

April 8, 2011

***VIA ELECTRONIC FILING  
AND OVERNIGHT DELIVERY***

Washington Utilities & Transportation Commission  
1300 S. Evergreen Park Drive SW  
P.O. Box 47250  
Olympia, WA 98504-7250

Attention: David W. Danner  
Executive Director and Secretary

**RE: Modification to PacifiCorp's Annual Electric Reliability Monitoring and Reporting Plan pursuant to WAC 480-100-393**

Dear Mr. Danner:

Pursuant to WAC 480-100-393, PacifiCorp, d.b.a. Pacific Power ("Company") respectfully submits to the Washington Utilities and Transportation Commission ("Commission") modifications to the Company's Annual Electric Reliability Monitoring and Reporting Plan ("Reporting Plan"). WAC 480-100-393 requires electric utilities to file a Reporting Plan, and modifications to Reporting Plans, with the Commission for purposes of monitoring and reporting electric service reliability information. Initial Reporting Plans and modifications to Reporting Plans must be accepted by the Commission. The Commission accepted the Company's initial Reporting Plan in Docket No. UE-011443.

**Background**

On December 10, 2007, the Commission approved changes to the Company's Reporting Plan. These changes were deemed necessary to produce annual electric service reliability reports that provide accurate, timely information on customer service reliability.

Additional desired changes to the Reporting Plan have been discussed with Commission staff members which are intended to further enhance the Company's annual electric system reliability reports. The Company proposes to include definitions for a System Average Interruption Duration Index ("SAIDI")-based major event and a System Average Interruption Frequency Index ("SAIFI")-based major event. The Company also proposes to include additional performance information to report total performance, total performance excluding SAIDI-based major events, and total performance excluding SAIFI-based major events for each applicable reporting metric. Finally, the Company proposes to add a reference to its established 2003 baseline reliability statistics and include an example chart of history including those baselines.

Included as Attachment A is a copy of the modified Reporting Plan. Changes to the plan have been made on pages 4, 8, 10.

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The purpose of this filing is to update the Company's Reporting Plan. The Company respectfully requests review and approval of the Company's modified Reporting Plan by April 30, 2011, which will enable the Company to file its 2010 report in the enhanced format on the May 1, 2011 filing date. The Company is prepared to file the Reporting Plan in the existing approved format if this modification request is not approved by April 30, 2011.

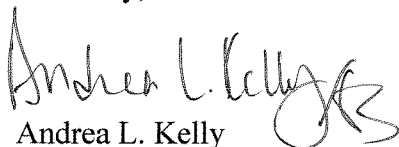
It is respectfully requested that all formal correspondence and staff requests regarding this filing be addressed to the following:

By e-mail (preferred): [datarequest@pacificorp.com](mailto:datarequest@pacificorp.com)

By regular mail: Data Request Response Center  
PacifiCorp  
825 NE Multnomah, Suite 2000  
Portland, OR 97232

Please direct any informal questions to me at (503) 813-6043, or Heidi Caswell, Director, Network Performance, at (503) 813-6216.

Sincerely,



Andrea L. Kelly  
Vice President, Regulation

Enclosures

c: Deborah Reynolds – WUTC

## Attachment A

# Washington Electric Reliability Annual Monitoring and Reporting Plan



**Washington  
Electric Reliability Annual Monitoring and Reporting Plan**

**Pursuant to WAC 480-100-393**

**April 2011**

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## Executive Summary

Washington Administrative Code (WAC) 480-100-393, requires that electric utilities subject to Washington Utilities and Transportation Commission (Commission) jurisdiction file a plan for monitoring and reporting electric service reliability information to the Commission. Further, this rule requires that the plan include the following:

- What reliability statistics and information the utility will report to the Commission including full-system results and appropriately localized results to support annual identification of areas of greatest concern.
- When baseline reliability statistics will be established, not exceeding three years from effective date of the rule<sup>1</sup>.
- When the electric annual reliability reports will be filed annually.

As PacifiCorp (Pacific Power or the Company) continues to evaluate and improve upon its reliability reporting systems, it continues to modify how it analyzes and communicates system reliability. As a result, the underlying reliability reporting plan may require modification to incorporate any improvements realized. The following monitoring and reporting plan outlines the information that the Company will report annually, and identifies any definitions, metrics and calculations used for annual reporting. The report will be filed annually by May 1 with performance results calculated for the prior calendar year.

The intent of the plan and annual reports is to evaluate and communicate reliability results delivered. The Company, however, cautions that while general trends may be detectable, underlying causes for these trends are not always obvious. For instance, substantial variation in weather may lead to significantly differing results. While the Company believes such attention to system and subsystem reliability is critical to effective operations, comparisons should recognize influences that may impact such comparisons. For example, as reporting systems evolve they can influence system metrics, but actual customer experience may remain the same as or be similar to prior periods. Further, comparisons among companies reporting similar metrics may not yield accurate or useful conclusions due to differences in data collection methods, customer demographics, system age or physical environments.

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<sup>1</sup> Baselines were established in September, 2003 in Advice Filing 03-009 and history through 2010 is attached in Appendix A to this document.

# 1.0 Reliability Definitions and Service Territory

## 1.1 Reliability Definitions

This section will define the various terms<sup>2</sup> used when referring to interruption types, performance metrics and the internal measures developed to meet the performance plans.

### General Terms Used

#### *Areas of Greatest Concern*

An area identified for analysis, resulting from reliability controls. These areas are outlined in Section 3: Area of Greatest Concern. These are generally identified using a blended metric, such as Circuit Performance Indicator (CPI) or using a “measles” plot which depicts repeated outages or long cumulative duration outages within the network.

#### *Outage/Power Quality Inquiry*

A transaction recorded by the Company as a result of a customer’s call regarding power quality or reliability of their local service. These are recorded in the Customer Service System (CSS) and upon investigation, a response is made to the customer.

#### *Elevated Complaint/1-800 Complaint*

A transaction recorded by the Company, initiated by a customer concerned about reliability. These are recorded and tracked in a stand-alone database where they are investigated and monitored for a response to the customer. These may be the result of an outage/power quality inquiry for which the customer had continuing concerns.

#### *Commission Complaint*

A transaction initiated by a customer to the Commission which results in collaborative analysis and investigation by the Commission staff and the Company to determine actions required to address customer concerns. They are recorded and tracked by the Company in a stand-alone database and routinely evaluated by Company operational staff, as well as annually reported in the Company’s reliability report.

### Interruption Types

#### *Sustained Outage*

A sustained outage is defined as an outage of equal to or greater than 5 minutes in duration.

### Reliability Indices

#### *SAIDI = $\Sigma$ sustained customer minutes interrupted / $\Sigma$ system customers served*

SAIDI (system average interruption duration index) is an industry-defined term to define the average duration summed for all sustained outages experienced in a given time-frame. It is calculated by summing all customer minutes lost for sustained outages (those exceeding 5

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<sup>2</sup> P1366-2003 was adopted by the Institute of Electrical and Electronics Engineers (IEEE) Commissioners on December 23, 2003, which provides the basis for the definitions of the terms used in this Report.

minutes) and dividing by all customers served within the study area. This value is for a one-year period, unless otherwise stated.

***Daily SAIDI =  $\Sigma$  sustained customer minutes interrupted (for the day) /  $\Sigma$  system customers served***

In order to evaluate trends during a year and to establish Major Event Thresholds, a daily SAIDI (daily system average interruption duration index) value is often used as a measure. This concept was introduced in IEEE Standard P1366-2003. This is the day's total customer minutes out of service divided by the static customer count for the year, which shows the total average outage duration experienced for that given day. These daily values are accumulated and added throughout the year to yield the yearly SAIDI results.

***SAIFI =  $\Sigma$  sustained customers interrupted /  $\Sigma$  system customers served***

SAIFI (system average interruption frequency index) is an industry-defined term that attempts to identify the frequency of all sustained outages experienced during a given time-frame. It is calculated by summing all customer interruptions for sustained outages (those exceeding 5 minutes in duration) and dividing by all customers served within the study area. This value is for a one-year period, unless otherwise stated.

***CAIDI = sustained average interruption duration index / sustained average interruption frequency index***

CAIDI (customer average interruption duration index) combines the average duration index and the average frequency index into a single index to identify the average duration when a customer experiences an interruption.

### ***Breaker Lockout***

A breaker lockout is the physical operation at a substation circuit breaker when automated protective systems are unable to clear a temporary faulted condition. After attempting to return the system to normal but not being successful, the breaker will "lockout" to ensure that the fault event does not cascade further upstream into the delivery system.

***CEMI = for each customer /  $\Sigma$  interruptions during period***

CEMI is an acronym for Customers Experiencing Multiple (Sustained and Momentary) Interruptions. This index depicts repetition of outages across the reporting period and may show recent reliability challenges in a particular area. This metric is used to identify localized performance in Section 4. Areas of Concern and evaluated to support customer-specific reliability in Section 6. Customer Communication Process and Complaints.

### ***Circuit Performance Indicator (CPI)***

CPI is an equation used to numerically blend a variety of critical reliability events for a given circuit. The numeric result is used to rate the circuit's performance. It is applied across a three-year period to adjust for abnormal weather. The lower the number, the better the circuit's performance.

***CPI = 10.64537424 \* (0.3 \* 0.02900261 \* SAIDI + 0.3 \* 2.4302439 \* SAIFI + 0.2 \* 0.69930069 \* MAIFI + 0.2 \* 5.26315789 \* Breaker Lockout***



### ***CPI99***

CPI99 is an acronym for Circuit Performance Indicator, which uses key reliability metrics (such as SAIDI and SAIFI) to identify underperforming circuits. It excluded Major Event and Loss of Supply or Transmission outages.

### ***CPI05***

CPI05 is an acronym for Circuit Performance Indicator, which uses key reliability metrics (such as SAIDI and SAIFI) to identify underperforming circuits. Unlike CPI99 it includes Major Event and Loss of Supply or Transmission outages.

## **Performance Types & Commitments**

PacifiCorp recognizes two categories of performance: underlying performance and major events. Major events represent the atypical, with extraordinary numbers and durations for outages beyond the usual. Ordinary outages are incorporated within underlying performance. These types of events are further defined below.

### ***SAIDI-Based Major Event***

A SAIDI-Based Major Event is defined as a 24-hour period where SAIDI exceeds a statistically-derived threshold value, as detailed in IEEE Distribution Reliability Standard P1366-2003.

### ***SAIFI-Based Major Event***

A SAIFI-Based Major Event is defined as an event in which more than 10% of an operating area's customers are simultaneously without service as a result of a sustained interruption.

### ***Underlying Events***

Within the industry, there has been a great need to develop methodologies to evaluate year-on-year performance. This has led to the development of methods for segregating outlier days, via the approaches described above. Those days which fall below the statistically-derived threshold represent "underlying" performance, and are valid (with some minor considerations for changes in reporting practices) for establishing and evaluating meaningful performance trends over time.

### ***Commitment Targets***

Because of the benefits that the Company and its customers and regulators experienced from the Service Standards Program, and as an important condition during MidAmerican Energy Holdings Company's acquisition of PacifiCorp, the Company and Commission agreed to extend the program through 2011, which the Company considers to be December 31, 2011. From a reliability perspective, the Company continues to develop stretch goals that will deliver important improvements to its customers. For Washington state customers, the Company committed within a 12 month period prior to December 31, 2011 it would deliver outage duration (SAIDI) and outage frequency (SAIFI) results within the 3 year period that met its prior commitment targets, as filed in UE-042131.

## 1.2 Service Territory Map

A map of the Company's service territory will be included. The system will also be shown graphically depicting the area served by the Company.

## 1.3 Outage Definitions

The following are outage cause categories that will be referred to in the annual report.

<b>Cause Category</b>	<b>Description and Examples</b>
<b>Environment</b>	Contamination or Airborne Deposit (i.e., salt, trona ash, other chemical dust, sawdust, etc.); corrosive environment; flooding due to rivers, broken water main, etc.; fire/smoke related to forest, brush or building fires (not including fires due to faults or lightning).
<b>Weather</b>	Wind (excluding windborne material); snow, sleet or blizzard; ice; freezing fog; frost; lightning.
<b>Equipment Failure</b>	Structural deterioration due to age (incl. pole rot); electrical load above limits; failure for no apparent reason; conditions resulting in a pole/cross arm fire due to reduced insulation qualities; equipment affected by fault on nearby equipment (i.e. broken conductor hits another line).
<b>Interference</b>	Willful damage, interference or theft; such as gun shots, rock throwing, etc; customer, contractor or other utility dig-in; contact by outside utility, contractor or other third-party individual; vehicle accident, including car, truck, tractor, aircraft, manned balloon; other interfering object such as straw, shoes, string, balloon.
<b>Animals and Birds</b>	Any problem nest that requires removal, relocation, trimming, etc; any birds, squirrels or other animals, whether or not remains found.
<b>Operational</b>	Accidental Contact by PacifiCorp or PacifiCorp's Contractors (including live-line work); switching error; testing or commissioning error; relay setting error, including wrong fuse size, equipment by-passed; incorrect circuit records or identification; faulty installation or construction; operational or safety restriction.
<b>Loss of Supply</b>	Failure of supply from Generator or Transmission system; failure of distribution substation equipment.
<b>Planned</b>	Transmission requested, affects distribution sub and distribution circuits; Company outage taken to make repairs after storm damage, car hit pole, etc.; construction work, regardless if notice is given; rolling blackouts.
<b>Trees</b>	Growing or falling trees.
<b>Other</b>	Cause Unknown.

## 2.0 Performance

### 2.1 Historic Performance

Within each annual report a tabular and graphical view of total, baseline and normalized reliability results will be provided. They will include at least seven years of history and will explicitly identify the year selected as a baseline against which subsequent report periods' performance will be compared.

### 2.2 Reporting Period Performance

The following information will be provided for the system in each annual report.

1. SAIDI for the period:
  - a. total performance,
  - b. performance excluding SAIDI-based Major Events and
  - c. performance excluding SAIFI-based Major Events),
2. SAIDI Plan for the period,
3. Cumulative SAIDI chart for the period:
  - a. total performance,
  - b. performance excluding SAIDI-based Major Events and
  - c. performance excluding SAIFI-based Major Events,
4. SAIFI for the period:
  - a. total performance,
  - b. performance excluding SAIDI-based Major Events and
  - c. performance excluding SAIFI-based Major Events,
5. SAIFI Plan for the period,
6. Cumulative SAIFI chart for the period:
  - a. total performance,
  - b. performance excluding SAIDI-based Major Events and
  - c. performance excluding SAIFI-based Major Events,
7. CAIDI,
8. CAIDI Plan for the period,
9. System level reliability discussion, including identification of significant events the occurred during the period,
10. Customer interruption outage cause pie charts (excluding SAIDI-based Major Events and SAIFI-based Major Events), and
11. Customer minute interruption outage cause pie charts (excluding SAIDI-based Major Events and SAIFI-based Major Events).

### 2.3 Subsystem Performance

The following information will be provided for the subsystem in each annual report.

1. SAIDI for the period:
  - a. total performance,
  - b. performance excluding SAIDI-based Major Events and
  - c. performance excluding SAIFI-based Major Events, and

2. SAIFI for the period:
  - d. total performance,
  - e. performance excluding SAIDI-based Major Events and
  - f. performance excluding SAIFI-based Major Events.

### **3.0 Areas of Concern**

Annually, the Company will identify five areas of greatest concern. Usually these are considered underperforming circuits, for which the Company has an average improvement target of 20%, to be achieved within five years of circuit selection. The target score is calculated summing the year's circuit performance indicators (CPI) and multiplying by 80%. On an annual basis these results are evaluated (in Section 5).

For the areas identified, the Company will:

1. specifically identify the circuit and its network topology (generally graphically depicted),
2. develop an analysis of the reliability issues the area has faced,
3. identify the root cause of the outage events experienced,
4. detail the actions intended to mitigate any reliability issues,
5. specify the status of the work being performed, and
6. target the completion date for the work being outlined.

### **4.0 Underperforming Circuit Reliability**

The following information will be provided for each year's areas of greatest concern, until the circuits selected for a given year have met the target improvement score. The program year, circuits chosen, circuit baseline score, program year target score and program year's average results will be provided for each year.

### **5.0 Customer Communication Process and Complaints**

This section will provide information regarding the process by which customers and the Company communicate regarding reliability and power quality. Additionally, the Company will report the total number of customer complaints about reliability and power quality that have been made during the reporting period. The complaint detail will distinguish between complaints about sustained interruptions and power quality. The report will also identify if there were any complaints made about major events for the reporting period.

### **6.0 Reporting Period**

Pacific Power will file its annual electric reliability monitoring and reporting plan on May 1 of each year for the prior calendar year.

# 7.0 Appendix A: Baselines and History Through 2010

## WASHINGTON SYSTEM RELIABILITY INDICES

Year	Major Events Included <sup>1</sup>		SAIDI Based Major Events Excluded 2.5 beta		SAIFI Based Major Events Excluded 10% Op Area		Major Events Excluded As Reported (2.5 beta effective 2005)		Normalized Historic Performance <sup>2</sup>	
	SAIDI	SAIFI	SAIDI	SAIFI	SAIDI	SAIFI	SAIDI	SAIFI	SAIDI	SAIFI
2001	110	0.741	53	0.483	54	0.303	78	0.628	53	0.303
2002	183	0.881	86	0.691	109	0.726	107	0.795	86	0.691
2003	126	1.062	91	0.933	89	0.539	98	0.954	89	0.539
2004	172	1.024	87	0.712	119	0.726	123	0.851	87	0.712
2005	128	0.851	110	0.811	121	0.763	111	0.812	110	0.763
2006	242	1.259	121	0.982	187	0.894	122	0.985	121	0.894
2007	146	1.169	122	1.115	114	0.852	122	1.115	114	0.852
2008	329	1.756	131	1.332	129	0.899	131	1.331	129	0.899
2009	182	1.128	162	1.044	162	0.861	161	1.044	162	0.861
2010	107	0.862	107	0.862	97	0.601	103	0.688	97	0.601

**NOTES**

<sup>1</sup>Customer requested and pre-arranged outages are not reported in these metrics

<sup>2</sup>Normalized performance is the result of applying both SAIDI and SAIFI-based major events to establish "underlying" or normalized system performance

<sup>3</sup>2003 was established as PacifiCorp's baseline year, pursuant to UE-981627 and to 480-100-393

