Docket Nos. UE-072300 and UG-072301

Puget Sound Energy
2012 SQ Program and Electric Service Reliability Filing

Attachment A:
2012 Annual Puget Sound Energy SQI and Electric Service Reliability Report

2012 Annual Puget Sound Energy SQI and Electric Service Reliability Report

Filed on March 28, 2013

Contents

1 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 more than 1.1 million electric customers and over 760,000 natural gas customers primarily in the Puget Sound region of Western Washington. PSE meets the energy needs of its customer base through incremental, cost-effective energy efficiency, 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) 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 extended[2] 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 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.

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[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 *2012 Annual Puget Sound Energy SQI and Electric Service Reliability Report* meets the PSE's SQ Program reporting requirements[3] 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]

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[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 and 17 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 has been inviting UTC Staff and 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 but if 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 after.

Overview of Performance

The following table summarizes PSE's 2012 SQI and Electric Service Reliability performance along with relevant service providers' performance metrics and the two service guarantees.

Key Measurement	Type of Metric	Benchmark/Description	2012 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	0.24	☑
Customer Access Center transactions customer satisfaction	Service Quality Index #6	At least 90% satisfied (rating of 5 or higher on a 7-point scale)	95%	☑
Field Service Operations transactions customer satisfaction	Service Quality Index #8	At least 90% satisfied (rating of 5 or higher on a 7-point scale)	98%	☑
Service Provider Customer Satisfaction—Pilchuck[7]	Service Provider Index #2A	At least 84% satisfied (rating of 5 or higher on a 7-point scale)	N/A	
Service Provider Customer Satisfaction—Quanta Electric	Service Provider Index #2B	At least 77% satisfied (rating of 5 or higher on a 7-point scale)	80%	☑
Service Provider Customer Satisfaction—Quanta Gas	Service Provider Index #2C	At least 84% satisfied (rating of 5 or higher on a 7-point scale)	82%	
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	79%[8]	☑

[7] As of April 30, 2011, PSE transitioned all natural gas construction and maintenance work to Quanta Gas. Although the SPIs related to Pilchuck are no longer applicable for 2012 and after, these Pilchuck SPIs are included in this Report for historical comparison purposes.

[8] 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.

Key Measurement	Type of Metric	Benchmark/Description	2012 Performance Results	Achieved
Operations Services—*Appointments*				
Appointments kept	Service Quality Index #10	At least 92% of appointments kept	100%[9]	☑
Service provider appointments kept—Pilchuck[7]	Service Provider Index #3A	At least 98% of appointments kept	N/A	
Service provider appointments kept—Quanta Electric	Service Provider Index #3B	At least 98% of appointments kept	99%	☑
Service provider appointments kept—Quanta Gas	Service Provider Index #3C	At least 98% of appointments kept	98%	☑
Customer Service Guarantee	Service Guarantee #1	A $50 credit to customers when PSE fails to meet a scheduled SQI appointment	$23,500	
Operations Services—*Gas*				
Gas safety response time	Service Quality Index #7	Average 55 minutes or less from customer call to arrival of field technician	30 minutes	☑
Secondary safety response time—Pilchuck[7]	Service Provider Index #4A	Within 60 minutes from first response assessment completion to second response arrival	N/A	
Secondary safety response time—Quanta Gas	Service Provider Index #4D	Within 60 minutes from first response assessment completion to second response arrival	48 minutes	☑
Service provider standards compliance—Pilchuck[7]	Service Provider Index #1A	At least 95% compliance with site audit checklist points	N/A	
Service provider standards compliance—Quanta Gas	Service Provider Index #1C	At least 97% compliance with site audit checklist points	98%	☑

[9] Appointments kept results shown are rounded to the nearest whole percentage per UTC order. Overall, in 2012 PSE and its service providers kept 99.6% of SQI appointments. The numbers of missed appointments by energy and service type are detailed in Appendix F: *Customer Service Guarantee Performance Detail.*

Key Measurement	Type of Metric	Benchmark/Description	2012 Performance Results	Achieved
Operations Services—*Electric*				
Electric safety response time	Service Quality Index #11	Average 55 minutes or less from customer call to arrival of field technician	51 minutes	☑
Service provider standards compliance—Quanta Electric [Moved from Gas section, to here since it's 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	239 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	270 minutes	☑
Restoration Service Guarantee	Service Guarantee #2	A $50 credit to eligible customers when a power outage is longer than 120 consecutive hours	$2.43 million	
Electric Service Reliability—*SAIFI & SAIDI*[10]				
$SAIFI_{Total}$ 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	1.62 interruptions	
$SAIFI_{Total\ 5\text{-}year\ Average}$ 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	0.92 interruptions	☑
$SAIFI_{IEEE}$ IEEE Non-Major-Storm (T_{MED}) SAIFI	Reliability	Power interruptions per customer per year, excluding days exceeding the T_{MED} threshold	0.83 interruptions	

[10] 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

Key Measurement	Type of Metric	Benchmark/Description	2012 Performance Results	Achieved
Electric Service Reliability—*SAIFI & SAIDI (cont.)*				
$SAIDI_{Total}$ 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	1,400 minutes	
$SAIDI_{Total\ 5\text{-}year\ Average}$ Total (all outages five-year average) SAIDI	Service Quality Index #3	No more than 320 minutes per customer per year	245 minutes	☑
$SAIDI_{5\%}$ <5% Non-Major-Storm (<5% customers affected) SAIDI	Reliability	Outage minutes per customer per year, excluding outage events that affected 5% or more customers	134 minutes	
$SAIDI_{IEEE}$ IEEE Non-Major-Storm (T_{MED}) SAIDI	Reliability	Outage minutes per customer per year, excluding days exceeding the T_{MED} threshold	120 minutes	

As shown in the preceding table, PSE met all its SQI benchmarks in 2012 and no SQI penalty is assessed. Detailed SQI 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, the Gilmore Research Group, certifies that all SQI-related customer surveys were conducted with applicable guidelines and the results are unbiased and valid
- **Appendix C: Penalty Calculation (Not Applicable for 2012)**—This appendix is intentionally left blank since it is not applicable for the 2012 performance period
- **Appendix D: Proposed Customer Notice (Report Card)**—This appendix presents PSE's proposed 2012 Customer Service Performance Report Card, which 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
- **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 2012 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 2012 SQI performance. After consultation with the UTC and the Public Counsel Section of the Washington State Attorney General's Office, PSE will begin distributing the final SQI report card by June 30, 2013, as part of the customer billing package.

Changes in 2012

The following SQI changes were approved by UTC during the 2012 SQI reporting year:

- Permanent elimination of SQI #9, Disconnection Ratio, from the SQ Program as the index does not serve the public interest as intended, and the UTC already has rules in place that provide adequate protection to customers who face disconnection for nonpayment of bills. [11]
- One-time extension of the SQI #3, System Average Interruption Duration Index (SAIDI) temporary benchmark and mechanics through 2014 in recognizing the PSE's adoption of new mapping and outage management systems.[12]
- One-time modification to the electric Schedule 131, Restoration Service Guarantee, in consideration of the extraordinary electricity service reliability impact of the severe weather events that began in mid-January 2012. [13]
- Permanent exclusion of the 1,269 SAIDI minutes associated with the January 2012 Storm Event[14] from the performance calculation of SQI #3 for the 2012 SQI reporting year and applicable years following.[15]

This report reflects the changes that were applicable for the 2012 SQI reporting year. Chapter 10: *Service Guarantees* summarizes the impact of the Schedule 131 modification. The Electric Service Reliability section provides further details of the effect of the January 2012 Storm Event and the performance calculation of the SQI #3 with the exclusion of the 1,269 SAIDI minutes associated with these events.

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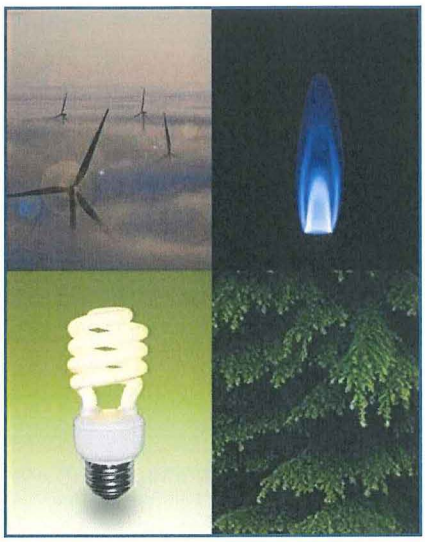
[11] Under consolidated Docket Numbers UE 111048 and UG 111049, Order 08, May 7, 2012

[12] Under consolidated Docket Numbers UE-072300 and UG-072301, Order 19, August 10, 2012

[13] Under consolidated Docket Numbers UE-072300 and UG-072301, Order 18, January 18, 2012

[14] The January 2012 Storm Event encompassed a series of severe snow, wind, and ice storms beginning on January 14, 2012. The last weather event of the series occurred on January 24, 2012.

[15] Under consolidated Docket Numbers. UE-072300 and UG-072301, Order 20, October 15, 2012



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 including Customer Access Center (CAC) transactions and 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.

Another tool that helps PSE analyze customer feedback is PSE's Escalated Complaint Management System (ECMS) that was implemented in 2010. ECMS enables greater analysis of complaint data so root causes of any customer dissatisfaction may be addressed more quickly. ECMS is discussed further in Chapter 2: *UTC Complaint Ratio (SQI #2)* under "*Working to Prevent and Reduce UTC Customer Complaints.*"

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 discussion of customer 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 2012, while serving more than 1.86 million customers (1.1 million electric and 760,000 natural gas), PSE customers filed 450 complaints concerning PSE with the UTC. This is a decrease of 73 complaints from 2011.

Table 1: UTC Complaint Ratio for 2012

Key Measurement	Benchmark	2012 Results	Achieved
UTC complaint ratio (SQI #2)	No more than 0.40 complaints per 1,000 customers, including all complaints filed with UTC	0.24	☑

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:

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

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?

The UTC complaints were categorized into seven complaint types. Although the volume changes from year to year, the distribution among the complaint types remains consistent. Disputed bill and disconnect complaint types comprised nearly 70 percent of the total complaints received in 2012. See Table 2.

Table 2: Number of UTC Complaints by Type as of December 31, 2012

Complaint Type	Complaints				
	2008	2009	2010	2011	2012
Construction	9	15	7	8	11
Customer service	34	45	33	38	52
Deposit	11	26	48	39	37
Disconnect	102	167	176	158	141
Disputed bill	235	319	219	209	161
High bill[16]	N/A	N/A	20	28	18
Quality of service	30	24	20	25	22
Other	21	26	18	18	8
Total	***442***	***622***	***541***	***523***	***450***

Two complaint types were affected by the January 2012 Storm Event. PSE customers filed 13 customer service complaints and seven quality of service complaints as a result of the storm event. After adjusting for these complaint types, customer service complaint volume remains stable year to year and quality of service complaint volume continues its gradual reduction.

Disputed bill and disconnect complaints continued their year-to-year reductions.

[16] The high bill category was added in 2010.

Historical Trend for the UTC Complaint Ratio

New and closed complaints are analyzed daily to identify developing issues and trends. By analyzing each complaint individually, PSE can address issues that cause the complaints. Root cause analysis is conducted on critical complaints and complaint types. Corrective and preventive actions are identified during the root cause analysis. Appropriate actions are taken up to and including policy and process changes. These actions have resulted in a steady reduction in complaint ratio over the past four years. Table 3 outlines the UTC complaint ratio from 2008 to 2012.

Table 3: UTC Complaint Ratio from 2008 to 2012

	2008	2009	2010	2011	2012
Actual complaint ratio	0.25	0.34	0.30	0.28	0.24
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 employees throughout the company work attentively with customers to resolve issues before they escalate to the UTC. PSE's internal escalation process encourages timely and accurate resolution of customer complaints. This process includes providing special training to agents and supervisors who manage customer concerns. During 2011 and 2012, this process has resulted in less than one half of one percent of complaints being escalated to the highest (supervisor) internal level. Of those that do escalate to the supervisor, fewer than ten percent are unresolved and escalate to the UTC.

The Escalated Complaint Management System (ECMS), implemented in 2010, continues to be the tool used to manage all complaints that escalate to the supervisor level or above. In 2012, enhancements were made to ECMS to allow better stratification of complaints and to improve reporting capabilities.

"Consumer Upheld" Complaints

Beginning in 2010, the company has been thoroughly analyzing each complaint with a UTC disposition of "Consumer Upheld." The analysis identifies potential process improvement opportunities for PSE. In 2012, the reviews prompted:

- Enhanced training for supervisors outside the Customer Care organization regarding their responsibilities in escalated complaints. Training that began in 2011 was strengthened with a particular focus on customer engagement.
- Initiation of a project to ensure that costing detail for work done on repair of energy diversion damage is clear and timely. This ensures the customer has an accurate understanding of their cost burden as a result of damage they have done to PSE equipment.
- Real-life complaint scenarios and customer awareness training within Customer Care and within other PSE organizations. This training focuses on customer engagement and understanding of their needs and concerns.
- Education for PSE associates, supervisors, and department managers on "Consumer Upheld" dispositions so that their processes and training can be enhanced.

The focus on root cause and prevention of "Consumer Upheld" complaints has resulted in a steady reduction of complaints with this disposition. See Table 4.

Table 4: Percentage of "Consumer Upheld" UTC Complaints

	2008	2009	2010	2011	2012
"Consumer Upheld"	26%	23%	16%	14%	13%

Going Forward

PSE is identifying potential issues that could trigger customer complaints. The focus is on prevention of the cause of potential complaints through timely and accurate support for each customer. Areas of particular focus for 2013 include:

- Continue to focus on support of the new Customer Information System (CIS) and enhancements to it. The CIS system is discussed in more detail in Chapter 3: *Customer Access Center Transactions Customer Satisfaction (SQI #6).*
  - Enable implementation of enhanced ECMS tools. As 2013 progresses, these new capabilities will be used to improve diagnostics of complaint causes, corrections and preventions.
  - Provide PSE call center representatives with data that can provide more timely and accurate customer support. This will include improvements in outage information, billing questions, application for service, communications and others. This data is expected to have a favorable impact on complaint rates, although the full impact will not be visible until 2014.
- Continue to focus on UTC "Consumer Upheld" complaints to identify root cause and establish preventive and corrective actions.
- Develop a customer care quality system based on elements of the Baldrige Quality Award. Process documentation and control will be critical components of the system. The new CIS is expected to provide useful tools for documenting and controlling processes that directly affect customers.
- Use knowledge gained in the ECMS to help train and educate others in PSE to continue to improve PSE's company-wide customer experience.
- Work with UTC staff to find ways to make complaint responses more efficient for the UTC staff and PSE. The current "account activity" format used on over 80 percent of all complaint responses is subject to error, and that creates inefficiencies for both 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.

Every month, the Gilmore Research Group, an independent research company, conducts telephone surveys with PSE customers and prepares monthly and semi-annual reports on customer satisfaction regarding CAC transactions. In 2012, these independent surveys found that more than 95 percent of customers surveyed were satisfied with CAC's overall transaction performance (SQI #6).

Table 5: Customer Access Center Transactions Customer Satisfaction for 2012

Key Measurement	Benchmark	2012 Results	Achieved
Customer Access Center transactions customer satisfaction (SQI #6)	At least 90% satisfied (rating of 5 or higher on a 7-point scale)	95%	☑

About the Benchmark

On a weekly basis, the Gilmore Research Group 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:

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

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 that it is important that CSRs:

- Were accommodating
- Were professional and efficient
- Provided prompt service
- Answered all questions

Historical Trend for Customer Satisfaction with Customer Access Center Transactions

The following table shows customer satisfaction results from 2008 to 2012.

Table 6: Customer Access Center Transactions in Customer Satisfaction from 2008 to 2012

	2008	2009	2010	2011	2012
Customer Access Center transactions customer satisfaction	93%	93%	96%	95%	95%
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 continuously improve their performance in order to handle each customer inquiry with courtesy and adequately address the customer's needs:

- CSRs answering customer calls are cross-trained in different disciplines to handle the vast variations of customer inquiries, including billing, emergencies, outages, web, correspondence, apartment inquiries and to resolve exceptional customer concerns.
- CSRs, as a group, are expected to maintain a minimum rating of 90 percent in customer satisfaction surveys as conducted by the Gilmore Research Group. The CSRs receive feedback based on the Gilmore 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 has been formed. The QA analysts continuously monitor larger processes. Monitoring involves process review, random call monitoring, coaching and performance trend reporting.

PSE customer service representatives earned very high satisfaction ratings from customers: 79 of surveyed customers said they were completely satisfied[17] with the way the CSR handled the call. To maintain 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 agent and customer interactions, customer surveys
- Produces monthly customer reports.

[17] Earned the top rating of 7, Completely Satisfied, on the 1–7 scale of the Gilmore Research Group SQI #6 surveys.

Below is a 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
Gilmore Results		
	# of Surveys	4
	Average Rating	6.76
Overall Gilmore Rating		100%
Overall Performance Rating		**Positive**

Figure 1: CAC Agent Performance Scorecard (illustrative data)

PSE uses the performance scorecard to provide feedback to the CSR regarding positive behavior patterns, as well as those 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.

Achievements in Service Expectations

PSE's Customer Access Center moved forward with several initiatives in 2012 with the focus on customer service enhancements.

- CSRs committed to providing information on conservation efforts and improving PSE's carbon footprint through green power education during customer calls.
- PSE continues to promote customer participation in paperless web billing via enhancements to PSE.com, resulting in total enrollment increase of 3.7%; from 26.5% in January to 30.2% by year-end.

Going Forward

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

In April 2013, PSE will launch its new SAP Customer Information System (CIS). The new SAP system will replace the existing CIS and provide better tools to enhance customer experience. Implementing SAP CIS is a significant investment and will require extensive training, change management and system changes. PSE is excited about the opportunity for a strong CIS system for the future.

Other 2013 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 regulatory queries
- Continue to promote customer participation in paperless web billing via enhancements to PSE.com.
- Deploy a 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

The Gilmore Research Group, an independent research company, conducts telephone surveys with PSE customers who have called PSE that month and requested and received natural gas field service. In 2012, these surveys found that 98 percent of customers were satisfied with PSE's Field Service Operations transaction performance. PSE met this SQI goal in 2012 and in every previous year.

Table 7: Field Service Operations Transactions Customer Satisfaction for 2012

Key Measurement	Benchmark	2012 Results	Achieved
Field Service Operations transactions customer satisfaction (SQI #8)	At least 90% satisfied (rating of 5 or higher on a 7-point scale)	98%	☑

About the Benchmark

Every week, the Gilmore Research Group contacts randomly selected customers who have called PSE that month 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:

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

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:

- Wanted to start or stop natural gas service
- 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
- Had a question about gas meters
- Needed service to relight the pilot light

Customer Satisfaction with Field Service Operations Phone Calls

Response to another question on the Gilmore Research Group gas field service survey indicated almost 97 percent of customers reported they had no trouble reaching a customer service representative (CSR), and the CSRs earned high ratings from customers (more than 98 percent were satisfied). 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
- Be more polite
- Be more cooperative, listen and work with the customer more
- 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. While the types of disappointments mentioned by customers from 2011 to 2012 changed slightly, the percentage of customers satisfied with the way the CSR handled the case increased slightly in 2012 compared to 2011.

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 (at least 98 percent satisfied). Satisfied customers said the field technicians:

- Were friendly, courteous and polite
- Were knowledgeable
- Were prompt in coming to the problem area
- Did a good job or fixed the problem
- Were helpful
- Were thorough
- Showed concern for the customer's problem

Satisfied customers also remarked that the technicians were professional, explained clearly what was being done and left sufficient information about the work. Customers (less than 12 percent) who gave less than a "7" rating were asked follow-up questions to determine why they were not completely satisfied. These customers said the field technicians:

- Did not fix the problem or complete the job in one trip
- Were not knowledgeable or experienced

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

- Be more knowledgeable
- Arrive more quickly
- Give better explanation/more information
- Be friendly, courteous and polite

In 2012, 95 percent of customers said the technician was able to arrive the day they wanted, and 94 percent said the scheduled time was convenient to them.

While the types of disappointments mentioned by customers from 2011 to 2012 remained relatively the same, the percentage of customers rating the Field Service technicians completely satisfied (rating of 7) showed slight improvement from 88 percent in 2011 to 89 percent in 2012.

Historical Trend for Customer Satisfaction with Field Service Operations Transactions

The following table shows Field Service Operations transactions customer satisfaction from 2008–2012.

Table 8: Field Service Operations Transactions Customer Satisfaction from 2008 to 2012

	2008	2009	2010	2011	2012
Field Service Operations transactions customer satisfaction	91%	95%	96%	96%	98%
Benchmark	90% satisfied (rating of 5 or higher on a 7-point scale)				

Working to Uphold Customer Satisfaction with Field Service Operations Transactions

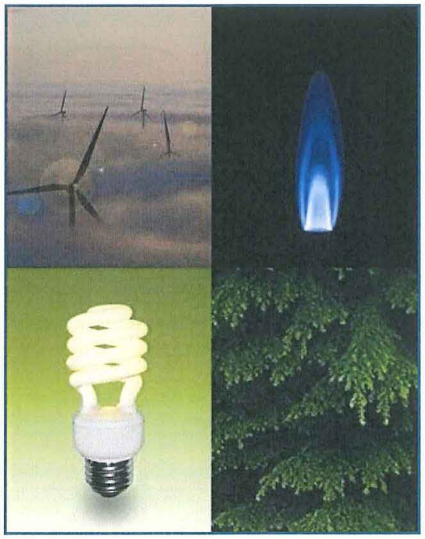
In 2012, PSE maintained a record-high customer satisfaction rating with Field Service Operations transactions. Some of the actions PSE has taken in 2012 are:

- PSE's 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 customer's concerns are met before leaving the premises
- Develop and utilize a new 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 greater level of customer service and convenience.



Customer Services

The first point of contact for most customers is PSE's Customer Access Center. PSE devotes resources and implements creative but 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 with regard 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 goal is to answer 75 percent 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 2012, the CSRs answered 79 percent of the calls within 30 seconds of customer request.

Table 9: Customer Access Center Answering Performance for 2012

Key Measurement	Benchmark	2012 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	79%[18]	☑

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. At any time, the customer is able to press zero and be connected to a customer service representative. The Customer Access Center call answering performance is measured from the time the customer has initiated a request to speak with a CSR until the operator arrives on the line.

PSE is engaged in initiatives to ensure the Customer Access Center's answering performance meets the performance benchmark of 75 percent. The annual performance is determined by the average of the 12 monthly call answering performance percentages. The calculation of the monthly answering performance is demonstrated through the following formula:

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

[18] 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.

What Influences Customer Access Center Answering Performance?

PSE received about 5 million calls corporate wide in 2012. About half of these calls were handled by customer service representatives.

Call volumes directly impact 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 2012 total call volume increased by 11 percent compared to 2011.

Figure 2 represents the types of calls that were received in 2012.

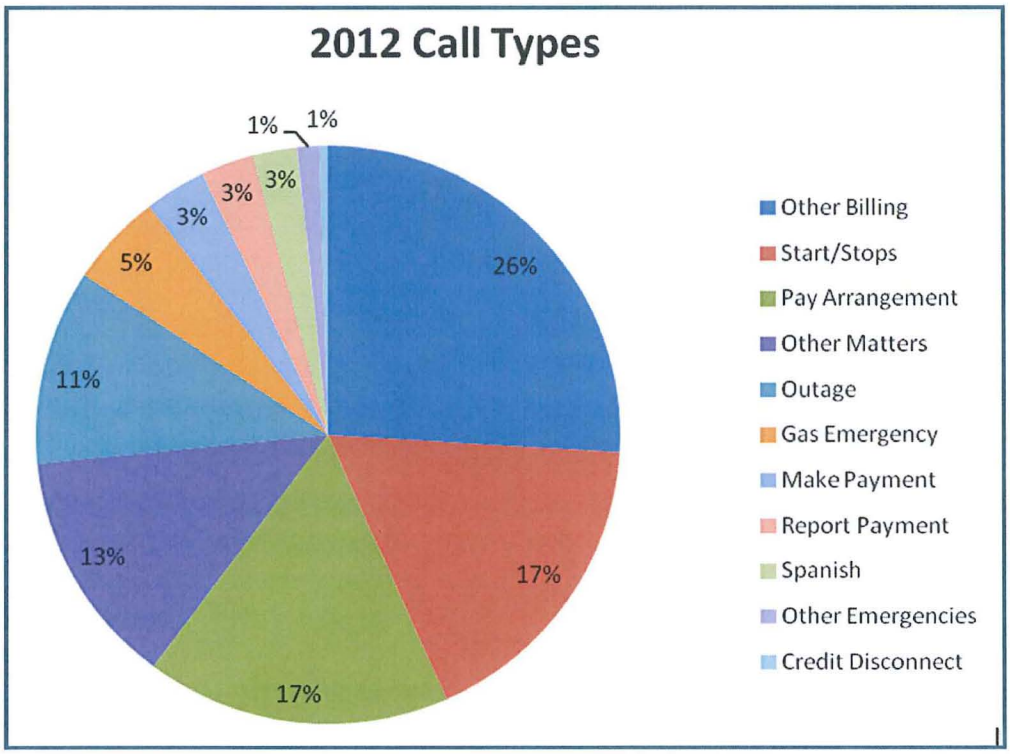


Figure 2: 2012 Incoming Call Types

To answer the variety of incoming calls, PSE has over 200 CSRs; approximately 22 percent are home-based agents, 2 percent are fluent in Spanish and approximately 1 percent 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 92 percent of customers did not have any trouble reaching a CSR, and 88 percent of respondents had their issue resolved on the first call to the access center.

Historical Trend for Customer Access Center Answering Performance

The following table shows PSE's Customer Access Center answering performance from 2008 to 2012.

Table 10: Customer Access Center's Answering Performance[19] from 2008 to 2012

	2008	2009	2010	2011	2012
Customer Access Center Answering Performance	77%	78%	78%	77%	79%
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 upcoming 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.

[19] 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.

As indicated in Figure 3, the typical peak call volume fluctuations experienced during what is considered "storm season" are mitigated through implementation of the above strategies.

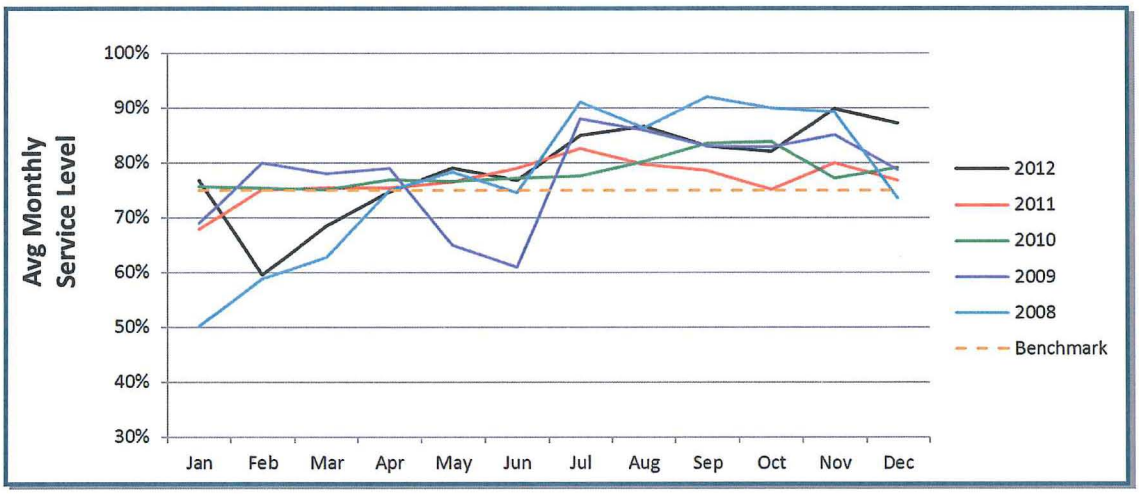


Figure 3: 2008 to 2012 Customer Access Center Monthly Answering Performance

Technology Enhancements

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

- Enhanced PSE.com allows increased self-serve features for customers.
- Implemented the phase 2 upgrade to Cisco call management telephone system to increase real-time reporting, which results in improved performance in staffing and overall customer support. Real-time reporting allows immediate adjustments to staffing levels if needed to meet SQI #5 and decrease customer hold times.
- In 2012, instituted a pilot program to use Dragon software to convert speech to text. This program aims to decreases average handle time for customer calls and repetitive motion injuries for CSRs.

Workforce Management Improvements

The eWorkforce management tool used by the workforce management team has been upgraded to enable more robust workforce planning capabilities and enhance workforce planning for front and back-office operations. This enhancement allows for real-time adjustments to resources to ensure agents are available when customers are calling into specific queues.

Outage Management System (OMS)

The new outage management system is to better serve PSE's electric customers by providing customers with more accurate outage information and by allowing PSE to respond to outages more rapidly. The project has begun and has an expected implementation date of April 1, 2013.

Customer Information System (CIS)

PSE has also kicked off the customer information system project that will replace the current CIS with a new SAP CIS that will:

- Streamline customer interactions
- Increase customer service efficiencies
- Lay the foundation for future customer interactions (e.g., self-service and information via mobile devices)

The project has begun and has an expected implementation date of April 1, 2013.

Training Accomplishments

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

- **Modular Training**—Modular training was implemented and 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 agents are able to assist with outage calls, start/stop services and billing related calls early in their training. This process helps to solidify agent's knowledge and ability before they move on to more complex calls.
- **Computer Based Training**—More computer based training was used in 2012 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.
- **Cross Training Functionality**—PSE offered cross training on web functions to remote and outer office CSRs. 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 11 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.

Table 11: Total Calls Requesting to Speak to a CSR and Abandoned Call History from 2008 to 2012

	2008	2009	2010	2011	2012
Total calls requested to speak to a CSR	2,309,902	2,134,358	2,023,165	2,152,292	2,267,886
Calls abandoned	69,256	64,447	63,365	71,606	66,359
Percent abandoned	3.0%	3.0%	3.1%	3.3%	2.9%

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. Calls received in 2012 to 1-888-Call-PSE either went through the main or the overflow backup system.

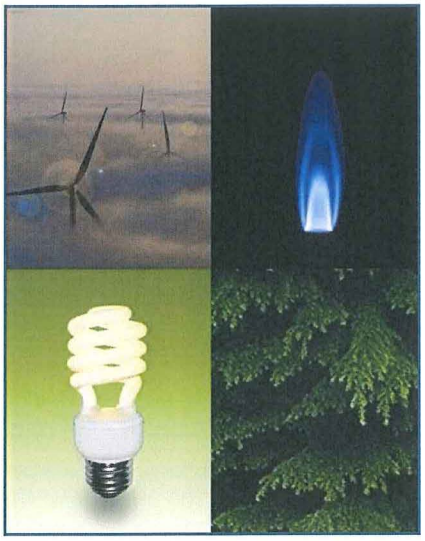
Some customers experienced a busy signal when they called on January 19, 2012 during the January 2012 Storm Event; the capacity issue was resolved the same day.

Going Forward

In 2013, PSE will:

- Deploy the new CIS and OMS system to improve overall customer service functionality.
- Continue to support the initiative of increasing paperless customer participation by consolidating PSE's various web payment applications into a single platform that will provide a consistent customer experience and better adoption potential of e-billing (pay online and paperless).
- Use CSR post-call-wrap-code documentation to monitor the IVR system.[20] This will help PSE enhance the IVR system so that it is easier for customers to select the appropriate phone routing option.
- Continue to search for process improvement opportunities and deliver robust, sustainable, measurable and improved outcomes.

[20] There are times when a customer, after calling the main PSE access phone number, selects an incorrect option. For instance, if the customer wishes to make a payment arrangement, they may inadvertently select the option to report an outage.



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, the company 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 2012, PSE responded to about 19,900 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 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.

In 2012, the overall average response time was 30 minutes. The following table reports the results for 2012.

Table 12: Gas Safety Response Time for 2012

Key Measurement	Benchmark	2012 Results	Achieved
Gas safety response time (SQI #7)	Average 55 minutes or less from customer call to arrival of field technician	30 minutes	☑

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.

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

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 1,000 municipal first responders participate in PSE's natural gas and electric safety training programs.

Historical Trend for Gas Safety Response Time

The following table shows the average gas safety response time from 2008–2012.

Table 13: Gas Safety Response Time from 2008 to 2012

	2008	2009	2010	2011	2012
Gas safety response time	35 minutes	33 minutes	31 minutes	29 minutes	30 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 studying 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 new gas worker training, gas operator qualification training and new standards and procedures.

Percentage of Gas Safety Response Times within 60 Minutes

Table 14: Gas Safety Response Times within 60 Minutes in 2012

Month	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Percent of responses within 60 minutes	94%	97%	97%	98%	97%	97%	97%	97%	96%	97%	95%	96%

Going Forward

PSE will continue to evaluate emergency response time data. 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 14,300 electric incidents in 2012.

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. The following table reports the results for 2012.

Table 15: Electric Safety Response Time for 2012

Key Measurement	Benchmark	2012 Results	Achieved
Electric safety response time (SQI #11)	Average 55 minutes or less from customer call to arrival of field technician	51 minutes	☑

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:

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

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

- Major Event Days when five percent 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. Events that occur in early morning or late afternoon may experience longer response times due to traffic conditions. More than 30 percent of outages in the 12 months that ended December 2012 occurred during the peak commute hours of 7 a.m.–10 a.m. and 4 p.m.–6 p.m.
- **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 78 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

The following table shows average electric safety response time from 2008 to 2012.

Table 16: Average electric safety response time from 2008 to 2012

	2008	2009	2010	2011	2012
Electric safety response time	55 minutes	51 minutes	52 minutes	51 minutes	51 minutes
Benchmark	Average of 55 minutes from customer call to arrival of field technician				

Working to Decrease Electric Safety Response Time

In 2012, PSE enhanced procedures and processes aimed at reducing electric safety aggregate response time.[21] These efforts included:

- 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.
- Implemented a call-out tracking report to manage monthly call-out performance of first responders in order to foster greater focus on timely incident response.
- Hired additional staff to perform live updates to the mapping system, which provides better map accuracy, faster dispatching and outage restoration.

Going Forward

In 2013, 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:

- Implemented an automated call-out system.
- Implement the new outage management system technology, providing improved electric system information to increase efficiency in managing outage events and first response personnel.
- Continue to allocate System Operations Department resources to all regions during non-core business hours on an as-needed basis to improve timely deployment of first responders and outage communication.
- Continue to regularly analyze and optimize first responder shift scheduling to correspond with daily outage trends.
- Rather than wait for first responder onsite damage reports, dispatch crews in parallel with first responders on specific outages such as car-pole accidents and certain underground cable failures that always require a crew to repair.
- 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.

[21] The effect of these 2012 procedure and process changes that were designed to reduce electric safety response times was not tracked nor measured.

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 2012, PSE achieved a result of 100 percent for this appointments kept metric. However this achievement did not mean PSE and its service provider kept all of the 120,424 appointments it made, as the data is rounded to the nearest whole percentage per the UTC order. Data on missed appointments and other appointment information by service type is detailed in Appendix F: *Customer Service Guarantee Performance Detail.*

Table 17: Appointments Kept for 2012

Key Measurement	Benchmark	2012 Results	Achieved
Appointments kept (SQI #10)	At least 92% of appointments kept	100%	☑

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:

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

Appointments will be 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 have been 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

The following table shows the percentage of appointments kept from 2008–2012.

Table 18: Appointments Kept from 2008 to 2012

	2008	2009	2010	2011	2012
Appointments kept	99%	99%	100%	100%	100%
Benchmark	92% of appointments kept				

Working to Maintain the Percentage of Appointments Kept

In 2012, PSE:

- Used mobile workforce tools to balance scheduled service work among workers and to identify and address issues that caused an appointment to be missed.
- Implemented software to streamline the electric residential reconnect process and improve efficiency.
- Monitored and reviewed causes for missing appointments; provided regular feedback and coaching to PSE and service providers' personnel.

Going Forward

PSE has consistently exceeded this metric with a rating at or near 100 percent. PSE will continue its current efforts to maintain its appointments-kept service results. PSE will:

- Continue to review the reasons for missed appointments and work to find solutions so that PSE can meet customer commitments.
- Investigate ways to narrow the appointment window for a service request.

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 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 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.

Changes to the Service Provider Program in 2012

At the end of the first quarter 2011, PSE transitioned all natural gas construction and maintenance work to Quanta Gas. In 2012, Quanta services performed all of PSE's electric and natural gas construction and maintenance work.

In 2012, SPIs related to natural gas services were measured for Quanta Gas and SPIs related to electric services were measured for Quanta Electric. Although the SPIs related to Pilchuck are no longer applicable after 2011, these Pilchuck SPIs are included in this Report for historical comparison purposes.

Service Provider Indices

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

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

The four former matrices related to Pilchuck (SPI #1A, 2A, 3A, and 4A are no longer applicable for 2012.

Service Provider Standards Compliance (SPI #1)

Service providers must meet a minimum percent compliance with PSE's site audit checklists (See Benchmarks in Table 19). All service providers met this SPI at 98 percent in 2012. The detailed 2012 results show:

- **Quanta Electric**—98 percent
- **Quanta Gas**—98 percent

The following table shows service provider standards compliance over the past five years.

Table 19: Service Provider Standards Compliance from 2008 to 2012

	2008	2009	2010	2011	2012
Pilchuck Gas					
Service provider standards compliance (SPI #1A)	97%	99%	99%	99%	N/A
Benchmark	95% compliance with PSE's site audit checklists				
Quanta Electric					
Electric service provider standards compliance (SPI #1B)	96%	98%	97%	99%	98%
Benchmark	97% compliance with PSE's site audit checklists				
Quanta Gas					
Gas service provider standards compliance (SPI #1C)	98%	98%	98%	99%	98%
Benchmark	97% compliance with PSE's site audit checklists				

Service Provider Customer Satisfaction (SPI #2)

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

- **Quanta Electric**—80 percent
- **Quanta Gas**—82 percent
  - The 5 percent point drop in the customer satisfaction rating from autumn 2011 to autumn 2012 is primarily due to a large increase in new building starts. Comparing the two time periods (September through December) for each year, the 2012 new-customer gas work increased over 30%. The 2011 to 2012 overall increase was 20%. This created a need for additional resources. Adding and training those resources took time, and as a result, the survey revealed customers were dissatisfied with scheduling delays.

The following table shows service provider customer satisfaction over the past five years.

Table 20: Service Provider Customer Satisfaction Performance from 2008 to 2012

	2008	2009	2010	2011	2012
Pilchuck Gas					
Customer satisfaction performance (SPI #2A)	86%	86%	88%	85%	N/A
Benchmark	83%	84%	84%	84%	N/A
Quanta Electric					
Customer satisfaction performance (SPI #2B)	77%	77%	79%	81%	80%
Benchmark	78%	75%	75%	77%	77%
Quanta Gas					
Customer satisfaction performance (SPI #2C)	N/A			87%	82%
Benchmark	N/A			84%	84%

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

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

In 2012, Quanta Gas kept 98 percent of their new customer construction service guarantee appointment dates, while Quanta Electric kept 99 percent 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."

The following table 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 21: Service Provider New Customer Construction Appointments Kept from 2008 to 2012

	2008	2009	2010	2011	2012
Pilchuck Gas					
Service provider appointments kept (SPI #3A)	100%	100%	100%	100%	N/A
Benchmark	92%	98%	98%	98%	N/A
Quanta Electric					
Service provider appointments kept (SPI #3B)	100%	100%	100%	100%	99%
Benchmark	98%	98%	98%	98%	98%
Quanta Gas					
Service provider appointments kept (SPI #3C)	N/A			100%	98%
Benchmark	N/A			98%	98%

Secondary Safety Response Time (SPI #4)

This SPI consists of four sub-indices:

- **Service Provider Index #4A**—Secondary safety response time—Pilchuck
- **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

Secondary Safety Response Time—Pilchuck (SPI #4A)

Response time is measured from the time PSE's Gas First Response (GFR) team completes their assessment to the time service provider's secondary response team arrives. The following table shows Pilchuck's secondary safety response performance from 2008–2011. All SPIs related to Pilchuck are no longer applicable after 2011.

Table 22: Secondary Safety Response Time—Pilchuck (SPI #4A) Performance from 2008 to 2011

	2008	2009	2010	2011	2012
Pilchuck gas secondary safety response time (SPI #4A)	54	52	51	51	N/A
Benchmark	Not exceed 60 minutes				

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 2012, Quanta Electric had an average restoration time of 239 minutes during core hours, and an average restoration time of 270 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.

The following table shows Quanta Electric's average secondary safety response performance during core-hours and non-core-hours from 2008–2012.

Table 23: Secondary Safety Response and Restoration Time—Quanta Electric (SPI #4B & #4C) from 2008 to 2012

	2008	2009	2010	2011	2012
Secondary Core-Hours, Non-Emergency Safety Response and Restoration Time (SPI #4B)	241	242	242	234	239
Core Hours Benchmark	Not exceed 250 minutes				
Secondary Non-Core-Hours, Non-Emergency Safety Response and Restoration Time (SPI #4C)	277	281	278	273	270
Non-Core Hours Benchmark	Not 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 (GFR) assessment completion to the service provider's secondary response arrival. In 2012, Quanta Gas had an average response time of 48 minutes. The following table shows Quanta Gas's secondary safety response performance from 2008–2012. The 2008–2010 information is not applicable because Quanta Gas just began providing services for PSE in 2011.

Table 24: Secondary Safety Response Time—Quanta Gas (SPI #4D) Performance from 2008 to 2012

	2008	2009	2010	2011	2012
Quanta Gas secondary safety response time (SPI #4D)	N/A			53	48
Benchmark	Not exceed 60 minutes				

Actions Taken to Improve Customer Satisfaction with the New Customer Construction Process

PSE surveyed over 900 randomly selected customers, builders, developers and electricians who have done business with PSE in 2012. The surveys showed that overall customer satisfaction was 85 percent in 2012.

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

- Enhanced PSE.com content usability for new construction projects by improving navigation for easier access to information related to construction guidelines and installation requirements.
- Streamlined the non-residential/complex construction project metering process and customer application for service. This improved communication and helped prevent costly rework.
- Streamlined customer applications for electric and natural gas service to prepare for enhanced Web-based application functionality.
- Updated PSE's Natural Gas and Electric Service Handbooks wording to enhance customer understanding of the construction process and to improve customer satisfaction. These publications outline PSE's processes and installation requirements to provide necessary information to new customers for a safe and efficient installation. New customer materials for switching to natural gas were completed in 2012. This work will continue into 2013 to include more communication materials specific to those building new homes or new developments.

The following 2012 PSE initiatives were designed to improve builder and developer satisfaction:

- Participated as active members in seven local home builder associations and participated in approximately 110 association meetings, trade shows and educational events to increase operational understanding of PSE processes and to garner industry input.
- Sponsored a three-day Kaizen/Lean workshop with several builders, Washington State Department of Labor & Industries (L&I) representatives, and the Master Builders Association to review current processes and see where there is opportunity for improvements.

Service Providers and Customer Construction Services Department Training

PSE conducts on-going training to target improvement in:

- Technical skills
- Role definition and responsibilities
- Customer communications
- Natural gas and electric 101 contract/business training

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

- Updating and maintaining a Quick Reference Guide on the internal Customer Construction Services Department website
- Providing "phone pro" 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 2013 including:

- Create or enhance new customer communication handbooks and customer forms.
- 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 101 contract/business training, this emphasis will improve project management and should result in improved service to the customer.
- Implement Crew-Link technology, used by Quanta Gas personnel, which uses a hand-held tablet that allows the field personnel to capture field data on a real-time basis. The next phases will be to schedule, forward information relative to specific jobs, bar code and utilize reporting capabilities.
- Develop a firm-date scheduling process and implementation to help reduce construction delays due to customer reason.
- Similarly, investigate the possibility of using SAP "Prometheus" scheduling tool, which allows real-time scheduling functionality.
- Research a replacement tool to PSE's existing cost estimating tool for determining the cost incurred for natural gas and electric projects.
- Enhance task tracking with "target date" email notices to remind the project managers when the task is nearing its due date.
- Improve customer satisfaction by designating a new service providers manager. This position will partner with service providers to ensure that the focus on positive customer experiences.

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 five percent 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 2012 and was highlighted in the 2012 January–February and May-June editions[22] of the customer newsletter as part of customer bill inserts.

2012 Service Guarantees Credits

Customer Service Guarantee Credits

In 2012, PSE credited customers a total of $23,500 for missing 470 of the 120,424 scheduled appointments.

Table 25: 2012 PSE Customer Service Guarantees Credits

	SQI #10 Appointment Count			Service Guarantee Payment to Customers		
Service Type	**Electric**	**Natural Gas**	**Total**	**Electric**	**Natural Gas**	**Total**
Permanent Service	6,867	9,265	16,132	$4,100	$13,300	$17,400
Reconnection	49,664	26,488	76,152	$1,950	$1,400	$3,350
Diagnostic	N/A	28,140	28,140	N/A	$2,750	$2,750
Total	***56,531***	***63,893***	***120,424***	***$6,050***	***$17,450***	***$23,500***

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, 2012.

[22] 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

The following table shows the number of new customer construction appointments missed by PSE service providers and the amount of penalties paid due to these missed appointments.

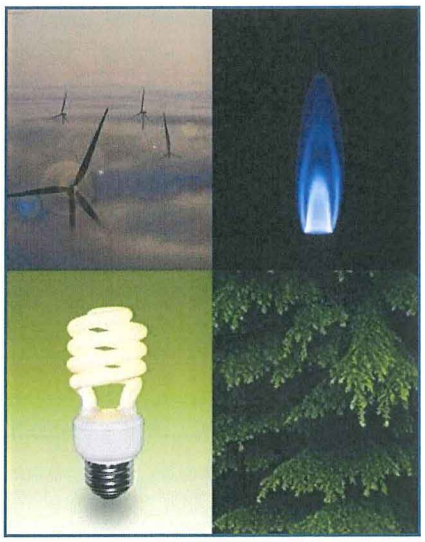
Table 26: Service Provider Missed Appointment Penalties for 2012

	SQI #10 Missed Appointment Count			Missed Appointment Penalties		
Service Provider	**Electric**	**Natural Gas**	**Total**	**Electric**	**Natural Gas**	**Total**
Quanta Gas	N/A	266	266	N/A	$13,300	$13,300
Quanta Electric	82	N/A	82	$4,100	N/A	$4,100
Total	***82***	***266***	***348***	***$4,100***	***$13,300***	***$17,400***

Restoration Service Guarantee Credits

In 2012, PSE gave the $50 Restoration Service Guarantee credit to 48,547 customers as a result of the catastrophic and unusual outage event that occurred January 18, 2012, through January 28, 2012, (January 2012 Storm Event), and the one-time changes of Schedule 131 that waived certain conditions of the schedule. Recognizing the extensive customer impact of the January 2012 Storm Event, PSE promptly petitioned the UTC on January 23, 2012, to waive the $1.5 million annual credit limit and change eligibility requirements. The waiver of the $1.5 million annual limit allowed PSE to provide the total credit of $2.43 million to its customers. Other waived requirements of Schedule 131, for purposes of the January 2012 Storm Event, are as follows:

- **Consecutive Hours Requirement**—Customers who experienced outages with a combined length of 120 hours (not consecutive) or longer during the January 2012 Storm Event received the RSG $50 credit.
- **PSE Safe Access Requirement**—The 120 hours was extended to include the time when PSE lacked safe access to perform a repair.



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 2012 calendar year.

In January 2012, portions of PSE's service territory in Western Washington was impacted by a series of severe snow, wind and ice storms that caused extensive damage to PSE electric infrastructure and left more than five hundred thousand of PSE customers without power. Portions of King, Kitsap, Pierce and Thurston Counties had 1/4 to 1 inch of ice, 6 inches to 2 feet of snow, or incurred a short-lived windstorm that caused additional damage. Approximately, one-third of PSE's transmission lines were out of service, and 50 percent of electric customers were without power at some point during the January 2012 Storm Event. In fact, some of those customers also experienced multiple outages during the event. The 1,269 SAIDI minutes from the January 2012 Storm Event were the first Major Event of a similar magnitude since the 2006 Hanukkah Eve Windstorm of 2,034 SAIDI minutes. The January 2012 Storm Event was over 1,200 SAIDI minutes higher than the median SAIDI for all SQI Major Events from 2006 to 2012. PSE considered the impact of the January 2012 Storm Event to be extraordinary and unusual. The Company petitioned to have the 1,269 SAIDI minutes from the January 2012 Storm Event excluded from the 2012 and future annual SQI SAIDI results. The UTC agreed and approved the petition.

As a result of the exclusion, the 2012 SQI SAIDI decreased by 13 percent when compared to the 2011 results, and PSE met the SQI SAIDI benchmark. Since the benchmark is based on the five-year average methodology, the decrease is due to the very low SAIDI results PSE experienced during the rest of 2012. In fact, it was the lowest recorded SAIDI in the last 16 years.

PSE also continues to meet the SQI SAIFI benchmark as SQI SAIFI decreased by 10 percent when compared to 2011. Since the SQI SAIFI performance calculation allows PSE to exclude days when 5% or more customers out of power is exceeded, which typically occur during major weather events, the only Major Event in 2012 was the January 2012 Storm Event. See Appendix L: *1997-Current Year PSE SAIFI and SAIDI Performance by Different Measurements* for more details.

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 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 2011 IEEE survey of 90 member utilities, PSE ranked in the top 29th percentile (2nd quartile) and in the 51st percentile (3rd quartile) of SAIFI and SAIDI, respectively. PSE ranked better than in 2010, as PSE had a 17 percent and 16 percent improvement in SAIFI and SAIDI. The results of the 2012 IEEE survey are expected in August 2013.

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.

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:

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

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 five percent 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 ($SAIFI_{Total\ 5\text{-}year\ Average}$)**—Includes all customer interruptions that occurred during the current reporting year and the previous four years, except for extreme weather or unusual events.
- **IEEE SAIFI ($SAIFI_{IEEE}$)**—Excludes days that exceed the IEEE definition for Major Event Days (IEEE T_{MED}). The 2012 T_{MED} is 5.38 minutes—that is, any day that exceeds 5.38 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.

2012 SAIFI Results

The 2012 results are reported in the following table.

Table 27: 2012 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	1.62	
$SAIFI_{Total\ 5\text{-}year\ Average}$	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	0.92	☑
$SAIFI_{IEEE}$	IEEE Non-Major-Storm (T_{MED}) SAIFI	N/A	0.71	0.83	

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 damage caused by trees and limbs impacted the most customers in 2012, as in previous years. Other major causes of outages within the other two categories include:

- 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 15% 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

The following graph shows the common causes for outages in 2012 and their impact on customers across the four key measurements. As illustrated, tree-related outages continue to drive the performance across the key measurements.

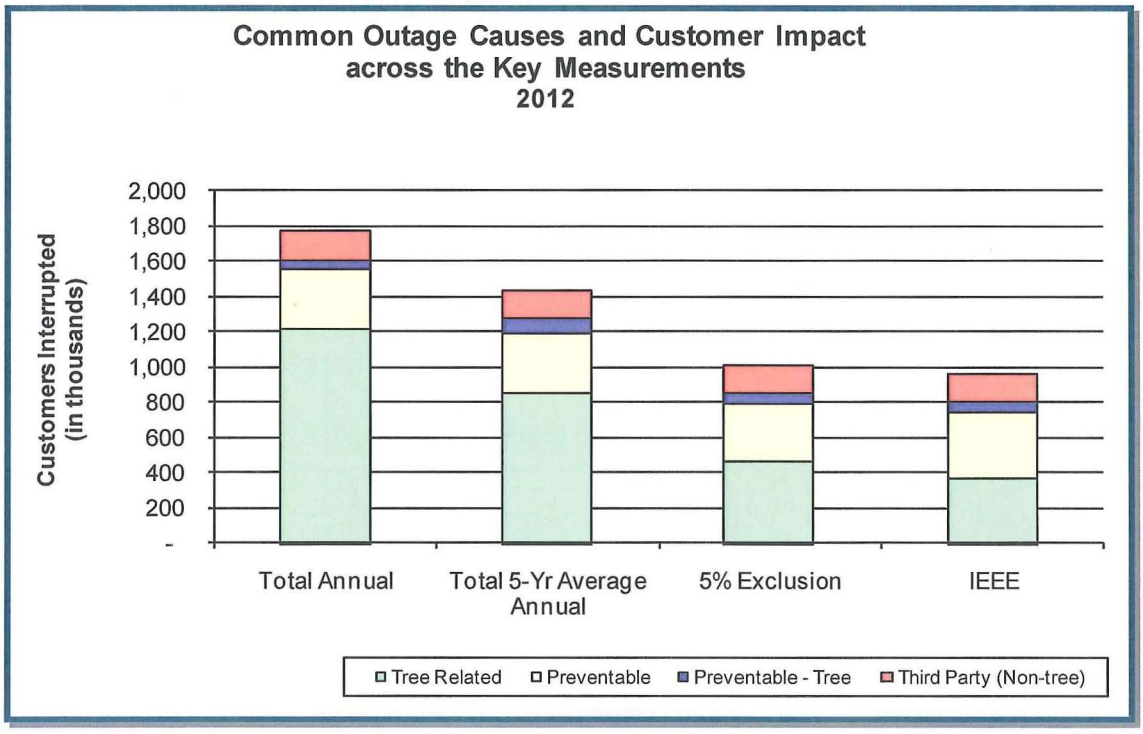


Figure 4: Common Outage Causes and Customer Impact Across the Key Measurements in 2012

Historical Trends for SAIFI

The following table shows SQI SAIFI from 2008 to 2012.

Table 28: SQI SAIFI from 2008 to 2012 (excluding Major Events)

	2008	2009	2010	2011	2012
$SAIFI_{5\%}$ (SQI #4)	1.01	1.09	0.86	1.02	0.92
Benchmark	1.30 interruptions per year per customer				

As shown in Table 28, 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 1997–2012. The 2012 results for $SAIFI_{\text{Total 5-year Average}}$, $SAIFI_{5\%}$ and $SAIFI_{IEEE}$ saw a slight improvement in performance over 2011 due to fewer customers impacted by tree related outages as shown in the chart below. Those measurements allow PSE to exclude days when the respective thresholds are exceeded or UTC approved exclusions. The decline in performance of 2012 results for $SAIFI_{Total}$ as compared to 2011 was driven by the January 2012 Storm Event.

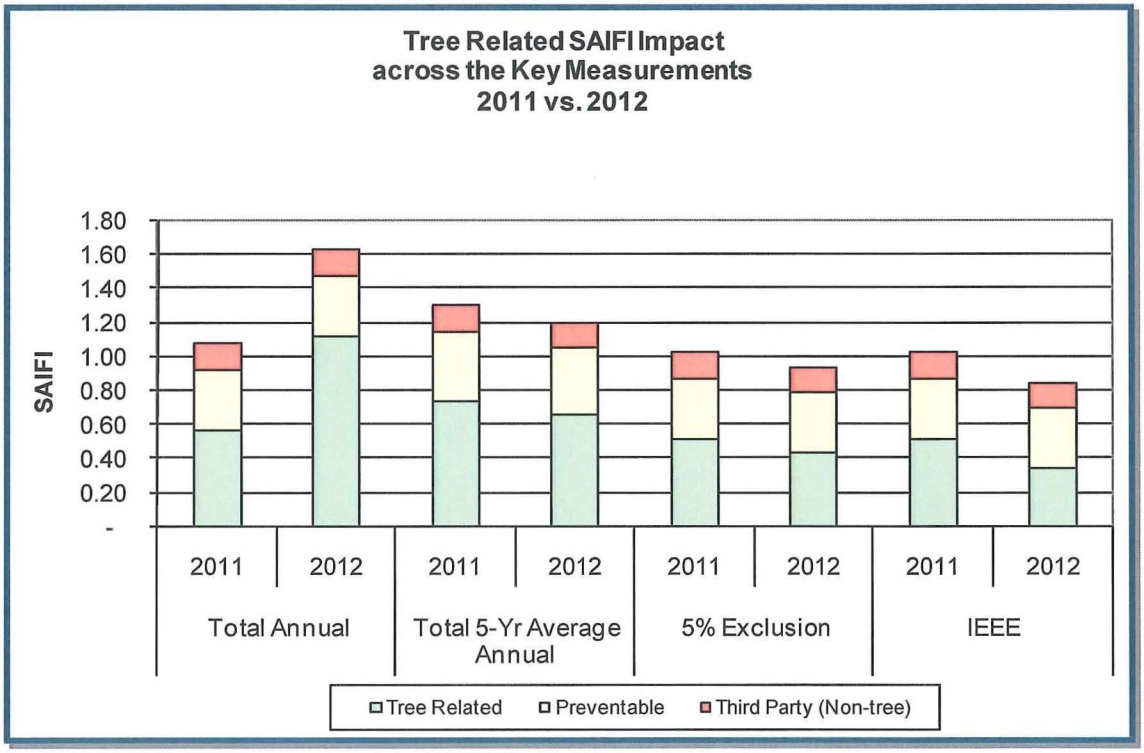


Figure 5: Tree Related SAIFI Impact Across the Key Measurements 2011 vs. 2012

Appendix K: *Historical SAIDI and SAIFI by Area* illustrates the 2010–2012 results by county under the four measurements.

- Whatcom, Kitsap and Jefferson Counties saw an improvement across all four SAIFI measurements.
- King, Pierce and Thurston Counties $SAIFI_{Total}$ performance declined significantly as those were the counties severely impacted by the January 2012 Storm Event.
- All counties except for Skagit showed an improvement in at least one measurement.
- The decline in Skagit County SAIFI performance was driven by scheduled outages and car pole accidents that impacted a higher number of customers in 2012.

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 maintenance, capital investments and improving service personnel response, assessment and repair time are targeted to preventing or reducing 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 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:

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

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 ($SAIDI_{Total\ 5\text{-}year\ Average}$)**.

- **Total 5-Year Average SAIDI ($SAIDI_{Total\ 5\text{-}year\ Average}$)**—Includes all customer-minute interruptions that occurred during the current reporting year and the previous four years, except for extreme weather or unusual events.[23]

[23] Per Docket Number UE-072300, 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 $SAIDI_{Total\ 5\text{-}year\ Average}$ 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 five percent 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 2012 T_{MED} is 5.38 minutes—that is, any day that exceeds 5.38 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.

2012 SAIDI Results

The 2012 results are reported in the following table.

Table 29: 2012 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	1,400	
$SAIDI_{Total\ 5\text{-}year\ Average}$	Total (all outages five-year average) SAIDI	No more than 320 minutes per customer per year	326	245	☑
$SAIDI_{5\%}$	<5% Non-Major-Storm (<5% customers affected) SAIDI	N/A	132	134	
$SAIDI_{IEEE}$	IEEE Non-Major-Storm (T_{MED}) SAIDI	N/A	107	120	

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. The following graph illustrates the impact of tree-related outages across the four key measurements in 2012, accounting for 42–95 percent of customer minutes.

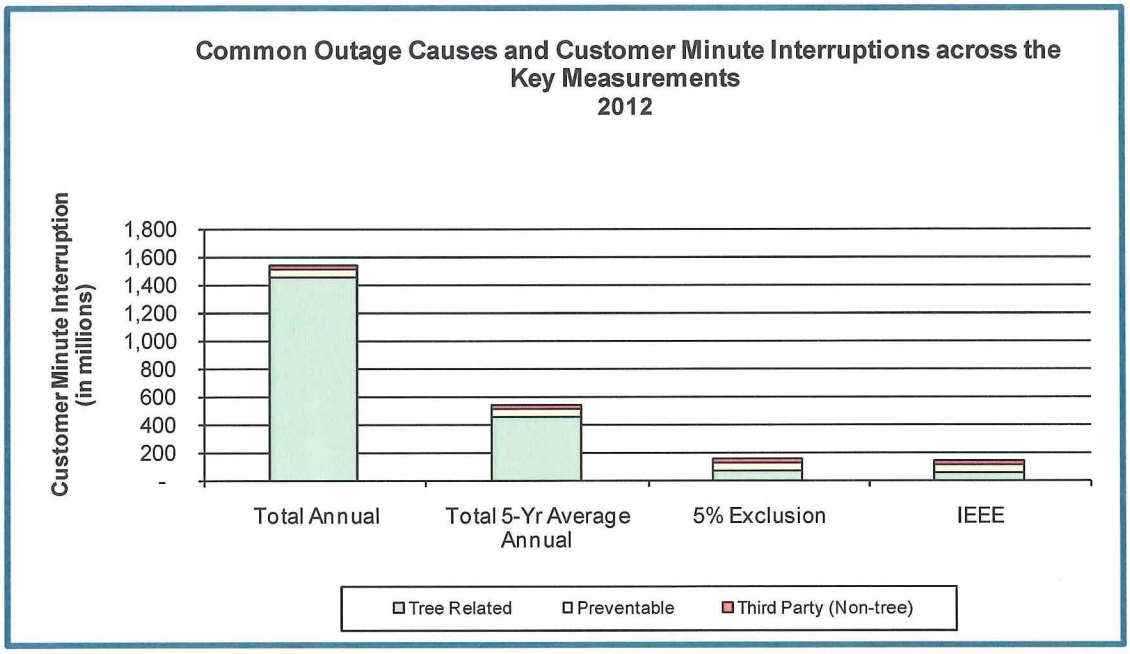


Figure 6: Common Outage Causes and Customer Minute Interruptions Across the Key Measurements in 2012

Tree related outages can greatly influence SAIDI performance. As an example, 2012 had nearly eight times as many $SAIDI_{Total}$ minutes as in 2011, primarily driven by the January 2012 Storm Event.

Trees and limbs cause the most outages on the system, 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.

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 percent 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.[24]

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.[25]

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.

In 2011 and 2012, the average response time was 51 minutes. 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. See Chapter 9: *Customer Construction Services Department and Service Provider Performance* for more detail.

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.

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[24] Ecological Solutions Inc. study, March 3, 2009

[25] *The Effects of Pruning Type on Wind Loading of Acer Rubrum* – E. Thomas Smiley and Brian Kane

Historical Trends for SAIDI

The following table shows SQI SAIDI from 2008 to 2012. The 2008 through 2009 results use the benchmark that was established at the time. The 2010 to 2012 results use the revised benchmark that was approved for the 2010–2013 reporting years.

Table 30: SQI SAIDI from 2008 to 2012

	2008	2009	2010	2011	2012
$SAIDI_{Total\ 5\text{-}year\ Average}$ (SQI #3)	163	190	287	281	245
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 1997-2012. Under the revised SQI SAIDI benchmark methodology and requirements, PSE's performance met the annual benchmark between 1997 through 2012 with the exception of 2003. As with SAIFI, the 2012 results for $SAIDI_{Total\ 5\text{-}year\ Average,}$ $SAIDI_{5\%}$ and $SAIDI_{IEEE}$ saw an improvement in performance.

The 2012 results for the $SAIDI_{Total}$ saw a decline in performance as compared to 2011, largely driven by the January 2012 Storm Event.

The chart that follows illustrates the impact of tree-related outages. Tree-related outages account for over 60 percent of all customer-outage minutes during the last five years, ranging from a high of 95 percent in 2012 to a low of 55 percent 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.

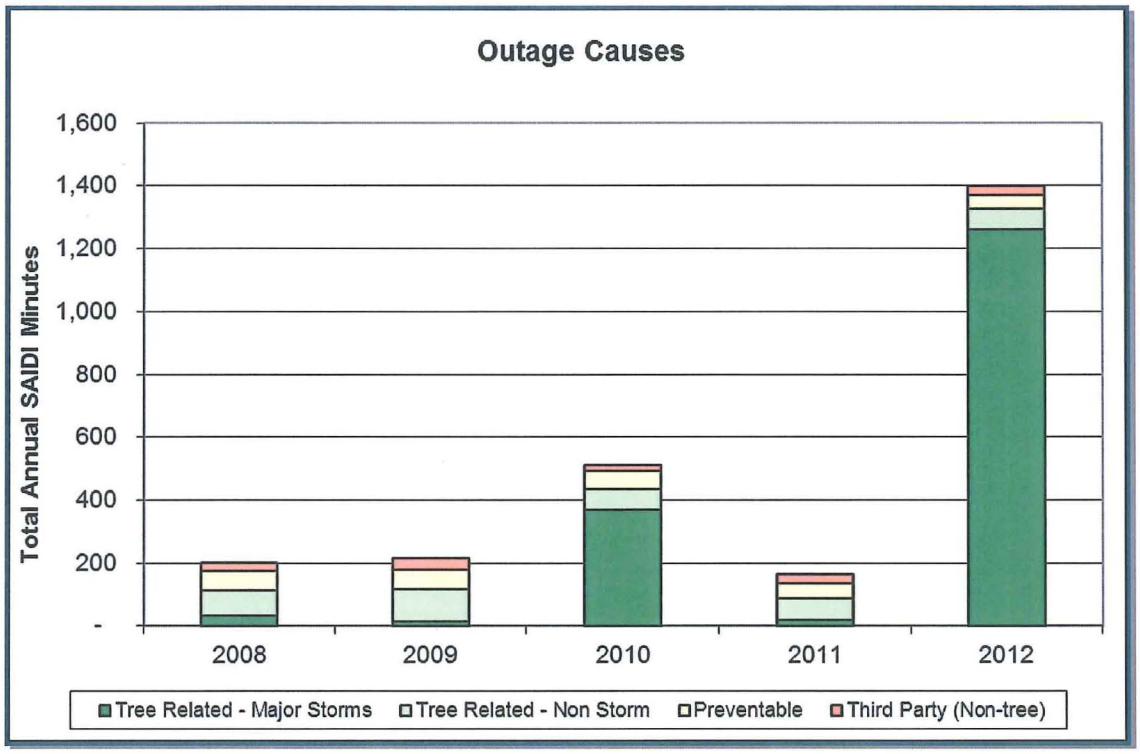


Figure 7: Outage Causes

Appendix K: *Historical SAIDI and SAIFI by Area* illustrates the 2010–2012 results by county under the four measurements.

- All counties except for Pierce saw an improvement in $SAIDI_{\text{Total 5-year Average}}$ in 2012.
- The impact of the January 2012 Storm Event is evident in the $SAIDI_{\text{Total}}$ results for King, Pierce and Thurston Counties. $SAIDI_{\text{Total}}$ performance declined by over 1,000 to 4,000 percent as compared to 2011.

However, most counties saw in improvement in $SAIDI_{5\%}$ and $SAIDI_{\text{IEEE}}$ performance in 2012.

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 five percent 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 five percent or more of customers are without power during a 24-hour period and the additional days needed to restore service to all those customers.

- **$IEEE_{1366}$**
  - **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: *Electric Reliability 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 usefulness of using a single year's system performance data or information to attempt to assess year-to-year trends. Such trend analysis may not prove useful, and PSE feels there is limited usefulness in designating one specific year's information as a "baseline."

Major Events

In 2012, PSE experienced the following major weather events that met the 5% exclusion or the IEEE exclusion criteria:

- The January 2012 Storm Event that primarily affected customers in King, Pierce and Thurston Counties
- A March wind and rain event that affected customers in Whatcom, Skagit, Island and Thurston Counties
- A November wind and rain event that affected customers in Thurston and Kitsap Counties
- The December wind and rain event that affected customers in King and Thurston Counties

The following table details the dates, causes and exclusion criteria for the IEEE and 5% exclusion events in 2012. 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, including the January 2012 Storm Event.

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 to have events that exceed the IEEE T_{MED} but not meet the 5% exclusion criteria. In 2012, there were three IEEE T_{MED} events that did not also meet the 5% Exclusion Major Event Day criteria. There have been 21 such events since PSE has started reporting IEEE statistics in 2003.

Table 31: 2012 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
1/18/2012	148.39	39.37%	Wind, snow and ice	1/18/2012 @ 12:02 AM – 1/28/2012 @ 10:00 PM
1/19/2012	898.70			
1/20/2012	106.96			
1/21/2012	60.40			
1/22/2012	11.64			
1/23/2012	8.56			
1/24/2012	24.34			
3/12/2012	10.07	Did not meet criteria	Wind and rain	N/A
11/19/2012	6.31	Did not meet criteria	Wind and rain	N/A
12/17/2012	7.66	Did not meet criteria	Wind and rain	N/A

The table below details the 2008 through 2012 IEEE T_{MED} values, number of IEEE exclusion dates, number of 5% exclusion events and number of 5% exclusion event days.

Table 32: 2008 to 2012 Comparison of IEEE and 5% Exclusion Events

	2008	2009	2010	2011	2012
IEEE T_{MED}	7.36	6.95	7.21	7.68	5.38
Number of IEEE Major Event Days	4	7	10	1	10
Number of 5% Exclusion Major Events	1	2	6	1	1
Number of 5% Exclusion Major Event Days	5	4	20	2	11

Areas of Greatest Concern

The regional area planners study "area-of-concern" circuits and propose projects that will improve the reliability for those customers. 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 has spent on average $53 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 2011 and 2012 annual ranking of the 50 worst-performing circuits along with PSE's completed or future plan for system improvements on each circuit. Comparing the 2012 Top 50 to the 2011 Top 50, there was a turnover of 16 circuits and 34 remained on the list from 2011. The impact of the January 2012 Storm Event is evident as most of the 16 new circuits are in the areas where the January 2012 Storm Event had the greatest impact. 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/Jefferson—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 that 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 2008 through 2012, PSE has experienced a decrease or remained static in the numbers of outage-related complaints received either by PSE or the UTC.

In 2012, the UTC received 12 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. See Table 42.*

During the rolling two-year period of 2011–2012, PSE received repeat complaints from 27 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.* See *Table 43.*

PSE continually 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 2012.

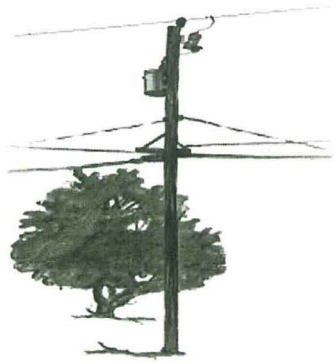
Working to Uphold Reliability

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 outage causes in each county in 2012. It shows that trees (TF, TO, TV), birds and animals (BA) and equipment failures (EF) continue to be the primary reasons for outages in 2012 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 of outages and the overall duration of 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 2013.

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 percent of tree-related outages are caused by tree growth, illustrating an effective Vegetation Management Program.[26]



Cyclical Programs

PSE spends more than $12.5 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. Expanded efforts to meet new tree clearing requirements on transmission systems were completed in 2009 and efforts were made in 2010 to return to a four- and six-year distribution schedule. In 2012, PSE completed 2,026 miles of vegetation management. The maintenance cycle is planned to be back on schedule by 2013.
- **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 2012:
  - 578 miles of high-voltage distribution lines were maintained
  - 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.

[26] Ecological Solutions Inc. October 2008 page 39

- **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 2012, a total of 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 2012, the TreeWatch program addressed approximately 200 miles of transmission and high-voltage distribution lines and 120 miles of distribution lines. Over 14,000 trees were removed or pruned. In 2013, PSE plans to remove or prune another 15,000 off-right-of-way trees under the TreeWatch program. Our focus will be on those distribution circuits that continue to have tree-related outages, focusing on transmission, and high-voltage distribution lines.

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 percent of tree-related outages are caused by trees from outside the right-of-way and 68 percent 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.[27]

The study also revealed that: one-third of all tree-related outages are due to limbs falling on lines and 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.

[27] Ecological Solutions Inc. study, March 2009

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. PSE anticipates that through this pilot program tree-related power outages in the area will be reduced. The tree work was completed in the fall of 2012, and the impacts to reliability will be monitored annually.

Targeted Reliability Improvements

Along with vegetation management to minimize tree-related outages, PSE has 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. In 2012, 20 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 2012, 40 reclosers and 30 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. In 2012, seven distribution substations were upgraded with SCADA. Ninety-nine percent of PSE's distribution substations have 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 percent of cables receive silicone injection and the remaining cables are replaced.

In 2012, 26 miles of cable was remediated. PSE's cable remediation program prevented an estimated 2,447 outages in 2012. PSE has been experiencing a decline in outages on the underground 1/0 system along with rising unit costs for remediation. These two factors led to the redirect of funds in 2012 from the cable remediation program to other reliability projects or programs that offer a greater reliability impact than existing scoped cable projects. PSE is monitoring the level of cable outages and managing the program to ensure that reliability does not degrade. PSE's future plans call for slightly higher footage in 2013 with remediation totals approaching historic levels again in 2014.

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 2012, there were 50 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 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 2012, 12,601 poles were inspected and treated (8,938 distribution and 3,663 transmission) and 1,064 poles were replaced (813 distribution and 251 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 failing 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 2012, 16 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 2012, one transmission breaker, 10 distribution breakers and two relay packages were replaced, and two Spill Prevention, Control, and Countermeasure (SPCC) and grounding projects were completed under these programs.

In 2011, PSE hired an independent consultant to review our aging infrastructure programs. The consultant's report concluded that while PSE's practices mirrored much of the industry there were opportunities for improvement. The key recommendation for improvement is to transition to an economic life strategy, which includes consequence costs in the calculation for end-of-life of the asset.

In 2012, PSE implemented the independent consultant's recommendations. These recommendations involved:

- Creating a model for assessing the equipment's condition
- Determining projected failure rates of the equipment based on condition
- Assessing the consequence of failure in each incidence
- Assessing the system risk

The equipment condition assessment model will allow a systematic and repeatable measurement of system risk and assist in prioritizing work and establishing appropriate replacement rates. The development of specific replacement projects are transitioning to this approach in 2013.

Wildlife

In 2012, there were over 1,400 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, animal-and bird-related outages have been decreasing 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 2012, the PSE Avian Protection Program completed 40 avian-protection retrofit projects, in response to over 183 bird mortalities, including 10 eagles, 74 swans and 7 raptors. Over 350 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 third leading cause of non-storm service interruptions. 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

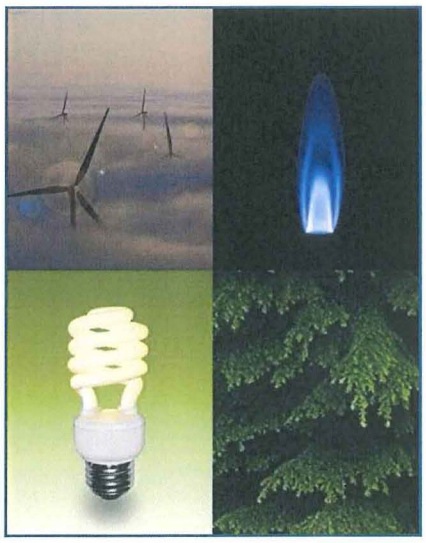
PSE recognizes that the time it takes for a serviceman to arrive to the outage site, assess the damage, and determine the appropriate plan of action impact the length of time a customer is out of power. A pilot study was conducted in late 2010 and into 2011, where PSE dispatched service provider crews 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.

Going Forward

In 2013, PSE will continue its programs as described earlier. Specifically:

- **Vegetation Management**
  - Continue cycle maintenance with additional efforts to be back on schedule in 2013.
  - Remove or prune 15,000 off-right-of-way trees under the TreeWatch program, again focusing on worst performing distribution circuits, transmission and high-voltage distribution lines.
  - Conduct the aggressive tree trimming and overhanging branch reduction pilot study in the north King County area on Duvall-15, similar to the pilot conducted on Chico-12. PSE will continue to examine the effect of aggressive vegetation management on reliability relating to tree-related outages.

- **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 establish an operational outage management system (OMS) by April 1, 2013. The new OMS will enable PSE to more quickly pinpoint the sources of power outages, efficiently direct repair efforts and help the company more accurately predict restoration times during day-to-day operations.



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 (Not Applicable for 2012)*
- 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 Table 33 that provides monthly detail on the nine service quality indicators that are reported to the UTC.

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 33: Monthly SQI Performance

Category of Service	SQI #		Benchmark	Jan 2012	Feb 2012	Mar 2012	Apr 2012	May 2012	Jun 2012	Jul 2012	Aug 2012	Sep 2012	Oct 2012	Nov 2012	Dec 2012
Customer Satisfaction	6	Telephone Center Transactions Customer Satisfaction	90% satisfied (rating of 5 or higher on a 7-point scale)	92%	91%	94%	96%	95%	94%	96%	98%	95%	95%	96%	98%
	8	Field Service Operations Transactions Customer Satisfaction	90% satisfied (rating of 5 or higher on a 7-point scale)	99%	100%	98%	98%	99%	95%	97%	97%	98%	96%	99%	97%
	2	UTC Complaint Ratio	0.40 complaints per 1000 customers, including all complaints filed with UTC	0.019	0.028	0.018	0.026	0.029	0.028	0.020	0.017	0.015	0.018	0.014	0.011
Customer Services	5	Customer Access Center Answering Performance[Note 1]	75% of calls answered by a live representative within 30 seconds of request to speak with live operator	77%	60%	68%	75%	79%	77%	85%	87%	83%	82%	90%	87%
Operations Services	4	SAIFI	1.30 interruptions per year per customer	0.052	0.079	0.121	0.043	0.100	0.073	0.071	0.044	0.046	0.089	0.100	0.107
	3	SAIDI[Note 2]	320 minutes per customer per year	8	10	20	4	10	11	12	7	6	13	14	20
	11	Electric Safety Response Time	Average of 55 minutes from customer call to arrival of field technician	54	53	50	46	50	49	53	49	49	51	57	51
	7	Gas Safety Response Time	Average of 55 minutes from customer call to arrival of field technician	33	30	30	28	30	30	30	30	30	30	32	31
	10	Kept Appointments [Note 3]	92% of appointments kept	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	99%	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: The January 2012 monthly SAIDI minutes shown in the table excluded the 1,269 SAIDI minutes associated with the extraordinary January 2012 Storm Event per Order 20 in Docket Nos. UE-072300 and UG-072301 (consolidated) which authorized PSE to calculate the SQI No. 3 performance for the 2012 SQI reporting year and applicable years following without the 1,269 SAIDI minutes.

Note 3: 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 34: Monthly Service Quality Performance

Category of Service	Index	Service Provider	Benchmark Description	Jan 2012	Feb 2012	Mar 2012	Apr 2012	May 2012	Jun 2012	Jul 2012	Aug 2012	Sep 2012	Oct 2012	Nov 2012	Dec 2012
Customer Satisfaction	Service Provider Satisfaction	Quanta Electric	At least 75% satisfied (rating of 5 or higher on a 7-point scale)						80%						80%
		Quanta Gas	At least 84% satisfied (rating of 5 or higher on a 7-point scale)						79%						84%
Operations Services	Service Provider New Customer Construction Appointments Kept[Note]	Quanta Electric	At least 92% of appointments kept	100%	99%	99%	100%	99%	98%	98%	99%	99%	100%	100%	100%
		Quanta Gas	At least 98% of appointments kept	95%	99%	99%	99%	98%	99%	99%	99%	98%	98%	96%	91%
	Service Provider Standards Compliance	Quanta Electric	At least 95% compliance with site audit checklist points	99%	98%	97%	98%	98%	98%	97%	99%	99%	99%	98%	100%
		Quanta Gas	At least 95% compliance with site audit checklist points	96%	97%	98%	98%	97%	98%	98%	98%	98%	98%	99%	97%
	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	247	232	200	228	248	242	230	252	246	232	251	257
	Secondary Safety Response and Restoration Time-Non-Core Hour	Quanta Electric	Within 316 minutes from the dispatch time to the restoration of non-emergency outage during non-core hours	259	256	261	261	265	287	278	265	283	271	261	285
	Secondary Safety Response Time	Quanta Gas	Within 60 minutes from first response assessment completion to second response arrival	55	52	49	59	48	43	39	41	55	46	48	50

Note: 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).

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
1/17/2012	Wind	North	1	651	190,665	0.3%	31	14 (of 15)	No	14 EFRs Event Duty + 1 Regular Day Off + 10 SP Crews + 6 Tree Crews
1/17/2012	Wind	South	1	1,028	224,902	0.5%	25	9 (of 11)	No	9 EFRs Event Duty + 1 EFR Regular Day Off + 1 EFR Regular Duty + 16 SP Crews + 2 Tree crews
1/18/2012	Snow/Ice	North	11	22,159	190,665	11.6%	186	15 (of 15)	Yes	15 EFRs Event Duty
1/18/2012	Snow/Ice	Central North	11	180,766	320,890	56.3%	520	18 (of 18)	Yes	18 EFRs Event Duty
1/18/2012	Snow/Ice	Central South	11	217,600	214,958	101.2%	714	12 (of 12)	Yes	12 EFRs Event Duty
1/18/2012	Snow/Ice	South	11	307,156	224,902	136.6%	824	15 (of 15)	Yes	15 EFRs Event Duty
1/18/2012	Snow/Ice	West	11	36,009	140,376	25.7%	215	14 (of 14)	Yes	14 EFRs Event Duty
3/12/2012	Wind	North	2	2,704	190,850	1.4%	36	15 (of 15)	No	15 EFRs Event Duty + 9 SP Crews + 5 Tree Crews
3/12/2012	Wind	South	2	31,952	225,267	14.2%	74	9 (of 11)	No	9 EFRs Event Duty + 2 EFRs Regular Day Off + 10 SP Crews + 2 Tree Crews.
10/14/2012	Wind	North	1	7,508	191,185	3.9%	95	12 (of 14)	No	12 EFRs Event Duty + 2 EFRs Regular Day Off + 9 SP Crews + 2 Tree Crews.
12/16/2012	Wind	Central South	2	19,931	216,005	9.2%	78	12 (of 13)	No	12 EFRs Event Duty + 1 EFR Regular Day Off + 10 SP Crews + 5 Tree Crews.
12/16/2012	Wind	Central North	2	7,186	322,224	2.2%	48	16 (of 18)	No	13 EFRs Event Duty + 1 EFR Regular Day Off + 10 SP Crews + 5 Tree Crews.
12/16/2012	Wind	South	2	5,603	226,514	2.5%	48	8 (of 15)	No	8 EFRs Event Duty + 1 EFR Regular Day Off + 6 EFRs Regular Duty + 18 SP Crews + 3 Tree Crews.
12/19/2012	Wind	South	2	10,725	226,514	4.7%	38	9 (of 15)	No	9 EFRs Event Duty + 1 EFR Regular Day Off + 5 EFRs Regular Duty + 8 SP Crews + 2 Tree Crews.
12/19/2012	Wind	West	2	8,973	140,684	6.4%	91	14 (of 14)	No	14 EFRs Event Duty + 14 SP Crews + 8 Tree Crews.

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
1/17/2012	Wind	Central North	1	2,757	320,890	0.9%	23	18	No	
1/17/2012	Wind	Central South	1	3,713	214,958	1.7%	15	12	No	
1/17/2012	Wind	West	1	62	140,376	0.0%	7	15	No	
3/12/2012	Wind	Central North	2	2,763	320,975	0.9%	17	18	No	
3/12/2012	Wind	Central South	2	4,459	215,186	2.1%	24	12	No	
3/12/2012	Wind	West	2	1,935	140,335	1.4%	17	15	No	
10/14/2012	Wind	Central North	1	39	321,460	0.0%	6	18	No	
10/14/2012	Wind	Central South	1	1,258	226,195	0.6%	9	13	No	
10/14/2012	Wind	South	1	90	225,876	0.0%	10	15	No	
10/14/2012	Wind	West	1	84	140,467	0.1%	13	14	No	
12/16/2012	Wind	North	2	2,848	191,434	1.5%	27	14	No	
12/16/2012	Wind	West	2	7,104	140,684	5.0%	44	14	No	
12/19/2012	Wind	North	2	3,314	191,434	1.7%	36	14	No	
12/19/2012	Wind	Central North	2	179	322,224	0.1%	21	18	No	
12/19/2012	Wind	Central South	2	215	216,005	0.1%	13	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	1/6/2012	Seattle	13309 196 Ave	11:31	11:57	11:58	0:01
2	1/20/2012	Olympia	303 San Mar Dr. NE	23:20	0:18 (1/21)	6:12 (1/21)	5:06
3	1/20/2012	Seattle	1500 6th Ave S	13:22	13:34	13:34	0:00
4	1/22/2012	Sammamish	540 West Lake Sammamish PKWY	12:02	12:45	15:27	2:42
5	2/2/2012	Issaquah	1901 NW Sammamish RD	11:09	11:25	13:17	1:52
6	2/6/2012	Redmond	17906 NE 101st CT	20:26	20:48	20:48	0:00
7	2/6/2012	Lakewood	11215 98th Ave SW	19:04	19:49	22:00	2:11
8	3/18/2012	Seattle	1147 17th Ave E	16:18	16:27	16:42	0:15
9	3/25/2012	Tacoma	13219 12th Ave E	12:26	12:55	14:15	1:20
10	4/9/2012	Mill Creek	911 160th St SE	11:40	11:59	12:23	0:24
11	4/26/2012	Seattle	1264 Thomas St.	8:34	9:10	11:10	2:00
12	4/28/2012	Redmond	14802 NE 61st Way	20:35	20:55	21:48	0:53
13	5/9/2012	North Bend	42848 SE 172nd St	12:39	13:16	14:51	1:35
14	5/17/2012	Seattle	10160 Holman Dr. NW	10:02	10:16	10:25	0:09
16	5/18/2012	Issaquah	24655 SE 44th Street	20:14	20:34	20:35	0:01
17	5/27/2012	Seattle	2612 1st Ave N	10:32	11:05	11:10	0:05
18	6/27/2012	Des Moines	2641 S 227th PL	9:44	10:08	11:45	1:37
19	6/29/2012	Federal way	504 S Marine Hills Way	16:03	16:21	16:45	0:24
20	7/10/2012	Kent	827 W Valley HWY	10:24	10:32	11:05	0:33
21	7/11/2012	Renton	2008 NE 28th Pl	7:11	7:39	7:45	0:06
22	7/17/2012	Federal way	1426 S 324th St	16:06	16:23	16:48	0:25
23	7/19/2012	Auburn	506 L St SE	14:23	14:32	18:27	3:55
24	7/25/2012	Maple Valley	23900 SE Kent Kangley Rd	13:37	14:18	14:30	0:12
25	7/27/2012	Tukwila	4431 S 144th St	12:40	13:12	13:17	0:00
26	7/28/2012	Seattle	7900 Rainer Ave S	7:00	7:43	7:43	0:00
27	7/29/2012	Seattle	3301 8th Ave W	14:31	15:08	15:30	0:22
28	7/31/2012	Kent	7841 S 180th St	10:40	10:40	13:25	2:45
29	8/2/2012	Seattle	824 E Pike St	11:39	12:04	13:50	1:46
30	8/15/2012	Seattle	919 26th Ave E	10:07	11:01	12:52	1:51
31	8/19/2012	Kent	19914 SE 293rd Court	11:21	11:52	12:15	0:23
32	8/24/2012	Kirkland	12321 120th Pl NE	11:23	11:36	11:45	0:09
33	9/6/2012	Seattle	3718 NE 41st ST	9:18	9:30	10:01	0:31
34	9/14/2012	Seattle	3541 E Spruce St	15:22	15:32	15:38	0:06
35	9/17/2012	Bothell	12804 NE 20th PL	10:41	10:52	11:10	0:18

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
36	9/20/2012	Renton	251 SW 183rd St	19:49	20:23	20:23	0:00
37	9/21/2012	Tacoma	2508 N Junett St	9:41	10:02	10:08	0:06
38	10/26/2012	Covington	15809 SE 153rd PL	10:43	11:05	11:15	0:10
39	10/30/2012	Renton	17005 190th Ave SE	14:49	15:31	17:18	1:47
40	11/14/2012	Kirkland	221 19th PL	9:08	9:42	9:56	0:14
41	11/28/2012	Bonney lake	18320 State Route 410 E	16:45	17:32	18:05	0:33
						Average	**0:55**

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

THE GILMORE RESEARCH GROUP
SIXTY YEARS OF STRAIGHT ANSWERS

Puget Sound Energy
P.O. Box 97034
MS: EST-11W
Bellevue, WA. 98009-9734

December 28, 2012

Dear Mr. Robert Yetter,

This letter constitutes certification by The Gilmore Research Group that the attached report and the underlying surveys were conducted and prepared in accordance with the procedures established in Docket Nos. UE-011570 and UG-011571. These procedures, the data collection methods and the quality controls are consistent with industry practices and, we believe, ensure that the information produced in the surveys is unbiased and valid.

We would be glad to answer any questions or provide any additional information that you may need.

Sincerely,

Margie Cooper

The Gilmore Research Group

2101 4th Avenue 8th Floor
Seattle WA, 98121-2352
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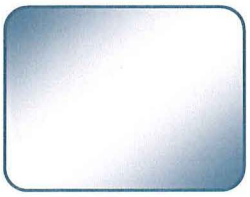
C
Penalty Calculation (Not Applicable for 2012)

This appendix is intentionally left blank since it is not applicable for the 2012 performance period.



D
Proposed Customer Notice (Report Card)

2012 Service Quality Report Card

2012 Service Quality Report Card

PSE.COM

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. Combined, these areas represent nine specific service-quality indexes. Based on customer surveys and other measurements, we match our performance against a set of benchmarks. (See chart.)

2012 Performance Highlights

In addition to meeting all nine of the service metrics, we are pleased to report improvements from the prior year in five of the measurements. The better scores included:

- faster restoration of non-major storm power outages
- fewer customer complaints registered with the state Utilities and Transportation Commission
- fewer non-major storm power outages
- more phone calls were answered live within 30 seconds or less
- greater satisfaction on how we responded and completed your field-service requests

Compared to a year ago, we maintained the same level of service in three areas and slipped by 1 minute in our 30-minute average response time to natural gas emergencies.

Through our two Service Guarantees, we commit to keeping scheduled appointments and to restoring power outages as soon as we can. If we don't keep an appointment or if electric service is out for 120 consecutive hours or longer, subject to certain conditions, we provide a $50 on a customer's bill.

In 2012, following mid-January's heavy snow, freezing rain and wind that caused extensive damage and prolonged power outages, we issued a $50 credit to more than 48,000 customers who were without electric service for five or more days. The series of storms was the most damaging weather event since the 2008 implementation of PSE's 120-consecutive-hour power outage service guarantee. The paid-out restoration service guarantee credit amounted to $2.4 million and was paid by PSE owners.

Also in 2012, we credited customers a total of $23,500 for missing 470 of our total 120,424 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.

PUGET SOUND ENERGY

PUGET SOUND ENERGY

2012 Service Quality Report Card

PSE.COM

Key Measurement	Benchmark	2012 Performance	Achieved
Customer Satisfaction			
Percent of customers satisfied with our Customer Access Center services, based on survey	At least 90 percent	95 percent	☑
Percent of customers satisfied with field services, based on survey	At least 90 percent	98 percent	☑
Number of complaints to the WUTC per 1,000 customers, per year	Less than 0.40	0.24	☑
Customer Services			
Percent of calls answered live within 30 seconds by our Customer Access Center	At least 75 percent	79 percent	☑
Operations Services			
Frequency of non-major-storm power outages, per year, per customer	Less than 1.30 outages	0.92 outages	☑
Length of power outages per year, per customer	Less than 5 hours, 20 minutes	4 hours, 5 minutes	☑
Time from customer call to arrival of field technicians in response to electric system emergencies	No more than 55 minutes	51 minutes	☑
Time from customer call to arrival of field technicians in response to natural gas emergencies	No more than 55 minutes	30 minutes	☑
Percent of service appointments kept	At least 92 percent	100 percent*	☑
* Represents rounding to nearest whole percentage			

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E
Disconnection Results

The following tables 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 35: Annual Disconnection Results from 2008 to 2012 per 1,000 Customers

2008	2009	2010	2011	2012
24	29	38	37	33

Table 36: Monthly Disconnection Results per 1,000 Customers for 2012

Month	Disconnections per 1000 Customers	Month	Disconnections per 1000 Customers
January	2	**July**	3
February	4	**August**	3
March	4	**September**	2
April	3	**October**	3
May	4	**November**	2
June	3	**December**	1

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

2012 SQI #10 and Customer Service Guarantee Payment Annual Summary											
	Total Appts (Exclude Canceled)	Missed Approved	Missed Open	Total Missed	Manual Kept	System Kept	Total Kept	Canceled	Excused	Customer Service Guarantee Payment	Percent Kept (Exclude Canceled) Note 1
Electric											
Permanent SVC	6,867	82	-	82	91	6,694	6,785	-	-	$4,100	99%
Reconnection	49,664	39	-	39	253	49,372	49,625	6,463	73 Note 2	$1,950	100%
Sub-total	**56,531**	**121**	**-**	**121**	**344**	**56,066**	**56,410**	**6,463**	**73**	**$6,050**	**100%**
Gas											
Diagnostic	28,140	55	-	55	363	27,722	28,085	2,595	-	$2,750	100%
Permanent SVC	9,265	266	-	266	287	8,712	8,999	-	-	$13,300	97%
Reconnection	26,488	28	-	28	50	26,410	26,460	1,225	-	$1,400	100%
Sub-total	**63,893**	**349**	**-**	**349**	**700**	**62,844**	**63,544**	**3,820**	**-**	**$17,450**	**99%**
Grand Total	***120,424***	***470***	***-***	***470***	***1,044***	***118,910***	***119,954***	***10,283***	***73***	***$23,500***	***100%***

Note 1: Results shown are rounded to the nearest whole percentage per UTC 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.

Note 2: The 73 missed but excused appointments were scheduled for during the January 2012 Snow Event that 5% or more of electric customers were experiencing an electric outage and subsequent days when the service to those customers was being restored. The missed appointment calculation excludes "excused" and "canceled" appointments per the SQI settlements. An excused appointment does not qualify for the $50 Customer Service Guarantee credit per electric and natural gas Schedules 130.

2012 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
Jan-12	Electric	Permanent SVC	350	1	0	1	13	336	349	0	0	$50
Jan-12	Electric	Reconnection	2,763	2	0	2	16	2,745	2,761	607	73Note	$100
Jan-12	Gas	Diagnostic	3,227	1	0	1	13	3,213	3,226	399	0	$50
Jan-12	Gas	Permanent SVC	517	12	0	12	21	484	505	0	0	$600
Jan-12	Gas	Reconnection	1,626	0	0	0	1	1,625	1,626	108	0	$0
Jan-12 Total			**8,483**	**16**	**0**	**16**	**64**	**8,403**	**8,467**	**1,114**	**73**	**$800**
Feb-12	Electric	Permanent SVC	556	6	0	6	20	530	550	0	0	$300
Feb-12	Electric	Reconnection	5,293	4	0	4	26	5,263	5,289	398	0	$200
Feb-12	Gas	Diagnostic	2,542	3	0	3	13	2,526	2,539	235	0	$150
Feb-12	Gas	Permanent SVC	659	11	0	11	35	613	648	0	0	$550
Feb-12	Gas	Reconnection	3,043	1	0	1	1	3,041	3,042	124	0	$50
Feb-12 Total			**12,093**	**25**	**0**	**25**	**95**	**11,973**	**12,068**	**757**	**0**	**$1,250**
Mar-12	Electric	Permanent SVC	457	13	0	13	4	440	444	0	0	$650
Mar-12	Electric	Reconnection	4,805	5	0	5	18	4,782	4,800	405	0	$250
Mar-12	Gas	Diagnostic	2,647	0	0	0	7	2,640	2,647	263	0	$0
Mar-12	Gas	Permanent SVC	635	32	0	32	28	575	603	0	0	$1,600
Mar-12	Gas	Reconnection	3,233	2	0	2	1	3,230	3,231	142	0	$100
Mar-12 Total			**11,777**	**52**	**0**	**52**	**58**	**11,667**	**11,725**	**810**	**0**	**$2,600**

Note: The 73 missed but excused appointments were scheduled for during the January 2012 Snow Event that 5% or more of electric customers were experiencing an electric outage and subsequent days when the service to those customers was being restored. The missed appointment calculation excludes "excused" and "canceled" appointments per the SQI settlements. An excused appointment does not qualify for the $50 Customer Service Guarantee credit per electric and natural gas Schedules 130.

2012 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-12	Electric	Permanent SVC	575	4	0	4	7	564	571	0	0	$200
Apr-12	Electric	Reconnection	4,143	0	0	0	30	4,113	4,143	692	0	$0
Apr-12	Gas	Diagnostic	1,849	0	0	0	8	1,841	1,849	195	0	$0
Apr-12	Gas	Permanent SVC	698	6	0	6	35	657	692	0	0	$300
Apr-12	Gas	Reconnection	2,431	1	0	1	0	2,430	2,430	115	0	$50
Apr-12 Total			**9,696**	**11**	**0**	**11**	**80**	**9,605**	**9,685**	**1,002**	**0**	**$550**
May-12	Electric	Permanent SVC	532	9	0	9	2	521	523	0	0	$450
May-12	Electric	Reconnection	4,823	9	0	9	11	4,803	4,814	813	0	$450
May-12	Gas	Diagnostic	1,470	0	0	0	13	1,457	1,470	122	0	$0
May-12	Gas	Permanent SVC	739	17	0	17	23	699	722	0	0	$850
May-12	Gas	Reconnection	2,334	2	0	2	4	2,328	2,332	104	0	$100
May-12 Total			**9,898**	**37**	**0**	**37**	**53**	**9,808**	**9,861**	**1,039**	**0**	**$1,850**
Jun-12	Electric	Permanent SVC	591	10	0	10	4	577	581	0	0	$500
Jun-12	Electric	Reconnection	4,378	6	0	6	10	4,362	4,372	648	0	$300
Jun-12	Gas	Diagnostic	1,315	2	0	2	11	1,302	1,313	126	0	$100
Jun-12	Gas	Permanent SVC	782	14	0	14	24	744	768	0	0	$700
Jun-12	Gas	Reconnection	2,422	1	0	1	0	2,421	2,421	120	0	$50
Jun-12 Total			**9,488**	**33**	**0**	**33**	**49**	**9,406**	**9,455**	**894**	**0**	**$1,650**

2012 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
Jul-12	Electric	Permanent SVC	642	12	0	12	10	620	630	0	0	$600
Jul-12	Electric	Reconnection	4,402	4	0	4	15	4,383	4,398	595	0	$200
Jul-12	Gas	Diagnostic	1,149	0	0	0	3	1,146	1,149	93	0	$0
Jul-12	Gas	Permanent SVC	826	24	0	24	10	792	802	0	0	$1,200
Jul-12	Gas	Reconnection	1,819	1	0	1	1	1,817	1,818	70	0	$50
Jul-12 Total			**8,838**	**41**	**0**	**41**	**39**	**8,758**	**8,797**	**758**	**0**	**$2,050**
Aug-12	Electric	Permanent SVC	720	6	0	6	6	708	714	0	0	$300
Aug-12	Electric	Reconnection	4,893	2	0	2	82	4,809	4,891	548	0	$100
Aug-12	Gas	Diagnostic	1,189	1	0	1	14	1,174	1,188	98	0	$50
Aug-12	Gas	Permanent SVC	866	8	0	8	26	832	858	0	0	$400
Aug-12	Gas	Reconnection	1,934	1	0	1	3	1,930	1,933	76	0	$50
Aug-12 Total			**9,602**	**18**	**0**	**18**	**131**	**9,453**	**9,584**	**722**	**0**	**$900**
Sep-12	Electric	Permanent SVC	603	2	0	2	7	594	601	0	0	$100
Sep-12	Electric	Reconnection	3,933	2	0	2	9	3,922	3,931	462	0	$100
Sep-12	Gas	Diagnostic	1,521	6	0	6	59	1,456	1,515	122	0	$300
Sep-12	Gas	Permanent SVC	879	24	0	24	23	832	855	0	0	$1,200
Sep-12	Gas	Reconnection	1,676	6	0	6	4	1,666	1,670	68	0	$300
Sep-12 Total			**8,612**	**40**	**0**	**40**	**102**	**8,470**	**8,572**	**652**	**0**	**$2,000**

2012 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-12	Electric	Permanent SVC	760	2	0	2	5	753	758	0	0	$100
Oct-12	Electric	Reconnection	4,797	3	0	3	5	4,789	4,794	564	0	$150
Oct-12	Gas	Diagnostic	4,207	29	0	29	105	4,073	4,178	342	0	$1,450
Oct-12	Gas	Permanent SVC	1,042	39	0	39	24	979	1,003	0	0	$1,950
Oct-12	Gas	Reconnection	2,639	8	0	8	14	2,617	2,631	127	0	$400
Oct-12 Total			**13,445**	**81**	**0**	**81**	**153**	**13,211**	**13,364**	**1,033**	**0**	**$4,050**
Nov-12	Electric	Permanent SVC	563	3	0	3	3	557	560	0	0	$150
Nov-12	Electric	Reconnection	2,975	1	0	1	22	2,952	2,974	386	0	$50
Nov-12	Gas	Diagnostic	3,613	12	0	12	71	3,530	3,601	314	0	$600
Nov-12	Gas	Permanent SVC	852	38	0	38	20	794	814	0	0	$1,900
Nov-12	Gas	Reconnection	1,907	4	0	4	13	1,890	1,903	101	0	$200
Nov-12 Total			**9,910**	**58**	**0**	**58**	**129**	**9,723**	**9,852**	**801**	**0**	**$2,900**
Dec-12	Electric	Permanent SVC	518	14	0	14	10	494	504	0	0	$700
Dec-12	Electric	Reconnection	2,459	1	0	1	9	2,449	2,458	345	0	$50
Dec-12	Gas	Diagnostic	3,411	1	0	1	46	3,364	3,410	286	0	$50
Dec-12	Gas	Permanent SVC	770	41	0	41	18	711	729	0	0	$2,050
Dec-12	Gas	Reconnection	1,424	1	0	1	8	1,415	1,423	70	0	$50
Dec-12 Total			**8,582**	**58**	**0**	**58**	**91**	**8,433**	**8,524**	**701**	**0**	**$2,900**
Grand Total			***120,424***	***470***	**-**	***470***	***1,044***	***118,910***	***119,954***	***10,283***	***73***	***$23,500***

G
Customer Awareness of Customer Service Guarantee

PSE undertook the following actions in 2012 to promote customer awareness of its Customer Service Guarantee program (the Guarantee).

1. Articles that publicized the Guarantee were included in 2012 in the following two issues of the "Energywise" customer newsletter: January–February and May–June[28].
2. The text of the Guarantee appeared on the back of the bill-stock throughout 2012.
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 2012. Both natural gas and electric brochures are also posted on PSE.com.
4. 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.
   - Throughout 2012, the Customer Service Guarantee information had been publicized every month in the weekly customer services newsletter as a reminder of the importance of providing Service Guarantee information to customers when applicable. The weekly customer services newsletter is distributed to all customer services personnel and many other PSE employees in various departments.
   - 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.

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

5. 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 as assessed using two separate Gilmore Research Group's surveys are presented in the following table.

Table 37: Customer Awareness of Customer Service Guarantee

		Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12
CFS Survey													
Q26A. When you called to make the appointment for a service technician to come out, did the customer service representative tell you about PSE $50 Service Guarantee?	Yes	49	52	46	54	32	54	55	42	58	59	58	54
	No	114	122	119	108	136	106	108	122	117	109	119	114
	Don't Know	37	26	37	39	32	40	37	36	23	32	23	32
	Refused Response	-	-	-	-	-	-			2			
	Total Customers Surveyed	**200**	**200**	**202**	**201**	**200**	**200**	**200**	**200**	**200**	**200**	**200**	**200**
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.	You are given the $50 service guarantee if the rescheduled time causes you inconvenience.	10	14	8	15	3	9	15	16	13	13	10	132
	Whenever PSE changes an appointment, you are given the $50.	35	31	30	42	19	36	33	23	32	34	45	31
	You have no understanding or expectations about this part of the service guarantee plan.	141	144	155	141	171	147	144	153	137	140	136	16
	Don't Know	13	11	9	3	7	8	7	7	16	13	9	18
	Refused Response	1	-	-	-	-	-	1	1	2			3
	Total Customers Surveyed	**200**	**200**	**202**	**201**	**200**	**200**	**200**	**200**	**200**	**200**	**200**	**200**
Q26D. Did your appointment have to be rescheduled or did it occur as planned?	It occurred as planned.	194	197	196	193	193	190	189	191	191	199	194	190
	It was rescheduled.	4	1	5	5	5	8	9	5	5	1	6	8
	Technician arrived but was late.	-	-	-	1	1	-	-	-	1	-		-
	Don't Know	1	2	1	2	2	2	1	2	2	1		2
	Refused Response	1	-	-	-	-	-	1	2	1	-		
	Total Customers Surveyed	**200**	**200**	**202**	**201**	**201**	**200**	**200**	**200**	**200**	**201**	**200**	**200**

Table 37, continued

		Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12
CFS Survey													
Q26E. Who initiated rescheduling your appointment?	Myself (Customer Initiated)	3	1	3	4	4	6	4	4	5	1	1	4
	Puget Sound Energy (PSE) Initiated	1	-	2	1	1	2	4	1	-		5	3
	Don't Know	-	-	-	-	-	-	1	-	-			1
	Refused Response	-	-	-	-	-	-						
	Total Customers Surveyed	**4**	**1**	**5**	**5**	**5**	**8**	**9**	**5**	**5**	**1**	**6**	**8**
NCC Survey													
Q11. Are you aware of Puget Sound Energy's $50 service guarantee to meet scheduled work dates?	Yes						79						75
	No						232						196
	Refused Response						-						
	Don't Know						4						
	Total Customers Surveyed	**-**	**-**	**-**	**-**	**-**	**315**	**-**	**-**	**-**	**-**	**-**	**271**

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 distribution 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 percent 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.

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 ($SAIDI_{Total\ 5\text{-}year\ Average}$), 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:

$$SAIDI_{Total} = \frac{\sum \textit{All customer interruption minutes}}{\textit{Average annual electric customer count}}$$

$SAIDI_{Total\ 5\text{-}year\ Average}$ = 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 $SAIDI_{Total\ 5\text{-}year\ Average}$

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

$$SAIDI_{IEEE} = \frac{\sum \textit{Customer interruption minutes during non-IEEE-1366-}T_{MED}\textit{-Exclusion-Major-Event Days}}{\textit{Average annual electric customer count}}$$

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 ($SAIFI_{Total\ 5\text{-}year\ Average}$), 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:

$$\mathbf{SAIFI_{Total}} = \frac{\textit{Total number of customers that experienced Sustained Interruptions}}{\textit{Average annual electric customer count}}$$

$\mathbf{SAIFI_{Total\ 5\text{-}year\ Average}}$ = 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 $SAIFI_{Total\ 5\text{-}year\ Average}$

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

$$\mathbf{SAIFI_{IEEE}} = \frac{\textit{Number of customers that experienced Sustained Interruptions during non-IEEE-1366-}T_{MED}\textit{-Exclusion-Major-Event-Days}}{\textit{Average annual electric customer count}}$$

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.

$\mathbf{T_{MED}}$—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.

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

Methods for Identifying when a Sustained Interruption Begins

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

- A customer call to PSE's Customer Access Center, either through the automated voice response unit or talking with a customer representative.
- A customer call to a PSE employee other than through the Customer Access Center.
- 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.
- If, during restoration activities, service technicians need to create a larger outage, those customers affected by that larger outage may not 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 the problem causing the outage has been resolved.

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.

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.[29]

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.

[29] 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 2012, PSE designates the Areas of Greatest Concern as the 50 worst-performing circuits[30] 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

[30] This is a change from the previous definition of Areas of Concern, which considered 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 2012 Outage Cause by County. The 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 38: Color Code Legend

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

Table 39: Total Outages by Cause

	Northern			King/Kittitas		Southern/Western				
	Whatcom	Skagit	Island	King	Kittitas	Pierce	Thurston	Kitsap	Jefferson	Total
AO	20	22	7	98	8	27	44	25	7	258
BA	150	82	32	609	35	108	189	195	20	1,420
CP	14	24	4	65	1	31	26	35	5	205
CR	2	1	0	6	0	0	0	1	1	11
DU	15	9	2	65	3	10	22	20	3	149
EF	484	353	254	2,124	132	428	646	494	94	5,009
EO	2	3		18	1	1	7	8	0	40
EQ	0	0	0	0	0	0	0	0	0	0
FI	0	0	0	4	1	2	1	0	1	9
LI	12	22	16	16	8	20	14	14	4	126
SO	168	117	35	737	3	144	96	252	33	1,585
TF	5	7	8	41	2	8	19	17	4	111
TO	4	1	2	39	0	2	6	8	1	63
TV	207	227	199	2,129	24	432	853	615	126	4,812
UN	12	12	7	27	0	10	16	20	7	111
VA	2	0	0	4	0	5	2	1	1	15
Misc*	36	16	13	184	10	40	53	24	3	379
Total	1,133	896	579	6,166	228	1,268	1,994	1,729	310	14,303

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

Table 40: 5% Exclusion Outages by Cause (Non-major-storm)

	Northern			King/Kittitas		Southern/Western				
	Whatcom	Skagit	Island	King	Kittitas	Pierce	Thurston	Kitsap	Jefferson	Total
AO	20	22	7	98	8	27	44	25	7	258
BA	150	80	32	609	35	107	189	195	20	1,417
CP	14	24	4	64	1	28	23	34	4	196
CR	2	1	0	5	0	0	0	1	1	10
DU	15	9	2	64	3	10	22	19	3	147
EF	462	335	239	2,061	129	418	639	484	91	4,858
EO	2	3	0	16	1	1	7	7	0	37
EQ	0	0	0	0	0	0	0	0	0	0
FI	0	0	0	4	1	1	1	0	1	8
LI	12	22	16	16	8	20	14	14	4	126
SO	168	117	35	735	3	144	96	252	33	1,583
TF	4	6	8	41	2	8	19	17	4	109
TO	4	1	2	39	0	2	6	8	1	63
TV	164	190	152	916	22	128	362	497	112	2,543
UN	12	12	7	27	0	9	16	20	7	110
VA	2	0	0	4	0	5	2	1	1	15
Misc*	36	16	13	172	10	38	52	24	3	364
Total	1,067	838	517	4,871	223	946	1,492	1,598	292	11,844

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

K
Historical SAIDI and SAIFI by Area

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

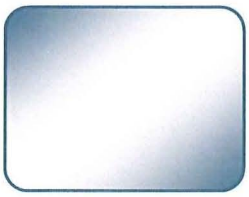
Table 41: SAIDI and SAIFI Data for the Past Three Years by County[Note]

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	**2012**	**0.62**	**0.82**	**0.56**	**0.55**	**113**	**149**	**106**	**101**
	2011	0.92	0.99	0.92	0.91	158	203	157	157
	2010	0.75	0.91	0.62	0.66	121	185	89	94
Skagit	**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
	2010	1.03	1.18	0.79	0.84	266	251	158	177
Island	**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
	2010	1.69	2	0.48	0.63	589	493	50	100
King/Kittitas									
King	**2012**	**1.50**	**0.91**	**0.73**	**0.65**	**1,433**	**169**	**99**	**86**
	2011	0.79	0.97	0.76	0.76	118	184	113	114
	2010	1.26	1.01	0.69	0.72	315	191	97	92
Kittitas	**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
	2010	1.65	1.24	1.58	1.6	221	235	188	208

Note: Reported figures are based on most current SAP outage data, as of January 2013.

Table 41 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	**2012**	**2.36**	**1.06**	**0.88**	**0.76**	**3,280**	**206**	**115**	**94**
	2011	0.79	1.03	0.79	0.79	80	174	80	80
	2010	1.56	1.09	0.62	0.71	381	186	70	71
Thurston	**2012**	**2.72**	**1.52**	**1.46**	**1.09**	**2,959**	**337**	**194**	**134**
	2011	1.08	1.55	1.08	1.08	139	384	139	139
	2010	2.08	1.63	0.92	0.98	794	412	156	171
Kitsap	**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
	2010	3.45	2.6	1.97	1.63	1696	701	321	245
Jefferson	**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
	2010	2.59	1.98	1.64	1.85	466	430	219	242



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.

1997-2012 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_{MED}	(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

Figure 8: 1997–2012 SAIFI Performance by Different Measurements

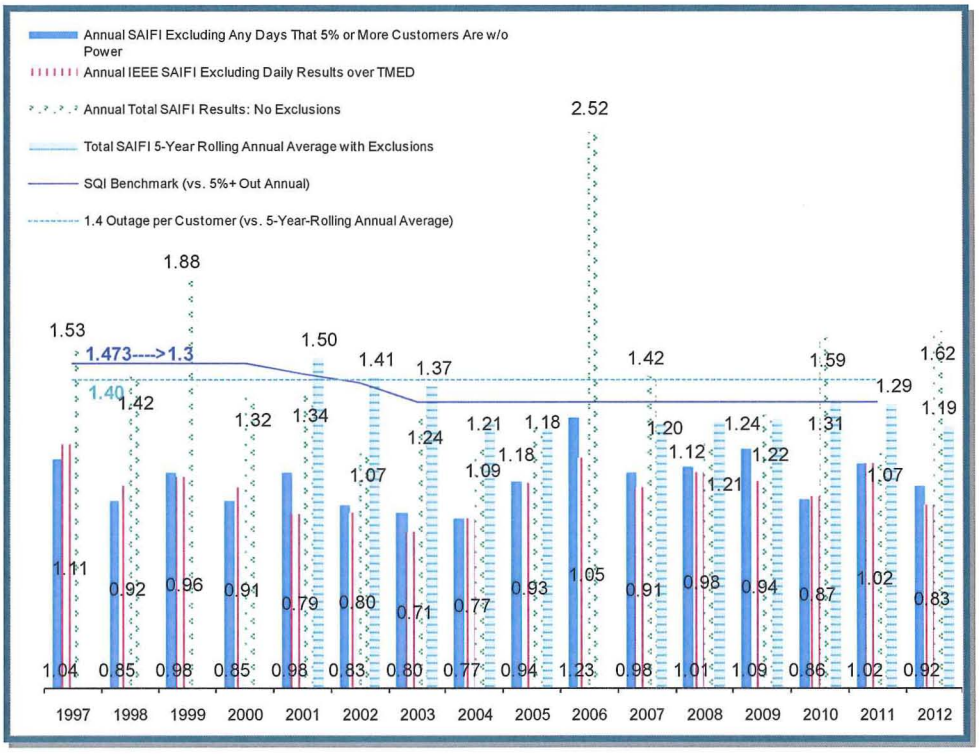


Figure 9: 1997–2012 SAIFI Performance by Different Measurements

1997-2012 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_{MED}	(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	281
2012	134	120	1,400	134	245

Figure 10: 1997–2012 SAIDI Performance by Different Measurements

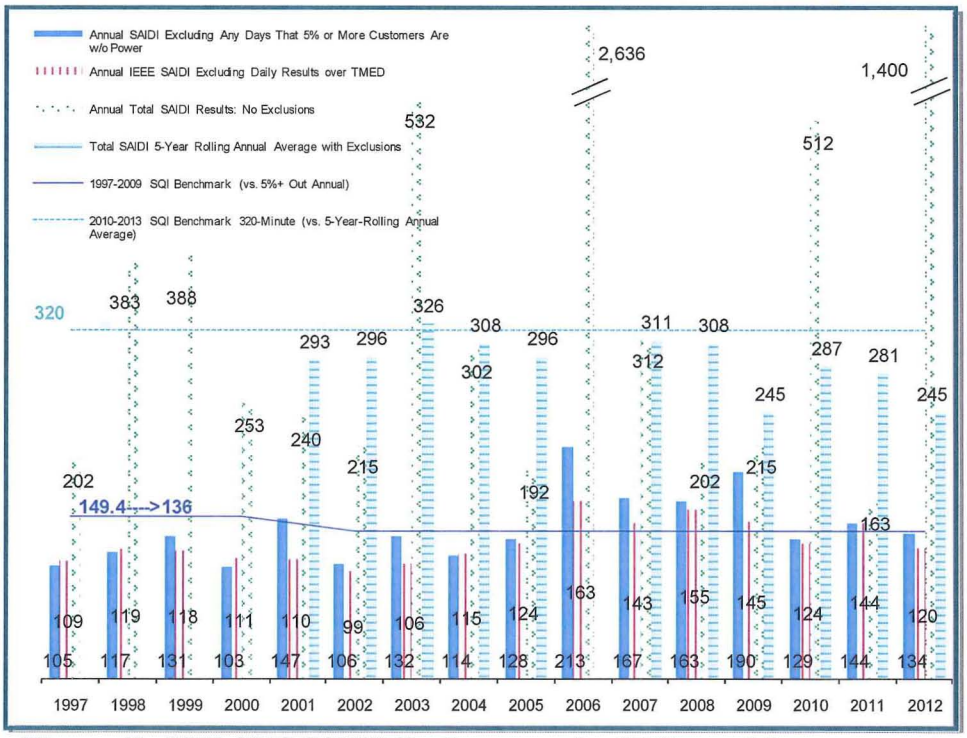


Figure 11: 1997–2012 SAIDI Performance by Different Measurements

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.

Table 42: Current Year Commission Complaints

No.	Complaint Type	Date of Complaint	Location	Closing Date
1	Reliability	1/27/2012	Algona	2/23/2012
2	Reliability	1/27/2012	Olympia	2/23/2012
3	Reliability	1/30/2012	Tenino	2/2/2012
4	Reliability	2/9/2012	Enumclaw	3/7/2012
5	Reliability	3/12/2012	Lacey	3/21/2012
6	Reliability	4/16/2012	Yelm	4/24/2012
7	Reliability	6/5/2012	Olympia	6/27/2012
8	Reliability	7/24/2012	Olympia	8/22/2012
9	Reliability	9/4/2012	Olympia	9/10/2012
10	Reliability Power Quality	6/14/2012	Woodinville	6/22/2012
11	Power Quality	1/31/2012	Bonney Lake	2/9/2012
12	Power Quality	6/11/2012	Olympia	6/28/2012

Table 43: 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	Jefferson	Dec 2011 Dec 2011	Sequim	Reliability Power Quality	Discovery Bay-13	Reported on 2011 report, no new inquiries in 2012	A system project with estimated completion in 2013 will provide additional reliability improvement. Ongoing circuit monitoring and maintenance will continue.
2	King	Nov 2011 Nov 2011	Issaquah	Reliability Power Quality	Goodes Corner-16	Reported on 2011 report, no new inquiries in 2012	Ongoing circuit monitoring and maintenance will continue.
3	King	Oct 2011 Nov 2011	Enumclaw	Reliability	Greenwater-16	Reported on 2011 report, no new inquiries in 2012	Ongoing circuit monitoring and maintenance will continue.
4	King	Apr 2011 Apr 2011	Woodinville	Reliability	Hollywood-23	Reported on 2011 report, no new inquiries in 2012	A system project completed in the fall of 2012 will improve reliability. Ongoing circuit monitoring and maintenance will continue.
5	King	Nov 2011 Nov 2012	Kirkland	Reliability	Inglewood-16	Contacted customer to discuss concerns.	Ongoing circuit monitoring and maintenance will continue.
6	King	Oct 2012 Oct 2012	Auburn	Reliability	Lea Hill-17	Contacted customer to discuss concerns.	A system project with estimated completion in 2013 will provide additional reliability improvement. Ongoing circuit monitoring and maintenance will continue.
7	King	Jan 2012 Jan 2012	Renton	Reliability	Lake Youngs-12	Contacted customer to discuss concerns.	A system project with estimated completion in 2013 will provide additional reliability improvement. Ongoing circuit monitoring and maintenance will continue.

No.	County	Date of Complaint	Location	Complaint Type	Circuit	Response	Action by PSE
8	King	Jun 2012 Sept 2012 Aug 2012	Mercer Island	Power Quality Reliability	Mercerwood-13	Contacted customer to discuss concerns.	A system project with estimated completion in 2013 will provide additional reliability improvement. Ongoing circuit monitoring and maintenance will continue.
9	King	Feb 2011 Mar 2011 Dec 2011 Dec 2011	Grotto	Power Quality Reliability	Skykomish-25	Reported on 2011 report, no new inquiries in 2012	A system project with estimated completion in 2014 will provide additional reliability improvement. Ongoing circuit monitoring and maintenance will continue.
10	King	Aug 2011 Feb 2012	Redmond	Reliability	Spiritbrook-15	Contacted customer to discuss concerns.	Removal of problem trees will provide additional reliability improvement. Ongoing circuit monitoring and maintenance will continue.
11	King	Feb 2012 Oct 2012	Redmond	Reliability Power Quality	Spiritbrook-15	Contacted customer to discuss concerns.	Ongoing circuit monitoring and maintenance will continue.
12	King	Jun 2011 Jan 2012	Carnation	Reliability	Tolt-15	Contacted customer to discuss concerns.	Ongoing circuit monitoring and maintenance will continue.
13	King	Sep 2011 Jun 2012	Kirkland	Power Quality Reliability	Totem-23	Contacted customer to discuss concerns.	Ongoing circuit monitoring and maintenance will continue.
14	King	Sep 2011 Oct 2011	Vashon	Reliability	Vashon-13	Reported on 2011 report, no new inquiries in 2012	A system project with estimated completion in 2013 will provide additional reliability improvement. Ongoing circuit monitoring and maintenance will continue.
15	King	Sep 2011 Oct 2011 Jan 2012	Issaquah	Power Quality Reliability	West Issaquah-15	Contacted customer to discuss concerns.	Ongoing circuit monitoring and maintenance will continue.

No.	County	Date of Complaint	Location	Complaint Type	Circuit	Response	Action by PSE
16	Kitsap	Jan 2011 Jan 2011	Seabeck	Power Quality Reliability	Chico-12	Reported on 2011 report, no new inquiries in 2012	A series of system projects that begin in 2013 will provide additional reliability improvement. Ongoing circuit monitoring and maintenance will continue.
17	Kitsap	Feb 2011 Feb 2011	Port Orchard	Reliability	East Port Orchard-15	Reported on 2011 report, no new inquiries in 2012	Ongoing circuit monitoring and maintenance will continue.
18	Kitsap	Mar 2011 Oct 2012	Port Orchard	Reliability	Long Lake-21	Contacted customer to discuss concerns.	Ongoing circuit monitoring and maintenance will continue
19	Kitsap	Apr 2011 Oct 2011	Bainbridge Island	Reliability	Winslow-15	Reported on 2011 report, no new inquiries in 2012	System projects with estimated completion in 2014 will provide additional reliability improvements. Ongoing circuit monitoring and maintenance will continue.
20	Kittitas	Aug 2012 Sep 2012	Cle Elum	Reliability	Cle Elum-13	Contacted customer to discuss concerns.	Ongoing circuit monitoring and maintenance will continue.
21	Skagit	Dec 2011 Feb 2012	Mount Vernon	Reliability	Big Rock-12	Contacted customer to discuss concerns.	Ongoing circuit monitoring and maintenance will continue.
22	Thurston	Aug 2012 Oct 2012	Olympia	Reliability	Griffin-16	Contacted customer to discuss concerns.	A system project was completed in 2012 will provide additional reliability improvement. Ongoing circuit monitoring and maintenance will continue.
23	Thurston	Mar 2011 Sep 2011	Yelm	Reliability	Longmire-17	Reported on 2011 report, no new inquiries in 2012	A system project was completed in 2012 will provide additional reliability improvement. Ongoing circuit monitoring and maintenance will continue.

No.	County	Date of Complaint	Location	Complaint Type	Circuit	Response	Action by PSE
24	Thurston	Jan 2012 Mar 2012	Yelm	Reliability	Longmire-23	Contacted customer to discuss concerns.	Ongoing circuit monitoring and maintenance will continue.
25	Thurston	May 2011 Mar 2012	Olympia	Power Quality Reliability	Pleasant Glade-17	Contacted customer to discuss concerns.	Ongoing circuit monitoring and maintenance will continue.
26	Thurston	Aug 2011 Aug 2011 Oct 2012	Roy	Reliability	Yelm-27	Contacted customer to discuss concerns.	Ongoing circuit monitoring and maintenance will continue.
27	Whatcom	Oct 2011 Jul 2012	Bellingham	Reliability	Lake Louise-15	Contacted customer to discuss concerns.	A system project with estimated completion in 2014 will provide additional reliability improvement. Ongoing circuit monitoring and maintenance will continue.

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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 44: 50 Worst-Performing Circuits

Circuit	County	2012 5 Year Avg Rank	2012 Average Total CMI	2011 5 Year Avg Rank	2011 Average Total CMI	Action by PSE
Chico-12	Kitsap	1	4,205,867	1	4,116,330	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	3,568,276	17	1,204,833	Future plans for Lake Holm substation and overhead conversion will improve reliability. Substation construction dependent on area growth.
Vashon-13	King	3	2,471,303	2	1,985,662	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. An underground conversion project is planned in 2013.
Prine-13	Thurston	4	4,122,829	12	2,221,869	Installed two reclosers and switches in 2010. Planning is currently reviewing and identifying potential reliability improvements project
Vashon-12	King	5	2,496,729	24	1,620,192	Installed recloser in 2009. Completed a cable remediation project in 2010. Installed three gang operated switches in 2011. Underground conversion and tree wire projects planned for 2013.
Silverdale-15	Kitsap	6	1,833,947	4	1,827,586	Completed a cable remediation project in 2009 and installed three reclosers in 2011. Reconductor of overhead line to tree wire is planned for 2013.
Cottage Brook-13	King	7	2,138,810	23	1,035,372	Completed an underground conversion project and installed a recloser in 2011. Planning is currently reviewing and identifying potential reliability improvements projects.

Circuit	County	2012 5 Year Avg Rank	2012 Average Total CMI	2011 5 Year Avg Rank	2011 Average Total CMI	Action by PSE
Baker River Switch-24	Skagit	8	3,186,741	5	3,148,193	Completed an underground conversion project in 2009. Installed recloser in 2011 and three switches in 2010. Two underground conversion projects are expected to be completed by 2014.
Blumaer-17	Thurston	9	1,876,829	Not on 2011 Top 50 List		Reconductor of overhead line to tree wire and reconfigured circuit completed in 2012.
Orting-22	Pierce	10	3,533,319	Not on 2011 Top 50 List		Reconductor of overhead line to tree wire completed in 2010 and 2012. Completed a feeder tie in 2010. A system improvement project planned for 2014.
Patterson-15	Thurston	11	2,018,378	Not on 2011 Top 50 List		Reconductor of overhead line to tree wire completed in 2011.
Longmire-17	Thurston	12	1,231,074	18	781,089	Longmire-22 and Longmire-17 were reconfigured in 2009 to better segregate customers. Reconductor of overhead line to tree wire and underground conversion project were completed in 2012.
Hobart-16	King	13	2,341,989	42	785,985	A feeder tie and cable remediation project was completed in 2009. An underground conversion project and cable remediation project is planned for 2013.
Vashon-23	King	14	1,495,797	25	1,018,072	Installed recloser in 2010. Two tree wire project and underground conversion project are planned for 2013.
Nugents Corner-26	Whatcom	15	1,114,001	6	1,209,932	Installed two reclosers in 2009 and 2011. Planning is currently reviewing and identifying potential reliability improvements projects
Southwick-15	Thurston	16	2,702,590	Not on 2011 Top 50 List		Planning is currently reviewing and identifying potential reliability improvements projects.
Griffin-16	Thurston	17	912,281	14	855,143	A cable remediation project was completed in 2010.

Circuit	County	2012 5 Year Avg Rank	2012 Average Total CMI	2011 5 Year Avg Rank	2011 Average Total CMI	Action by PSE
						Reconductor portions of overhead line to tree wire and completed underground conversion project completed in 2012.
Griffin-13	Thurston	18	1,188,716	43	572,984	Reconductor of overhead line to tree wire completed in 2012.
Miller Bay-17	Kitsap	19	1,871,748	3	2,208,577	Completed recloser project in 2010. Reconductor project completed in 2011. A new feeder tie is planned for 2013.
Winslow-15	Kitsap	20	1,231,197	16	1,235,009	Completed an underground conversion project in 2007. Installed a recloser in 2010. An underground conversion project and reconductor of overhead feeder to tree wire are planned to be completed 2013.
Miller Bay-23	Kitsap	21	1,638,273	Not on 2011 Top 50 List		Reconductor of overhead line to tree wire completed in 2012. Reconductor of another portion of line to tree wire planned for 2013.
Kendall-12	Whatcom	22	1,115,322	22	948,940	Reconductor of overhead line to tree wire completed in 2012
Fragaria-13	Kitsap	23	1,318,334	11	1,379,952	Completed two recloser projects in 2011. Reconductor of overhead line to tree wire completed in 2012. A system improvement project is planned for 2013.
Fernwood-17	Kitsap	24	1,121,199	10	1,352,091	Reconductor of overhead line to tree wire completed in 2009. Reconductor another portion of overhead line to tree wire and installation of recloser is planned for 2013.

Circuit	County	2012 5 Year Avg Rank	2012 Average Total CMI	2011 5 Year Avg Rank	2011 Average Total CMI	Action by PSE
Big Rock-15	Skagit	25	1,005,866	19	1,020,055	Completed a pole replacement project in 2009. Installation of a recloser scheduled for 2013.
Port Gamble-13	Kitsap	26	970,102	13	1,368,480	Reliability was significantly improved with the addition of Kingston substation. Installed a gang operated switch in 2011. Reconductor of overhead feeder to tree wire is planned for 2013.
Blumaer-16	Thurston	27	1,683,222	44	983,762	Planning is currently reviewing and identifying potential reliability improvements projects.
Greenwater-16	King	28	1,685,392	35	1,452,079	Rebuilt substation in 2010. Planning is currently reviewing and identifying potential reliability improvements projects
Winslow-12	Kitsap	29	1,396,351	9	1,491,315	Cable remediation project completed in 2010. Reconductor of overhead line to tree wire and underground conversion project completed in 2012.
Kingston-24	Kitsap	30	864,656	Not on 2011 Top 50 List		A system improvement project planned for 2013.
Chambers-13	Thurston	31	1,029,690	Not on 2011 Top 50 List		Completed recloser projects in 2012.
Silverdale-13	Kitsap	32	824,726	21	899,534	Installed regulator in 2008. Completed two cable remediation projects in 2009. Completed an overhead line project in 2012.
Hobart-15	King	33	1,955,658	Not on 2011 Top 50 List		Completed one feeder tie in 2011 and another planned for 2013.
Lake Wilderness-14	King	34	1,064,828	27	1,092,299	Future plans for Jenkins substation will improve reliability. Substation construction dependent on area growth.

Circuit	County	2012 5 Year Avg Rank	2012 Average Total CMI	2011 5 Year Avg Rank	2011 Average Total CMI	Action by PSE
Airport-23	Thurston	35	1,393,619	39	1,045,459	Reconductor of overhead line to tree wire completed in 2010. Distribution system will be re-configured when Spurgeon substation is energized in 2014.
Lake Meridian-15	King	36	2,145,672	Not on 2011 Top 50 List		Planning is currently reviewing and identifying potential reliability improvements projects.
Lea Hill-17	King	37	2,259,165	Not on 2011 Top 50 List		Underground conversion project planned for 2013.
Hickox-16	Skagit	38	691,214	38	619,372	Wildlife diversion and pole replacement projects completed in 2007. Recloser project completed in 2011. Reconductor of overhead line to tree wire planned for 2013.
Port Madison-12	Kitsap	39	1,440,659	8	1,520,733	Installed recloser and two gang operated switches in 2011. Planning is currently reviewing and identifying potential reliability improvements projects
Mckinley-17	Thurston	40	2,082,190	Not on 2011 Top 50 List		Planning is currently reviewing and identifying potential reliability improvements projects.
Tolt-15	King	41	771,554	34	762,515	Underground conversion project completed in 2009. Reconductor of overhead line completed in 2010.
Fragaria-16	Kitsap	42	1,025,393	20	1,181,618	Reconductor of overhead line to tree wire is planned for 2013.
Eld Inlet-25	Thurston	43	1,627,289	Not on 2011 Top 50 List		Completed a feeder project in 2010 and reconductored overhead line to tree wire with a recloser in 2011.
Wayne-15	King	44	689,296	32	690,094	Wayne-15 and Inglewood-17 were reconfigured to better segregate customers.
Fall City-15	King	45	751,839	Not on 2011 Top 50 List		Installed a gang operated switch in 2011. Underground conversion project planned for 2013.
Chambers-15	Thurston	46	1,970,229	Not on 2011 Top 50 List		Reconductor of overhead line to tree wire completed

Circuit	County	2012 5 Year Avg Rank	2012 Average Total CMI	2011 5 Year Avg Rank	2011 Average Total CMI	Action by PSE
						in 2011 and 2012. Completed feeder tie project in 2012.
Black Diamond-13	King	47	2,770,184	Not on 2011 Top 50 List		Future plans for Lake Holm substation and overhead conversion will improve reliability. Substation construction dependent on area growth.
Long Lake-23	Kitsap	48	976,443	31	1,017,028	Installed two reclosers in 2012.
Winslow-13	Kitsap	49	1,454,514	7	1,552,808	Reconductor of overhead line to tree wire is planned for 2013.
Orchard-13	King	50	2,524,639	Not on 2011 Top 50 List		Planning is currently reviewing and identifying potential reliability improvements projects.
Manchester-15	Kitsap	Not on 2012 Top 50 List		15	1,395,054	Reconductor of overhead line to tree wire is planned for 2013.
Happy Valley-16	Whatcom	Not on 2012 Top 50 List		26	819,664	Installed two gang operated switches in 2011. Installation of a recloser planned for 2013. Reconductor of overhead line to tree wire planned for 2013.
Rainier View-13	Thurston	Not on 2012 Top 50 List		28	860,029	Installed a recloser in 2010. Planning is currently reviewing and identifying potential reliability improvements projects.
Sinclair Inlet-25	Kitsap	Not on 2012 Top 50 List		29	731,410	A feeder tie project is planned for 2013.
Port Gamble-12	Kitsap	Not on 2012 Top 50 List		30	896,729	Two recloser projects were completed in 2008. Installed two regulator banks in 2011.
Hamilton-15	Skagit	Not on 2012 Top 50 List		33	1,090,630	Completed one recloser project in 2010. Feeder tie project is planned for 2013.

Circuit	County	2012 5 Year Avg Rank	2012 Average Total CMI	2011 5 Year Avg Rank	2011 Average Total CMI	Action by PSE
Fernwood-16	Kitsap	Not on 2012 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 2012 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 2012 Top 50 List		40	698,294	Replaced a recloser in 2012.
Slater-16	Whatcom	Not on 2012 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 2012 Top 50 List		45	931,260	Installed spacers on feeder out of substation in 2011.
Skykomish-25	King	Not on 2012 Top 50 List		46	865,826	Planning is currently reviewing and identifying potential reliability improvements projects.
Snoqualmie-13	King	Not on 2012 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.
Silverdale-16	Kitsap	Not on 2012 Top 50 List		48	707,794	Planning is currently reviewing and identifying potential reliability improvements projects.
Long Lake-21	Kitsap	Not on 2012 Top 50 List		49	629,812	A tree wire project is planned for 2013.
Port Ludlow-16	Jefferson	Not on 2012 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.

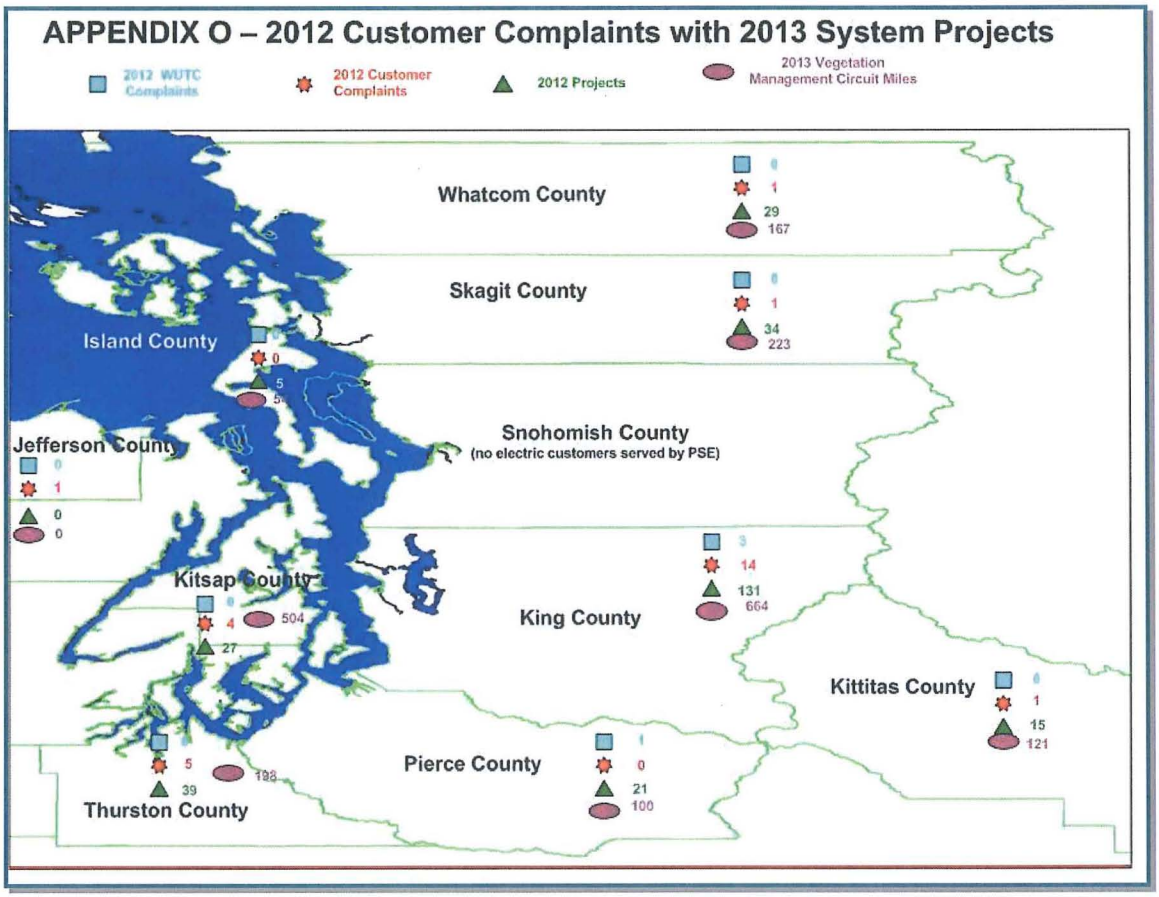

Figure 12: 2012 Customer Complaints with 2013 System Projects