

Docket Nos. UE-072300 and UG-072301

**Puget Sound Energy
2013 SQ Program and Electric Service Reliability Filing**

**Attachment A:
2013 Annual Puget Sound Energy SQI and Electric Service Reliability Report**

2013
Puget Sound Energy
SQI and
Electric Service Reliability Report

Filed on March 28, 2014



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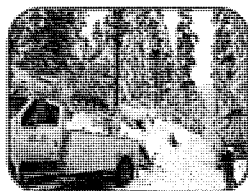
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Introduction

Executive Summary

As Washington State's oldest and largest energy utility, with a 6,000-square-mile service territory stretching across 11 counties, Puget Sound Energy (PSE) serves approximately 1.1 million electric customers and over 770,000 natural gas customers primarily in the Puget Sound region of Western Washington. PSE meets the energy needs of its customer base 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.

Background

PSE first implemented its Service Quality Program (the SQ Program) when the Washington Utilities and Transportation Commission (UTC, or WUTC, or the Commission) authorized the merger of Washington Natural Gas Company and Puget Sound Power & Light Company in 1997.¹ 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.” The SQ Program has been further extended² with various modifications to demonstrate PSE's continuous commitment to customer protection and quality service.

Service Quality Program

The SQ Program includes three components:

- **Customer Service Guarantee**—The Customer Service Guarantee (CSG) provides for a \$50 missed appointment credit for both natural gas and electric service. This guarantee became effective in 1997.
- **Restoration Service Guarantee**—The Restoration Service Guarantee (RSG) provides for a \$50 electric outage restoration credit to a qualified PSE electric customer. This guarantee was established in 2008.
- **Service Quality Index (SQI)**—PSE currently reports annually to the UTC on nine SQIs in this document. This document explains the SQIs, how they are calculated and PSE's performance on each of the SQIs.

¹ Under consolidated Docket Numbers UE-951270 and UE-960195.

² Under consolidated Docket Numbers UE-011570, UG-011571, UE-072300 and UG-072301.

In addition to these three components, the SQ Program also prescribes additional reporting requirements for PSE's primary service providers. Several Service Provider Indices (SPIs) benchmark performances in areas of construction standards compliance, customer satisfaction reliability/service restoration and kept appointments. Finally, the SQ Program includes PSE's gas emergency response plans for outlying areas, which are filed concurrently with this Report as Attachment B to the annual UTC SQI and Electric Service Reliability filing.

SQI and Electric Service Reliability Report

This *2013 Annual Puget Sound Energy SQI and Electric Service Reliability Report* meets PSE's SQ Program reporting requirements³ and the electric service reliability reporting requirements set forth by the UTC.^{4,5}

To facilitate external review of PSE's SQI and Electric Service Reliability performance, the two areas were combined starting with the 2010 reporting year.⁶

³ 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 Docket Numbers UE-011570 and UG-011571, Orders 1 and 2 of UE-031946, and Orders 12, 14, 16, 17, 18, 19, 20, 21, and 23 of consolidated Docket Numbers UE-072300 and UG-072301.

⁴ The Electric Service Reliability section of this Report reflects all of PSE's electric service reliability reporting requirements outlined in Docket No. 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.

⁵ Two PSE commitments regarding the preparation of the Electric Service Reliability section, as outlined in Section F, Reporting of Customer Compliant Information, of Appendix D to Order 12 of consolidated Docket Numbers UE-072300 and UG-072301 (Section F), are also satisfied in this annual report. 1) Chapter 13 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.

⁶ 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 Docket Numbers UE-072300 and UG-072301) and the reporting consolidation became effective for the 2010 performance periods and each report thereafter.

Overview of Performance

Tables 1a through 1f summarize PSE's 2013 SQI and Electric Service Reliability performance along with relevant service providers' performance metrics and the two service guarantees. PSE met eight of the nine SQIs. The lone exception was SQI #5- Customer Access Center answering performance.

Table 1a: Customer Satisfaction Indices for 2013

Key Measurement	Type of Metric	Benchmark/Description	2013 Performance Results	Achieved
Customer Satisfaction				
UTC complaint ratio	Service Quality Index #2	No more than 0.40 complaints per 1,000 customers, including all complaints filed with UTC	0.25	<input checked="" type="checkbox"/>
Customer Access Center transactions customer satisfaction	Service Quality Index #6	At least 90% satisfied (rating of 5 or higher on a 7-point scale)	91%	<input checked="" type="checkbox"/>
Field Service Operations transactions customer satisfaction	Service Quality Index #8	At least 90% satisfied (rating of 5 or higher on a 7-point scale)	95%	<input checked="" type="checkbox"/>
Service Provider Customer Satisfaction—Quanta Electric	Service Provider Index #2B ⁷	At least 77% satisfied (rating of 5 or higher on a 7-point scale)	NA ⁸	NA
Service Provider Customer Satisfaction—Quanta Gas	Service Provider Index #2C	At least 84% satisfied (rating of 5 or higher on a 7-point scale)	NA ⁸	NA

⁷ Service Provider Index #2A was assigned to a service provider, Pilchuck, that no longer worked for PSE. As of April 30, 2011, PSE transitioned all natural gas construction and maintenance work to Quanta Gas.

⁸ There was no customer satisfaction survey conducted during 2013 due to the closing of the former survey company, Gilmore Research Group, in February 2013. Details about PSE's SQI survey company change are in the Chapter 1 Replacement of SQI Survey Vendor section of the 2013 Annual Puget Sound Energy SQI and Electric Service Reliability Report. PSE's petition filed with UTC on March 11, 2013, the UTC Order 21 in Docket Numbers UE-072300 and UG-072301 (consolidated) issued on April 8, 2013, and PSE's subsequent compliance filing on June 21, 2013, provided further information about the change. Other measures took place in 2013 to collect customer satisfaction information regarding the new customer construction services are in the Chapter 9 of the 2013 Annual Puget Sound Energy SQI and Electric Service Reliability Report.

Table 1b: Customer Service Indices for 2013

Key Measurement	Type of Metric	Benchmark/Description	2013 Performance Results	Achieved
Customer Service				
Customer Access Center answering performance	Service Quality Index #5	At least 75% of calls answered by a live representative within 30 seconds of request to speak with live operator	66% ⁹	<input type="checkbox"/>

Table 1c: UTC Operational Services-*Appointments* Indices for 2013

Key Measurement	Type of Metric	Benchmark/Description	2013 Performance Results	Achieved
Operations Services—<i>Appointments</i>				
Appointments kept	Service Quality Index #10	At least 92% of appointments kept	99%	<input checked="" type="checkbox"/>
Service provider appointments kept—Quanta Electric	Service Provider Index #3B ¹⁰	At least 98% of appointments kept	100% ¹¹	<input checked="" type="checkbox"/>
Service provider appointments kept—Quanta Gas	Service Provider Index #3C	At least 98% of appointments kept	97%	<input checked="" type="checkbox"/>
Customer Service Guarantee	Service Guarantee #1	A \$50 credit to customers when PSE fails to meet a scheduled SQI appointment	\$18,050	--

It is important to note that the figure "--" in some Achieved column elements of Tables 1a through 1f and certain other tables in the report and Appendices indicates that, although this is an important PSE metric, it is not an SQI.

⁹ Starting in the 2010 annual SQI reporting the performance, result shown excludes calls abandoned within 30 seconds. The calculation change was proposed in PSE's 2009 SQI annual report and agreed to by UTC staff and Public Counsel via their e-mails to PSE on April 1, 2010.

¹⁰ Service Provider Index #3A was assigned to a service provider, Pilchuck, that no longer worked for PSE. As of April 30, 2011, PSE transitioned all natural gas construction and maintenance work to Quanta Gas.

¹¹ Results shown are rounded to the nearest whole percentage per UTC order. However, these 100% monthly performance results do not reflect that the service provider 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*.

Table 1d: Operations Services-Gas Indices for 2013

Key Measurement	Type of Metric	Benchmark/Description	2013 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	32 minutes	<input checked="" type="checkbox"/>
Secondary safety response time—Quanta Gas	Service Provider Index #4D ¹²	Within 60 minutes from first response assessment completion to second response arrival	46 minutes	<input checked="" type="checkbox"/>
Service provider standards compliance—Quanta Gas	Service Provider Index #1C ¹³	At least 97% compliance with site audit checklist points	98%	<input checked="" type="checkbox"/>

¹² Service Provider Index #4A was assigned to a service provider, Pilchuck, that no longer worked for PSE. As of April 30, 2011, PSE transitioned all natural gas construction and maintenance work to Quanta Gas.

¹³ Service Provider Index #1A was assigned to a service provider, Pilchuck, that no longer worked for PSE. As of April 30, 2011, PSE transitioned all natural gas construction and maintenance work to Quanta Gas.

Table 1e: Operations Services-*Electric* Indices for 2013

Key Measurement	Type of Metric	Benchmark/Description	2013 Performance Results	Achieved
Operations Services—<i>Electric</i>				
Electric safety response time	Service Quality Index #11	Average 55 minutes or less from customer call to arrival of field technician	53 minutes	☑
Service provider standards compliance—Quanta Electric	Service Provider Index #1B	At least 97% compliance with site audit checklist points	98%	☑
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	243 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	274 minutes	☑
Restoration Service Guarantee	Service Guarantee #2	A \$50 credit to eligible customers when a power outage is longer than 120 consecutive hours	\$0	--

Table 1f: Electric Service Reliability-SAIFI & SAIDI Indices for 2013

Key Measurement	Type of Metric	Benchmark/Description	2013 Performance Results	Achieved
Electric Service Reliability—SAIFI & SAIDI¹⁴				
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	1.13 interruptions	--
SAIFI_{Total 5-year Average} Total (all outages five-year average) SAIFI	Reliability	Five years average of the power interruptions per customer per year, including all types of outage event	1.19 interruptions	--
SAIFI_{5%} <5% Non-Major-Storm (<5% customers affected) SAIFI	Service Quality Index #4	No more than 1.30 interruptions per year per customer	0.86 interruptions	<input checked="" type="checkbox"/>
SAIFI_{IEEE} IEEE Non-Major-Storm (T _{MED}) SAIFI	Reliability	Power interruptions per customer per year, excluding days exceeding the T _{MED} threshold	0.86 interruptions	--
SAIDI_{Total} Total (all outages current year) Outage Frequency—System Average Interruption Duration Index (SAIDI)	Reliability	Outage minutes per customer per year, including all types of outage event	209 minutes	--
SAIDI_{Total 5-year Average} Total (all outages five-year average) SAIDI	Service Quality Index #3	No more than 320 minutes per customer per year	247 minutes	<input checked="" type="checkbox"/>
SAIDI_{5%} <5% Non-Major-Storm (<5% customers affected) SAIDI	Reliability	Outage minutes per customer per year, excluding outage events that affected 5% or more customers	122 minutes	--
SAIDI_{IEEE} IEEE Non-Major-Storm (T _{MED}) SAIDI	Reliability	Outage minutes per customer per year, excluding days exceeding the T _{MED} threshold	125 minutes	--

As shown in the preceding tables, PSE met eight of nine SQI benchmarks in 2013 except SQI #5—Customer Access Center Answering Performance.

¹⁴ Please see the Electric Service Reliability section for the calculation and Appendix H: *Electric Reliability Terms and Definitions* for the definition of each of the measurements.

Detailed SQI 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 the 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),
 - **Attachment C to Appendix A**—Gas Reportable Incidents and Control Time.
- **Appendix B: Certification of Survey Results**—The independent survey company, EMC Research, certify that all SQI-related customer surveys were conducted with applicable guidelines and the results are unbiased and valid.
- **Appendix C: Penalty Calculation and Penalty Mitigation Petition**—This appendix shows the SQI #5 penalty calculation and allocation and a mitigation petition for a penalty relief from UTC.
- **Appendix D: Proposed Customer Notice (Report Card)**—This appendix presents PSE’s proposed 2013 customer service performance report cards for with or without SQI #5 penalty depending the UTC approval. The Customer Service Performance 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 payments results by appointment type.
- **Appendix G: Customer Awareness of Customer Service Guarantee**—This appendix discusses the ways PSE makes customers aware of its Customer Service Guarantee and the results of the survey.

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

- **Appendix H: Electric Reliability Terms and Definitions**—This appendix discusses the terms and definitions found in this report.
- **Appendix I: Electric Reliability Data Collection Process and Calculations**—This appendix discusses data collection methods and issues. It explains how the various data were collected.
- **Appendix J: Current Year Electric Service Outage by Cause by Area**—This appendix details the 2013 Outage Cause by County.

- **Appendix K: Historical SAIDI and SAIFI by Area**—This appendix details the three-year history of SAIDI and SAIFI data by county.
- **Appendix L: 1997-Current Year PSE SAIFI and SAIDI Performance by Different Measurements**—This appendix presents PSE SAIFI and SAIDI performance from 1997 through the current year using different measurements.
- **Appendix M: Current-Year Commission and Rolling-Two-Year PSE Customer Electric Service Reliability Complaints with Resolutions**—This appendix lists the current-year UTC and rolling-two year PSE customer electric service reliability complaints with resolutions.
- **Appendix N:**
- **Areas of Greatest Concern with Action Plan**—This appendix details the areas of greatest concern with an action plan.
- **Appendix O: Current Year Geographic Location of Electric Service Reliability Customer Complaints on Service Territory Map with Number of Next Year's Proposed Projects and Vegetation-Management Mileage**—This appendix illustrates current-year geographic location of electric service reliability customer complaints on service territory map with number of next year's proposed projects and vegetation-management mileage.

Customer Notice of SQI Performance

Appendix D: Proposed Customer Notice (Report Card) is PSE's proposed customer notice of PSE's 2013 SQI performance. There are two versions of the proposed Report Card: one with, and one without a UTC relief of SQI #5–Customer Access Center Answering Performance penalty. With the Commission's determination of PSE's penalty mitigation petition and after consultation with the UTC staff and Public Counsel, PSE will begin distributing the final SQI report card by June 30, 2014 as part of the customer billing package.

Changes in 2013

The following discussions summarized the signification events in 2013 that affected PSE's service quality or electric service reliable performance results.

SQI # 5 Petition

For 2013, PSE met the benchmarks for eight of nine indices except for SQI #5–Customer Access Center Answering Performance. The below-benchmark performance is due to the implementation of PSE's new customer information system (CIS).

The replacement of CIS on April 1, 2013, the establishment of PSE's first integrated Outage Management System (OMS) and its very first Geographic Information Systems (GIS) are discussed in the *Renovation of Outage Management and GIS Systems and Renovation* section of *Customer Information Systems* sections in this Chapter.

PSE encountered the negative effects it had projected¹⁵ as a result of the implementation of the new CIS during the months of April through September 2013, the CIS switch-over and stabilization period. PSE experienced average call wait times of 1 minute, 52 seconds in this period. Other utilities have experienced much more substantial impacts when implementing/upgrading a CIS.

Specifically, some utilities' average hold times grew from 20 seconds to 13 minutes as a result of their CIS implementation.¹⁶ Further, PSE encountered a 12% increase in calls that requested to speak with a call center representative during the period, but other utilities experienced 25% increases in call volumes.¹⁷ Although PSE performed better than its peer group as a result of PSE's preparedness and mitigation actions, SQI #5 was nevertheless adversely affected during the months of April through September 2013.

¹⁵ On March 13, 2013, prior to the CIS switch-over, in anticipation of the potential negative impact of the new CIS implementation; PSE filed a petition with the UTC for a temporary suspension of three service quality indices: SQI #2, SQI #5, and SQI #6. The petition was not granted by the UTC. A subsequent petition with the UTC in December 2013 sought a one-time SQI #5 performance calculation modification to isolate the adverse effects of the CIS implementation was withdrawn. The Commission and the UTC staff agreed that a mitigation petition within the annual SQI reporting is what was provided in the SQI mitigation standard.

¹⁶ Electric and Gas Utility CIS Implementation Benchmark Report, Bass & Company, at p. 12 (November 28, 2005).

¹⁷ Electric and Gas Utility CIS Implementation Benchmark Report, Bass & Company, at p. 12 (November 28, 2005).

The overall 2013 annual SQI #5 performance is 66% with calculated penalty of \$648,000. Appendix C to the *2013 Annual Puget Sound Energy SQI and Electric Service Reliability Report* includes a mitigation petition for a relief of the penalty. The penalty mitigation is appropriate as the circumstances underlying the below standard performance were exceptional and PSE's level of preparedness and response was reasonable.

Replacement of SQI Survey Vendor

Effective June 2013, EMC Research was retained as PSE's exclusive survey company, conducting and preparing the survey results for the Service Quality Program's SQI #6 and #8 due the bankruptcy of Gilmore Research Group¹⁸ in February 2013. PSE petitioned with the Commission on March 11, 2013, to allow for the replacement of the survey vendor and allow for time to review the survey methodology and procedures used by the new company if needed. As Gilmore Research Group was the designated SQI survey vendor and its survey methodology and procedures were also parts of the SQI settlements, a Commission order authorizing changes in these two areas is required.

A third-party validation of EMC Research's methodology and procedures was concluded in June 2013 and EMC Research began conducting interviews for the two SQIs in July. These interviews have been, and will be, carried out by local interviewers who can relate to PSE customer experience, therefore improving response rate. EMC Research also provides advanced analysis, reporting tools and expertise that were not available via Gilmore Research Group. This will help facilitate PSE's use of the survey results to enhance its customer satisfaction in telephone center transactions (SQI #6) and field service operations transactions (SQI #8).

Renovation of Outage Management and GIS Systems

The electric Outage Management System replaced the legacy outage tracking and the primary electric distribution management system functionality that was retired with the implementation of the new CIS and OMS. The new OMS system improves PSE's ability to more quickly pinpoint the sources of electric power outages while efficiently directing repair efforts. The new OMS also helps PSE estimate restoration times more accurately. The implementation of this tool is also part of PSE's commitments post the 2006 Hanukah Eve Wind Storm to boost its outage response and to provide customer better restoration information.

¹⁸ Gilmore Research Group was the exclusive survey company conducting and preparing the survey results for the Program's SQI #6 and #8 that had been designated in PSE's Service Quality Program mechanics documents. Further details about PSE's SQI survey company change are in PSE's petition filed with UTC on March 11, 2013, the UTC Order 21 in Docket Nos. UE-072300 and UG-072301 (consolidated) issued on April 8, 2013, and PSE's subsequent compliance filing on June 21, 2013.

The Geospatial Information System (GIS) project replaces existing paper maps of PSE's gas and electric systems with electronic databases that provide better information about the characteristics of PSE's gas and electric assets and network, and enable PSE employees to manage and maintain the systems more safely and effectively. The electric GIS is used in conjunction with the OMS to provide PSE a comprehensive view of the electric production, transmission and distribution systems.

Renovation of Customer Information Systems

In October 2011, PSE commenced replacement of its existing customer information system, ConsumerLinX (CLX), with SAP's Customer Relationship and Billing (CR&B) system as part of the Company's massive effort in business modernization.

CLX, which was developed in the late 1990s, was used for managing customer information, billing, and service requests. CLX also interacted with several PSE systems that combined to form an outage management system. The technical foundation used to build CLX does not provide efficient sharing of data with the contemporary software systems PSE adopted, including the new outage management system with electronic mapping of equipment and facilities data. It was cost-ineffective and inefficient to build the interfaces required to upgrade CLX so that it would support the new OMS or future smart grid communications, for example.

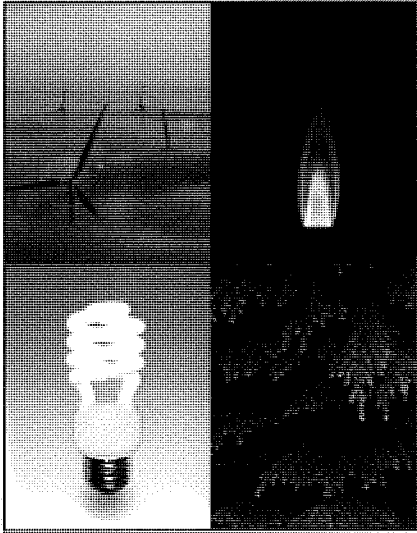
SAP CR&B system's up-to-date technology provides a robust interface with PSE's new OMS and GIS. The new CIS also streamlines PSE's daily operations in four main functional areas: 1) customer service, 2) device and service order management, 3) credit and collections, and 4) billing. In addition to modernizing customer service operations and processes, PSE expects the modern SAP technology to be the base platform for more advanced customer services such as mobile device payment, outage notification, text messaging, and payment reminders in the future.

Change of Data Source

The new CIS and OMS changed the source data for 6 of the 9 SQI's (SQI #2, 3, 4,7,10, and 11). There was a change in SQI survey vendor (as mentioned in the *Replacement of SQI Survey Vendor* section above) for SQI #6 and 8. Table 1g details each data source change.

Table 1g: Data Source Changes Occurring in 2013

Key Measurement	Previous Data source	Current Data source
UTC complaint ratio (SQI #2)	Escalated Complaint Management System (ECMS and ConsumerLinX(CLX)	ECMS and SAP CR&B
SAIDI (SQI #3)	CLX and Demand Management System (DMS)	Outage Management System (OMS) and SAP CR&B
SAIFI (SQI #4)	CLX and Demand Management System (DMS)	Outage Management System (OMS) & SAP CR&B
Customer Access Center transactions customer satisfaction (SQI #6)	Gilmore Research Group and CLX	EMC Research and SAP CR&B
Gas safety response time (SQI#7)	CLX and PCAD	SAP CR&B and PCAD
Field Service Operations transactions customer satisfaction (SQI #8)	Gilmore Research Group and CLX	EMC Research and SAP CR&B
Kept Appointments (SQI #10)	CLX and SAP Work Management	SAP CR&B
Electric safety response time (SQI #11)	CLX and Demand Management System (DMS)	Outage Management System (OMS) and SAP CR&B



Customer Satisfaction

Puget Sound Energy wants to know what customers expect of the utility's performance and services in order to address customer concerns and improve customer satisfaction. One way PSE listens to customers is by conducting customer surveys. Customers are surveyed for a variety of reasons, including their opinions about PSE overall and about specific attributes with Customer Access Center (CAC) transactions and with Field Service transactions. Complaints directed to PSE or the UTC and their resolution also are considered in working toward understanding what is most important to customers.

This section discusses the three customer satisfaction-related service quality indices (SQIs):

- UTC Complaint Ratio (SQI #2),
- Customer Access Center Transactions Customer Satisfaction (SQI #6),
- Field Service Operations Transactions Customer Satisfaction (SQI #8).

See Chapter 9

Customer *Construction Services Department and Service Provider Performance* for more information on customers' satisfaction with PSE's service providers.



2

UTC Complaint Ratio (SQI #2)

Overview

Each year the UTC receives complaints from PSE customers on a variety of topics.

In 2013, while serving approximately 1.87 million customers (1.1 million electric and 770,000 natural gas), PSE customers filed 466 complaints concerning PSE with the UTC. This is an increase of 16 complaints from 2012. Table 2a provides the summary 2013 complaint ratio.

Table 2a: UTC Complaint Ratio for 2013

Key Measurement	Benchmark	2013 Results	Achieved
UTC complaint ratio (SQI #2)	No more than 0.40 complaints per 1,000 customers, including all complaints filed with UTC	0.25	<input checked="" type="checkbox"/>

About the Benchmark

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

$$UTC \text{ complaint ratio} = \frac{\text{electric and gas complaints recorded by UTC}}{\text{average monthly number of electric and gas customers}} \times 1,000$$

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

What Influences the UTC Complaint Ratio?

UTC complaints received in 2013 are categorized into seven principal complaint types. Although the volume changes from year to year, the distribution among the complaint types has historically remained consistent. In 2013, Disputed Bill and Disconnect complaint types comprised over 65% of the total complaints received - as they have in each of the preceding three years. Table 2b provides a breakdown of the UTC complaints for 2013.

Table 2b: Number of UTC Complaints by Type as of December 31, 2013

Complaint Type	Complaints				
	2009	2010	2011	2012	2013
Construction	15	7	8	11	15
Customer service	45	33	38	52	68
Deposit	26	48	39	37	14
Disconnect	167	176	158	141	63
Disputed bill	319	219	209	161	247
High bill ¹⁹	N/A	20	28	18	26
Quality of service	24	20	25	22	19
Other	26	18	18	8	14
Total	622	541	523	450	466

In 2013 the distribution between Deposit, Disconnect, and Disputed Bill complaints changed significantly. Deposit and Disconnect volumes dropped and Disputed Bill complaints increased by 50% from 2012 levels. Customer Service complaints were also up 30% from 2012.

In April 2013 PSE implemented a new Customer Information System. The preparation, implementation, and ensuing stabilization of this system were the impetus for most of the complaint distribution changes.

- To allow resources to implement and verify the new CIS dunning processes, disconnects for non-pay were reduced from 62,261 in 2012 to 23,733 in 2013. The change in the number of Disconnect complaints in 2013 from 2012 also showed a similar trend.

¹⁹ The high bill category was added in 2010.

- Deposit complaints are closely linked to Disconnect complaints because each disconnect for non-pay requires a deposit for reconnection. In some cases, the consumer files a complaint regarding the deposit rather than the disconnection. Applying the ratio of disconnects from 2012 to 2013 would result in nearly the same number of deposit complaints in 2013 as in 2012.
- Disputed Bill complaints were impacted in two key categories as a result of the CIS implementation. The overall increase was 86 complaints from 2012 to 2013. Of this total, 68 accounted for a large portion of the complaint increase. These can be categorized by:
 1. Issues related to the CIS implementation itself resulted in 30 Disputed Bill complaints. These were specifically related to billing issues during implementation. These were addressed and repeat issues have not recurred.
 2. Issues related to “move in / move out” disputes accounted for 38 Disputed Bill complaints. Internal processes are being addressed to ensure these types of consumer questions are addressed prior to their escalation to the UTC. Process changes are expected to address the root cause of as many as 80% of the 2013 “move in / move out” type customer concerns in 2014 and beyond.
- Customer Service complaints related to CIS implementation (16) accounted for the difference between 2012 and 2013. Process changes and CIS stabilization will prevent these from occurring again.

Historical Trend for the UTC Complaint Ratio

Table 2c outlines the UTC complaint ratio from 2009 to 2013.

Table 2c: UTC Complaint Ratio from 2009 to 2013

	2009	2010	2011	2012	2013
Actual complaint ratio	0.34	0.30	0.28	0.24	0.25
Benchmark complaint ratio	0.50 complaints per 1,000 customers, including all complaints filed with UTC		0.40 complaints per 1,000 customers, including all complaints filed with UTC		

Working to Prevent and Reduce UTC Customer Complaints

Complaint Management

PSE evaluates individual and groups of complaints to identify significant causes of complaints. This allows focus on reducing or eliminating the complaint cause resulting in complaint reduction. This has been an effective process from 2009 through 2012 with a steady decline in the number and rate of complaints each year.

The improvement trend changed in 2013 with a small increase in total complaints as previously noted. PSE’s implementation and deployment of the new CIS resulted in as many as the 84 Disputed Bill and Customer Service complaints as discussed above. Excluding those from the 2013 totals would result in another reduction in complaints from 2012 to 2013.

In preparation for the CIS implementation, processes were developed to allow prompt identification of customer issues, training to address the issues, and ways for documenting and tracking CIS specific complaints. As part of this process, a “Super Escalation Team” within PSE’s Customer Care Department was developed in 2013. The team consisted of a group of 12 PSE managers whose regular responsibilities included extensive customer engagement. The team was trained and available to support customer issues that needed to be escalated beyond the typical complaint resolution channels. Only 18 complaints reached the team and all 18 complaints were resolved without escalating to a UTC complaint.

“Consumer Upheld” Complaints

PSE has found that UTC complaints closed with a UTC disposition of “Consumer Upheld” can often indicate errors and missed opportunities within the control of PSE. This type of complaint receives consideration for root cause analysis and additional corrective/preventive action. This attention resulted in a steady decrease in the percentage of this type of complaints from 2009 through 2012. This favorable trend took a dramatic turn in 2013 as the percent more than tripled mainly due to the implementation of CIS. Table 2d provides a 5-year view of this ratio.

Table 2d: Percentage of “Consumer Upheld” UTC Complaints

	2009	2010	2011	2012	2013
“Consumer Upheld”	23%	16%	14%	13%	41%

The change in “Consumer Upheld” UTC complaints began in the spring 2013 and was exacerbated with the implementation of CIS. Issues were identified and managed individually with some success. In August, a thorough study of UTC and other complaints received since June 1 was conducted. It found that nearly 70% of complaints may have been prevented with more accurate and timely action at the first customer contact.

The study identified four critical processes that were key contributors to the cause of the complaints. Immediate action was taken on two of these processes in order to bring them more current. By year end 2013, all complaints were resolved.

A follow up study conducted in December 2013 found that accuracy and timeliness issues had dropped to 45% of complaints received since November 1, 2013. Additional studies on complaints with a focus on critical processes will be conducted on a regular basis in 2014. Continual monitoring of “Consumer Upheld” UTC complaints will be used to validate the results of the follow up studies and their consequent actions.

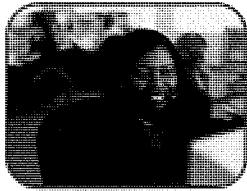
PSE expects these actions to result in a reduction of the rate of “Consumer Upheld” UTC complaints during 2014. Of more importance is the significant opportunity for reduction in the overall UTC complaint rate through addressing accuracy and timeliness of action at the time of the customer’s first interaction with the company.

Going Forward

PSE will continue identifying potential issues that could trigger any 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 2014 include:

- Continual focus on UTC “Consumer Upheld” complaint dispositions to identify root cause, establishment of preventive and corrective actions, and follow up to determine the effectiveness of the actions.
- Knowledge gained in managing escalated complaints will expand into more opportunities for training and education of others in PSE. The objective is to continue to improve PSE’s company-wide customer experience.

Continual commitment to work with UTC staff to find ways to make complaint response and resolution process more efficient for the UTC staff and PSE.



3

Customer Access Center Transactions Customer Satisfaction (SQI #6)

Overview

Most of the telephone calls to PSE go to the PSE Customer Access Center (CAC). The CAC interfaces with the greatest number of customers and strives to establish and improve upon customer satisfaction.

Two independent research companies conducted telephone surveys with PSE customers and prepared monthly and semi-annual reports on customer satisfaction regarding CAC transactions during the 2013 SQI program year. The change in the research company is discussed in the *Replacement of SQI Survey Vendor* section in Chapter 1. In 2013, these independent surveys found that 91% of customers surveyed were satisfied with CAC's overall transaction performance (SQI #6). Table 3a provides the summary customer satisfaction figure.

Table 3a: Customer Access Center Transactions Customer Satisfaction for 2013

Key Measurement	Benchmark	2013 Results	Achieved
Customer Access Center transactions customer satisfaction (SQI #6)	At least 90% satisfied (rating of 5 or higher on a 7-point scale)	91%	<input checked="" type="checkbox"/>

About the Benchmark

In general, on a weekly basis, an independent research company conducts phone surveys to customers who have made calls to PSE and asks the following question:

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

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

There were two independent research companies that carried out the survey for PSE in 2013 with both companies following the same survey methodology and procedures that were approved by the UTC. Discussion about the survey vendor change in can be found in the *Replacement of SQI Survey Vendor* section of Chapter 1.

What Influences Customer Satisfaction with Customer Access Center Transactions?

A variety of influences are considered when rating customer satisfaction with the Customer Access Center's transaction performance. The following attributes are measured and relate to customer service representatives (CSRs) while talking with the customers. The survey documents whether the CSRs:

- Were polite,
- Listened carefully,
- Provided clear explanations,
- Were knowledgeable and helpful,
- Followed through on commitments discussed,
- Resolved the issue during the initial phone call,
- Went the extra mile.

Although not part of the standard survey attributes, during satisfaction surveys customers also indicated the following attributes they expect from a CSR:

- Answered all questions and were informative,
- Provided prompt service,
- Show care and concern,
- Were professional and efficient.

Historical Trend for Customer Satisfaction with Customer Access Center Transactions

Table 3b shows customer satisfaction results from 2009 to 2013.

Table 3b: Customer Access Center Transactions in Customer Satisfaction from 2009 to 2013

	2009	2010	2011	2012	2013
Customer Access Center transactions customer satisfaction	93%	96%	95%	95%	91%
Benchmark	90% satisfied (rating of 5 or higher on a 7-point scale)				

Working to Uphold Customer Satisfaction with Customer Access Center Transactions

Focus on Customer Service

Customer Access Center CSRs are provided with extensive coaching and training to improve their performance in order to handle each customer inquiry with courtesy and professionalism.

- CSRs answering customer calls are cross-trained in different areas to handle the vast variations of customer inquiries; including billing, emergencies, outages, web, correspondence, and apartment inquiries; and to resolve exceptional customer concerns.
- CSRs, as a group, are expected to maintain a minimum rating of 90% in customer satisfaction surveys as conducted by EMC Research. The CSRs receive feedback based on EMC Research ratings during their performance evaluation.
- Supervisors meet with each CSR for coaching sessions in order to build skills, reinforce strengths and identify future training needs.
- CSRs work to enhance customer relationships by making every effort to exceed the customer's needs and expectations.

Quality Checks and Balances

To guarantee continuous customer satisfaction in the changing environment, processes in the Customer Access Center are constantly reviewed for accuracy, maintenance and necessary changes.

To ensure that CSRs continuously rank at the optimal level of performance, a team of Quality Assurance (QA) analysts was formed with the CAC in 2013. The QA analysts continuously monitor critical processes. Monitoring involves process review, random call monitoring, coaching and performance trend reporting.

PSE customer service representatives earned very high satisfaction ratings from customers: 77% of surveyed customers said they were completely satisfied²⁰ with the way the CSR handled the call. To achieve the highest level of quality for customer contacts across all channels (voice, web and email), PSE's Customer Access Center:

- Provides coaching to all its employees,
- Monitors CSR and customer interactions, customer surveys,
- Produces monthly customer reports.

²⁰ Earned the top rating of 7, Completely Satisfied, on the 1–7 scale of the EMC Research SQI #6 survey question #11: "How satisfied were you with the way the customer service representative handled your call?"

Figure 3a is an exemplary representative coaching performance scorecard:

CAC Agent Performance Scorecard		
Service Level		Results
Job Knowledge		
	Service Order Errors	1
Overall Service Order Quality Rating		Meeting
	Coachable Errors	1
Overall Coachable Error Rating		Meeting
Overall Job Knowledge Rating		Meeting
Quantity /Productivity		
Compliance:	Available & ready to take calls	100%
Average Handle Time:	Handles calls in a timely manner, Does not waste customer time	4:52
Average Hold Time:	Puts customer on hold	0:11
Average Wrap Time:	Time spent on unfinished work after customer call has been released	0:43
Overall Productivity Rating		99%
Quality		
	Introduction Skills	100%
	Update Records	98%
	Communication Skills	98%
	Procedural Requirements	98%
	Techniques/Procedures	100%
	Education	100%
	Call Management	98%
	Closing Skills	100%
	Customer Value	100%
Quality Scores		99%
Quality Rating		Exceeding
EMC Research Results		
	# of Surveys	4
	Average Rating	6.76
Overall EMC Research Rating		100%
Overall Performance Rating		Positive

Figure 3a: CAC Agent²¹ Performance Scorecard (illustrative data)

PSE uses the performance scorecard to provide feedback to each CSR regarding positive behavior patterns, as well as the areas needing improvement. At the same time, CSRs provide feedback to the management team on the effectiveness of business processes and customers' concerns. Ultimately, this enables PSE to make improvements to better serve customers.

²¹ Please note that "Agent" is synonymous with Customer Service Representative.

Achievements in Service Expectations

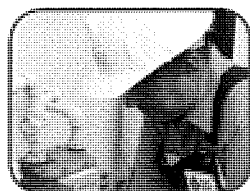
- PSE launched three new information systems, CIS, OMS and GIS. These systems combined enable CSRs to provide customers with up-to-the-minute outage information to improve customer experience.
- PSE deployed a new call observation monitoring tool to improve quality assurance.
- PSE designed new soft skills training program to improve overall customer experience on every customer contact.
- As part of PSE's commitment to providing information on conservation efforts and helping customers reducing their carbon footprint, CSRs continued the promotion of green power during customer calls in 2013. We achieved an increase of 48% participation in the Green Power program compared to 2012.

Going Forward

PSE recognizes that continuous improvements are required to maintain customers' satisfaction with their PSE contact experience.

2014 areas of focus include:

- Expand and enhance the quality assurance audit process so that it is a part of all larger processes. The quality assurance process will improve the customer experience at each customer touch point within the CAC. It will also contribute to:
 - Regulatory compliance assurance,
 - Improve the information provided to customers,
 - Better CAC management,
 - Better response to questions.
- Continue to promote customer participation in paperless web billing via enhancements to PSE.com.
- Deploy the soft skills training program to improve handling for escalated call types and overall customer experience.



4

Field Service Operations Transactions Customer Satisfaction (SQI #8)

Overview

EMC Research, an independent research company, conducts telephone surveys with PSE customers who have called PSE and requested and received natural gas field service. In 2013, these surveys found that 95% of customers were satisfied with PSE’s Field Service Operations transaction performance. PSE met this SQI goal in 2013 and in every previous year. Table 4a provides the summary 2013 result of customer satisfaction with Field Service Operations transactions.

Table 4a: Field Service Operations Transactions Customer Satisfaction for 2013

Key Measurement	Benchmark	2013 Results	Achieved
Field Service Operations transactions customer satisfaction (SQI #8)	At least 90% satisfied (rating of 5 or higher on a 7-point scale)	95%	<input checked="" type="checkbox"/>

About the Benchmark

Every week, EMC Research contacts randomly-selected customers who have called PSE the previous week and requested 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 to be “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:

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

There were two independent research companies that carried out the survey for PSE in 2013 with both companies following the same survey methodology and procedures that were approved by the UTC. Discussion about the survey vendor change in can be found in the *Replacement of SQI Survey Vendor* section of Chapter 1.

What Influences Customer Satisfaction with Field Service Operations Transactions?

Many factors influence whether customers are satisfied with the natural gas field service transactions from PSE. These include whether the customer was satisfied with the customer service representative at the Customer Access Center when they called to make a service appointment, and whether they were satisfied with the service performed on-site by the field technician.

Of the customers who requested natural gas field service, the most frequent reasons include customers who:

- Suspected a natural gas leak or detected a natural gas odor,
- Had no heat or hot water, as if their furnace or water heater had quit working,
- Wanted to start or stop natural gas service,
- Needed service to relight the pilot light.

Customer Satisfaction with Field Service Operations Phone Calls

Response to another question on the EMC Research gas field service survey indicated 94% of customers reported they had no trouble reaching a customer service representative, and the CSRs earned high ratings from customers (97% were satisfied with the way the call was handled). Satisfied customers said the CSRs:

- Were courteous and friendly,
- Were helpful,
- Provided prompt service,
- Answered their questions,
- Said they would send someone right away.

The customers who were less than satisfied suggested CSRs should:

- Be able to more fully answer questions and resolve concerns,
- Resolve problems more quickly,
- Explain things more clearly,
- Be more polite,
- Follow through with what they say they will do.

The Customer Access Center management team also uses these findings to coach and train CAC employees to improve performance.

Customer Satisfaction with Field Service Operations Transactions

Survey respondents were asked to rate their satisfaction with the natural gas field technician on several specific attributes. In general, PSE service technicians got high ratings from customers (97% satisfied). Satisfied customers said the field technicians:

- Were friendly, courteous and polite,
- Were knowledgeable,
- Did a good job or fixed the problem,
- Explained things clearly,
- Were prompt in coming to the problem area,
- Were helpful,
- Provided or left enough information.

Customers who gave less than a “7” rating (13%) were asked follow-up questions to determine why they were not completely satisfied. These customers said the field technicians could:

- Give a better explanation/more information,
- Arrive more quickly,
- Be more knowledgeable or experienced.

Customers who were less than completely satisfied also wanted technicians to:

- Fix the problem or complete the job in one trip,
- Be friendly, courteous and polite.

In 2013, 95% of customers said the technician was able to arrive the day they wanted, and 90% said the scheduled time was convenient to them (a drop from 94% in 2012). Those who said the scheduled time wasn’t convenient cited taking too long to arrive and not giving a specific time as the reasons.

Historical Trend for Customer Satisfaction with Field Service Operations Transactions

Table 4b shows Field Service Operations transactions customer satisfaction from 2009-2013.

Table 4b: Field Service Operations Transactions Customer Satisfaction from 2009 to 2013

	2009	2010	2011	2012	2013
Field Service Operations transactions customer satisfaction	95%	96%	96%	98%	95%
Benchmark	90% satisfied (rating of 5 or higher on a 7-point scale)				

Working to Uphold Customer Satisfaction with Field Service Operations Transactions

In 2013, PSE maintained a high customer satisfaction rating with Field Service Operations transactions. Some of the actions PSE took in 2013 are:

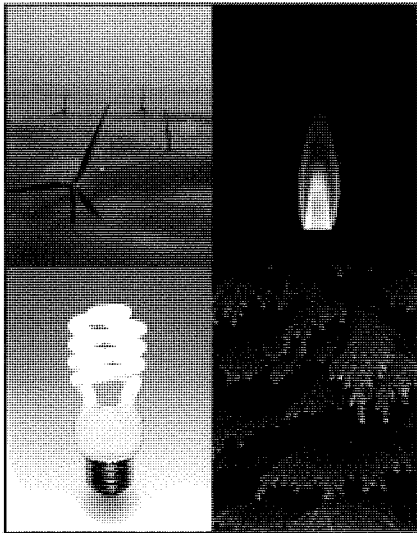
- PSE's natural gas operations management team continues to:
 - Review specific information about service orders and take appropriate actions where data indicates need for improvement,
 - Coach and train employees to improve customer service,
 - Thoroughly explain adjustments or repairs made to the customer's appliance,
 - Ensure customers' concerns are met before leaving the premises.
- Continue to utilize the tool that tracks individual employee performance. Supervisors are able to review individual employee, workgroup and departmental metrics for each work task. This data assists supervisors in determining areas for improvement and focus on training and feedback.

Going Forward

PSE will continue to monitor customer satisfaction survey data and provide feedback to field service technicians to ensure a high level of customer service is maintained.

Additionally, PSE will continue to evaluate new tools and technologies that would enable a higher level of customer service and convenience.

PSE will review customer comments on the survey to identify changes/revisions in our current program that may be implemented to provide greater customer satisfaction.



Customer Services

The first point of contact for most customers is PSE's Customer Access Center. PSE devotes resources and implements creative and consistent solutions to help ensure that telephones are answered promptly, customer service representatives are well trained to appropriately handle customer requests, and customers are treated fairly and with respect to disconnects for non-payment for services. To monitor and improve performance, PSE tracks many measures of customer service, including the number of calls that are answered by CSRs within 30 seconds.

This section discusses the Customer Access Center Answering Performance (SQI #5).



5

Customer Access Center Answering Performance (SQI #5)

Overview

PSE maintains a Customer Access Center where customer service representatives (CSRs) answer calls promptly and attempt to provide customers with the information or help they seek, as well as providing help with emergencies 24/7/365.

The Customer Access Center’s (CAC’s) goal is to answer at least 75% of calls within 30 seconds on an annual basis. This goal is achieved through continuous training on quality, efficient call handling and adherence to performance expectations.

In 2013, the CSRs answered 66 percent of the calls within 30 seconds of customer requests. The calculated penalty associated with 66 percent performance level is \$648,000. The below-benchmark performance is due to the adverse effects in the second and third quarters because of the implementation and adoption of PSE’s new customer information system.

With the filing of this annual report, PSE enclosed a mitigation petition for a relief of the penalty. The penalty mitigation is appropriate as the implementation of a CIS is an exceptional circumstance and PSE’s level of preparedness and response was reasonable. Further discussions can be found in two sections in Chapter 1: *SQI #5 Petition and Renovation of Customer Information Systems*, and Appendix C to this report. Table 5a provides the summary CAC answering performance for 2013.

Table 5a: Customer Access Center Answering Performance for 2013

Key Measurement	Benchmark	2013 Results	Achieved
Customer Access Center answering performance (SQI #5)	At least 75% of calls answered by a live representative within 30 seconds of request to speak with live operator	66%	<input type="checkbox"/>

About the Benchmark

The Customer Access Center receives most of PSE’s customer inquiries and typically represents PSE to customers. A customer calling PSE has the option of going into an Interactive Voice Response (IVR) system where they are able to perform self-serve transactions. Or, at any time during a customer call, the customer can request to be connected to a customer service representative. The Customer Access 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. PSE is engaged in initiatives to further the Customer Access Center’s answering performance meeting the performance benchmark of 75%.

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:

$$\text{Monthly call answering performance} = \frac{\text{aggregate number of calls answered by a company rep within 30 seconds}}{\text{aggregate number of calls received}}$$

What Influences Customer Access Center Answering Performance?

PSE received about 4 million calls corporate-wide in 2013. About half of these calls were handled by customer service representatives.

Call volumes directly impact the service level of the CAC answering performance. The types and volumes of incoming calls throughout the year vary and are influenced by many factors including the weather, economy, advertising and other consumer communications.

The 2013 total calls offered to an agent increased by 12% compared to 2012.

Figure 5a represents the types of calls that were received in 2013.

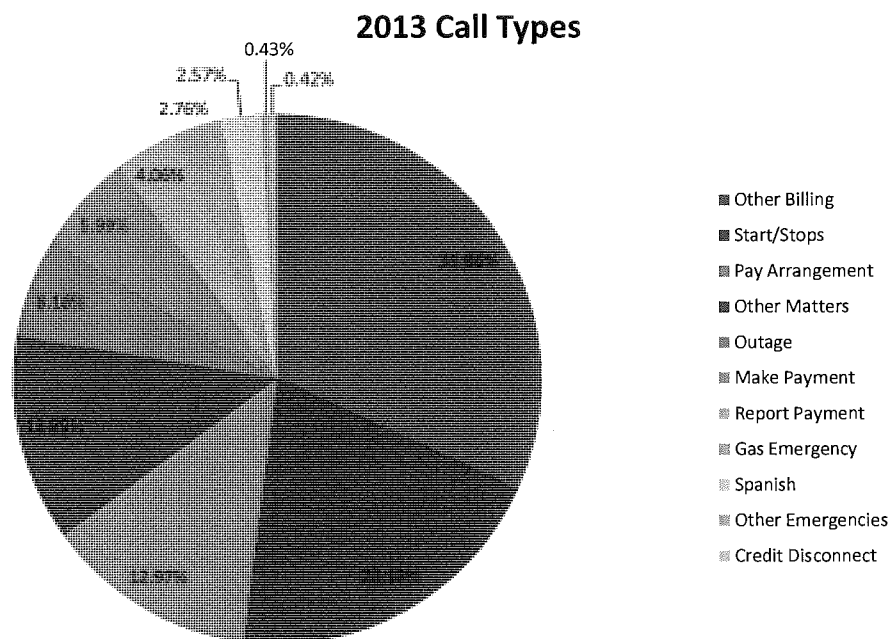


Figure 5a: 2013 Incoming Call Types

To answer the variety of incoming calls, PSE has over 250 CSRs; approximately 25% are home-based agents, 2% are fluent in Spanish and approximately 3% process emails received from customers.

A workforce management team is maintained within the Customer Care Department. This team is comprised of schedulers and forecasters who monitor call volume trends, weather patterns, real-time performance and other factors and make staffing adjustments to ensure customer calls are answered promptly while call volumes vary dramatically.

The SQI #6 CAC transactions customer satisfaction survey indicates that 87% of customers did not have any trouble reaching a CSR, and 80% of respondents had their issue resolved on the first call to the access center.

Historical Trend for Customer Access Center Answering Performance

Table 5b shows PSE's Customer Access Center answering performance from 2009 to 2013.

Table 5b: Customer Access Center's Answering Performance²² from 2009 to 2013

	2009	2010	2011	2012	2013
Customer Access Center Answering Performance	78%	78%	77%	79%	66%
Benchmark	75% of calls answered by a live representative within 30 seconds of request to speak with a live operator				

Working to Uphold the Customer Access Center's Answering Performance

The Customer Access Center strives to ensure that all CSRs are well-trained to efficiently perform their duties, ultimately providing better customer service.

To improve call answering performance, PSE's Customer Access Center focuses on:

- Providing customers with web tools and online services, allowing customers to pay their bills, manage their account, and track their usage at any time.
- Providing Customer Access Center staff with technological tools, making their tasks more efficient and accurate,
- Improvements in recruiting, coaching, staffing, forecasting, training and work load management, including:
 - Hiring seasonal CSRs during peak months to support the high call volumes and to mitigate the impact of labor and training costs,
 - Proactively scheduling CSRs based on forecasted weather events,
 - Maintaining a remote CSR program, through which customer service representatives situated strategically throughout PSE's service territory are able to respond quickly to customer calls during power outages,
 - Establishing a partnership with an outside vendor to handle overflow calls during high call-volume periods.

²² Starting in 2010, SQI #5 annual and monthly performance results shown exclude calls abandoned within 30 seconds. The calculation change was proposed in PSE's 2009 SQI annual report and agreed to by UTC staff and Public Counsel via their e-mails to PSE on April 1, 2010.

As indicated in Figure 5b, the typical peak call volume fluctuations experienced during what is considered “storm season” are mitigated through implementation of the above strategies. The lower monthly service levels from April through September reflected the adverse effects of the CIS implementation on SQI #5 performance.

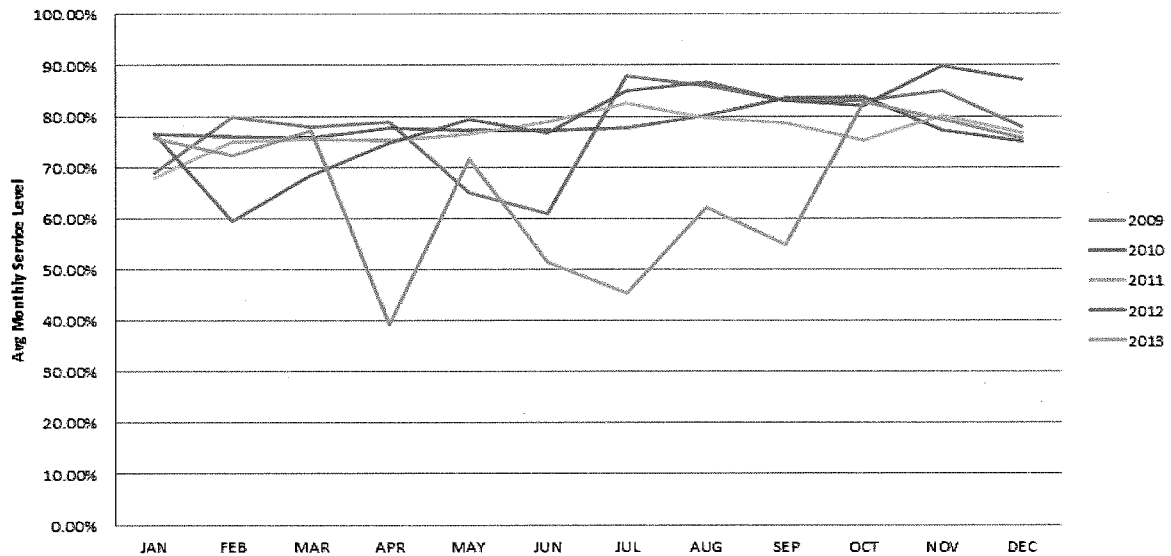


Figure 5b: 2009 to 2013 Customer Access Center Monthly Answering Performance

Technology Enhancements

PSE provides CSRs with the following technological tools that make their tasks easier to perform and more accurate:

- Implementation of CIS systems: SAP CR&B and OMS with focus on improving outage response times and customer billing.
- Created a testing environment for SAP system to allow for testing of system modifications prior to launching in a production environment.

Training Accomplishments

PSE promotes efficiency and excellent customer service through extensive CSR training and business process improvements. PSE continues to improve and monitor training to support enhanced CAC call performance.

- **Modular Training**—CAC continued use of modular training which consists of alternating one week in training with one week on the phones, closely assisted by the Customer Access Center leadership team. Using this method, new CSRs are able to assist with outage calls, start/stop services and billing related calls early in their training. This process helps to solidify CSR’s knowledge and ability before they move on to more complex calls.

- **Computer-Based Training**—Continued use of computer-based training was with a primary focus on refresher training for CSRs. Courses on high bill inquiries and budget payment plan allow CSRs to use this self-pace training to better handle these types of calls. The new CIS implementation included a testing area to allow CSRs the ability to work with system prior to launch.
- **Cross Training Functionality**—PSE offered cross training on corporate billing functions post CIS launch PSE continued to increase the web functions for all CSRs throughout the call center include remote and outer office staff. Web functions include customer correspondence via PSE.com and email.

Abandoned Calls

Call abandonment is the term referring to when customers hang up before they reach a CSR. The Customer Access Center makes every effort to answer all incoming calls within 30 seconds. Table 5c shows PSE’s five-year history of total incoming calls to CSRs from 1-888-Call-PSE and the number of calls abandoned by customers within 30 seconds. In 2013, there was an increase in the abandoned call rate due to the SAP CIS implementation.

Table 5c: Total Calls Requesting to Speak to a CSR and Abandoned Call History from 2009 to 2013

	2009	2010	2011	2012	2013
Total calls requested to speak to a CSR	2,134,358	2,023,165	2,152,292	2,267,866	2,368,081
Calls abandoned	64,447	36,365	71,606	66,359	263,932
Percent abandoned	3.00%	3.10%	3.30%	2.90%	11.15%

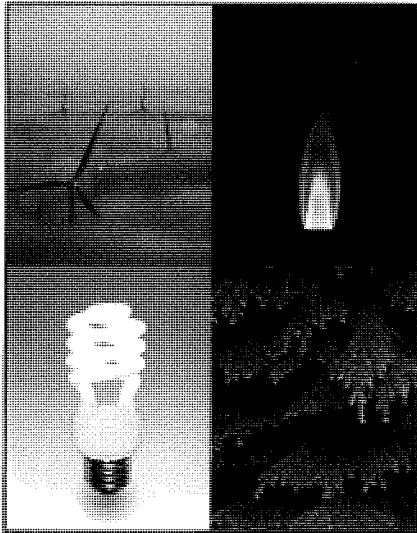
Busy Calls

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. Almost all 2.5 million calls received in 2013 to 1-888-Call-PSE either went through the main or the overflow phone backup system, with the exception of 44 calls on September 26, 2013. This was due to an equipment issue with PSE’s phone service vendor, Century Link, which resulted in busy calls.

Going Forward

In 2014, PSE will:

- Continue to stabilize the new CIS and OMS system to improve overall customer service functionality and system reliability.
- Redesign of IVR system. This will help PSE enhance the IVR system so that it is easier for customers to select the appropriate phone routing option. IVR enhancements allow customers a choice when contacting PSE for assistance.
- Enhance and deliver on-going agent training to improve proficiency and elevate the customer experience.
- Explore improved self-service options that allow customers to complete various transactions online.
- Continually improve processes to optimize efficiency and leverage the potential of the CIS system.



Operations Services

PSE is committed to delivering safe and dependable electric and natural gas service. Many factors influence how dependable energy can be delivered.

Providing reliable electric service to homes and businesses is susceptible to changes in weather conditions, because heavy rainfalls, high winds and snow and ice can easily cause damage to the power lines and equipment, disrupting electric service. Damage to power lines from trees is a key issue for PSE because PSE's transmission lines average over 1,995 trees per mile, many more than other utilities.

Natural gas service is less likely to be affected by most storms, but can be interrupted by excavation and natural disasters, such as earthquakes and flooding. In addition to the service interruption, gas leaks, customer-owned appliances, low-hanging or downed power lines and other system equipment damage can pose serious safety risks. PSE monitors, inspects and invests in the natural gas system to ensure customer safety and reliability. Additionally, at the customer's request, PSE will inspect and adjust malfunctioning or inoperable gas equipment and facilities for safe and efficient operation.

PSE has teams dedicated to responding quickly to electric and gas emergency situations and to restoring service to customers.

This section discusses the three Service Quality Index relating to operations services:

- Gas Safety Response Time (SQI #7),
- Electric Safety Response Time (SQI #11),
- Appointments Kept (SQI #10).

This section also discusses:

- Customer Construction Services Department and Service Provider Performance,
- Service Guarantees.

For information on the Electric Service Reliability measures SQI #3 SAIDI and SQI #4 SAIFI, see the *Electric Service Reliability* section.



6

Gas Safety Response Time (SQI #7)

Overview

The primary responsibility of PSE’s Gas First Response (GFR) team is to respond to natural gas emergencies. In 2013, PSE responded to more than 20,300 calls concerning natural gas safety. These emergencies include reports of inside or outside odors, third-party damage to PSE’s system, leaks and carbon monoxide concerns. The GFR team also supports local and state first-response organizations, such as fire departments. PSE has Gas First Responders located throughout its service territory. These technicians are available on a 24/7/365 basis. PSE’s ability to respond to these emergencies in 2013 is tracked and reported in this chapter.

In addition, the GFR team performs various maintenance and inspection activities, adjusts and performs minor repairs on customer equipment and monitors excavation by contractors and others when it occurs near certain underground facilities.

Table 6a reports the results for 2013.

Table 6a: Gas Safety Response Time for 2013

Key Measurement	Benchmark	2013 Results	Achieved
Gas safety response time (SQI #7)	Average 55 minutes or less from customer call to arrival of field technician	32 minutes	<input checked="" type="checkbox"/>

About the Benchmark

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

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

What Influences Gas Safety Response Time?

The response time for a typical safety-related customer request, such as if a gas leak is suspected, depends on a number of factors, including:

- Time of year,
- Time of day,
- Location of the incident and location of nearest available responder—especially if it can only be reached by ferry, such as Vashon Island,
- Traffic conditions,
- Number of concurrent gas safety calls or system-wide emergencies.

In case of a natural gas emergency, such as a ruptured gas main, firefighters and other emergency personnel may be the first to arrive. PSE works with the fire departments in PSE's service area to train them in the appropriate practices for responding to natural gas emergencies. The training includes the proper method to turn off the natural gas to a building and evacuate occupants, as well as an overview of PSE's response coordination and procedures. Annually, more than 500 municipal first responders participate in PSE's natural gas and electric safety training programs.

Historical Trend for Gas Safety Response Time

Table 6b shows the average gas safety response time from 2009–2013.

Table 6b: Gas Safety Response Time from 2009 to 2013

	2009	2010	2011	2012	2013
Gas safety response time	33 minutes	31 minutes	29 minutes	30 minutes	32 minutes
Benchmark	Average of 55 minutes from customer call to arrival of field technician				

Working to Uphold Gas Safety Response Time

PSE continues to work to maintain its gas safety response time at a level which meets or exceeds the SQI threshold by:

- Continued review of shift schedules to align personnel with trends in when emergencies are reported. This effort includes a study of all emergencies and how call-out areas for after-hours call-outs are designed.
- Continued utilization of the Mobile Workforce Dispatch System with computer-aided dispatching, which enables PSE to better assign the available service technicians required in a gas safety situation and to determine the closest possible responder.
- Continued employee training efforts including gas operator qualification training and new standards and procedures.

Percentage of Gas Safety Response Times within 60 Minutes

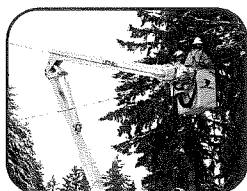
Table 6c provides a month-to-month view of 2013 Gas Safety response times.

Table 6c: Gas Safety Response Times within 60 Minutes in 2013

Month	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Percent of responses within 60 minutes	94%	95%	96%	95%	96%	96%	96%	96%	94%	96%	91%	94%

Going Forward

PSE will continue to monitor and evaluate emergency response time data daily. As opportunities for improvement are discovered, PSE may adjust processes, balance workload with staffing, make necessary shift adjustments, and provide continuous employee coaching. PSE will also continue using the Mobile Workforce Dispatch System functionality for computer-aided dispatching.



7

Electric Safety Response Time (SQI #11)

Overview

PSE's Electric First Response (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 and voltage quality problems.

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. PSE responded to more than 10,100 electric incidents in 2013.

PSE continues to strengthen its electric safety response work processes and has met the electric safety response time benchmark, just as it has since the inception of this metric in 2002. Table 7a reports the results for 2013.

Table 7a: Electric Safety Response Time for 2013

Key Measurement	Benchmark	2013 Results	Achieved
Electric safety response time (SQI #11)	Average 55 minutes or less from customer call to arrival of field technician	53 minutes	<input checked="" type="checkbox"/>

About the Benchmark

The electric safety response time is calculated by logging the time of each customer service call and the time the EFR field technician 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 field technician for EFR incidents occurring during the performance year. The formula follows:

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

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

- Major Event Days 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.
- Localized emergency event days when all available EFR field technicians in a local area are dispatched to respond to service outages.

What Influences Electric Safety Response Time?

Electric safety response time is influenced by many factors, including:

- **Number of electric safety responses**—Electric safety calls primarily consist of wire-down or 911-originated calls. The number of electric safety events varies during the year and is typically higher during the storm season, where response times may be longer.
- **Time of day an event occurs**—Events that occur outside of normal business hours often require call-out responses and may incur a greater response time.
- **Weather conditions**—PSE responds to electric incidents in all weather conditions. Response times can be lengthened by adverse driving conditions such as snow, ice, flooded streets, landslides or downed trees.
- **Location of the emergency event**—Some areas in PSE’s service territory can only be reached by ferry, bridge and border crossings or are remote and may require snow-machines or “walk-ins” to access.
- **Location of the nearest, available responder**—PSE’s approximately 72 EFR personnel live and work throughout PSE’s service territory and are readily available to respond to an outage or electric system incident. Although PSE has six operating bases, the majority of the time personnel respond directly from a field location, where they may be working on non-emergency or non-outage customer requests. For after-hours emergencies, they generally respond directly from their homes.

Historical Trend for Electric Safety Response Time

Table 7b shows average electric safety response time from 2009 to 2013.

Table 7b: Average electric safety response time from 2009 to 2013

	2009	2010	2011	2012	2013
Electric safety response time	51 minutes	52 minutes	51 minutes	51 minutes	53 minutes
Benchmark	Average of 55 minutes from customer call to arrival of field technician				

Working to Decrease Electric Safety Response Time

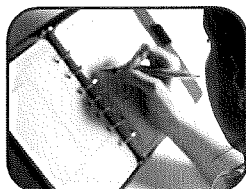
In 2013, PSE enhanced procedures and processes aimed at reducing electric safety aggregate response time. These efforts included:

- Implemented a new Outage Management System.
- Changed the shifts of the substation inspectors in the north King County region to increase outage response efficiency by dispersing the inspectors over a broader range of working hours.
- Adjusted first responder shift coverage in all regions to bring the use of existing resources in line with outage occurrence trends.
- Hired additional staff to perform live updates to the mapping system, which provides better map accuracy, faster dispatching and outage restoration.
- Implemented a process to check single customer outage reports for accuracy before dispatching a field resource. This allows for efficient dispatch to real events rather than tying up resources on false reports.

Going Forward

In 2014, PSE will continue its efforts to improve communication and coordination between field service personnel, system operators and dispatchers to reduce response time. The efforts include:

- Continue stabilization efforts with the new outage management system technology, providing improved electric system information to increase efficiency in managing outage events and first response personnel.
- Continue to regularly analyze and optimize first responder shift scheduling to correspond with daily outage trends.
- Improve switching efficiency between PSE's service provider, Electric First Response and the Substation Operations Departments to better cross-utilize qualified personnel that are the closest available to the outage to perform system switching.
- Continue to improve process to check single customer outage reports for accuracy before dispatching a field resource. Continue to identify all possible causes of these false outage reports to prevent them from entering the system.



8

Appointments Kept (SQI #10)

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 secondary voltage electric 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 gas or electric customer requests a scheduled 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 2013, PSE achieved a result of 99% for this appointments kept metric. Data on missed appointments and other appointment information by service type is detailed in Appendix F: *Customer Service Guarantee Performance Detail*. Table 8a provides the summary value for appointments kept.

Table 8a: Appointments Kept for 2013

Key Measurement	Benchmark	2013 Results	Achieved
Appointments kept (SQI #10)	At least 92% of appointments kept	99%	<input checked="" type="checkbox"/>

For information on customer service guarantee credits, see Chapter 10 *Service Guarantees*.

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:

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

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 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.

Historical Trend for Appointments Kept Performance

Table 8b shows the percentage of appointments kept from 2009–2013.

Table 8b: Appointments Kept from 2009 to 2013

	2009	2010	2011	2012	2013
Appointments kept	99%	100%	100%	100%	99%
Benchmark	92% of appointments kept				

Working to Maintain the Percentage of Appointments Kept

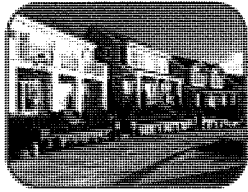
In 2013, PSE:

- Used mobile workforce tools to efficiently schedule service work among workers and to identify and address issues that caused an appointment to be missed.
- Monitored and reviewed causes for missing appointments; provided regular feedback and coaching to PSE's employees and service providers' personnel.
- Changed the process to track non-construction related service appointments.

Going Forward

PSE has consistently exceeded this metric. PSE will continue its efforts to improve its appointments-kept service results. PSE will:

- Continue reviewing the reasons for missed appointments and working to find solutions so that PSE can meet all its customer commitments.
- Continue stabilization efforts with the new customer information system technology and finding ways to simplify the appointment review and tracking process.



9

Customer Construction Services Department and Service Provider Performance

Customer Construction Services Department

The Customer Construction Services Department partners with PSE's service providers, (Quanta Gas and Quanta Electric) who provide project management, design and construction services for most new customer construction projects.

The primary responsibility of PSE's Customer Construction Services Department is to facilitate the provision of new and modified natural gas and electric service to prospective and new residential, commercial and industrial customers. The department manages four areas of construction service:

- **New Customer Construction Support**—Processes applications for new and modified natural gas and electric installations, schedules temporary electric services for new customer construction projects, initiates new customers' accounts and reviews new customer construction payment requirements. New service inquiries come through phone calls, emails and faxes to these employees who guide customers through the construction process.
- **Pre-Engineering Services**—Provides gas and electric pre-construction new service application assistance to prospective customers. Prospective customers include individual homeowners, builders, developers and their contractors, electricians and gas equipment dealers. This work includes collaborating with customers to provide "ballpark" job cost estimates and assistance with PSE construction standards, tariff requirements and potential alternatives to unique project requirements.
- **Contract Management Services**—Manages and coordinates with PSE service providers who perform design, permitting and construction work on PSE's behalf. Contract Management Services also works with PSE's Rate Department to address construction related rate and tariff clarifications, perform design audits and resolve customer concerns with service provider performance.
- **Builder Relations**—Focuses on enhancing relationships and communications with new home builders and building industry leaders while promoting energy efficiency opportunities.

Service Provider Index (SPI) Performance

PSE monitors important metrics to assess the performance of its primary natural gas and electric service providers (Quanta Gas and Quanta Electric). These metrics address PSE standards compliance, customer satisfaction, reliability/service restoration, efficiency, budgeting and safety. Each measure is designed to monitor, stretch/challenge and improve PSE's service. This section details the service provider metrics relevant to PSE's SQ Program.

Service Provider Indices

The four service provider metrics relevant to PSE's SQ Program are:

- **Service provider standards compliance (SPI #1)**— SPI #1B tracks standards compliance by Quanta Electric and SPI #1C tracks standards compliance by Quanta Gas.
- **Service provider customer satisfaction (SPI #2)**— SPI #2B tracks customer satisfaction with Quanta Electric and SPI #2C tracks customer satisfaction with Quanta Gas.
- **Service provider appointments kept (SPI #3)** — SPI #3B tracks appointments kept by Quanta Electric and #3C tracks appointments kept by Quanta Gas.
- **Secondary safety response time (SPI #4)**— SPI #4B tracks secondary safety response and restoration time by Quanta Electric for core hours, SPI #4C tracks secondary safety response and restoration time by Quanta Electric for non-core hours, and SPI #4D tracks secondary safety response time by Quanta Gas.

There were no results for Service Provider Indices #1A, #2A, #3A and #4A. These indices were assigned to a service provider, Pilchuck, that no longer works for PSE. PSE transitioned all natural gas construction and maintenance work to Quanta Gas as of April 30, 2011.

Service Provider Standards Compliance (SPI #1)

Service providers must meet a minimum percent compliance with PSE's site audit checklists (See Benchmarks in Table 9a). All service providers met this SPI at 98% in 2013. The detailed 2013 results show:

- **Quanta Electric**—98%
- **Quanta Gas**—98%

Table 9a shows service provider standards compliance over the past five years.

Table 9a: Service Provider Standards Compliance from 2009 to 2013

	2009	2010	2011	2012	2013
Quanta Electric					
Electric service provider standards compliance (SPI #1B)	98%	97%	99%	98%	98%
Benchmark	95% compliance with PSE's site audit checklists				
Quanta Gas					
Gas service provider standards compliance (SPI #1C)	98%	98%	99%	98%	98%
Benchmark	95% compliance with PSE's site audit checklists				

Service Provider Customer Satisfaction (SPI #2)

In 2013, the satisfaction survey was not completed due to a change in vendor for the survey. (See Chapter 1, *Replacement of SQI Survey Vendor* section) Informal customer feedback was gathered through focus groups and interviews with builders and contractors in the different regions served by PSE throughout the year.

In 2012, Quanta Gas was required to achieve a minimum 84% satisfactory rating (rating of 5 or higher on the 7-point survey scale). Quanta Electric was required to meet a minimum 77% satisfactory rating on the same 7-point scale for new construction customers surveyed regarding contractor engineering and construction activities.

Table 9b shows service provider customer satisfaction over the past five years.

Table 9b: Service Provider Customer Satisfaction Performance from 2009 to 2013

	2009	2010	2011	2012	2013
Quanta Electric					
Customer satisfaction performance (SPI #2B)	77%	79%	81%	80%	N/A
Benchmark	75%	75%	77%	77%	77%
Quanta Gas					
Customer satisfaction performance (SPI #2C)	N/A		87%	82%	N/A
Benchmark	N/A		84%	84%	84%

Service Provider New Customer Construction Appointments Kept (SPI #3)

Quanta Gas and Quanta Electric must keep at least 98% of their new customer construction appointments.

In 2013, Quanta Gas kept 97% of their new customer construction service guarantee appointment dates, while Quanta Electric kept 100% of their new customer construction service guarantee appointment dates and exceeded the benchmark. The number of new customer construction appointments for both PSE and its service providers—scheduled, kept, missed and canceled—is detailed by energy and month in Appendix F: *Customer Service Guarantee Performance Detail* under the service type “Permanent SVC.”

Table 9c shows service providers percentages of appointments kept for the past five years. The percentages of appointments kept shown in the table are rounded to the nearest whole percentage per the UTC order.

Table 9c: Service Provider New Customer Construction Appointments Kept from 2009 to 2013²³

	2009	2010	2011	2012	2013
Quanta Electric					
Service provider appointments kept (SPI #3B)	100%	100%	100%	99%	100%
Benchmark	98%	98%	98%	98%	98%
Quanta Gas					
Service provider appointments kept (SPI #3C)	N/A		100%	98%	97%
Benchmark	N/A		98%	98%	98%

Secondary Safety Response Time (SPI #4)

This SPI consists of three sub-indices:²⁴

- **Service Provider Index #4B**—Secondary safety response and restoration time, core-hours—Quanta Electric,
- **Service Provider Index #4C**—Secondary safety response and restoration time, non-core-hours—Quanta Electric,
- **Service Provider Index #4D**—Secondary safety response time—Quanta Gas.

²³ Results shown are rounded to the nearest whole percentage per UTC order. However, these 100% monthly performance results do not reflect that service providers met all the new construction appointments during the reporting period. The numbers of missed appointments by energy and service type are detailed in Appendix F: *Customer Service Guarantee Performance Detail*.

²⁴ Service Provider Index #4A was assigned to a service provider, Pilchuck, that no longer worked for PSE. As of April 30, 2011, PSE transitioned all natural gas construction and maintenance work to Quanta Gas.

Secondary Safety Response and Restoration Time, Core-Hours and Non-Core-Hours—Quanta Electric (SPI #4B and SPI #4C)

Quanta Electric must respond and complete power restoration in less than 250 minutes on average during core hours, and less than 316 minutes on average during non-core hours. Core hours are 7:00 a.m.–5:30 p.m., Monday through Friday, except holidays. In 2013, Quanta Electric had an average restoration time of 243 minutes during core hours, and an average restoration time of 274 minutes during non-core hours.

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.

Table 9d shows Quanta Electric’s average secondary safety response performance during core-hours and non-core-hours from 2009–2013.

Table 9d: Secondary Safety Response and Restoration Time—Quanta Electric (SPI #4B & #4C) from 2009 to 2013

	2009	2010	2011	2012	2013
Secondary Core-Hours, Non-Emergency Safety Response and Restoration Time (SPI #4B)	242	242	234	239	243
Core Hours Benchmark	Not to exceed 250 minutes				
Secondary Non-Core-Hours, Non-Emergency Safety Response and Restoration Time (SPI #4C)	281	278	273	270	274
Non-Core Hours Benchmark	Not to exceed 316 minutes				

Secondary Safety Response Time—Quanta Gas (SPI #4D)

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. In 2013, Quanta Gas had an average response time of 46 minutes. Table 9e shows Quanta Gas’s secondary safety response performance from 2009–2013. The 2009–2010 information is not applicable because Quanta Gas just began providing services for PSE in April 2011.

**Table 9e: Secondary Safety Response Time—Quanta Gas (SPI #4D)
Performance from 2009 to 2013**

	2009	2010	2011	2012	2013
Quanta Gas secondary safety response time (SPI #4D)	N/A		53	48	46
Benchmark	Not to exceed 60 minutes				

Actions Taken to Improve Customer Satisfaction with the New Customer Construction Process and Service Provider Performance

PSE held five focus groups with builders and contractors in the different regions served by PSE and interviewed more than twenty builders to better understand the “customer’s voice” since the annual survey for 2013 was not available. These findings have been used to help identify focus areas for 2014.

PSE and its service providers have partnered to develop or advance the following process improvement initiatives to enhance customer satisfaction with the overall new customer construction process:

- Implemented a firm schedule date for simple service installations,
- Developed and implemented an electronic gas application available on line with digital signature. This reduced the time for a gas application from 7 days to less than 1 day.

Service Providers and Customer Construction Services Department Training

With the switch-over of the new Customer Information System, training and new business processes were developed to handle customer requests for construction service in the new CIS.

PSE also conducts on-going training to target improvement in:

- Technical skills,
- Role definition and responsibilities,
- Customer communications,
- Natural gas and electric contract/business training.

The training format includes classroom training, phone monitoring and coaching, job shadowing and field training. Activities include:

- Updating and maintaining the Quick Reference Guide on the internal Customer Construction Services Department website,
- Providing advance phone training,
- Providing classroom training, using in-house gas, electric and service provider trainers,
- Using customer inquiries and complaints to identify and focus training opportunities,
- Providing training on basic process improvement steps and techniques to all Customer Construction Services employees.

Going Forward

PSE has several new Customer Construction initiatives for 2014 including:

- Augment staff to support economic growth and new construction expectations for 2014.
- Continue stabilization efforts with the new customer information system technology.
- Partner with large municipalities to improve the permitting process.
- Increase electronic application capabilities to reduce cycle time for processing work.
- Continue PSE's long-standing emphasis on project management continuous improvement, including optimizing the matching skill sets of project managers and engineers to project complexity. Along with more comprehensive natural gas and electric contract/business training, this emphasis will improve project management and should result in improved service to the customer.
- Enhance task tracking with tools to remind the project managers when the task is nearing its due date.



10

Service Guarantees

Overview

PSE offers two service guarantees to its customers: Customer Service Guarantee (Service Guarantee #1) and Restoration Service Guarantee (Service Guarantee #2).

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 secondary voltage electric 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 storms, 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 detail on the promotion and communication of CSG, see Appendix G: *Customer Awareness of Customer Service Guarantee*.

Restoration Service Guarantee

Whenever a customer experiences a 120 consecutive-hour power outage, the customer may be eligible for a \$50 Restoration Service Guarantee (RSG) credit. The total annual payments are limited to \$1.5 million, or 30,000 customers, payable to eligible customers who request such payment or report their outage on a first-come, first-served basis. The pledge is always applicable but will be suspended if PSE lacks safe access to its facilities to perform the needed assessment or repair work. To receive the RSG credit, affected customers must report the outage or request the credit within seven days of their service restoration.

The availability of the 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.

Information on the Restoration Service Guarantee and the Customer Service Guarantee is provided on *PSE.com*, was on the back of billing stock throughout 2013, on the billing/return envelope July through September. It was also highlighted in the January–February, September and December editions of the customer newsletters²⁵ as part of customer bill inserts. Appendix G: *Customer Awareness of Customer Service Guarantee* discusses the ways PSE makes customers aware of its Customer Service Guarantee and the results of the survey.

2013 Service Guarantees Credits

Customer Service Guarantee Credits

In 2013, PSE credited customers a total of \$18,050 for missing 361 of the 81,545 scheduled appointments. Table 10a provides summary values of Service Guarantee counts and payments to customers in 2013.

Table 10a: 2013 PSE Customer Service Guarantees Credits

Service Type	SQI #10 Appointment Count			Service Guarantee Payment to Customers		
	Electric	Natural Gas	Total	Electric	Natural Gas	Total
Permanent Service	7,979	10,620	18,599	\$1,600	\$13,800	\$15,400
Reconnection	23,833	12,092	35,925	\$850	\$450	\$1,300
Diagnostic	N/A	27,016	27,016	N/A	\$1,350	\$1,350
Total	31,812	49,728	81,545	\$2,450	\$15,600	\$18,050

Appendix F: *Customer Service Guarantee Performance Detail* provides additional detail on missed appointments along with the credits paid by appointment type and month as of December 31, 2013.

²⁵ SQI settlement requirement: “A promotion of the customer service guarantee will be included in the customer newsletter, “EnergyWise,” at least three times per year.”

Service Provider Appointments Missed Penalties

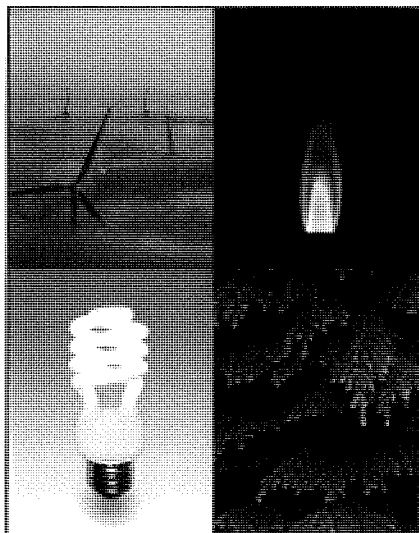
Table 10b shows the number of new customer construction appointments missed by PSE service providers and the amount of penalties paid due to these missed appointments.

Table 10b: Service Provider Missed Appointment Penalties for 2013

SQI #10 Missed Appointment Count				Missed Appointment Penalties		
Service Provider	Electric	Natural Gas	Total	Electric	Natural Gas	Total
Quanta Gas	N/A	276	276	N/A	\$13,800	\$13,800
Quanta Electric	30	N/A	30	\$1,500	N/A	\$1,500
<i>Total</i>	<i>30</i>	<i>276</i>	<i>306</i>	<i>\$1,500</i>	<i>\$13,800</i>	<i>\$15,300</i>

Restoration Service Guarantee Credits

PSE is committed to review all prolonged outages that may trigger the Restoration Service Guarantee (RSG) and any customer requests of the RSG credit within 30 days of a request. During 2013, there was no outage event that lasted more than 120 consecutive hours, and no customer requested the RSG credit.



Electric Service Reliability

Safe and reliable electric service is one of PSE's paramount goals. Information in this report provides the Washington Utilities and Transportation Commission (UTC) and our customers with reliability metrics on the services that PSE provides its customers.

Information on electric reliability is provided by the traditional reliability metrics including the number and duration of outages as measured against the Service Quality Index (SQI) approved by the UTC in 1997. Additionally, customer concerns about service quality and reliability, received either firsthand or through the UTC, provide an important perspective of electric reliability.

The following chapters detail PSE's System Average Interruption Frequency Index (SAIFI) and System Average Interruption Duration Index (SAIDI) performance and discuss the Washington State annual reliability reporting requirements and results for the 2013 calendar year.

On April 1, 2013, PSE simultaneously implemented an Outage Management System (OMS), a Customer Information System (CIS) and an electric Geographical Information System (GIS). While the implementation was successful, PSE continues to refine business processes and interfaces to ensure that all outage data is being accurately recorded. One of the identified areas of focus is recording of scheduled outages. Due to business process changes, scheduled outages that did not require System Operations oversight were not recorded in the OMS. Scheduled outages that required System Operations oversight were recorded. In all cases, customers were notified prior to the actual outage occurring. PSE estimates that 100 – 500 scheduled outages were not recorded, total annual SAIDI is underreported by 1.0 to 5.0 minutes, and total annual SAIFI is underreported by 0.01 to 0.02.²⁶ In 2014, PSE will finalize a standard business process to ensure that all scheduled outages are recorded.

²⁶ Comparison is based on the 2013 recorded scheduled outages versus the 2008-2012 recorded scheduled outages.

Also on April 1, 2013, Jefferson County PUD #1 assumed ownership of PSE's electric system infrastructure within the county. The 2013 results in this report include outages occurring January through March in the county.

Based on the recorded outages, the 2013 SQI SAIDI increased by 0.8% when compared to the 2012 results and PSE met the SQI SAIDI benchmark. Adding the estimated unrecorded scheduled outages into the annual performance, SQI SAIDI would increase about 1.1% when compared to 2012 results, still well under the benchmark. Since the benchmark is based on a rolling five-year average methodology of total annual SAIDI minutes, the increase is due to the 2013 results being slightly higher than the year it replaced.

PSE also continues to meet the SQI SAIFI benchmark as the recorded SQI SAIFI decreased by 7% when compared to 2012. Adding the estimated unrecorded scheduled outages into the annual performance, SQI SAIFI would decrease about 3% when compared to 2012.

The results and analysis in this report do not include the estimated unrecorded scheduled outages.

Annually, PSE participates in a benchmarking survey coordinated by the Institute of Electrical and Electronics Engineers (IEEE). IEEE collects information from participating utilities and documents the IEEE 1366²⁷ performance based on an individual ranking (#1 being the best) and within four quartiles (first quartile being the best). IEEE conducts the annual survey in the following spring with results available in August. As a result, there is a year-time lag in reporting our annual rank. In the 2012 IEEE survey of 106 member utilities, PSE ranked in the top 18th percentile (1st quartile) and in the 46th percentile (2nd quartile) of SAIFI and SAIDI, respectively. PSE ranked better than in 2011, as PSE had an 18% and 17% improvement in SAIFI and SAIDI. The results of the 2013 IEEE survey are expected in August 2014.

While PSE believes that this annual report provides useful information to interested parties for a given calendar year, PSE cautions against putting too much emphasis on the usefulness of annualized metrics in concluding trends pertaining to system performance. Factors such as variation in weather, natural disasters and normal random variation in events such as third-party damage will all impact year-to-year comparison of system performance.

A single year's result may not lend to adequate identification of the best solution for long-term improvement, and actions taken based on an annual snapshot may result in "band-aid" solutions that may not meet long-term objectives. Notwithstanding the limits of using the annual reports to assess year-to-year trends, PSE believes the annual snapshots provide a useful view in context of the overall trends.

PSE's electric system covers a nine county geographical area. Refer to Appendix O: *Current Year Geographic Location of Electric Service Reliability Customer Complaints on Service Territory Map with Number of Next Year's Proposed Projects and Vegetation Management Mileage* for a map of the service area.

²⁷ Refer to Appendix H: *Terms and Definitions* for the IEEE 1366 definition.



11

SAIFI (SQI #4)

Overview

For electric companies, maintaining a high level of reliability requires constant commitment. Supplying power depends on an interconnected network of generation, transmission and distribution systems to get power to homes and businesses. Most customer interruptions can be traced to trees and equipment failure.

The System Average Interruption Frequency Index (SAIFI) measures the number of outages or interruptions per customer per year. Most electric utilities use this measurement in reviewing the reliability of their electrical system, excluding major outage events that cause interruptions to a significant portion of their customer base.

About the Benchmark

SAIFI is calculated by adding up the number of customers experiencing a sustained outage of 60 seconds or longer during the reporting period and then dividing it by the average annual number of electric customers. The formula follows:

$$\text{Annual SAIFI} = \frac{\text{Total annual customer interruptions}}{\text{Average annual electric customer count}}$$

At PSE, for the purpose of measuring the SAIFI SQI, major outage events are excluded from the performance calculation. More details concerning major outage events are in the *Major Events* section of Chapter 13: *About Electric Service Reliability Measurements and Baseline Statistics*.

The SQI SAIFI measurement is also referred to as SAIFI_{5%}.

- **5% Exclusion SAIFI (SAIFI_{5%}) (Non-major-storm SAIFI)**—Excludes customer interruptions during a Major Event. Major Events are defined as days when 5% or more of the electric customer base in a 24-hour period experiences power interruption and the days following (carried-forward days), until all those customers have service restored.

In addition to the SQI SAIFI measurement, PSE also reports on three additional key measurements:

- **Total SAIFI (SAIFI_{Total})**—Includes all customer interruptions that occurred during the current reporting year, without exclusion.
- **Total 5-Year Average SAIFI (SAIFI_{Total 5-year Average})**—Includes all customer interruptions that occurred during the current reporting year and the previous four years, except for events that have been approved by the UTC for exclusion.
- **IEEE SAIFI (SAIFI_{IEEE})**—Measures the number of customer interruptions utilizing the IEEE standard 1366 methodology. Days that exceed the IEEE T_{MED}²⁸ are excluded. The 2013 T_{MED} is 5.62 minutes—that is, any day that exceeds 5.62 minutes per customer is excluded due to IEEE-defined Major Event Days.

Chapter 13: *About Electric Service Reliability Measurements and Baseline Statistics* provides more detailed discussion of the four reporting measurements and the establishment of the 2003 results as the baseline statistic. Appendix L: *1997-Current Year PSE SAIFI and SAIDI Performance by Different Measurements* reports the historical results of the four measurements from 1997 through the current reporting year.

2013 SAIFI Results

The 2013 results based on the recorded outages are reported in Table 11a. SAIFI_{5%} would increase to about 0.88 if the estimated unrecorded scheduled outages were included in the current year results.

Table 11a: 2013 SAIFI Results

	Key Measurement	Benchmark	Baseline	Current Year Results	Achieved
SAIFI _{Total}	Total (all outages current year) Outage Frequency–System Average Interruption Frequency Index (SAIFI)	N/A	1.24	1.13	--
SAIFI _{Total 5-year Average}	Total (all outages five-year average) SAIFI	N/A	1.37	1.19	--
SAIFI _{5%} (SQI #4)	<5% Non-Major-Storm (<5% customers affected) SAIFI	No more than 1.30 interruptions per year per customer	0.80	0.86	<input checked="" type="checkbox"/>
SAIFI _{IEEE}	IEEE Non-Major-Storm (T _{MED}) SAIFI	N/A	0.71	0.86	--

²⁸ Refer to Appendix H: *Terms and Definitions* for the IEEE T_{MED} definition

What Influences SAIFI

PSE tracks outages by cause codes and groups the outage causes into three major categories: tree related, preventable and third party. System damages caused by tree and limbs during a major event continue to impact the most customers in 2013, as in previous years. The other major causes of outages are:

- Preventable:
 - Equipment failures—In addition to equipment that ceases to operate unexpectedly, this category also includes outages when a fuse properly operates to protect equipment when a branch or tree brushes against the line. This represents approximately 22% of customer interruptions related to equipment failure.
 - Bird or animal.
- Third Party:
 - Car-pole accidents,
 - Scheduled outages for system maintenance or installation of new infrastructure.

Figure 11a shows the common causes for the recorded outages in 2013 and their impact on customers across the four key measurements.

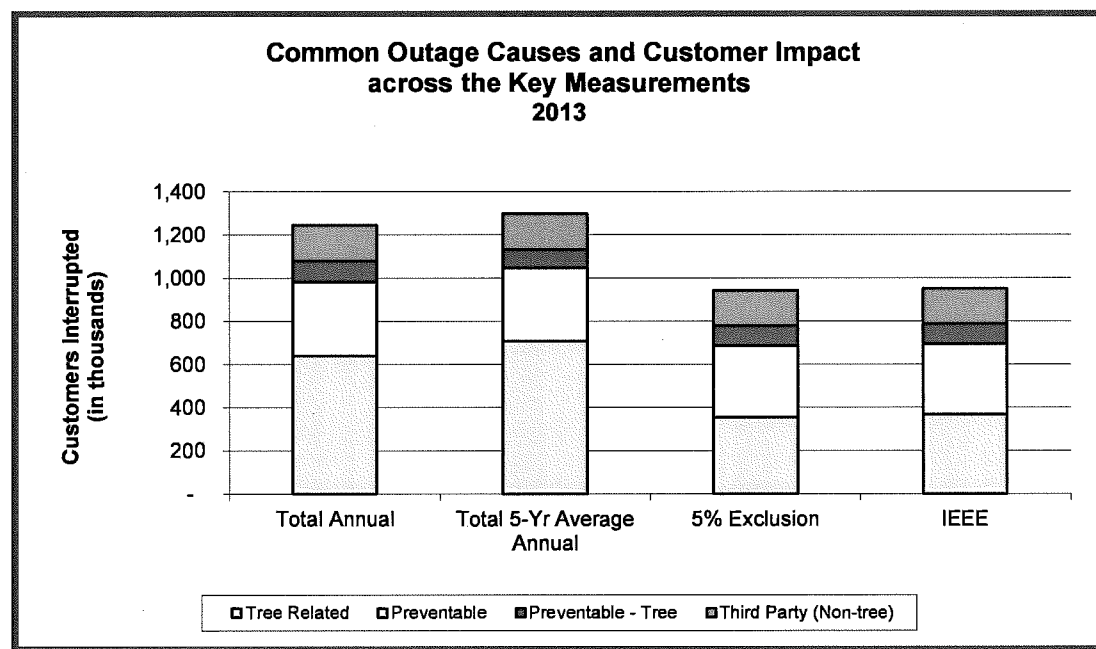


Figure 11a: Common Outage Causes and Customer Impact Across the Key Measurements in 2013

Historical Trends for SAIFI

Table 11b shows SQI SAIFI from 2009 to 2013.

Table 11b: SQI SAIFI from 2008 to 2012 (excluding Major Events)

	2009	2010	2011	2012	2013
SAIFI_{5%} (SQI #4)	1.09	0.86	1.02	0.92	0.86
Benchmark	1.30 interruptions per year per customer				

As shown in Table 11b, the SQI SAIFI requirements have been met annually for the past five years.

Appendix L: *1997-Current Year PSE SAIFI and SAIDI Performance by Different Measurements* illustrates the comparison between the four SAIFI measurements for 1997–2013. Based on the recorded outages, the 2013 results for SAIFI_{Total Annual} saw a significant improvement and SAIFI_{5%} saw a slight improvement in performance over 2012 due to fewer customers impacted by tree-related outages as shown in Figure 11b. There was no change in performance of 2013 results for SAIFI_{Total Annual 5-year Average} as compared to 2012. The 2013 results for SAIFI_{IEEE} saw a slight decline in performance due to more customers affected by equipment failures.

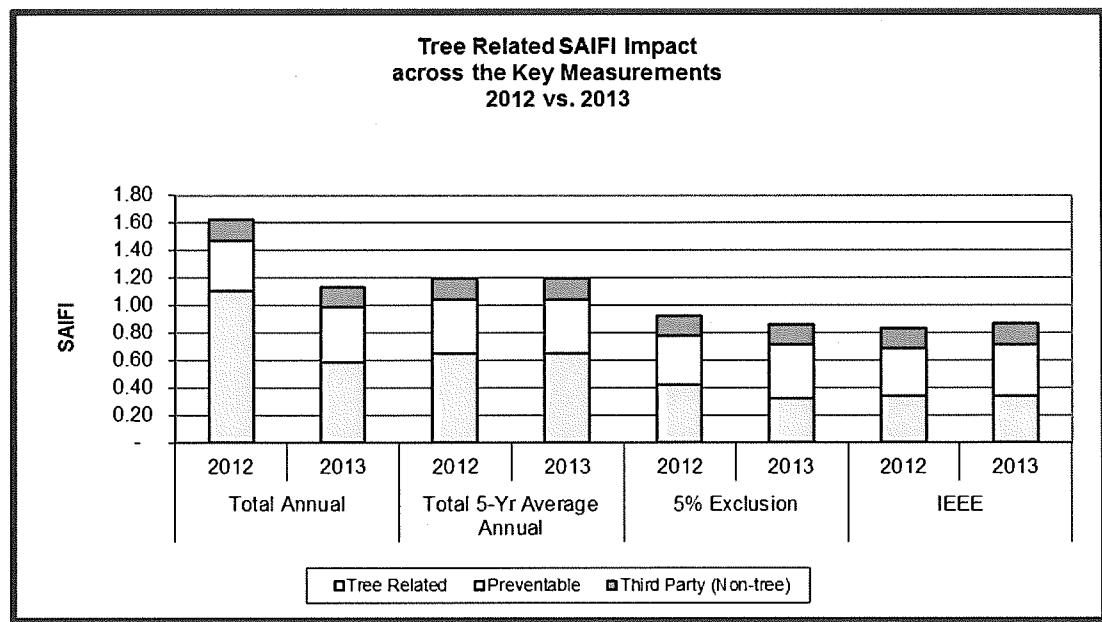
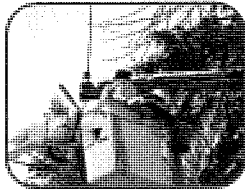


Figure 11b: Tree-Related SAIFI Impact Across the Key Measurements 2012 vs. 2013

Appendix K: *Historical SAIDI and SAIFI by Area* illustrates the 2011–2013 results by county under the four measurements. A summary of Appendix K indicates that:

- Thurston County saw an improvement across all four SAIFI measurements, primarily driven by a reduction in tree related outages.
- All counties except for Skagit showed an improvement in at least one measurement.
- The decline in Skagit County SAIFI performance was driven by tree related and bird or animal outages that impacted a higher number of customers in 2013.
- The decline in Island County SAIFI performance was due to accidental mis-operation while testing equipment and overloading of system while performing scheduled maintenance.

As described more fully in the *Areas of Greatest Concern* section of Chapter 13: *About Electric Service Reliability Measurements and Baseline Statistics*, PSE continues to focus on identifying projects that will affect SAIFI, while managing other aspects of system performance.



12

SAIDI (SQI #3)

Overview

Providing reliable electric service is a top priority of electric companies. PSE's maintenance programs, such as vegetation management and substation inspections, capital investments and improving service personnel response and repair time are targeted to prevent or reduce the number and duration of outages. But in spite of PSE's best efforts, sometimes power outages are simply unavoidable. Most outage minutes are caused by equipment failure, trees and vegetation. When the power does go out, PSE works around the clock to restore service as soon as possible.

The System Average Interruption Duration Index (SAIDI) measures the number of outage minutes per customer per year. Most electric utilities use this measurement in reviewing the reliability of their electrical system, excluding outage events that cause interruptions to a significant portion of their customer base due to extreme weather or unusual events.

SAIDI is similar to SAIFI, but SAIDI measures the duration of customer interruptions while SAIFI measures the number of customer interruptions.

About the Benchmark

SAIDI is calculated by adding up the outage minutes of all the customers that have been without power and then dividing by the average annual number of electric customers. The formula follows:

$$\text{Annual SAIDI} = \frac{\text{Total annual customer outage minutes}}{\text{Average annual electric customer count}}$$

Starting in the 2010 reporting year, the UTC approved a revision to the SQI SAIDI benchmark to be the average of total customer minutes from the current reporting year and the previous four years. The new benchmark and performance calculation better reflects the overall customer experience regarding power restoration and more adequately measures PSE's overall electric system reliability.

At PSE, the SQI SAIDI measurement is referred to as **Total 5-Year Average SAIDI (SAIDI_{Total 5-year Average})**.

Total 5-Year Average SAIDI (SAIDI_{Total 5-year Average})—Includes all customer-minute interruptions that occurred during the current reporting year and the previous four years, except for extreme weather or unusual events.²⁹

²⁹ Per the consolidated Docket Number UE-072300 and UG-072301, PSE can petition to exclude certain annual results or outage minutes from the annual performance calculation for the current year and years following that will be affected.

In addition to the SQI SAIDI_{Total 5-year Average} measurement, PSE also reports on three additional key measurements:

- **5% Exclusion SAIDI (SAIDI_{5%}) (Non-major-storm SAIDI)**—Excludes customer-minute interruptions during Major Events, where Major Events are defined as days when 5% or more of the electric customer base in a 24-hour period experiences power interruption and the days following (carried-forward days), until all those customers have service restored.
- **Total SAIDI (SAIDI_{Total})**—Includes all customer minute interruptions that occurred during the current reporting year, without exclusion.
- **IEEE SAIDI (SAIDI_{IEEE})**—Measures the number of customer-minute interruptions utilizing the IEEE standard 1366 methodology. Days that exceed the IEEE T_{MED} are excluded. The 2013 T_{MED} is 5.62 minutes—that is, any day that exceeds 5.62 minutes per customer is excluded due to IEEE-defined Major Event Days.

Chapter 13: *About Electric Service Reliability Measurements and Baseline Statistics* provides more detailed discussion of the four reporting measurements and the establishment of the baseline statistics. Appendix L: *1997-Current Year PSE SAIFI and SAIDI Performance by Different Measurements* reports the historical results of the four measurements from 1997 through the current reporting year.

2013 SAIDI Results

The 2013 results based on the recorded outages are reported in Table 12a. If the estimated unrecorded scheduled outages were included in the current year results, SAIDI_{Total} would increase to about 213 and SAIDI_{Total 5-year Average} would increase to about 248.

Table 12a: 2013 SAIDI Results

	Key Measurement	Benchmark	Baseline	Current Year Results	Achieved
SAIDI _{Total}	Total (all outages current year) Outage Frequency–System Average Interruption Duration Index (SAIDI)	N/A	532	209	--
SAIDI _{Total 5-year Average (SQI #3)}	Total (all outages five-year average) SAIDI	No more than 320 minutes per customer per year	326	247	<input checked="" type="checkbox"/>
SAIDI _{5%}	<5% Non-Major-Storm (<5% customers affected) SAIDI	N/A	132	122	--
SAIDI _{IEEE}	IEEE Non-Major-Storm (Γ_{MED}) SAIDI	N/A	107	125	--

What Influences SAIDI

As noted in the SAIFI chapter, PSE tracks outages by cause codes and groups the outage causes into three major categories: tree related, preventable and third party. Figure 12a illustrates the impact of tree-related outages across the four key measurements based on the recorded outages in 2013, accounting for 32–67% of customer minutes. Also apparent in comparing the four measurements is how storms can drive a significant variance in SAIDI, as the first two measurements include storm outages while the last two do not.

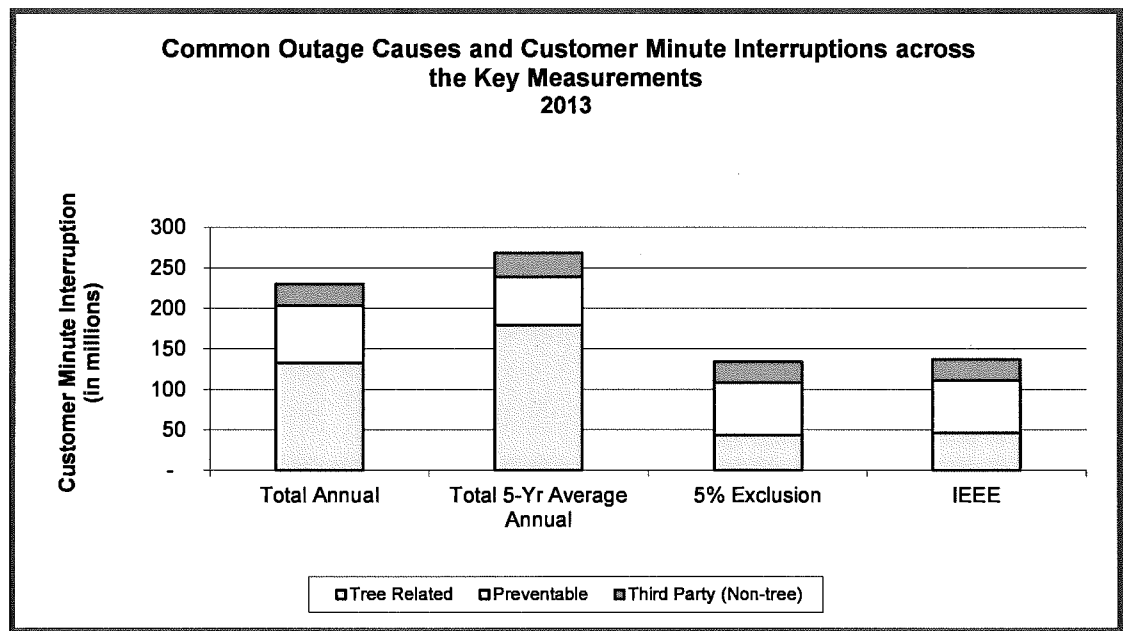


Figure 12a: Common Outage Causes and Customer Minute Interruptions Across the Key Measurements in 2013

Tree-related outages can greatly influence SAIDI performance, despite PSE's best efforts to minimize tree-related outages. Falling trees can damage the infrastructure and require a specialized tree removal crew to remove fallen trees before service personnel can begin restoration efforts, producing prolonged outages. Since 2009, tree related outages have contributed between 55 - 95% to SAIDI_{Total} minutes.

A fallen tree or large limb will damage the line and may also tear down supporting structures, cross arms and poles. The number of trees growing near power lines in the Pacific Northwest is unique among other regions in the United States. Nearly 75% of PSE right-of-way edge is treed. On average there are 1,995 trees per mile on PSE's transmission system. In comparison, National Grid, the second largest utility in the United States representing four states on the East Coast, has 313 trees per mile.³⁰

High winds in the fall season increase the risk of tree limb failure in deciduous trees because the trees have not fully shed their leaves. The crown of a tree is less permeable when fully leafed; thus, there is a greater degree of limb breakage due to the "sail" effect. The fully leafed crown acts like a sail, causing a higher degree of wind loading or pressure on branches and limbs and increases the potential for breakage.³¹

Response and Repair Time

Response and repair time also play an important factor to SAIDI. How long it takes to restore service depends on the complexity of the system, the number and types of system components damaged, the extent of the damage and the location of the problem. The number of outages occurring at one time can also impact the availability of repair personnel to respond, thus adding to outage minutes.

PSE tracks all outage events longer than sixty seconds. The outage length is composed of response, assessment and repair time. Response time, the time from when the customer or the Automated Meter Reading (AMR) system notifies PSE that an outage has occurred, until a service technician arrives at the site of the outage, is measured by SQI #11, Electric Safety Response Time. Response and repair time for service providers are also tracked and measured. See Chapter 7: *Electric Safety Response Time (SQI #11)* for more detail.

The average response time in 2012 and 2013 was 51 and 53 minutes respectively. The 5% Exclusion Major Events, as well as localized emergency event days, are excluded from this metric.

PSE tracks a job completion metric with our electric maintenance and construction service provider to monitor the service provider crew performance. Pre-determined event types that are beyond the control of the service provider are either excluded from the metric or adjusted on a case-by-case basis. Examples include access issues and third-party constraints that might hamper the service provider's ability to repair the outage in a timely manner. Please see Chapter 9: *Customer Construction Services Department and Service Provider Performance* for more detail.

³⁰ Ecological Solutions Inc. study, March 3, 2009, page 79 and page 82.

³¹ E. Thomas Smiley and Brian Kane, "The Effects of Pruning Type on Wind Loading of *Acer Rubrum*," *Arboriculture & Urban Forestry* 32(1): January 2006, pages 33-40, International Society of Arboriculture.

Each of the Electric Safety Response Time metric (SQI #11) and the Service Provider Secondary Safety Response and Restoration Time metrics (SP Indices #4B and 4C) is designed to measure a specific part of PSE’s outage restoration effort, which should not be compared with any of the SAIDI measures. The three response time metrics track different tasks of restoration and exclude specific outages; therefore they are not comparable to each other.

Historical Trends for SAIDI

Table 12b shows SQI SAIDI from 2008 to 2013. The 2009 results use the benchmark that was established at the time. The 2010 to 2013 results use the revised benchmark that was approved for the 2010–2013 reporting years.

Table 12b: SQI SAIDI from 2009 to 2013

	2009	2010	2011	2012	2013
SAIDI_{Total 5-year Average} (SQI #3)	190	287	281	245	247
Benchmark	136 minutes per customer per year, excluding 5% Major Events	320 minutes per customer per year, all outage events			

Appendix L: *1997-Current Year PSE SAIFI and SAIDI Performance by Different Measurements* illustrates the comparison between the four SAIDI measurements for 1997-2013. Under the revised SQI SAIDI benchmark methodology and requirements, PSE’s performance met the annual benchmark between 1997 through 2013 with the exception of 2003. Based on the recorded outages, 2013 results for SAIDI_{Total}, SAIDI_{5%} saw an improvement in performance, driven by a reduction in tree-related SAIDI minutes. SAIDI_{Total 5 year Average} and SAIDI_{IEEE} performance slightly decreased as compared to 2012.

Figure 12b that follows illustrates the impact of tree-related outages. Tree-related outages account for over 50% of all customer-outage minutes during the last five years, ranging from a high of 95% in 2012 to a low of 55% in 2009 and 2011. The large swing in minutes reflects the impact of major weather events experienced each year. While PSE makes efforts to reduce tree-related outages through the Vegetation Management and Tree Watch programs, it is cost-prohibitive to completely eliminate tree-related outages. The *Working to Uphold Reliability* section in Chapter 13: *About Electric Service Reliability Measurements and Baseline Statistics* describes PSE efforts to manage tree-related outages. Outage causes from 2009 to 2013 are summarized in Figure 12b on the following page.

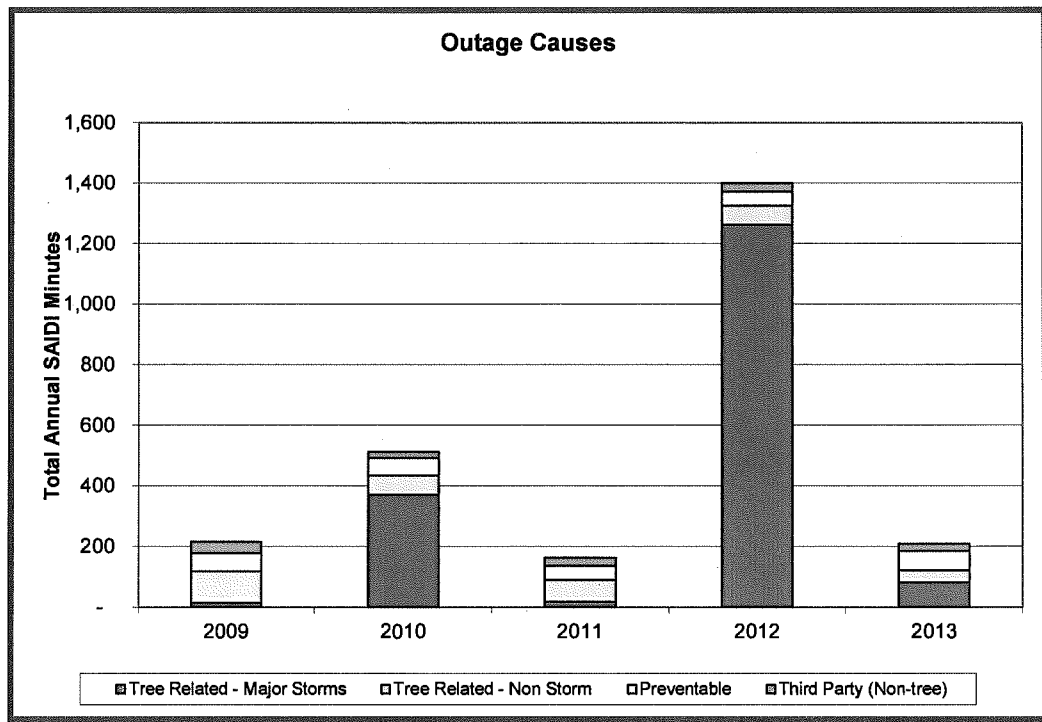
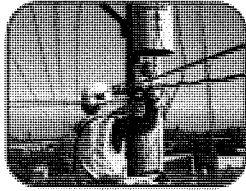


Figure 12b: Outage Causes

Appendix K: *Historical SAIDI and SAIFI by Area* illustrates the 2011–2013 results by county under the four measurements. A summary of Appendix K indicates that:

- Whatcom County saw an improvement across all four measurements.
- All counties except for Kittitas showed an improvement in at least one measurement.
- The decline in Kittitas County SAIDI performance was driven by longer duration outages when equipment failed.

As described more fully in the *Areas of Greatest Concern* section of Chapter 13: *About Electric Service Reliability Measurements and Baseline Statistics*, PSE continues to focus on identifying projects that will affect SAIDI, while managing other aspects of system performance.



13

About Electric Service Reliability Measurements and Baseline Statistics

Overview

PSE, like most utilities, utilizes industry standard Electric Service Reliability indices to monitor its annual performance. PSE benchmarks itself against four key measurements, which provide a more complete representation of the overall electric customer service reliability. The standard formulas, as noted in the SAIFI and SAIDI chapters, are used to calculate each of the measurements but with one critical difference that showcases a particular area of electric service reliability performance. Each measurement is based on specific criteria:

- **Total Annual**
 - **SAIFI**—Measures all electric customer service interruptions that occurred during a calendar year without any exclusion.
 - **SAIDI**—Measures total number of all electric customer outage minutes in a calendar year without any exclusion.
- **Total 5-Year Average Annual**
 - **SAIFI**—Measures the rolling five-year average of all customer interruptions that occurred during the current reporting year and the previous four years, except for extreme weather or unusual events.
 - **SAIDI**—Measures the rolling five-year average of all customer minute interruptions from the current reporting year and previous four years, except for extreme weather or unusual events.
- **5% Exclusion**
 - **SAIFI**—Measures the annual average number of customer interruptions excluding major outage event days when 5% or more of customers are without power during a 24-hour period and the additional days needed to restore service to all those customers.
 - **SAIDI**—Measures the total annual number of customer outage interruption minutes from the current year excluding major outage event days when 5% or more of customers are without power during a 24-hour period and the additional days needed to restore service to all those customers.

- **IEEE₁₃₆₆**
 - **SAIFI**—Measures the annual average number of customer interruption utilizing the IEEE standard 1366 methodology. Days with daily total SAIDI that exceed the IEEE T_{MED} threshold values are excluded.
 - **SAIDI**—Measures number of customer-minute interruptions utilizing the IEEE standard 1366 methodology. Daily SAIDI results that exceed the IEEE T_{MED} threshold values are excluded.

The formula for calculating each of these measurements can be found in Appendix H: *Terms and Definitions*.

Baseline Year

To meet UTC requirements, PSE established 2003 as its baseline year. While meeting the requirements, PSE would prefer to develop a baseline using multiple years, which mitigates the fluctuation of reliability statistics and proves more useful in trend analysis. PSE cautions against the attempt to use a single year's system performance data or information to assess year-to-year trends. Such trend analysis may prove inconclusive, and PSE believes that there is limited usefulness in designating one specific year's information as a "baseline."

Major Events

In 2013, PSE experienced the following major weather events that met the 5% exclusion or the IEEE exclusion criteria:

- A May wind event that primarily affected customers in King, Thurston and Kitsap Counties,
- A September wind and rain event that affected customers in North King county, Thurston, Kitsap counties and Vashon Island,
- A November wind event that affected customers in PSE's Western Washington service territory.

Table 13a details the dates, causes and exclusion criteria for the IEEE and 5% exclusion events in 2013. Typically, an event that meets the 5% Exclusion Major Event Day criteria will also exceed the IEEE T_{MED} criteria. Since the initial reporting of the IEEE methodology in 2003, all 5% Exclusion Major Event Days have met the IEEE T_{MED} criteria.

IEEE T_{MED} is based on the customer minutes rather than the number of customers impacted. Therefore, if PSE experiences a weather event that is isolated to a small geographic area or a less populated county, it is possible that events exceed the IEEE T_{MED} but not meet the 5% exclusion criteria. There have been 21 such events since PSE started reporting IEEE statistics in 2003. In 2013, the three IEEE T_{MED} events also met the 5% Exclusion Major Event Day criteria.

Table 13a: 2013 Comparison Between IEEE and 5% Exclusion Methods

IEEE T_{MED} Exclusion Dates	Daily SAIDI	5% Customers Out Exclusion	Cause	Span of 5% Customers Out Exclusion Dates
5/13/2013	14.98	5.95%	Wind	5/13/2013 1:30 PM - 5/14/2013 3:00 PM
9/28/2103	15.41	7.31%	Wind and Rain	9/28/2013 9:00 AM - 9/29/2013 7:00 PM
11/2/2013	55.26	14.60%	Wind	11/2/2013 7:30 AM - 11/4/2013 6:00 AM

Table 13b details the 2009 through 2013 IEEE T_{MED} values, number of IEEE exclusion dates, number of 5% exclusion events and number of 5% exclusion event days.

Table 13b: 2009 to 2013 Comparison of IEEE and 5% Exclusion Events

	2009	2010	2011	2012	2013
IEEE T_{MED}	6.95	7.21	7.68	5.38	5.62
Number of IEEE Major Event Days	7	10	1	10	3
Number of 5% Exclusion Major Events	2	6	1	1	3
Number of 5% Exclusion Major Event Days	4	20	2	11	7

Areas of Greatest Concern

The regional area planners study “area-of-concern” circuits and propose projects that will improve the reliability for the customers being served by those circuits. These areas of greatest concern provide focus for the planner in developing electric system improvement projects; however, all areas are continually evaluated for electric service reliability improvement. To assist with identifying the highest priority projects for reliability, PSE focuses on the 50 worst-performing circuits over the past five years that consistently contributed the most customer-minute interruptions.

Each circuit is ranked by the total customer-minute interruptions seen by the circuit for each of the previous five years. The 50 worst-performing circuits are the circuits with the highest ranking. The percentage contribution of the 50 worst-performing circuits towards the total distribution customer-minute interruptions continues to decrease slightly, indicating that the system projects completed on the circuits has improved reliability. Over the past five years, PSE spent on average \$57 million per year on planned distribution reliability projects.

Based upon reviewing the outage history, number of customers impacted, outage location and other factors, planners propose projects that are designed to improve reliability on these circuits. Appendix N: *Areas of Greatest Concern with Action Plan* details the 2012 and 2013 annual ranking of the 50 worst-performing circuits along with PSE’s completed or future plan for system improvements on each circuit. Comparing the 2013 Top 50 to the 2012 Top 50, there was a turnover of 11 circuits and 39 remained on the list from 2012. Since annual outage data for the year is not typically finalized until the following mid-February, the planners identify and develop projects throughout the year. Some projects are approved and released throughout the year, and some may be identified for the following budget year.

In addition, PSE also evaluates the 50 worst-performing circuits based on “circuit SAIDI.” Circuit SAIDI measures the performance of individual circuits as experienced by the customers on those circuits. This tends to be a customer-centric view because customer density on the circuit has less influence on the measure.

The four regional planning teams—Whatcom/Skagit/Island, North King County, South King County, Pierce/Thurston/Kitsap—continually review the performance of the distribution system in their respective regions. Each team reviews the 50 worst-performing circuits in their regions in proposing reliability projects for the upcoming year. These compete with other system-related projects for funding.

A discussion of the Total Energy System Planning (TESP) process that the planners use to have their proposed projects considered for funding can be found in Chapter 7 *Delivery Infrastructure Planning* of PSE’s *2013 Integrated Resource Plan* at PSE.com.

In addition to the annual process as described above, new projects are identified and released for construction throughout the year. These projects can be a result of a new initiative such as the 10+ year reliability initiatives program, a municipality altering its infrastructure plans, new system performance issues or addressing a resource need for a given area.

Customer Electric Reliability Complaints

Customer concerns and complaints are additional indices that measure PSE's success in delivering safe and reliable electric service. For the five years from 2009 through 2013, PSE has experienced a decrease in the numbers of outage-related complaints received either by PSE or the UTC.

In 2013, the UTC received 17 complaints relating to the reliability of PSE's energy-delivery system. These complaints are shown in Appendix M: *Current-Year Commission and Rolling-Two-Year PSE Customer Electric Service Reliability Complaints with Resolutions*.

During the rolling two-year period of 2012–2013, PSE received repeat complaints from 15 customers relating to reliability and power quality concerns. These complaints came through PSE's complaint process as described in Appendix I: *Electric Reliability Data Collection Process and Calculations* and are shown in tabular form in Appendix M: *Current-Year Commission and Rolling-Two-Year PSE Customer Electric Service Reliability Complaints with Resolutions*.

PSE consistently investigates customer complaints and tracks ongoing service issues as they are communicated. Customers receive follow-up correspondence to discuss their concern, as well as plans for resolution. Each planner investigates the outage history surrounding each customer complaint, reviews the overall circuit reliability and then prepares an appropriate plan for resolution.

Depending on the nature of the circuit reliability, the plan for resolution could be continued monitoring of the circuit. Or a planner may propose projects which will improve the circuit reliability. The map in Appendix O: *Current Year Geographic Location of Electric Service Reliability Customer Complaints on Service Territory Map with Number of Next Year's Proposed Projects and Vegetation-Management Mileage* summarizes the number of complaints by county for 2013.

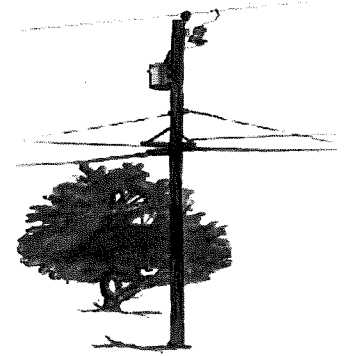
Working to Uphold Reliability

To continually improve and provide reliable electric service throughout its service area, PSE reviews the cause of outages to better understand performance at the subsystem level. Appendix J: *Current Year Electric Service Outage by Cause by Area* details the recorded outage causes in each county in 2013. It shows that trees (TF, TO, TV), birds and animals (BA) and equipment failures (EF) continue to be the primary reasons for outages in 2013 as in previous years. Scheduled outages (SO), which are taken to perform system upgrades and maintenance, also contribute a significant number of outages. The duration of the scheduled outages is minimized to lessen the effect on customers. This section discusses the efforts PSE takes to reduce the number and the overall duration of tree related and preventable outages.

The map in Appendix O: *Current Year Geographic Location of Electric Service Reliability Customer Complaints on Service Territory Map with Number of Next Year's Proposed Projects and Vegetation-Management Mileage* shows the number of reliability projects and vegetation mileage by county PSE has proposed for completion in 2014.

Vegetation Management

Outages related to trees and vegetation continue to be a major factor in the SAIDI and SAIFI indices. Trees remain a vital element of the region's quality of life, but they are also a major cause of power outages for local homes and businesses. To mitigate trees and limbs falling into electric power lines, PSE performs vegetation maintenance based on a cyclical schedule. The maintenance program focuses on achieving a safe and reliable system. Vegetation Management involves a variety of practices and techniques designed to keep trees and limbs from coming in contact with power lines and causing outages. Less than 10% of tree-related outages are caused by tree growth, illustrating an effective Vegetation Management Program.³²



Cyclical Programs

PSE spends more than \$13 million annually on a systematic, cyclical vegetation-management program to reduce outages in its overhead electric distribution, high-voltage distribution and transmission systems.

- **Overhead distribution system**—Usually trees are trimmed every four years for distribution lines in urban areas and every six years for lines in rural areas.
 - Those trees that are an imminent threat of falling into power lines (danger trees) are removed in these rights-of-way or within 12 feet of the system at the same time that trees are trimmed.
 - PSE usually completes roughly 2,000 miles of vegetation management on its distribution rights-of-way each year. In 2013, PSE completed 2,030 miles of vegetation management. The maintenance cycle back on schedule.
- **High-voltage distribution system and cross-country transmission corridor system**—Trees are trimmed every three years on PSE's high-voltage distribution rights-of-way and annually in transmission corridors. Spray and mowing activities are performed and danger trees are removed along the edge of these corridors, typically within 12 feet of the system at the same time trees are trimmed. In 2013:
 - 585 miles of high-voltage distribution lines were maintained,

³² Ecological Solutions Inc., study, October 2008, page 39.

- 370 miles of transmission corridors were maintained under federal clearing requirements,
- The danger-tree patrol of the high-voltage distribution system was completed prior to the storm season on 1,762 miles of high-voltage line. The patrol identifies imminent hazard trees that could potentially fall during a wind storm. These trees are either trimmed or removed.
- **Fast growing, undesirable species**—Hot spotting and mid-cycle work and patrols occur yearly on the overhead distribution, high-voltage distribution and the transmission corridors to remove fast-growing, undesirable species of trees.
 - In 2013, roughly 300 miles were treated for undesirable trees.

TreeWatch Program

PSE also manages vegetation impacts and spends \$2 million annually with its TreeWatch program. Within this program, certified arborists work with communities and property owners to identify and remove “at-risk” trees on private property that are more than 12 feet away from power lines located beyond the limits of normal cyclical vegetation management standards. In 2013, the TreeWatch program addressed approximately 200 miles of transmission and high-voltage distribution lines and 120 miles of distribution lines. Nearly 14,000 trees were removed or pruned. In 2014, PSE plans to remove or prune between 14,000 and 15,000 off-right-of-way trees under the TreeWatch program. The trim and removal numbers will vary year to year due to the size and complexity of the trees targeted to be trimmed and removal. The focus in 2014 will be on critical high voltage distribution lines, and those distribution circuits that are on the top 50 worst circuits for tree related outages. PSE will also continue to remove and trim danger trees on the transmission system.

Tree Replanting Program

PSE devotes about \$500,000 each year to replanting trees and non-construction-related mitigation in PSE’s service area. In addition, to help customers improve system reliability, PSE has developed a vegetation planning guide called *Energy Landscaping*. The handbook helps customers evaluate landscaping opportunities and is a how-to for planting trees and shrubs and tree-care solutions. It also lists recommended trees and shrubs to plant near power lines.

Distribution, High-Voltage Distribution and Transmission Vegetation-Management Study

A vegetation-management study was conducted on PSE’s overhead electric transmission system by Ecological Solutions, Inc. The results validate that PSE’s pruning maintenance cycles are appropriate for the local tree growth rates. Additionally, the study illustrates that trees growing off the right-of-way are increasingly contributing to transmission system outages. The study concluded that 80% of tree-related outages are caused by trees from outside the right-of-way and 68% of trees that fail and cause outages are healthy trees.

The study further suggests that outages caused by damage from healthy trees can only be addressed by reducing the electric system's exposure to trees, which based upon species and quantities may be impractical in PSE's case.³³

The study also revealed that: one-third of all tree-related outages are due to limbs falling on lines; a tree with branches overhanging a power line is twice as likely to cause an outage as a tree that had its overhanging branches removed. The study recommended that all branches overhanging power lines be removed (sometimes referred to as "lines to sky trimming"), resulting in a reduction of tree-related outages.

In 2012, PSE initiated a pilot project to test the recommendation. The circuit chosen is one of the least reliable circuits in the PSE service area, Chico-12, which is located in Kitsap County. Customers in the area are served by a 54-mile-long power line that runs through dense forested areas. The length of the line and the high number of nearby trees is a combination ripe for tree-related outages—the more miles of power line, the more area of exposure to trees and tree branches. The concept of the pilot is simple: by removing tree branches that overhang power lines the probability of tree branches falling into or coming in contact with power lines will decrease, as well as any associated power outages. The tree work was completed in the fall of 2012, and the impacts to reliability will be monitored for two to three years before determining if it was effective in reducing outages.

In 2013, PSE initiated an additional pilot project similar to the Chico-12 project. The circuit selected was Duvall-15 located in east King County. Although tree related circuit outages on Duvall-15 were significantly less than Chico-12, PSE selected the circuit because the vegetation component was significantly different than Chico-12. Chico-12 vegetation was primarily evergreen or conifer forest edge. Duvall-15 was a mix of both evergreen and deciduous. PSE anticipates that through both pilot programs, tree-related power outages in the area will be reduced. The impacts to reliability will continue to be monitored.

Targeted Reliability Improvements

Along with vegetation management to minimize tree-related outages, PSE implemented other programs to reduce the frequency and duration of outages on the transmission and distribution systems, with a particular focus on improving the reliability on the 50 worst-performing distribution circuits. These programs include replacing existing overhead distribution wire with tree wire to prevent tree limb outages, installing more sectionalizing devices, replacing aging infrastructure, installing covered wire and devices to prevent animal-related outages and maintaining key equipment in substations.

Tree Wire

PSE works to reduce outages by installing "tree wire," which is a tough, thick-coated power line capable of withstanding contact with tree branches that would otherwise cause an outage. The vast majority of tree wire is installed at locations where there has been a previous five year history of outages related to tree branches and a field assessment confirms that installing tree wire would reduce the likelihood of outages.

³³ Ecological Solutions Inc. study, March 2009, page 12 and page 71.

In 2013, PSE was more proactive in selecting sites for tree wire. Additional projects were developed in locations where tree branches could potentially contact the bare wire and lead to extended outages to customers. In 2013, 62 circuit miles of tree wire was installed.

Reclosers

In 2008, a high-level roadmap was developed to improve reliability and identify cost-effective tactics for planning consideration. One effective tactic is the installation of reclosers. These devices are an improvement over conventional fuses. With a conventional fuse, a temporary fault, typically a branch brushing against the line, causes the fuse to blow open and de-energize the line. Service is not restored until a service technician patrols the line and manually replaces the blown fuse using a bucket truck.

In comparison, reclosers sense the fault on the power line and automatically attempt to re-energize the line. If the recloser no longer senses the fault, it will reclose and re-energize the line. If the fault is not temporary, the damaged section of the line can be isolated quickly with a gang-operated switch, which can be operated from the ground. Gang-operated switches provide the ability to simultaneously disconnect the three-phase lines rather than one phase at a time.

In 2013, 11 reclosers and 46 gang-operated disconnect switches were installed.

Substation Maintenance

Substations are the key hubs connecting high-voltage lines and the distribution lines that serve customers. Substations typically serve between 500 and 5,000 customers and contain major pieces of equipment, technologies to monitor and operate the system and backup systems such as batteries. These important substations are inspected monthly. Maintenance programs are in place to ensure performance and efficiently maintain expensive equipment.

As PSE continues to add more infrastructure, such as new lines and distribution substations to serve new loads, the design criteria considers reliability measures as well. For example, adding a new substation requires the installation of the transmission and distribution lines; to enhance reliability and operational flexibility, the lines typically connect to adjacent substations. This enables the operational ability to shift customers to the neighboring substations during an outage.

SCADA

Supervisory Control and Data Acquisition (SCADA) is an important aspect of operating the system. SCADA is a system used for monitoring and controlling substation equipment that will enable faster restoration of power to the customers. As the end of 2013, 99% of PSE's distribution substations have been upgraded with SCADA.

Aging Infrastructure

Cable Remediation

For an underground power-distribution system, age and moisture make buried cable vulnerable to failures and prolonged outages. Since 1989, PSE has managed a cable remediation program that considers two remediation options: silicone injection or cable replacement.

- Silicone injection extends the life of underground power cable for 20 years by restoring the cable's insulating properties.
- Replacement installs a new system with an expected life that exceeds 30 years.

Based on a 2007 study, silicone injection is only economically viable on single phase installations. This is based on a full analysis of total life-cycle costs that included current silicone injection costs, trenching costs, cable neutral condition and operational considerations. Since this time, approximately 10% of cables receive silicone injection and the remaining cables are replaced.

In 2013, 27 miles of cable was remediated. PSE's cable remediation program prevented an estimated 2,555 outages in 2013.

Pole Test and Treat and Replacement Programs

In an overhead power system, the failure of a utility pole can cause an outage that could affect thousands of customers. To minimize the risk of such a large outage, PSE has a pole inspection and replacement program for both transmission and distribution wood poles. In 2013, there were 48 outages caused by a structural failure on the pole.

PSE assesses each pole's condition by excavating around the base to determine the extent of below-ground decay and by boring into the pole to assess decay within the pole. The remaining strength of the pole is calculated based on the measurements of decay. Poles whose remaining strength still meets the National Electric Safety Code (NESC) guidelines are treated with an internal fumigant, which extends its serviceable life, while those not meeting NESC guidelines are scheduled for replacement.

Industry data shows that the average serviceable life of a pole in the Pacific Northwest without remedial treatment is 43 years. Poles which have received routine treatment throughout their life last significantly longer; industry data suggests the average life could be 100 years or more. Transmission poles are inspected on a 10-year cycle; distribution poles are inspected on a 15-year cycle. In 2013, 12,583 poles were inspected and treated (9,369 distribution and 3,214 transmission) and 1,533 poles were replaced (1,365 distribution and 168 transmission).

Aging Overhead Infrastructure

Many of the tree-related outages result from the failure of smaller diameter aging overhead wires, such as copper primary and open-wire secondary. These smaller wires break due to the impact of the falling branches leading to longer customer outages. PSE is replacing these smaller aging wires with larger steel-reinforced stranded-aluminum wires, per current standards, that will better withstand the impact of falling branches. The larger wires will also enable more customers to be served in the future, as well as improve reliability. In 2013, 7 miles of smaller diameter wire was replaced.

Substation Equipment Replacement Programs

Upgrades to the substations and equipment are important strategies for reliability. Specific types of equipment are proactively replaced under replacement programs to maintain system reliability, reduce operational costs and offset impacts from aging infrastructure. In 2013, four transmission breakers, three distribution breakers and five relay packages were replaced, and two Spill Prevention, Control, and Countermeasure (SPCC) were completed under these programs.

Wildlife

In 2013, there were over 1,290 bird and animal-caused outages. Birds and other animals have historically caused nearly 2,000 outages annually; however, each of these outage events typically only impacts 30 to 45 customers per event. Since 2004, PSE has reduced animal-caused outages by 500-600 per year despite an increase in eastern grey squirrel populations. In early 2000, PSE modified its construction standards to reduce the risk of animal-related outages.

Today, all equipment poles are upgraded with bushing covers, cutout covers and covered jumpers when maintenance activities are performed. In addition, new transformers and other electrical equipment come equipped with bushing covers. New electric infrastructure projects that are located within avian-designated safe habitats are constructed to avian-safe standards.

PSE's Avian Protection Program tracks all avian-related outages and retrofits mortality sites using avian-protection products and techniques to reduce the risk of repeat outages and avian mortality. The program proactively adds avian protection to circuits that are identified as potential sites for an avian-caused outage or mortality. In 2013, the PSE Avian Protection Program completed 36 avian-protection retrofit projects, in response to over 184 bird mortalities, including 9 eagles, 50 swans and 13 raptors. Over 300 poles and spans were retrofitted to reduce risk of outages and avian mortalities.

Third-Party Outages

When a vehicle hits a utility pole or similar third-party events occur, some customers will likely lose power. As part of a continuous effort, PSE planners review the location of the poles whenever a car-pole incident causes an outage. The pole may be relocated if the pole is likely to be hit again.

Planned Outages

Planned outages, typically for connecting new or upgrading existing infrastructure, are the fourth leading cause of recorded non-storm service interruptions in 2013. Unfortunately, service must be interrupted to safely connect new power lines or replace aging or damaged infrastructure. And the more improvements that are made, the more planned outages are necessary.

Response Time Initiative

PSE recognizes that the time it takes for a serviceman to arrive to the outage site, assess the damage, and determine the appropriate plan of action impact the length of time a customer is out of power. A pilot study was conducted in late 2010 and into 2011, where PSE dispatched service provider crews in parallel with servicemen on specific outages such as car-pole accidents and radial underground cable failures. Results of the study indicated that there were varied factors that drove response time and not just one specific reason. Currently, PSE evaluates each outage independently and determines whether to dispatch crews in parallel with servicemen.

Outage Management System

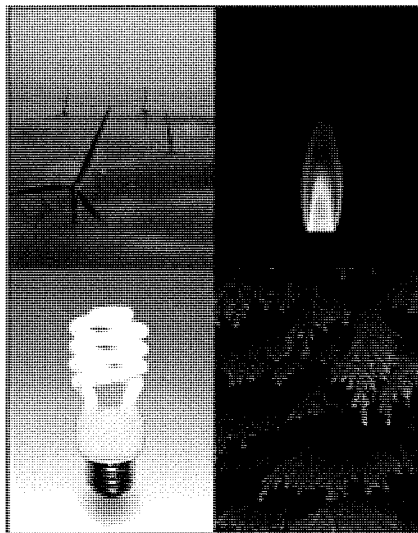
PSE implemented an operational outage management system (OMS) on April 1, 2013. The new OMS enables PSE to more quickly pinpoint the sources of power outages and efficiently directed repair efforts to help the company more accurately predict restoration times during day-to-day operations.

Going Forward

In 2014, PSE will continue its programs as described earlier. Specifically:

- **Vegetation Management**
 - Continue cycle maintenance to remain on cycle. Remove or prune between 14,000 and 15,000 off-right-of-way trees under the TreeWatch program, again focusing on our critical high voltage distribution lines, the worst performing distribution circuits, and transmission lines.
- **Targeted Reliability Improvements**
 - **50 Worst-Performing Circuits**—PSE will continue to monitor the performance of the 50 worst-performing circuits as outlined in the *Areas of Greatest Concern* section of this chapter. Value-added projects will be developed to improve the reliability of these circuits. Appendix M: *Current-Year Commission and Rolling-Two-Year PSE Customer Electric Service Reliability Complaints with Resolutions* and Appendix N: *Areas of Greatest Concern with Action Plan* provide specific plans for system improvements on each circuit.
 - **Aging Infrastructure**—PSE will continue the aging infrastructure programs such as cable remediation, and replacing failing poles and smaller overhead wires.

- **Distribution Sectionalizing Devices**—PSE will continue to install additional sectionalizing devices on the distribution system to help minimize outages and outage times. These devices include reclosers, switches and fuses. Also, PSE will be evaluating and potentially piloting at least one recloser with communication for remote monitoring and control.
- **Targeted Reliability Programs**—PSE will continue to install covered conductor (tree wire) to prevent tree-limb outages and convert overhead lines to underground. Replacing failing poles and installing animal guards are incorporated in the scope of some of these projects as appropriate. This has a secondary benefit of preventing outages caused by wildlife.
- **Substations**—PSE will continue to install SCADA in the distribution substations based on specific benefit and cost. Also, PSE will be installing supervisory control of the feeder breakers and ampere readings on all three-phase breakers at critical distribution substations.
- **Bellevue Central Business District (CBD) SCADA project**—The distribution system in the City of Bellevue CBD is very dense. When an outage occurs, it takes time to access switches in parking garages and/or sidewalks within the downtown core to identify, isolate and restore power to the high-rise buildings. In a review of how other utilities serve similar loads, there is an indication that the urban model of manual restoration should be replaced with remote SCADA switchgear to reduce the outage impact and to manage the system. This project is in year two of a five-year strategy to place SCADA switches into the CBD and to automate these as the systems develop.
- **Outage Management System**—PSE will continue its efforts to refine business processes, enhance functionality, and improve system interfaces to ensure outage data is accurately recorded.

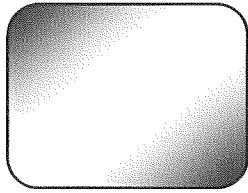


Appendices

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—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: *Electric Reliability Data Collection Process and Calculations*
- J: *Current Year Electric Service Outage by Cause by Area*
- K: *Historical SAIDI and SAIFI by Area*
- L: *1997-Current Year PSE SAIFI and SAIDI Performance by Different Measurements*

- *M: Current-Year Commission and Rolling-Two-Year PSE Customer Electric Service Reliability Complaints with Resolutions*
- *N:*
- *Areas of Greatest Concern with Action Plan*
- *O: Current Year Geographic Location of Electric Service Reliability Customer Complaints on Service Territory Map with Number of Next Year's Proposed Projects and Vegetation-Management Mileage*



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**—Gas Reportable Incident and Control Time

Table A1: PSE Monthly SQI Performance

Category of Service	SQI #	Benchmark	Jan 2013	Feb 2013	Mar 2013	Apr 2013	May 2013	Jun 2013	Jul 2013	Aug 2013	Sep 2013	Oct 2013	Nov 2013	Dec 2013
Customer Satisfaction	6	Telephone Center Transactions Customer Satisfaction NOTE 1 90% satisfied (rating of 5 or higher on a 7-point scale)	94%	92%	NA	NA	NA	NA	86%	92%	89%	92%	88%	90%
	8	Field Service Operations Transactions Customer Satisfaction NOTE 1 90% satisfied (rating of 5 or higher on a 7-point scale)	94%	97%	NA	NA	NA	NA	97%	96%	93%	93%	96%	93%
	2	WUTC Complaint Ratio 0.40 complaints per 1000 customers, including all complaints filed with WUTC	0.023	0.016	0.021	0.023	0.027	0.027	0.027	0.025	0.022	0.020	0.019	0.012
Customer Services	5	Customer Access Center Answering Performance 75% of calls answered by a live representative within 30 seconds of request to speak with live operator	76%	72%	77%	39%	72%	51%	45%	62%	55%	83%	79%	76%
	4	SAIFI 1.30 interruptions per year per customer	0.061	0.057	0.034	0.048	0.056	0.073	0.080	0.078	0.125	0.081	0.097	0.085
Operations Services	3	SAIDI 320 minutes per customer per year	8	7	4	8	24	11	13	10	37	10	72	12
	11	Electric Safety Response Time Average of 55 minutes from customer call to arrival of field technician	52	48	46	55	53	56	55	58	54	52	55	51
	7	Gas Safety Response Time Average of 55 minutes from customer call to arrival of field technician	32	31	31	30	30	30	30	30	31	32	32	34
	10	Kept Appointments NOTE 2 92% of appointments kept	98%	99%	99%	99%	100%	100%	100%	100%	99%	99%	98%	99%



Note 1: Results shown exclude calls abandoned within 30 seconds, which had been included in the calculation for SQI reporting years 2009 and prior. The change was proposed in PSE's 2009 SQI annual report and agreed to by UTC staff and Public Counsel via their e-mails to PSE on April 1, 2010.

Note 2: Results shown are rounded to the nearest whole percentage per UTC order. However, these 100% monthly performance results do not reflect that PSE met all its appointments during the reporting period. Numbers of missed appointments by appointment type are detailed in Appendix F: *Customer Service Guarantee Performance Detail*.



Table A2: Service Providers Monthly Service Quality Performance

Category of Service	Index	Service Provider	Benchmark Description	Jan 2013	Feb 2013	Mar 2013	Apr 2013	May 2013	Jun 2013	Jul 2013	Aug 2013	Sep 2013	Oct 2013	Nov 2013	Dec 2013			
Customer Satisfaction	Service Provider Satisfaction ^{Note 1}	Quanta Electric	At least 75% satisfied (rating of 5 or higher on a 7-point scale)	N/A												N/A		
		Quanta Gas	At least 84% satisfied (rating of 5 or higher on a 7-point scale)	N/A													N/A	
	Operations Services	Service Provider New Customer Appointments Kept ^{Note 2}	Quanta Electric	At least 92% of appointments kept	100%	99%	100%	99%	99%	99%	100%	100%	100%	100%	99%	99%	99%	
			Quanta Gas	At least 98% of appointments kept	98%	98%	99%	94%	94%	99%	99%	99%	99%	99%	98%	97%	97%	85%
		Service Provider Standards Compliance	Quanta Electric	At least 95% compliance with site audit checklist points	98%	99%	99%	97%	97%	97%	98%	98%	99%	96%	97%	98%	98%	99%
			Quanta Gas	At least 95% compliance with site audit checklist points	98%	99%	99%	97%	98%	98%	98%	99%	100%	98%	93%	97%	97%	97%
Secondary Safety Response and Restoration Time-Core Hour	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	244	251	235	237	243	249	244	250	241	258	242	242	248		
		Quanta Electric	Within 316 minutes from the dispatch time to the restoration of non-emergency outage during non-core hours	263	300	288	295	289	282	285	264	259	235	280	280	280		
	Secondary Safety Response Time	Quanta Gas	Within 60 minutes from first response assessment completion to second response arrival	43	45	52	42	44	43	38	47	52	46	56	46	46		



Note 1: There was no customer satisfaction survey conducted during 2013 due to the closing of the former survey company, Gilmore Research Group, in February 2013. Details about PSE's SQI survey company change are in the Chapter 1 Replacement of SQI Survey Vendor section of the 2013 Annual Puget Sound Energy SQI and Electric Service Reliability Report. PSE's petition filed with UTC on March 11, 2013, the UTC Order 21 in Docket Nos. UE-072300 and UG-072301 (consolidated) issued on April 8, 2013, and PSE's subsequent compliance filing on June 21, 2013, provided further information about the change. Other measures took place in 2013 to collect customer satisfaction information regarding the new customer construction services are in the Chapter 9 of the 2013 Annual Puget Sound Energy SQI and Electric Service Reliability Report.

Note 2: Results shown are rounded to the nearest whole percentage per UTC order. However, these 100% monthly performance results do not reflect that service providers met all the appointments during the reporting period. Numbers of missed appointments by appointment type are detailed in Appendix F: *Customer Service Guarantee Performance Detail*.



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).

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? (Yes/No)	Comments	
5/13/2013	Wind	Central North	2	19,599	290,378	6.7%	90	18 (of 21)	No	18 EFRs Event Duty + 1 PTO + 2 Regular Duty (Kittitas) + 9 SP Crews + 1 Tree Crew	
5/13/2013	Wind	Central South	2	11,656	230,350	5.1%	58	12 (of 12)	No	12 EFRs Event Duty + 11 SP Crews + 2 Tree crews	
5/13/2013	Wind	South	2	12,981	234,291	5.5%	34	13 (of 15)	No	13 EFRs Event Duty + 1 PTO + 1 Regular Day Off + 5 SP Crews + 2 Tree Crews	
5/13/2013	Wind	West	2	20,083	122,158	16.4%	89	12 (of 14)	No	12 EFRs Event Duty + 2 PTO + 5 SP Crews + 5 Tree Crews	
5/13/2013	Wind	North	2	5,047	189,568	2.7%	31	14 (of 14)	No	14 EFRs Event Duty	
9/5/2013	Wind	South	2	2,029	234,178	0.9%	48	15 (of 15)	No	14 EFRs Event Duty + 1 PTO	
9/15/2013	Wind	Central South	2	1,658	230,245	0.7%	16	9 (of 11)	No	9 EFRs Event Duty + 1 Outage Duty + 2 Regular Day Off	
9/28/2013	Wind	Central South	2	8,324	230,245	3.6%	51	12 (of 12)	Yes	12 EFRs Event Duty	
9/28/2013	Wind	North	2	12,957	189,451	6.8%	102	14 (of 14)	Yes	14 EFRs Event Duty	
9/28/2013	Wind	Central North	2	28,352	290,107	9.8%	95	18 (of 18)	Yes	18 EFRs Event Duty	
9/28/2013	Wind	South	2	19,303	234,148	8.2%	81	16 (of 16)	Yes	16 EFRs Event Duty	
9/28/2013	Wind	West	2	33,382	122,080	27.3%	108	13 (of 13)	Yes	13 EFRs Event Duty	

EFR—Electric First Responder, **PTO**—Paid Time Off, **STD**—Short-Term Disability, **SP**—Service Provider

Table continues on next page.



PSE 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? (Yes/No)	Comments	
9/29/2013	Wind	North	3	7,205	189,451	3.8%	91	10 (of 14)	No	10 EFRs Event Duty + 4 PTO/STD	
9/29/2013	Wind	Central South	3	7,558	230,245	3.3%	66	10 (of 12)	No	10 EFRs Event Duty + 1 EFR Regular Day Off + 1 PTO	
9/29/2013	Wind	South	3	21,200	234,148	9.1%	84	14 (of 16)	No	14 EFRs Event Duty + 1 Regular Day Off + 1 PTO	
9/29/2013	Wind	West	3	14,592	122,080	12.0%	73	13 (of 13)	No	"13 EFRs Event Duty 62 SP Crews + 34 Tree Crews for all four affected areas"	
10/27/2013	Wind	North	2	9,554	189,972	5.0%	63	9 (of 11)	No	9 EFRs Event Duty + 2 PTO	
11/2/2013	Wind	North	3	6,861	189,972	3.6%	56	14 (of 14)	Yes	14 EFRs Event Duty	
11/2/2013	Wind	Central North	3	73,126	295,052	24.8%	248	18 (of 18)	Yes	18 EFRs Event Duty	
11/2/2013	Wind	Central South	3	36,082	230,897	15.6%	121	12 (of 12)	Yes	12 EFRs Event Duty	
11/2/2013	Wind	South	3	13,920	237,009	5.9%	103	16 (of 16)	Yes	16 EFRs Event Duty	
11/2/2013	Wind	West	3	34,584	122,953	28.1%	141	13 (of 13)	Yes	13 EFRs Event Duty	

EFR—Electric First Responder, PTO—Paid Time Off, STD—Short-Term Disability, SP—Service Provider



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 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	>5% Customer Affected? (Yes/No)	Comments	
9/5/2013	Wind	North	2	1,334	189,478	0.7%	56	14	No		
9/5/2013	Wind	Central North	2	1,646	290,157	0.6%	53	18	No		
9/5/2013	Wind	Central South	2	3,405	230,248	1.5%	20	12	No		
9/5/2013	Wind	West	2	191	122,101	0.2%	12	13	No		
9/15/2013	Wind	North	2	153	189,451	0.1%	18	14	No		
9/15/2013	Wind	Central North	2	1,547	290,107	0.5%	20	18	No		
9/15/2013	Wind	South	2	73	234,148	0.0%	3	16	No		
9/15/2013	Wind	West	2	206	122,080	0.2%	6	13	No		
10/27/2013	Wind	Central North	2	8,992	292,332	3.1%	18	18	No		
10/27/2013	Wind	Central South	2	254	230,569	0.1%	7	12	No		
10/27/2013	Wind	South	2	3,418	234,853	1.5%	18	16	No		
10/27/2013	Wind	West	2	5,697	122,309	4.7%	45	13	No		

Attachment C to Appendix A—Gas Reportable Incidents and Control Time

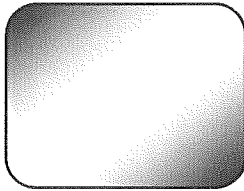
This Attachment C to Appendix A provides detail on each gas reportable incident and response times.^{Note}

Natural Gas Reportable Incident Duration Report							
No.	Date	City	Address	1st Notice to PSE	First PSE Arrival	Emergency Controlled	Emergency Control Time
1	1/2/2013	Duvall	26326 Kennedy Dr	8:06	8:38	9:15	0:37
2	1/11/2013	Tacoma	2101 S Tacoma Way	14:24	14:45	20:30	5:45
3	1/18/2013	Duvall	2624 Kennedy Dr	0:21	0:45	1:27	0:42
4	1/30/2013	Lynnwood	1421 218th St SW	10:48	10:58	15:03	4:05
5	1/31/2013	Seattle	200 6th Ave N	17:55	18:15	19:35	1:20
6	2/5/2013	Snohomish	424 14th Pl	20:21	20:50	23:20	2:30
7	3/28/2013	Bonney lake	21119 6th St CT E	16:46	17:05	20:31	3:26
8	4/10/2013	Pacific	942 Valentine SE	18:34	19:05	23:29	4:24
9	4/10/2013	Auburn	6407 Stuart Pl SE	13:57	18:12	18:36	0:24
10	4/22/2013	Fort Lewis	11592 C St, JBLM	10:20	10:35	10:47	0:12
11	4/25/2013	Bellevue	1721 132nd Ave NE	8:48	9:10	9:23	0:13
12	5/7/2013	Tacoma	6407 View St NE	11:26	11:44	14:04	2:20
13	5/8/2013	Everett	13120 8th Ave W	16:54	17:30	20:10	2:40
14	5/15/2013	Kent	18129 E Valley Hwy	11:37	11:59	14:19	2:20
15	5/10/2013	Snoqualmie	38376 SE cedar St	10:15	10:35	11:00	0:25
16	5/13/2013	Edmonds	5320 144th PL SW	13:13	13:33	14:14	0:41
17	6/11/2013	Lynnwood	16626 6th Ave W	9:33	9:38	9:56	0:18
18	6/19/2013	Auburn	1308 W Main St	18:23	18:33	21:15	2:42
19	6/21/2013	Lynnwood	19820 Scriber Lake Rd	14:04	14:15	16:23	2:08
20	7/18/2013	Seattle	2137 N Northgate Way	23:00	23:35	1:15	1:40
21	7/19/2013	Burien	1242 SW 148th ST	20:55	21:40	21:51	0:11
22	7/29/2013	Lynnwood	5209 158th PL SW	10:05	10:14	10:42	0:28
23	7/31/2013	Sammamish	23334 NE 29th CT and 23343 NE 29th PL	17:16	18:08	22:25	4:17
24	7/31/2013	Sammamish	23343 NE 29th Place	17:16	18:08	20:03	1:55

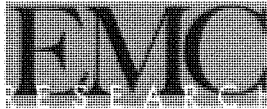
Table continues on next page.

Natural Gas Reportable Incident Duration Report							
No.	Date	City	Address	1st Notice to PSE	First PSE Arrival	Emergency Controlled	Emergency Control Time
25	7/31/2013	Snohomish	23730 137th Dr SE	18:39	18:39	20:01	1:22
26	8/17/2013	Shoreline	1220 NW 201st ST	9:57	10:20	12:29	2:09
27	8/20/2013	Kirkland	12500 Totem Lake BLVD	10:56	11:18	11:44	0:26
28	8/21/2013	Mountlake Terrace	23509 59th PL W	15:28	15:42	17:50	2:08
29	8/23/2013	Puyallup	18400 122nd Ave E	15:59	16:24	17:34	1:10
30	8/24/2013	Seattle	3609 Courtland PL S	17:12	17:20	18:14	0:54
31	9/3/2013	Seattle	3234 NW 60th St	10:08	10:21	10:32	0:11
32	9/20/2013	Seattle	232 Warren Ave	10:07	10:12	10:32	0:20
33	9/21/2013	Redmond	15812 NE 106th St	0:55	2:20	2:15	0:00
34	10/2/2013	Centralia	617 1/2 State St	2:35	4:14	4:45	0:31
35	10/2/2013	Seattle	415 E Pike St	10:13	10:40	11:02	0:22
36	11/11/2013	Mountlake Terrace	21911 64th Ave W	17:50	18:14	18:33	0:19
37	11/11/2013	Kent	10201 240th St	13:57	14:07	14:24	0:17
38	11/12/2013	Auburn	2302 W Valley Hwy N, #300	12:47	13:07	13:13	0:06
39	11/21/2013	Seattle	500 NE Northgate Way	12:31	12:37	15:04	2:27
40	11/25/2013	Cle-Elum	518 E 1st ST Cle Elum	9:35	9:47	10:14	0:27
41	12/11/2013	Seattle	10510 Dayton Ave N	8:51	8:51	8:58	0:07
42	12/24/2013	Lake Stevens	8903 1St SE	2:13	2:44	3:57	1:13
						Average	1:26

Note: 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 Number UG-911261.



B Certification of Survey Results



MARKET
& OPINION
RESEARCH
SERVICES

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EMCresearch.com

TO: Eric Haechrel, Puget Sound Energy
FR: Andrew Thibault, EMC Research, Inc.
DT: February 21, 2014
RE: PSE Service Quality Index Research

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

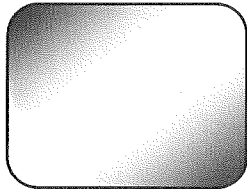
These procedures, data collection methods, and quality controls are consistent with industry practices and, we believe, ensure that the data collected and information produced in the surveys is unbiased and valid.

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

Sincerely,

Andrew Thibault, Principal
EMC Research Inc.

A certification from the prior SQI survey vendor, Gilmore Research Group, is not attainable at this time as the company went out of business in February 2013. However, the certification from the EMC Research Inc. comprised the validation of the overall 2013 performance for SQI #6, Customer Access Center Transactions Customer Satisfaction, and SQI #8, Field Service Operations Transactions Customer Satisfaction, in addition to the individual July-December 2013 monthly results that were fielded and analyzed by EMC Research Inc. EMC Research Inc. had reviewed, validated, and combined the January and February 2013 that prepared by Gilmore Research to determine PSE's overall 2013 SQI #6 and #8 performance of 91% and 95%, respectively.



C
**Penalty Calculation and Penalty Mitigation
Petition**

Attachment A to this appendix shows the SQI #5 penalty calculation and allocation and Attachment B is PSE's mitigation petition for a penalty relief from UTC.



Attachment A to Appendix C

Calculated SQI # 5 Penalty

SQI #	Benchmark	Overall Performance	Difference from Benchmark	Penalty	Calculation
5	75% of calls answered live by company rep within 30 seconds of request to speak to live operator	66%	-9%	\$648,000	$= ((75-66) / 75) * 100 * \$54,000$

Average Annual Customer	
Gas	779,866
Electric	1,086,985
Total	1,866,851

SQI #	Total	Gas	Electric
5	\$648,000	\$270,698	\$377,302
Customer Access Center Answering Performance	$= 648,000 * (779,866 / 1,866,851)$	$= 648,000 * (1,086,985 / 1,866,851)$	
Total	\$648,000	\$270,698	\$377,302

**BEFORE THE
WASHINGTON UTILITIES & TRANSPORTATION COMMISSION**

In the Matter of the Petition of:

PUGET SOUND ENERGY, INC.

For Mitigation of Service Quality Index No. 5
Penalty for Period Ending December 31, 2013

Docket Nos. UE-072300 and UG-072301
(consolidated)

PETITION FOR MITIGATION

I. INTRODUCTION

1. In accordance with WAC 480-07-370(b) and the Service Quality Program mitigation standard explained in herein, Puget Sound Energy, Inc. ("PSE" or the "Company") hereby files this petition ("Petition") with the Washington Utilities and Transportation Commission ("Commission") respectfully seeking a full relief of the calculated service quality index ("SQI") No. 5 penalty for the SQI performance period ending December 31, 2013. Due to the unusual and exceptional circumstance of replacing its 13-year old Customer Information System ("CIS"), PSE was not able to meet the annual benchmark for SQI No. 5—Customer Access Center Answering Performance—for the 2013 program year. As explained in this Petition, full mitigation of PSE's performance penalty is appropriate because the one-time implementation of PSE's CIS was an unusual and exceptional circumstance and because PSE was reasonable in its preparation for, and response to, the CIS implementation.

2. PSE is engaged in the business of providing electric and gas service within the State of Washington as a public service company, and is subject to the regulatory authority of the Commission as to its retail rates, service, facilities and practices. Its full name and mailing address are:

Puget Sound Energy, Inc.
Attn: Ken Johnson
Director – State Regulatory Affairs
P.O. Box 97034
Bellevue, Washington 98009-9734

3. Rules and statutes that may be brought at issue in this Petition include RCW 80.01.040, RCW 80.28.020, and WAC 480-07-370(b).

II. BACKGROUND

4. PSE first implemented its Service Quality Program (“SQ Program”) in 1997 pursuant to Docket Nos. UE-951270 and UE-960195, the dockets approving the merger of Washington Natural Gas Company and Puget Sound Power & Light Company (“Merger”). The purpose of the SQ Program is to “provide a specific mechanism to assure customers that they will not experience deterioration in quality of service”³⁴ and to “protect customers of PSE from poorly-targeted cost cutting”³⁵ as a result of that Merger.

5. The SQ Program currently includes a Customer Service Guarantee, a Restoration Service Guarantee, and a set of nine service quality indices that require the Company to meet benchmarks in customer satisfaction, customer services, and operations services. Since 1997, the Company has continued the SQ program with both temporary and permanent modifications authorized by the Commission orders in Docket Nos. UE-011570 and UG-011571 (consolidated), Docket No. UE-031946, and Docket Nos. UE-072300 and UG-072301 (consolidated) (the “SQI Orders”).

6. SQI No. 5—Customer Access Center Answering Performance—measures the percentage of the calls answered by a PSE Customer Access Center (“CAC”) representative within 30 seconds of a customer’s request to speak with an operator. SQI No. 5 is currently calculated as follows:

Overall Annual SQI No. 5-Customer Access Center Answering Performance =

Average of ((monthly aggregate number of calls answered by a company representative within 30 seconds of a request to talk to a live operator)

³⁴ See Appendix A to the Fourteenth Supplemental Order Accepting Stipulation; Approving Merger at p. 11 in Docket Nos. UE-951270 and UE-960195 (Feb. 5, 1997).

³⁵ See Fourteenth Supplemental Order Accepting Stipulation; Approving Merger at p. 32 in Docket Nos. UE-951270 and UE-960195 (Feb. 5, 1997).

/ (monthly aggregate number of calls received)) * 100

As shown above, the overall call performance is calculated as the average of the twelve monthly CAC telephone answering results.

7. The performance standard for SQI No. 5 is an annual benchmark of 75%, which was set forth in 1997, in the initial SQ Program. While other indices' benchmarks were based on historical performance levels, SQI No. 5's 75% benchmark is a performance level that was set above the historical level of 59-70%³⁶. Furthermore, the 75% benchmark does not account for the impact of any significant one-time event such as the implementation of a new customer information system.

8. On March 13, 2013, prior to PSE's CIS implementation and in anticipation of the potential negative impact of the new CIS implementation that would be typically experienced by a company, PSE filed a petition with the Commission for a temporary suspension of three service quality indices³⁷ including SQI No. 5 ("March Petition"). PSE proposed that SQI No. 5 be temporarily suspended for the 2013 SQI Program year to allow the Company to manage and adopt new processes while implementing of the new CIS. The Commission denied PSE's March Petition in Order 22, agreeing with Staff³⁸ that it was not in the public interest to suspend the SQI in advance of any demonstrated adverse impact on customer service performance.³⁹ The Commission went on to state that PSE could request mitigation if implementation of the CIS resulted in financial penalties to PSE.⁴⁰

9. On December 5, 2013, after the materialization of the adverse impact of the new CIS implementation and the call answering performance rebounded to normal business levels, PSE requested from the Commission a one-time modification of the SQI No. 5 performance calculation that would

³⁶ Applying the three years of data that were available at the time of the SQ Program negotiations in 1996.

³⁷ These indices, which were projected to be temporarily impacted by the implementation of the new CIS, were SQI No. 2–WUTC Complaint Ratio, SQI No. 5–Customer Access Center Answering Performance, and SQI No. 6–Customer Access Center Transaction Satisfaction.

³⁸ See Order 22 at ¶ 5.

³⁹ *Id.* at ¶ 7.

⁴⁰ *Id.* at ¶ 8.

more appropriately reflect “normal” business operations. (“December Request”). The proposed revised overall performance calculation was intended to capture PSE’s SQI No. 5 performance without the impact of the CIS implementation by excluding monthly call answering results from April through September 2013, the months affected by PSE’s CIS implementation. PSE withdrew the December Request on December 24, 2013.

10. Based on the SQI No. 5 performance calculation,⁴¹ PSE is subject to a potential penalty of up to \$648,000 for its SQI No. 5 performance during the 2013 program year. For the reasons described herein, PSE proposes relief of the entire potential penalty and a determination that the SQI No. 5 penalty has been successfully mitigated.

III. STANDARD OF REVIEW

11. The procedure for requesting mitigation of penalty under the SQI portion of the Service Quality Program was originally defined on page 13 of the stipulation from the Merger dockets (“Merger Stipulation”) and has been incorporated into the subsequent SQI Orders and settlement agreements without modification. Mitigation is available to PSE if a penalty is due to “unusual or exceptional circumstances for which PSE’s level of preparedness and response was reasonable”. Additionally, in Order 22, the Commission stated,

If implementation of the new CIS causes PSE to fail to meet any benchmark, PSE can seek mitigation under this standard and the Commission can relieve PSE of all or some of any penalty amounts, if warranted by all facts and circumstances.⁴²

12. The Commission has granted similar relief in the past. For example, in 2001 the Commission granted PSE’s request for a full waiver of the penalty related to SQI No. 6, Telephone

⁴¹ $((75\% \text{ Benchmark} - 66\% \text{ Annual Performance}) / 75\% \text{ Benchmark}) * 100 * \$54,000 \text{ Penalty per Point}$.

⁴² See Order 22 at ¶ 8.

Center Transactions Customer Satisfaction,⁴³ and in 1998, the Commission waived penalties related to SQI Nos. 5 and 6.⁴⁴

13. As explained more fully below, relief of the entire penalty amount is appropriate because the CIS-implementation was not only unusual and exceptional, it was unique. Further, PSE was well prepared for its CIS implementation and responded reasonably to the impacts created by the technology upgrades.

IV. 2013 SQI PERFORMANCE

14. PSE's SQI performance for the nine indices for the 2013 reporting of January 1 through December 31, 2013, is shown in the following table.⁴⁵ The Company was able to meet all performance benchmarks except for SQI No. 5—Customer Access Center Answering Performance. The overall annual SQI No. 5 performance for 2013 was 66%, resulting in a potential penalty of up to \$648,000.

Table No. 1: 2013 PSE SQI Performance

Category of Service	SQI #	Benchmark	Overall 2013 Performance	Calculated Penalty	
Customer Satisfaction	6	Telephone Center Transactions Customer Satisfaction	90% satisfied (rating of 5 or higher on a 7-point scale)	91%	None
	8	Field Service Operations Transactions Customer Satisfaction	90% satisfied (rating of 5 or higher on a 7-point scale)	95%	None
	2	WUTC Complaint Ratio	0.40 complaints per 1000 customers, including all complaints filed with WUTC	0.25	None
Customer Services	5	Customer Access Center Answering Performance	75% of calls answered by a live representative within 30 seconds of request to speak with live operator	66%	\$648,000

⁴³ See Order Granting in Part and Denying in Part the Petition for Mitigation, Docket No. UE-011603 (Jan. 10, 2002).

⁴⁴ See 21st Supplemental Order, Docket Nos. UE-951270 and UE-960195 (consolidated) (1998).

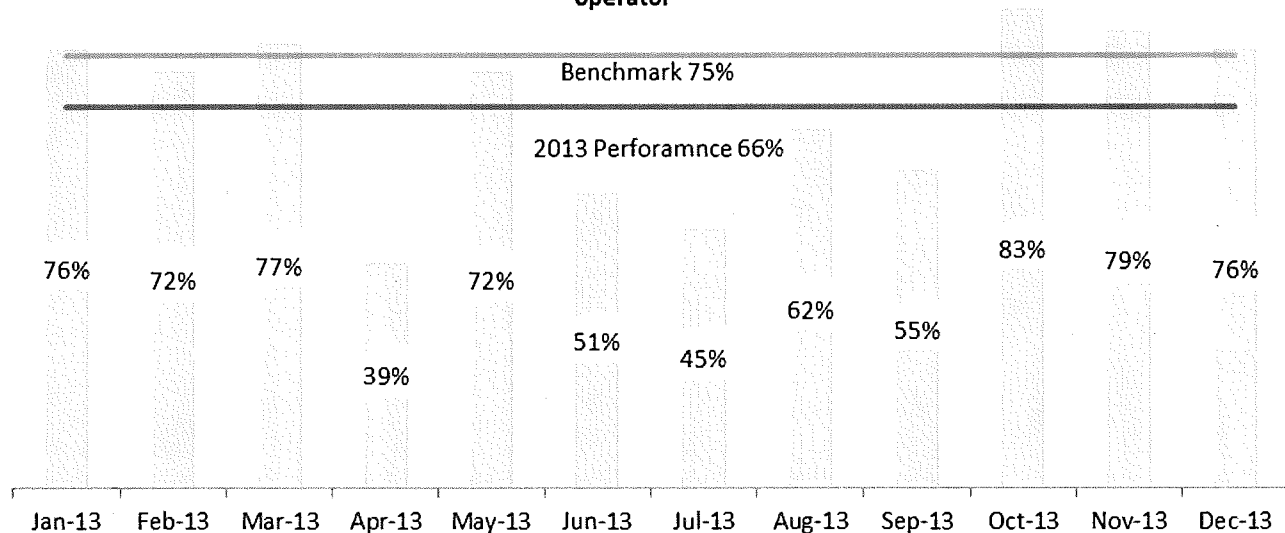
⁴⁵ The monthly data for each of the nine service quality indices are reported in Appendix A to the 2013 Annual Puget Sound Energy SQI and Electric Service Reliability Report.

Attachment B Penalty Mitigation Petition to Appendix C

Category of Service	SQI #	Benchmark	Overall 2013 Performance	Calculated Penalty	
Operations Services	4	SAIFI	1.30 interruptions per year per customer	0.86	None
	3	SAIDI	320 minutes per customer per year	247	None
	11	Electric Safety Response Time	Average of 55 minutes from customer call to arrival of field technician	53	None
	7	Gas Safety Response Time	Average of 55 minutes from customer call to arrival of field technician	32	None
	10	Kept Appointments	92% of appointments kept	99%	None

15. PSE implemented the CIS in April 2013. As shown in Figure No. 1, below, PSE's SQI No. 5 monthly performance level for April was drastically reduced by the implementation of CIS. Additionally, the months immediately following implementation were also negatively affected by the upgrade.

Figure No. 1: SQI No. 5-Customer Access Center Answering Performance
 Percent of calls answered by a live representative within 30 seconds of request to speak with live operator



V. UNPRECEDENTED PSE EFFORTS IN INFORMATION SYSTEMS MODERNIZATION

16. In October 2011, PSE commenced replacing its existing customer information system as part of the Company's unprecedented massive effort in business-modernization. This effort also involved installing the Company's first integrated outage management system ("OMS") and its first geographic information systems ("GIS"). The adoption of the three systems allows PSE to take advantage of today's information technology to better service reliability response, to support future smart grid communication, and to provide wireless and website based customer service, among other benefits. These options were not feasible or not cost effective in PSE's legacy CIS.

17. The legacy CIS, ConsumerLinX ("CLX"), was custom-developed in early 1990s by Puget Sound Power & Light Company and two other utilities. One of the main purposes of CLX was to revamp and consolidate the multiple mainframe-based information systems that each of the utilities had been using for billing, managing customer information, and scheduling/tracking customer service request. Starting in 2000,⁴⁶ CLX replaced the two electric systems that PSE/Puget Sound Power & Light Company had been using since 1982 and another two systems PSE/Washington Natural Gas Company had been using since 1987. The change to CLX was a big information technology leap in 2000 for the Company, but the technical foundation used to build CLX could not provide efficient sharing of data with the contemporary software systems. Therefore, replacing CLX was essential in order for the Company to continue meeting its customer and operational needs going forward. PSE's unprecedented effort in the implementation of the CIS, along with the OMS and GIS, is an unusual and exceptional event that required careful financial and operational planning.

⁴⁶ The four stages of CLX implementation were:

1. April 2000 - All electric customer billing and care functions
2. August 2000 - Outage management function
3. November - 2000 - Low pressure natural gas customer billing and care functions
4. April - 2001 - Large natural gas customer billing and care functions and the billing of electric and natural gas one time charges

VI. PSE PREPAREDNESS AND MITIGATION ACTIONS WERE REASONABLE

18. The implementation of the three information systems, OMS, GIS, and CIS; affected every single aspect of Company business and field operations, but the ultimate impact was to the daily customer interactions that CAC carries out. Therefore, in 2012 and early 2013, prior to the switch-over date of April 1, 2013, PSE had taken substantial efforts in preparing for the CIS switch-over and initiating mitigation plans designed to minimize the impact of the implementation of new CIS. Risk mitigation occurred at all levels to ensure a smooth cutover and to minimize post cutover impacts. These actions and plans, first described in the March Petition and updated in Exhibit A of the December Request, laid the ground work of PSE's level of preparedness and readiness. These actions and plans and the associated updates are provided as Exhibit A to this Petition. These actions and plans were necessary and reasonable in light of the exceptional circumstance of the new CIS implementation.

19. Starting in January 2013, PSE initiated several parallel phases of CIS testing to ensure data integrity and system stability. The most vigorous of tests occurred during three mock cutovers that allowed for refinement of the cutover process and system readiness for the actual CIS switchover.

20. The Company established a cutover period from 5 p.m. on March 28 through 8 p.m. on March 31, during which all PSE systems would be unavailable ("Cutover Period"). Activities performed by the CAC agents during the Cutover Period were limited to addressing customer concerns that required immediate resolution. All other activities such as back billing or credit collection were placed on hold during cutover. There was also no disconnection or late-payment fee processing during the Cutover Period to minimize the customer impact of implementation of the new CIS.

21. PSE's external communications plan focused on making customers aware of a new 12-digit account number and the late March 2013 three-day period when customers had no online accessibility to their accounts. Among the communications were banners on www.PSE.com, postings on PSE's Facebook page, bill-print messages on all billing statements, newspaper ads, direct-mail letters

to customers, email notifications, and a recorded message on PSE's greeting line. Active communications directed to customers occurred late February through May 2013. FAQs and other general information about the new CIS remained posted on PSE's website through September 2013.

22. Each department in the CAC established detailed plans to handle customer transactions during the Cutover Period and at the CIS switchover. A "war room" was created to establish easy access to experts to address any issues at CIS switchover and a "hub" was established to closely track and monitor call-answering performance during CIS switchover and after. Additional staffing augmented to support training delivery and to support expected call volume increases, average handle time increases, and general performance dips.

23. The preparation and mitigation plans described above and in Exhibit A of the December Request demonstrate that PSE effectively implemented a well thought-out plan, and the ultimate impact on SQI No. 5 did not represent a deterioration in quality of service. Nor was it a result of poorly-targeted cost cutting. Accordingly, PSE's level of preparedness and response was reasonable for the unusual or exceptional circumstances caused by the CIS implementation.

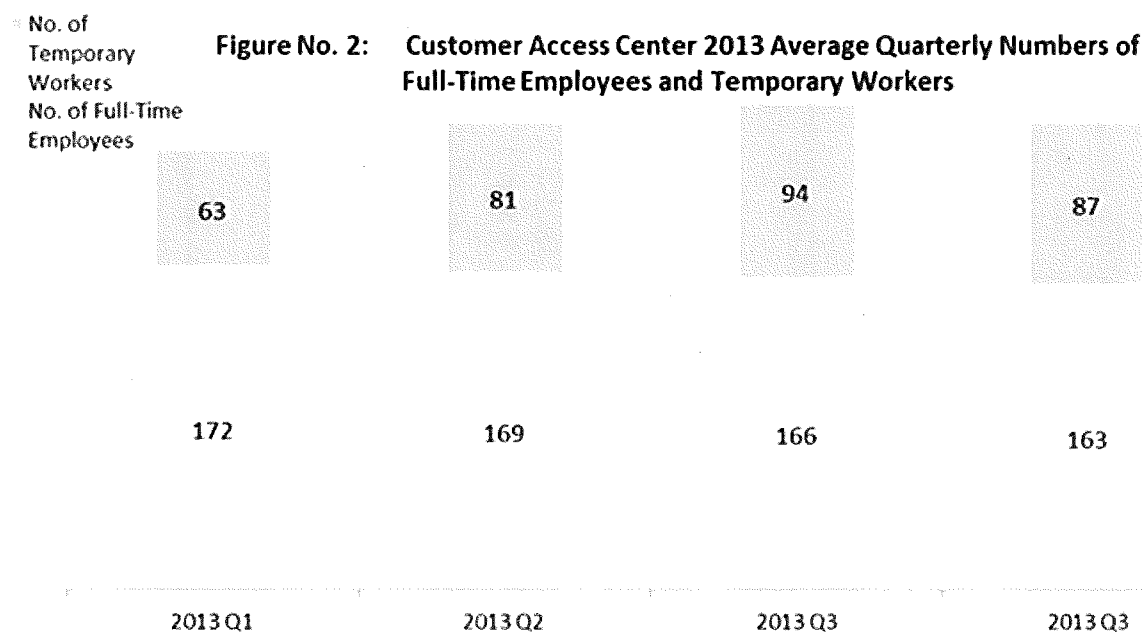
VII. EFFECTS OF CIS IMPLEMENTATION ON SQI NO. 5 PERFORMANCE

24. PSE encountered the negative effects it had projected in its March Petition as a result of the implementation of the new CIS. PSE experienced average call wait times of 1 minute and 52 seconds during the months of April through September 2013. Other utilities have experienced much more substantial impacts. Specifically, some utilities' average hold times grew from 20 seconds to 13 minutes as a result of their CIS implementation.⁴⁷ Further, PSE encountered a 12% increase in calls that requested to speak with a CAC representative during April through September 2013, but other utilities

⁴⁷ Electric and Gas Utility CIS Implementation Benchmark Report, Bass & Company, at p. 12 (November 28, 2005).

experienced a 25% increase in call volumes.⁴⁸ Although PSE performed better than its peer group due to PSE's preparedness and mitigation plans, SQI No. 5—Customer Access Center Answering Performance—was nevertheless negatively affected during the second and third quarters of 2013.

25. Despite the substantial additional numbers of temporary staff for April through September 2013, in addition to the 170 full-time CAC employees, PSE was not able to maintain its call answering performance at the prior year level during the CIS implementation and stabilization period, as shown in Figure No. 2. The surge in the numbers of the calls in April through September 2013 due to CIS implementation and the time need for the CAC representatives to become proficient in the new CIS environment greatly impacted the call answering performance during the period.

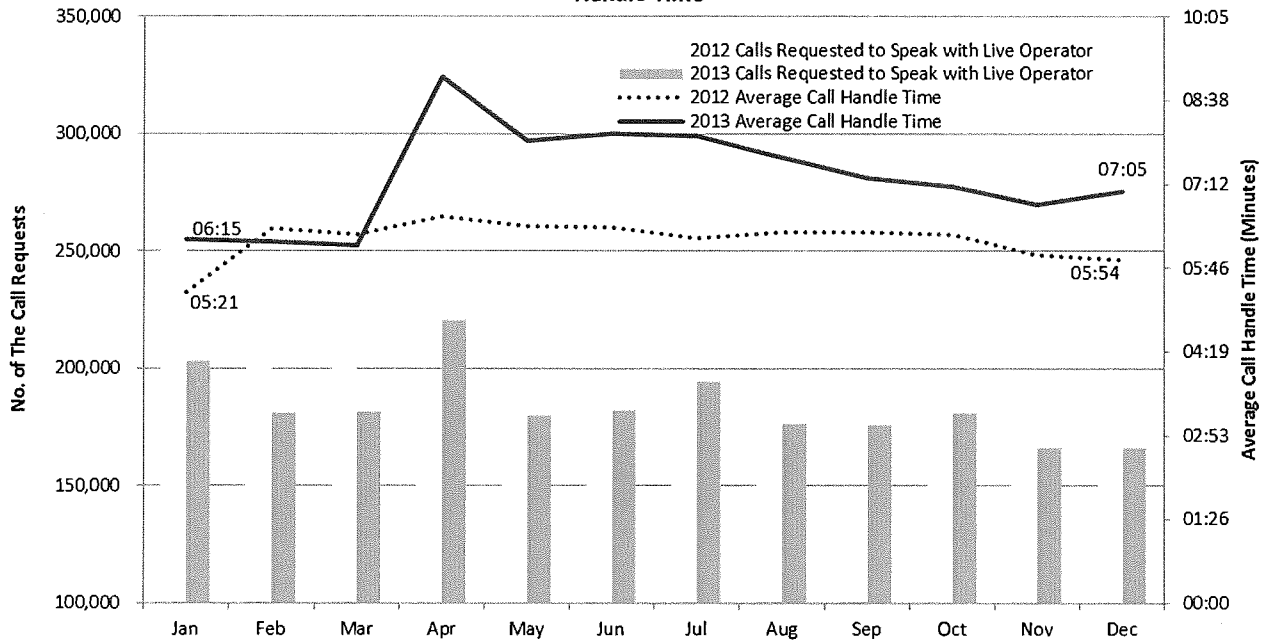


26. Figure No. 3 shows the 2012 and 2013 monthly numbers of the customer calls that requested to speak with a CAC representative and the monthly average call handle times. Overall, for the period of April through September, there was 12% increase in the number of the call requests,

⁴⁸ *Id.*

peaking in April 2013 when first go-live of the new CIS. Call requests also increased in June-August 2013 as the disconnection or late-payment fee processing resumed. However, as demonstrated, there have been improvements in reducing call handle time largely resulting from PSE's preparation and mitigation strategy that was in place.

Figure No. 3: No. of Calls Requested to Speak with Live Operator and the Average Monthly Call Handle Time



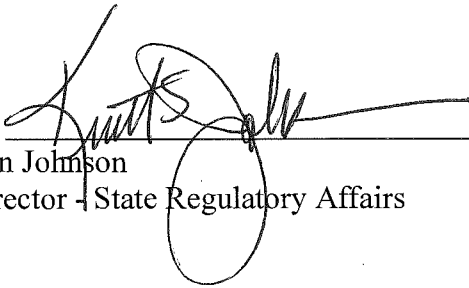
VIII. REQUESTED ACTION

27. For the reasons set forth above in this Petition PSE respectfully requests that the Commission issue an order:

1. Relieving the entire \$648,000 calculated penalty associated with SQI No. 5 for the 2013 program year, and
2. Determining the SQI No. 5 penalty has been successfully mitigated.

DATED: March 31, 2014

PUGET SOUND ENERGY, INC.

By 
Ken Johnson
Director - State Regulatory Affairs



Docket Nos. UE-072300 and UG-072301(consolidated)

Puget Sound Energy

PETITION FOR MITIGATION

FOR MITIGATION OF SERVICE QUALITY INDEX NO. 5 PENALTY FOR PERIOD ENDING
DECEMBER 31, 2013

Exhibit A

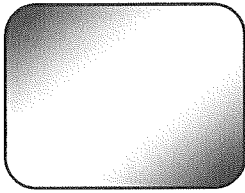
**Update of Mitigation Actions and Plans Identified in PSE March 13 2013 Petition to Minimize
the Impact of CIS implementation on PSE customers**

Exhibit A

Report on Mitigation Actions and Plans Identified in PSE March 13 Petition to Minimize the Impact of CIS implementation on PSE customers

Identified Action/Plan	Actions Implemented as of November 2013
The appearance of the bill will remain the same, which will help prevent customer confusion.	Implemented. The look and feel of the PSE bill did not change.
There will be no change to PSE.com, which customers use to access their accounts.	Implemented. PSE.com did not undergo any changes impacting customers.
An external communication plan covering January through October 2013 is in place to keep customers informed of the Company's progress towards the cutover to SAP CR&B system and then to help quickly address any issues after the go-live date.	Implemented. PSE Corporate Communications established a communication strategy to prepare customers for cutover and to provide them avenues of providing feedback.
PSE is conducting multiple tests to monitor performance requirements and ensure successful integration of the new system before the go-live date.	PSE underwent three mock cutovers to ensure data integrity and system stability prior to the official cutover. Each mock run provided refinement for the final cutover.
PSE will increase its staff at the Customer Access Center to improve customer call experience.	Implemented. An additional 90 agents were added to staff.
PSE project employees and consultants have participated in SAP CR&B user application testing since fall 2012; this training continues through first quarter of 2013.	Implemented. Training is on-going. Initial training occurred Q4 2012 – Q1 2013 and continuation/advanced training will continue through Q3 2014. ⁴⁹
PSE has conducted a number of informational workshops for employees and surveyed awareness across the Company. Specific training has been developed to ensure adequate depth of training.	Implemented. PSE established an organizational change management team that provided information across the enterprise and sought feedback regarding efficacy of training.
The contingency plan was put together based upon input from affected departments for the cutover period and will help ensure a smooth transition during the four day system cutover period from CLX to SAP CR&B.	Implemented. Contingency plans were established by department highlighting critical success metrics, risks and risk mitigation plans. Plans were monitored during and after cutover.

⁴⁹ Training is on-going. Initial training occurred in Q4 2012 – Q1 2013 and continuation/advanced training will continue through Q3 2014.



D Proposed Customer Notice (Report Card)

2013 Service Quality Report Card

This appendix presents PSE's proposed 2013 Customer Service Performance Report Cards for with or without SQI #5 penalty depending the UTC approval. The Customer Service Performance Report Card, which is designed to inform customers of how well PSE delivers its services in key areas to its customers. Attachments A and B to this Appendix are the proposed drafts with and without UTC's approval's penalty relief, respectively.

Attachment A to Appendix D: Draft 2013 Service Quality Report Card with UTC SQI penalty relief

2013 Service Quality Report Card

Key measurement	Benchmark	2013 Performance	Achieved
Customer Satisfaction			
Percent of customers satisfied with our Customer Access Center services, based on survey	At least 90 percent	91 percent	✓
Percent of customers satisfied with field services, based on survey	At least 90 percent	95 percent	✓
Number of complaints to the WUTC per 1,000 customers, per year	Less than 0.40	0.25	✓
Customer Services			
Percent of calls answered live within 30 seconds by our Customer Access Center	At least 75 percent	66 percent	*
Operations Services			
Frequency of non-major-storm power interruptions, per year, per customer	Less than 1.3 interruptions	0.86 interruptions	✓
Length of power outages per year, per customer	Less than 5 hours, 20 minutes	4 hours, 7 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	32 minutes	✓
Percent of service appointments kept	At least 92 percent	99 percent	✓

Each year Puget Sound Energy measures how well we deliver our services to you and all of our customers in three key areas: Customer Satisfaction, Customer Services and Operations Services.

2013 Performance Highlights

In 2013 we met eight of the nine service metrics (see chart above.) The area where we fell short was in the percent of your calls answered live within 30 seconds.

* For the first five months following our April 2013 conversion to an advanced customer information and billing system, some customers experienced longer-than-usual wait times for their calls as our employees grew more proficient with the new software. By October, we returned to normal operations and met the performance target. Understanding the magnitude and challenges of implementing a new customer information system, our state regulators, the Utilities and Transportation Commission, judiciously waived the penalties for missing the live-call target.

Through our two Service Guarantees —keeping scheduled appointments and restoring power interruptions as soon as we can— we provide a \$50 credit on your bill. In 2013, we credited customers a total of \$18,050 for missing 361 of our total 81,545 scheduled appointments.

Every day our employees continually aim to achieve new levels of providing safe, dependable and efficient service to meet your expectations of us.

Attachment B to Appendix D: Draft 2013 Service Quality Report Card without UTC SQI penalty relief

2013 Service Quality Report Card

Key measurement	Benchmark	2013 Performance	Achieved
Customer Satisfaction			
Percent of customers satisfied with our Customer Access Center services, based on survey	At least 90 percent	91 percent	✓
Percent of customers satisfied with field services, based on survey	At least 90 percent	95 percent	✓
Number of complaints to the WUTC per 1,000 customers, per year	Less than 0.40	0.25	✓
Customer Services			
Percent of calls answered live within 30 seconds by our Customer Access Center	At least 75 percent	66 percent	*
Operations Services			
Frequency of non-major-storm power interruptions, per year, per customer	Less than 1.3 interruptions	0.86 interruptions	✓
Length of power outages per year, per customer	Less than 5 hours, 20 minutes	4 hours, 7 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	32 minutes	✓
Percent of service appointments kept	At least 92 percent	99 percent	✓

Each year Puget Sound Energy measures how well we deliver our services to you and all of our customers in three key areas: Customer Satisfaction, Customer Services and Operations Services.

2013 Performance Highlights

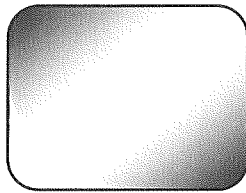
In 2013 we met eight of the nine service metrics (see chart above.) The area where we fell short was in the percent of your calls answered live within 30 seconds.

* For the first five months following our April 2013 conversion to an advanced customer information and billing system, some customers experienced longer-than-usual wait times for their calls as our employees grew more proficient with the new software. By October, we returned to normal operations and met the performance target. As a result, PSE incurred a \$648,000 penalty for missing the live-call target. Paid by PSE's investors, the fine will support the Home Energy Lifeline Program (HELP) to provide qualified low-income PSE customers with payment assistance on their PSE bills.

Through our two Service Guarantees —keeping scheduled appointments and restoring power interruptions as soon as we can— we provide a \$50 credit on your bill. In 2013, we credited customers a total of \$18,050 for missing 361 of our total 81,545 scheduled appointments.

Every day our employees continually aim to achieve new levels of providing safe, dependable and efficient service to meet your expectations of us.





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.

Table E1: Annual Disconnection Results from 2009 to 2013 per 1,000 Customers

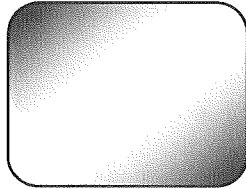
2009	2010	2011	2012	2013
29	38	37	33	13

Table E2: Monthly Disconnection Results per 1,000 Customers for 2013

Month	Disconnections per 1000 Customers
January	2
February	1
March	1
April ^{Note 1}	0
May ^{Note 1}	0
June ^{Note 2}	0
July	1
August	2
September	2
October	2
November	1
December ^{Note 2}	0

Note 1: There was not disconnection in April and May 2013 due to the CIS go-live on April 1, 2013, and the on-going implementation.

Note 2: The numbers of disconnection per 1,000 customers for June and December 2013 before rounding are 0.2 and 0.3, respectively.



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 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**—The 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)**—The total of Total Missed and Total Kept
- **Total Kept**—The total number of Manual Kept and System Kept
- **Total Missed**—The total number of Missed Approved, Missed Denied, and Missed Open



2013 SQI #10 and Customer Service Guarantee Payment Annual Summary

	Total Appnts (Exclude Canceled)	Missed Approved	Missed Open	Total Missed	Manual Kept	System Kept	Total Kept	Canceled	Excused	Customer Service Guarantee Payment	Percent Kept (Exclude Canceled) <small>Note 1</small>
Electric											
Permanent SVC	7,979	32	1	33	111	7,835	7,946	-	-	\$1,600	100%
Reconnection	23,833	17	71	88	146	23,599	23,745	929	-	\$850	100%
Sub-total	31,812	49	72	121	257	31,434	31,691	929	-	\$2,450	100%
Gas											
Diagnostic	27,021	27	18	45	697	26,279	26,976	628	-	\$1,350	100%
Permanent SVC	10,620	276	-	276	361	9,983	10,344	-	-	\$13,800	97%
Reconnection	12,092	9	2	11	159	11,922	12,081	281	-	\$450	100%
Sub-total	49,733	312	20	332	1,217	48,184	49,401	909	-	\$15,600	99%
Grand Total	81,545	361	92	453	1,474	79,618	81,092	1,838	-	\$18,050	99%

Note 1: Results shown are rounded to the nearest whole percentage per UIC order for performance calculation and comparison to the benchmark. However, these 100% monthly performance results do not reflect that PSE met all its appointments during the reporting period. There were 470 missed SQI appointments in 2012 as indicated in the "Total Missed" column.



2013 SQI #10 and Customer Service Guarantee Payment Monthly Details												
Month	Fuel	Type	Total Appris (Exclude Canceled and Excused)	Missed Approved	Missed Open	Total Missed	Manual Kept	System Kept	Total Kept	Canceled	Excused	Customer Service Guarantee Payment
Jan-13	Electric	Permanent SVC	631	0	0	0	1	630	631	0	0	\$0
Jan-13	Electric	Reconnection	3,491	1	2	3	14	3,474	3,488	379	0	\$50
Jan-13	Gas	Diagnostic	3,532	8	0	8	69	3,455	3,524	628	0	\$400
Jan-13	Gas	Permanent SVC	905	17	0	17	27	861	888	0	0	\$850
Jan-13	Gas	Reconnection	2,093	2	0	2	11	2,080	2,091	281	0	\$100
Jan-13 Total			10,652	28	2	30	122	10,500	10,622	1,288	0	\$1,400
Feb-13	Electric	Permanent SVC	577	3	1	4	5	568	573	0	0	\$150
Feb-13	Electric	Reconnection	2,476	1	4	5	6	2,465	2,471	303	0	\$50
Feb-13	Gas	Diagnostic	2,273	3	2	5	54	2,214	2,268	0	0	\$150
Feb-13	Gas	Permanent SVC	832	23	0	23	19	790	809	0	0	\$1,150
Feb-13	Gas	Reconnection	1,655	3	1	4	10	1,641	1,651	0	0	\$150
Feb-13 Total			7,813	33	8	41	94	7,678	7,772	303	0	\$1,650
Mar-13	Electric	Permanent SVC	657	2	0	2	4	651	655	0	0	\$100
Mar-13	Electric	Reconnection	1,577	0	9	9	0	1,568	1,568	247	0	\$0
Mar-13	Gas	Diagnostic	1,989	2	2	4	38	1,947	1,985	0	0	\$100
Mar-13	Gas	Permanent SVC	878	24	0	24	12	842	854	0	0	\$1,200
Mar-13	Gas	Reconnection	1,206	0	0	0	4	1,202	1,206	0	0	\$0
Mar-13 Total			6,302	28	11	39	58	6,205	6,263	247	0	\$1,400

Table continues on next page.



2013 SQI #10 and Customer Service Guarantee Payment Monthly Details

Month	Fuel	Type	Total Appts (Exclude Canceled and Excused)	Missed Approved	Missed Open	Total Missed	Manual Kept	System Kept	Total Kept	Canceled	Excused	Customer Service Guarantee Payment
Apr-13	Electric	Permanent SVC	695	4	0	4	7	684	691	0	0	\$200
Apr-13	Electric	Reconnection	568	1	0	1	39	528	567	0	0	\$50
Apr-13	Gas	Diagnostic	1,666	1	0	1	121	1,544	1,665	0	0	\$50
Apr-13	Gas	Permanent SVC	938	65	0	65	18	855	873	0	0	\$3,250
Apr-13	Gas	Reconnection	453	1		1	28	424	452	0	0	\$50
Apr-13 Total			4,320	72	0	72	213	4,035	4,248	0	0	\$3,600
May-13	Electric	Permanent SVC	696	5	0	5	11	680	691	0	0	\$250
May-13	Electric	Reconnection	602	0	1	1	8	593	601	0	0	\$0
May-13	Gas	Diagnostic	1,376	0	2	2	39	1,335	1,374	0	0	\$0
May-13	Gas	Permanent SVC	909	31	0	31	28	850	878	0	0	\$1,550
May-13	Gas	Reconnection	379	0		0	7	372	379	0	0	\$0
May-13 Total			3,962	36	3	39	93	3,830	3,923	0	0	\$1,800
Jun-13	Electric	Permanent SVC	654	1	0	1	7	646	653	0	0	\$50
Jun-13	Electric	Reconnection	838	3	2	5	6	827	833	0	0	\$150
Jun-13	Gas	Diagnostic	968	0	3	3	55	910	965	0	0	\$0
Jun-13	Gas	Permanent SVC	828	10	0	10	20	798	818	0	0	\$500
Jun-13	Gas	Reconnection	358	0		0	20	338	358	0	0	\$0
Jun-13 Total			3,646	14	5	19	108	3,519	3,627	0	0	\$700

Table continues on next page.



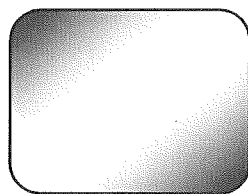
2013 SQI #10 and Customer Service Guarantee Payment Monthly Details

Month	Fuel	Type	Total Appis and (Exclude Canceled and Excused)	Missed Approved	Missed Open	Total Missed	Manual Kept	System Kept	Total Kept	Canceled	Excused	Customer Service Guarantee Payment
Jul-13	Electric	Permanent SVC	772	0	0	0	20	752	772	0	0	\$0
Jul-13	Electric	Reconnection	2,207	3	28	31	10	2,166	2,176	0	0	\$150
Jul-13	Gas	Diagnostic	944	2	0	2	59	883	942	0	0	\$100
Jul-13	Gas	Permanent SVC	936	10	0	10	29	897	926	0	0	\$500
Jul-13	Gas	Reconnection	624	1		1	10	613	623	0	0	\$50
Jul-13 Total			5,483	16	28	44	128	5,311	5,439	0	0	\$800
Aug-13	Electric	Permanent SVC	723	2	0	2	13	708	721	0	0	\$100
Aug-13	Electric	Reconnection	2,853	0	4	4	9	2,840	2,849	0	0	\$0
Aug-13	Gas	Diagnostic	1,023	3	2	5	45	973	1,018	0	0	\$150
Aug-13	Gas	Permanent SVC	915	7	0	7	52	856	908	0	0	\$350
Aug-13	Gas	Reconnection	874	1		1	8	865	873	0	0	\$50
Aug-13 Total			6,388	13	6	19	127	6,242	6,369	0	0	\$650
Sep-13	Electric	Permanent SVC	617	3	0	3	8	606	614	0	0	\$150
Sep-13	Electric	Reconnection	2,852	3	7	10	10	2,832	2,842	0	0	\$150
Sep-13	Gas	Diagnostic	2,349	0	1	1	52	2,296	2,348	0	0	\$0
Sep-13	Gas	Permanent SVC	855	13	0	13	33	809	842	0	0	\$650
Sep-13	Gas	Reconnection	988	1		1	35	952	987	0	0	\$50
Sep-13 Total			7,661	20	8	28	138	7,495	7,633	0	0	\$1,000



2013 SQI #10 and Customer Service Guarantee Payment Monthly Details

Month	Fuel	Type	Total Appts (Exclude Canceled and Excused)	Missed Approved	Missed Open	Total Missed	Manual Kept	System Kept	Total Kept	Canceled	Excused	Customer Service Guarantee Payment
Oct-13	Electric	Permanent SVC	815	2	0	2	16	797	813	0	0	\$100
Oct-13	Electric	Reconnection	2,958	2	5	7	25	2,926	2,951	0	0	\$100
Oct-13	Gas	Diagnostic	3,886	5	1	6	50	3,830	3,880	0	0	\$250
Oct-13	Gas	Permanent SVC	1,061	25	0	25	50	986	1,036	0	0	\$1,250
Oct-13	Gas	Reconnection	1,445	0	0	0	14	1,431	1,445	0	0	\$0
		Oct-13 Total	10,165	34	6	40	155	9,970	10,125	0	0	\$1,700
Nov-13	Electric	Permanent SVC	565	4	0	4	11	550	561	0	0	\$200
Nov-13	Electric	Reconnection	2,473	2	3	5	14	2,454	2,468	0	0	\$100
Nov-13	Gas	Diagnostic	3,246	1	2	3	60	3,183	3,243	0	0	\$50
Nov-13	Gas	Permanent SVC	846	28	0	28	40	778	818	0	0	\$1,400
Nov-13	Gas	Reconnection	1,203	0	0	0	7	1,196	1,203	0	0	\$0
		Nov-13 Total	8,333	35	5	40	132	8,161	8,293	0	0	\$1,750
Dec-13	Electric	Permanent SVC	577	6	0	6	8	563	571	0	0	\$300
Dec-13	Electric	Reconnection	938	1	6	7	5	926	931	0	0	\$50
Dec-13	Gas	Diagnostic	3,769	2	3	5	55	3,709	3,764	0	0	\$100
Dec-13	Gas	Permanent SVC	717	23	0	23	33	661	694	0	0	\$1,150
Dec-13	Gas	Reconnection	814	0	1	1	5	808	813	0	0	\$0
		Dec-13 Total	6,815	32	10	42	106	6,667	6,773	0	0	\$1,600
		Grand Total	81,540	361	92	453	1,474	79,613	81,087	1,838	0	18050



G Customer Awareness of Customer Service Guarantee

PSE undertook the following actions in 2013 to promote customer awareness of its Customer Service Guarantee program (the Guarantee).

1. In 2013, PSE revamped and renamed the EnergyWise customer newsletter into “The Voice of myPSE.” For regulatory compliance purposes, a brief reference to EnergyWise appears on the back page of the newsletter. Service Guarantee information was included in the following customer newsletters: January-February 2013 EnergyWise, September 2013 The Voice of myPSE, and the December 2013 The Voice of myPSE.
2. The text of the Guarantee appeared on the back of the bill-stock throughout 2013.
3. A description of the Guarantee has been in the natural gas and the electric customer “rights and responsibilities” brochures since 2004. The brochures have been distributed to all new customers and existing customers upon request in 2013. Both natural gas and electric brochures are also posted on www.PSE.com.
4. Other channels of communications for making customers aware of the Service Guarantee were made available to customers in 2013, including:
 - Year-round presence on PSE.com
 - Rotating banners on PSE.com homepage
 - July and August 2013 outside bill statement envelopes and September and October 2013 return envelopes
 - Social media
5. PSE Customer Access Center continued to promote the Customer Service Guarantee in the following ways:
 - The Guarantee is included in PSE’s online Quick Reference Manual. This manual is accessible 24/7 on PSE’s intranet and is available to all customer services, gas field services, and new construction employees.
 - Prior to ending a telephone contact that involves an eligible reconnection or gas diagnostic service appointment being scheduled with a customer, the Customer Access Center representative (CSR) will give a short statement regarding the availability of the \$50 missed appointment credit should the agreed upon time-frame for the appointment not be met by the company.
 - Customer Access Center representatives are provided with training and scripting on the Guarantee:

“If we miss your customer service guarantee appointment under normal operating conditions, we will automatically credit your energy account with \$50 – guaranteed”

- PSE is taking measures to ensure that CSRs are trained on its policy to advise customers of the Guarantee before the end of any call in which an eligible appointment or commitment is made.
- 6. Other approaches used to inform customers of the Customer Service Guarantee include the natural gas and electric new service handbooks and brochures and PSE's website, PSE.com.

The results of customer awareness surveys are presented in Table G1.



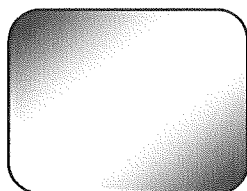
Table G1: Customer Awareness of Customer Service Guarantee

CFS Survey	Jan-13	Feb-13	July-13	Aug-13	Sep-13	Oct-13	Nov-13	Dec-13
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?	61	24	28	30	37	56	78	69
Yes								
No	104	49	59	55	45	52	92	74
Don't Know	34	26	22	27	21	33	32	22
Refused Response	1	1	-	-	-	-	-	1
Total Customers Surveyed	200	100	109	112	103	141	202	166
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.	17	6	12	13	18	28	31	21
You are given the \$50 service guarantee if the rescheduled time causes you inconvenience.								
Whenever PSE changes an appointment, you are given the \$50.	37	14	12	10	20	28	25	32
You have no understanding or expectations about this part of the service guarantee plan.	126	53	68	72	52	72	123	93
Don't Know	19	26	16	14	13	8	22	19
Refused Response	1	1	1	3	-	5	1	1
Total Customers Surveyed	200	100	109	112	103	141	202	166
Q26D. Did your appointment have to be rescheduled or did it occur as planned?	189	98	101	108	98	127	189	154
It occurred as planned.								
It was rescheduled.	8	1	6	3	2	7	9	6
Technician arrived but was late.	1	-	-	1	-	2	1	-
Don't Know	1	1	2	-	3	4	3	6
Refused Response	1	-	-	-	-	1	-	-
Total Customers Surveyed	200	100	109	112	103	141	202	166

Table continues on next page.



CFS Survey		Jan-13	Feb-13	July-13	Aug-13	Sep-13	Oct-13	Nov-13	Dec-13
Q26E. Who initiated rescheduling your appointment?									
Myself (Customer Initiated)		4	-	2	2	1	4	6	5
Puget Sound Energy (PSE) Initiated		3	1	3	-	1	2	3	1
Don't Know		1	-	1	1	-	1	-	-
Refused Response		-	-	-	-	-	-	-	-
Total Customers Surveyed		8	1	6	3	2	7	9	6



H

Electric Reliability Terms and Definitions

Terms and Definitions

AMR—Automated Meter Reading system, which is a communication network capable of providing PSE with certain information pertaining to sustained outages automatically.

Area of Greatest Concern—An area targeted for specific actions to improve the level of service reliability or quality.

Cause Codes—Codes used to identify PSE’s best estimation of what caused a Sustained Interruption to occur. The codes are listed below:

Code	Description	Code	Description
AO	Accident Other, with Fires	FI	Faulty Installation
BA	Bird or Animal	LI	Lightning
CP	Car Pole Accident	SO	Scheduled Outage (was WR – Work Required)
CR	Customer Request	TF	Tree – Off Right-of-Way
DU	Dig Up Underground	TO	Tree – On Right-of-Way
EF	Equipment Failure	TV	Trees/Vegetation
EO	Electrical Overload	UN	Unknown Cause (unknown equipment involved only)
EQ	Earthquake	VA	Vandalism

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

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 years, whereby, after investigation by PSE, the cause of the concern is found to be on PSE’s energy-delivery system.

Customer Count—The number of customers relative to focus on topic or data. The source of the data will be the outage reporting system that is a part of SAP, PSE’s work management and financial information system.

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

Duration of Sustained Interruption—The period, measured in minutes, hours or days, beginning when PSE is first informed the service to a customer has been interrupted and ending when the problem causing the interruption has been resolved, and the line has been re-energized. An interruption may require Step Restoration tracking to provide reliable index calculation. As an example, two trees could be down, one taking out a major feeder on a main street affecting numerous customers, another down the line in a side street, affecting only a few customers off the major feeder. When the major line is restored, and service to most customers is resumed, it is possible that the second tree will prevent resumption of service to the smaller group of customers. The Sustained Interruption associated with the second tree is treated as a separate incident for reporting and tracking purposes.

Equipment Codes

Code	Description	Code	Description
OCN	Overhead Secondary Connector	OTF	Overhead Transformer Fuse
OCO	Overhead Conductor	OTR	Overhead Transformer
OFC	Overhead Cut – Out	UEL	Underground Elbow
OFU	Overhead Line Fuse / Fuse Link	UFJ	Underground J – Box
OJU	Overhead Jumper Wire	UPC	Underground Primary Cable
OPO	Distribution Pole	UPT	Padmount Transformer
OSV	Overhead Service	USV	Underground Service

IEEE 1366—IEEE Standard 1366-2003, 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.

Major Event—An event, such as a storm, that causes serious reliability problems. PSE utilizes two Major Event criteria to evaluate its reliability performance: 5% Exclusion Major Event Days and IEEE 1366 T_{MED} Exclusion Major Event Days.

Major Event Days—Days when outage events can be excluded from the reliability performance calculation. The two types of Major Event Days are:

- **5% Exclusion Major Event Days**—Days that five% or more of electric customers are experiencing an electric outage during a 24-hour period and subsequent days when the service to those customers is being restored
- **IEEE 1366 T_{MED} Exclusion Major Event Days**—Any days in which the daily system SAIDI exceeds the threshold value, T_{MED} .

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.

SAIDI—System Average Interruption Duration Index—This index is commonly referred to as customer-minutes of interruption (CMI) or customer hours, and is designed to provide information about the average time the customers are interrupted. The measurements used in PSE’s Plan and reporting include Total methodology (SAIDI_{Total}), Total with five-year-rolling average methodology (SAIDI_{Total 5-year Average}), 5% exclusion methodology (SAIDI_{5%}), and IEEE methodology (SAIDI_{IEEE}). The performance results for each of the measurement will be calculated according to the following:

$$\text{SAIDI}_{\text{Total}} = \frac{\sum \text{All customer interruption minutes}}{\text{Average annual electric customer count}}$$

SAIDI_{Total 5-year Average} = Rolling five-year average of current year Annual SAIDI_{Total} and prior four years Annual SAIDI_{Total} results, excluding any exclusion that has been approved by the UTC. Exclusions will be replaced by preceding Annual SAIDI_{Total} performance results until there are five years included in the calculation of current year SAIDI_{Total 5-year Average}

$$\text{SAIDI}_{5\%} = \frac{\sum \text{Customer interruption minutes during non-5\%-Exclusion-Major-Event-Days}}{\text{Average annual electric customer count}}$$

$$\text{SAIDI}_{\text{IEEE}} = \frac{\sum \text{Customer interruption minutes during non-IEEE-1366-T}_{\text{MED}}\text{-Exclusion-Major-Event Days}}{\text{Average annual electric customer count}}$$

SAIFI—System Average Interruption Frequency Index—This index is designed to give information about the average frequency of sustained interruptions per customers over a predefined area. The measurements used in PSE’s Plan and reporting include Total methodology (SAIFI_{Total}), Total with five-year-rolling average methodology (SAIFI_{Total 5-year Average}), 5% exclusion methodology (SAIFI_{5%}) and IEEE methodology (SAIFI_{IEEE}). The performance results for each of the measurement will be calculated according to the following:

$$\text{SAIFI}_{\text{Total}} = \frac{\text{Total number of customers that experienced Sustained Interruptions}}{\text{Average annual electric customer count}}$$

SAIFI_{Total 5-year Average} = Rolling five-year average of current year Annual Total SAIFI and prior four years Annual Total SAIFI results, excluding any exclusion that has been approved by the UTC. Exclusions will be replaced by preceding Annual Total SAIFI performance results until there are five years included in the calculation of current year SAIFI_{Total 5-year Average}

$$\text{SAIFI}_{5\%} = \frac{\text{Number of customers that experienced Sustained Interruptions during non-5\%-Exclusion-Major-Event-Days}}{\text{Average annual electric customer count}}$$

$$\text{SAIFI}_{\text{IEEE}} = \frac{\text{Number of customers that experienced Sustained Interruptions during non-IEEE-1366-T}_{\text{MED}}\text{-Exclusion-Major-Event-Days}}{\text{Average annual electric customer count}}$$

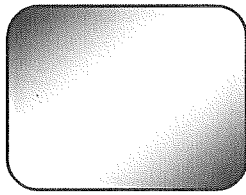
SQ—PSE’s Service Quality Program was first established per conditions of the Puget Power and Washington Natural Gas merger in 1997 under Docket Number UE-960195. The SQ Program has been since extended and modified in Docket Numbers UE-011570 and UG-011571 (consolidated), Docket Number UE-031946, and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

Step Restoration—The restoration of service to blocks of customers in an area until the entire area or feeder is restored.

Sustained Interruption—Any interruption not classified as a momentary event. PSE records any interruption longer than one minute as a Sustained Interruption.

T_{MED}—The 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, and using the IEEE 1366 2.5 beta methodology in calculating the threshold value. Any days having a daily system SAIDI greater than T_{MED} are days on which the energy-delivery system experienced stresses beyond those normally expected, which are classified as Major Event Days.

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



I Electric Reliability Data Collection Process and Calculations

Data Collection—Methods and Issues

This appendix discusses data collection methods and issues. It explains how the various data were collected. Changes in methods from prior reporting periods are highlighted and the impact of the new method on data accuracy is discussed.

Change in Data Collection Tools and Business Processes

- OMS and CIS replace the functionality provided by the outage management system included in CLX.
- CIS replaces the functionality provided by CLX in recording PSE's customer complaints.
- Due to change in data sources and business processes with OMS, PSE recognizes that data integrity will be affected for a period of time until business processes and systems are stabilized. Starting in the second quarter of 2014, one year after implementation of OMS, PSE will begin analyzing the data to identify any further data impact changes.

Methods for Identifying when a Sustained Interruption Begins

The following methods are used to determine the beginning point of an interruption:

- A customer calls to PSE's Customer Access Center, either through the automated voice response unit or talking with a customer representative.
- A customer calls to a PSE employee other than through the Customer Access Center.
- A customer logging into their online PSE account and reporting an outage.
- A substation breaker operation that is reflected in OMS based on a SCADA interface.
- Automated system information from PSE's AMR system (may precede customer call).

Possible Causes of Data Inconsistencies

- If service to a customer affected by a service interruption remains out after the interruption has been corrected, a follow-up call from the customer may be reported as a new incident.

- Data entry mistakes can create inconsistencies.
- During large storms less time is spent recording accurate data up-front while more effort is spent on restoring service.

Methods to Specify When the Duration of a Sustained Interruption Ends

The following methods are used to determine the ending point of an interruption:

- PSE Service personnel will log the time when customers are restored.

Possible Causes of Data Inconsistencies

- Multiple layers of issues may be contributing to a Sustained Interruption for a specific customer as described in the definition of Duration of Sustained Interruption.
- Data entry errors can affect the accuracy of the information.
- Getting consistent feedback from the field personnel responding to the outage.

Recording Cause Codes

- Outage cause codes are reported by the PSE service technician responding to the outage location.

Possible Causes of Data Inconsistencies

- During large storms less time is spent recording accurate data up-front while more effort is spent on restoring service.
- Restoration efforts take precedence over pinpointing the exact cause and location of the outage, especially in cross-country terrain or in darkness.
- A series of outages affecting a group or groups of customers at the same time or approximate times with several causes are difficult to capture.

Recording and Tracking Customer Complaints

- The CSR in PSE's Customer Access Center handling the call listens for key words and then categorizes the customer comments accordingly.
 - The CSR creates a request for the appropriate PSE personnel to contact the customer and discuss their concerns.
 - All contact is tracked as an inbound client comment in PSE's Customer Information System (CIS) and counted as a Customer 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 the CIS from a customer during current and prior reporting years, these Customer Inquiries together will be considered as a PSE "Customer Complaint."

Possible Causes of Data Inconsistencies

- Data entry errors from the initial inquiry or during the feedback loop can affect the accuracy of the information.
- High volumes of customer inquiries, during storms for example, may increase likelihood of data entry errors.

Change in Definitions and Calculations

This section describes the methodology used 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 initial 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.

Change to Include the IEEE Methodology

In the 2004 Annual Electric Service Reliability Report, PSE indicated that starting in 2005, reliability metrics using the IEEE standard 1366 methodology as a guideline would be included. This change and other modifications for monitoring and reporting electric service reliability information were adopted by PSE in UE-060391. The purpose for moving to the IEEE standard 1366 methodology is to

- Provide uniformity in reliability indices
- Identify factors which affect these indices
- Aid in consistent reporting practices among utilities

T_{MED} (Major Event Day Threshold) is the reliability index that facilitates this consistency. A detailed equation for calculating T_{MED} is provided in Appendix H: *Electric Reliability Terms and Definitions*.

While the IEEE guidelines provide a standard for the industry, companies can create a variety of definitions of an outage or sustained outage.

- PSE defines sustained outages as those lasting longer than one minute
- IEEE defines a sustained outage to be longer than five minutes

PSE will continue to use the one minute definition as PSE believes that tracking shorter duration outages allows us to better monitor the performance of the electric system and subsequently assess potential system improvements. It is also consistent with the definition of an outage used in the SQI methodology.

Changes for 2010 and Subsequent Years Reporting

In 2010, PSE met with the UTC staff to enhance the format of the Electric Service Reliability report and the reliability statistics information provided. Specific enhancements included clarification of baseline statistics and detailed comparison of and expanded set of reliability metrics. This annual report reflects all these reporting enhancements and the SQI SAIDI performance and benchmark calculation changes approved by the UTC.

Baseline Data Reliability Statistics

Pursuant to the WAC Electric Service Reliability requirements, PSE establishes 2003 as its baseline year as the performance from the year was about average for each of the reliability measurements. However, PSE would rather develop a baseline using multiple years to mitigate the fluctuation of weather conditions and other external factors. PSE feels there is limited usefulness in designating one specific year's information as a "baseline" and cautions against the use of a single year's data to assess year-to-year system reliability trends.

Timing of Annual Report Filings

PSE will be reporting data and information on a calendar year basis. PSE's annual Electric Service Reliability report will be filed as part of the annual SQI and Electric Service Reliability report with the UTC no later than the end of March of each year.⁵⁰

Tree-Related Outage Codes

PSE conducted a review of 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. However, it was found that during an outage it was difficult for field personnel to accurately assess the correct use of TF and TO cause codes.

As a result, PSE created a new outage cause code, Trees/Vegetation (TV) and revised the tree-related outage coding process. After a tree-related outage has occurred on a transmission line or causes a complete distribution circuit outage, a certified arborist field-verifies if the tree was on- or off-right-of-way and the correct code is added to the outage notification. All other tree-related outages are coded as TV.

⁵⁰ Order 17 of consolidated Docket Numbers UE-072300 and UG-072301, page 10, section 26.

Areas of Greatest Concern

This section of the annual reporting includes information on specific areas PSE is targeting for specific actions to enhance the level of service reliability. For 2013, PSE designates the Areas of Greatest Concern as the 50 worst-performing circuits⁵¹ over the previous five years that rank worst in terms of customer interruption minutes.

- Each circuit is first ranked by the annual total customer interruption minutes seen by the circuit for each of the previous five years.
- The yearly ranking results are then averaged to determine the overall 50 worst-performing circuits over the past five years.

The following information will be reported on each of these areas:

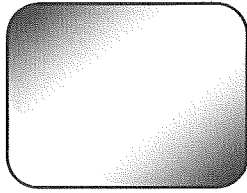
- Identification of each Area of Greatest Concern.
- Explanation of the specific actions PSE plans to take in each Area of Greatest Concern to improve the service in each area during the coming year.

Exclusion Events

Per Docket Number UE-072300, PSE can petition to exclude certain annual results or outage minutes from the performance calculation for the current year and years following that will be affected. PSE must demonstrate that event was unusual or exceptional and that PSE's level of preparedness and response was reasonable. The UTC has granted the following events to be considered extraordinary:

- Total SAIDI results for 2006.
- January 2012 Storm Event.

⁵¹ This definition of Areas of Concern became effective in 2012 considering the trend in system performance based on circuits that exceed the SQI, number of customers affected by those circuits and the number of complaints.



J Current Year Electric Service Outage by Cause by Area

This appendix details the 2013 Outage Cause by County. In Tables J1 through J3 color codes indicate which major outage category the outage cause is grouped into. The Cause Code definitions can be found in Appendix H: *Electric Reliability Terms and Definitions*.

Table J1: Color Code Legend

Color Code Legend
Preventable
Third Party (Non-Tree)
Tree Related

Table J2: Total Outages by Cause

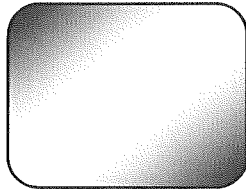
	Northern			King/Kittitas			Southern/Western				Total
	Whatcom	Skagit	Island	King	Kittitas	Pierce	Thurston	Kitsap	Jefferson		
AO	18	16	2	61	2	24	34	12	0	169	
BA	134	88	22	600	37	86	158	169	0	1,294	
CP	14	26	9	64	3	28	25	29	0	198	
CR	1	3	1	34	0	8	10	1	0	58	
DU	11	12	0	74	3	18	19	16	0	153	
EF	525	310	223	2,085	128	333	612	445	25	4,686	
EO	8	9	5	48	4	7	11	15	0	107	
EQ	0	0	0	0	0	0	0	0	0	0	
FI	5	3	2	15	1	4	3	8	0	41	
LI	15	48	25	85	43	15	38	12	0	281	
SO	107	98	68	529	13	155	116	102	27	1,215	
TF	19	15	12	81	3	14	13	59	0	216	
TO	6	6	3	42	1	7	6	23	0	94	
TV	174	213	153	964	37	115	221	563	14	2,454	
UN	21	40	7	127	5	16	17	44	0	277	
VA	1	2	0	3	0	4	9	1	0	20	
Misc*	21	15	5	77	7	10	25	13	2	175	
Total	1,080	904	537	4,889	287	844	1,317	1,512	68	11,438	

* Miscellaneous causes are included in both Preventable and Third Party (Non-Tree) categories

Table J3: 5% Exclusion Outages by Cause (Non-major-storm)

	Northern				King/Kititas			Southern/Western			Total
	Whatcom	Skagit	Island	King	Kititas	Pierce	Thurston	Kitsap	Jefferson		
AO	13	16	2	60	2	24	14	12	0	168	
BA	134	88	22	597	37	86	158	168	0	1,290	
CP	15	26	9	64	3	27	25	28	0	145	
CR	1	3	1	34	0	8	10	1	0	58	
DU	11	12	0	73	3	18	19	16	0	152	
EF	513	301	220	2,025	128	317	597	432	25	4,558	
EO	8	7	4	48	4	7	11	14	0	103	
EQ	0	0	0	0	0	0	0	0	0	0	
FI	4	3	2	14	1	4	3	8	0	39	
LI	15	45	25	82	43	15	38	12	0	275	
SO	107	98	68	528	13	154	116	102	27	1,213	
TF	17	10	9	85	3	5	9	48	0	156	
TO	5	5	3	39	1	4	5	14	0	57	
TV	146	164	125	534	21	77	134	100	14	1,348	
UN	21	36	6	120	5	15	13	42	0	258	
VA	1	2	0	3	0	4	8	1	0	19	
Misc*	20	15	5	75	7	10	25	13	2	172	
Total	1,034	831	501	4,332	274	775	1,205	1,241	68	10,261	

* Miscellaneous causes are included in both Preventable and Third Party (Non-Free) categories



K Historical SAIDI and SAIFI by Area

This appendix details in Table K1, the three-year history of SAIDI and SAIFI data by county.

Table K1: SAIDI and SAIFI Data for the Past Three Years by County ^{Note}

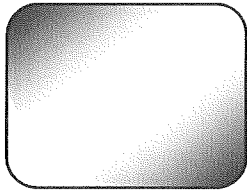
Region/County	Year	SAIFI Total	SAIFI Total 5-year Average	SAIFI 5%	SAIFI IEEE	SAIDI Total	SAIDI Total 5-year Average	SAIDI 5%	SAIDI IEEE
Northern									
Whatcom	2013	0.66	0.80	0.64	0.65	100	145	95	97
	2012	0.62	0.82	0.56	0.55	113	149	106	101
	2011	0.92	0.99	0.92	0.91	157	203	157	157
Skagit	2013	1.85	1.32	1.71	1.74	322	284	278	281
	2012	1.59	1.21	1.46	1.51	317	258	292	298
	2011	1.34	1.17	1.34	1.29	215	265	214	209
Island	2013	1.27	1.62	1.01	1.05	187	298	132	138
	2012	1.06	1.59	0.81	0.95	226	291	111	202
	2011	0.91	2.04	0.91	0.91	128	498	128	128
King/Kittitas									
King	2013	1.00	0.93	0.68	0.69	221	181	101	103
	2012	1.50	0.91	0.73	0.65	1433	169	99	86
	2011	0.79	0.97	0.76	0.76	118	184	113	114
Kittitas	2013	1.47	1.81	1.27	1.27	198	215	164	167
	2012	1.68	1.66	1.61	1.60	161	210	120	118
	2011	1.77	1.45	1.77	1.77	144	222	144	144

Note: Reported figures are based on most current SAP outage data, as of January 2014.

Table continues on next page.

Region/County	Year	SAIFI Total	SAIFI Total 5-year Average	SAIFI 5%	SAIFI IEEE	SAIDI Total	SAIDI Total 5-year Average	SAIDI 5%	SAIDI IEEE
Southern/Western									
Pierce	2013	0.90	1.07	0.81	0.81	137	179	120	120
	2012	2.36	1.06	0.88	0.76	3280	206	115	94
	2011	0.79	1.03	0.79	0.79	80	174	80	80
Thurston	2013	1.11	1.47	0.88	0.92	166	317	134	143
	2012	2.72	1.52	1.46	1.09	2959	337	194	134
	2011	1.08	1.55	1.08	1.08	139	384	139	139
Kitsap	2013	2.02	2.26	1.39	1.37	324	593	150	154
	2012	1.49	2.31	1.29	1.23	243	622	204	185
	2011	2.54	2.64	2.17	2.18	442	698	286	288
Jefferson ^{Note}	2013	0.05	1.16	0.05	0.05	14	206	14	14
	2012	0.89	1.54	0.77	0.88	119	267	97	115
	2011	1.47	1.89	1.47	1.47	262	417	261	261

Note: The 2013 Jefferson County numbers include January through March 2013 monthly results, the period before Jefferson County PUD #1 assumed ownership of PSE's electric system infrastructure within the county on April 1, 2013.



L
**1997-Current Year PSE SAIFI and SAIDI
Performance by Different Measurements**

This appendix presents PSE SAIFI and SAIDI performance from 1997 through the current year using different measurements.

**1997-2013 PSE SAIFI Performance in Different Measurements
(Average number of interruptions per year per customer)**

Calendar Year	(a) Annual SAIFI Excluding Any Days That 5% or More Customers Are w/o Power	(b) Annual IEEE SAIFI Excluding Daily Results over T _{1,IED}	(c) Annual Total SAIFI Results: No Exclusions	(d) Annual Total SAIFI Results with Exclusions	(e) Total SAIFI 5-Year Rolling Annual Average with Exclusions
1997	1.04	1.11	1.53	1.53	
1998	0.85	0.92	1.42	1.42	
1999	0.98	0.96	1.88	1.88	
2000	0.85	0.91	1.32	1.32	
2001	0.98	0.79	1.34	1.34	1.50
2002	0.83	0.80	1.07	1.07	1.41
2003	0.80	0.71	1.24	1.24	1.37
2004	0.77	0.77	1.09	1.09	1.21
2005	0.94	0.93	1.18	1.18	1.18
2006	1.23	1.05	2.52		
2007	0.98	0.91	1.42	1.42	1.20
2008	1.01	0.98	1.12	1.12	1.21
2009	1.09	0.94	1.24	1.24	1.22
2010	0.86	0.87	1.59	1.59	1.31
2011	1.02	1.02	1.07	1.07	1.29
2012	0.92	0.83	1.62	0.92	1.19
2013	0.86	0.86	1.13	1.13	1.19

Figure L1: 1997–2013 SAIFI Performance by Different Measurements

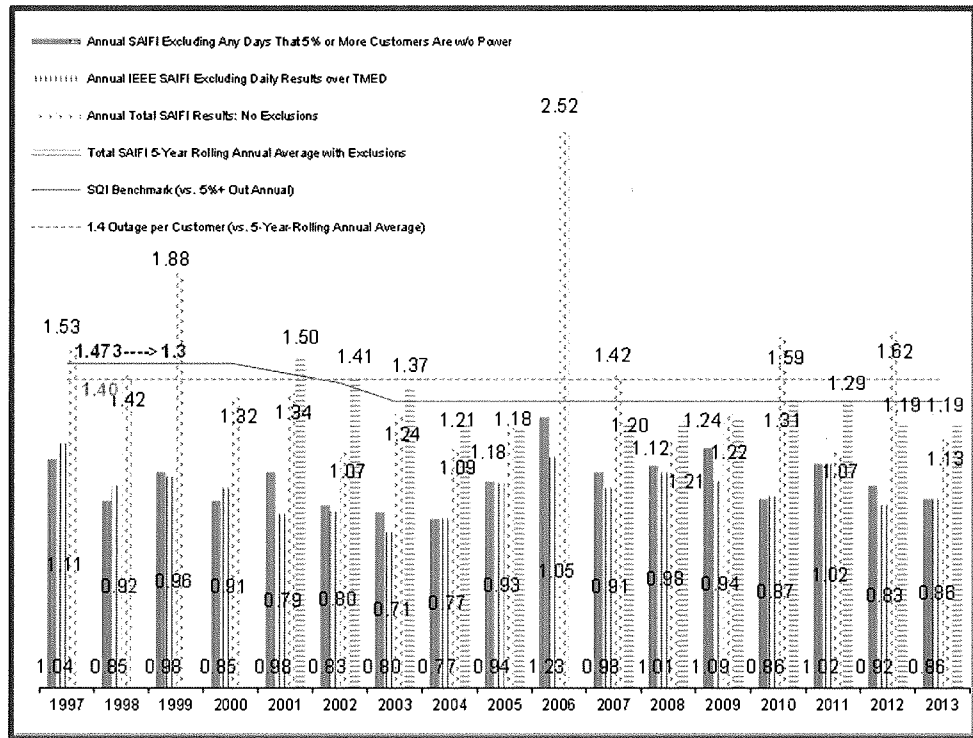


Figure L2: 1997–2013 SAIFI Performance by Different Measurements

1997-2013 PSE SAIDI Performance in Different Measurements (Average number of outage minutes per customer per year)					
Calendar Year	(a) Annual SAIDI Excluding Any Days That 5% or More Customers Are w/o Power	(b) Annual IEEE SAIDI Excluding Daily Results over T _{1,IED}	(c) Annual Total SAIDI Results: No Exclusions	(d) Annual Total SAIDI Results with Exclusions	(e) Total SAIDI 5-Year Rolling Annual Average with Exclusions
1997	105	109	202	202	
1998	117	119	383	383	
1999	131	118	388	388	
2000	103	111	253	253	
2001	147	110	240	240	293
2002	106	99	215	215	296
2003	132	106	532	532	326
2004	114	115	302	302	308
2005	128	124	192	192	296
2006	213	163	2,636		
2007	167	143	312	312	311
2008	163	155	202	202	308
2009	190	145	215	215	245
2010	129	124	512	512	287
2011	144	144	163	163	250
2012	134	120	1,400	134	245
2013	122	125	209	209	247

Figure L3: 1997–2013 SAIDI Performance by Different Measurements

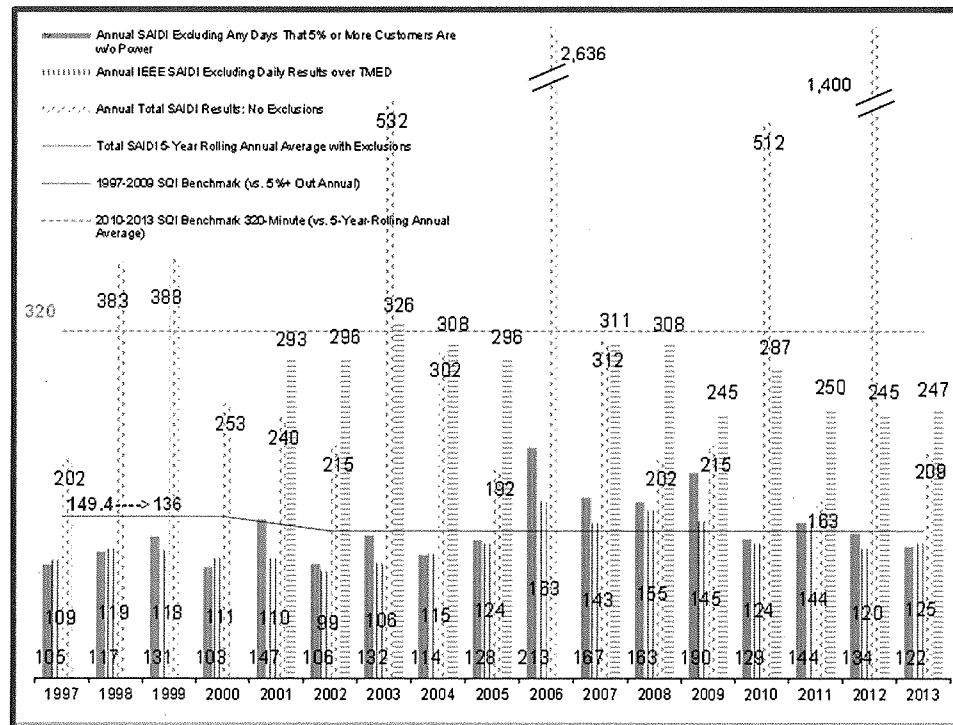
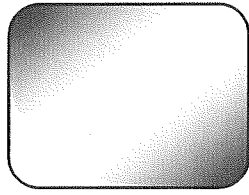


Figure L4: 1997–2013 SAIDI Performance by Different Measurements



M Current-Year Commission and Rolling-Two-Year PSE Customer Electric Service Reliability Complaints with Resolutions

This appendix lists, in Tables M1 and M2, the current-year UTC and rolling-two year PSE customer electric service reliability complaints with resolutions.

Table M1: Current Year Commission Complaints

No.	Complaint Type	Date of Complaint	Location	Closing Date
1	Reliability	1/23/2013	Port Orchard	1/28/2013
2	Reliability	5/17/2013	Olympia	5/31/2013
3	Reliability	6/7/2013	Concrete	7/8/2013
4	Reliability	7/26/2013	Olympia	7/31/2013
5	Reliability	7/31/2013	Vashon	9/18/2013
6	Reliability	9/17/2013	Olympia	11/20/2013
7	Reliability	9/23/2013	Sedro Woolley	10/2/2013
8	Reliability	10/23/2013	Lynden	11/6/2013
9	Reliability	11/5/2013	Carnation	11/15/2013
10	Reliability	11/6/2013	Lynden	11/12/2013
11	Reliability Power Quality	10/16/2013	Poulsbo	10/30/2013
12	Power Quality	1/15/2013	Fall City	1/28/2013
13	Power Quality	5/6/2013	Sedro Woolley	7/23/2013
14	Power Quality	5/22/2013	Ellensburg	6/4/2013
15	Power Quality	11/13/2013	Woodinville	12/9/2013
16	Power Quality	12/4/2013	Bonney Lake	12/10/2013
17	Power Quality	12/4/2013	Bonney Lake	12/10/2013



Table M2: Rolling-Two-Year PSE Customer Electric Service Reliability Complaints with Resolutions (Sorted by County)

No.	County	Date of Complaint	Location	Complaint Type	Circuit	Response	Action by PSE
1	King	May 2012 Aug 2013	Sammamish	Reliability	Pickering-21	Contacted customer to discuss concerns.	Ongoing circuit monitoring and maintenance will continue.
2	King	Jan 2012 Jul 2013 Aug 2013 Aug 2013 Sep 2013	Issaquah	Power Quality Reliability	West Issaquah-15	Reported on 2012 report, new inquiries in 2013.	Ongoing circuit monitoring and maintenance will continue.
3	King	Sep 2013 Nov 2013	Bellevue	Reliability	Factoria-13	Contacted customer to discuss concerns.	Ongoing circuit monitoring and maintenance will continue.
4	King	Jun 2012 Aug 2012	Mercer Island	Reliability	Mercerwood-13	Reported on 2012 report, no new inquiries in 2013.	A system project with construction beginning in 2014 will provide additional reliability improvement. Ongoing circuit monitoring and maintenance will continue.
5	King	Nov 2012 Jan 2013	Kenmore	Reliability	Wayne-15	Contacted customer to discuss concerns.	Ongoing circuit monitoring and maintenance will continue.

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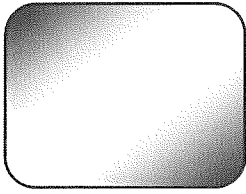


No.	County	Date of Complaint	Location	Complaint Type	Circuit	Response	Action by PSE
6	King	Nov 2012 Nov 2012	Kirkland	Reliability	Rose Hill-15	Contacted customer to discuss concerns.	A system project with construction beginning in 2014 will provide additional reliability improvement. Ongoing circuit monitoring and maintenance will continue.
7	King	Jan 2012 Jan 2012	Renton	Reliability	Lake Youngs-12	Reported on 2012 report, no new inquiries in 2013.	A system project scheduled for completion in 2015 will provide reliability improvement. Ongoing circuit maintenance and monitoring will continue.
8	King	Oct 2012 Oct 2012	Auburn	Reliability	Lea Hill-17	Contacted customer to discuss concerns.	A system project scheduled for completion in 2014 will provide reliability improvement. Ongoing circuit maintenance and monitoring will continue.
9	Kitsap	Nov 2013 Nov 2013	Port Orchard	Reliability	Fragaria-15	Contacted customer to discuss concerns.	Ongoing circuit monitoring and maintenance will continue.
10	Kittitas	Aug 2012 Sep 2012	Cle Elum	Reliability	Thorp-04	Reported on 2012 report, no new inquiries in 2013.	System projects completed in 2013 and early 2014 will provide additional reliability improvement. Ongoing circuit monitoring and maintenance will continue.

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No.	County	Date of Complaint	Location	Complaint Type	Circuit	Response	Action by PSE
11	Pierce	Oct 2013 Oct 2013	Orting	Reliability	Orting-23	Contacted customer to discuss concerns.	A system project with construction beginning in 2014 will provide additional reliability improvement. Ongoing circuit monitoring and maintenance will continue.
12	Skagit	Feb 2013 Aug 2013	Mount Vernon	Reliability	Big Rock-15	Contacted customer to discuss concerns.	A system project with construction beginning in 2015 will provide additional reliability improvement. Ongoing circuit monitoring and maintenance will continue.
13	Thurston	Jan 2012 Mar 2012	Yelm	Reliability	Longmire-23	Reported on 2012 report, no new inquiries in 2013.	Ongoing circuit monitoring and maintenance will continue.
14	Thurston	Aug 2012 Oct 2012	Olympia	Reliability	Griffin-16	Reported on 2012 report, no new inquiries in 2013.	Ongoing circuit monitoring and maintenance will continue.
15	Whatcom	Nov 2013 Nov 2013	Custer	Power Quality	Birch Bay-16	Contacted customer to discuss concerns.	A power quality monitor verified that customers wiring was responsible for voltage flickers. PSE recommended customer hire an electrician to rewire their system.



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Areas of Greatest Concern with Action Plan

This appendix details the areas of greatest concern with an action plan.

CMI refers to Customer Minutes of Interruptions.

Table N1 provides the 2013 and 2012 list of the 50 Worst-Performing Circuits in the PSE territory. The eleven circuits that dropped off in 2013 are listed at the bottom of the table and noted as “Not on 2013 Top 50 List”. The eleven circuits that are new in 2013 are noted as “Not on 2012 Top 50 List”.



Table N1: 2013 and 2012 50 Worst-Performing Circuits

Circuit	County	2013 5 Year Avg Rank	2013 Average Total CMI	2012 5 Year Avg Rank	2012 Average Total CMI	Action by PSE
Chico-12	Kitsap	1	3,706,923	1	4,205,867	Completed recloser and three phase feeder extension project. Underground system improvement project planned for 2014. Completed enhanced tree pruning pilot project in 2012.
Sherwood-18	King	2	3,527,644	2	3,568,276	Future plans for Lake Holm substation and overhead conversion will improve reliability. Substation construction dependent on area growth.
Vashon-13	King	3	2,170,921	3	2,471,303	Completed two cable remediation projects in 2009 and 2010 and two reconductor projects in 2010. Installed two gang operated switches and a recloser in 2011. Underground conversion and tree wire projects scheduled for completion in 2014.
Vashon-12	King	4	2,542,033	5	2,496,729	Installed recloser in 2009. Completed a cable remediation project in 2010. Installed three gang operated switches in 2011. Underground conversion and tree wire projects scheduled for completion in 2014.
Blumaer-17	Thurston	5	1,966,465	9	1,876,829	Rerouted existing feeder and installed tree wire to reduce customer minutes outages in 2012.

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Circuit	County	2013 5 Year Avg Rank	2013 Average Total CMI	20125 Year Avg Rank	2012 Average Total CMI	Action by PSE
Baker River Switch -24	Skagit	6	3,346,914	8	3,186,741	Completed an underground conversion project in 2009. Installed recloser in 2011 and three switches in 2010. Two underground conversion projects were completed in 2013. One underground conversion project scheduled for construction in 2014.
Cottage Brook-13	King	7	2,552,550	7	2,138,810	Completed an underground conversion project and installed a recloser in 2011. Underground conversion project planned for construction in 2015.
Prine-13	Thurston	8	3,499,796	4	4,122,829	Installed two reclosers and switches in 2010. Reconnector of overhead line to tree wire scheduled for construction for 2014.
Orting-22	Pierce	9	3,677,320	10	3,533,319	Completed the reconnector of overhead line to tree wire in 2010 and 2012. Completed a feeder tie in 2010. Installed recloser in 2011. A system improvement project is planned for 2014.
Silverdale-15	Kitsap	10	1,667,300	6	1,833,947	Complete the reconnector of entire overhead feeder in 2014. Completed cable remediation project in 2009. Installed a recloser and two gang operated switches in 2011.
Vashon-23	King	11	1,595,905	14	1,495,797	Installed recloser in 2010. Two tree wire projects and underground conversion project scheduled for completion in 2014.

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Circuit	County	2013 5 Year Avg Rank	2013 Average Total CMI	2012 5 Year Avg Rank	2012 Average Total CMI	Action by PSE
Longmire-17	Thurston	12	1,287,701	12	1,231,074	Reconfigured Longmire-22 and Longmire-17 in 2009 to better segregate customers. Completed reconductor of overhead line to tree wire and underground conversion project in 2012.
Hobart-16	King	13	2,379,774	13	2,341,989	Completed a feeder tie and cable remediation project in 2009 and an underground conversion job in 2013. Cable remediation project scheduled for completion in 2014.
Southwick-15	Thurston	14	2,716,817	16	2,702,590	Planning is currently reviewing and identifying potential reliability improvements projects.
Griffin-13	Thurston	15	1,343,234	18	1,188,716	Completed reconductor of overhead line to tree wire in 2012.
Patterson-15	Thurston	16	2,012,280	11	2,018,378	Completed reconductor of overhead line to tree wire in 2011.
Lake Meridian-15	King	17	2,204,670	36	2,145,672	Planning is currently reviewing and identifying potential reliability improvements projects.
Mckinley-17	Thurston	18	2,181,297	40	2,082,190	Planning is currently reviewing and identifying potential reliability improvements projects.
Lake Wilderness-14	King	19	1,138,796	34	1,064,828	Future plans for Jenkins substation will improve reliability. Substation construction dependent on area growth. Planning is currently reviewing and identifying potential reliability improvements projects.
Silverdale-13	Kitsap	20	887,670	32	824,726	Installed regulator in 2008. Completed two cable remediation projects in 2009. Completed an overhead line project in 2012.

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Circuit	County	2013 5 Year Avg Rank	2013 Average Total CMI	2012 5 Year Avg Rank	2012 Average Total CMI	Action by PSE
Fragaria-13	Kitsap	21	1,369,096	23	1,318,334	Completed two recloser projects in 2011 and reconductor of overhead line to tree wire in 2012. A system improvement project is scheduled for completion in 2014.
Big Rock-15	Skagit	22	1,190,602	25	1,005,866	Completed a pole replacement project in 2009 and installed a recloser in 2013. Planning is currently reviewing a reconductor project for future construction.
Nugents Corner-26	Whatcom	23	1,058,885	15	1,114,001	Installed two reclosers in 2009 and 2011. Planning is currently reviewing and identifying potential reliability improvements projects.
Miller Bay-17	Kitsap	24	1,773,776	19	1,871,748	Installed recloser in 2010 and completed a reconductor project in 2011. Construction of new feeder tie is scheduled for completion in 2014.
Kingston-24	Kitsap	25	1,096,438	30	864,656	Completed a reconductor of overhead line to tree wire in 2013.
Marine View-13	King	26	1,783,200	Not on 2012 Top 50 List		Completed reconductor of overhead line to tree wire. A recloser installation is scheduled for completion in 2014.
Marine View-17	King	27	1,326,838	Not on 2012 Top 50 List		Planning is currently reviewing and identifying potential reliability improvements projects.
Miller Bay-23	Kitsap	28	1,518,243	21	1,638,273	Completed reconductor of overhead line to tree wire in 2012 and 2013.
Chambers-13	Thurston	29	1,038,001	31	1,029,690	Completed recloser projects in 2012.

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Circuit	County	2013 5 Year Avg Rank	2013 Average Total CMI	2012 5 Year Avg Rank	2012 Average Total CMI	Action by PSE
Lake Tapps-18	Pierce	30	2,124,998	Not on 2012 Top 50 List	2012 Top 50 List	Completed an overhead reconductor to tree wire project in 2013. Two reconductor projects to tree wire and a system improvement project planned for construction in 2014.
Sequoia-16	King	31	2,730,429	Not on 2012 Top 50 List	2012 Top 50 List	Planning is currently reviewing and identifying potential reliability improvements projects.
Kendall-12	Whatcom	32	984,944	22	1,115,322	Completed reconductor of overhead line to tree wire in 2012. Another reconductor overhead line to tree wire project is scheduled in 2014/2015.
Hobart-15	King	33	1,957,281	33	1,955,658	Completed one feeder tie in 2011 and another feeder tie scheduled to be completed in 2014.
Hickox-16	Skagit	34	755,062	38	691,214	Completed wildlife diversion and pole replacement projects completed in 2007, recloser project in 2011, and feeder reconductor to tree wire in 2013.
Blumaer-16	Thurston	35	1,646,055	27	1,683,222	Planning is currently reviewing and identifying potential reliability improvements projects.
Fernwood-17	Kitsap	36	777,488	24	1,121,199	Complete reconductor of overhead line to tree wire in 2009. Reconductor another portion of overhead line to tree wire and installation of recloser are scheduled for completion in 2014.
Yelm-27	Thurston	37	869,320	Not on 2012 Top 50 List	2012 Top 50 List	Completed reconductor of overhead line to tree wire in 2013. A system improvement project is scheduled for completion in 2014.

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Circuit	County	2013 5 Year Avg Rank	2013 Average Total CMI	2012 5 Year Avg Rank	2012 Average Total CMI	Action by PSE
Soos Creek-25	King	38	1,653,558	Not on 2012 Top 50 List	1,396,351	Installed recloser in 2013. Future plans for Jenkins and Lake Holmes substations will improve reliability.
Winslow-12	Kitsap	39	1,212,253	29	1,396,351	Completed cable remediation project in 2010 and installed two gang operated switches in 2012. Two reconductor projects of overhead line to tree wire and three reclosers are scheduled for completion in 2014.
West Olympia-23	Thurston	40	1,612,149	Not on 2012 Top 50 List		Planning is currently reviewing and identifying potential reliability improvements projects.
Fall City-15	King	41	739,923	45	751,839	Installed a gang operated switch in 2011 and completed an underground conversion project in 2013. An overhead system improvement project installing spacers planned for 2014.
Fragaria-16	Kitsap	42	869,539	42	1,025,393	Completed reconductor of overhead line to tree wire in 2013.
Hamilton-15	Skagit	43	847,564	Not on 2012 Top 50 List		Completed one recloser project in 2010. Reconductor of overhead line to tree wire planned for construction in 2014.
Fernwood-16	Kitsap	44	1,646,415	Not on 2012 Top 50 List		Completed one recloser project in 2010. Two reconductor of overhead line to tree wire projects scheduled for completion in 2014

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Circuit	County	2013 5 Year Avg Rank	2013 Average Total CMI	2012 5 Year Avg Rank	2012 Average Total CMI	Action by PSE
Fragaria-12	Kitsap	45	714,128	Not on 2012 Top 50 List		Installed a recloser and completed a reconductor of overhead to tree wire project in 2012 and 2013. Two reconductor of overhead line to tree wire projects scheduled for completion in 2014.
Tolt-15	King	46	576,603	41	771,554	Completed an underground conversion project in 2009 and reconductor of overhead line in 2010.
Chambers-15	Thurston	47	1,947,979	46	1,970,229	Completed reconductor of overhead line to tree wire in 2011 and 2012. Completed feeder tie and recloser projects in 2012.
Luhr Beach-14	Thurston	48	1,643,768	Not on 2012 Top 50 List		Completed two reconductor of overhead line to tree wire projects in 2013. One reconductor of overhead line to tree wire scheduled for completion in 2014.
Winslow-13	Kitsap	49	1,393,218	49	1,454,514	Reconductor of overhead line to tree wire project and two recloser installations are scheduled for completion in 2014.
Orchard-13	King	50	2,519,693	50	2,524,639	Three cable remediation projects scheduled for completion in 2014. Planning is currently reviewing and identifying potential reliability improvements projects.
Griffin-16	Thurston	Not on 2013 Top 50 List		17	912,281	Completed cable remediation project in 2010. Reconductor portions of overhead line to tree wire and completed underground conversion project completed in 2012.

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Circuit	County	2013 5 Year	2013 Average	2012 5 Year	2012 Average	Action by PSE
		Avg Rank	Total CMI	Avg Rank	Total CMI	
Winslow-15	Kitsap	Not on 2013 Top 50 List	2013 Top 50 List	20	1,231,197	Completed an underground conversion project in 2007. Installed a recloser in 2010. Completed an underground conversion project and reconductor of overhead feeder to tree wire in 2013.
Port Gamble-13	Kitsap	Not on 2013 Top 50 List	2013 Top 50 List	26	970,102	Reliability was significantly improved with the addition of Kingston substation. Installed a gang operated switch in 2011. Completed reconductor of overhead feeder to tree wire in 2013.
Greenwater-16	King	Not on 2013 Top 50 List	2013 Top 50 List	28	1,685,392	Rebuilt substation in 2010. Planning is currently reviewing and identifying potential reliability improvements projects.
Airport-23	Thurston	Not on 2013 Top 50 List	2013 Top 50 List	35	1,393,619	Completed the reconductor of overhead line to tree wire in 2010. Distribution system will be re-configured when Spurgeon substation is energized in 2014.
Lea Hill-17	King	Not on 2013 Top 50 List	2013 Top 50 List	37	2,259,165	Completed underground conversion project in 2013.
Port Madison-12	Kitsap	Not on 2013 Top 50 List	2013 Top 50 List	39	1,440,659	Installed recloser and two gang operated switches in 2011. Planning is currently reviewing and identifying potential reliability improvements projects.
Eld Inlet-25	Thurston	Not on 2013 Top 50 List	2013 Top 50 List	43	1,627,289	Completed a feeder project in 2010 and reconducted overhead line to tree wire with a recloser in 2011.
Wayne-15	King	Not on 2013 Top 50 List	2013 Top 50 List	44	689,296	Reconfigured Wayne-15 and Inglewood-17 to better segregate customers.

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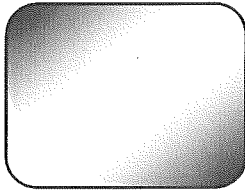


Circuit	County	2013 5 Year Avg Rank	2013 Average Total CMI	2012 5 Year Avg Rank	2012 Average Total CMI	Action by PSE
Black Diamond-13	King	Not on 2013 Top 50 List	2013 Top 50 List	47	2,770,184	Future plans for Lake Holm substation and overhead conversion will improve reliability. Substation construction dependent on area growth.
Long Lake-23	Kitsap	Not on 2013 Top 50 List	2013 Top 50 List	48	976,443	Installed two reclosers in 2012.
Fernwood-16	Kitsap	Not on 2013 Top 50 List	2013 Top 50 List	36	1,717,859	Completed one recloser project in 2010. Reconductor of overhead line to tree wire is planned for 2013.
Freeland-15	Island	Not on 2013 Top 50 List	2013 Top 50 List	37	1,046,299	Maxwelton substation is planned for 2014 construction. Cable remediation project completed in 2010. Reconductor overhead line to tree wire completed in 2012.
Inglewood-13	King	Not on 2013 Top 50 List	2013 Top 50 List	40	698,294	Replaced a recloser in 2012.
Slater-16	Whatcom	Not on 2013 Top 50 List	2013 Top 50 List	41	738,334	A feeder tie project is scheduled for 2011-2013. Installation of SCADA recloser and completed reconductor project is planned for 2013.
Yelm-27	Thurston	Not on 2013 Top 50 List	2013 Top 50 List	45	931,260	Installed spacers on feeder out of substation in 2011.
Skykomish-25	King	Not on 2013 Top 50 List	2013 Top 50 List	46	865,826	Planning is currently reviewing and identifying potential reliability improvements projects.
Snoqualmie-13	King	Not on 2013 Top 50 List	2013 Top 50 List	47	1,412,106	Snoqualmie-13 and the circuits from the new Mt. Si substation were reconfigured to better segregate the customers.

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Circuit	County	2013 5 Year Avg Rank	2013 Average Total CMI	2012 5 Year Avg Rank	2012 Average Total CMI	Action by PSE
Silverdale-16	Kitsap	Not on 2013 Top 50 List	2013 Top 50 List	48	707,794	Planning is currently reviewing and identifying potential reliability improvements projects.
Long Lake-21	Kitsap	Not on 2013 Top 50 List	2013 Top 50 List	49	629,812	A tree wire project is planned for 2013.
Port Ludlow-16	Jefferson	Not on 2013 Top 50 List	2013 Top 50 List	50	817,325	Installation of gang-operated switch planned for 2013.



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Current Year Geographic Location of Electric Service Reliability Customer Complaints on Service Territory Map with Number of Next Year's Proposed Projects and Vegetation-Management Mileage

This appendix illustrates current-year geographic location of electric service reliability customer complaints on service territory map with number of next year's proposed projects and vegetation-management mileage.

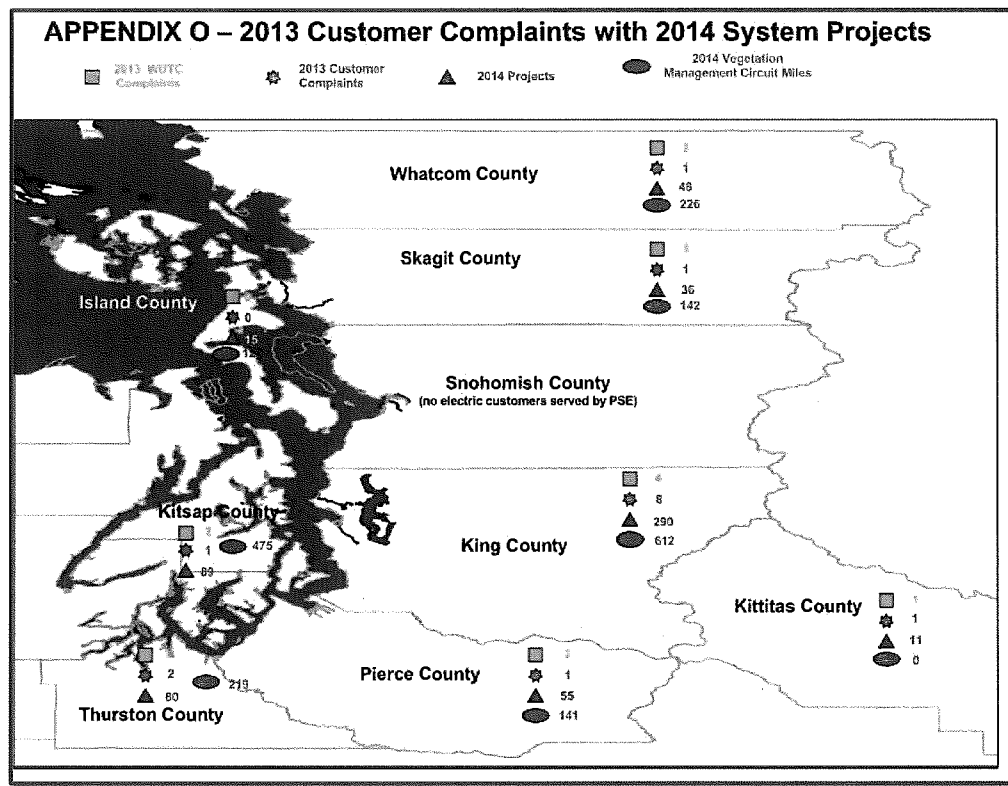


Figure O1: 2013 Customer Complaints with 2014 System Projects

Jefferson County is not represented on the map as Jefferson County PUD #1 assumed ownership of PSE's electric system infrastructure within the county on April 1, 2013. There were not WUTC or PSE customer complaints in January – March 2013 and PSE do not have any on-going projects in the county.