

Report to the Washington Utilities and Transportation Commission Electric Service Reliability - Major Event Report

Event Date:	December 29-31, 2017
Date Submitted:	February 9, 2018
Primary Affected Locations:	Walla Walla
Primary Cause:	Weather
Exclude from Reporting Status:	Yes
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Report Approved by:	Heide Caswell / Kevin Putnam / David O’Neil

Event Description

On the morning of December 29, 2017, service areas across Southeastern Washington and Northeastern Oregon experienced a winter storm. Ice accumulated on lines and trees during the storm caused more than 145 outage events. During the three day weather event 14,224 customer outages were experienced by customers served from the Walla Walla Operating area; 13,113 of these customers reside in Washington.¹ In Washington, tree and ice related outages resulted in 97% of all customer minutes lost and 86% of all customer interruptions.

Event Outage Summary	
# Interruptions (sustained)	125
Total Customer Interrupted (sustained)	16,679
Total Customer Minutes Lost	9,374,920
Event SAIDI	69.86 Minutes
CAIDI	562
Major Event Start	12/29/17 3:39 AM
Major Event End	1/1/18 12:00 AM

¹ The Walla Walla operating area serves customers in both Oregon and Washington. During the three day weather event, Washington and the Northeast reporting region of Oregon exceeded major event thresholds. The 2017 frozen customer count for Walla Walla is 30,263 customers (28,310 customers are served by substations originating in Washington and 1,723 customers are served by a substation originating in Oregon).

Restoration Summary

On December 29, 2017, Walla Walla, Washington and the surrounding areas, generally considered within the Blue Mountains, experienced a severe ice storm. With some locations accumulating as much as a half an inch of ice, Walla Walla County issued a “Shelter in Place” warning to its residents. The storm significantly damaged equipment across the operating area as ice-loaded conductor taxed structures beyond their strength limits and trees and tree limbs impacted and damaged multiple spans of lines.

The extent of outages that occurred was more than local operations could handle and internal and external crew resources from Pendleton, Hermiston, Yakima, and Spokane were dispatched to assist in restoration activities. Ice-covered roads and fallen trees limited and slowed access to damaged equipment, delaying patrols and repairs. The nature of the outages meant multiple zones within circuits were often damaged, which also delayed restoration activities. Feeders that experienced this extensive damage in multiple locations were step restored as hazards were cleared and patrolled from protective device to protective device. Further, many of these customers experienced multiple outages as circuit protective equipment, including fuses, reclosers, and breakers were opened during these stage restoration efforts. Together, dispatch and crews worked to restore power through step restorations whenever possible, restoring power to as many customers as rapidly as possible.

During the event a total of 529 customers in Washington experienced an outage over 24 hours. All but one event can be attributed to weather. On the morning of January 1, 2018, restoration efforts had stabilized and outage levels had returned to normal. Over 58 employees took part in the restoration efforts, replacing approximately 8,545 feet of conductor, 26 insulators, four poles, eight transformers, ten cross arms, 27 fuses, 1,150 line splices, and replacing more than 11 cutouts.

Figure 1 below displays customer outages during the event as shown by their duration while figure 2 shows the number of outage events each customer experienced. Figure 3 is a photo of an ice-laden tree that downed lines, blocked access, and created a dangerous situation.

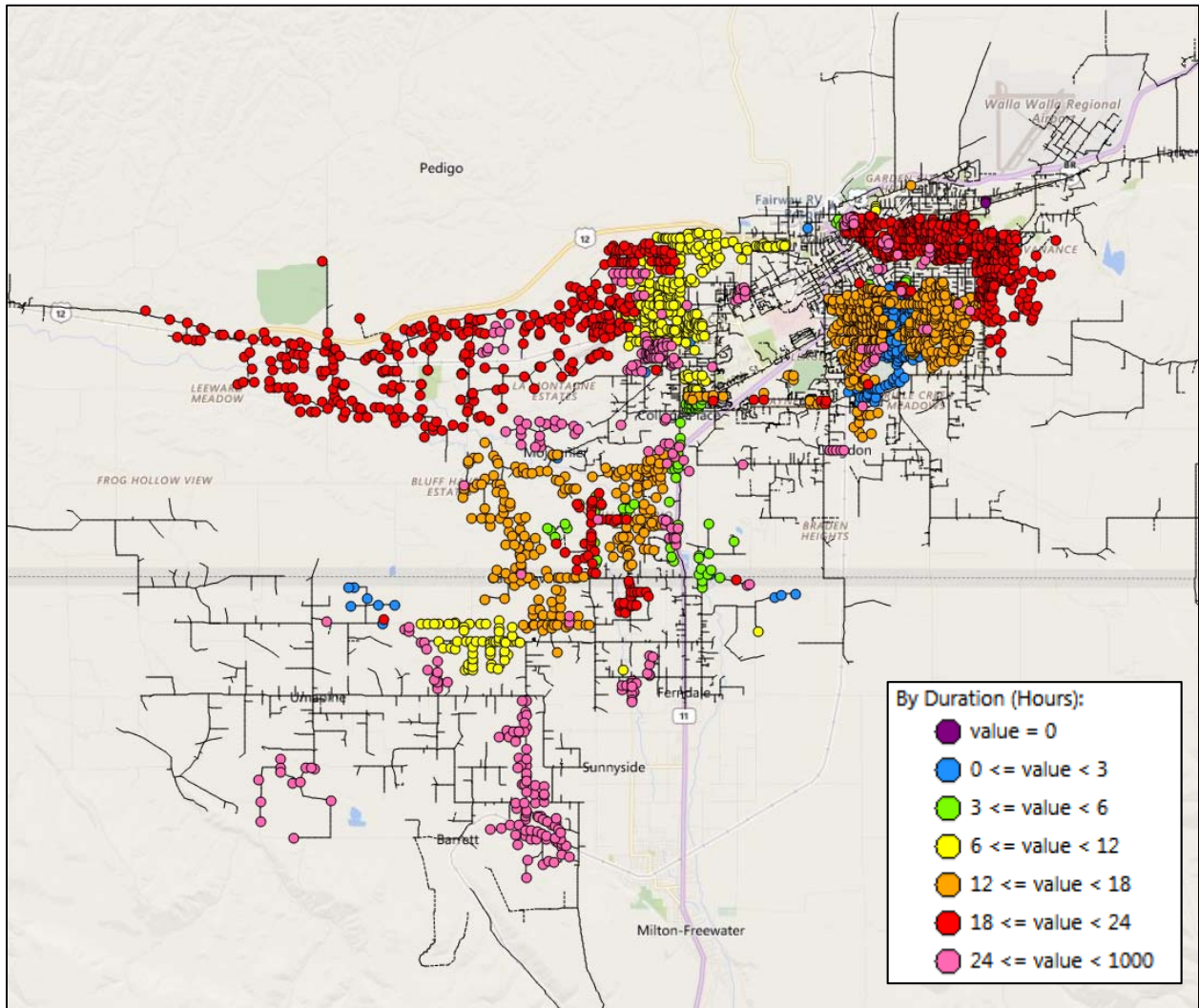


Figure 1 Customer outages by duration

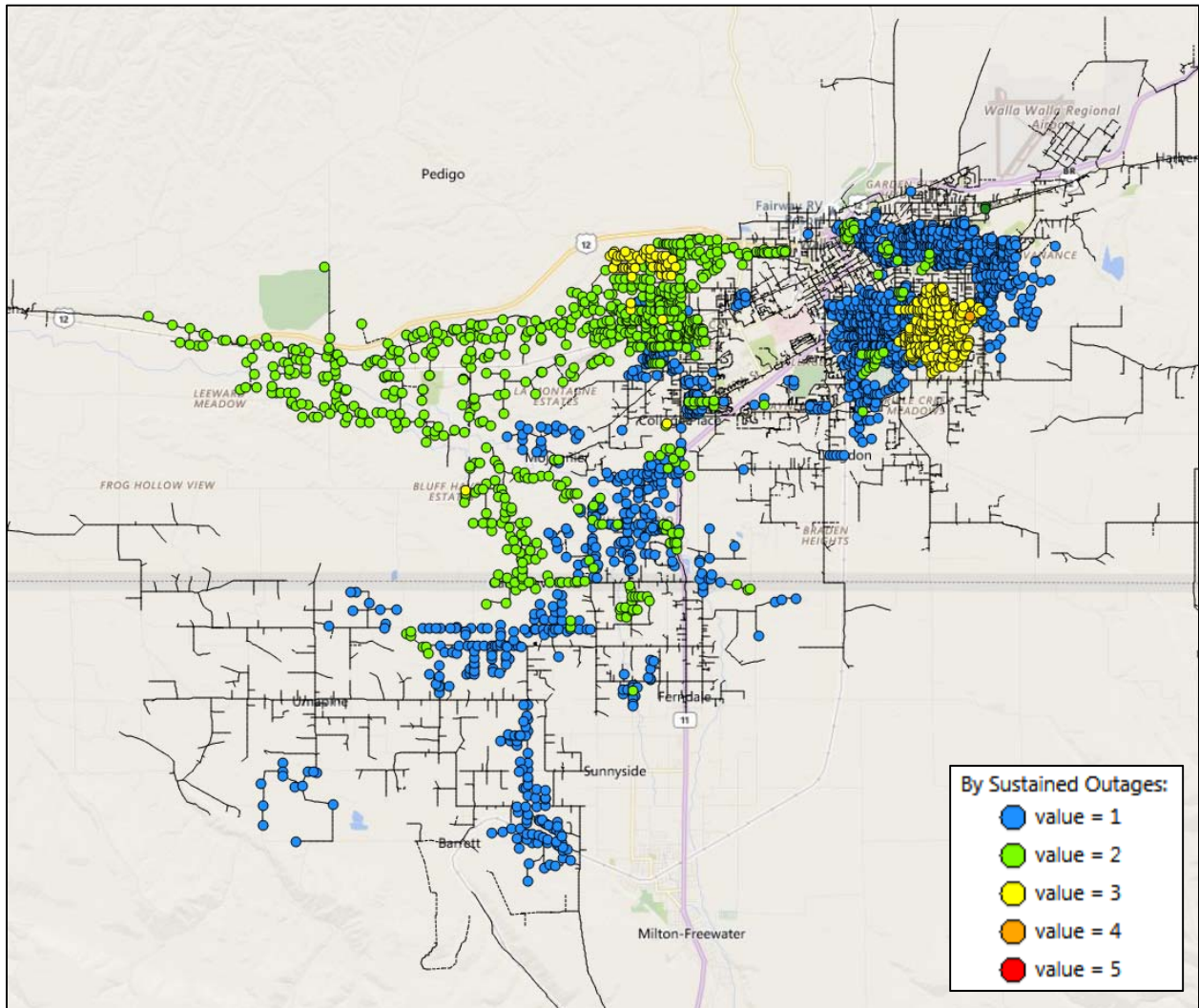


Figure 2 Number of outage events experienced by a customer



Figure 3 One of several ice-loaded trees that downed lines.

Restoration Intervals for Customers served in Washington

Total Customers Sustained	< 3 Hrs.	3 - 24 Hrs.	24-48 Hrs.	48+ Hrs.
16,679	5,646	10,504	524	5

Restoration Resources ²

Personnel Resources	
Lineman/Journeyman	20
Contract Personnel	9
Substation Journeyman	2
General Foreman	1
Estimator	4
Relay Technician	1
Logistics Worker	4
Mechanic	1
Collector	1
Dispatcher	1
Administrative	13
Clerk	1
Materials	
Distribution Poles	4
Approximate Conductor Line (feet)	8,545
Transformers	8
Crossarms	10
Insulators	26
Cutouts	11
Line Fuses	27
Line Splices	1,150
Guy Wire	15

State Estimated Major Event Costs ²

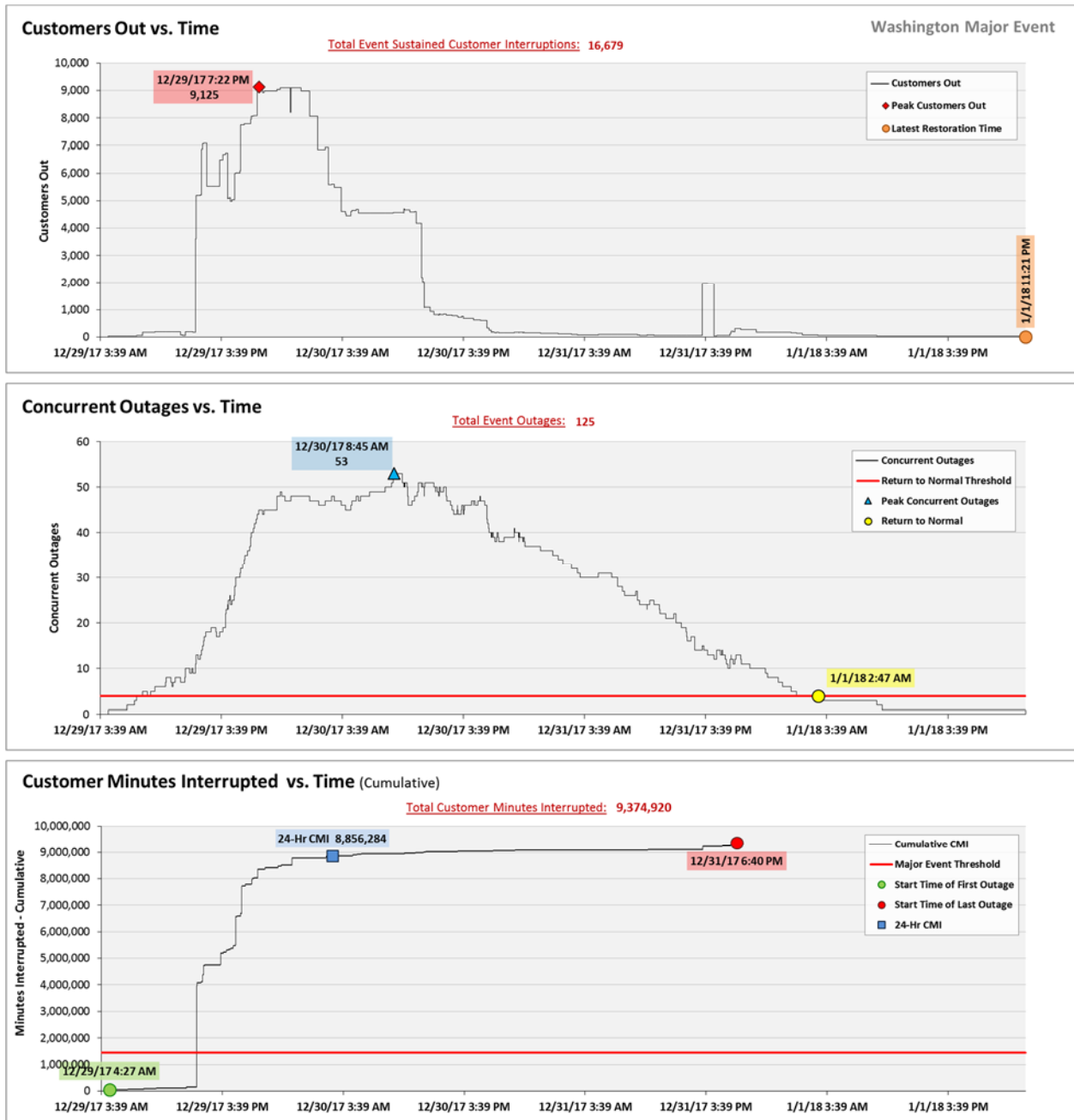
Estimate \$	Labor	Contracts	Materials	Overheads	Total
Capital	\$6,031	\$56,939	\$19,595	\$6,358	\$88,923
Expense	\$316,373	\$221,320	\$2,274	\$3,541	\$543,508
Total	\$322,404	\$278,259	\$21,869	\$9,899	\$632,431

² 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

Pacific Power is requesting designation of this event and its consequences to be classified as a “Major Event” for exclusion from network performance reporting with the IEEE 1366-2003/2012. This major event exceeded the company’s 2017 Washington threshold of 1,444,820 customer minutes lost (10.77 state SAIDI minutes) in a 24-hour period.

Event Detail



SAIDI, SAIFI, CAIDI by Reliability Reporting Region

Please see the attached system-generated reports.