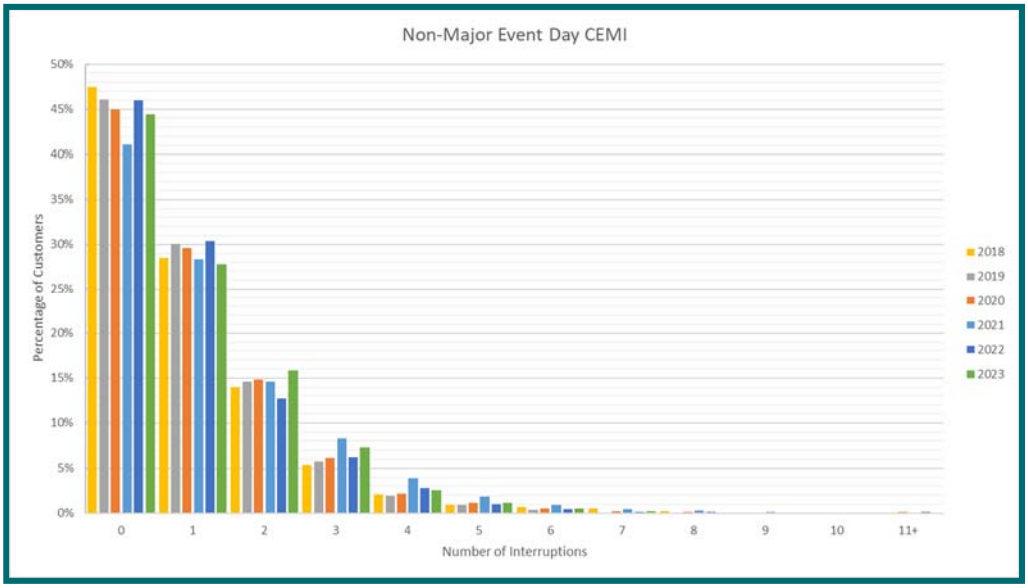

Figure 3e: Trend in Non-Major Event Day CEMI

Customer Complaints

In 2023, PSE received a total of 48 complaints: 28 received through the WUTC and 20 came directly to PSE. **Table 3f** shows the customer complaints from baseline year and the most recent 7 years.[33] Note that customers may have submitted a complaint with both PSE and the WUTC.

Table 3f: Trend of WUTC and PSE Reliability, Power Quality, and Major Event Complaints

Calendar Year	WUTC				PSE			
	Non-Major Event			Major Event	Non-Major Event			Major Event
	Reliability	Power Quality	Both		Reliability	Power Quality	Both	
Baseline	10	1	0	7	11	4	1	19
2017	8	3	0	1	19	9	7	21
2018	15	2	0	3	10	4	0	16
2019	13	4	0	16	9	1	0	13
2020	5	1	0	7	7	1	1	9
2021	23	0	0	20	16	8	1	18
2022	36	3	1	17	14	9	2	22
2023	16	7	2	3	6	4	3	7

[33] The main driver for the increase in UTC complaints in 2022 was 21 complaints from a Lake Tapps neighborhood in Pierce County.

Figure 3f compares the trend of total customer complaints to Baseline. While the number of complaints decreased in 2023, the number of complaints is very small compared to the overall number of PSE customers (0.004%). With the number of complaints so small relative to the customer base, and because relatively large changes in the number of complaints can be influenced by where and when storms occur, changes in complaints over time are not well correlated to trends in SAIDI or SAIFI. However, this metric is useful for PSE in identifying localized customer concerns that might not surface at system-wide or circuit-level metrics.

Figure 3f: Trend in Customer Complaints

AREAS OF GREATEST CONCERN

PSE's system planning personnel ("Planners") investigate multiple areas-of-concern and propose projects that will improve the reliability for customers being served by those circuits. PSE has defined areas of greatest concern as the distribution circuits that meet 4 or more of the reliability metrics used to assess poor performance. The reliability metrics used to assess circuit performance are:

- Circuit experienced greater than 3,000,000 Non-MED CMI of the last 3 years
- Circuit experienced over 750,000 Non-MED CMI for 2 of the last 3 years
- Circuit experienced over 300 Non-MED SAIDI for 2 of the last 3 years
- Circuit experienced over 2 Non-MED SAIFI for 2 of the last 3 years
- Circuit experienced a single device operating 6 or more times over the last 3 years
- The average CMI (including both MED and Non-MED) of the circuit for the past 5 years
- In a 3 year span, customers on a circuit experiencing 6 or more MED and Non-MED interruptions in a single year

Based upon reviewing these seven metrics Planners propose projects that are designed to improve reliability on these circuits. **Appendix I**: *Areas of Greatest Concern with Action Plan* details the year-end 2023 poor performing circuits list along with PSE's completed or future plan for system improvements on each circuit. It is a multiyear process as it will take a number of years to plan, approve, design, permit and build the necessary improvements.

The Planners also monitor performance on circuits that do not meet the areas of greatest concern criteria to ensure the reliability performance does not falter in other parts of the system. The Planners review interruption history, number of customers impacted, interruption location and customer complaints, as well as receive feedback from field personnel to identify and propose reliability improvement projects. Collectively, the information gathered is used to establish a project benefit which is compared to the overall cost of the improvement resulting in a benefit-to-cost ratio.

As more customer level reliability reporting is developed, which will include an equity component, smaller pockets of customers with reliability issues are identified and evaluated for improvements. This complements the areas of greatest concern analysis to provide a comprehensive approach to reviewing reliability performance for all customers. As system management tools improve and new technologies, such as advanced metering infrastructure, are implemented, the accuracy of this reporting will improve and allow for even more efficient targeting of reliability improvement projects.

DATA COLLECTION – METHODS AND ISSUES

Per WAC 480-100-398 (2), this section describes the changes in data collection and in defining and calculating reliability metrics, which are then used to evaluate performance. The UTC in WAC 480-100-398 (2) requires a utility to report changes made in this methodology including data collection and calculation of reliability information after the baselines are set. The utility must explain why the changes occurred and how the change is expected to affect comparisons of the newer and older information.

Outage data and reliability calculations

PSE's System Operations department uses an Outage Management System ("OMS") to record outages. OMS is a utility network management software application that models network topology for safe, efficient field operations related to outage restoration. The OMS outage information is automatically sent to PSE's work management system, SAP, which is the data source for the reported outage information.

For most outages, the start time is determined by a customer notifying PSE of an outage, which can be accomplished by the customer contacting PSE's Customer Access Center via the automated voice response unit, talking with a customer representative, or reporting the outage via their online PSE account. Sectionalizing device operations with SCADA enablement is also used to determine start times. The end time of the outage is determined when PSE field Service personnel inform the System Operations department that customers are restored, or SCADA provides a signal to OMS that a sectionalizing device has been restored. Recording the end time in OMS can be slightly delayed as PSE field service personnel's first priority is ensuring a safe working environment.

The number of customers impacted by each outage is determined within PSE's OMS. It is the number of customers downstream of the sectionalizing device that has operated. While the network topology is regularly updated to reflect the electrical grid configuration, the number of customers affected by an outage may not be fully accurate.

The start times, end times and number of customers impacted are used in the reliability metric calculations.

The cause of the outage is reported by PSE service personnel responding to the outage location. For most outages, the cause is readily apparent when the service personnel arrive at the outage location. However, for some, the cause is not obvious, and the service personnel use their best judgment. Also, restoration efforts take precedence over pinpointing the exact cause and location of the outage, especially in cross-country terrain or in darkness.

For all outages, the focus is on ensuring a safe environment for the field service personnel and restoring customers as quickly as possible. While outage information is recorded, given the magnitude of the event and number of outages, the records may not accurately report the extent of the outage, if customers were systematically restored, or the actual cause. In addition, SAP may not receive OMS updates through the interface. System Operations personnel validate the outage information but it is possible updates are missed.

Changes to Outage Data and Calculations

Starting in the 2016 reporting year, SQI SAIDI results are calculated using the IEEE Standard 1366 and the SQI SAIDI benchmark was set at 155 minutes.

Starting in the 2021 reporting year, PSE implemented new outage cause codes and revised the tree-related outage coding process. The additional tree-related outage codes are Tree Grow In (GI), Tree Limb (TL), Tree Trunk Failure (TT), and Tree Uprooted (TU). This change was a result of reviewing tree-related outages and the use of the tree on-right-of-way (TO) and tree off-right-of-way (TF) cause codes on outage notifications. It was found that during an outage it was difficult for field service personnel to accurately assess the correct use of TF and TO cause codes.

Starting in this 2023 reporting year, PSE's electric service and reliability reporting format has been changed to align with the updated monitoring plan and updated the baseline year to 2014. Additionally, SQI #4 SAIFI is to be computed using only the latest IEEE-1366 methodology for removing major event day outages with additional adjustment for catastrophic events starting from the 2023 performance year. This approach is consistent with the current SQI #3 SAIDI performance calculation. The SQI #4 benchmark will be at no more than 1.2 interruptions per year per customer.

WUTC Complaints

Customer complaints filed with the WUTC and categorized as Quality of Service is the source for the reportable complaints. The customer complaints must concern outage duration, outage frequency, or power quality to be included in this report. The identification of such is based on the customer comments. Interpretation of the customer comments could lead to inaccuracies in reporting.

PSE Inquiries

When a customer contacts PSE's Customer Access Center regarding an outage duration, outage frequency, or power quality concern, the Customer Service Representative ("CSR") handling the call listens for key words and then categorizes the customer comments accordingly. All contact is tracked as an interaction record in PSE's Customer Information System and Service Miscellaneous Notification in SAP. The CSR creates a Service Miscellaneous request for the appropriate PSE personnel to contact the customer and discuss their concerns.

Each customer contact that is categorized as outage duration, outage frequency, or power quality concern is considered an inquiry for electric reliability reporting purposes. When two or more customer inquiries on outage frequency or duration and/or power quality have been recorded in SAP from a customer during the current and prior reporting year, these customer inquiries together will be reported as a PSE Customer Complaint.

Accuracy of the categorizations may be affected by data entry errors from the initial inquiry or during the feedback loop. In addition, high volumes of customer inquiries, during storms for example, may increase the likelihood of data entry errors.

Appendices

This section contains the following appendices:

- A: Monthly SQI Performance
  - Attachment A to Appendix A—Major Event and Localized Emergency Event Days (Affected Local Areas Only)
  - Attachment B to Appendix A—Major Event and Localized Emergency Event Days (Non Affected Local Areas Only)
  - Attachment C to Appendix A—Natural Gas Reportable Incidents and Control Time
- B: Certification of Survey Results
- C: Penalty Calculation
- D: Proposed Customer Notice (Report Card)
- E: Disconnection Results
- F: Customer Service Guarantee Performance Detail
- G: Customer Awareness of Customer Service Guarantee
- H: Electric Reliability Terms and Definitions
- I: Areas of Greatest Concern with Action Plan

A
Monthly SQI Performance

Appendix A consists of Tables A1 and A2 that provide monthly details on the nine service quality indices.

It also contains the following attachments:

Attachment A to Appendix A—Major Event and Localized Emergency Event Days (Affected Local Areas Only)

Attachment B to Appendix A—Major Event and Localized Emergency Event Days (Non-Affected Local Areas Only)

Attachment C to Appendix A—Natural Gas Reportable Incident and Control Time

Table A1: PSE Monthly SQI Performance

Category of Service	SQI No.	Description	Annual Benchmark	Jan 2023	Feb 2023	Mar 2023	Apr 2023	May 2023	Jun 2023	Jul 2023	Aug 2023	Sep 2023	Oct 2023	Nov 2023	Dec 2023
Customer Satisfaction	2	WUTC Complaint Ratio	0.40 complaints per 1000 customers, including all complaints filed with WUTC	0.014	0.010	0.008	0.007	0.006	0.010	0.010	0.011	0.007	0.009	0.007	0.008
	6	Telephone Center Transactions Customer Satisfaction	90% satisfied (rating of 5 or higher on a 7-point scale)	95%	94%	95%	94%	95%	96%	95%	95%	96%	94%	94%	95%
	8	Field Service Operations Transactions Customer Satisfaction	90% satisfied (rating of 5 or higher on a 7-point scale)	96%	96%	98%	97%	98%	96%	98%	99%	98%	95%	95%	96%
Customer Services	5	Customer Access Center Answering Performance	80% of calls answered by a live representative within 60 seconds of request to speak with live operator	58%	71%	77%	77%	94%	97%	98%	99%	97%	89%	89%	92%
Operations Services	4	SAIFI	1.2 interruptions per year per customer	0.950	0.120	0.060	0.060	0.080	0.090	0.100	0.100	0.090	0.070	0.130	0.130
	3	SAIDI	155 minutes per customer per year	13	17	10	8	9	16	14	15	13	10	23	20
	7	Gas Safety Response Time	Average of 55 minutes from customer call to arrival of field technician	34	34	33	33	33	32	32	32	32	33	33	31
	10	Kept Appointments[Note]	92% of appointments kept	98%	99%	99%	99%	99%	99%	99%	99%	98%	99%	99%	99%
	11	Electric Safety Response Time	Average of 55 minutes from customer call to arrival of field technician	54	48	50	49	55	55	54	54	52	50	51	58

Note: Results shown are rounded to the nearest whole percentage per UTC order. However, these 100% monthly performance results do not reflect that PSE and its service providers met all the appointments during the reporting period. Numbers of PSE missed appointments, including the new customer construction appointments carried out the service providers are detailed in Appendix F: Customer Service Guarantee Performance Detail.

Table A2: Service Providers Monthly Service Quality Performance

Category of Service	Index	Service Provider	Annual Benchmark Description	Jan 2023	Feb 2023	Mar 2023	Apr 2023	May 2023	Jun 2023	Jul 2023	Aug 2023	Sep 2023	Oct 2023	Nov 2023	Dec 2023
Operations Services	Service Provider New Customer Construction Appointments Kept[Note1]	Quanta Electric	At least 92% of appointments kept Note 1	100%	100%	99%	100%	99%	100%	96%	97%	93%	96%	98%	93%
		Quanta Gas	At least 92% of appointments kept Note 1	100%	100%	100%	100%	100%	100%	100%	99%	100%	100%	100%	100%
	Service Provider Standards Compliance	Quanta Electric	Achieve a level of QA/QC compliance rate conformance to PSE Standards as follows: Level 1 inspection items: ≤ 15 deviations/1000 items inspected	4.62	2.07	1.72	4.42	7.17	1.61	6.97	0.00	8.24	0.00	1.88	2.51
		Quanta Electric	Level 2 inspection items: ≤ 25 deviations/1000 items inspected Note 2	2.44	4.75	4.04	3.27	9.85	5.34	3.00	1.62	0.00	1.96	1.55	4.24
		Quanta Electric	Level 3 inspection items: ≤ 205deviations/1000 items inspected Note 2	6.42	7.34	9.05	9.87	7.58	8.29	14.57	3.86	6.39	6.75	10.03	9.18
		Quanta Gas	Achieve a level of QA/QC compliance rate conformance to PSE Standards as follows: Level 1 inspection items: ≤ 8 deviations/1000 items inspected Note 2	1.40	0.00	0.00	0.00	5.15	0.00	0.00	1.81	0.00	1.80	0.00	0.00
		Quanta Gas	Level 2 inspection items: ≤ 15 deviations/1000 items inspected Note 2	2.68	0.00	2.71	4.69	3.91	2.90	1.56	2.61	1.46	0.00	0.00	3.47
		Quanta Gas	Level 3 inspection items: ≤ 12	3.86	4.52	0.00	3.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Category of Service	Index	Service Provider	Annual Benchmark Description	Jan 2023	Feb 2023	Mar 2023	Apr 2023	May 2023	Jun 2023	Jul 2023	Aug 2023	Sep 2023	Oct 2023	Nov 2023	Dec 2023
			deviations/1000 items inspected [Note 2]												
	Secondary Safety Response and Restoration Time-Core-Hour	Quanta Electric	Within 250 minutes from the dispatch time to the restoration of non-emergency outage during core hours	237	227	226	232	232	237	246	241	259	226	242	251
	Secondary Safety Response and Restoration Time-Non-Core-Hour	Quanta Electric	Within 316 minutes from the dispatch time to the restoration of non-emergency outage during non-core hours	233	242	232	223	248	246	253	252	255	256	275	290
	Secondary Safety Response Time	Quanta Gas	Within 60 minutes from first response assessment completion to second response arrival	51	61	59	76	52	62	59	61	61	53	67	56

Note 1: Results shown are rounded to the nearest whole percentage per UTC order. However, these 100% monthly performance results do not reflect that the service providers met all the new construction appointments during the reporting period. Numbers of PSE missed appointments, including the new customer construction appointments carried out the service providers are detailed in Appendix F: Customer Service Guarantee Performance Detail.

Note 2:

- Level 1 Deviation from PSE Standards and/or current regulatory expectations that provide immediate and significant risk to product quality, safety or system integrity; or a combination/repetition of Level 2 deficiencies that indicate a critical failure of systems.
- Level 2 Deviation from PSE Standards and/or current regulatory expectations that provide a potentially significant risk to product quality, safety or system integrity; or could potentially result in significant observations from a regulatory agency; or a combination/repetition of Level 3 deficiencies that indicate a failure of system(s).
- Level 3 Observations of a less serious or isolated nature that are not deemed Level 1 or 2, but require correction or suggestions on how to improve systems or procedures that may be compliant but would benefit from improvement.

Table A3: Attachment A to Appendix A—Major Event and Localized Emergency Event Days (Affected Local Areas Only)

This Attachment A to Appendix A provides detail on Major Event and localized emergency event days (Affected local areas only).

PUGET SOUND ENERGY

SQI #11 Supplemental Reporting Major Event And Localized Emergency Event Days Affected Local Areas Only

Date	Type of Event	Local Area	Duration (Days)	No. of Customers Affected	No. of Customers in Area	% of Customers Affected	No. of Outage Events	Resource Utilization (for the event, EFR Count only)	>5% Customer Affected or SAIDI Tmed Event	Comments[34]
1/4/2023	Wind	Northern	3	1,696	215,014	0.79%	38	17 of 17	No	17 EFRs Event Duty, 8 Line Crews, 1 Tree Crew
1/4/2023	Wind	North King	3	34,479	338,225	10.19%	138	22 of 22	Yes	22 EFRs Event Duty, 9 Line Crews, 7 Tree Crews
1/4/2023	Wind	South King	3	44,379	259,026	17.13%	127	15 of 15	Yes	15 EFRs Event Duty, 9 Line Crews, 7 Tree Crews
1/4/2023	Wind	Southern	3	6,234	269,200	2.32%	27	12 of 12	No	12 EFRs Event Duty, 4 Line Crews
1/4/2023	Wind	Western	3	512	135,332	0.38%	14	14 of 14	No	14 EFRs Event Duty, 10 Line Crews, 1 Tree Crew
1/9/2023	Wind	North King	1	17,985	338,225	5.32%	68	18 of 22	Yes	18 EFRs Event Duty, 4 EFRs In Training, 10 Line Crews, 7 Tree Crews
1/9/2023	Wind	South King	1	28,442	259,026	10.98%	105	12 of 15	Yes	12 EFRs Event Duty, 3 EFRs In Training, 6 Line Crews, 6 Tree Crews
1/9/2023	Wind	Southern	1	3,071	269,200	1.14%	17	12 of 15	No	12 EFRs Event Duty, 1 EFR Reg Day Off, 2 EFRs In Training, 7 Line Crews
1/10/2023	Wind	North King	1	543	338,225	0.16%	18	17 of 21	No	17 EFRs Event Duty, 1 EFR Reg Day Off, 4 EFRs In Training, 10 Line Crews, 7 Tree Crews
2/3/2023	Wind/Rain	Southern	1	7,975	269,499	2.96%	20	13 of 15	No	13 EFRs Event Duty, 2 EFRs Reg Day Off, 7 Line Crews
2/3/2023	Wind/Rain	Western	1	2,920	135,405	2.16%	19	10 of 14	No	10 EFRs Event Duty, 2 EFRs Reg Day Off, 2 EFRs Reg Day Off, 6 Line Crews, 2 Tree Crews

Table continues on next page.

[34] **EFR**—Electric First Responder, **PTO**—Paid Time Off, **Reg day-off**—Regular day-off, **STD**—Short-Term Disability, STFP—Short-Term Family Paid Leave

Table A3: Attachment A to Appendix A—Major Event and Localized Emergency Event Days (Affected Local Areas Only)

This Attachment A to Appendix A provides detail on Major Event and localized emergency event days (Affected local areas only).

Date	Type of Event	Local Area	Duration (Days)	No. of Customers Affected	No. of Customers in Area	% of Customers Affected	No. of Outage Events	Resource Utilization (for the event, EFR Count only)	>5% Customer Affected or SAIDI Tmed Event	Comments[35]
2/20/2023	Wind/Rain	Northern	1	4,206	215,061	1.96%	31	10 of 16	No	10 EFRs Event Duty, 6 EFRs Reg Day Off, 9 Line Crews, 1 Tree Crew
2/20/2023	Wind/Rain	North King	1	6,686	338,543	1.97%	19	10 of 22	No	10 EFRs Event Duty, 12 EFRs Reg Day Off, 10 Line Crews, 1 Tree Crew
2/20/2023	Wind/Rain	Western	1	8,546	135,405	6.31%	57	12 of 14	Yes	12 EFRs Event Duty, 2 Reg Day Off, 11 Line Crews, 2 Tree Crews
2/21/2023	Wind/Rain	Western	1	102	135,405	0.08%	10	13 of 14	No	13 EFRs Event Duty, 1 EFR Reg Day Off, 11 Line Crews
2/26/2023	Wind/Snow	Western	1	3,896	135,105	2.88%	15	9 of 14	No	9 EFRs Event Duty, 5 EFRs Reg Day Off, 8 Line Crews
3/28/2023	Wind/Rain	Western	1	1,073	135,509	0.79%	13	13 of 14	No	13 EFRs Event Duty, 1 EFR Personal Leave, 8 Line Crews, 1 Tree Crew
4/9/2023	Wind/Rain	Northern	1	10,681	215,565	4.95%	45	13 of 16	No	13 EFRs Event Duty, 3 EFRs Reg Day Off, 8 Line Crews, 3 Tree Crews
5/14/2023	Heat	Southern	1	3,954	270,627	1.46%	14	10 of 16	No	10 EFRs Event Duty, 6 Reg Day Off, 8 Line Crews, 3 Tree Crews
5/20/2023	Heat	Southern	1	545	270,627	0.20%	16	9 of 16	No	9 EFRs Event Duty, 7 EFRs Reg Day Off, 8 Line Crews, 1 Tree Crew
7/5/2023	Heat	Southern	1	1,749	271,151	0.65%	14	11 of 15	No	11 EFRs Event Duty, 4 EFRs Reg Day Off, 9 Line Crews
7/24/2023	Rain	Northern	1	2,720	216,015	1.26%	27	12 of 16	No	12 EFRs Event Duty, 4 EFRs Reg Day Off, 10 Line Crews
9/25/2023	Wind	Northern	1	9,454	216,371	4.37%	55	15 of 16	No	15 EFRs Event Duty, 1 EFR Reg Day Off, 10 Line Crews

Table continues on next page.

[35] **EFR**—Electric First Responder, **PTO**—Paid Time Off, **Reg day-off**—Regular day-off, **STD**—Short-Term Disability

Table A3: Attachment A to Appendix A—Major Event and Localized Emergency Event Days (Affected Local Areas Only)

Date	Type of Event	Local Area	Duration (Days)	No. of Customers Affected	No. of Customers in Area	% of Customers Affected	No. of Outage Events	Resource Utilization (for the event, EFR Count only)	>5% Customer Affected or SAIDI Tmed Event	Comments[36]
9/25/2023	Wind	Western	1	3,046	136,486	2.23%	22	11 of 12	No	11 EFRs Event Duty, 1 EFR Reg Day Off, 6 Line Crews, 2 Tree Crews
9/26/2023	Wind	North King	1	1,487	340,207	0.44%	25	20 of 23	No	20 EFRs Event Duty, 3 EFRs Reg Day Off, 8 Line Crews, 2 Tree Crews
9/26/2023	Wind	Western	1	574	136,486	0.42%	23	14 of 14	No	14 EFRs Event Duty, 6 Line Crews, 2 Tree Crews
9/27/2023	Wind	South King	1	5,648	259,994	2.17%	18	14 of 14	No	14 EFRs Event Duty, 8 Line Crews, 1 Tree Crew
10/16/2023	Wind	Northern	1	1,482	215,734	0.69%	37	12 of 16	No	12 EFRs Event Duty, 2 EFRs Reg Day Off, 2 Reg Days Off, 10 Line Crews, 1 Tree Crew
10/16/2023	Wind	Western	1	2,457	135,966	1.81%	15	10 of 14	No	10 EFRs Event Duty, 4 EFRs Reg Day Off, 6 Line Crews
11/2/2023	Wind	North King	1	10,039	324,177	3.10%	39	19 of 22	No	19 EFRs Event Duty, 3 EFRs Reg Days Off, 8 Line Crews, 1 Tree Crew
11/2/2023	Wind	Western	1	8,354	135,966	6.14%	36	12 of 14	Yes	12 EFRs Event Duty, 2 EFR Reg Day Off, 7 Line Crews, 1 Tree Crew
11/4/2023	Wind	Northern	1	1,205	215,734	0.56%	22	7 of 16	No	7 EFRs Event Duty, 9 EFRs Reg Days Off, 10 Line Crews, 3 Tree Crews
11/4/2023	Wind	North King	1	9,199	324,177	2.84%	22	8 of 22	No	8 EFRs Event Duty, 14 EFRs Reg Days Off, 8 Line Crews, 2 Tree Crews
11/4/2023	Wind	Southern	1	2,269	270,609	0.84%	14	9 of 18	No	9 EFRs Event Duty, 9 EFRs Reg Days Off, 9 Line Crews, 2 Tree Crews
11/4/2023	Wind	Western	1	4,049	135,966	2.98%	25	5 of 14	No	5 EFRs Event Duty, 9 EFRs Reg Days Off, 7 Line Crews, 1 Tree Crew

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[36] **EFR**—Electric First Responder, **PTO**—Paid Time Off, **Reg day-off**—Regular day-off, **STD**—Short-Term Disability

Table A3: Attachment A to Appendix A—Major Event and Localized Emergency Event Days (Affected Local Areas Only)

Date	Type of Event	Local Area	Duration (Days)	No. of Customers Affected	No. of Customers in Area	% of Customers Affected	No. of Outage Events	Resource Utilization (for the event, EFR Count only)	>5% Customer Affected or SAIDI Tmed Event	Comments[37]
11/11/2023	Wind	Northern	3	25,872	215,734	11.99%	225	16 of 16	Yes	16 EFRs Event Duty, 16 Line Crews, 6 Tree Crews
11/11/2023	Wind	North King	3	33,182	324,177	10.24%	70	18 of 18	Yes	18 EFRs Event Duty, 6 Line Crews, 4 Tree Crews
11/11/2023	Wind	South King	3	13,006	259,490	5.01%	57	13 of 13	Yes	13 EFRs Event Duty, 3 Line Crews, 2 Tree Crews
11/11/2023	Wind	Southern	3	25,010	270,609	9.24%	119	14 of 14	Yes	14 EFRs Event Duty, 6 Line Crews, 8 Tree Crews
11/11/2023	Wind	Western	3	10,816	135,966	7.95%	75	13 of 13	Yes	13 EFRs Event Duty, 6 Line Crews, 1 Tree Crew
12/2/2023	Wind	North King	1	10,699	324,177	3.30%	43	8 of 22	No	8 EFRs, 14 EFRs Reg Days Off, 9 Line Crews, 2 Tree Crews
12/2/2023	Wind	South King	1	9,729	259,490	3.75%	31	10 of 14	No	10 EFRs Event Duty, 4 EFRs Reg Days Off, 9 Line Crews, 2 Tree Crews
12/2/2023	Wind	Western	1	6,396	135,966	4.70%	34	7 of 14	No	7 EFRs Event Duty, 7 EFRs Reg Days Off, 6 Line Crews, 2 Tree Crews
12/9/2023	Wind	Northern	1	1,337	215,734	0.62%	22	6 of 16	No	6 EFRs Event Duty, 10 EFRs Reg Days Off, 9 Line Crews, 3 Tree Crews
12/25/2023	Wind	Western	1	3,989	136,037	2.93%	19	4 of 13	No	4 EFRs Event Duty, 9 EFRs Reg Day Off, 1 Reg Day Off, 6 Line Crews, 1 Tree Crew

[37] **EFR**—Electric First Responder, **PTO**—Paid Time Off, **Reg day-off**—Regular day-off, **STD**—Short-Term Disability

Table A4: Attachment B to Appendix A—Major Event and Localized Emergency Event Days

(Non-Affected Local Areas Only)

This Attachment B to Appendix A provides detail on Major Event and localized emergency event days (Non-affected local areas only).

PUGET SOUND ENERGY

SQI #11 Supplemental Reporting Major Event And Localized Emergency Event Days
Non-Affected Local Areas Only

Date	Type of Event	Local Area	Duration (Days)	No. of Customers Affected	No. of Customers in Area	% of Customers Affected	No. of Outage Events	Resource Utilization (for the event, EFR Count only)	>5% Customer Affected or SAIDI Tmed Event)	Comments
1/9/2023	Wind	Northern	1	1555	215,014	0.72%	9	N/A		
1/9/2023	Wind	Western	1	147	135,332	0.11%	9	N/A		
1/10/2023	Wind	Northern	1	107	215,014	0.05%	7	N/A		
1/10/2023	Wind	South King	1	300	259,026	0.12%	13	N/A		
1/10/2023	Wind	Southern	1	130	269,200	0.05%	4	N/A		
1/10/2023	Wind	Western	1	76	135,332	0.06%	6	N/A		
2/3/2023	Wind/Rain	Northern	1	3344	215,061	1.55%	26	N/A		
2/3/2023	Wind/Rain	North King	1	456	338,543	0.13%	8	N/A		
2/3/2023	Wind/Rain	South King	1	3110	259,151	1.20%	8	N/A		
2/20/2023	Wind/Rain	South King	1	2521	259,151	0.97%	11	N/A		
2/20/2023	Wind/Rain	Southern	1	8284	269,499	3.07%	33	N/A		
2/21/2023	Wind/Rain	Northern	1	4621	215,061	2.15%	24	N/A		

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Table A4: Attachment B to Appendix A—Major Event and Localized Emergency Event Days

(Non-Affected Local Areas Only)

Date	Type of Event	Local Area	Duration (Days)	No. of Customers Affected	No. of Customers in Area	% of Customers Affected	No. of Outage Events	Resource Utilization (for the event, EFR Count only)	>5% Customer Affected or SAIDI Tmed Event)	Comments
2/21/2023	Wind/Rain	North King	1	381	338,543	0.11%	14	N/A		
2/21/2023	Wind/Rain	South King	1	565	259,151	0.22%	10	N/A		
2/21/2023	Wind/Rain	Southern	1	161	269,499	0.06%	12	N/A		
2/26/2023	Wind/Snow	Northern	1	1615	215,061	0.75%	14	N/A		
2/26/2023	Wind/Snow	North King	1	1568	338,543	0.46%	4	N/A		
2/26/2023	Wind/Snow	South King	1	1866	259,151	0.72%	7	N/A		
2/26/2023	Wind/Snow	Southern	1	677	269,499	0.25%	8	N/A		
3/28/2023	Wind/Rain	Northern	1	16	215,305	0.01%	5	N/A		
3/28/2023	Wind/Rain	North King	1	697	338,708	0.21%	14	N/A		
3/28/2023	Wind/Rain	South King	1	4975	259,265	1.92%	14	N/A		
3/28/2023	Wind/Rain	Southern	1	3713	269,856	1.38%	17	N/A		
4/9/2023	Wind/Rain	North King	1	6045	339,232	1.78%	1	N/A		
4/9/2023	Wind/Rain	South King	1	2542	259,466	0.98%	5	N/A		
4/9/2023	Wind/Rain	Southern	1	1356	270,234	0.50%	4	N/A		

Table continues on next page

Table A4: Attachment B to Appendix A—Major Event and Localized Emergency Event Days

(Non-Affected Local Areas Only)

Date	Type of Event	Local Area	Duration (Days)	No. of Customers Affected	No. of Customers in Area	% of Customers Affected	No. of Outage Events	Resource Utilization (for the event, EFR Count only)	>5% Customer Affected or SAIDI Tmed Event	Comments
5/14/2023	Heat	North King	1	275	339,666	0.08%	10	N/A		
5/14/2023	Heat	Northern	1	41	215,737	0.02%	10	N/A		
5/14/2023	Heat	South King	1	1500	259,693	0.58%	11	N/A		
5/14/2023	Heat	Western	1	170	135,789	0.13%	6	N/A		
5/20/2023	Heat	North King	1	404	339,666	0.12%	13	N/A		
5/20/2023	Heat	Northern	1	67	215,737	0.03%	9	N/A		
5/20/2023	Heat	South King	1	139	259,693	0.05%	4	N/A		
5/20/2023	Heat	Western	1	25	135,789	0.02%	5	N/A		
7/5/2023	Heat	North King	1	191	39,788	0.48%	10	N/A		
7/5/2023	Heat	Northern	1	510	216,015	0.24%	8	N/A		
7/5/2023	Heat	South King	1	46	259,810	0.02%	9	N/A		
7/5/2023	Heat	Western	1	152	136,020	0.11%	8	N/A		
7/24/2023	Rain	North King	1	1493	339,788	0.44%	20	N/A		
7/24/2023	Rain	South King	1	929	259,810	0.36%	10	N/A		

Table continues on next page

Table A4: Attachment B to Appendix A—Major Event and Localized Emergency Event Days

(Non-Affected Local Areas Only)

Date	Type of Event	Local Area	Duration (Days)	No. of Customers Affected	No. of Customers in Area	% of Customers Affected	No. of Outage Events	Resource Utilization (for the event, EFR Count only)	>5% Customer Affected or SAIDI Tmed Event	Comments
7/24/2023	Rain	Western	1	252	136,020	0.19%	9	N/A		
9/25/2023	Wind	North King	1	1944	340,207	0.57%	26	N/A		
9/25/2023	Wind	South King	1	16	259,994	0.01%	2	N/A		
9/25/2023	Wind	Southern	1	1243	271,999	0.46%	25	N/A		
9/26/2023	Wind	Northern	1	678	216,371	0.31%	12	N/A		
9/26/2023	Wind	South King	1	1502	259,994	0.58%	11	N/A		
9/26/2023	Wind	Southern	1	1281	271,999	0.47%	20	N/A		
9/27/2023	Wind	Northern	1	1053	216,371	0.49%	5	N/A		
9/27/2023	Wind	North King	1	2345	240,207	0.98%	25	N/A		
9/27/2023	Wind	Southern	1	2466	271,999	0.91%	31	N/A		
9/27/2023	Wind	Western	1	3904	136,486	2.86%	14	N/A		
10/16/2023	Wind	North King	1	1906	324,177	0.59%	14	N/A		
10/16/2023	Wind	South King	1	235	259,490	0.09%	13	N/A		
10/16/2023	Wind	Southern	1	3183	270,609	1.18%	22	N/A		

Table continues on next page

Table A4: Attachment B to Appendix A—Major Event and Localized Emergency Event Days

(Non-Affected Local Areas Only)

Date	Type of Event	Local Area	Duration (Days)	No. of Customers Affected	No. of Customers in Area	% of Customers Affected	No. of Outage Events	Resource Utilization (for the event, EFR Count only)	>5% Customer Affected or SAIDI Tmed Event	Comments
11/2/2023	Wind	South King	1	185	259,490	0.07%	9	N/A		
11/2/2023	Wind	Southern	1	2179	270,609	0.81%	29	N/A		
11/4/2023	Wind	South King	1	1288	259,490	0.50%	11	N/A		
12/2/2023	Wind	Northern	1	79	215,734	0.04%	3	N/A		
12/2/2023	Wind	Southern	1	1470	270,609	0.54%	21	N/A		
12/9/2023	Wind	North King	1	122	324,177	0.04%	7	N/A		
12/9/2023	Wind	South King	1	593	259,490	0.23%	10	N/A		
12/9/2023	Wind	Southern	1	637	270,609	0.24%	13	N/A		
12/9/2023	Wind	Western	1	2743	135,966	2.02%	14	N/A		
12/25/2023	Wind	North King	1	463	324,470	0.14%	14	N/A		
12/25/2023	Wind	Northern	1	2933	215,827	1.36%	15	N/A		
12/25/2023	Wind	South King	1	2496	259,548	0.96%	4	N/A		
12/25/2023	Wind	Southern	1	2008	270,960	0.74%	6	N/A		

Table A5: Attachment C to Appendix A—Natural Gas Reportable Incidents and Control Time

This Attachment C to Appendix A provides detail on each natural gas reportable incident and response times.[38]

Natural Gas Reportable Incidents and Control Time (in Hours : Minutes)						
Date	City	Address	1st Notice to PSE	First PSE Arrival	Emergency Controlled	Emergency Control Time
1/8/2023	Kent	100 Reiten Rd	2:23	3:01	0:38	1:21
1/20/2023	Renton	1500 Aberdeen Ave NE	8:09	8:41	0:32	0:00
1/29/2023	Everett	5515 East Dr, Everett 98203	10:53	11:19	0:26	0:14
1/30/2023	Bothell	3830 Monte Villa Pkwy	7:43	8:23	0:40	0:11
1/31/2023	Auburn	30620 116th Ave SE	11:06	11:23	0:17	0:28
2/5/2023	Seattle	4725 25th Ave NE	18:30	18:56	0:26	1:39
2/12/2023	Bothell	18330 Baldwin Rd	17:41	18:13	0:32	0:11
2/26/2023	Centralia	1417 Harrison Ave	13:43	13:56	0:13	0:17
2/27/2023	Tacoma	7515 S Yakima Ave	13:09	13:19	0:10	2:43
3/7/2023	Tumwater	7410 Henderson Bl SE	9:04	9:17	0:13	0:49
3/18/2023	Bothell	16419 122nd Ct NE	11:45	12:51	1:06	0:34
4/3/2023	Sammamish	20409 NE 3th Way	13:11	13:41	0:30	0:29
4/10/2023	Clyde Hill	1333 98th Ave NE	18:31	19:03	0:32	1:47

Table continues on next page.

[38] Report of the time duration from first arrival to control of gas emergencies, for incidents subject to reporting under the 2003 edition of WAC 480-93-200 and WAC 480-93-210, Order R-374, Docket UG-911261.

Natural Gas Reportable Incidents and Control Time (in Hours : Minutes)						
Date	City	Address	1st Notice to PSE	First PSE Arrival	Emergency Controlled	Emergency Control Time
4/11/2023	Tumwater	5210 Capitol Bl SE	22:41	22:52	0:11	6:55
4/19/2023	Seattle	3724 S Brandon St	9:49	10:08	0:19	0:23
5/12/2023	Kent	711 Washington Ave N	8:36	8:40	0:04	0:08
5/15/2023	Everett	12921 39th Ave SE #28	21:11	21:37	0:26	0:07
5/17/2023	Burien	2856 SW 170th St	13:59	14:20	0:21	0:07
5/18/2023	Auburn	27526 43rd Ave S	21:30	22:03	0:33	0:05
5/24/2023	Lakewood	10314 S Tacoma Way	9:10	9:37	0:27	1:58
5/27/2023	Lynnwood	17614 Larch Way	12:06	12:27	0:21	0:19
5/27/2023	Seattle	2515 4th Ave	20:20	21:00	0:40	0:17
6/1/2023	Bellevue	4813 116th Ave SE	9:23	9:49	0:26	0:19
6/1/2023	Kirkland	11036 104th Ave NE	12:37	13:05	0:28	1:07
6/5/2023	Tacoma	1101 S Yakima Ave	9:17	9:38	0:21	2:10
6/8/2023	Seattle	13320 27th Ave NE	11:25	11:44	0:19	0:17
6/11/2023	Marysville	7619 67th St NE	18:47	19:09	0:22	0:00
6/13/2023	JBLM	4100 West Way	14:36	14:45	0:09	2:15
6/16/2023	Renton	2042 Sunset Blvd NE	14:18	14:59	0:41	0:16
6/22/2023	Shoreline	1045 NE 187th St	14:53	15:09	0:16	0:17
6/30/2023	Sammamish	24231 SE 43rd Ct	11:17	11:38	0:21	0:21

Table continues on next page.

Natural Gas Reportable Incidents and Control Time (in Hours : Minutes)						
Date	City	Address	1st Notice to PSE	First PSE Arrival	Emergency Controlled	Emergency Control Time
6/30/2023	Spanaway	17502 B St E	18:38	19:20	0:42	0:33
7/3/2023	Shoreline	322 NE 152nd St	11:34	11:52	0:18	0:10
7/10/2023	Woodinville	19145 NE 151st St	11:59	12:21	0:22	1:38
7/14/2023	Spanaway	16001 Pacific Ave S	16:22	16:58	0:36	0:21
7/20/2023	Tacoma	760 112th St S	21:26	22:02	0:36	0:46
7/21/2023	Lynnwood	16715 52nd Ave W, A	14:52	15:16	0:24	0:09
7/26/2023	Seattle	1622 NW Greenbrier Way	8:02	8:19	0:17	0:06
7/29/2023	Seattle	1027 Sturgis Ave S	9:34	10:10	0:36	2:18
8/2/2023	Issaquah	5728 E Lake Sammamish Pkwy	14:40	14:43	0:03	10:25
8/8/2023	Seattle	10644 Rainer Ave S	17:23	18:09	0:46	0:16
8/10/2023	Tacoma	12901 Pacific Ave S	10:39	11:02	0:23	0:16
8/10/2023	Covington	17616 SE 261st St	13:57	14:24	0:27	0:09
8/11/2023	Bellevue	16419 SE 31st St	15:59	16:10	0:11	0:47
8/11/2023	Tacoma	2214 159th Street Ct E	23:11	23:59	0:48	0:00
8/12/2023	Seattle	927 NW 96th St	11:26	12:45	1:19	1:54
8/14/2023	Fall City	5206 336th Ave SE	15:22	15:48	0:26	1:47
8/15/2023	Redmond	17426 NE 40th Pl	9:27	9:57	0:30	0:15

Table continues on next page.

Natural Gas Reportable Incidents and Control Time (in Hours : Minutes)						
Date	City	Address	1st Notice to PSE	First PSE Arrival	Emergency Controlled	Emergency Control Time
8/25/2023	Pacific	768 Butte Ave SE	10:25	10:42	0:17	1:50
8/28/2023	Tacoma	4702 N Gove St	11:08	11:37	0:29	4:45
9/2/2023	Tacoma	3526 E Roosevelt Ave	14:48	15:10	0:22	0:00
9/13/2023	Edmonds	5530 140th St SW	11:16	11:44	0:28	5:18
9/28/2023	Burien	13718 8th Ave S	15:26	15:45	0:19	4:36
10/5/2023	Seattle	2123 N 40th St	11:21	11:43	0:22	0:15
10/6/2023	Renton	330 Cedar Ave S	10:36	10:55	0:19	0:44
10/10/2023	Centralia	1202 Alder St	13:48	13:59	0:11	0:11
10/19/2023	Tacoma	415 S 13th St	8:34	8:52	0:18	0:09
10/19/2023	Bellevue	1723 124th Ave NE	10:46	10:55	0:09	2:23
11/2/2023	Seattle	11041 19th Ave NE	8:42	9:03	0:21	0:58
11/4/2023	Burien	11610 26th Ave SW	15:09	15:35	0:26	0:24
11/8/2023	Everett	4908 Wilmington Ave	10:09	10:22	0:13	0:40
11/16/2023	Bonney Lake	12002 209th Ave Ct E	15:36	16:35	0:59	8:45
11/23/2023	Olympia	2317 9th Ave SE	3:04	3:56	0:52	0:00
11/28/2023	Kent	23700 Military Rd S	5:31	6:16	0:45	0:11
11/29/2023	Bothell	19701 25th Dr SE	9:17	9:36	0:19	0:00

Table continues on next page.

Natural Gas Reportable Incidents and Control Time (in Hours : Minutes)						
Date	City	Address	1st Notice to PSE	First PSE Arrival	Emergency Controlled	Emergency Control Time
11/29/2023	Renton	4250 NE 4th St, Unit A	16:29	17:05	0:36	0:00
11/30/2023	Lakewood	7815 99th Ave SW	8:51	9:25	0:34	0:20
12/5/2023	Tumwater	700 Israel Rd SW	9:50	10:01	0:11	1:54
12/6/2023	Seattle	1710 E Denny Way	2:23	3:21	0:58	1:59
12/8/2023	Renton	2823 NE 13th St	8:01	8:26	0:25	0:00
12/14/2023	Tacoma	9414 A St	10:53	11:27	0:34	1:18
12/19/2023	Seattle	5415 24 Ave NW	10:23	10:37	0:14	2:10
12/19/2023	Tacoma	2612 East E St	9:11	9:32	0:21	0:27
12/19/2023	University Place	4718 Sunset Dr W	14:15	14:31	0:16	3:38
12/26/2023	Bellevue	2000 124th Ave NE	10:49	11:10	0:21	0:12
12/27/2023	North Bend	43810 SE 142nd St	16:38	16:47	0:09	1:53
12/27/2023	Seattle	4730 S Juneau St	12:45	12:59	0:14	1:50
12/31/2023	Centralia	1332 Lum Rd	15:18	15:37	0:19	0:00
Average Natural Gas Reportable Incidents Control Time for 2023						**1:13**

B

Certification of Survey Results

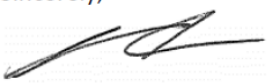
TO: Eric Haechrel, Puget Sound Energy
FROM: Andrew Thibault, EMC Research, Inc.
RE: PSE Service Quality Index Research
DATE: January 9, 2024

This memo constitutes certification by EMC Research, Inc. that the tabulations and underlying surveys were conducted and prepared in accordance with the procedures established in Docket Nos. UE-011570 and UG-011571.

These procedures, data collection methods, and quality controls are consistent with industry practices and, we believe, ensure that the data collected and information produced in the surveys is unbiased and valid.

We are glad to answer any questions about the research methodology and provide any additional information you may need.

Sincerely,



Andrew Thibault, Senior Principal
EMC Research, Inc.

C
Penalty Calculation

There is not SQI penalty calculation for this reporting. For the 2023 reporting year, PSE met 8 of 9 benchmarks for the Service Quality Program but missed the benchmark for the average and length of non-major-storm power outages, per year, per customer (SQI #3 SAIDI). There is no SQI performance penalty associated with SQI #3. The SQI #3 penalty mechanics have been were replaced since July 30, 2016, by PSE's 24-Hour Restoration Service Guarantee available under PSE's Schedule 131, Restoration Service Guarantees, where a $50 credit is applied to the customer's account if they experienced certain prolonged outages as prescribed in Schedule 131.

D
Proposed Customer Notice (Report Card)

2023 Service Quality Report Card

The Customer Service Performance Report Card is designed to inform customers of how well PSE delivers its services in key areas to its customers. The Report Card will be distributed to customers only after adequate consultation with the UTC staff and the Public Counsel Unit of the Attorney General's Office, but no later than 90 days after PSE files its annual SQ and Electric Service Reliability Report. For the 2023 report card, PSE will start the distribution by June 25, 2024, based upon the filing date of this report on March 27, 2024.

Figure D1 shows PSE's proposed Customer Service Performance Report Card.

Figure D1: Draft 2023 Service Quality Report Card

PUGET SOUND ENERGY

2023 Service Quality Report Card

Each year Puget Sound Energy measures service-quality benchmarks established in cooperation with the Washington Utilities and Transportation Commission (UTC), the Public Counsel Unit of the Attorney General's Office, and other parties. These benchmarks ensure we are satisfying customer expectations, providing reliable service, and keeping customers safe. Failure to achieve these service-quality measurements would put us at risk of a penalty of up to $12 million.

Key Measurement	Benchmark	2023 Performance	Achieved
Customer Satisfaction			
Percent of customers satisfied with our Customer Care Center services, based on survey	At least 90 percent	95 percent	✓
Percent of customers satisfied with field services, based on survey	At least 90 percent	97 percent	✓
Number of complaints to the UTC per 1,000 customers, per year	Less than 0.4 complaints	0.11 complaints	✓
Customer Services			
Percent of calls answered live within 60 seconds by our Customer Care Center	At least 80 percent	87 percent	✓
Operations Services			
Frequency of non-major-storm power outages, per year, per customer	Less than 1.2 outages	1.10 outages	✓
Length of power outages per year, per customer	Less than 155 minutes	167 minutes	
Time from customer call to arrival of field technicians in response to electric system emergencies	No more than 55 minutes	53 minutes	✓
Time from customer call to arrival of field technicians in response to natural gas emergencies	No more than 55 minutes	33 minutest	✓
Percent of service appointments kept	At least 92 percent	99 percent	✓

2023 Performance Highlights

We met eight of the nine service-quality measurements (see chart above) and improved our performance for five measurements: percent of customers satisfied with our Customer Care Center services, based on survey; number of complaints to the UTC per 1,000 customers, per year; percent of calls answered live within 60 seconds by our Customer Care Center; time from customer call to arrival of field technicians in response to electric system emergencies; time from customer call to arrival of field technicians in response to natural gas emergencies.

We did not meet the benchmark for length of power outages per year, per customer. While the length of power outages per year, per customer decreased in 2023 compared to 2022, outages caused by trees/vegetation and vehicle collisions with PSE equipment were significant contributors to the annual performance not meeting the benchmark.

There is no performance penalty associated with the measurement, but we give customers a $50 account credit when we don't restore the customer's power within 24 consecutive hours during a non-major-storm power outage.

In addition to committing to the nine service-quality measures, we have three service guarantees to our customers:

- Keeping scheduled appointments.
- If your power is out for 120 consecutive hours or longer during any power outage.
- If your power is out for 24 consecutive hours or longer during a non-major-storm power outage.

If we fail to meet any of these guarantees, we credit your account $50, conditions apply, and customer action required. Learn more at **pse.com/pages/customer-service-guarantees** or 1-888-225-5773.

In 2023, PSE paid $18,100 for missing 362 of the total 29,349 service guaranteed appointments. We provided 50 customers with a $50 credit in 2023 for not restoring electric service within 24 consecutive hours during certain non-major-storm power outages. There were no customer claims issued on restoring electric service within 120 consecutive hours during any power outage.

Every day our employees aim to provide safe, dependable, and efficient service to meet your expectations.

E

Disconnection Results

Tables E1 and E2 provide the annual and monthly number of disconnections per 1,000 customers for non-payment of amounts due when the UTC disconnection policy would permit service curtailment. There is no disconnection for non-payment of amounts due for the year of 2021. On February 29, 2020, Washington Governor Jay Inslee declared a state of emergency in response to the COVID-19 pandemic. On April 17, 2020, Governor Inslee issued Proclamation 20-23.2, which prohibits all energy, water, and telecommunications providers from disconnecting residential service due to nonpayment, (2) refusing to reconnect residential customers who were disconnected due to nonpayment, and (3) charging late fees or reconnection fees. Prior to the April 17 2020 Proclamation, PSE had suspended all service disconnections and late payment fees. On October 20, 2020, the Commission issued Order 01 in Docket U-200281 to extend the suspension of the disconnection of energy services for nonpayment initially until after April 30, 2021, but further extended to September 30, 2021. Although PSE was allowed to resume the non-payment disconnection 180 days after the moratorium was lifted. PSE did not begin performing disconnects on a limited basis until in May of 2022.

Table E1: Annual Disconnection Results from 2019 to 2023 per 1,000 Customers

2019	2020	2021	**2022**	**2023**
42	8	0	2	7

Table E2: Monthly Disconnection Results per 1,000 Customers for 2023

Month	Disconnections per 1,000 Customers
January	0.3
February	0.4
March	0.7
April	0.8
May	0.9
June	0.7
July	0.7
August	0.7
September	0.6
October	0.6
November	0.8
December	0.5

F

Customer Service Guarantee Performance Detail

This appendix provides detail on SQI #10, Appointments Kept, performance and customer service guarantee payment by service type and month.

Definition of the Categories:

Canceled—Appointments canceled by either customers or PSE

Excused—Appointments missed due to customer reasons or due to SQI Major Events

Manual Kept—Adjusted missed appointments resulting from review by the PSE personnel

Missed Approved—Appointments missed due to PSE reasons and customers are paid the $50 Customer Service Guarantee payment

Missed Open—Appointments not yet reviewed by PSE for the $50 Service Guarantee payment

Customer Service Guarantee Payment—Total for the $50 Customer Service Guarantee payments made to customers for each missed approved appointment

System Kept—Appointments in which PSE arrived at the customer site as promised

Total Appointments (Excludes Canceled and Excused)—Sum of Total Missed and Total Kept

Total Kept—Total number of Manual Kept and System Kept

Total Missed—Total number of Missed Approved, Missed Denied, and Missed Open

Table F1: SQI #10 and Customer Service Guarantee Payment Annual Summary for 2023

	Total Appointments (Exclude Canceled and Excused)	Missed Approved	Missed Open	Total Missed	Manual Kept	System Kept	Total Kept	Canceled	Excused	Customer Service Guarantee Payment	Percent Kept (Exclude Canceled and Excused) *
Electric											
Permanent Service	6,758	19	0	19	107	6,632	6,739	0	28	$950	100%
Reconnection	1,819	27	0	27	310	1,482	1,792	0	0	$1,350	99%
Subtotal	**8,577**	**46**	**0**	**46**	**417**	**8,114**	**8,531**	**0**	**28**	**$2,300**	**99%**
Natural Gas											
Diagnostic	10,488	177	0	177	275	10,036	10,311	0	0	$8,850	98%
Permanent Service	4,352	49	0	49	136	4,167	4,303	0	3	$2,450	99%
Reconnection	5,932	90	0	90	96	5,746	5,842	0	0	$4,500	98%
Subtotal	**20,772**	**316**	**0**	**316**	**507**	**19,949**	**20,456**	**0**	**3**	**$15,800**	**98%**
Grand Total	**29,349**	**362**	**0**	**362**	**924**	**28,063**	**28,987**	**0**	**31**	**$18,100**	**99%**

*SQI Results shown in the table and in this document are rounded to the nearest whole percentage per UTC order for performance calculation and comparison to the benchmark.

Table F2: SQI #10 and Customer Service Guarantee Payment Annual Details for 2023 (Continued)

Month	Fuel	Type	Total Appointments (Exclude Canceled and Excused)	Missed Approved	Missed Open	Total Missed	Manual Kept	System Kept	Total Kept	Canceled	Excused	Customer Service Guarantee Payment
Jan-23	Electric	Permanent Service	464	4	0	4	12	448	460	0	28	$200
Jan-23	Electric	Reconnection	230	1	0	1	64	165	229	0	0	$50
Jan-23	Gas	Diagnostic	1,198	18	0	18	29	1,151	1,180	0	0	$900
Jan-23	Gas	Permanent Service	362	28	0	28	24	310	334	0	3	$1,400
Jan-23	Gas	Reconnection	355	4	0	4	9	342	351	0	0	$200
Jan-23 Total			2,609	55	0	55	138	2,416	2,554	0	31	$2,750
Feb-23	Electric	Permanent Service	409	1	0	1	42	366	408	0	0	$50
Feb-23	Electric	Reconnection	225	1	0	1	75	149	224	0	0	$50
Feb-23	Gas	Diagnostic	1,001	16	0	16	20	965	985	0	0	$800
Feb-23	Gas	Permanent Service	302	1	0	1	6	295	301	0	0	$50
Feb-23	Gas	Reconnection	411	4	0	4	7	400	407	0	0	$200
Feb-23 Total			2,348	23	0	23	150	2,175	2,325	0	0	$1,150
Mar-23	Electric	Permanent Service	527	3	0	3	4	520	524	0	0	$150
Mar-23	Electric	Reconnection	189	2	0	2	51	136	187	0	0	$100
Mar-23	Gas	Diagnostic	894	11	0	11	23	860	883	0	0	$550
Mar-23	Gas	Permanent Service	310	1	0	1	9	300	309	0	0	$50
Mar-23	Gas	Reconnection	403	7	0	7	4	392	396	0	0	$350
Mar-23 Total			2,323	24	0	24	91	2,208	2,299	0	0	$1,200

Table continues on next page.

Table F2: SQI #10 and Customer Service Guarantee Payment Annual Details for 2023 (Continued)

Month	Fuel	Type	Total Appointments (Exclude Canceled and Excused)	Missed Approved	Missed Open	Total Missed	Manual Kept	System Kept	Total Kept	Canceled	Excused	Customer Service Guarantee Payment
Apr-23	Electric	Permanent Service	483	0	0	0	8	475	483	0	0	$0
Apr-23	Electric	Reconnection	136	2	0	2	10	124	134	0	0	$100
Apr-23	Gas	Diagnostic	643	14	0	14	21	608	629	0	0	$700
Apr-23	Gas	Permanent Service	290	0	0	0	7	283	290	0	0	$0
Apr-23	Gas	Reconnection	459	11	0	11	2	446	448	0	0	$550
Apr-**23 Total**			2,011	27	0	27	48	1,936	1,984	0	0	$1,350
May-23	Electric	Permanent Service	622	0	0	0	4	618	622	0	0	$0
May-23	Electric	Reconnection	149	5	0	5	14	130	144	0	0	$250
May-23	Gas	Diagnostic	501	5	0	5	12	484	496	0	0	$250
May-23	Gas	Permanent Service	387	1	0	1	14	372	386	0	0	$50
May-23	Gas	Reconnection	411	5	0	5	7	399	406	0	0	$250
May-23 Total			2,070	16	0	16	51	2,003	2,054	0	0	$800
Jun-23	Electric	Permanent Service	630	1	0	1	9	620	629	0	0	$50
Jun-23	Electric	Reconnection	127	2	0	2	12	113	125	0	0	$100
Jun-23	Gas	Diagnostic	432	3	0	3	13	416	429	0	0	$150
Jun-23	Gas	Permanent Service	390	0	0	0	11	379	390	0	0	$0
Jun-23	Gas	Reconnection	391	10	0	10	4	377	381	0	0	$500
Jun-23 Total			**1,970**	**16**	**0**	**16**	**49**	**1,905**	**1,954**	**0**	**0**	**$800**

Table continues on next page.

Table F2: SQI #10 and Customer Service Guarantee Payment Annual Details for 2023 (Continued)

	Fuel	Type	Total Appointments (Exclude Canceled and Excused)	Missed Approved	Missed Open	Total Missed	Manual Kept	System Kept	Total Kept	Canceled	Excused	Customer Service Guarantee Payment
Jul-23	Electric	Permanent	534	2	0	2	5	527	532	0	0	$100
Jul-23	Electric	Reconnection	132	2	0	2	19	111	130	0	0	$100
Jul-23	Gas	Diagnostic	341	6	0	6	8	327	335	0	0	$300
Jul-23	Gas	Permanent	404	4	0	4	6	394	400	0	0	$200
Jul-23	Gas	Reconnection	350	6	0	6	5	339	344	0	0	$300
Jul-23 Total			**1,761**	**20**	**0**	**20**	**43**	**1,698**	**1,741**	**0**	**0**	**$1,000**
Aug-23	Electric	Permanent	675	3	0	3	2	670	672	0	0	$150
Aug-23	Electric	Reconnection	131	4	0	4	12	115	127	0	0	$200
Aug-23	Gas	Diagnostic	412	8	0	8	5	399	404	0	0	$400
Aug-23	Gas	Permanent	416	4	0	4	14	398	412	0	0	$200
Aug-23	Gas	Reconnection	479	6	0	6	5	468	473	0	0	$300
Aug-23 Total			**2,113**	**25**	**0**	**25**	**38**	**2,050**	**2,088**	**0**	**0**	**$1,250**
Sep-23	Electric	Permanent	548	0	0	0	4	544	548	0	0	$0
Sep-23	Electric	Reconnection	129	1	0	1	10	118	128	0	0	$50
Sep-23	Gas	Diagnostic	926	26	0	26	21	879	900	0	0	$1,300
Sep-23	Gas	Permanent	353	1	0	1	14	338	352	0	0	$50
Sep-23	Gas	Reconnection	599	11	0	11	8	580	588	0	0	$550
Sep-23 Total			**2,555**	**39**	**0**	**39**	**57**	**2,459**	**2,516**	**0**	**0**	**$1,950**

Table continues on next page.

Table F2: SQI #10 and Customer Service Guarantee Payment Annual Details for 2023 (Continued)

	Fuel	Type	Total Appointments (Exclude Canceled and Excused)	Missed Approved	Missed open	Total Missed	Manual Kept	System Kept	Total Kept	Canceled	Excused	Customer Service Guarantee Payment
Oct-23	Electric	Permanent	721	1	0	1	7	713	720	0	0	$50
Oct-23	Electric	Reconnection	141	4	0	4	9	128	137	0	0	$200
Oct-23	Gas	Diagnostic	1,586	31	0	31	39	1,516	1,555	0	0	$1,550
Oct-23	Gas	Permanent	437	5	0	5	10	422	432	0	0	$250
Oct-23	Gas	Reconnection	889	13	0	13	25	851	876	0	0	$650
Oct-23 Total			**3,774**	**54**	**0**	**54**	**90**	**3,630**	**3,720**	**0**	**0**	**$2,700**
Nov-23	Electric	Permanent	611	3	0	3	7	601	608	0	0	$150
Nov-23	Electric	Reconnection	125	3	0	3	17	105	122	0	0	$150
Nov-23	Gas	Diagnostic	1,428	23	0	23	48	1,357	1,405	0	0	$1,150
Nov-23	Gas	Permanent	371	4	0	4	9	358	367	0	0	$200
Nov-23	Gas	Reconnection	704	10	0	10	9	685	694	0	0	$500
Nov-23 Total			**3,239**	**43**	**0**	**43**	**90**	**3,106**	**3,196**	**0**	**0**	**$2,150**
Dec-23	Electric	Permanent	534	1	0	1	3	530	533	0	0	$50
Dec-23	Electric	Reconnection	105	0	0	0	17	88	105	0	0	$0
Dec-23	Gas	Diagnostic	1,126	16	0	16	36	1,074	1,110	0	0	$800
Dec-23	Gas	Permanent	330	0	0	0	12	318	330	0	0	$0
Dec-23	Gas	Reconnection	481	3	0	3	11	467	478	0	0	$150
Dec-23 Total			**2,576**	**20**	**0**	**20**	**79**	**2,477**	**2,556**	**0**	**0**	**$1,000**
Grand Total			**29,349**	**362**	**0**	**362**	**924**	**28,063**	**28,987**	**0**	**31**	**$18,100**

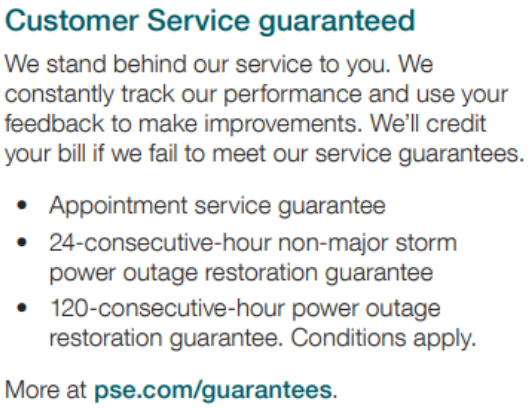
G
Customer Awareness of Service Guarantees

In 2023, Puget Sound Energy made customers aware of its three service guarantees through the following efforts:

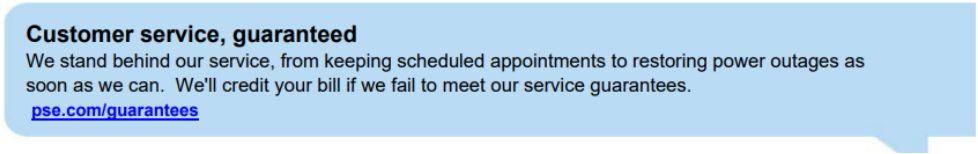
1. PSE Customer Care Center and customer service representatives received training about the Customer Service Guarantee and the following script:
   If we miss your customer service appointment under normal operating conditions, we will automatically credit your energy account with $50 guaranteed.
2. An online job aid that explains the circumstances for notifying customers about the Customer Service Guarantee is available to all representatives and field employees.
3. Every customer new to PSE service receives the *Your customer rights and responsibilities* brochure, which is also posted year-round on pse.com.

These samples below illustrate some of the communications used to raise awareness about PSE's three Service Guarantees.

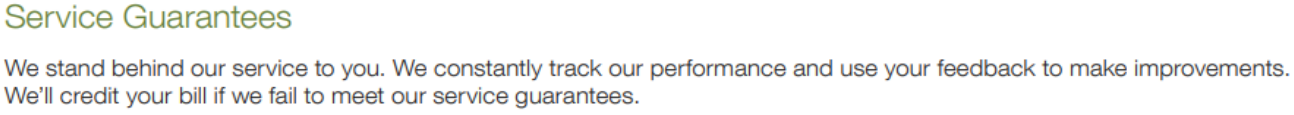
1. **January:** Messaged in customer newsletter and customer bills



January 2023 bill print messages
Summary page



2. **February:** Messaged in customer newsletter



3. **April:** Messaged on pse.com home page

4. **July:** Messaged in customer bills

July 2023 bill print messages
Summary page

Customer service, guaranteed
We stand behind our service, from keeping scheduled appointments to restoring power outages as soon as we can. We'll credit your bill if we fail to meet our service guarantees.
pse.com/guarantees

5. **August:** Messaged in customer newsletter

Customer service guaranteed

We stand behind our service to you. We constantly track our performance and use your feedback to make improvements. We'll credit your bill if we fail to meet our service guarantees.

- Appointment service guarantee.
- 24-consecutive-hour non-major storm power outage restoration guarantee.
- 120-consecutive-hour power outage restoration guarantee. Conditions apply.

More at **pse.com/guarantees**.

6. **October:** Messaged in customer newsletter and customer bills

Customer service guarantees

We stand behind our service to you. We constantly track our performance and use your feedback to make improvements. We'll credit your bill if we fail to meet our service guarantees.

- Appointment service guarantee
- 24-consecutive-hour non-major storm power outage restoration guarantee
- 120-consecutive-hour power outage restoration guarantee. Conditions apply.

More at **pse.com/guarantees**

October 2023 bill print messages
Summary page

Customer service, guaranteed
We stand behind our service, from keeping scheduled appointments to restoring power outages as soon as we can. We'll credit your bill if we fail to meet our service guarantees.
pse.com/guarantees

7. **December:** Messaged in customer newsletter

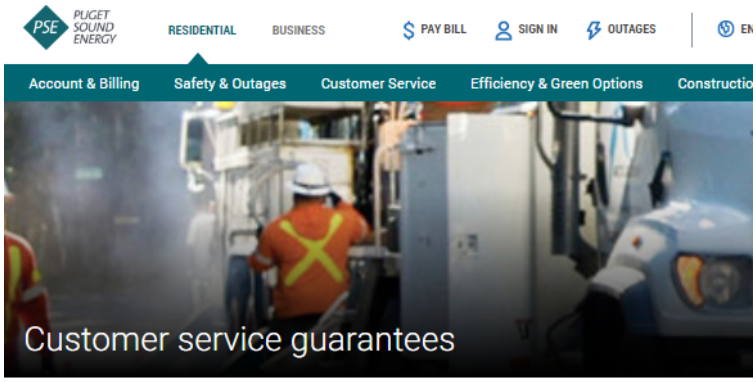
Customer service guaranteed

We stand behind our service to you. We constantly track our performance and use your feedback to make improvements. We'll credit your bill if we fail to meet our service guarantees.

- Appointment service guarantee
- 24-consecutive-hour non-major storm power outage restoration guarantee
- 120-consecutive-hour power outage restoration guarantee

Conditions apply. pse.com/guarantees.

8. PSE.com, posted year-round
   https://www.pse.com/pages/customer-service-guarantees



We stand behind our service to you

We're continually tracking how we're doing and using your feedback to improve. And we'll credit your bill if we fail to meet our service guarantees.

Appointment service guarantee

We'll credit your bill $50 if we don't keep an appointment to install new service, reconnect existing service or inspect natural gas equipment.

Certain maintenance work, including exchanges related to the Meter Upgrade project, are not eligible. Please see links below for qualifications and exclusions.

- Electric appointment service guarantee
- Natural gas appointment service guarantee

24 hour power outage restoration guarantee

You may be eligible for a $50 credit if your power is out for longer than 24 hours, barring a major storm or other event. Conditions apply and you must either report your outage to PSE or request the credit within seven (7) calendar days following restoration.

Guarantee effective as of Jan. 1, 2017

- The consecutive 24-hour period begins when PSE is first notified of the outage. In the event PSE cannot safely access its facilities, the consecutive 24-hour period begins when safe access is made available for the company's personnel and standard equipment
- The guarantee is not applicable in the following circumstances:
  - The outage is associated with a major storm or event, which includes subsequent days;
  - Restoration is prevented by an action or default by someone outside PSE's control (other than a company employee or agent);
  - PSE does not have safe access to its facilities in order to perform the needed repair;
  - PSE verifies that there was no outage as reported by the customer;
  - The customer's equipment has caused the outage; or
  - The customer's system has not received the proper electrical inspections and certifications.

- All qualifications and conditions

120 hour power outage restoration guarantee

You may be eligible for a $50 credit if your power is out for 120 consecutive hours or longer. Qualifications apply and you must either report your outage to PSE or request the credit within seven (7) calendar days following restoration.

1.

Table G1: Customer Awareness of Customer Service Guarantee

Field Service Operations Transactions Customer Satisfaction Survey		Jan 2023	Feb 2023	Mar 2023	Apr 2023	May 2023	Jun 2023	Jul 2023	Aug 2023	Sep 2023	Oct 2023	Nov 2023	Dec 2023
Q26A. When you called to make the appointment for a service technician to come out, did the customer service representative tell you about PSE $50 Service Guarantee?	Yes	69	55	48	61	47	41	47	42	39	63	63	71
	No	125	107	105	137	105	120	131	131	116	140	100	121
	Don't Know	46	47	47	50	44	38	62	35	37	47	37	46
	Refused Response	1	0	0	2	4	1	10	0	0	0	0	0
	Total Customers Surveyed	**241**	**209**	**200**	**250**	**200**	**200**	**250**	**208**	**192**	**250**	**200**	**238**
Q26C. Which of the following best fits your understanding of how the service guarantee works if a scheduled appointment has to be changed by PSE.	Whenever Puget Sound Energy changes an appointment, you are given the $50, OR	30	30	17	28	25	15	20	18	23	38	22	32
	You are given the $50 service guarantee if the rescheduled time causes you inconvenience.	24	11	18	30	23	15	26	14	9	23	21	32
	You have no understanding or expectations about this part of the service guarantee plan.	148	123	130	151	114	131	168	156	153	176	145	159
	Don't Know	31	39	27	29	32	35	26	20	7	13	12	13
	Refused Response	8	6	8	12	6	4	10	0	0	0	0	2
	Total Customers Surveyed	**241**	**209**	**200**	**250**	**200**	**200**	**250**	**208**	**192**	**250**	**200**	**238**

Table continues on next page.

Table G1: Customer Awareness of Customer Service Guarantee (continues)

		Jan 2023	Feb 2023	Mar 2023	Apr 2023	May 2023	Jun 2023	Jul 2023	Aug 2023	Sep 2023	Oct 2023	Nov 2023	Dec 2023
Field Service Operations Transactions Customer Satisfaction Survey													
Q26D. Did your appointment have to be rescheduled or did it occur as planned?	It was rescheduled	3	4	9	11	6	2	5	3	7	10	4	9
	Technician arrived but was late	2	0	1	1	0	0	0	2	1	5	4	0
	It occurred as planned	226	203	187	223	181	196	233	200	179	231	188	225
	Don't know	7	1	1	10	8	2	2	2	5	3	4	4
	Refused	3	1	2	5	5	0	10	1	0	1	0	0
	Total Customers Surveyed	**241**	**209**	**200**	**250**	**200**	**200**	**250**	**208**	**192**	**250**	**200**	**238**
Q26E. Who initiated rescheduling your appointment?	Puget Sound Energy (PSE) initiated	1	3	4	5	0	1	0	0	1	2	2	5
	Myself (customer initiated)	2	1	5	6	5	1	5	2	5	8	2	4
	Don't know	0	0	0	0	1	0	0	1	1	0	0	0
	Refused	0	0	0	0	0	0	0	0	0	0	0	0
	Total Customers Surveyed	**3**	**4**	**9**	**11**	**6**	**2**	**5**	**3**	**7**	**10**	**4**	**9**

H
Electric Reliability Terms and Definitions

Terms and Definitions

Area of Greatest Concern— Distribution circuits that met 4 or more of the reliability metrics used to access poor performance. These circuits are targeted for specific actions to improve the level of service reliability or quality. The reliability metrics used to assess circuit performance are:

- Circuit experienced greater than 3,000,000 CMI in the year 2023.
- Circuit experienced over 750,000 CMI for 2 of the last 3 years.
- Circuit experienced over 300 SAIDI for 2 of the last 3 years.
- Circuit experienced over 2 SAIFI for 2 of the last 3 years.
- Circuit experienced a single device operating 6 or more times over the last 3 years.
- The average CMI of the circuit for the past 5 years.
- In a 3 year span, customers on a circuit experiencing 6 or more interruptions in a single year

CAIDI—**Customer Average Interruption Duration Index**—This index represents the average time required to restore service. The performance result is calculated based on the below formula:

$$\textbf{CAIDI} = \frac{\textit{S Customer Minutes of Interruption}}{\textit{Total Number of Customers Interrupted}}$$

Catastrophic Event Days —Days when the daily SAIDI is greater than the annual catastrophic event day threshold (T_{CAT}).

Cause Codes—Codes used to identify PSE's best estimation of what caused a Sustained Interruption to occur.

CEMI$_n$—Customers Experiencing Multiple Interruptions—This index indicates the ratio of individual customers experiencing n or more sustained interruptions to the total number of customers served. The performance result is calculated based on the below formula:

$$\textbf{CEMI}_n = \frac{\textit{Total Number of Customers that experienced more than n sustained interruptions}}{\textit{Average Annual Electric Customer Count}}$$

Commission Complaint—Any single-customer electric-service reliability complaint filed by a customer with the Washington Utilities and Transportation Commission (WUTC).

Customer Complaint—Repeated customer inquiries relating to dissatisfaction with the resolution or explanation of a concern related to a Sustained Interruption or Power Quality. This is indicated by two or more recorded contacts in PSE's customer information system during current and prior year.

Customer Count—The number of electric customers per the outage reporting system that is a part of SAP, PSE's work management, customer information and financial information system.

Customer Inquiry—An event whereby a customer contacts the Customer Care Center to report a Sustained Interruption or Power Quality concern.

Duration of Sustained Interruption—The period beginning when PSE is first informed that service to a customer has been interrupted, and ending when the problem which caused the interruption has been resolved and the line has been re-energized (measured in minutes, hours or days).

IEEE 1366—IEEE Standard 1366-2012, a guide approved and published by the Institute of Electrical and Electronics Engineers that defines electric power reliability indices and factors that affect their calculations.

Interruption— The total loss of electric power on one or more normally energized conductors to one or more

customers connected to the distribution or transmission portion of the system. This does not include any of the power quality issues such as: sags, swells, impulses, or harmonics.

Major Event—An event, such as a storm, that causes serious reliability problems. At least one day within the event is a Major Event Day.

Major Event Complaint – Commission complaint or at least one of the 2 Customer inquiries are recorded during the event and up to one week of end of event. The Commission complaint and Customer inquiry must be regarding outage duration, outage frequency, or power quality.

Major Event Days— Any day in which the daily system SAIDI exceeds the threshold value, T_{MEDADJ}.

Momentary Interruption: Any interruption five minutes or less in duration.

Outage—The state of a system component when it is not available to perform its intended function, due to some event directly associated with that component. For the most part, a component's unavailability is considered an outage when it causes a Sustained Interruption of service to customers. The system component can be transmission, distribution or customer owned if it causes a Sustained Interruption to other customers.

Power Quality—Industry standards are not broad enough to define power quality or how and when to measure it. For purposes of this plan, power quality includes all other physical characteristics of electrical service except for Sustained Interruptions, including momentary outages, voltage sags, voltage flicker, harmonics and voltage spikes.

Public Safety Power Shutoff—An operational practice an electric utility may use to shut off power in high-risk areas to help prevent wildfires during extreme and dangerous weather conditions.

Root Cause Analysis— An in-depth review into the causes of large and/or recurring events and identification of potential future risks to reliability that can be mitigated through system investments and operational improvements

SAIDI—System Average Interruption Duration Index— This index indicates the total duration of interruption for the average customer during a predefined period of time. It is commonly measured in minutes or hours of interruption. The measurements used in PSE's Plan and reporting include Total methodology ($SAIDI_{Total}$), SQI methodology ($SAIDI_{SQI}$). Performance result for each of the measurements is calculated based on the below formula:

$$\textbf{SAIDI} = \frac{\textit{S Customer Minute Interruptions}}{\textit{Average Annual Electric Customer Count}}$$

- **$SAIDI_{Total}$:** the numerator includes all customer minute interruptions on outages five minutes or longer.
- **$SAIDI_{SQI-3}$**: the numerator excludes customer minute interruptions during T_{MEDADJ} Exclusion Major Event Days. Outages that are longer than 5 minutes are included in this metric.

SAIFI—System Average Interruption Frequency Index—This index is designed to give information about the average frequency of Sustained Interruptions per customers (CI). The measurements used in PSE's Plan and reporting include Total methodology, SQI-4 methodology. Performance results for each of the measurement will be calculated according to the following:

$$\textbf{SAIFI} = \frac{\textit{S Number of Customer Interruptions}}{\textit{Average Annual Electric Customer Count}}$$

- **$SAIFI_{Total}$:** the numerator includes all customer interruptions on outages five minutes or longer.
- **$SAIFI_{SQI-4}$**= the numerator excludes customer interruptions during T_{MEDADJ} Exclusion Major Event Days. Outages that are longer than 5 minutes are included in this metric.

SQ—PSE's Service Quality Program was first established per conditions of the Puget Power and Washington Natural Gas merger in 1997 under Docket UE-960195. The SQ Program has been since extended and modified in Dockets UE-011570 and UG-011571 (consolidated), Docket UE-031946, and Dockets UE-072300 and UG-072301 (consolidated).

Sustained Interruption—Any interruption longer than 5 minutes.

T_{CAT}—The Catastrophic Event Day identification threshold value that is calculated at the end of each reporting year for use during the next reporting year. It is determined by reviewing the past five years of daily system SAIDI, and using a 4.5 beta methodology of the IEEE Standard 1366 in calculating the catastrophic threshold value. Any days having a daily system SAIDI greater than T_{CAT} are days on which the energy-delivery system experienced catastrophic stresses, which are classified as Catastrophic Event Days.

$T_{CAT} = e^{(\alpha + 4.5\beta)}$ where α is the log-average of the data set and β is the log-standard deviation of the data set

T_{MEDADJ}—The SQI-3 SAIDI Major Event Day identification threshold value that is calculated at the end of each reporting year for use during the next reporting year. It is determined by reviewing the past five years of daily system SAIDI. Any catastrophic event day (T_{CAT}) daily SAIDI is replaced with the previous five year monthly average daily SAIDI. A T_{MEDADJ} is then calculated using the IEEE 1366 2.5 beta methodology to determine threshold value. Any days having a daily system SAIDI greater than T_{MEDADJ} are days on which the energy-delivery system experienced stresses beyond those normally expected, which are classified as SQI-3 Major Event Days.

$T_{MEDADJ} = e^{(\alpha + 2.5\beta)}$ where α is the log-average of the data set and β is the log-standard deviation of the data set.

I

Areas of Greatest Concern with Action Plan

This appendix provides the 2023 list of the Areas of greatest concern, where distribution circuits met 4 or more of the reliability metrics used to assess poor performance. These circuits are targeted for specific actions in 2024, 2025, or 2026 to improve the level of service reliability or quality. The reliability metrics used to assess circuit performance are:

- Circuit experienced greater than 3,000,000 CMI in the year 2023.
- Circuit experienced over 750,000 CMI for 2 of the last 3 years.
- Circuit experienced over 300 SAIDI for 2 of the last 3 years.
- Circuit experienced over 2 SAIFI for 2 of the last 3 years.
- Circuit experienced a single device operating 6 or more times over the last 3 years.
- The average CMI of the circuit for the past 5 years.
- In a 3 year span, customers on a circuit experiencing 6 or more interruptions in a single year

Table I1: 2023 Areas of Greatest Concern

County	Circuit	Number of Reliability Metrics Met	Action, Status, and Target Completion Date
Skagit	Baker River Switch-24	7	One underground conversion planned for 2024.
Skagit	Alger-15	7	One phase extension project planned for 2025. Four cable remediation projects are planned for 2024 and 2025.
Kitsap	Chico-12	7	One cable remediation project planned for 2024.
King	Greenwater-16	7	One cable remediation project planned for 2026.
King	Greenwater-13	7	One resiliency battery project planned for 2026. One cable remediation project planned for 2026.
King	Skykomish-25	7	Planning is continuing to monitor for improvements.
King	Tolt-15	7	Two cable remediation projects planned for 2024 and 2026.
King	Cle Elum-11	7	Three underground conversion projects, one planned for 2025 and two planned 2026.
Whatcom	Glacier-12	7	Four cable remediation projects planned for 2024.
Whatcom	Slater-16	7	One underground conversion project planned for 2025. One feeder extension project planned for 2025. Five cable remediation projects planned for 2024 and 2026.
King	Skykomish-23	6	Planning is continuing to monitor for improvements.
Skagit	Big Rock-15	6	One distribution automation project planned for 2024. One cable remediation project planned for 2024.
Whatcom	Nugents Corner-26	6	Six cable remediation projects planned for 2024 and 2026.
Island	Maxwelton-12	6	One distribution automation project planned for 2026. Four cable remediation projects planned for 2024 and 2026.
Skagit	Baker River Switch-13	6	Planning is continuing to monitor for improvements.

County	Circuit	Number of Reliability Metrics Met	Action, Status, and Target Completion Date
Whatcom	Kendall-12	6	Three cable remediation projects planned for 2024 and 2026.
Island	Freeland-13	6	One distribution automation project planned for 2026.Two cable remediation projects planned for 2025.
Pierce	Orting-22	5	One underground conversion planned for 2024. One cable remediation project planned for 2024.
King	Hyak-13	5	Two cable remediation project planned for 2024 and 2026.
Pierce	Shaw-15	5	Seven cable remediation projects planned for 2024.
Skagit	Big Rock-12	5	Two cable remediation projects planned for 2024.
Kitsap	Miller Bay-17	5	Planning is continuing to monitor for improvements.
Whatcom	Happy Valley-16	5	Planning is continuing to monitor for improvements.
Kitsap	Port Madison-12	5	Planning is continuing to monitor for improvements.
King	Duvall-12	5	One underground conversion project planned for 2026. One phase extension project planned for 2025. One cable remediation project planned for 2025.
King	Cottage Brook-13	5	Nine cable remediation projects planned for 2024 and 2025.
Kitsap	Silverdale-15	5	One project to install a double circuit extension at the Silverdale substation, planned for 2026. Two cable remediation projects planned for 2024 and 2026.
King	Sherwood-18	5	One underground conversion project and one tree wire installation project, both planned for 2025. Three cable remediation projects planned for 2024.
King	Mt Si-24	5	One cable remediation project planned for 2024.

County	Circuit	Number of Reliability Metrics Met	Action, Status, and Target Completion Date
Kitsap	Miller Bay-13	5	Planning is continuing to monitor for improvements.
Kitsap	Fragaria-12	5	One distribution automation project planned for 2026.
Island	Freeland-12	5	One cable remediation project planned for 2024.
Kitsap	Winslow-12	5	One distribution automation project planned for 2024. One cable remediation project planned for 2024.
Kitsap	Fargaria-15	5	Planning is continuing to monitor for improvements.
King	Plateau-23	4	One distribution automation project planned for 2025.
King	Kenmore-23	4	Two cable remediation projects planned for 2024 and 2026.
Whatcom	Schuett-15	4	One cable remediation project planned for 2024.
Kitsap	Serwold-12	4	Planning is continuing to monitor for improvements.
King	Lake Youngs-15	4	One tree wire installation project planned for 2024. Three cable remediation projects planned for 2024 and 2026.
Skagit	Hamilton-13	4	Planning is continuing to monitor for improvements.
Skagit	Summit Park-21	4	Two cable remediation projects planned for 2024.
Skagit	Shannon-22	4	Planning is continuing to monitor for improvements.
Kitsap	Port Gamble-12	4	Planning is continuing to monitor for improvements.

County	Circuit	Number of Reliability Metrics Met	Action, Status, and Target Completion Date
Whatcom	Labounty-26	4	One cable remediation project planned for 2024.
Whatcom	Nugents Corner-25	4	Two cable remediation projects planned for 2024.
Island	Clover Valley-16	4	Three cable remediation projects planned for 2024 and 2025. One tree wire installation project completed in 2023.
King	Cottage Brook-15	4	Planning is continuing to monitor for improvements.
Thurston	Griffin-13	4	Three cable remediation projects planned for 2024 and 2025.
Island	Brooks Hill-15	4	One distribution automation project planned for 2024. Three cable remediation projects planned for 2024 and 2025.
Island	Freeland-15	4	One distribution automation project planned for 2026. Three cable remediation projects planned for 2025 and two cable remediation projects completed in 2023.