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REPORT NAME: Major Event Report

COMPANY NAME: Pacific Power

DOES REPORT CONTAIN CONFIDENTIAL INFORMATION? No Yes

If yes, please submit only the cover letter electronically. Submit confidential information as directed in OAR 860-001-0070 or the terms of an applicable protective order.

If known, please select designation: RE (Electric) RG (Gas) RW (Water) RO (Other)

Report is required by: OAR OAR 860-023-0161

Statute

Order

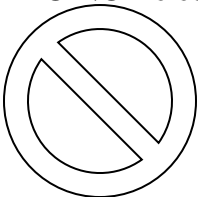
Other

Is this report associated with a specific docket/case? No Yes

If yes, enter docket number: RE 107

List applicable Key Words for this report to facilitate electronic search:
Major Event Report

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- Annual Fee Statement form and payment remittance or
- OUS or RSPF Surcharge form or surcharge remittance or
- Any other Telecommunications Reporting or
- Any daily safety or safety incident reports or
- Accident reports required by ORS 654.715

Please file the above reports according to their individual instructions.



825 NE Multnomah, Suite 2000
Portland, Oregon 97232

October 20, 2017

VIA ELECTRONIC FILING

Public Utility Commission of Oregon
201 High Street SE, Suite 100
Salem, OR 97301-3398

Attn: Filing Center

RE: PacifiCorp Major Event Report

In compliance with OAR 860-023-0161, PacifiCorp d/b/a Pacific Power (PacifiCorp) submits the enclosed report describing a major event that occurred September 10-11, 2017, in the company's Willamette Valley reliability reporting region.

PacifiCorp requests to exclude the outage information for this event from both its network performance reporting and customer guarantee failure payments.

If you require further information regarding this report, please contact Heide Caswell, Director, Engineering and Environmental, at (503) 813-6216.

Sincerely,

A handwritten signature in black ink, appearing to read "Etta Lockey".

Etta Lockey
Vice President, Regulation

Enclosure

cc: Lori Koho/Administrator, Safety, Reliability, and Security Division

Report to the Oregon Public Utility Commission Electric Service Reliability - Major Event Report

Event Date:	September 10-11, 2017
Date Submitted:	October 20, 2017
Primary Affected Locations:	Corvallis
Primary Cause:	Loss of Substation
Exclude from Reporting Status:	Yes
Report Prepared by:	April Brewer
Report Approved by:	Heide Caswell / Kevin Putnam /Pablo Arronte

Event Description

On the morning of September 10, 2017, customers served out of the Mary's River Substation in Corvallis, Oregon began experiencing voltage fluctuations when the load tap changer on the A phase transformer began to mis-operate prior to failing. Initially the event affected approximately 1,800 customers. As crews arrived at the substation and identified the source of the problem, it became apparent that the station needed to be de-energized in order for repairs to be completed. By 4:23 PM feeds to all three circuits served from the Mary's River substation were de-energized, while a mobile transformer was transported to the location and installed. In total, the event affected approximately 4,000 customers with outage durations ranging from 15 hours 35 minutes to 19 hours 6 minutes. After restoration took place another outage occurred when the cooling fan on the mobile failed, which tripped the mobile transformer, causing a second outage event of 33 minutes to all 4,000 customers served out of this substation.

Event Outage Summary	
# Interruptions (sustained)	17
Total Customer Interrupted (sustained)	10,052
Total Customer Minutes Lost	4,110,734
State Event SAIDI	6.87 Minutes
CAIDI	409
Major Event Start	9/10/17 11:52 PM
Major Event End	9/11/17 3:56 PM

Restoration Summary

At 11:52 AM on September 10th the company began receiving calls from customers reporting flickering lights and partial power outages. Personnel were dispatched to the Mary's River Substation where upon inspection they determined that the load tap changer on the A phase of the station transformer was malfunctioning and it was failing. The failed load tap changer began burning the moving and stationary contacts on the phase, which impacted voltage to customers.

The Mary's River Substation is a single transformer station with no field ties available to restore customers. Given the type of damage there were only two available options for restoration, fix the equipment or install a mobile transformer. Repairs to the substation equipment would have taken at least 24 to 48+ hours, therefore it was determined bringing in a mobile transformer would be the quickest way to restore power to customers. Once the restoration plan was determined crews began opening the circuit breakers to the three distribution circuits which feed customers out of the Mary's River Substation, de-energizing feeds to approximately 4,000 customers.

The nearest mobile transformer not currently in use that was capable of handling the load at the Mary's River Substation was located in Roseburg. The Albany district's contingency plan had a heavy haul contractor available to transport the mobile substation. While the pickup and delivery of the mobile transformer was occurring, crews out of Roseburg began preparing the mobile transformer for transport. In addition, crews from Albany were sent to the Mary's River Substation to prepare equipment for the installation of the mobile transformer.

The mobile substation arrived that evening and crews worked through the night installing the temporary equipment. At 6:58 AM on September 11th power was restored. Later that afternoon the cooling fan failed and tripped dropping all distribution feeds for 33 minutes. During the five days which followed, crews worked to make permanent repairs to the substation. On the afternoon of September 15th the mobile substation was disconnected and feed was connected through the substation's transformer.

There were no company and no commission customer complaints made regarding the major event.

Restoration Intervals

Total Customers Sustained	< 3 Hrs.	3 - 24 Hrs.	24-48 Hrs.
10,052	4,240	5,812	0

Restoration Resources ¹

Personnel Resources	
Substation Journeyman	4
Substation Journeyman Working Foreman	3
Substation Relay Tech	2
Lineman/DST	2
Lineman/JMN	1
Line Patrolman	1
Line Foreman	1
General Foreman	1
Logistics Trainee	1
TOTAL	16

Materials	
Tap Changer Kit (will be returned once done (\$20k))	1
Arresters	4
Bushings	4

State Estimated Major Event Costs ¹

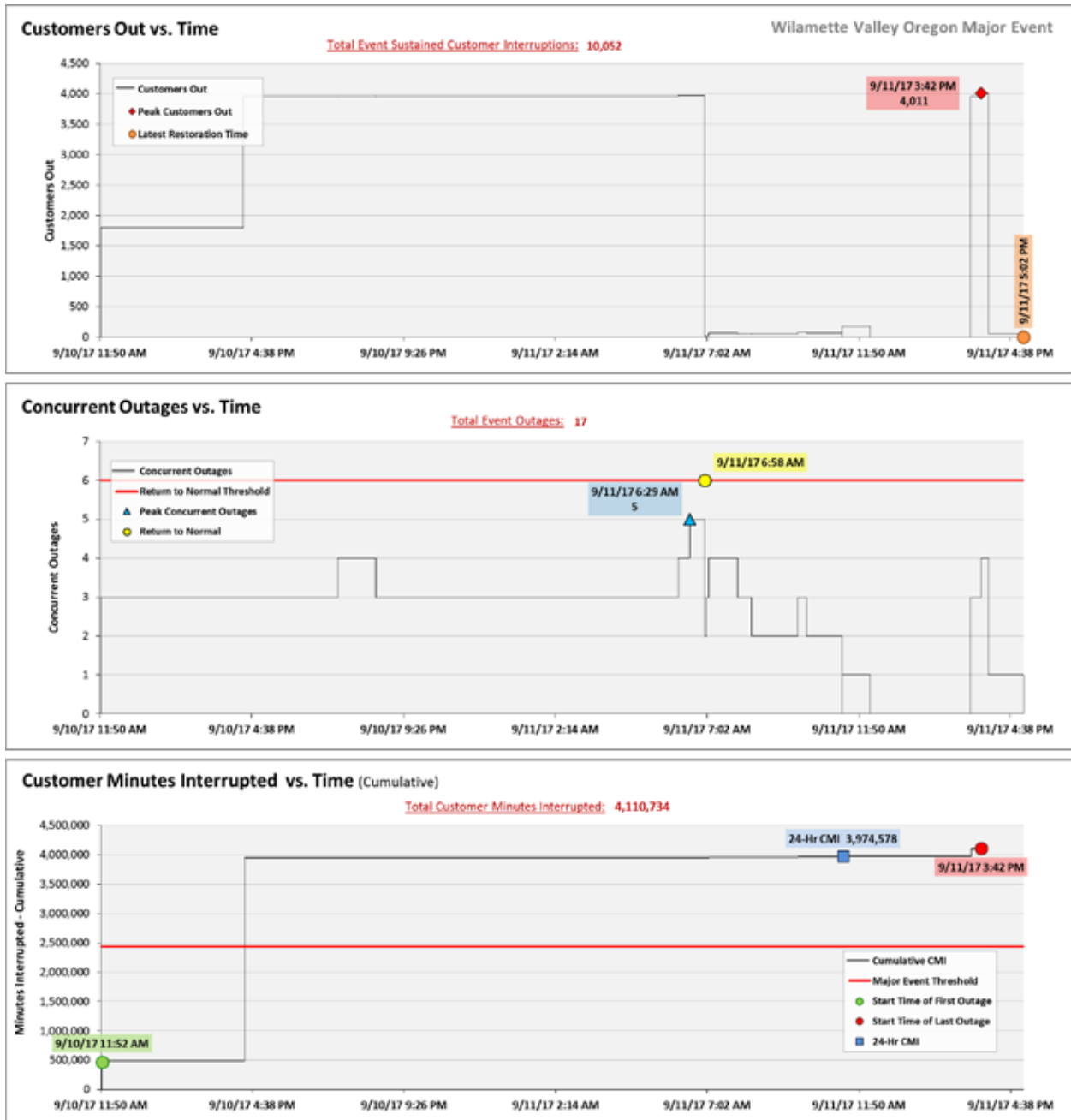
Estimate \$	Labor	Material	Contract Resources	Overhead	Total
Capital Expense	\$ 57,340	\$ 31,887	\$ -	\$ 12,834	\$ 102,062
	\$ 23,128	\$ 6,154	\$ -	\$ 905	\$ 30,186
Total	\$ 80,468	\$ 38,041	\$ -	\$ 13,739	\$ 132,248

Major Event Declaration

PacifiCorp designates these events and the consequences thereof a major event in accordance with OAR 860-023-0161. This is a major event because it exceeded the design or operating limits of the system, and the Major Event Threshold for Willamette Valley Oregon as calculated annually by the company according to IEEE 1366-2003 methodology (commonly referred to as the 2.5 beta method). The company's 2017 Willamette Valley Oregon reliability threshold is 2,439,916 customer minutes lost (20.28 Willamette Valley Oregon SAIDI minutes) in a 24-hour period.

¹ Data provided represents specific system records for personnel, resources, and costs. However additional resources whose participation did not get individually captured in transaction recording systems were utilized during the event, thus the data presented here effectively understates the resources, including cost, involved in restoring the system to normal.

Event Details



SAIDI, SAIFI, CAIDI by Reliability Reporting Region
 Please see the attached system-generated reports.

PacifiCorp Major Event Report

Customer Analysis

Willamette Valley - Oregon		Customer Analysis 9/10/2017 through 9/11/2017					Customers Restored by Intervals									Major Event Only - metric by operating area customer counts		
PacifiCorp Major Events Report Customer Analysis*		Sustained Customers Off	% Sustained Customers Off	CML	Number of Sustained Interruptions	Customer Count	< 5 min	5 min - 3 hrs	3 hrs - 24 hrs	24 hrs - 48 hrs	48 hrs - 72 hrs	72 hrs - 96 hrs	96 + hrs	% Sustained Customers Restored in 3 Hours PS4	SAIDI	SAIFI	CAIDI	
PC	PACIFICORP	10,052	1%	4,110,734	17	1,900,047	-	4,240	5,812	-	-	-	-	42%	2.16	0.005	409	
PP	Pacific Power	10,052	1%	4,110,734	17	779,477	-	4,240	5,812	-	-	-	-	42%	5.27	0.013	409	
OR	Oregon	10,052	2%	4,110,734	17	598,577	-	4,240	5,812	-	-	-	-	42%	6.87	0.017	409	
OR	ALBANY	275	1%	25,653	5	31,250	-	228	47	-	-	-	-	83%	0.82	0.009	93	
OR	CORVALLIS	9,710	33%	4,078,794	9	29,445	-	3,953	5,757	-	-	-	-	41%	138.52	0.330	420	
OR	COTTAGE GROVE	-	0%	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	
OR	DALLAS/INDEPENDENCE	1	0%	117	1	14,918	-	1	-	-	-	-	-	100%	0.01	0.000	117	
OR	LEBANON	8	0%	1,518	1	20,297	-	-	8	-	-	-	-	0%	0.07	0.000	190	
OR	STAYTON	58	0%	4,653	1	13,329	-	58	-	-	-	-	-	100%	0.35	0.004	80	

*Only current event specific metric impact shown. Does not include values from other events which may have occurred in other regions during the same time period.

Date*	Customer Interrupted by Date 9/10/2017 through 9/11/2017					Customers Restored by Intervals									Major Event Only - metric by state customer counts		
	Sustained Customers Off	% Sustained Customers Off	CML	Number of Sustained Interruptions	Average Customer Count	< 5 min	5 min - 3 hrs	3 hrs - 24 hrs	24 hrs - 48 hrs	48 hrs - 72 hrs	72 hrs - 96 hrs	96 + hrs	% Sustained Customers Restored in 3 Hours PS4	SAIDI	SAIFI	CAIDI	
9/10/2017	5,762	1%	3,947,652	7	598,577	-	5	5,757	-	-	-	-	0%	6.60	0.010	685	
9/11/2017	4,290	1%	163,082	10	598,577	-	4,235	55	-	-	-	-	99%	0.27	0.007	38	

Data as of
10/10/2017

PacifiCorp Major Event Report
SSC by State Analysis

	Willamette Valley - Oregon	Event 09/10/17 through 09/11/17						Month 09/01/17 through 09/30/17						YTD FY2018 01/01/17 through 09/30/17					
		Major Events Included			Major Event Excluded			Major Events Included			Major Events Excluded*			Major Events Included			Major Events Excluded*		
		SAIDI	SAIFI	CAIDI	SAIDI	SAIFI	CAIDI	SAIDI	SAIFI	CAIDI	SAIDI	SAIFI	CAIDI	SAIDI	SAIFI	CAIDI	SAIDI	SAIFI	CAIDI
	PacifiCorp Major Events Report SSC by State																		
PC	PACIFICORP	2.38	0.007	338	0.22	0.002	124	15.51	0.125	124	10.42	0.103	101	190.01	1.251	152	103.99	0.965	108
PP	Pacific Power	5.49	0.015	374	0.21	0.002	120	11.69	0.083	141	6.41	0.070	92	273.92	1.524	180	89.10	0.961	93
OR	Oregon	7.10	0.019	376	0.23	0.002	111	14.16	0.098	145	7.29	0.081	90	278.59	1.575	177	86.13	0.994	87
OR	ALBANY	0.12	0.001	84	0.07	0.001	80	0.28	0.003	106	0.24	0.002	108	11.06	0.071	157	2.88	0.041	70
OR	CORVALLIS	6.81	0.016	420	-	-	-	7.09	0.019	382	0.28	0.002	120	17.06	0.157	109	9.33	0.139	67
OR	COTTAGE GROVE/J.CITY	-	-	-	-	-	-	0.58	0.009	66	0.58	0.009	66	1.73	0.017	100	1.20	0.013	96
OR	DALLAS/INDEPENDENCE	0.00	0.000	117	-	-	-	0.15	0.001	242	0.15	0.001	243	4.52	0.070	65	4.08	0.069	59
OR	LEBANON	0.03	0.000	74	0.02	0.000	69	0.61	0.007	82	0.61	0.007	82	16.82	0.074	226	5.91	0.036	166
OR	STAYTON	0.01	0.000	80	-	-	-	0.09	0.001	80	0.08	0.001	80	15.11	0.080	189	4.06	0.045	89

*may include other regional major event exclusions during the same period. Operating areas are calculated by the state frozen customer count metrics.

Data as/of
10/10/2017