

**EXHIBIT NO. ____ (JOINT-1T)
PSE SQI SAIDI MECHANISM**

**BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION**

WASHINGTON UTILITIES AND)	DOCKETS UE-072300
TRANSPORTATION COMMISSION,)	and UG-072301 (<i>consolidated</i>)
)	
Complainant,)	
)	MULTIPARTY SETTLEMENT
v.)	STIPULATION ADDRESSING
)	PUGET SOUND ENERGY'S
PUGET SOUND ENERGY,)	PETITION FOR MODIFICATION
)	OF SQI SAIDI MECHANICS
Respondent.)	
.....)	

JOINT TESTIMONY OF:

KATHERINE J. BARNARD

DEBORAH J. REYNOLDS

IN SUPPORT OF SETTLEMENT STIPULATION

MAY 31, 2016

1 **I. INTRODUCTION**

2 **Q. Please state your names, titles, and who you represent in this matter.**

3 A. Our names, titles, and representation are as follows:

- 4 • Katherine J. Barnard, Director, Revenue Requirements and Regulatory
5 Compliance for Puget Sound Energy, Inc. (“PSE” or “the Company”);
- 6 • Deborah Reynolds, Assistant Director, Conservation and Energy Planning for
7 Commission Staff (“Staff”);

8 **Q. Please provide information pertaining to your educational background and**
9 **professional experience.**

10 A. Ms. Barnard: As Director of Revenue Requirements and Regulatory Compliance, I
11 am responsible for strategy, policy, direction and coordination of PSE's interests on
12 state regulatory issues. I oversee state regulatory processes and compliance
13 requirements, including, audits, rate cases and regulatory proceedings. I represent
14 PSE in regulatory issues with state regulators and other constituents. I negotiate rate
15 and tariff issues with customers, agencies, stakeholders and regulators. I graduated
16 from the University of Washington with Bachelor of Arts degrees in Business
17 Administration and Arts & Sciences. The Bachelor of Arts degree in Business
18 Administration was in Finance with additional course work in accounting. From
19 1985 to 1987, I was employed by Ernst & Whinney’s Telecommunications
20 Consulting Group, where I was responsible for the preparation of cost allocation
21 studies for several small telephone companies. From 1988 to 1990, I was the
22 Manager – Separations at Nevada Bell where I developed rates for Nevada Bell’s

1 Federal Communications Commission tariff filings along with Federal
2 Communications Commission and National Exchange Carriers Association
3 compliance reporting. From 1990 to 1992, I was employed by the Washington
4 Utilities and Transportation Commission as Revenue Requirement Specialist. My
5 responsibilities included reviewing tariff filings, affiliated interest applications, and
6 performing audits of several telephone companies' compliance reports. From 1992
7 to 2011, I was employed by Cascade Natural Gas Corporation. Between 1992 and
8 1996, I served as a Senior Accountant, in which role I was responsible for
9 developing the jurisdictional balances used in regulatory reporting. From 1996 to
10 2011, I worked in the Regulatory Affairs department of Cascade Natural Gas
11 Company and served as Manager of Regulatory Affairs prior to my departure in June
12 2011. In July 2011, I joined PSE in my current role. I have testified as a company
13 witness in state rate cases and other regulatory proceedings.

14 Ms. Reynolds: As Assistant Director of Conservation and Energy Planning, I am
15 responsible for the oversight of energy conservation programs, long-range integrated
16 resource planning, reliability, service quality, low-income, and other issues in
17 general rate case and other tariff filings of electric and natural gas utilities regulated
18 by the Commission. I have worked for the UTC since 1999. I have held my current
19 position since 2012. I have a Bachelor of Science in General Studies and a Master of
20 Regional Planning, both from Washington State University.

1 I provide technical assistance to companies on energy regulatory matters,
2 participate in the development of Commission rules, and examine utility reports for
3 compliance with Commission regulations. I have also presented Staff
4 recommendations at numerous open public meetings.

5 **Q. What is the purpose of this testimony?**

6 A. This testimony recommends approval by the Commission of the Multiparty
7 Settlement Stipulation (“Settlement”) that was executed by Commission Staff and
8 PSE in this proceeding (collectively, the “Settling Parties”). The Multiparty
9 Settlement Stipulation sets forth a System Average Interruption Duration Index
10 (hereafter “SAIDI” or “SQI SAIDI”) target and mechanics that are fair and
11 reasonable and that fairly balance the interests of customers and the Company. The
12 Settling Parties and Public Counsel anticipated that the parties would work together
13 to develop permanent SAIDI mechanics once PSE implemented its outage
14 management system (“OMS”) and geographic information system (“GIS”), and after
15 it had collected sufficient data under the new systems to adopt permanent SAIDI
16 mechanics. The SAIDI mechanics and the issues addressed in this Settlement
17 Stipulation received scrutiny through a series of settlement conferences and technical
18 meetings that took place prior to the filing of PSE’s petition. Additionally, after PSE
19 filed its Petition, the parties met for several technical settlement conferences between
20 February and May 2016, in which the SAIDI mechanics were discussed. During that
21 time, Staff and Public Counsel undertook discovery relating to reliability issues and
22 the SAIDI calculation. This testimony supports the Settlement Stipulation,

1 demonstrates that the Settlement Stipulation is in the public interest, and requests
2 that the Commission approve the Settlement Stipulation.

3 **Q. Please briefly describe the history of the SQI SAIDI mechanism and its**
4 **evolution.**

5 A. PSE first implemented its SAIDI mechanism as part of its Service Quality Program
6 (“SQ Program”) pursuant to a settlement stipulation in the dockets approving the
7 merger between Washington Natural Gas Company and Puget Sound Power & Light
8 Company. The stated purpose of the SQ Program was to “provide a specific
9 mechanism to assure customers that they will not experience deterioration in quality
10 of service”¹ and to “protect customers of PSE from poorly-targeted cost cutting”² as
11 a result of the merger. The SQ Program was initially set to be effective for five
12 years.

13 The SQ Program was extended for a minimum of five years as part of the settlement
14 in PSE’s 2001 general rate case. In 1997, the benchmark at the initiation of the SQ
15 Program was set to 149.4 based on a statistical calculation [mean + 1 standard
16 deviation] of historical performance from 1987-1996. In 2000, the benchmark
17 changed to 142.7 for one year and in 2001, was changed again to 136.09. In each of
18 these two years, the statistical calculation discounted the standard deviation by 20%.
19 Then, in 2002, settling parties also agreed to the fixed benchmark of 136 outage

¹ Docket Nos. UE-951270 and UG-960195, Fourteenth Supplemental Order Accepting Stipulation (Feb. 5, 1997) (Stipulation at 11:11-15).

² *Id.*, Fourteenth Supplemental Order at 32.

1 minutes per customer per year with the five percent-customer-out Major-Storm
2 exclusion starting for reporting year 2003.

3 As part of a multiparty settlement stipulation in the 2007 merger proceeding, PSE
4 and Puget Holdings committed “to continue the Service Quality measures currently
5 in place for PSE or as may be modified in any future proceeding.” The SQ program
6 was extended indefinitely with additional modifications in PSE’s 2007 general rate
7 case.³ The SQI No. 3 benchmark remained set at an average of 136 outage minutes
8 per customer per year excluding Major Events and carry-forward days.

9 Additionally, potential penalty amounts were increased to \$1.5 million per index
10 with a doubling of penalty amounts if an index has been missed two years in a row.

11 In 2010, PSE proposed a change to the SQI-3 SAIDI benchmark and associated
12 performance calculation that would be effective for four annual reporting periods,
13 2010 through 2013, in anticipation of PSE’s implementation of a new outage
14 management system and the availability of analysis-ready data from the new
15 system.⁴ Following this period, PSE would establish permanent SQI SAIDI
16 mechanics based on the industry accepted benchmark similar to IEEE Standard
17 1366.⁵ Staff supported the change and identified two primary deficiencies with
18 PSE’s then-current SQI-3: SAIDI 136-minute benchmark and performance
19 measurement calculation. First, according to Staff, the current methodology failed to

³ See *WUTC v. PSE*, Dockets UE-072300 & UG-072301, Appendix D to Order 12: Partial Settlement Stipulation Re: Service Quality, Meter and Billing Performance, and Low-Income Bill Assistance (“Partial Settlement”).

⁴ Docket Nos. UE-072300 and UG-072301 (consolidated), Petition for Approval of Modifications to Service Quality Index Program (Oct. 21, 2010).

1 reflect customers' overall experience regarding PSE's power restoration efforts.
2 Second, the SQI-3: SAIDI 136-minute benchmark and performance measurement
3 calculation no longer measured adequately PSE's overall system reliability
4 performance.⁶ The Commission approved the proposed temporary SQI No. 3:
5 SAIDI mechanics,⁷ which included an annual total SQI SAIDI benchmark of 320
6 minutes and a corresponding annual performance calculation based on the five-year-
7 rolling average of annual all-inclusive SAIDI results.⁸ There was no provision for
8 excluding Major Events in this temporary SQI SAIDI mechanics except certain
9 exclusions approved by the Commission.

10 In 2012, the target date of implementation for the OMS was revised to April 1, 2013,
11 due to PSE accelerating its GIS deployment so that both the OMS and the GIS could
12 be implemented at the same time. PSE petitioned for an one-year extension of the
13 temporary SQI SAIDI benchmark of 320 to 2014 in order to collect a full year of
14 data from the new OMS system.⁹ Commission Staff supported PSE's petition

⁵ *Id.* at ¶ 18.

⁶ *Id.*, Order 17, Granting PSE's Petition for Approval of Modifications to Its Service Quality Index Program, ¶¶ 13-15 (Nov. 29, 2010).

⁷ *Id.*, Order 17, Granting PSE's Petition for Approval of Modifications to Its Service Quality Index Program, (Nov. 29, 2010).

⁸ The actual annual results used in the SQI No. 3 evaluation exclude 2006 annual results due the catastrophic impact of the 2006 the Hanukkah Eve windstorm. The exclusion was petitioned by PSE and approved by the Commission in Order 17.

⁹ Dockets UE-072300 and UG-072301, Petition for Approval of Extending SQI SAIDI Temporary Mechanics (July 13, 2012).

1 because it advanced deployment of the electric GIS by over two years (from the
2 original target of 2015 to 2013).¹⁰ The Commission approved PSE’s petition.

3 In 2014, PSE petitioned for an additional one-year extension of the temporary SQI
4 No. 3: SAIDI benchmark because it recognized the need of additional data for the
5 design of permanent electric service reliability measures.¹¹ In its petition, PSE cited
6 the results of studies that suggest that utilities would report “worse” SAIDI results
7 initially due to a more accurate measurement of reliability, after implementation of
8 an OMS system.¹² Commission Staff supported the 2014 petition because it allowed
9 PSE “to collect sufficient data from the new OMS with accuracy supported by the
10 GIS.”¹³ The extension of the temporary SQI SAIDI mechanics would also allow
11 PSE to work with the Staff and other stakeholders to establish permanent SQI
12 electric service reliability measures that are based upon both PSE’s OMS experience
13 and industry-accepted standards. The Commission approved PSE’s petition.

14 **Q. For background purposes, please describe the other elements PSE’s Service**
15 **Quality Program mentioned above.**

16 A. PSE’s service quality program consists of three components: 1) Service Quality
17 Indices, 2) Customer Service Guarantees that provides for a \$50 missed appointment

¹⁰ *Id.*, Answer of Commission Staff in Support of Petition for Extending SQI SAIDI Temporary Mechanics (July 19, 2012).

¹¹ *Id.*, Petition Seeking a One-time Extension of the Current Mechanics Associated with SQI No. 3: SAIDI Temporary Mechanics Through 2015 (Nov. 26, 2014).

¹² *Id.* at ¶ 9.

¹³ *Id.*, Answer in Support of Petition for Extending SQI SAIDI Temporary Mechanics at ¶7 (Dec. 9, 2014).

1 credit for both electric and natural gas service, and 3) a Restoration Service
2 Guarantee that provides a \$50 credit qualified PSE electric customers that experience
3 an outage of greater than 120 hours.

4 The Service Quality Indices (SQI) component of the program include nine separate
5 indices that PSE reports on annually to the UTC and is subject to graduated
6 penalties, up to \$1.5 million per SQI, should the Company's performance not meet
7 the established benchmark. In addition to SAIDI, the SQI includes benchmarks for
8 WUTC Complaints (SQI #2), System Average Interruption Frequency Index (SQI
9 #4), Customer Access Center Answering Performance (SQI #5), Customer Access
10 Center Transactions and Field Service Operations Transactions Customer
11 Satisfaction (SQI #6 and #8), Gas and Electric Safety Response Time (SQI #7 and
12 #11), and Kept Appointments (SQI #10). The Settlement does not affect any of
13 these other SQI benchmarks.

14 II. THE SCOPE OF THE UNDERLYING DISPUTE

15 **Q. Please describe the Company's filing that gave rise to this proceeding.**

16 A. PSE commenced this proceeding by filing a Petition for Modification of SQI SAIDI
17 Mechanics on November 30, 2015. PSE filed this petition consistent with
18 commitments made to stakeholders to propose a permanent SAIDI benchmark and
19 performance evaluation mechanics once PSE implemented its OMS and GIS, and
20 after it had collected sufficient data under the new systems to adopt permanent
21 SAIDI mechanics. Prior to filing its Petition, PSE and interested stakeholders--
22 Commission Staff and Public Counsel--had met nine times in an effort to reach

1 agreement on the SAIDI mechanics. While the meetings were productive and
2 educational, the stakeholders and PSE were not able to agree on the design of
3 permanent electric service reliability measures, and therefore PSE filed its Petition.

4 **Q. Did Staff and Public Counsel investigate PSE's filing?**

5 A. Yes. Staff and Public Counsel issued numerous data requests. Additionally, the
6 parties engaged in several technical settlement conferences involving staff of all
7 parties knowledgeable about reliability and service quality issues.

8 **III. THE SCOPE OF THE SETTLEMENT AND**
9 **ITS PRINCIPAL ASPECTS**

10
11 **Q. Please describe the scope of the Settlement Stipulation and its principal aspects.**

12 A. The proposed Settlement Stipulation is a full settlement of all issues presented in this
13 proceeding and it has been executed by the Settling Parties. The text of the proposed
14 Settlement Stipulation is largely self explanatory, thus, we do not repeat each detail
15 here. Generally, the proposed Settlement Stipulation:

- 16 • Adopts the IEEE 1366 metric for reporting SQI SAIDI, taking effect in
17 reporting year 2016.
- 18 • Sets the IEEE 1366 target for PSE SQI SAIDI at 155, taking effect in
19 reporting year 2016 and sets reporting requirements;
- 20 • Removes the current penalty structure for any failure by PSE to meet the
21 SAIDI target;

- Creates a service guarantee that will provide a \$50 credit to customers who experience an outage duration of greater than 24 hours under conditions specified in the Settlement;
- Defines a Catastrophic Day as any Major Event Day that exceeds 4.5 Beta in the context of IEEE 1366, with this definition taking effect in reporting year 2016;
- Provides that the Company will include the customer experiencing multiple interruptions (CEMI) metric in its annual electric service reliability reports beginning with its 2019 report.

IV. THE SETTLEMENT SATISFIES THE PARTIES' INTERESTS AND THE PUBLIC INTEREST

PSE's Statement in Support of the Settlement

Q. Ms. Barnard, please briefly describe the events leading up to PSE's filing of the Petition in this case.

A. PSE filed its Petition to fulfill a commitment made to the Commission and stakeholders to propose a permanent SAIDI benchmark and performance evaluation mechanics once PSE implemented its OMS and GIS, and after it has collected sufficient data under the new OMS to adopt permanent SAIDI mechanics. Prior to filing its petition, PSE met with Staff and Public Counsel several times to attempt to reach agreement on the SQI SAIDI mechanics, and while a helpful dialogue took place, the parties were unable to reach agreement.

1 **Q. Please briefly review PSE’s proposal as set forth in its Petition and specifically**
2 **PSE’s proposal for calculating the SAIDI benchmark.**

3 A. In its Petition, PSE proposed changes to SAIDI mechanics that are consistent with
4 standards of the Institute of Electrical and Electronics Engineers, Inc. (“IEEE”) and
5 past practice before the Commission. With respect to the benchmark calculation,
6 PSE proposed adjusting pre-OMS IEEE SAIDI by a fixed adjustment factor of 22
7 percent to reflect the more complete and accurate outage data that results with the
8 implementation of an OMS and GIS. An increase in SAIDI minutes is consistent
9 with research studies by the Lawrence Berkeley National Labs and Navigant cited in
10 PSE Petition.¹⁴ It is also consistent with past practice before this Commission,
11 which recognizes and adjusts for the fact that the implementation of an OMS can
12 result in an increase in a utility’s reported SAIDI score – without any degradation in
13 reliability – due to the more accurate identification of the actual number of
14 customers experiencing an outage as reported under OMS.

15 **Q. From PSE’s perspective, would it have been appropriate to return to use of the**
16 **136 minute benchmark that had been used from 2003-2009, or to adjust the**
17 **136-minute benchmark by 22 percent and use the adjusted benchmark?**

18 A. No. When the parties agreed to move to a temporary benchmark in 2010, the parties
19 and the Commission recognized that the 136-minute benchmark no longer measured
20 adequately PSE’s overall system reliability performance or customers’ overall

1 experience regarding PSE’s power restoration efforts.¹⁵ This is demonstrated by the
2 fact that PSE had been unable to meet the current SQI-3: SAIDI benchmark since
3 2005, despite experiencing a decrease in outage-related customer complaints and an
4 increase in the percentage of customers that were satisfied with PSE’s power
5 restoration response.¹⁶ Thus, it would not be appropriate to use the 136-minute
6 benchmark that was in effect prior to 2010, or even to adjust this former benchmark
7 by 22 percent.

8 **Q. Please generally describe the process PSE engaged in with stakeholders that led**
9 **to this Settlement.**

10 A. After the prehearing conference, the Joint Parties and Public Counsel met several
11 times in person and by phone and engaged in technical settlement discussions.
12 Additionally, PSE responded to formal and informal discovery requests. With
13 respect to the technical settlement conferences, PSE made available several subject
14 matter experts to participate in these discussions. They responded to question about
15 PSE’s reliability performance, the capabilities of the OMS and GIS, and how these
16 systems differed from the prior CLX system. Further, although PSE does not have
17 the capability to replay legacy outage data under CLX and compare this to current
18 outage identification under the OMS and GIS, as part of the technical settlement

¹⁴ Petition, pp.17-21.

¹⁵ Order 17, Granting PSE’s Petition for Approval of Modifications to Its Service Quality Index Program, ¶¶ 13-15 (Nov. 29, 2010).

¹⁶ *Id.* ¶ 14.

1 discussions PSE undertook an analysis of outages that occurred since
2 implementation of the OMS and GIS and compared this to the customer count that
3 would likely have been reported using the capabilities and procedures of the CLX
4 system.

5 **Q. What was the result of this analysis?**

6 A. The results of the analysis showed a very large increase in the recorded number of
7 customers interrupted on outages that were below 20,000 customer minutes of
8 interruption in the OMS system than in the prior CLX system. The increase in the
9 number of customers interrupted leads to an increase in the customer minutes of
10 interruption, the numerator of the SAIDI metric. When these outages are combined
11 with the outages over 20,000 customer minute interruptions, the results of this
12 analysis are consistent with the results of the study PSE performed prior to filing its
13 petition in which it analyzed similar outages isolated to the same segment of a
14 specific electric circuit, and found significantly lower numbers of estimated
15 customers identified as out of service on CLX system as compared to OMS, as
16 discussed on pages 22 and 23 of PSE's Petition.

17 **Q. Please summarize the proposal for modification of SQI-3 SAIDI that the Joint**
18 **Parties have agreed to in this Settlement.**

19 A. As discussed earlier, the Joint Parties' proposal for revisions to SQI-3 SAIDI
20 mechanics includes the following key components:

- 1 • An annual SQI SAIDI performance determination that is consistent with the
- 2 IEEE standards.
- 3 • A catastrophic event definition and threshold calculation that ensure consistent
- 4 and reasonable measurement of SQI SAIDI performance and benchmark going
- 5 forward.
- 6 • A negotiated target for performance of 155.
- 7 • Replacement of the penalties for SQI SAIDI with a 24-hour service guarantee.

8 **Q. Does PSE believe that the negotiated annual target performance of 155 SAIDI**
9 **outage minutes is reasonable?**

10 A. As discussed in more detail below, PSE had concerns with the use of the 155-minute
11 annual SAIDI target because it does not include a 22 percent uplift to PSE's
12 performance prior to implementation of the OMS. However, PSE agreed to this as
13 part of an overall negotiated settlement that included removal of penalties associated
14 with this target. While PSE is willing to strive to meet this target, PSE does not view
15 this as a reasonable benchmark against which penalties should be imposed.

16 **Q. Please elaborate on the replacement of penalties for a 24-hour service guarantee**
17 **in the negotiated settlement.**

18 A. PSE agreed to add a 24-hour service guarantee, which was an important feature to
19 Commission Staff, in exchange for removal of the penalties for failure to meet PSE's
20 SAIDI target. Currently, PSE (i) provides a 120-hour service guarantee related to
21 storm events and (ii) is subject to significant penalties for failure to meet its SQI
22 SAIDI benchmark. These existing mechanisms expose PSE to considerably greater
23 monetary payouts and penalties than other electric utilities regulated by the

1 Commission. Neither Avista nor PacifiCorp are subject to penalties for failure to
2 meet their SAIDI targets, and they each provide a single service guarantee to their
3 customers related to electric outage restoration. Therefore, PSE is not willing to add
4 what is in effect a third penalty mechanism for service reliability, particularly when
5 it views the negotiated target of annual SAIDI minutes as too low and not reflective
6 of the more accurate customer outage information that OMS provides.

7
8 **Q. Why does the Settlement Stipulation satisfy the public interest, from**
9 **PSE's perspective?**

10 A: The reestablishment of the SAIDI benchmark along with the removal of the penalty
11 provisions and the establishment of an additional service guarantee fairly balances
12 the interests of PSE and its customers.

13 **Q: Please discuss the elements of this settlement important to Puget Sound Energy.**

14 A: As discussed above, there are a few select elements of the settlement that addressed
15 PSE's concerns and are essential to this agreement. Among those are the removal of
16 the penalty associated with the SAIDI benchmark and its replacement with a new 24-
17 hour service guarantee that will be provided to customers who experience an outage
18 of greater than 24 hours during non-major storm events and absent defined
19 conditions that affect PSE's ability to restore service. The removal of the penalty
20 provision allows PSE to accept a lower target than it otherwise would have accepted.
21 Additionally, replacement of the penalty mechanism with the new service guarantee
22 provides direct benefits to those customers who experience longer-duration outages.

1 Under the agreement, PSE will continue to provide the existing 120 hour guarantee
2 that is applicable during storm situations.

3 **Q: Why is removal of the penalties essential to this settlement?**

4 A. Absent removal of the penalties associated with SQI 3—the SAIDI benchmark, PSE
5 would not be able to agree to a benchmark of 155 minutes. From the Company’s
6 perspective, the current and future impacts of the Company’s use of OMS and GIS
7 technology have not been fully considered in this 155 target. There are a multitude of
8 academic studies that demonstrate an increase is likely to occur when these
9 technologies are implemented because the new technologies are able to more
10 accurately identify the number of customers affected by an outage. Further, the
11 Commission has previously recognized the need to adjust benchmarks upward, for
12 example, when it allowed a 67 percent uplift to PacifiCorp’s SAIDI minutes after
13 implementation of its CADOPS outage management system in 2004.¹⁷

14 **Q. Why is the 24-hour service restoration guarantee more fair and beneficial to**
15 **customers than the penalty provisions?**

16 A. With the service guarantee, those customers directly impacted by extended outages
17 will now have a service guarantee that provides a \$50 credit to their bill when their
18 service is out for more than 24 hours in a non-major storm event, under the
19 circumstances set forth in the terms of the Settlement Stipulation. This service

¹⁷ Petition, pp. 20-21.

1 guarantee is similar to guarantees offered by other regulated electric utilities in
2 Washington; hence customers throughout the state have uniform protections creating
3 fairness.

4 **Q: Why does the Company support the SAIDI target being set at 155 minutes?**

5 A: The Company views the proposed target as part of the give and take of reaching a
6 compromise and settlement in this docket. PSE views the 155-minute target as a
7 stretch goal that the Company will aspire to obtain. However, PSE would not have
8 agreed to this target absent the removal of the penalty provisions associated with the
9 previous SAIDI benchmark. PSE had provided significant documentation in its
10 Petition demonstrating that SAIDI minutes will increase after implementation of an
11 OMS, because the customer count is much more accurate and identifies a higher
12 number of customers affected by an outage. In contrast, manual measures of SAIDI
13 tend to significantly under-report the number of customers affected by an outage.
14 The Commission has previously recognized this and granted an uplift in SAIDI
15 metrics following implementation of PacifiCorp's OMS. The compromise 155 target
16 does not reflect the uplift in SAIDI metrics that the Commission approved for
17 PacifiCorp or that is documented in the literature.

18 **Q. Is removing the penalty associated with SAIDI detrimental to the SQ program**
19 **on the whole?**

20 A. No, PSE's service quality program continues to be robust and, with the addition of
21 the 24-hour restoration guarantee, is more fair and beneficial to customers.

1

2 **Q. Ms. Barnard, does this conclude your testimony?**

3 A. Yes.

4 **Staff's Statement in Support of the Settlement**

5 **Q. Ms. Reynolds, why does the Settlement Stipulation satisfy the public interest**
6 **from Staff's perspective?**

7 A. The settlement strikes a compromise from all parties, producing an agreement that is
8 in the public interest. Arriving at a new Service Quality Index 3 target was
9 challenging because of the frequently-changing SAIDI calculation methodology over
10 the last 20 years, and the Company's transition to its OMS, implemented in Spring
11 2013.

12 The twin purposes and primary goals of PSE's service quality program was,
13 and still is, to "provide a specific mechanism to assure customers that they will not
14 experience deterioration in quality of service"¹⁸ and also to "protect customers of
15 PSE from poorly-targeted cost cutting"¹⁹ as a result of the merger. Staff believes that
16 the public interest is served by these twin purposes and that this Settlement
17 Stipulation's changes to PSE's SQ Program will now, and going forward, continue to
18 meet them both. As I will explain in greater detail later, Staff is confident that a
19 SAIDI target of 155, based upon IEEE 1366 standards, contributes to ensuring that
20 customers will not experience a deterioration in quality of service and, coupled with

¹⁸ Docket Nos. UE-951270 and UG-960195, Fourteenth Supplemental Order Accepting Stipulation (Feb. 5, 1997) (Stipulation at 11:11-15).

1 the introduction of a new 24-hour service restoration guarantee, should be protected
2 from poorly-targeted cost-cutting.

3 **Q. Please describe Staff’s understanding of the Company’s outage review process.**

4 A. Beginning in 2004, as a result of discussions with stakeholders, PSE reviewed and
5 corrected the customer count of all non-major-event outages with more than 20,000
6 customer-minute interruptions (“CMI”). The purpose of the outage review was to
7 correct the number of customers that experienced an outage, which is usually the
8 source of greatest error in the accuracy of the SAIDI score. Although these outages
9 accounted for only a small percentage of the recorded outages, they were the
10 majority of customer-interruption minutes. In 2010, PSE added major-event outages
11 greater than 20,000 CMI to its review, providing even more accurate information
12 about customer-interruption minutes. Staff has confidence that PSE’s review of
13 outages was responsible for an accurate and reliable reporting of the Company’s
14 SAIDI score. Staff credits the Company for its robust and thorough review
15 procedures that it implemented starting in 2004.

16 **Q. How is the Settlement changing the calculation methodology?**

17 A. The Settlement is changing the methodology in three key ways. First, the 5 percent
18 exclusion methodology, which excluded all minutes resulting from events when
19 more than 5 percent of customers were out of service, is being replaced with the
20 IEEE 1366 methodology, which excludes the number of customer minutes outside
21 2.5 standard deviations from the average. Second, the Settlement includes a
22 definition of catastrophic day, which it did not before. Originally, the Company

¹⁹ *Id.*, Fourteenth Supplemental Order at 32.

1 could petition for the exclusion of extraordinary events, on a case-by-case basis. This
2 could result in events being excluded that were not, in fact, catastrophic. Moving to a
3 definition of a catastrophic day that is more than 4.5 standard deviations from the
4 average is far more consistent. Third, the Settlement takes into account that the
5 Company's OMS provides detailed information about customer counts and outages
6 without the need for exhaustive auditing procedures, which were in place prior to
7 OMS's implementation.

8 **Q. Does Staff expect these changes to the SAIDI methodology to have similar**
9 **effects on the Company's SAIDI scores?**

10 A. No. These changes will have countervailing effects on the Company's SAIDI scores.
11 While Staff expects that defining and excluding a catastrophic day and changing to
12 IEEE Std 1366 from the 5 percent exclusion methodology would both decrease the
13 Company's SAIDI scores, Staff expects that the introduction of OMS will increase
14 the Company's SAIDI scores. It is nearly impossible to disentangle these
15 countervailing effects.

16 **Q. Is the former 136-minute benchmark still appropriate, considering these**
17 **changes?**

18 A. No. Staff believes that the countervailing effects mentioned above require
19 development of an entirely new benchmark.

20 **Q. Is this change in the public interest?**

21 A. Yes. The changes set out in the Settlement will result in a SAIDI score that more
22 accurately represents the Company's day-to-day operations and the corresponding
23 reliability of service that customers will experience. Further, the addition of the

1 24-hour service guarantee to the SQ Program continues to ensure that the public
2 interest is served.

3 **Q. Why does Staff support defining a catastrophic day?**

4 A. Staff supports defining catastrophic days as an important component of
5 implementing IEEE SAIDI, and to reduce the regulatory burden of filing to request
6 the exclusion of major storms from the calculation. In this Settlement, a catastrophic
7 day is defined as one that exceeds 4.5 standard deviations of the daily system SAIDI.
8 As previously stated, moving to IEEE SAIDI helps segment the data into day-to-day
9 operations and major weather events, and defining catastrophic events is an
10 important component of isolating the day-to-day operations. Large, destructive
11 storms can have a substantial and lingering impact on SAIDI scores over the next
12 five years. If these unusually large storms remain in the SAIDI calculation, they
13 inflate the major event day (T_{MED} or 2.5 beta) calculation and cause even more
14 events than would otherwise be classified as major events to be included in the
15 Company's calculated SAIDI score. If the Settling Parties' proposal regarding the
16 catastrophic days is rejected, these catastrophic days will decrease the likelihood that
17 the score will capture the Company's reliability of its day-to-day operations. For
18 example, the Company's 2015 SAIDI score was 161, but would have been only 144
19 minutes if the proposed definition of a catastrophic day was included. Lastly,
20 defining a catastrophic day continues the standardization of the Company's SAIDI
21 score across years, reducing human subjectivity.

22 **Q. Why does Staff support the transition to the IEEE Std 1366 (IEEE SAIDI)**
23 **methodology for calculating SQI 3?**

1 A. There are multiple methods for calculating a utility’s SAIDI score, but most methods
2 segment the data into two sets, one that measures major events, and the other
3 measures day-to-day operations. Staff supports the Company using the IEEE SAIDI
4 methodology, also called 1366 SAIDI or IEEE 2.5 beta, as the best metric for
5 isolating and measuring the service quality results for the Company’s day-to-day
6 operations. IEEE SAIDI is also the preferred methodology for measuring SAIDI by
7 the Institute of Electrical and Electronics Engineers, the leading electric reliability
8 indices professional organization.

9 For both methodologies, the 5 percent exclusion and the IEEE Std 1366, the
10 metric is intended to capture the reliability of day-to-day operations by eliminating
11 outliers in the data. However, whereas the 5 percent exclusion methodology
12 eliminates all data associated with events affecting greater than 5 percent of
13 customers, IEEE Std 1366 eliminates all events with customer-minute²⁰ outages
14 outside of the historical “normal” for customer-minute outages. This is preferable
15 because a) it evaluates outliers in the same units as the reliability metric ultimately
16 being evaluated (SAIDI, customer-minutes), and b) it relies upon a well-accepted
17 methodology to establish, statistically, what constitutes an “outlier” by evaluating
18 the variance of historical data rather than by simply eliminating events that affect an
19 arbitrary 5 percent of customers.²¹ Moreover, IEEE Std 1366 is the industry standard
20 and by using this method we can more easily make comparisons across utilities.

21

²⁰ See Petition, fn. 1. Customer-minutes are the unit used in IEEE Std 1366.

1 **Q. Does Staff believe that changing the calculation will also change the Company’s**
2 **underlying performance?**

3 A. No. It merely captures a different set of data points. Staff believes the proposed
4 calculation will more accurately represent the reliability of service that the
5 Company’s customers will experience.

6 **Q. Please explain why Staff believes a SAIDI benchmark of 155 minutes is**
7 **reasonable.**

8 A. The purpose of the Service Quality Index is to “provide a specific mechanism to
9 assure customers that they will not experience deterioration in quality of service”
10 and to “protect customers of PSE from poorly-targeted cost cutting” as a result of a
11 merger.²² Staff is confident that 155 minutes, in consideration of the other aspects of
12 the Settlement Stipulation and the Company’s historical performance, is a
13 benchmark that sufficiently balances the need to ensure that the Company’s service
14 is not degrading with the concern that it not be unrealistically challenging for the
15 Company to meet. In short, it is a specific barometer that indicates if customers are
16 experiencing a deterioration in quality of service.

²¹ See Attachment A to the Petition, page 6.

²² See Appendix A to the Fourteenth Supplemental Order Accepting Stipulation; Approving Merger at p. 11 in Docket Nos. UE-951270 & UE-960195 (February 5, 1997). And see Fourteenth Supplemental Order Accepting Stipulation; Approving Merger at p. 32 in Docket Nos. UE-951270 & UE-960195 (February 5, 1997)

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Below is the Company’s historical SAIDI score using the updated IEEE Std 1366 SAIDI methodology²³ and excluding Jefferson County from the historical record as well as any catastrophic day.

Historical PSE SAIDI Scores with Application of New Methodology	
Calendar Year	Proposed 1366 ²⁴
1997	
1998	
1999	
2000	
2001	110
2002	98
2003	104
2004	113
2005	117
2006	155
2007	124
2008	132
2009	139
2010	122
2011	135
2012	120
2013	120
2014	153
2015	144
AVERAGE	134
SD	13
SUM	148

4
5
6

The row “AVERAGE” is the Company’s average score from 2006 – 2015. This represents the most recent 10 years of data, which is a sufficient amount of data

²³ IEEE Std 1366 methodology and defining catastrophic day.

²⁴ This methodology excludes Jefferson County data and also excludes any catastrophic days, as defined in the Settlement as a day that exceeds 4.5 beta of a standard deviation.

1 to capture a historical range upon which to build a new target. Importantly, it also
2 captures the increase in customer count that began when the Company started
3 auditing outages with customer-minute interruptions over 20,000 in 2004.²⁵ Staff
4 determined that the most recent ten-year average is 134 minutes, and then added one
5 standard deviation for a total of 148 minutes. Including a standard deviation in these
6 statistical calculations will account for a reasonable year-to-year variation, within
7 which Staff expects the Company's performance should fall. This methodology,
8 which Staff supports, mirrors the methodology used to set the Company's SAIDI
9 benchmark in 1997: it is based on a statistical calculation of the average of the
10 Company's historical performance, with the addition of one standard deviation.²⁶

11 In reaching a Settlement Stipulation of 155 minutes for the SQI SAIDI target,
12 Staff recognizes that industry literature provides that companies often see an increase
13 in their SAIDI score after implementation of an OMS, but that the effect of
14 implementation is utility-specific and can vary greatly. The literature on OMS
15 implementation indicates the primary driver of this increase is less reliance upon
16 manual measurement methods and consequently a more accurate customer count.²⁷

17 In this case, PSE's review of customer-interruption minutes, beginning in 2004,

²⁵ In 2004 the Company began auditing non-major storm events with CMI over 20,000, and in 2009, all events with CMI over 20,000. Since 2004, the Company has reviewed approximately 80 percent of all minutes and updated the customer counts.

²⁶ See supra page 4. The historical calculation in 1997 used 1 standard deviation, and was reduced to 80 percent of 1 standard deviation in 2001. Staff believes that former calculation is more appropriate to a Company that is required to maintain its service, rather than improve it.

²⁷ Attachment B to the Petition (Eto, H. Joseph; et al, 'An Examination of Temporal Trends in Electricity Reliability Based on Reports from U.S. Electric Utilities.' Ernest Orlando Lawrence Berkeley National Laboratory, January 2012, page 36).

1 produced a significant improvement in accuracy, and it remains unknown how much
2 the implementation of OMS influenced the Company's SAIDI score in the most
3 recent two years. Staff believes a benchmark of 155 minutes is justified because it
4 represents the Company's highest score (using the proposed methodology) since
5 2001. This is a reasonable ceiling for the Company's service quality and reliability
6 because one of the primary goals of the Commission is to ensure that no
7 deterioration in service occurs. This benchmark sets that ceiling at both a reasonably
8 calculated level (as illustrated by Staff's calculations of the Company's adjusted
9 SAIDI scores, using this Settlement Stipulation's definitions), and at a level that has
10 been approached but never exceeded in the last decade. Staff believes that a
11 benchmark of 155 minutes is a reasonable compromise between the positions of the
12 Settling Parties.

13 **Q. Why does Staff support a 24-hour service restoration guarantee?**

14 A. The 24-hour service restoration guarantee, which excludes major events, is a
15 complement to the Company's existing 120-hour service restoration guarantee that
16 applies to all events, including major storms. The vast majority of the time, the 120-
17 hour guarantee is only relevant after a major storm. Staff believes that the
18 introduction of this guarantee is a great incentive to the Company to prevent
19 deterioration of service and is a great encouragement for the Company's customers
20 to be more active in notifying the Company of outages, hopefully calling attention to
21 those parts of its system that need greater attention. The 24-hour guarantee
22 incentivizes the Company to quickly respond to day-to-day outages that contribute to
23 its IEEE SAIDI score, while also compensating the customer for the inconvenience.

1 It should also provide a financial incentive to the Company, in lieu of the SQI
2 penalty, to make improvements to its system's reliability in order to reduce the
3 amount it distributes to its customers through the 24-hour restoration guarantee.

4 **Q. Please explain why Staff believes removing the SQI penalty is appropriate.**

5 A. Removing the penalty is appropriate in the context of this settlement as a whole.
6 Staff believes that a reasonable benchmark, without penalty, but with the
7 requirement that the Company must still report its SAIDI score to its customers and
8 the addition of a new 24-hour service restoration customer service guarantee is in the
9 public interest.

10 In general, a penalty can act as an important lever to ensure that customers
11 are protected from poorly targeted cost cutting. But this is only one protective
12 mechanism in the current SQI, there are many others. The Company must also
13 report its annual SQI results to customers through a bill insert in the following June
14 of each year. Without a penalty, under the terms of the Settlement Stipulation, the
15 Company must still report its SAIDI score, and inform customers if it has met its
16 benchmark. Although not a financial incentive, publicly reporting its average
17 duration of interruption is an important incentive for the Company to prevent
18 harmful cost cutting measures that affect reliability.

19 Staff also thinks that a reasonable target, without penalty, is preferable to a
20 penalty-enforced target that is too lenient or only penalizes the Company for extreme
21 mismanagement of its distribution system and outage response operation. The
22 Company's filing proposed a benchmark that, in Staff's opinion, was too high and
23 would not provide any real pressure upon the Company to prevent the deterioration

1 of its service. It would also likely fail to ever result in a penalty being assessed
2 against the Company. The Settlement Stipulation reached by the Parties diverges
3 from the design of a benchmark with a corresponding penalty, and instead
4 establishes a benchmark for the Company's SAIDI score independent of any direct
5 financial punishment, but creates a new 24-hour service restoration guarantee that
6 will add real pressure to incentivize the Company to make those improvements
7 which will prevent any deterioration of service. Staff supports this 24-hour guarantee
8 because, unlike the former penalty, any distribution under this guarantee will directly
9 benefit customers and at the same time incentivize the Company.

10 **Q. Please explain what happens if the Company does not meet its 155 minute**
11 **target?**

12 **A.** Should the Company exceed its 155 minute target, it will still report this to its
13 customers in its Annual Report Card. The Company must also inform its customers,
14 in plain language, if it misses the metric multiple years in a row. Staff accepts and
15 supports this Settlement because Staff recognizes that there are other tools at its
16 disposal to ensure that the service provided to customers does not deteriorate. This
17 Settlement would eliminate an automatic penalty against the Company and place the
18 responsibility on Staff to confront the Company regarding any future deterioration,
19 should any occur. But Staff is willing to undertake this shifting of the burden as it is
20 similar to the processes in place for other companies in the state. Staff is confident
21 that, should the Company's system and performance deteriorate, the Commission
22 would exercise its authority to file a complaint or take other action to prohibit the
23 Company's service from deteriorating. In addition, as Staff continues its work on the

1 econometric modeling contemplated in the most recent Avista case,²⁸ it is certainly
2 possible that the Commission could create additional standards and penalties by rule
3 in the future.

4 **Q. In reference to informing customers about the new 24-hour restoration**
5 **guarantee, describe what is meant by “effectively located on the Company’s**
6 **website?”**

7 A. The Company’s OMS is not yet capable of recognizing each and every outage in real
8 time on its system, therefore it is important that customers notify PSE of each
9 outage, either on its webpage or by calling the Company. In an effort to inform
10 customers of this responsibility, and to promote the new restoration guarantee, the
11 Company needs to reach out to its customers through its usual public-relations
12 mediums. This includes the Company’s webpage. Staffs expects that such
13 notifications to customers of this guarantee will be effectively located. To Staff,
14 “Effectively located” means that it is easily visible to all customers, and should be
15 modified as necessary to reach maximum exposure. This includes placing the
16 information on the outage report webpage, and also frequently shown on the
17 Company’s homepage. Staff supports the description of how the Company intends
18 to notify customers of this guarantee included in Attachment A to the Settlement
19 Stipulation.

20 **Q. Why is it important for the Company to begin gathering information on**
21 **customers experiencing multiple outages (CEMI)?**

²⁸ Docket UE-150204/UG-150205.

1 A. The literature suggests that there is a high correlation between frequent interruptions
2 and customers' dissatisfaction.²⁹ As such, targeting customers that experience
3 multiple outages will help identify the most problematic circuits for improvement,
4 and improve the quality of service to PSE's customers. The Company will
5 immediately begin collecting information on CEMI. Staff understands that the
6 Company may have to develop tools to identify and accurately track this metric. As
7 such, the Settling Parties agree that it is reasonable to require the Company to begin
8 reporting this metric to the commission in its 2019 Electric Service Reliability
9 Report.

10 **Q. Ms. Reynolds, does this conclude your testimony?**

11 A. Yes.

12 **Q. Does this conclude your joint testimony?**

13 A. Yes.

²⁹ IEEE Guide for Collecting, Categorizing, and Utilizing Information Related to Electric Power Distribution Interruption Events, page 36.