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COMPANY NAME:

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 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

Send the completed Cover Sheet and the Report in an email addressed to PUC.FilingCenter@state.or.us

Send confidential information, voluminous reports, or energy utility Results of Operations Reports to PUC Filing Center, PO Box 1088, Salem, OR 97308-1088 or by delivery service to 201 High Street SE Suite 100, Salem, OR 97301.



825 NE Multnomah, Suite 2000
Portland, Oregon 97232

April 16, 2019

VIA ELECTRONIC FILING

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

Attn: Filing Center

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 February 24, 2019 – March 5, 2019, in the company's interior Willamette Valley service area as a result of Winter Storm Ryan.

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,

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: February 24, 2019 – March 5, 2019

Date Submitted: April 16, 2019

Primary Affected Locations: Oregon

Primary Cause: Weather

Exclude from Reporting Status: Yes

Report Prepared by: April Brewer

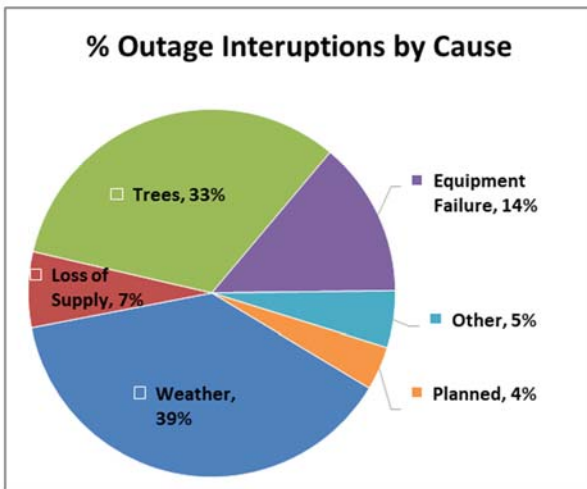
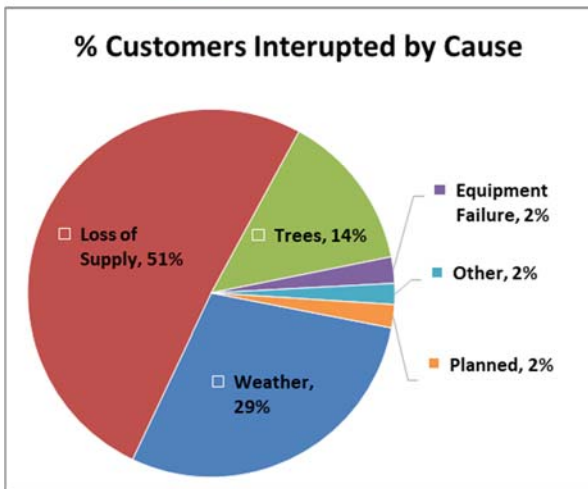
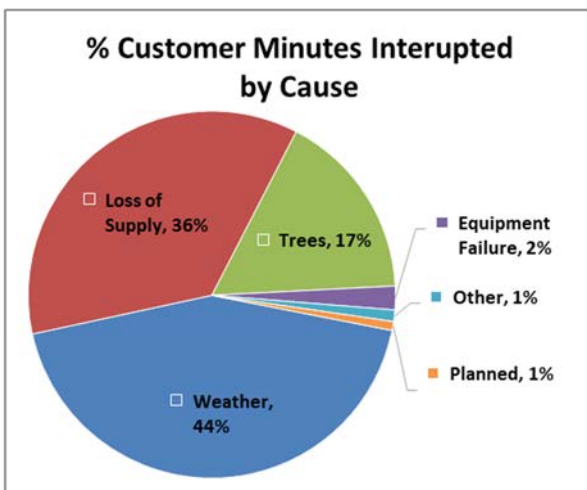
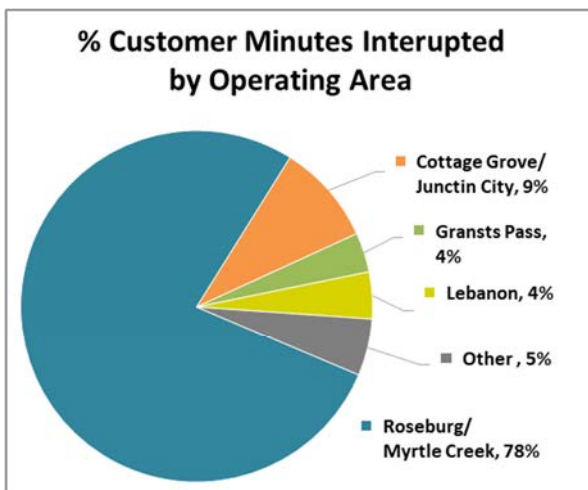
Report Approved by: Heide Caswell/Larry Young/Carrie Laird

Event Description

On February 24, 2019, areas across Oregon began experiencing outages as the result of a severe weather event known as Winter Storm Ryan. Over the course of several days, the interior Willamette Valley area, which often experiences limited annual snow fall, experienced several feet of snow. The large accumulation of wet snow heavily impacted equipment, as snow loaded conductor and trees downed numerous transmission and distribution lines, and damaged equipment.

Over 1,100 outage events occurred causing more than 146,500 Oregon customer outages over the course of the 10-day event. On February 25, 2019, at 11:03 a.m. the number of customers without power in Oregon peaked at 57,942 customers. Regions in southern Oregon were significantly impacted, with Roseburg experiencing 78% of all customer minutes impacted and 46% of all customer outages, while Cottage Grove experienced 9% of all the customer minutes impacted and 12% of all customer outages. During the major event, 35% of customers outages were restored within three hours, 38% were restored within 24 hours and 27% of customer outages exceeding 24 hours. The graphics below show the percentage of customer minutes interrupted by cause and operating areas.

Event Outage Summary	
# Interruptions (sustained)	1,197
Total Customer Interrupted (sustained)	146,538
Total Customer Minutes Lost	169,820,575
State Event SAIDI	274.9 Minutes
CAIDI	1159
Major Event Start	2/24/19 12:00 AM
Major Event End	3/5/19 12:00 PM



Restoration Summary

On the morning of February 24, 2019, operating areas across the state began experiencing weather-related outages as Winter Storm Ryan was developing. The storm initially began in the southern Willamette Valley with weather forecasts indicating the storm would push to the north. Crews across the region were placed on standby as they waited for the impact of the storm to hit.

The Roseburg area was the first to experience the impact of the storm as a large amount of wet snow quickly began accumulating. The rapid build-up of snow significantly strained trees eventually causing trees and limbs to break, many of which downed numerous spans of remote transmission lines. When the transmission lines went down feed to numerous substations was lost and thousands of customers lost power. Crews were quickly dispatched to evaluate, repair and restore power, however their response was met with snow covered roads and downed trees, limiting their ability to access damaged equipment. In addition, local transportation resources experienced the same constraints as limited snow plows and personnel were available to deal with the expansive snow accumulation during these rare weather events.

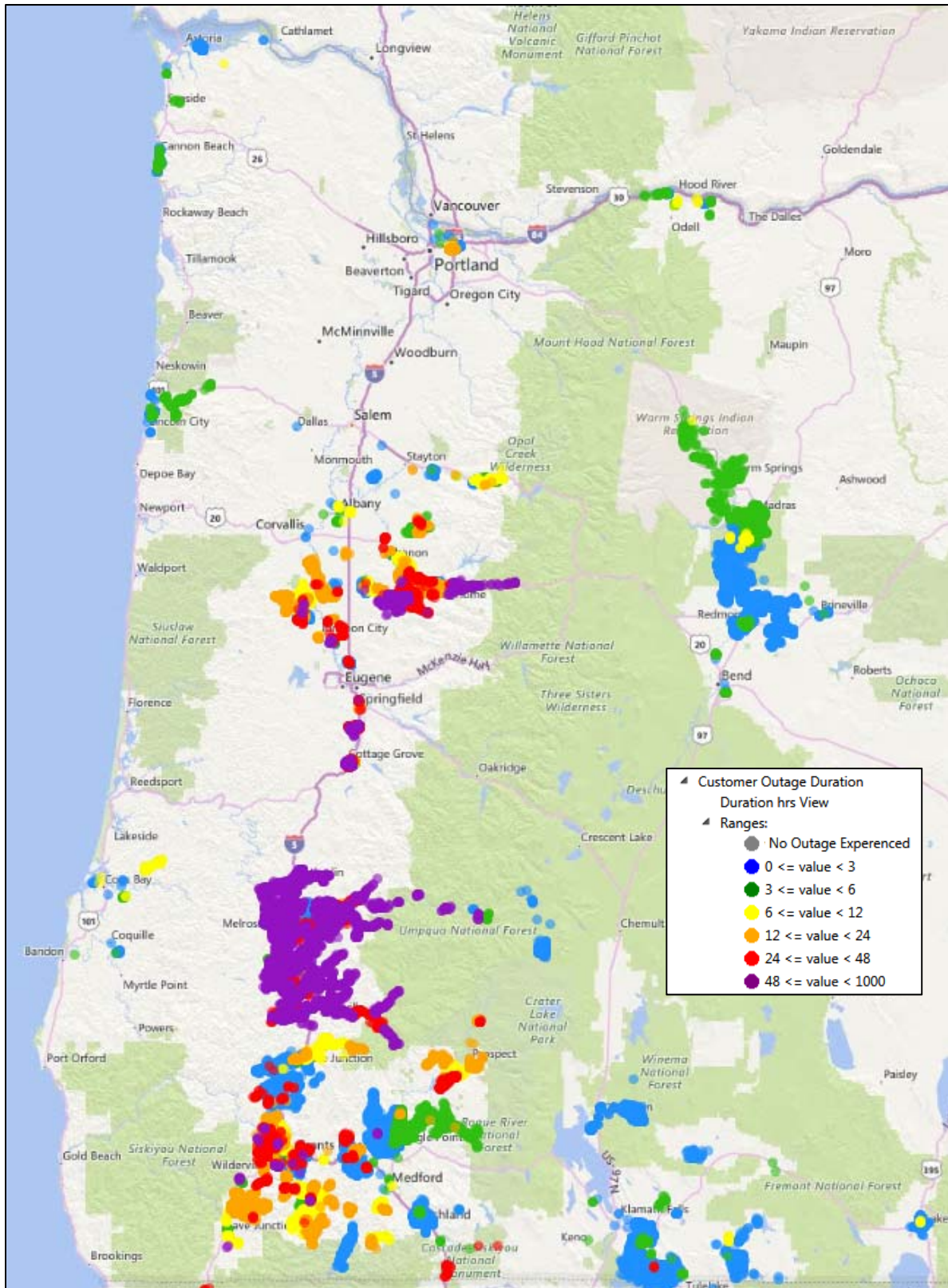
On the morning of February 25, 2019, Pacific Power’s Emergency Operation Center was activated. Internal and external line crews from across the region were dispatch to the Albany and Roseburg

area to assist in restoration activities. Mutual assistance was requested from Clark County PUD and Avista Corporation, who both sent two crews. In addition to the numerous line crews dispatched to the south; estimators, logistics, service coordinators, area managers, and numerous tree crews were deployed from across the region to assist in managing crews, equipment, and location details for outages. Additional poles and equipment were also shipped to aid in restoration.

Crews worked around the clock, clearing debris, surveying damage and restoring power. Helicopter patrols assisted in determining the extent and location of transmission line damages, as transmission lines in this region are often located in rural areas surrounded by dense vegetation and steep terrain.

Over 523 Pacific Power linemen, tree trimmers, support staff, and contractors were utilized during the event. In addition to personnel, over 164 poles, 99 transformers, 456 crossarms, and over 242,000 conductor feet were needed to restore power. There were no complaints received by the company and three commission customer complaints made regarding the major event.

The graphic below displays the customer outages during the event colored by cumulative outage duration.



Restoration Intervals

Total Customers Sustained	< 3 Hrs.	3 - 24 Hrs.	24-48 Hrs.	48-72 Hrs.	72-96 Hrs.	96+ Hrs.
146,538	51,799	55,828	19,728	10,953	4,170	4,060

Restoration Resources and State Estimated Major Event Costs ¹

Personnel Resources			
Collector	7	Metermen	9
Communication Tech	2	Service Coordinator	27
Engineer	1	Site Agent	1
Estimator	28	Substation Relay Tech	4
General Foreman	13	Substation Wireman	12
Journeyman	36	Telecomm Engineer	1
Line Foreman	37	Transformer Repairman Foreman	1
Line Patrolman	8	Utility Specialist	1
Lineman	107	Contract Crewman	142
Logistics	25	Tree Crews	31
Mechanic	16	Flaggers	5
Meter Reader	9	TOTAL	523

Materials	
# Poles (D)	132
# Poles (T)	32
# Approx. conductor Line (feet)	242,831
# Transformers	99
# Crossarms	456
Insulators	1,859
Cutouts	338
Line fuses	1,324
Line splices	11,228
Guy wire (feet)	6,406
Specialized Equipment Utilized	
# Helicopters	4

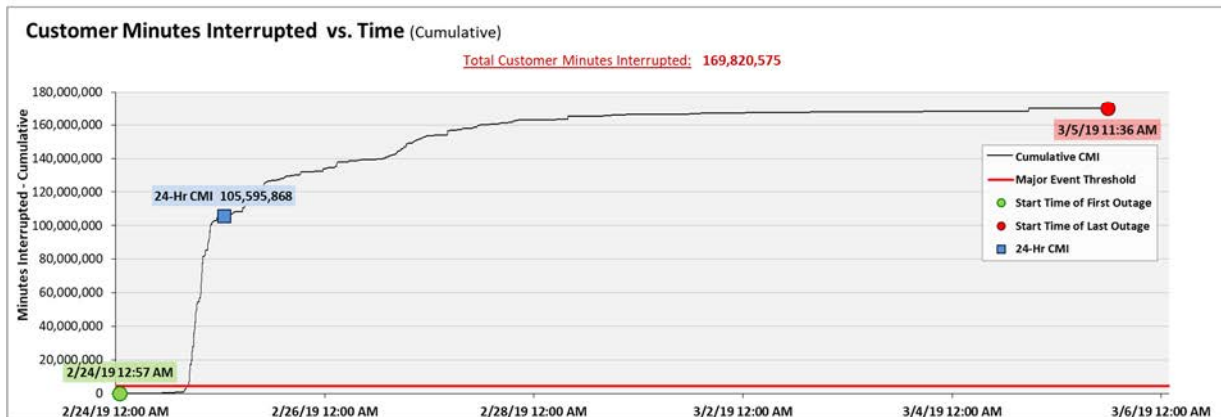
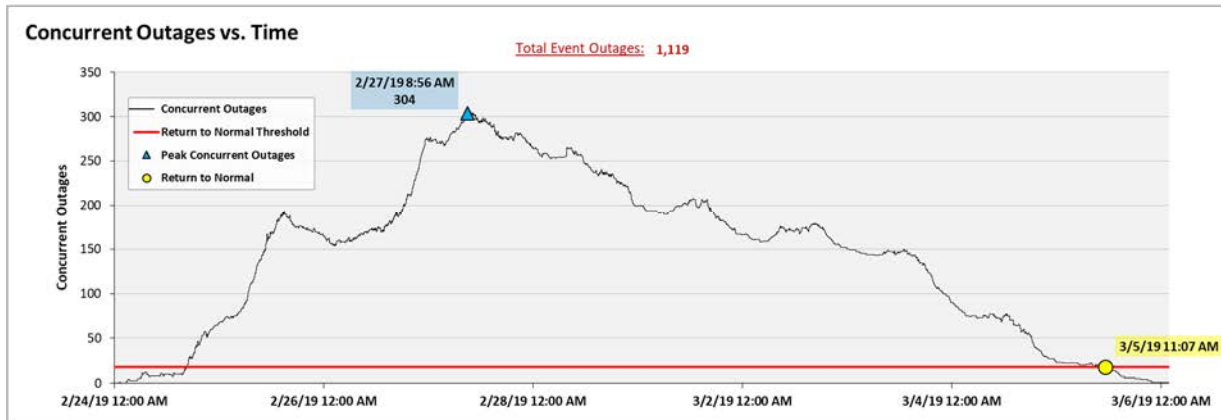
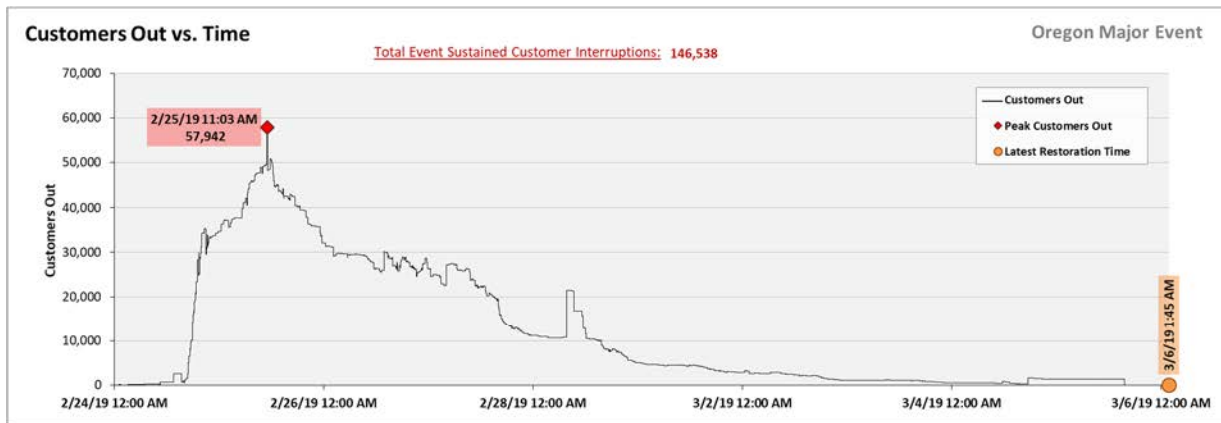
Estimate \$	Labor	Contract Resources	Materials	Overheads	Total
Capital	\$480,052	\$831,456	\$246,329	\$52,590	\$1,610,427
Expense	\$4,428,936	\$3,969,550	\$242,288	\$83,636	\$8,724,410
Total	\$4,908,988	\$4,801,006	\$488,617	\$136,226	\$10,334,837

¹ Data provided represents specific system records for personnel, resources, and costs; and is specific to the event, not inclusive of state delineation. 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.

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 2019 Oregon reliability threshold is 4,379,315 customer minutes lost (7.09 Oregon SAIDI minutes) in a 24-hour period.

Event Details



SAIDI, SAIFI, CAIDI by Reliability Reporting Region

Please see the attached system-generated reports.

PacifiCorp Major Event Report
Customer Analysis

Oregon		Customer Analysis 2/24/2019 through 3/5/2019					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	146,538	7%	169,820,575	1,119	1,976,599	64,463	51,799	55,828	19,728	10,953	4,170	4,060	35%	85.92
PP	Pacific Power	146,538	18%	169,820,575	1,119	801,840	64,463	51,799	55,828	19,728	10,953	4,170	4,060	35%	211.79	0.183	1,159
OR	Oregon	146,538	24%	169,820,575	1,119	617,662	64,463	51,799	55,828	19,728	10,953	4,170	4,060	35%	274.94	0.237	1,159
OR	ALBANY	1,481	5%	510,106	13	32,471	-	163	1,318	-	-	-	-	11%	15.71	0.046	344
OR	BEND/REDMOND	11,779	17%	687,088	29	67,495	24	10,284	1,495	-	-	-	-	87%	10.18	0.175	58
OR	CLATSOP (ASTORIA)	653	3%	87,626	13	25,060	2	435	218	-	-	-	-	67%	3.50	0.026	134
OR	COOS BAY/COQUILLE	297	1%	66,678	14	26,606	-	151	146	-	-	-	-	51%	2.51	0.011	225
OR	CORVALLIS	83	0%	64,213	7	29,875	-	16	67	-	-	-	-	19%	2.15	0.003	774
OR	COTTAGE GROVE/J.CITY	15,676	138%	15,727,623	115	11,331	4,233	3,946	8,402	2,421	824	83	-	25%	1,388.02	1.383	1,003
OR	DALLAS/INDEPENDENCE	3	0%	503	2	15,547	-	3	-	-	-	-	-	100%	0.03	0.000	168
OR	GRANTS PASS	12,623	24%	6,159,673	158	52,457	10,499	4,031	7,802	719	71	-	-	32%	117.42	0.241	488
OR	HOOD RIVER	197	2%	39,915	9	9,668	-	113	84	-	-	-	-	57%	4.13	0.020	203
OR	KLAMATH FALLS	3,286	9%	242,542	37	38,097	3,284	3,114	168	4	-	-	-	95%	6.37	0.086	74
OR	LAKEVIEW	43	2%	6,454	6	2,450	726	36	7	-	-	-	-	84%	2.63	0.018	150
OR	LEBANON	9,769	46%	7,285,953	101	21,068	15,027	3,002	5,391	1,019	336	21	-	31%	345.83	0.464	746
OR	LINCOLN CITY	463	4%	85,441	19	12,280	-	130	333	-	-	-	-	28%	6.96	0.038	185
OR	MADRAS	9,026	52%	1,676,515	28	17,312	-	2,730	6,296	-	-	-	-	30%	96.84	0.521	186
OR	MEDFORD	7,387	8%	2,599,518	84	91,202	3,036	3,521	3,727	133	6	-	-	48%	28.50	0.081	352
OR	PENDLETON	1	0%	192	1	13,044	-	-	1	-	-	-	-	0%	0.01	0.000	192
OR	PORTLAND	5,542	7%	2,698,133	21	82,618	7	2,211	3,331	-	-	-	-	40%	32.66	0.067	487
OR	ROSEBURG/MYRTLECREEK	67,439	157%	131,649,107	440	42,952	27,625	17,793	16,372	15,432	9,716	4,066	4,060	26%	3,065.03	1.570	1,952
OR	STAYTON	790	6%	233,295	22	13,915	-	120	670	-	-	-	-	15%	16.77	0.057	295

*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 2/24/2019 through 3/5/2019					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
2/24/2019	53,016	9%	105,350,888	126	617,662	15,941	16,502	9,115	13,789	7,477	2,904	3,229	31%	170.56	0.086	1,987
2/25/2019	39,048	6%	28,467,625	218	617,662	29,527	17,054	16,369	2,081	2,468	685	391	44%	46.09	0.063	729
2/26/2019	23,513	4%	19,612,239	251	617,662	8,065	5,257	14,876	1,963	706	337	374	22%	31.75	0.038	834
2/27/2019	12,905	2%	9,654,697	199	617,662	8,657	4,509	6,656	1,356	128	194	62	35%	15.63	0.021	748
2/28/2019	12,990	2%	3,064,346	94	617,662	25	6,069	6,661	177	38	41	4	47%	4.96	0.021	236
3/1/2019	1,224	0%	1,035,467	68	617,662	-	513	410	181	112	8	-	42%	1.68	0.002	846
3/2/2019	1,439	0%	572,319	65	617,662	11	1,074	217	124	23	1	-	75%	0.93	0.002	398
3/3/2019	434	0%	200,746	43	617,662	27	252	127	54	1	-	-	58%	0.33	0.001	463
3/4/2019	1,931	0%	1,855,567	46	617,662	-	540	1,388	3	-	-	-	28%	3.00	0.003	961
3/5/2019	38	0%	6,680	9	617,662	2,210	29	9	-	-	-	-	76%	0.01	0.000	176

Data as of
4/2/2019

PacifiCorp Major Event Report
SSC by State Analysis

	Oregon	Event 02/24/19 through 03/05/19						Month 03/01/19 through 03/31/19						YTD 1/0/1900 01/01/19 through 03/31/19					
		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	88.46	0.088	1,005	0.89	0.009	105	19.64	0.082	239	17.78	0.079	224	132.94	0.350	380	39.26	0.243	162
PP	Pacific Power	216.07	0.197	1,095	0.22	0.001	151	10.88	0.054	201	6.30	0.048	132	259.53	0.468	554	28.61	0.203	141
OR	Oregon	274.97	0.237	1,158	0.03	0.000	121	12.55	0.061	207	6.61	0.052	126	311.82	0.494	631	29.64	0.205	144
OR	ALBANY	0.83	0.002	344	-	-	-	0.06	0.000	121	0.01	0.000	53	1.82	0.010	177	0.90	0.007	125
OR	BEND/REDMOND	1.11	0.019	58	-	-	-	0.31	0.003	102	0.30	0.003	102	1.73	0.023	74	0.60	0.004	141
OR	CLATSOP (ASTORIA)	0.14	0.001	134	-	-	-	0.14	0.001	135	0.01	0.000	78	3.27	0.015	224	1.49	0.010	149
OR	COOS BAY/COQUILLE	0.11	0.001	220	0.0044	0.000029	152	0.26	0.004	67	0.25	0.004	67	0.53	0.006	94	0.41	0.005	80
OR	CORVALLIS	0.10	0.000	774	-	-	-	0.21	0.004	60	0.21	0.004	60	0.56	0.005	117	0.43	0.005	94
OR	COTTAGE GROVE/J.CITY	25.46	0.025	1,003	-	-	-	0.03	0.000	164	0.02	0.000	146	25.65	0.027	965	0.07	0.000	224
OR	DALLAS/INDEPENDENCE	0.00	0.000	168	-	-	-	0.02	0.000	187	0.02	0.000	188	0.22	0.001	219	0.22	0.001	219
OR	ENTERPRISE	-	-	-	-	-	-	0.07	0.000	242	0.07	0.000	242	0.38	0.001	256	0.38	0.001	256
OR	GRANTS PASS	9.97	0.020	488	-	-	-	1.15	0.010	111	1.12	0.010	111	19.05	0.070	271	8.12	0.044	185
OR	HERMISTON	0.00	0.000	177	0.0003	0.000002	177	0.00	0.000	132	0.00	0.000	132	0.24	0.002	97	0.24	0.002	97
OR	HOOD RIVER	0.06	0.000	203	-	-	-	0.09	0.003	27	0.09	0.003	27	0.73	0.009	79	0.67	0.009	74
OR	KLAMATH FALLS	0.39	0.005	74	0.0010	0.000006	149	0.27	0.003	102	0.27	0.003	102	4.33	0.030	146	3.60	0.024	153
OR	LAKEVIEW	0.01	0.000	150	-	-	-	0.00	0.000	134	0.00	0.000	134	0.15	0.000	470	0.00	0.000	178
OR	LEBANON	11.80	0.016	746	-	-	-	0.13	0.001	170	0.11	0.001	197	14.61	0.030	479	2.35	0.012	189
OR	LINCOLN CITY	0.14	0.001	184	0.0005	0.000003	156	0.07	0.001	129	0.04	0.000	103	1.76	0.017	105	1.36	0.005	273
OR	MADRAS	2.71	0.015	186	0.0001	0.000002	58	0.10	0.000	320	0.10	0.000	336	3.21	0.018	176	0.48	0.004	134
OR	MEDFORD	4.22	0.012	350	0.0163	0.000102	160	2.92	0.011	275	2.80	0.010	288	10.31	0.057	181	4.66	0.033	143
OR	PENDLETON	0.00	0.000	192	-	-	-	0.28	0.002	123	0.28	0.002	123	0.56	0.003	181	0.36	0.003	130
OR	PORTLAND	4.37	0.009	487	0.0000	0.000003	15	0.08	0.001	80	0.07	0.001	74	5.34	0.024	227	0.94	0.014	65
OR	ROSEBURG/MYRTLECREEK	213.15	0.109	1,951	0.0043	0.000076	57	6.33	0.016	401	0.79	0.011	74	215.33	0.131	1,643	1.54	0.017	90
OR	STAYTON	0.38	0.001	295	-	-	-	0.03	0.000	106	0.03	0.000	107	2.01	0.014	148	0.80	0.004	178
OR	WALLA WALLA	-	-	-	-	-	-	0.00	0.000	129	0.00	0.000	129	0.01	0.000	168	0.01	0.000	168

*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
4/2/2019