



e-FILING REPORT COVER SHEET

COMPANY NAME: PacifiCorp d/b/a Pacific Power

DOES REPORT CONTAIN CONFIDENTIAL INFORMATION? No Yes If yes, submit a redacted public version (or a cover letter) by email. Submit the confidential information as directed in OAR 860-001-0070 or the terms of an applicable protective order.

Select report type: RE (Electric) RG (Gas) RW (Water) RT (Telecommunications)
 RO (Other, for example, industry safety information)

Did you previously file a similar report? No Yes, report docket number: RE 107

Report is required by: OAR 860-023-0161

Statute

Order

Note: A one-time submission required by an order is a compliance filing and not a report (file compliance in the applicable docket)

Other

(For example, federal regulations, or requested by Staff)

Is this report associated with a specific docket/case? No Yes, docket number: RE 107

List Key Words for this report. We use these to improve search results.

Major Event Report

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825 NE Multnomah, Suite 2000
Portland, Oregon 97232

July 14, 2020

VIA ELECTRONIC FILING

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

RE: RE 107—PacifiCorp Major Event Report

In compliance with OAR 860-023-0161, PacifiCorp d/b/a Pacific Power submits the enclosed report describing a major event that occurred May 30, 2020 through June 2, 2020, in the company's central and northern Oregon reliability reporting regions.

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,

Michael Wilding
Director, Net Power Costs and Regulatory Policy

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: May 30 - June 2, 2020

Date Submitted: July 14, 2020

Primary Affected Locations: Central and Northern Oregon

Primary Cause: Spring Storm

Exclude from Reporting Status: Yes

Report Prepared by: April Brewer

Report Approved by: Heide Caswell / Carrie Laird / Milton Buker

Event Description and Restoration Summary

Event Outage Summary	
# Outages (sustained)	251
Total Customer Interrupted (sustained)	29,295
Total Customer Minutes Lost	14,352,370
State Event SAIDI	23.25 Minutes
CAIDI	490
Major Event Start	5/30/2020 12:00 a.m.
Major Event End	6/2/2020 8:41p.m.

From May 30, 2020 to June 2, 2020, customers in Oregon experienced numerous outages when a spring storm severely impacted reliability across Pacific Power’s service territory. The storm began in the early morning of May 30th, with customers from Medford to Pendleton experiencing outages as a result of lightning and local winds. Throughout the day the storm continued to develop into high winds, causing an increase in outage events in the Madras and Hermiston regions (Figure 1). The storm produced sustained winds from the south, with recorded wind gust measurements as high as 44 MPH in the Madras region and 75 MPH in the Hermiston region, shown below in Figures 2 and 3.¹ Table 1 below shows wind readings from stations closest to the Madras and Hermiston service territories. In addition to the high winds, beginning around 1:00 p.m. heavy rain began to fall in the Madras region, dropping approximately 0.32 inches of water in an hour (Figure 4). The rapid growth and development of the storm caused over 138 outages in first 24 hours (May 30th) of the event, another 55 outages in the second day (May 31st), 43 outages on the third day (June 1st), and 29 outages on the fourth day (June 2nd). At 4:49 p.m. on May 30th the total customers without power peaked at 14,196.

¹ Remote Automatic Weather Station (RAWS). <https://raws.dri.edu/>

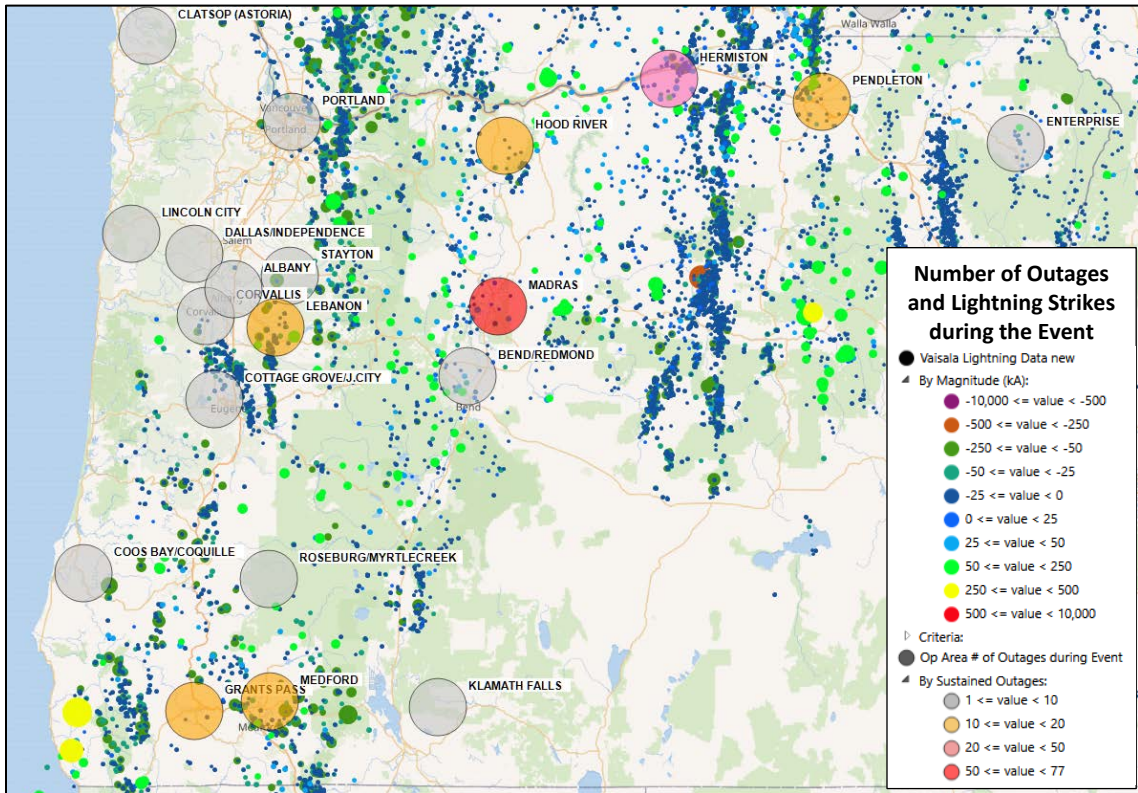


Figure 1. Number of Outages and Lightning Strikes during the Event.

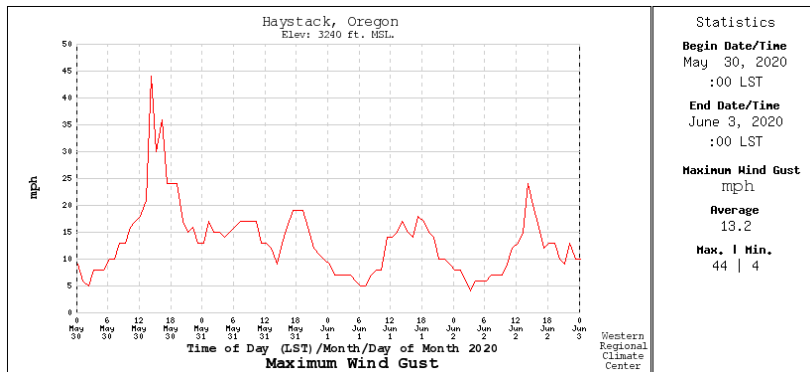


Figure 2. Haystack, Oregon RAS Wind Gust measurements May 30th through June 2nd.

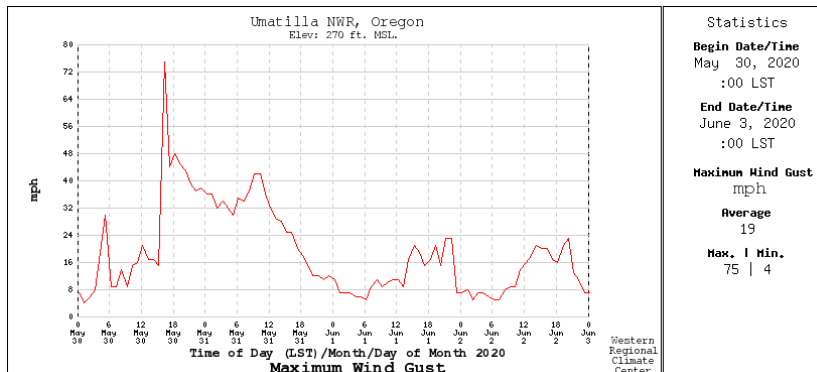


Figure 3. Umatilla NWR, Oregon RAS Wind Gust measurements May 30th through June 2nd.

Table 1. Daily wind station readings for Haystack, Oregon and Umatilla NWR Stations, Oregon RAWs.

Daily Wind Speed (MHP)								
Day	Madras				Hermiston			
	Wind Speed		Wind Gust		Wind Speed		Wind Gust	
	Avg.	Max.	Avg.	Max.	Avg.	Max.	Avg.	Max.
5/30	8.9	19	16.7	44	13.0	32	24.8	75
5/31	8.0	12	14.5	19	18.3	31	27.0	42
6/1	5.0	10	10.6	18	7.2	17	12.1	23
6/2	5.6	13	10.5	24	7.2	15	12.0	23

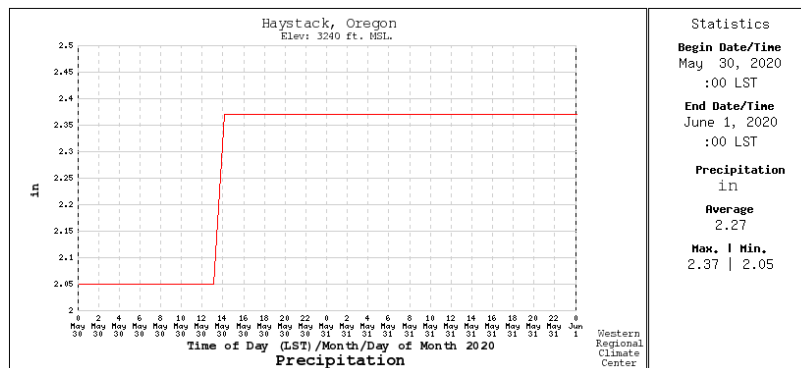


Figure 4. Haystack, Oregon precipitation during from May 30th through May 31st

The magnitude and severity of the storm during its initial onset, coupled with the large number of outages and affected customers, as described above, became a large task for crews in the Madras and Hermiston regions. As a whole, the state typically experiences an average of 10 outages a day, compared to the 251 experienced over the 3-day major event. Because the storm also impacted the company’s service areas in Washington, crews from Washington had limited availability to assist with restoration efforts in the Madras and Hermiston regions. The company dispatched approximately 235 employees, including crews from Roseburg, Albany, and Klamath Falls, and several contract crews to assist with the restoration process. The majority of outages were the result of broken poles and downed conductor, along with service transformers that needed to be replaced. Restoration often involved crews clearing downed trees and vegetation from roads and right of ways in order to access damaged equipment and make repairs.

During the event, wind and vegetation-related interference (essentially wind-borne debris) were the most significant cause of outages (Figure 5). Wind, in combination with downed trees and broken branches, caused 66% of all customer minutes lost and 45% of all customer interruptions. In addition, wind and vegetation-related interference damaged transmission lines, causing several loss of supply outages. The loss of supply outages during the event accounted for 25% of the total event minutes and 24% of all customer interruptions. Approximately 29,300 customer interruptions were experienced, some of whom were impacted multiple times over the duration of the storm, see Figure 6 below. Outage durations during the event ranged from 7 minutes to 3 days 2 hours 29 minutes, with an average cumulative outage duration of 8 hours 10 minutes.

To date, there have been no company or commission customer complaints made regarding the major event.

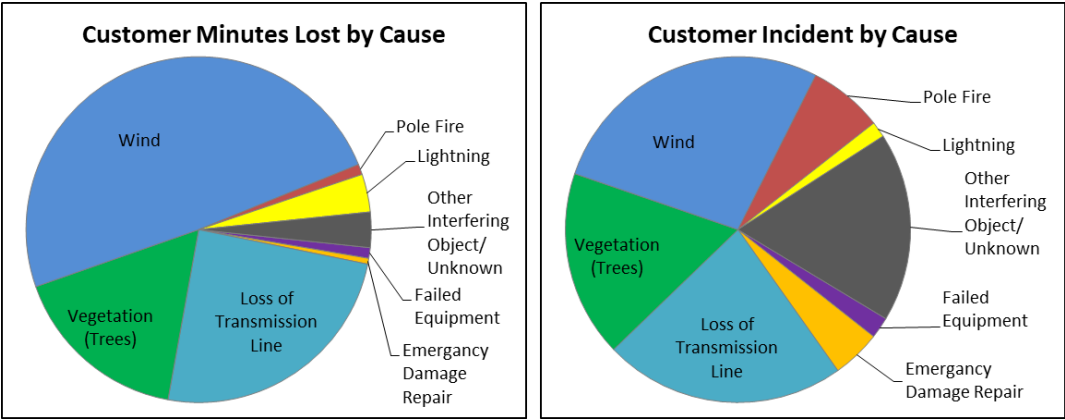


Figure 5. Percent of customer Minutes lost and % of customer incidents experienced by cause.

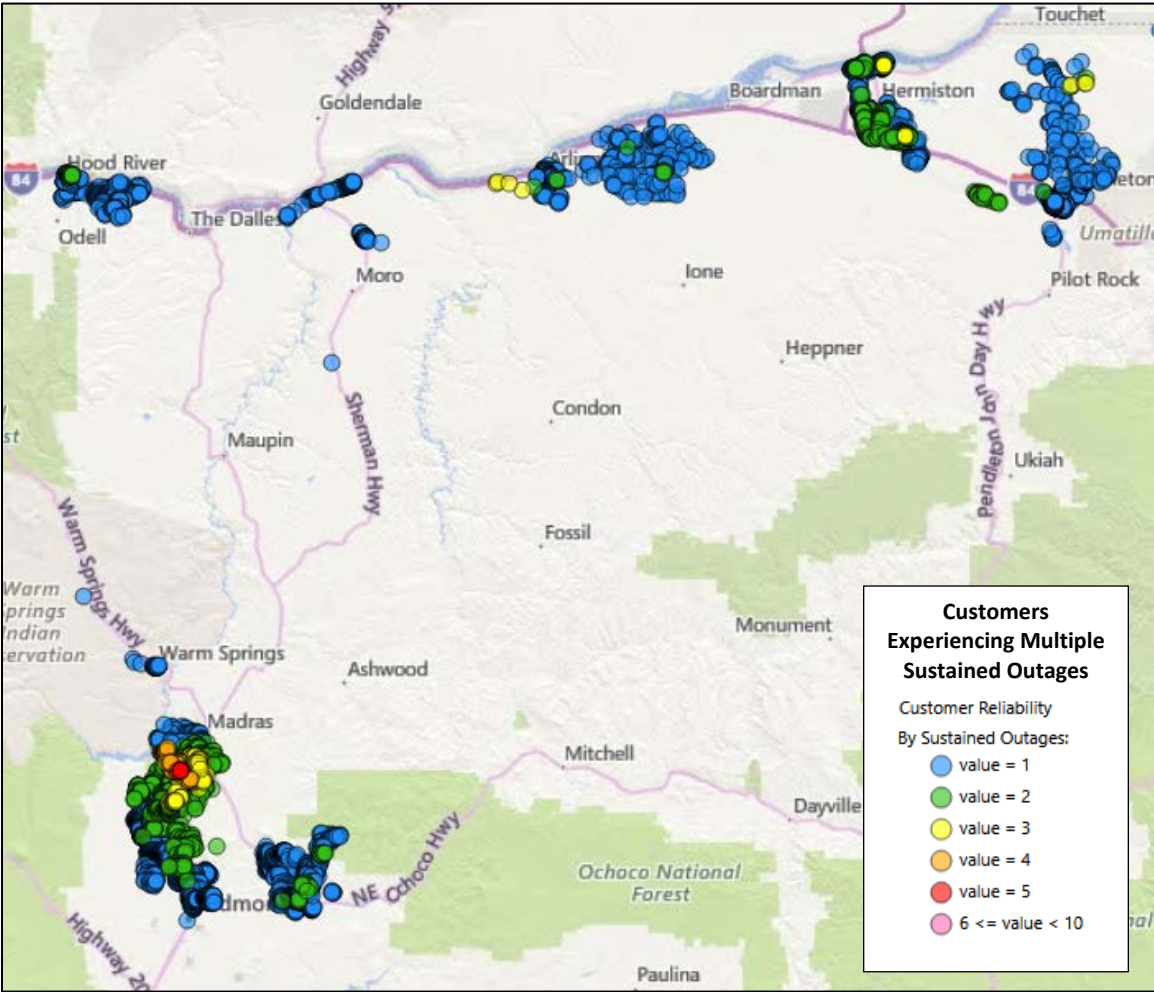


Figure 6. Customers in Madras and Hermiston, experiencing multiple sustained outages during the major event period.

Restoration Intervals

Total Customers Sustained	< 3 Hrs.	3 - 24 Hrs.	24-48 Hrs.	48-72 Hrs.	72-75 Hrs.
29,295	16,387	8,520	3,782	596	10

Restoration Resources

Personnel Resources	
District Lineman	1
Estimator	7
General Foreman	5
Inspection Specialist	1
Line Foreman	16
Line Patrolman	4
Lineman	43
Lineman Representative	4
Mechanic	2
Meter Working Foreman	1
Metermen	4
Flaggers	13
Serviceman	12
Substation Relay Tech	3
Substation Wireman	4
Transformer Repairman	1
Utility Specialist	1
Support Staff	14
Contractors	70
Tree Crewman	30
TOTAL	236

Materials	
# Distribution Poles	74
# Transmission Poles	9
# Approx. conductor Line (feet)	5,017 ft.
# Transformers	74
# Crossarms	121
Insulators	638
Cutouts	125
Line fuses	4
Line splices	138

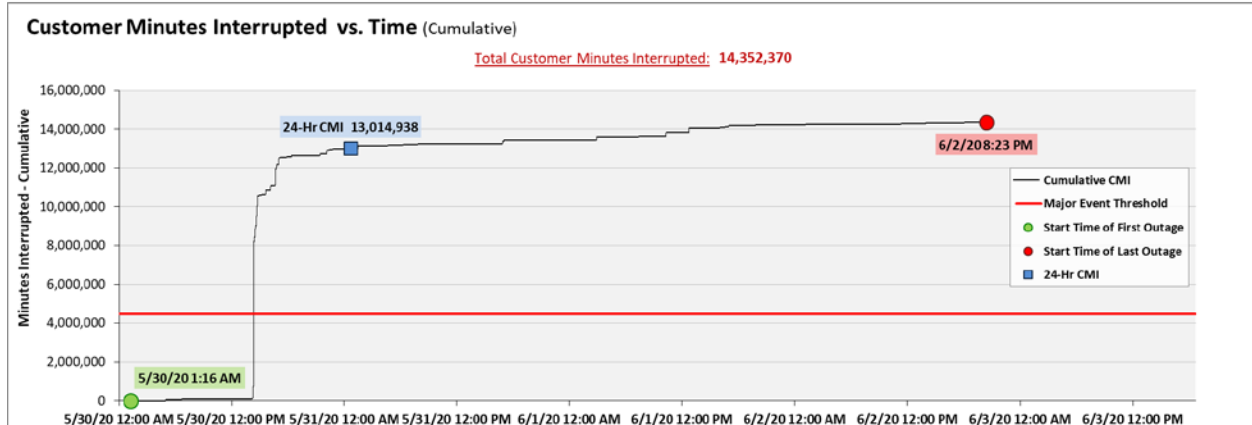
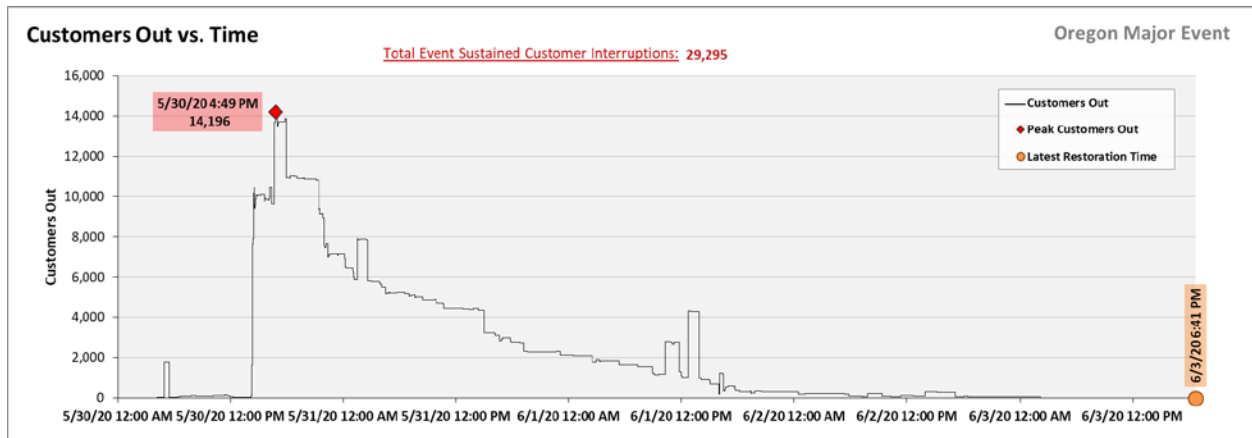
State Estimated Major Event Costs

Estimate \$	Labor	Contracts	Material	Overheads	Total
Capital	\$669,713	\$596,921	\$176,930	\$91,255	\$1,534,818
Expense	\$163,437	\$33,299	\$350	\$6,263	\$203,349
Total	\$833,150	\$630,220	\$177,279	\$97,518	\$1,738,167

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 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 2020 Oregon reliability threshold is 4,480,143 customer minutes lost (7.26 Oregon SAIDI minutes) in a 24-hour period.

Event Detail



SAIDI, SAIFI, CAIDI by Reliability Reporting Region

Please see the attached system-generated reports.

PacifiCorp Major Event Report
Customer Analysis

Oregon		Customer Analysis 5/30/20 through 6/2/20					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	29,295	1%	14,352,370	251	1,982,346	11,344	16,387	8,520	3,782	596	10	-	56%	7.24	0.015	490
PP	Pacific Power	29,295	4%	14,352,370	251	799,297	11,344	16,387	8,520	3,782	596	10	-	56%	17.96	0.037	490
OR	Oregon	29,295	5%	14,352,370	251	617,333	11,344	16,387	8,520	3,782	596	10	-	56%	23.25	0.047	490
OR	ALBANY	1,721	5%	200,158	7	32,228	-	1,519	202	-	-	-	-	88%	6.21	0.053	116
OR	BEND/REDMOND	4,250	6%	4,000,607	9	67,328	1,588	65	2,569	1,616	-	-	-	2%	59.42	0.063	941
OR	CLATSOP (ASTORIA)	4	0%	472	1	25,031	-	4	-	-	-	-	-	100%	0.02	0.000	118
OR	COOS BAY/COQUILLE	234	1%	36,076	7	26,390	2,099	177	57	-	-	-	-	76%	1.37	0.009	154
OR	CORVALLIS	83	0%	5,922	6	29,956	-	74	9	-	-	-	-	89%	0.20	0.003	71
OR	COTTAGE GROVE/J.CITY	33	0%	4,284	5	11,322	-	29	4	-	-	-	-	88%	0.38	0.003	130
OR	DALLAS/INDEPENDENCE	52	0%	23,905	3	15,581	-	3	49	-	-	-	-	6%	1.53	0.003	460
OR	ENTERPRISE	245	4%	115,338	4	5,476	-	-	245	-	-	-	-	0%	21.06	0.045	471
OR	GRANTS PASS	188	0%	57,642	14	52,143	1,024	15	173	-	-	-	-	8%	1.11	0.004	307
OR	HERMISTON	5,355	111%	1,738,000	38	4,829	111	2,945	2,099	307	4	-	-	55%	359.91	1.109	325
OR	HOOD RIVER	1,746	18%	614,454	10	9,546	-	359	1,387	-	-	-	-	21%	64.37	0.183	352
OR	KLAMATH FALLS	7	0%	801	5	37,763	-	6	1	-	-	-	-	86%	0.02	0.000	114
OR	LEBANON	224	1%	44,745	11	20,901	1	5	219	-	-	-	-	2%	2.14	0.011	200
OR	LINCOLN CITY	49	0%	17,428	1	12,330	-	-	49	-	-	-	-	0%	1.41	0.004	356
OR	MADRAS	7,708	45%	6,974,405	74	17,235	6,521	3,946	1,316	1,845	591	10	-	51%	404.67	0.447	905
OR	MEDFORD	63	0%	13,431	18	91,033	-	35	28	-	-	-	-	56%	0.15	0.001	213
OR	PENDLETON	3,925	30%	259,516	18	12,943	-	3,846	64	14	1	-	-	98%	20.05	0.303	66
OR	PORTLAND	3,336	4%	231,696	4	83,892	-	3,314	22	-	-	-	-	99%	2.76	0.040	69
OR	ROSEBURG/MYRTLECREEK	51	0%	8,784	9	42,857	-	31	20	-	-	-	-	61%	0.20	0.001	172
OR	STAYTON	16	0%	3,372	3	13,825	-	13	3	-	-	-	-	81%	0.24	0.001	211
OR	WALLA WALLA	5	0%	1,335	4	2,312	-	1	4	-	-	-	-	20%	0.58	0.002	267

*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.

Customer Interrupted by Date 5/30/20 through 6/2/20		Customers Restored by Intervals								Major Event Only - metric by state customer counts						
Date*	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
5/30/20	19,562	3%	12,995,423	127	617,333	7,977	7,905	7,420	3,638	589	10	-	40%	21.05	0.032	664
5/31/20	2,511	0%	461,387	55	617,333	-	2,107	387	11	6	-	-	84%	0.75	0.004	184
6/1/20	6,707	1%	776,827	41	617,333	1,268	6,207	366	133	1	-	-	93%	1.26	0.011	116
6/2/20	515	0%	118,733	28	617,333	2,099	168	347	-	-	-	-	33%	0.19	0.001	231

PacifiCorp Major Event Report

SSC by State Analysis

	Oregon	Event Days 05/30/20 through 06/02/20						Month 06/01/20 through 06/30/20						YTD FY2021 01/01/20 through 06/30/20					
		Major Events Included			Major Event Excluded			Major Events Included			Major Events Excluded*			Major Events Included			Major Events Excluded*		
	PacifiCorp Major Events Report SSC by State	SAIDI	SAIFI	CAIDI	SAIDI	SAIFI	CAIDI	SAIDI	SAIFI	CAIDI	SAIDI	SAIFI	CAIDI	SAIDI	SAIFI	CAIDI	SAIDI	SAIFI	CAIDI
PC	PACIFICORP	18.27	0.045	409	2.25	0.018	126	25.76	0.166	155	13.14	0.111	118	112.49	0.635	177	48.75	0.468	104
PP	Pacific Power	39.96	0.068	592	0.24	0.001	209	18.11	0.132	137	12.75	0.102	125	159.57	0.618	258	48.79	0.420	116
OR	Oregon	23.25	0.047	490	-	-	-	20.71	0.152	136	13.98	0.113	123	154.56	0.584	265	46.09	0.410	112
OR	ALBANY	0.32	0.003	116	-	-	-	0.77	0.009	85	0.43	0.006	70	1.83	0.017	107	1.44	0.014	103
OR	BEND/REDMOND	6.48	0.007	941	-	-	-	0.39	0.001	297	0.39	0.001	296	10.59	0.027	387	1.16	0.012	100
OR	CLATSOP (ASTORIA)	0.00	0.000	118	-	-	-	0.51	0.001	431	0.51	0.001	433	3.35	0.038	88	3.15	0.036	87
OR	COOS BAY/COQUILLE	0.06	0.000	154	-	-	-	0.48	0.006	80	0.46	0.006	79	1.45	0.014	107	1.31	0.012	109
OR	CORVALLIS	0.01	0.000	71	-	-	-	0.13	0.001	116	0.11	0.001	155	0.93	0.007	138	0.91	0.006	145
OR	COTTAGE GROVE/J.CITY	0.01	0.000	130	-	-	-	0.03	0.000	206	0.03	0.000	206	1.34	0.014	93	1.29	0.014	91
OR	DALLAS/INDEPENDENCE	0.04	0.000	460	-	-	-	6.30	0.031	200	1.01	0.005	203	6.85	0.036	189	1.56	0.010	161
OR	ENTERPRISE	0.19	0.000	471	-	-	-	0.11	0.001	205	0.11	0.001	205	0.84	0.003	263	0.40	0.002	180
OR	GRANTS PASS	0.09	0.000	307	-	-	-	0.60	0.003	182	0.60	0.003	182	76.00	0.101	753	7.05	0.055	128
OR	HERMISTON	2.82	0.009	325	-	-	-	0.02	0.000	69	0.02	0.000	61	3.35	0.016	215	0.51	0.007	75
OR	HOOD RIVER	1.00	0.003	352	-	-	-	0.46	0.002	208	0.46	0.002	208	2.06	0.009	225	1.05	0.006	168
OR	KLAMATH FALLS	0.00	0.000	114	-	-	-	0.31	0.003	98	0.30	0.003	98	1.93	0.017	112	1.87	0.017	110
OR	LAKEVIEW	-	-	-	-	-	-	0.00	0.000	89	0.00	0.000	89	0.13	0.001	189	0.13	0.001	189
OR	LEBANON	0.07	0.000	200	-	-	-	0.45	0.005	94	0.39	0.005	86	0.89	0.008	105	0.79	0.008	99
OR	LINCOLN CITY	0.03	0.000	356	-	-	-	0.36	0.005	80	0.33	0.004	75	1.78	0.021	84	1.75	0.021	83
OR	MADRAS	11.30	0.012	905	-	-	-	0.68	0.004	173	0.11	0.001	83	11.65	0.017	703	0.33	0.004	90
OR	MEDFORD	0.02	0.000	213	-	-	-	4.69	0.041	114	4.68	0.041	114	11.03	0.080	138	8.32	0.071	117
OR	PENDLETON	0.42	0.006	66	-	-	-	0.48	0.007	71	0.47	0.007	70	1.93	0.019	103	1.20	0.012	102
OR	PORTLAND	0.38	0.005	69	-	-	-	3.60	0.024	153	3.23	0.018	178	7.23	0.050	144	6.41	0.044	146
OR	ROSEBURG/MYRTLECREEK	0.01	0.000	172	-	-	-	0.08	0.001	168	0.08	0.001	168	6.47	0.060	108	2.69	0.031	87
OR	STAYTON	0.01	0.000	211	-	-	-	0.23	0.007	34	0.23	0.007	34	2.68	0.027	98	2.58	0.026	98
OR	WALLA WALLA	0.00	0.000	267	-	-	-	0.02	0.000	216	0.02	0.000	216	0.26	0.001	214	0.19	0.001	215

*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
7/2/20