PACIFIC POWER
A DIVISION OF PACIFICORP

WASHINGTON SERVICE QUALITY REVIEW

January 1 – December 31, 2018

Annual Report

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EXECUTIVE SUMMARY

During January 1 through December 31, 2018, Pacific Power delivered reliable service to its Washington customers. The level of performance met established baselines. Also, the Customer Guarantee program continued to deliver high quality results consistent with the prior year's performance. The Company has noted in the past that the service it delivers ranks high when compared across the industry.

The Company's service reliability can be impacted by uncontrollable interference events, such as car-hit-pole accidents, and by significant events that exceed the normal underlying level of interruptions but that do not reach the qualifying major event threshold for exclusion from the Company's underlying performance metrics. To provide a perspective on their impact during the reporting period, the significant events experienced during 2018 are listed in Section 3.2. Consideration of the root causes of these significant days is important when evaluating year-on-year performance. When the Company develops reliability improvement projects it evaluates these root causes and prepares plans that reflect the certainty of repetition of these events. The outcomes are reflective of the plans outlined in the Areas of Great Concern, shown in Section 3.6.

1 Service Standards Program Summary

Pacific Power has a number of Customer Service Standards and Service Quality Measures with performance reporting mechanisms currently in place. These standards and measures define Pacific Power's target performance (both personnel and network reliability performance) in delivering quality customer service. The Company developed these standards and measures using relevant industry standards for collecting and reporting performance data. In some cases, Pacific Power has expanded upon these standards. In other cases, largely where the industry has no established standards, Pacific Power has developed metrics, targets and reporting. While industry standards are not focused around threshold performance levels, the Company has developed targets or performance levels against which it evaluates its performance. These standards and measures can be used over time, both historically and prospectively, to measure the service quality delivered to our customers. In its entirety, these measures comply with WAC 480-100-393 and 398 requirements for routine reliability reporting.

In UE-042131, the Company applied for, and received approval, to extend the core program through March 31, 2008. During the MidAmerican acquisition of Pacific Power, in UE-051090, the program was extended again through 2011. While the term of this program has lapsed, the Company has continued to perform all programs as performed historically. No actions have been taken by the Company to recommend any suspension or changes to the program that was extended in UE-042131.

1.1 Pacific Power Customer Guarantees

Customer Guarantee 1: Restoring Supply After an Outage	The Company will restore supply after an outage within 24 hours of notification from the customer with certain exceptions as described in Rule 25.
Customer Guarantee 2: Appointments	The Company will keep mutually agreed upon appointments which will be scheduled within a two-hour time window.
Customer Guarantee 3: Switching on Power	The Company will switch on power within 24 hours of the customer or applicant's request, provided no construction is required, all government inspections are met and communicated to the Company and required payments are made. Disconnections for nonpayment, subterfuge or theft/diversion of service are excluded.
Customer Guarantee 4: Estimates For New Supply	The Company will provide an estimate for new supply to the applicant or customer within 15 working days after the initial meeting and all necessary information is provided to the Company.
Customer Guarantee 5: Respond To Billing Inquiries	The Company will respond to most billing inquiries at the time of the initial contact. For those that require further investigation, the Company will investigate and respond to the Customer within 10 working days.
Customer Guarantee 6: Resolving Meter Problems	The Company will investigate and respond to reported problems with a meter or conduct a meter test and report results to the customer within 10 working days.
Customer Guarantee 7: Notification of Planned Interruptions	The Company will provide the customer with at least two days' notice prior to turning off power for planned interruptions consistent will Rule 25 and relevant exemptions.

Note: See Rules for a complete description of terms and conditions for the Customer Guarantee Program.

1.2 Pacific Power Performance Standards[1]

Network Performance Standard 1: Improve System Average Interruption Duration Index (SAIDI)	The Company will maintain SAIDI commitment target.
Network Performance Standard 2: Improve System Average Interruption Frequency Index (SAIFI)	The Company will maintain SAIFI commitment target.
Network Performance Standard 3: Improve Under Performing Circuits	The Company will reduce by 20% the circuit performance indicator (CPI) for a maximum of five under-performing circuits on an annual basis within five years after selection.
Network Performance Standard 4: Supply Restoration	The Company will restore power outages due to loss of supply or damage to the distribution system within three hours to 80% of customers on average.
Customer Service Performance Standard 5: Telephone Service Level	The Company will answer 80% of telephone calls within 30 seconds. The Company will monitor customer satisfaction with the Company's Customer Service Associates and quality of response received by customers through the Company's eQuality monitoring system.
Customer Service Performance Standard 6: Commission Complaint Response/Resolution	The Company will: a) respond to at least 95% of non-disconnect Commission complaints within two working days per state administrative code[2]; b) respond to at least 95% of disconnect Commission complaints within four working hours; and c) resolve 95% of informal Commission complaints within 30 days.

Note: Performance Standards 1, 2 & 4 are for underlying performance days, excluding days classified as Major Events.

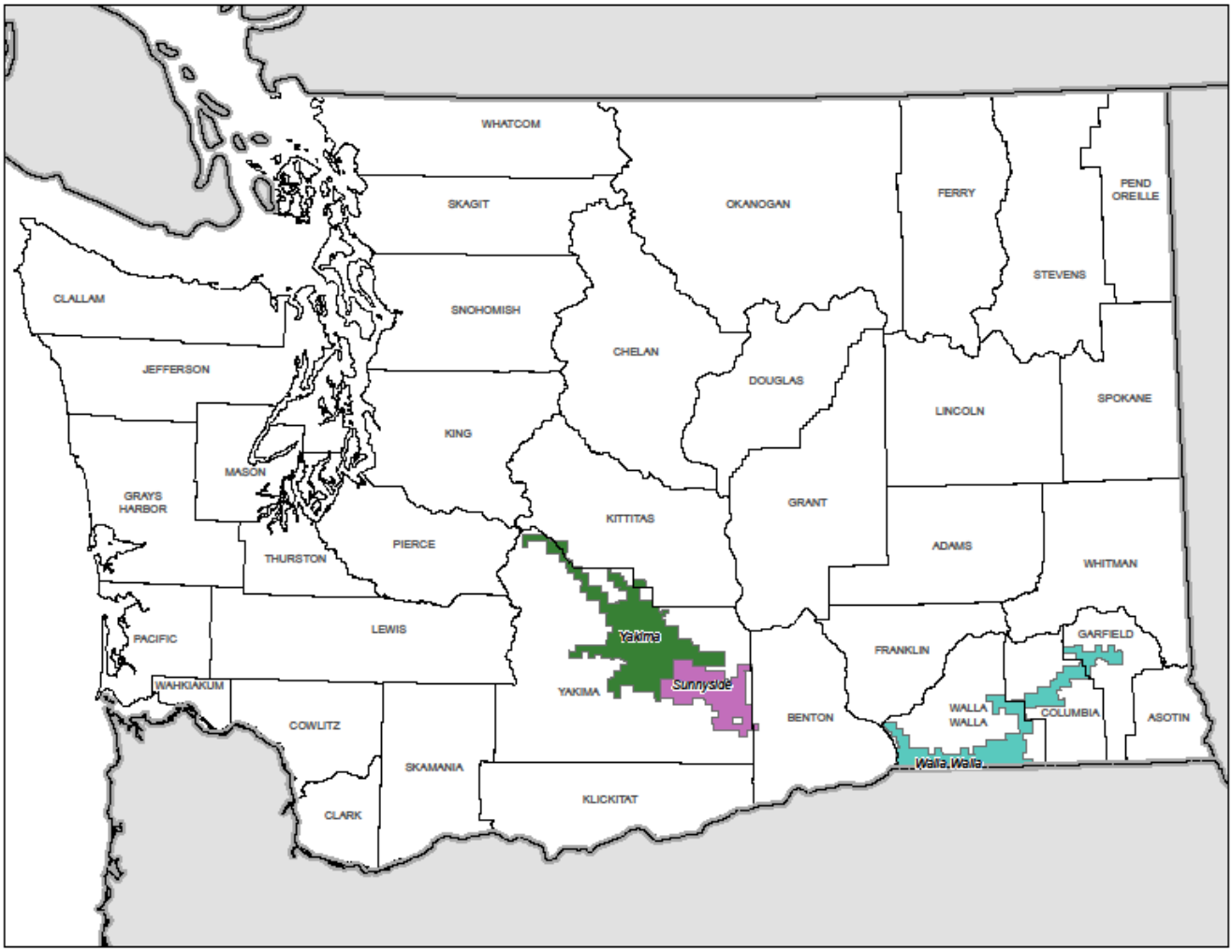
[1] The Company committed to Service Standards Programs that expired on 12/31/2011; during the program all elements committed to were delivered successfully. By terms of the commitment any changes to the program required the approval of the Commission. The Company has proposed no changes to the program, but continues at this time, to operate consistently with its historical program. State reliability reporting rules establish requirements that the Company interprets as generally encompassing the requirements of Network Performance Standards 1-3.

[2] Although the Performance Standard indicates that complaints will be responded to within 3 days, the Company acknowledges and adheres to the requirements set forth in 480-100-173(3)(a).

1.3 Service Territory

Service Territory Map

Contained below is a graphic of the Company's Washington service territory, colored by operating area.



2 CUSTOMER GUARANTEES SUMMARY

PACIFIC POWER A DIVISION OF PACIFICORP customer*guarantees*

January to December 2018
Washington

	Description	2018 Events	2018 Failures	2018 % Success	2018 Paid	2017 Events	2017 Failures	2017 % Success	2017 Paid
CG1	Restoring Supply	94,184	0	100.00%	$0	103,535	0	100.00%	$0
CG2	Appointments	1,794	3	99.83%	$150	1,732	1	99.94%	$50
CG3	Switching on Power	2,423	0	100.00%	$0	2,534	0	100.00%	$0
CG4	Estimates	262	5	98.09%	$250	314	3	99.04%	$150
CG5	Respond to Billing Inquiries	336	0	100.00%	$0	468	0	100.00%	$0
CG6	Respond to Meter Problems	170	0	100.00%	$0	295	0	100.00%	$0
CG7	Notification of Planned Interruptions	3,219	2	99.94%	$100	4,437	0	100.00%	$0
		102,388	**10**	**99.99%**	**$500**	**113,315**	**4**	**99.99%**	**$200**

(Major Events are excluded from the Customer Guarantees program.)

Overall guarantee performance remains above 99%, demonstrating Pacific Power's continued commitment to customer satisfaction.

Customer Communications: The Customer Guarantee program was highlighted throughout the year in customer communications as follows:

- performance reports are included in June's billing statements
- the program is highlighted in Voices
- the program is highlighted in the Company's newsletter
- each new customer is mailed a welcome aboard pamphlet that features the program and how to file a claim
- Pacific Power's website features the program with information for our customers

3 RELIABILITY PERFORMANCE

During the reporting period, the Company's reliability compared favorably to its baseline performance level as established in 2003. This year's "Major Events Excluded As Reported" SAIDI performance of 106 minutes was much better than the approved SAIDI baseline of 150 minutes, while the year's "Major Events Excluded As Reported" SAIFI performance of 0.841 events was also much better than the approved SAIFI baseline of 0.975 events. It's notable that the year's performance improved upon the minor escalation for both SAIDI and SAIFI which had occurred in 2017. Various reliability metrics are shown below providing a historical perspective, including an additional 5-year rolling average metric.

3.1 Multi-Year Historical Performance

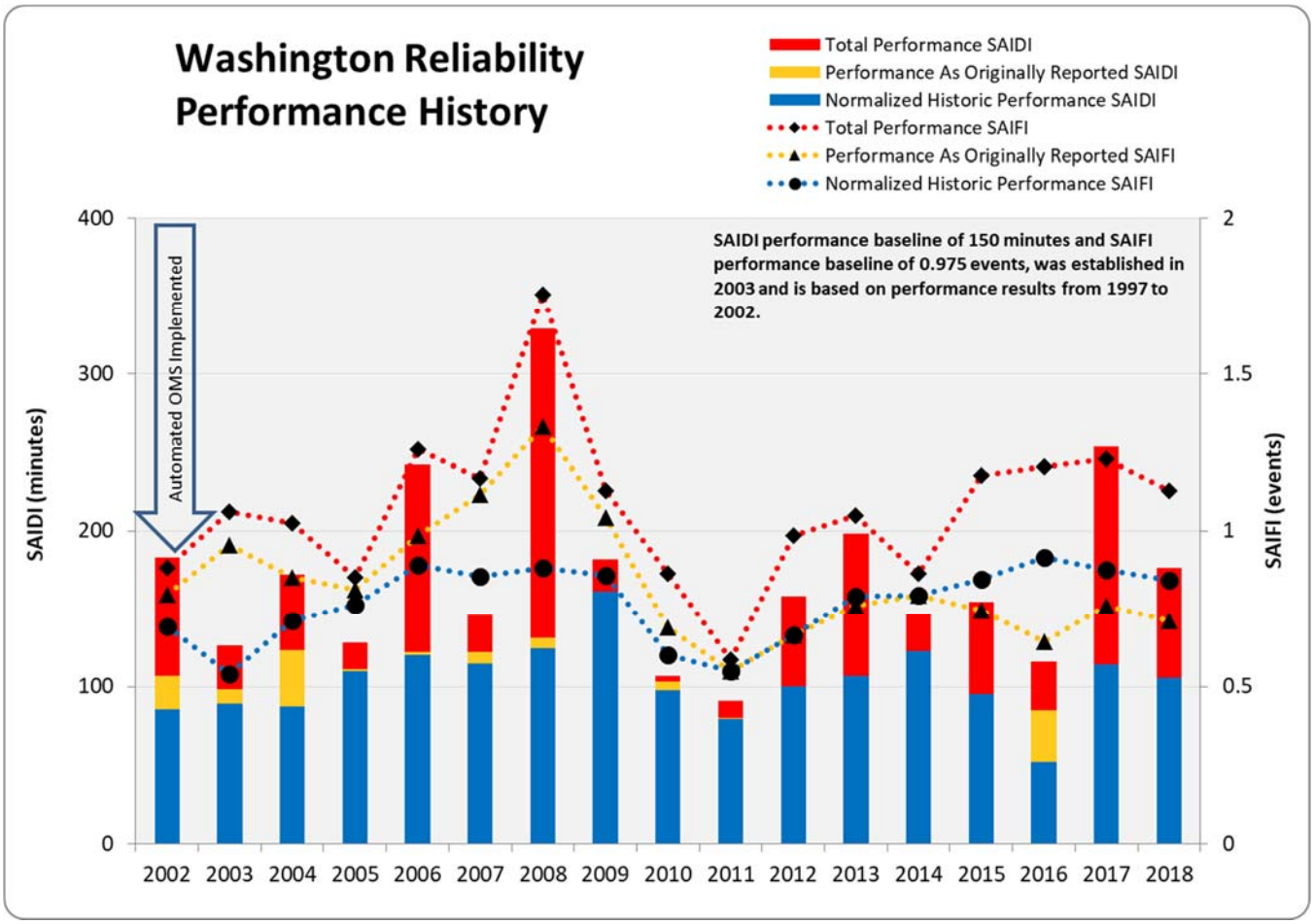
	Major Events Included[1]		SAIDI Based Major Events Excluded 2.5 beta		SAIFI Based Major Events Excluded 10% Op Area[2]		SAIDI & SAIFI-Based Major Events Excluded As Reported (2.5 beta effective 2005)		Normalized Historic Performance[3]		5 Year Rolling Average Performance	
Year	**SAIDI**	**SAIFI**	**SAIDI**	**SAIFI**	**SAIDI**	**SAIFI**	**SAIDI**	**SAIFI**	**SAIDI**	**SAIFI**	**SAIDI**	**SAIFI**
2002	183	0.881	86	0.691	109	0.726	107	0.795	86	0.691	99	0.741
2003	126	1.062	91	0.933	89	0.539	98	0.954	89	0.539	97	0.761
2004	172	1.024	87	0.712	119	0.726	123	0.851	87	0.712	93	0.736
2005	128	0.851	110	0.810	121	0.761	111	0.812	110	0.761	103	0.808
2006	242	1.259	120	0.980	187	0.891	122	0.985	120	0.891	112	0.879
2007	146	1.169	122	1.116	114	0.853	122	1.115	114	0.853	115	0.943
2008	329	1.756	127	1.323	124	0.881	131	1.331	124	0.881	122	1.019
2009	182	1.128	161	1.042	162	0.857	161	1.044	161	0.857	129	1.057
2010	107	0.862	107	0.862	97	0.601	103	0.688	97	0.601	128	1.033
2011	91	0.587	80	0.549	91	0.587	80	0.550	80	0.549	119	0.946
2012	158	0.986	100	0.664	100	0.664	100	0.664	100	0.664	115	0.855
2013	198	1.048	113	0.791	192	1.017	107	0.760	107	0.791	110	0.741
2014	146	0.862	122	0.793	146	0.862	122	0.793	122	0.793	112	0.750
2015	154	1.176	100	0.845	149	1.075	95	0.744	95	0.845	101	0.700
2016	116	1.204	103	1.156	98	0.693	85	0.643	85	0.693	102	0.721
2017	253	1.2281	124	0.876	243	1.113	114	0.760	114	0.876	105	0.740
2018	176	1.129	112	0.998	170	0.841	106	0.710	106	0.841	104	0.730

[1]Customer requested and pre-arranged outages are not reported in these metrics

[2]If a 10% op area major event also qualified as a 2 1/2 beta major event it was associated only with the 2 1/2 beta major event.

[3]Normalized performance is the result of applying both SAIDI and SAIFI-based major events to establish underlying performance

[4]Performance baselines were established in June 2003 based on performance between 1997 and 2002. See page 3 of Reporting Plan. SAIDI performance baseline of 150 minutes and SAIFI performance baseline of 0.975 events.


Washington Reliability Performance History
Total Performance SAIDI
Performance As Originally Reported SAIDI
Normalized Historic Performance SAIDI
Total Performance SAIFI
Performance As Originally Reported SAIFI
Normalized Historic Performance SAIFI
SAIDI performance baseline of 150 minutes and SAIFI performance baseline of 0.975 events, was established in 2003 and is based on performance results from 1997 to 2002.
Automated OMS Implemented
SAIDI (minutes)
SAIFI (events)
400
300
200
100
0
2
1.5
1
0.5
0
2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018

3.2 System Average Interruption Duration Index (SAIDI)

In 2018, the Company delivered reliability results much better than baseline for both outage duration (SAIDI) and outage frequency (SAIFI); the performance compared to baselines is identified in Section 3.1 above.

The Company's reporting plan recognizes two types of major events; the first, a SAIDI-based major event[1] is defined using statistical methods as outlined in IEEE 1366-2003/2012 while the second, a SAIFI-based major event is defined in the company's reporting plan. During the year, three SAIDI-based and four SAIFI-based[2] major events were recorded. The events designate 70.35 minutes to be excluded from underlying reporting metrics. Copies of the Company's filed major events are included in the Appendix of this report.

2018 Major Events			
Date	**Cause**	**SAIDI**	**SAIFI**
* January 5, 2018	Loss of Transmission (storm)	0.7	0.031
* March 9, 2018	Loss of Transmission (equipment failure)	3.9	0.110
* May 16, 2018	Loss of Feed From Supplier	0.5	0.074
July 9 -10, 2018	Loss of Substation (animal interference)	23.2	0.073
August 11, 2018	Fire/Smoke (attributed to arson)	14.7	0.029
August 23-24, 2018	Loss of Substation (equipment fire)	26.1	0.029
* August 26 2018	Loss of Feed From Supplier	1.5	0.074
	SAIDI Based Major Event Total	**64.0**	**0.131**
	*** SAIFI Based Major Event Total**	**6.5**	**0.288**
	TOTAL	**70.5**	**0.419**

* SAIFI Based Major event

During the period, there were eleven significant event days[3] (daily underlying SAIDI of 2.08 minutes or more). These eleven days account for 35.7 SAIDI minutes and 0.231 SAIFI events, representing 31% of the underlying SAIDI and 30% of the underlying SAIFI.

SIGNIFICANT EVENT DAYS					
DATE	**PRIMARY CAUSE**	**SAIDI**	**SAIFI**	**% Underlying SAIDI (106 min)**	**% Underlying SAIFI (0.71 events)**
January 9, 2018	Loss of Transmission Line (damage cross-arm)	3.1	0.007	3%	1%
January 27, 2018	Tree downed line	3.3	0.026	3%	3%
March 15, 2018	Car hit poles in Sunnyside and Yakima	2.8	0.023	2%	3%
April 15, 2018	Animal interference with substation transformer	2.4	0.008	2%	1%
May 3, 2018	Car hit pole	3.6	0.013	3%	2%
May 6, 2018	Lightning	2.4	0.081	2%	11%
June 16, 2018	Pole fires	4.0	0.018	4%	2%
June 23, 2018	Building collapse that damaged equipment	4.0	0.004	4%	1%
June 25, 2018	Tree downed line and damaged equipment	3.1	0.013	3%	2%
August 19, 2018	Car hit pole	3.3	0.008	3%	1%
November 2, 2018	Loss of Substation	3.5	0.030	3%	4%
	TOTAL	**35.7**	**0.231**	**31%**	**30%**

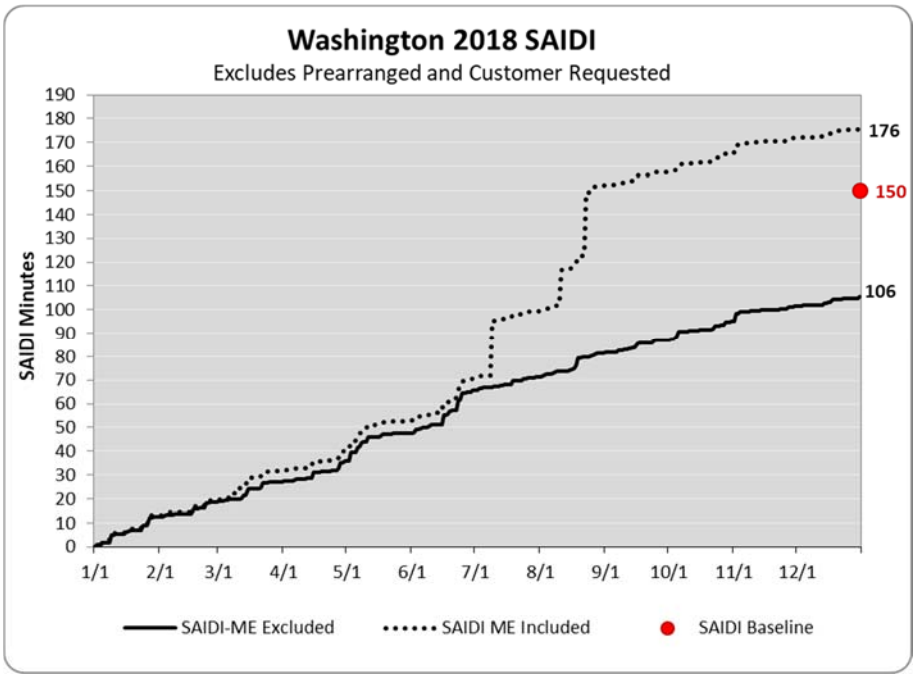
[1] During calendar 2018, the calculated threshold for a major event was 10.98 SAIDI Minutes; for 2019, it will be 11.13 SAIDI minutes.

[2] The SAIFI-based major event combines Sunnyside and Yakima operational areas since the two are operated as one response center.

[3] On a trial basis, the Company established a variable of 1.75 times the standard deviation of its natural log SAIDI results to identify significant event days; generally they are triggered by weather, however may also be the result of significant transmission system events.

During 2018, outage duration, or SAIDI was better than baseline.

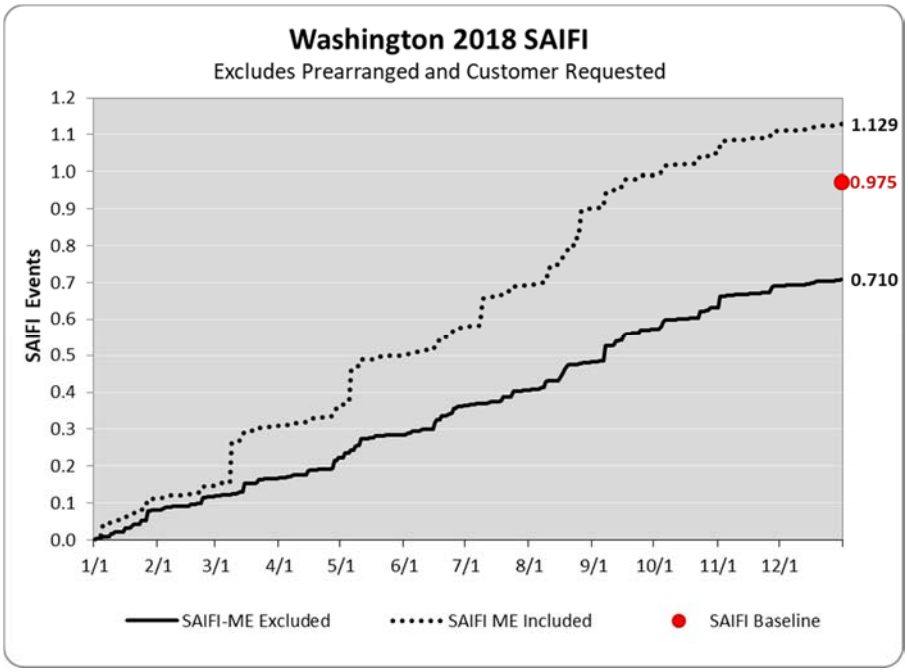
January 1 through December 31, 2018	
2018 SAIDI Goal = 82	**SAIDI Actual**
Total Performance	176
SAIDI-based Major Events Excluded	64
SAIFI-based Major Events Excluded	6
Reported (Major Events Excluded)	**106**



3.3 System Average Interruption Frequency Index (SAIFI)

During 2018 outage frequency or SAIFI was better than baseline.

January 1 through December 31, 2018	
2018 SAIFI Goal = 0.720	**SAIFI Actual**
Total Performance	1.129
SAIDI-based Major Events Excluded	0.131
SAIFI-based Major Events Excluded	0.288
Reported (Major Events Excluded)	**0.710**



3.4 Operating Area Metrics

Washington operating area performance metrics for the reporting period are listed in the table below.

January 1 – December 31, 2018	Sunnyside			Walla Walla[1]			Yakima		
	SAIDI	SAIFI	CAIDI	SAIDI	SAIFI	CAIDI	SAIDI	SAIFI	CAIDI
Including Major Events	116	1.984	59	211	1.098	192	181	0.882	206
Total SAIDI-based Major Events	0	0	0	103	0.323	317	0	0	0
Total SAIFI-based Major Events	32	1.411	23	3	0.140	23	67	0.095	710
Reported Major Events Excluded	**84**	**0.573**	**147**	**105**	**0.634**	**166**	**114**	**0.787**	**145**

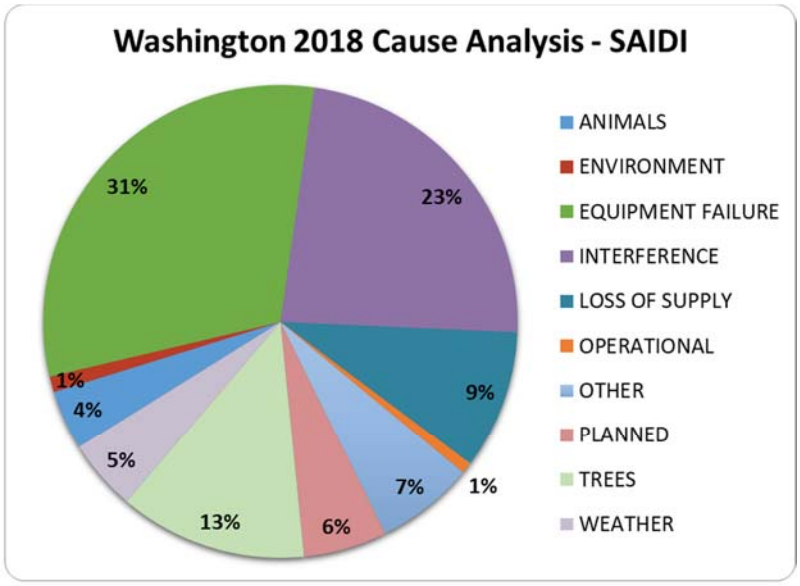
2018 Sunnyside Customer Count: 24,752
2018 Walla Walla Customer Count: 28,594
2018 Yakima Customer Count: 82,235

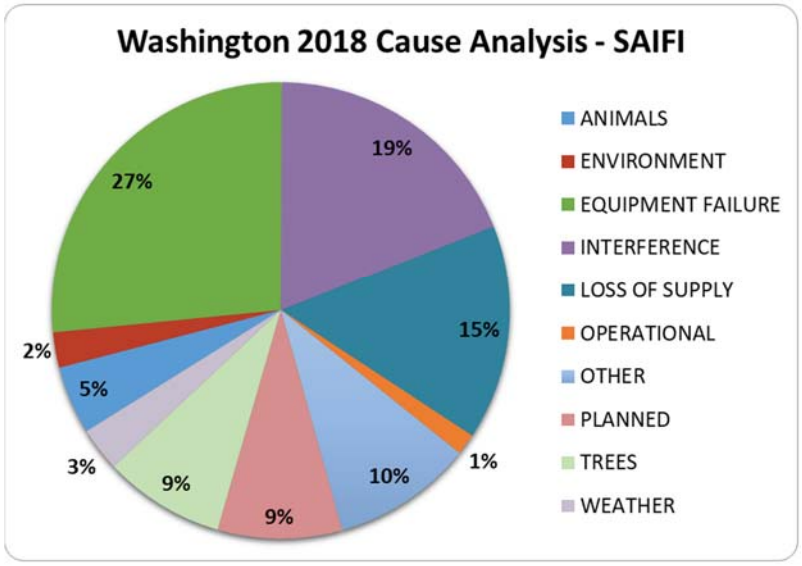
[1] The district metrics for Walla Walla include a small amount of Oregon customers served from two circuits originating in Washington.

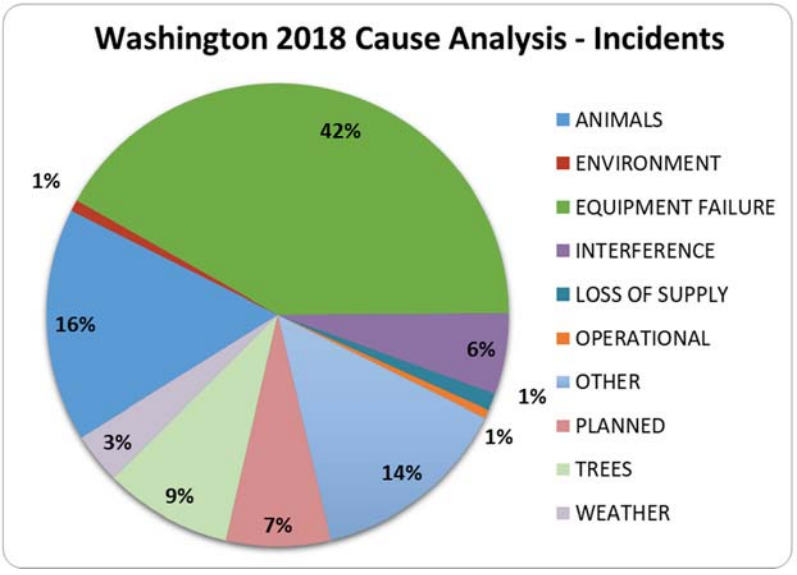
3.5 Cause Code Analysis

The table and charts below break out the number of outage incidents, customer minutes lost (CML), and sustained interruptions by cause code. CML is directly related to SAIDI (average outage duration); Sustained Interruptions is directly related to SAIFI (average outage frequency). Certain types of outages typically result in high duration, but are infrequent, such as Loss of Supply outages. Others tend to be more frequent, but are generally shorter in duration. The pie charts depict the breakdown of performance results by percentage of each cause category. Following the pie charts, a cause category table lists the direct causes with definitions and examples. Thereafter is a historical view of cause codes, as they summarize to annual SAIDI and SAIFI performance.

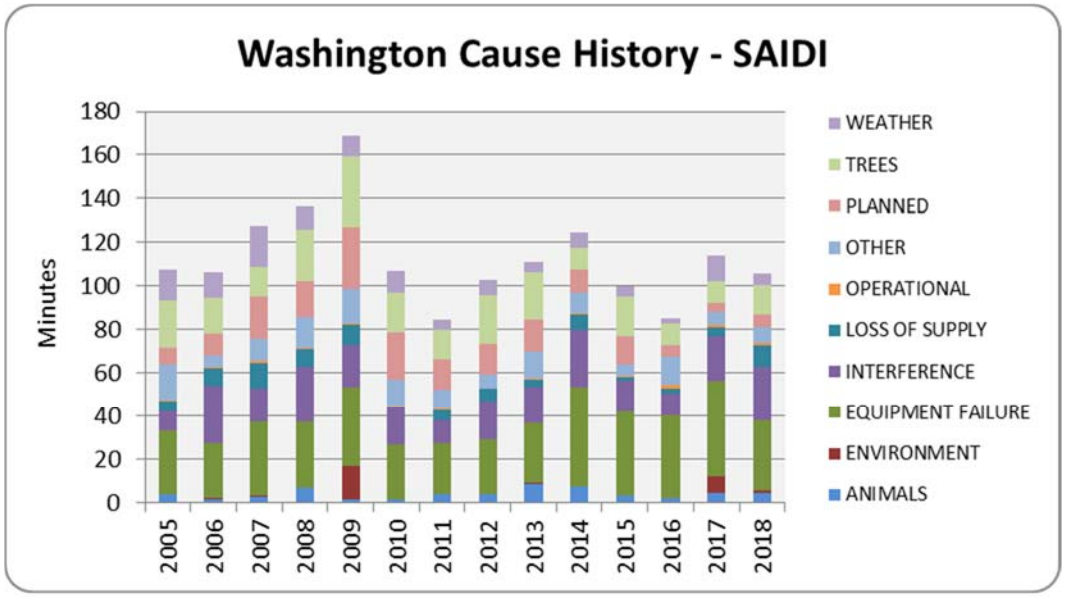
Washington Cause Analysis - Underlying 1/1/2018 - 12/31/2018					
Direct Cause	**Customer Minutes Lost for Incident**	**Customers in Incident Sustained**	**Sustained Incident Count**	**SAIDI**	**SAIFI**
ANIMALS	441,953	2,078	117	3.3	0.015
BIRD MORTALITY (NON-PROTECTED SPECIES)	123,579	2,369	170	0.9	0.017
BIRD MORTALITY (PROTECTED SPECIES) (BMTS)	9,254	100	5	0.1	0.001
BIRD NEST (BMTS)	393	1	1	0.0	0.000
BIRD SUSPECTED, NO MORTALITY	11,947	93	11	0.1	0.001
ANIMALS	**587,126**	**4,641**	**304**	**4.3**	**0.034**
CONTAMINATION	386	3	1	0.0	0.000
FIRE/SMOKE (NOT DUE TO FAULTS)	153,679	2,403	14	1.1	0.018
ENVIRONMENT	**154,065**	**2,406**	**15**	**1.1**	**0.018**
B/O EQUIPMENT	894,397	4,614	285	6.6	0.034
DETERIORATION OR ROTTING	1,680,835	8,872	389	12.4	0.065
OVERLOAD	4,819	27	9	0.0	0.000
POLE FIRE	1,856,789	12,114	88	13.7	0.089
EQUIPMENT FAILURE	**4,436,840**	**25,627**	**771**	**32.7**	**0.189**
DIG-IN (NON-PACIFICORP PERSONNEL)	18,085	80	10	0.1	0.001
OTHER INTERFERING OBJECT	630,030	1,403	15	4.6	0.010
OTHER UTILITY/CONTRACTOR	258,120	2,840	12	1.9	0.021
VANDALISM OR THEFT	949	5	5	0.0	0.000
VEHICLE ACCIDENT	2,446,216	13,862	64	18.0	0.102
INTERFERENCE	**3,353,400**	**18,190**	**106**	**24.7**	**0.134**
LOSS OF SUBSTATION	619,494	5,022	8	4.6	0.037
LOSS OF TRANSMISSION LINE	747,912	9,677	12	5.5	0.071
LOSS OF SUPPLY	**1,367,405**	**14,699**	**20**	**10.1**	**0.108**
FAULTY INSTALL	1,610	14	7	0.0	0.000
INCORRECT RECORDS	56	1	1	0.0	0.000
INTERNAL CONTRACTOR	109,857	1,412	2	0.8	0.010
SWITCHING ERROR	327	15	1	0.0	0.000
OPERATIONAL	**111,850**	**1,442**	**11**	**0.8**	**0.011**
OTHER, KNOWN CAUSE	137,003	2,016	39	1.0	0.015
UNKNOWN	820,747	7,524	221	6.1	0.055
OTHER	**957,750**	**9,540**	**260**	**7.1**	**0.070**
CONSTRUCTION	18,741	128	8	0.1	0.001
CONSTRUCTION - SCHEDULED SWITGHING	7,827	1	1	0.1	0.000
CUSTOMER NOTICE GIVEN	974,866	3,676	298	7.2	0.027
CUSTOMER REQUESTED	14,682	277	10	0.1	0.002
EMERGENCY DAMAGE REPAIR	704,023	7,248	101	5.2	0.053
INTENTIONAL TO CLEAR TROUBLE	92,510	1,071	27	0.7	0.008
PLANNED NOTICE EXEMPT	23,890	328	12	0.2	0.002
PLANNED	**1,836,539**	**12,729**	**457**	**13.5**	**0.094**
TREE - NON-PREVENTABLE	1,814,756	8,169	153	13.4	0.060
TREE - TRIMMABLE	19,010	62	14	0.1	0.000
TREES	**1,833,766**	**8,231**	**167**	**13.5**	**0.061**
LIGHTNING	385,416	1,868	19	2.8	0.014
WIND	313,776	1,111	47	2.3	0.008
WEATHER	**699,193**	**2,979**	**66**	**5.2**	**0.022**
Washington Including Prearranged	**15,337,933**	**100,484**	**2,177**	**113.1**	**0.741**
Washington Excluding Prearranged	**14,316,668**	**96,202**	**1,856**	**105.6**	**0.710**

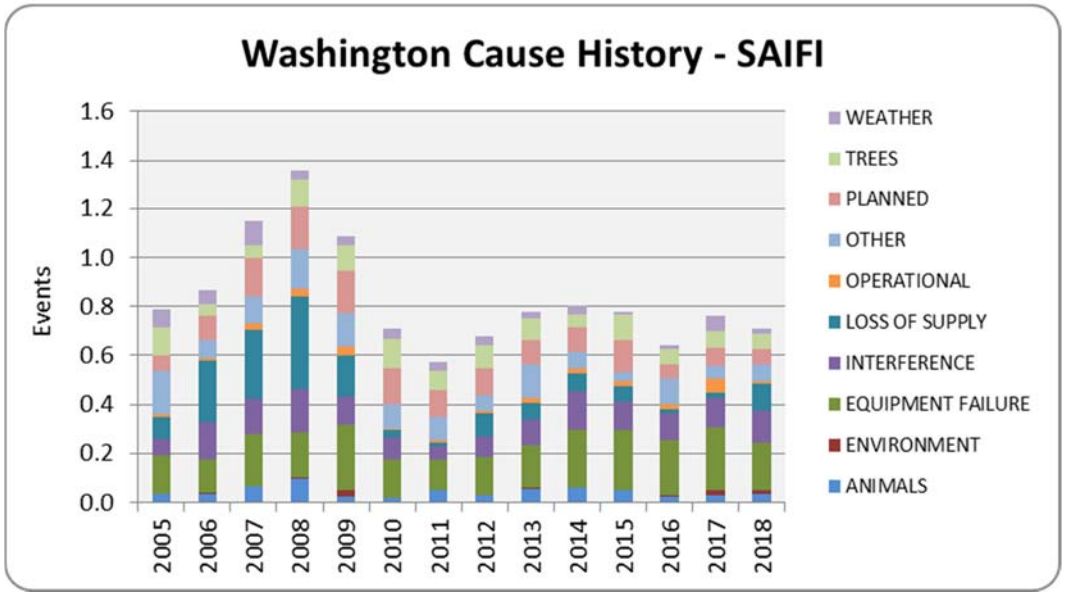

Washington 2018 Cause Analysis - SAIDI
31%
23%
1%
4%
9%
5%
7%
1%
13%
6%
ANIMALS
ENVIRONMENT
EQUIPMENT FAILURE
INTERFERENCE
LOSS OF SUPPLY
OPERATIONAL
OTHER
PLANNED
TREES
WEATHER


Washington 2018 Cause Analysis - SAIFI
19%
27%
15%
2%
5%
1%
3%
10%
9%
9%
ANIMALS
ENVIRONMENT
EQUIPMENT FAILURE
INTERFERENCE
LOSS OF SUPPLY
OPERATIONAL
OTHER
PLANNED
TREES
WEATHER


Washington 2018 Cause Analysis - Incidents
42%
1%
16%
6%
1%
1%
3%
14%
9%
7%
ANIMALS
ENVIRONMENT
EQUIPMENT FAILURE
INTERFERENCE
LOSS OF SUPPLY
OPERATIONAL
OTHER
PLANNED
TREES
WEATHER

Direct Cause Category	Category Definition & Example/Direct Cause	
Animals	Any problem nest that requires removal, relocation, trimming, etc.; any birds, squirrels or other animals, whether or not remains found.	
	• Animal (Animals) • Bird Mortality (Non-protected species) • Bird Mortality (Protected species)(BMTS)	• Bird Nest • Bird or Nest • Bird Suspected, No Mortality
Environment	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).	
	• Condensation/Moisture • Contamination • Fire/Smoke (not due to faults) • Flooding	• Major Storm or Disaster • Nearby Fault • Pole Fire
Equipment Failure	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 (e.g., broken conductor hits another line).	
	• B/O Equipment • Overload	• Deterioration or Rotting • Substation, Relays
Interference	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.	
	• Dig-in (Non-PacifiCorp Personnel) • Other Interfering Object • Vandalism or Theft	• Other Utility/Contractor • Vehicle Accident
Loss of Supply	Failure of supply from Generator or Transmission system; failure of distribution substation equipment.	
	• Failure on other line or station • Loss of Feed from Supplier • Loss of Generator	• Loss of Substation • Loss of Transmission Line • System Protection
Operational	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.	
	• Contact by PacifiCorp • Faulty Install • Improper Protective Coordination • Incorrect Records • Internal Contractor	• Internal Tree Contractor • Switching Error • Testing/Startup Error • Unsafe Situation
Other	Cause Unknown; use comments field if there are some possible reasons.	
	• Invalid Code • Other, Known Cause	• Unknown
Planned	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.	
	• Construction • Customer Notice Given • Energy Emergency Interruption • Intentional to Clear Trouble	• Emergency Damage Repair • Customer Requested • Planned Notice Exempt • Transmission Requested
Tree	Growing or falling trees	
	• Tree-Non-preventable • Tree-Trimmable	• Tree-Tree felled by Logger
Weather	Wind (excluding windborne material); snow, sleet or blizzard, ice, freezing fog, frost, lightning.	
	• Extreme Cold/Heat • Freezing Fog & Frost • Wind	• Lightning • Rain • Snow, Sleet, Ice and Blizzard


Washington Cause History - SAIDI
Minutes
180
160
140
120
100
80
60
40
20
0
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
WEATHER
TREES
PLANNED
OTHER
OPERATIONAL
LOSS OF SUPPLY
INTERFERENCE
EQUIPMENT FAILURE
ENVIRONMENT
ANIMALS


Washington Cause History - SAIFI
Events
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
WEATHER
TREES
PLANNED
OTHER
OPERATIONAL
LOSS OF SUPPLY
INTERFERENCE
EQUIPMENT FAILURE
ENVIRONMENT
ANIMALS

3.6 Areas of Greatest Concern

As in past reports, the Company has continued to focus on improved system hardening and protection. Through targeted reliability projects protective coordination has been improved by replacing hydraulic reclosers, installing new line reclosers, enhancing the existence of fuses that are able to reduce line and the amount of customers exposed to those fault events and replacing substation relays. This new equipment has allowed for smaller and more coordinated protective operations to clear fault events. Additionally, the Company has continued reliability-centered hardening activities on circuits whose equipment may be performing in a way indicating a lack of resilience to fault events. Using the Company's proprietary analytical tools, portions of circuits are identified that warrant additional hardening activity, often comprised of crossarm or cut-out replacement. Along with circuit hardening and protection efforts, the Company reviews to obtain better segmentation of circuits, as well as increasing feeder ties and replacing damaged cable. The Company continues to pilot installation of new technologies which augment its reliability-centered toolset. Three new additions to the toolset include 1) fusesavers, which is a device that is able to operate with a single instantaneous trip to clear a fault prior to faulting permanently; 2) spacer cable, an insulated conductor installed in spacers employing a weak-link design philosophy, such that contact and strikes are not fault creating and 3) manual and remote faulted circuit indicators, which help diagnose the location of circuit's fault events for faster restoration after an event.

Further, the company continues to grow its ability to use reliability data strategically with the development and implementation of reliability-centered tools. It uses a web-based notification tool that alerts when interrupting devices (such as substation breakers, line reclosers or fuses) have exceeded specific performance thresholds. It then promptly investigates these situations, many of which result in localized improvements, such as can occur when a cable section is replaced or when a slack span is re-sagged. This new capability has delivered substantial improvements to customers. Enhancements to the datasets that drive the web notification enable association between inspection conditions and zones of protection for circuits, which allow for prioritization of specific conditions within protective zones close to the substation breaker. Further it has overhauled its geospatial reliability analysis tool, augmenting its functionality to better distinguish circuit details in light of reliability events, particularly in the area of underground cable fault and replacement history. The use of these tools results in maximum improvement for the efforts expended, improving reliability to customers at the best possible costs. Most recently the Company has focused on expanding its information with relation to transmission system fault records by developing an inventory of historic fault locations, geographically located, to further diagnose areas of the system which made warrant more detailed inspection. During 2018 additional investigation into patterns which result in pole fires was explored. As yet, the company's action plan includes assessment of circuits which historically yield high pole fire reliability results, upon which a detailed inspection for specific types of equipment of conditions takes place, resulting in a pole fire mitigation hardening activity, which resulted in more than a dozen circuits being hardened during 2018. Finally, the company recognized that construction and improvement activities could result in temporary reliability impacts to customers and has been working with its contractors and is developing processes to mitigate the impacts during the construction process; the process worked particularly well during a large pole fire mitigation effort in Dayton, Washington.

The table below lists reliability projects identified and currently underway for Washington's Areas of Greatest Concern; these circuits will be subsequently reported as Program Year 20 circuits in Section 3.7.

Substation	Circuit Name	Circuit	2018 Assessment	Baseline CPI99
Grandview	Bonneview	5Y302	circuit hardening (related to pole fire mitigation), replacing potted porcelain cutouts, placing fuses on isolated tap locations	44
Dayton	Cannery	5W323	circuit hardening (related to pole fire mitigation), including replacing structural members (poles, crossarms), replacing potted porcelain cutouts, placing fuses on isolated tap locations	50
Wenas	Gibson Rd	5Y601	fuse coordination	126
Orchard	Peach	5Y498	circuit hardening (related to pole fire mitigation), replacing potted porcelain cutouts, placing fuses on isolated tap locations	34
Wapato	Satus	5Y205	circuit hardening (related to pole fire mitigation), replacing potted porcelain cutouts, placing fuses on isolated tap locations	80

3.7 Reduce CPI[1] for Worst Performing Circuits by 20%

On a routine basis, the company reviews circuits for performance. One of the measures that it uses is called circuit performance indicator (CPI), which is a blended weighting of key reliability metrics covering a three-year time frame. The higher the number, the poorer the blended performance the circuit is delivering. As part of the company's Performance Standards Program, it annually selects a set of Worst Performing Circuits for target improvement. The improvements are to be completed within two years of selection. Within five years of selection, the average performance is to be improved by at least 20% (as measured by comparing current performance against baseline performance). Program years 1-12 have previously met improvement targets so are no longer shown in the performance update below.

WASHINGTON WORST PERFORMING CIRCUITS	BASELINE	Performance 12/31/2018
PROGRAM YEAR 19		
GRANGER 5Y357	114	56
HAY 5Y131	191	265
MABTON EXPR 5Y174	113	106
WESLEY 5Y218	135	133
ZILLAH 5Y245	280	213
TARGET SCORE = 133	**167**	**155**
PROGRAM YEAR 18		
Dazet 5Y434	30	10
Green Park 5W116	53	11
Harrah 5Y202	113	22
Orion 5Y577	89	33
Reser Road 5W16	50	60
GOAL MET! TARGET SCORE = 57	**67**	**27**

[1] The company used CPI05 (between 2005 through 2011) which includes transmission and major event outages to evaluate the effectiveness of the distribution improvements made. In other states the company serves it has found that the inclusion of these outages may direct resources in a manner not cost-effective, thus it has transitioned to the use of CPI99, which excludes transmission and major event outage impacts into the circuit ratings. The baseline and current performance statistics reflect this transition.

WASHINGTON WORST PERFORMING CIRCUITS	BASELINE	Performance 12/31/2018
PROGRAM YEAR 17		
GURLEY 5Y358 (circuit split into 5Y850 and 5Y854)	119	114
BOYER 5W118	48	6
FERNDALE 5W106	88	57
NILE 4Y1	301[1]	234
4TH St. 5Y468	91	80
GOAL MET! TARGET SCORE = 104	**129**	**98**
PROGRAM YEAR 16		
DRAPER 5Y156	162	41
PINE STREET (BOWMAN) 5W150	26	32
RUSSEL CREEK 5W121	23	25
TAUMARSON FEEDER 5W50	29	22
VAN BELLE 5Y312	149	58
GOAL MET! TARGET SCORE = 62	**78**	**36**
PROGRAM YEAR 15		
MEMORIAL 5W2	60	20
OCCIDENTAL 5Y382	35	21
TAMPICO 5Y380	100	58
10TH STREET 5Y437	77	58
GRAVEL 5Y99	63	21
GOAL MET! TARGET SCORE =54	**67**	**36**
PROGRAM YEAR 14		
CITY 5W324	46	26
BONNEVIEW 5Y302	111	44
CHESTNUT 5Y458	119	54
SOUTH (WENAS) 5Y600	65	67
COUGAR 5Y658	113	27
GOAL MET! TARGET SCORE =73	**91**	**44**
PROGRAM YEAR 13		
DONALD 5Y330	57	83
FORNEY 5Y94	172	112
PRESCOTT 5W305	57	38
STEIN 5Y164	148	89
TERRACE HTS 5Y10	99	21
GOAL MET! TARGET SCORE =85	**107**	**69**

[1] The Bumping River Tap is the targeted area for these improvements; the local performance as measured by the RPI (which is a customer specific metric analogous to the CPI) whose baseline performance was 1215. RPI performance during 2018 (using the three-year weighted RPI99 score) was 421.8. Previous performance scores as measured RPI were 812.3 (through 2013), 707.5 (through 2014), 598.7 (through 2015), 465.2 (through 2016), and 510.0 (through 2017); thus this circuit segment's improvement goal has been met.

3.8 Restore Service to 80% of Customers within 3 Hours

The Company targets restoring power to 80% of its customers within 3 hours.

WASHINGTON RESTORATIONS WITHIN 3 HOURS					
January – December 2018 = 82%					
January	February	March	April	May	June
78%	76%	63%	77%	85%	84%
July	August	September	October	November	December
47%	76%	96%	91%	87%	71%

3.9 Telephone Service and Response to Commission Complaints

COMMITMENT	GOAL	PERFORMANCE
PS5-Answer calls within 30 seconds	80%	82%
PS6a) Respond to commission complaints within 3 days[1]	95%	100%
PS6b) Respond to commission complaints regarding service disconnects within 4 hours	95%	100%
PS6c) Resolve commission complaints within 30 days	95%	100%

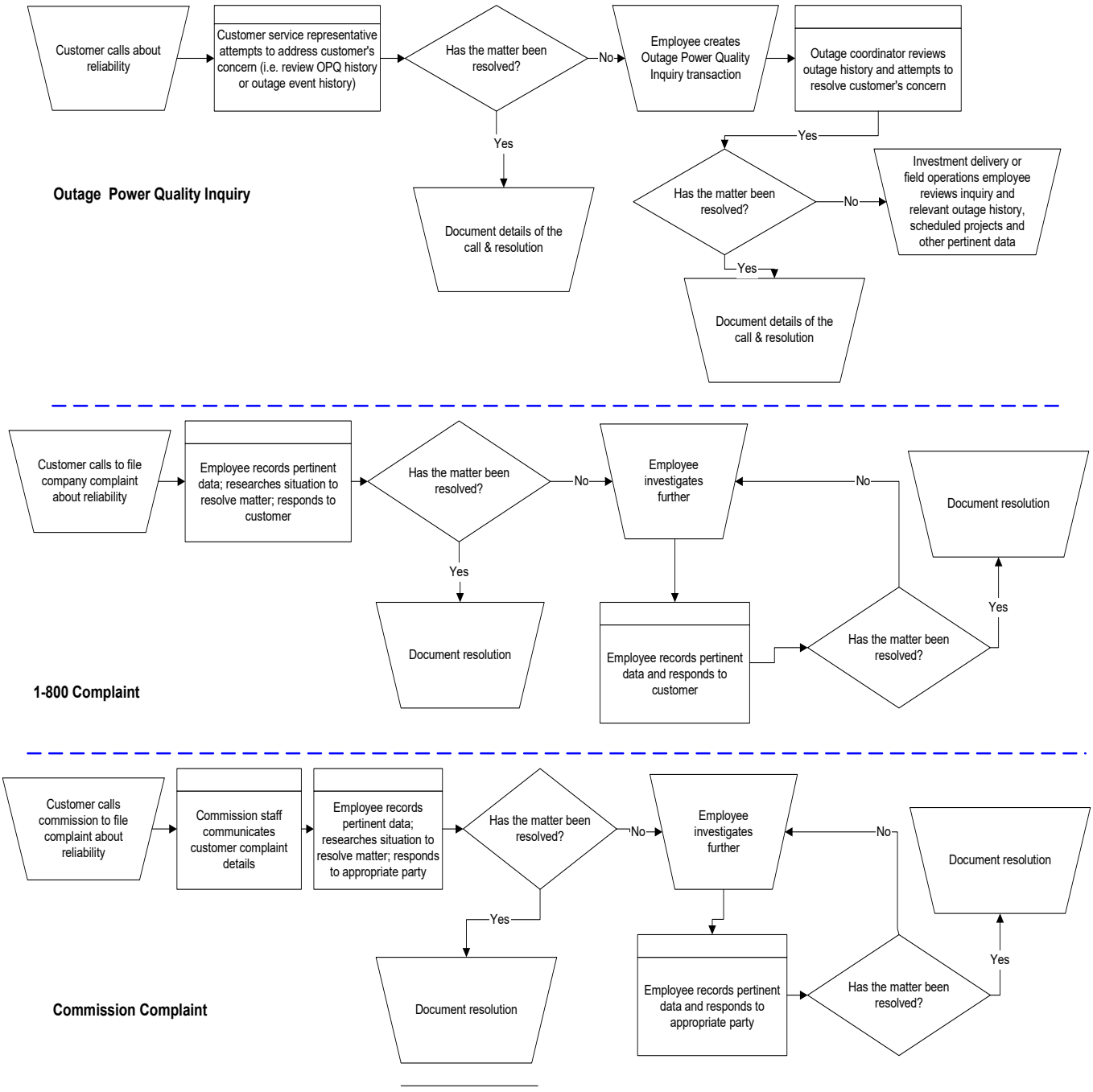
[1] Although the Performance Standard indicates that complaints will be responded to within 3 days, the Company acknowledges and adheres to the requirements set forth in WAC 480-100-173(3)(a).

4 CUSTOMER RELIABILITY COMMUNICATIONS

4.1 Reliability Complaint Process Overview

The Company's process for managing customers' concerns about reliability are to provide opportunities to hear customer concerns, respond to those concerns, and where necessary, provide customers an opportunity to elevate those concerns.

Customer Reliability Communications



4.2 Customer Complaint Tracking

Listed below are the various avenues available to a customer to resolve concerns about reliability performance.

- **Customer Reliability Inquiry**
  The company records customer inquiries about reliability as Outage Power Quality transactions in its customer service system, referred to as "OPQ" transactions.
- **Customer Complaint**
  If a customer's reliability concerns are not met through the process associated with the OPQ transaction, a customer can register a 1-800 complaint with the company. This is recorded in a complaint repository from which regular reports are prepared and circulated for resolution.
- **Commission Complaint**
  If a customer's reliability concerns are not met through the process associated with a 1-800 complaint, a customer can register a complaint with the Commission. This is recorded by the Commission staff and also by the company in a complaint repository. Regular reports are prepared and circulated for resolution of these items.

4.3 Customer Complaints Recorded During the Period

Listed below, by the recording source, are reliability-related customer complaints received during the reporting period. If the reliability concern is related to a major event such information is included in the summary.

- **Informal Complaints (1-800 Customer Advocacy Team)**
  There were no Informal Complaints received by the company in the reporting period.
- **Commission Complaints**

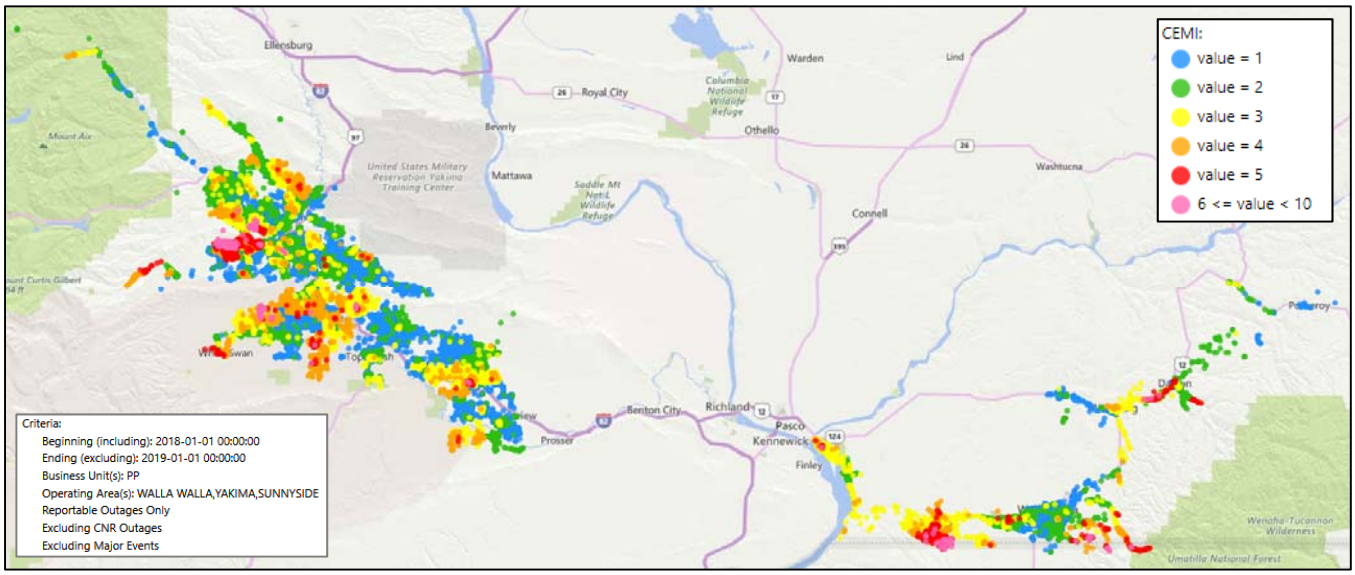
  There was one Commission Complaints in the reporting period.

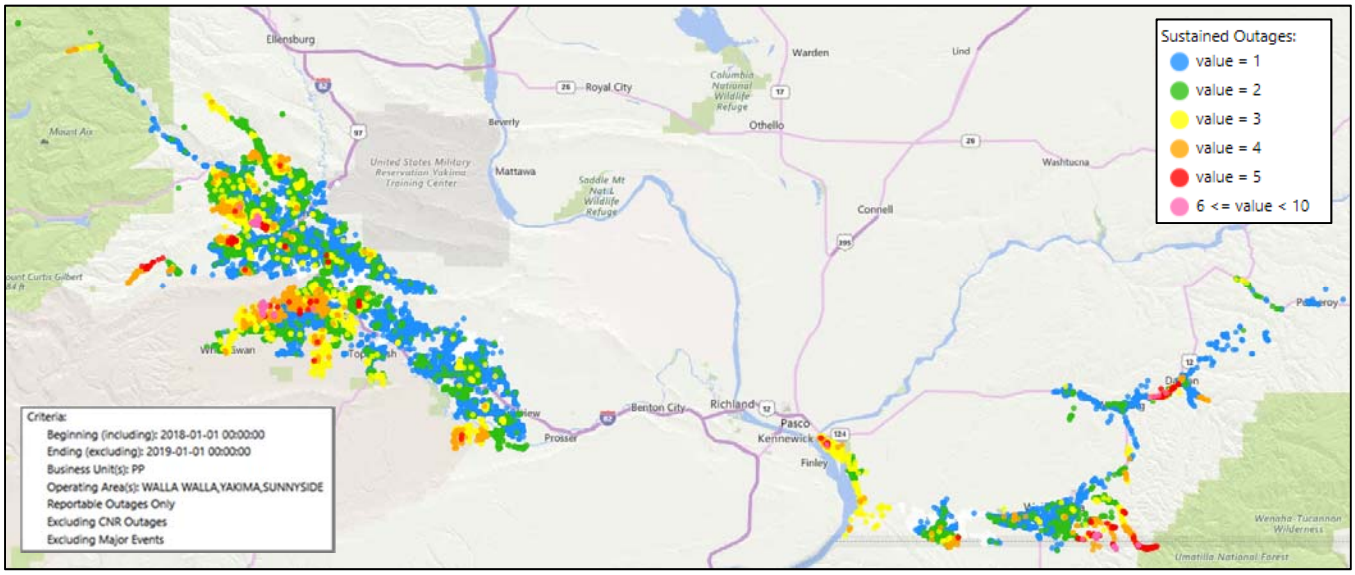
Received	Complaint Type	Site Address	Site ID	Sub-Complaint type	Summary	
8/17/2018	Reliability and Restoration	5609 Englewood Hill Pl., Yakima, WA	744890365	Frequency of Outages	Reported concerns regarding the condition of the underground service in their neighborhood, claiming frequent outages and safety issues.	Pacific Power is monitoring the performance; this complaint appeared to be the result of an isolated underground cable fault which was repaired; the history hasn't reached thresholds to replace large sections of cable.

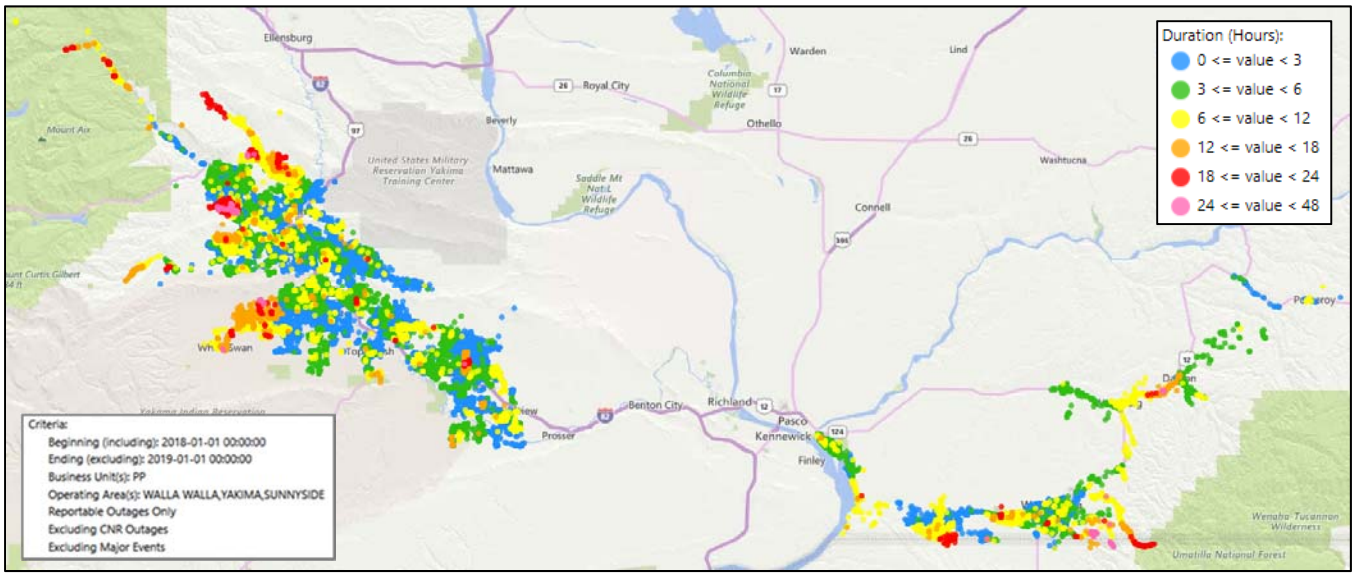
5 WASHINGTON RELIABILITY RESULTS DURING 2018

To geospatially display reliability results the Company has developed its GREATER tool which blends circuit topology with outage history and uses a variety of industry metrics (differentiated by color) to indicate areas where reliability analysis should be targeted. In the subsequent plots, two important reliability indicators are depicted. In each plot thumbnails are used to orient the graphic. First, plots with customers experiencing multiple interruptions (CEMI) are shown. This measure shows how many sustained and momentary outages a given service transformer has experienced. The greater the color intensity, with red as the most severe, the more interruptions the transformer has had. Note that this depiction exceeds the requirements of the reporting rule, but is helpful to the Company in selecting areas of reliability concern. Second sustained interruptions are shown. This measure shows how many sustained outages a service transformer has experienced, which is aligned with the requirements of the reporting rules. Third, service transformer-level SAIDI is shown. While technically SAIDI is a "system-level" metric, the local application of this metric can be revealing in determining service transformers that have had long cumulative durations of outages during the period. As explained previously, the greater the color intensity, the longer the outage duration during the period. (Major events, customer requested and prearranged outages are excluded from underlying results.)

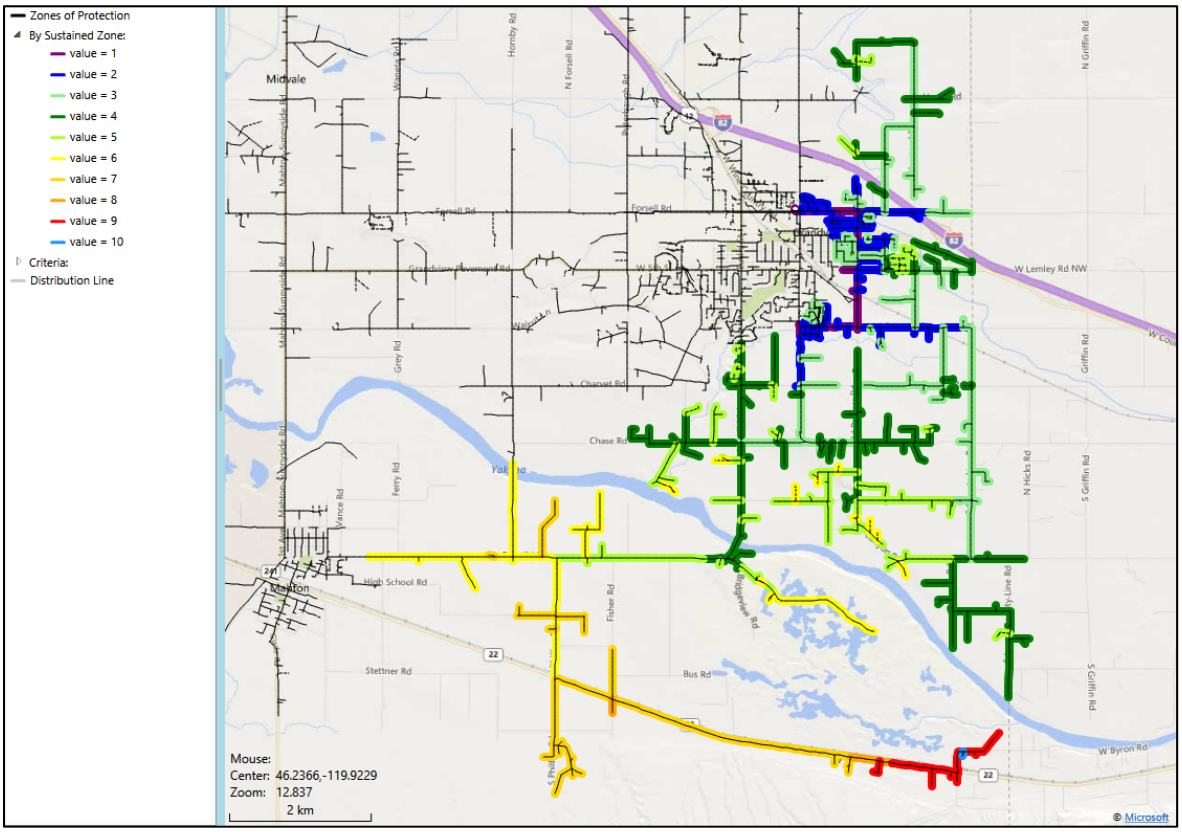
5.1 State Reliability

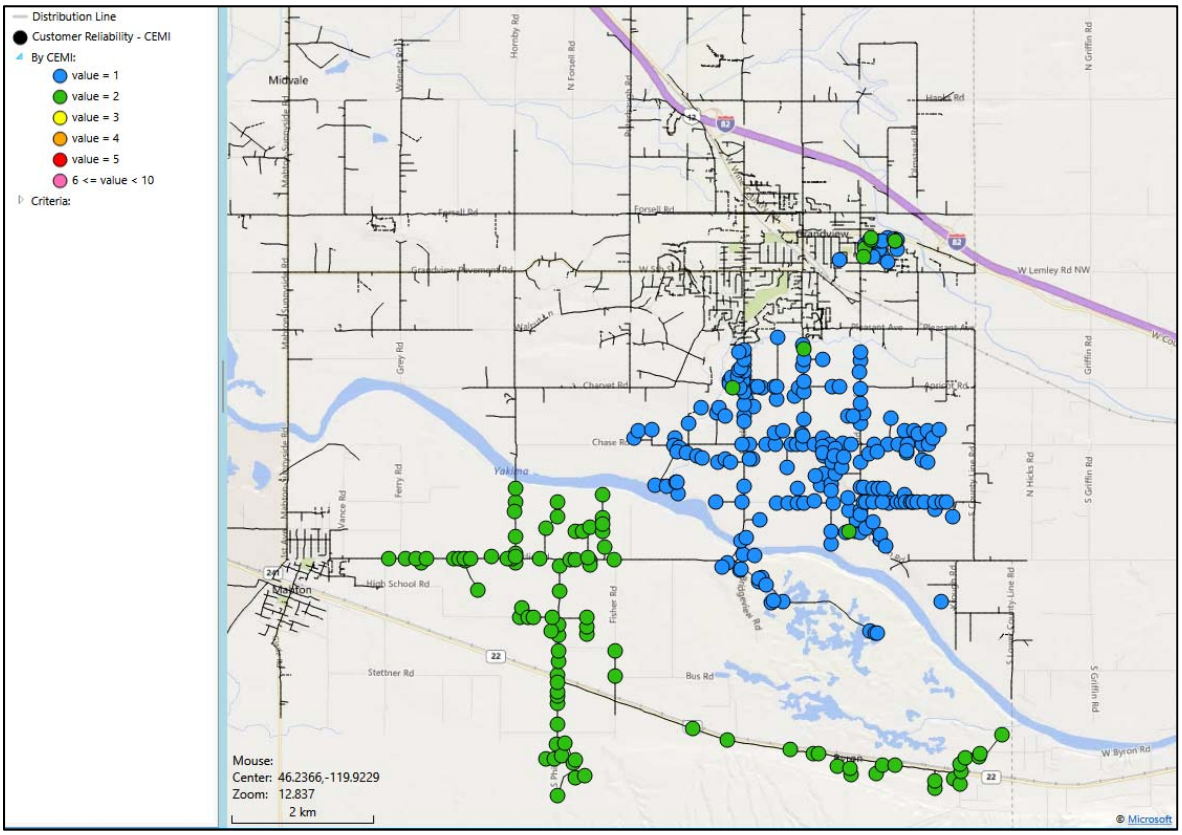


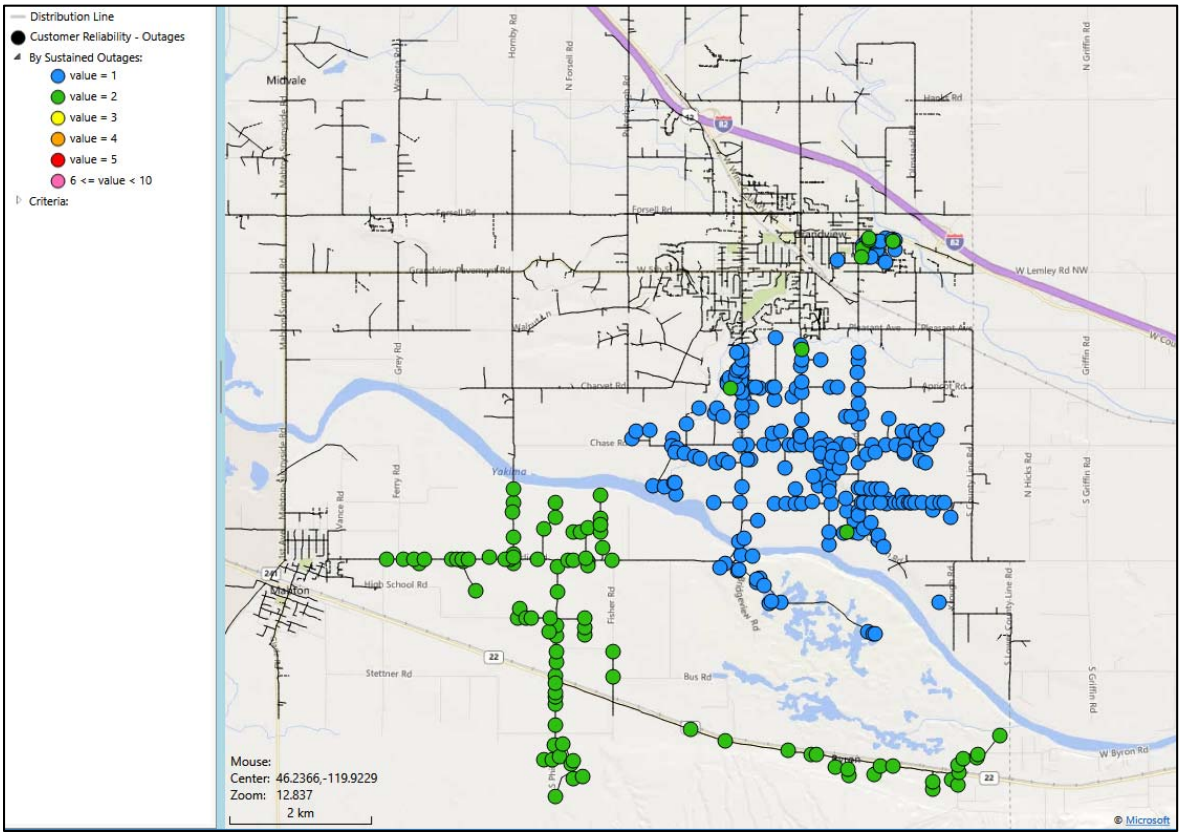

Sustained Outages:
value = 1
value = 2
value = 3
value = 4
value = 5
6 <= value < 10
Criteria:
Beginning (including): 2018-01-01 00:00:00
Ending (excluding): 2019-01-01 00:00:00
Business Unit(s): PP
Operating Area(s): WALLA WALLA,YAKIMA,SUNNYSIDE
Reportable Outages Only
Excluding CNR Outages
Excluding Major Events
Ellensburg
Warden
Lind
Royal City
Beverly
Othello
Mattawa
Washtucna
Connell
Benton City
Richland
Pasco
Kennewick
Finley
Prosser

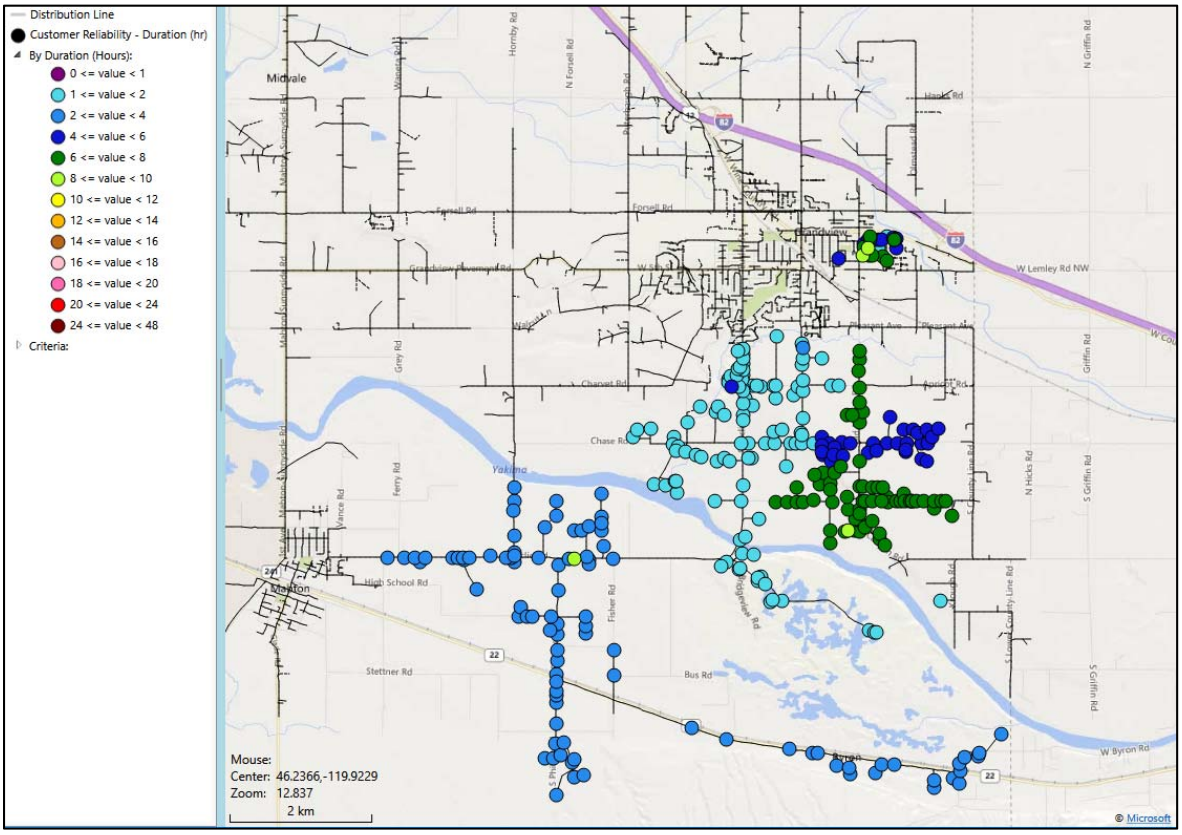

Duration (Hours):
0 <= value < 3
3 <= value < 6
6 <= value < 12
12 <= value < 18
18 <= value < 24
24 <= value < 48
Criteria:
Beginning (including): 2018-01-01 00:00:00
Ending (excluding): 2019-01-01 00:00:00
Business Unit(s): PP
Operating Area(s): WALLA WALLA,YAKIMA,SUNNYSIDE
Reportable Outages Only
Excluding CNR Outages
Excluding Major Events
Ellensburg
Warden
Lind
Royal City
Beverly
Othello
Mattawa
Washtucna
Connell
Benton City
Richland
Pasco
Kennewick
Finley
Prosser

5.2 5Y302: Bonneview






Distribution Line
Customer Reliability - Outages
By Sustained Outages:
value = 1
value = 2
value = 3
value = 4
value = 5
6 <= value < 10
Criteria:
Midvale
Yakima
Mouse:
Center: 46.2366,-119.9229
Zoom: 12.837
2 km
© Microsoft


Distribution Line
Customer Reliability - Duration (hr)
By Duration (Hours):
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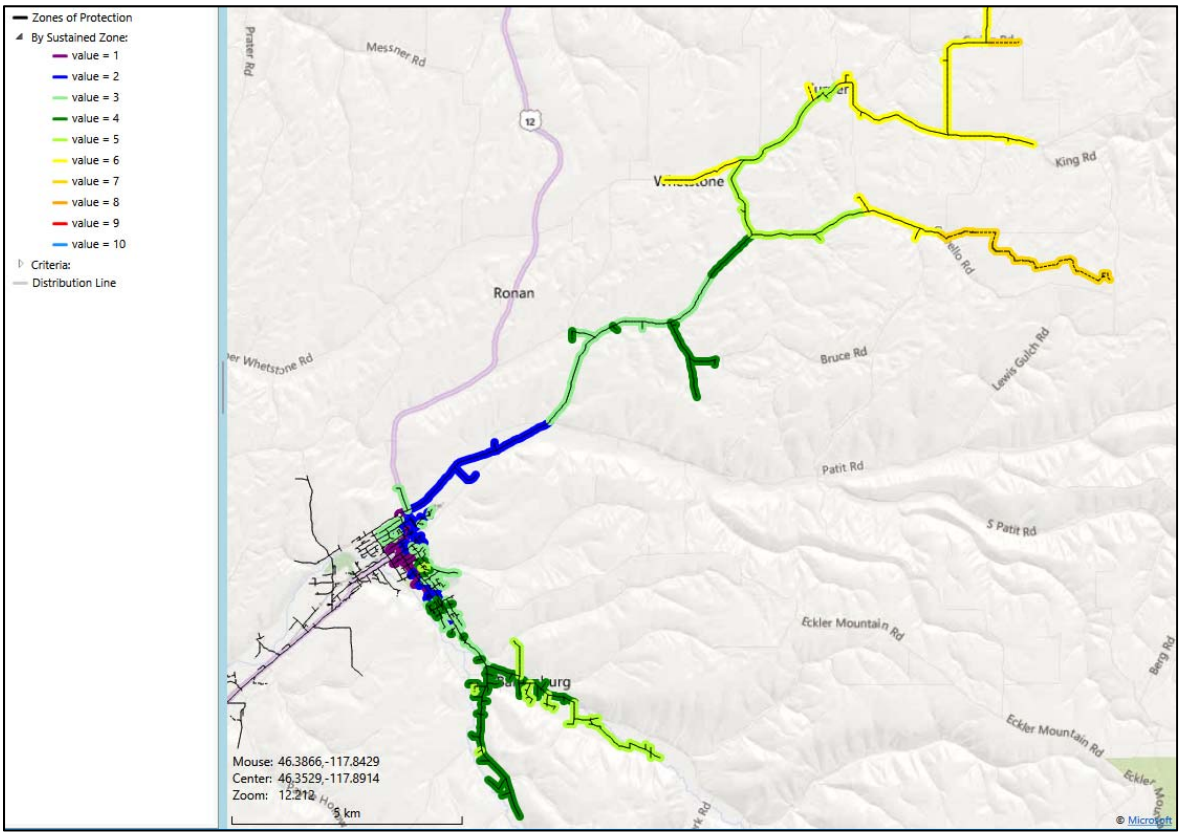
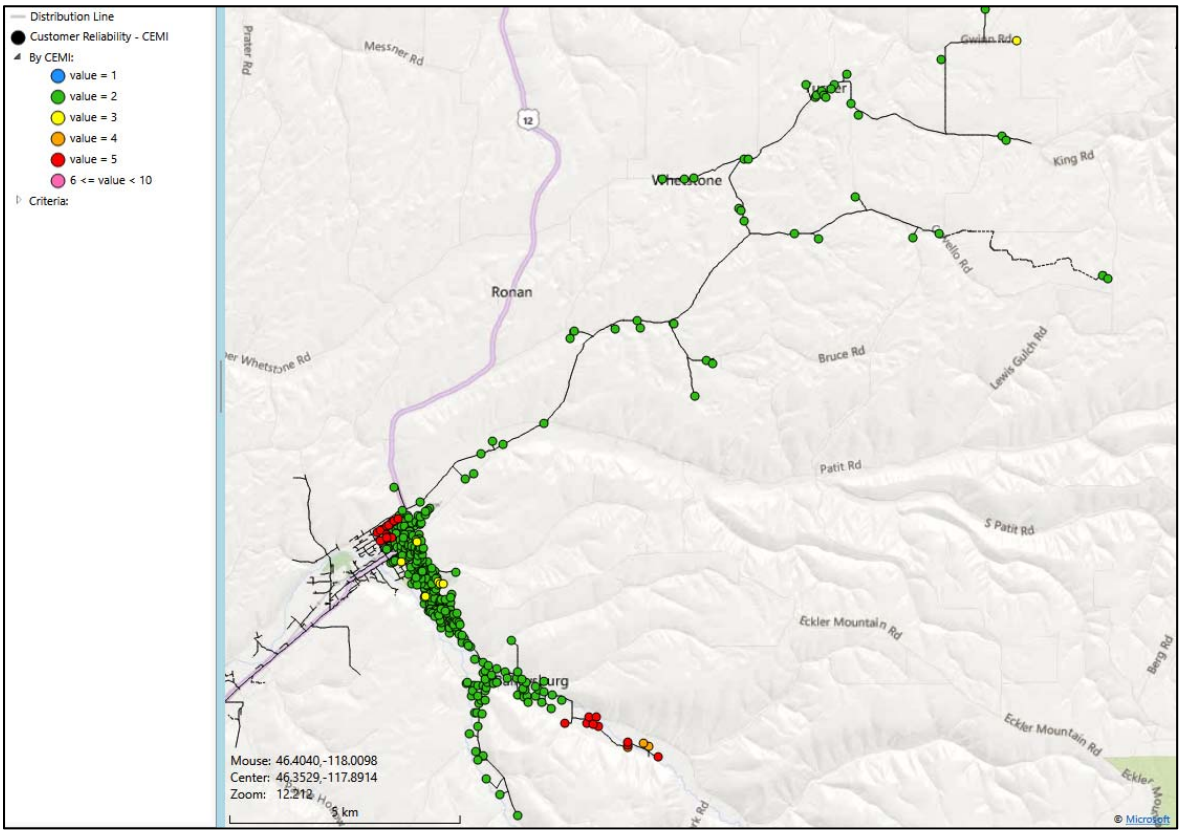
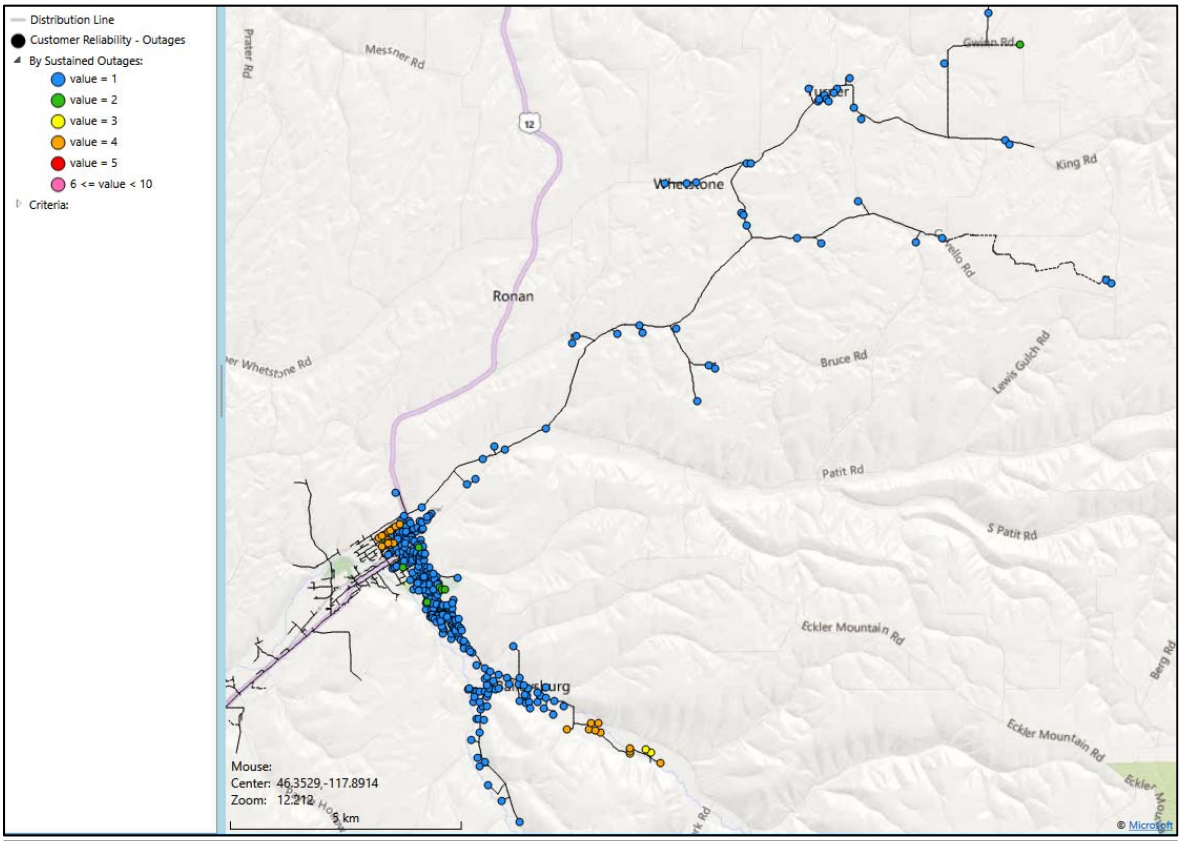
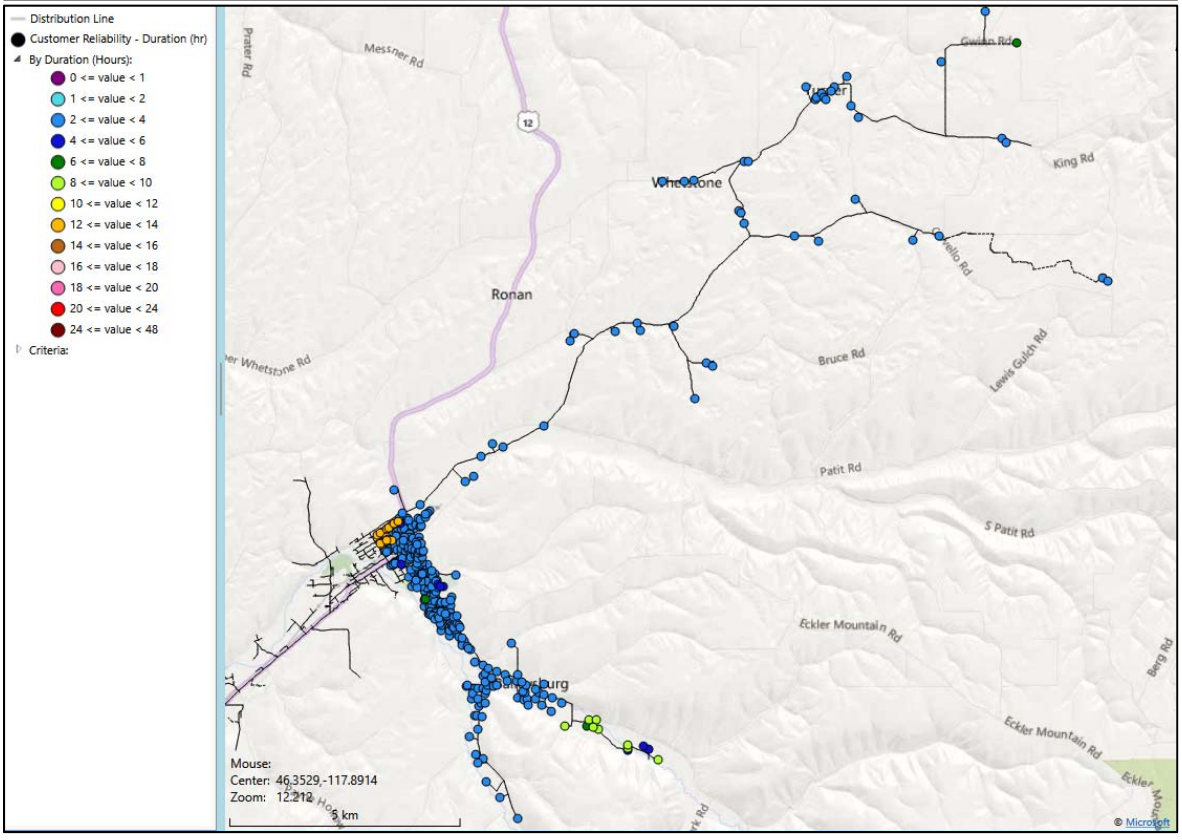
1 <= value < 2
2 <= value < 4
4 <= value < 6
6 <= value < 8
8 <= value < 10
10 <= value < 12
12 <= value < 14
14 <= value < 16
16 <= value < 18
18 <= value < 20
20 <= value < 24
24 <= value < 48
Criteria:
Midvale
Yakima
Mouse:
Center: 46.2366,-119.9229
Zoom: 12.837
2 km
© Microsoft

5.3 5W323: Cannery

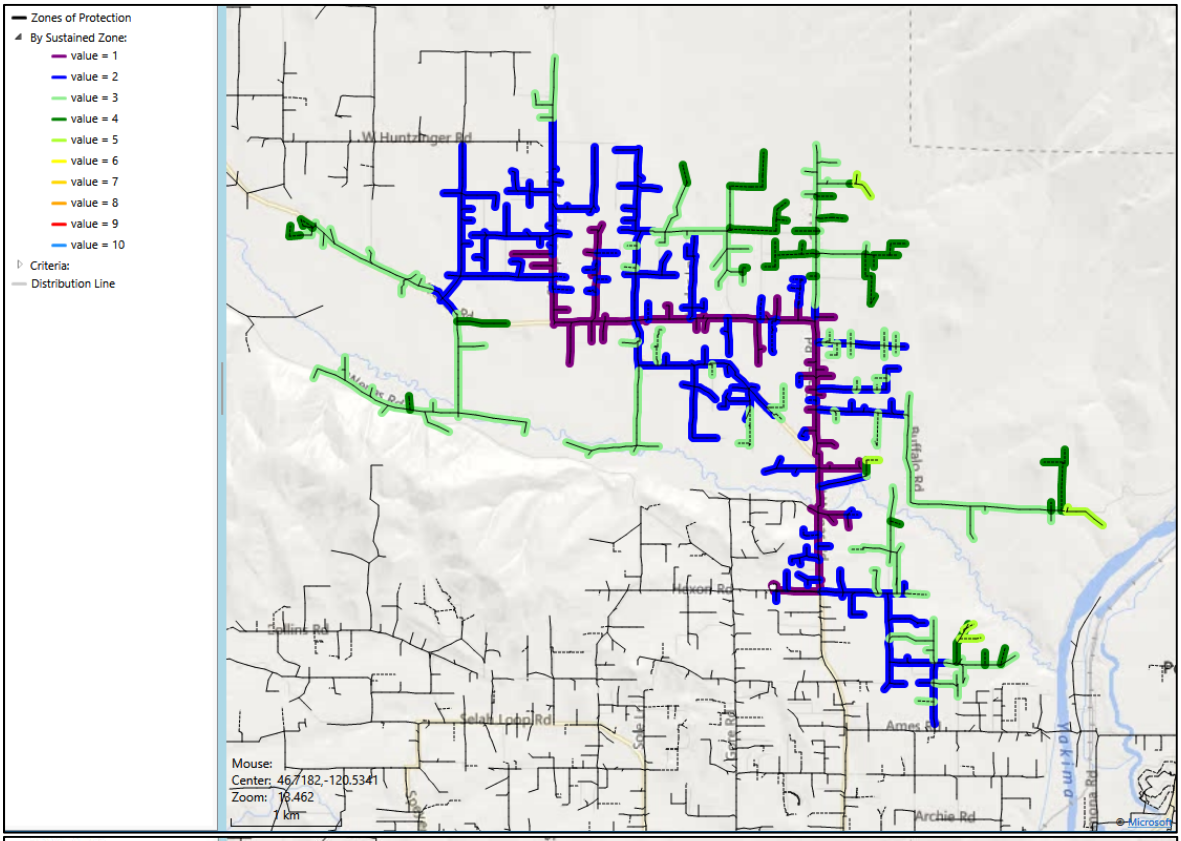


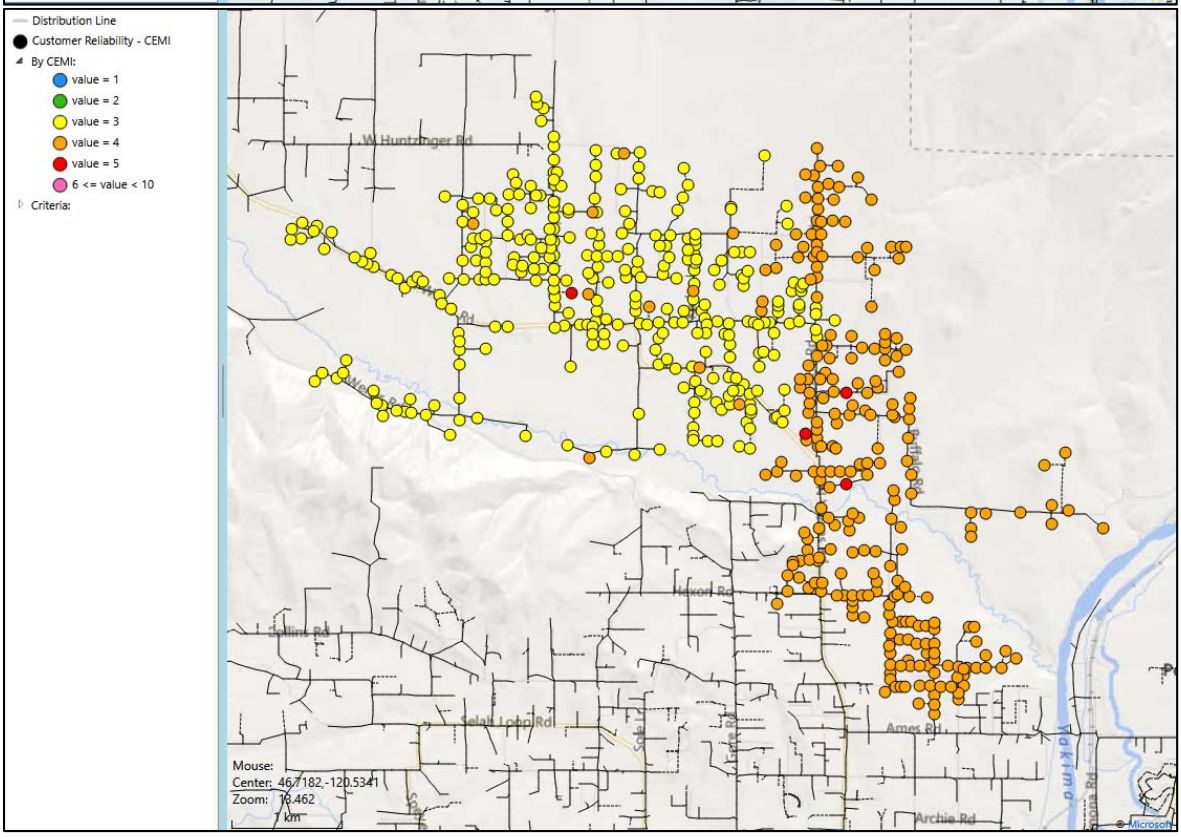


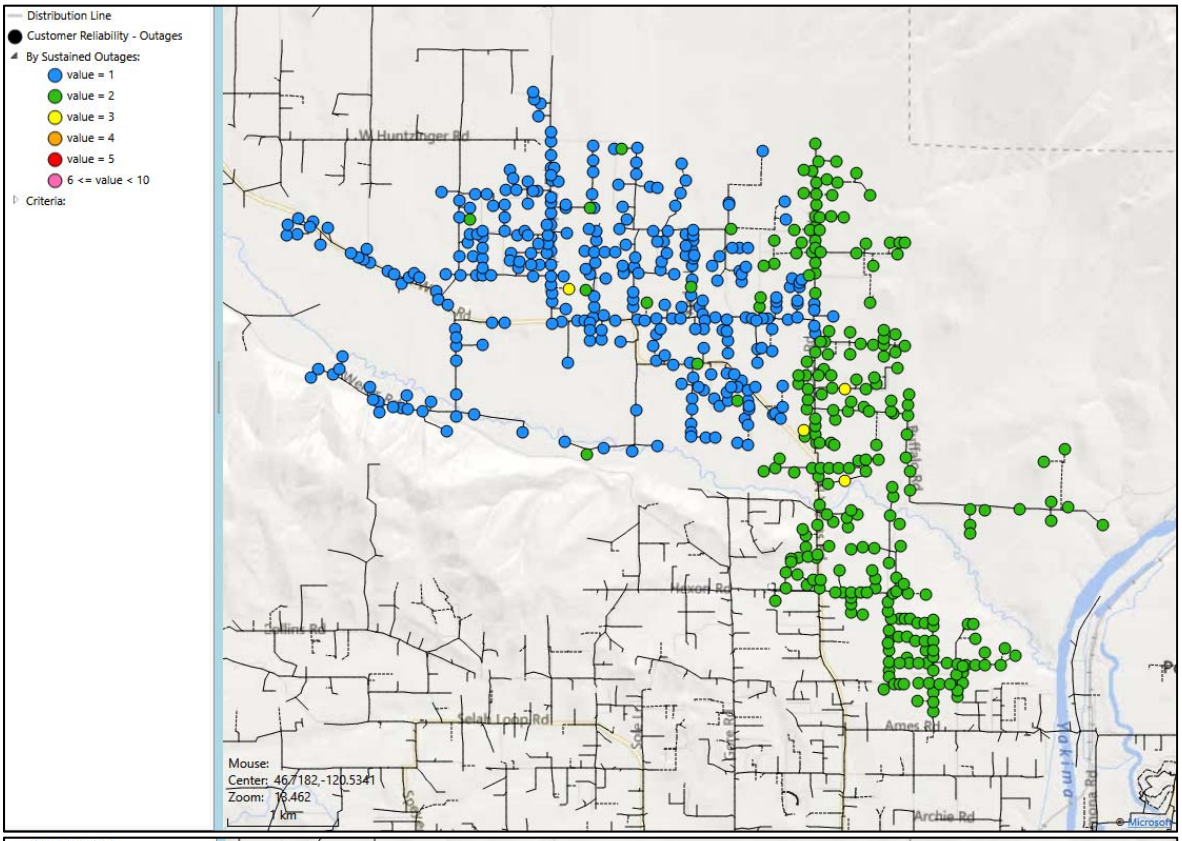

Distribution Line
Customer Reliability - Outages
By Sustained Outages:
value = 1
value = 2
value = 3
value = 4
value = 5
6 <= value < 10
Criteria:
Messner Rd
Prater Rd
Gwinn Rd
King Rd
Whetstone
Ronan
Bruce Rd
Lewis Gulch Rd
Patit Rd
S Patit Rd
Eckler Mountain Rd
Berg Rd
Mouse:
Center: 46.3529,-117.8914
Zoom: 12.212
5 km
© Microsoft


Distribution Line
Customer Reliability - Duration (hr)
By Duration (Hours):
0 <= value < 1
1 <= value < 2
2 <= value < 4
4 <= value < 6
6 <= value < 8
8 <= value < 10
10 <= value < 12
12 <= value < 14
14 <= value < 16
16 <= value < 18
18 <= value < 20
20 <= value < 24
24 <= value < 48
Criteria:
Messner Rd
Prater Rd
Gwinn Rd
King Rd
Ronan
Bruce Rd
Lewis Gulch Rd
Patit Rd
S Patit Rd
Eckler Mountain Rd
Berg Rd
Mouse:
Center: 46.3529,-117.8914
Zoom: 12.212
5 km
© Microsoft

5.4 5Y601: Gibson Rd.



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Customer Reliability - Outages
By Sustained Outages:
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value = 2
value = 3
value = 4
value = 5
6 <= value < 10
Criteria:
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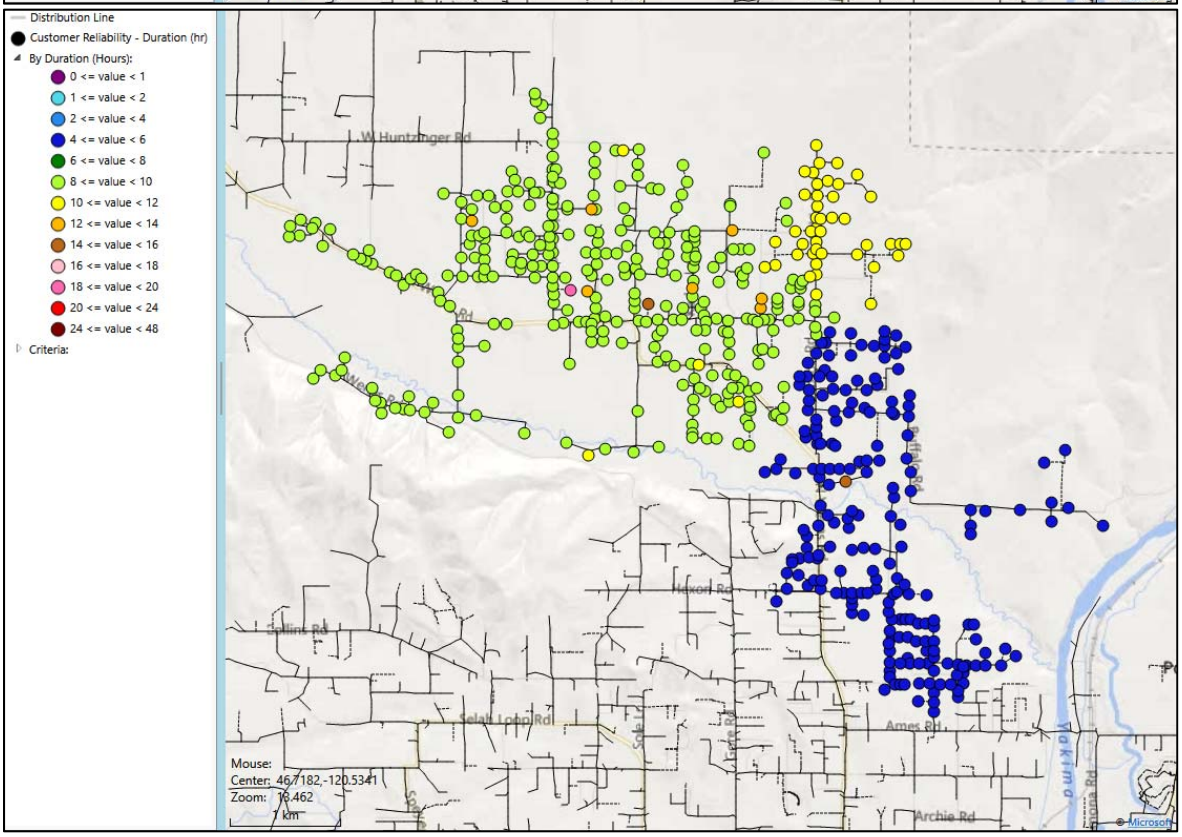
Helvoi Rd
Selah Loop Rd
Ames Rd
Archie Rd
Mouse:
Center: 46.7182,-120.5341
Zoom: 76.462
1 km


Distribution Line
Customer Reliability - Duration (hr)
By Duration (Hours):
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1 <= value < 2
2 <= value < 4
4 <= value < 6
6 <= value < 8
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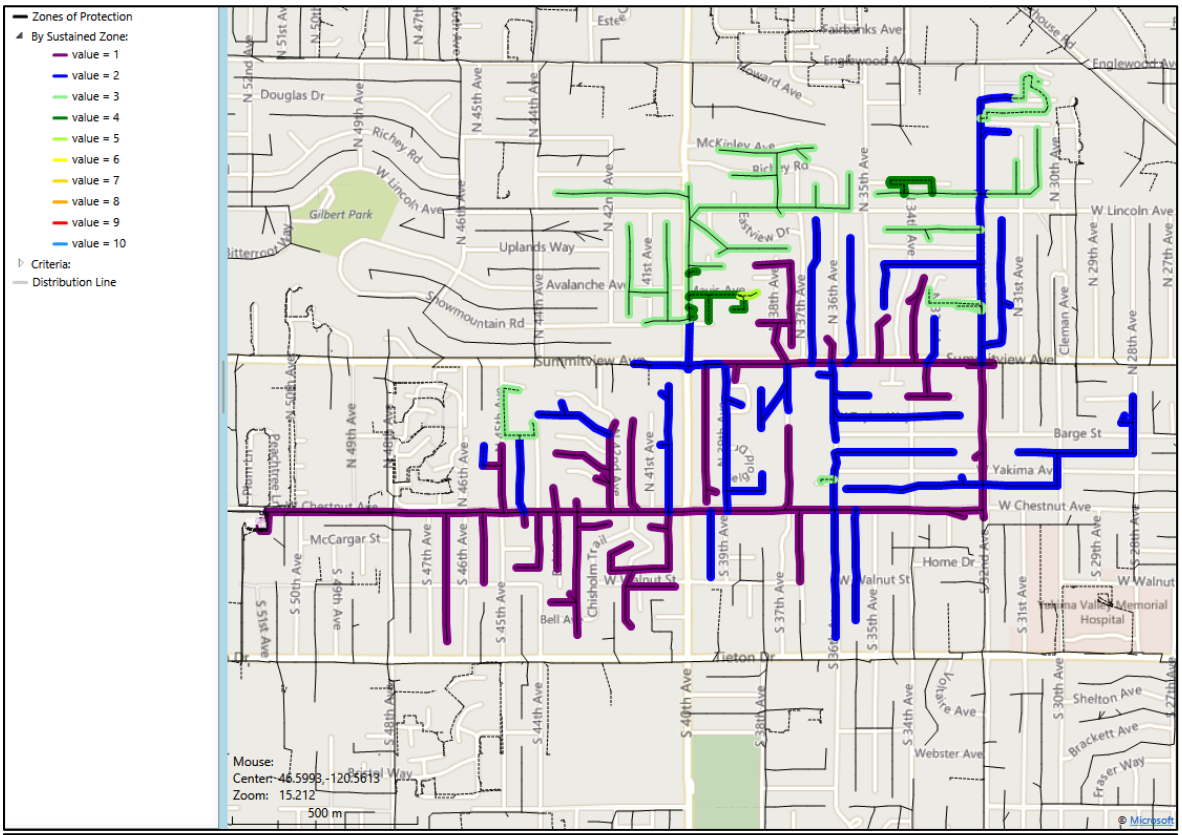
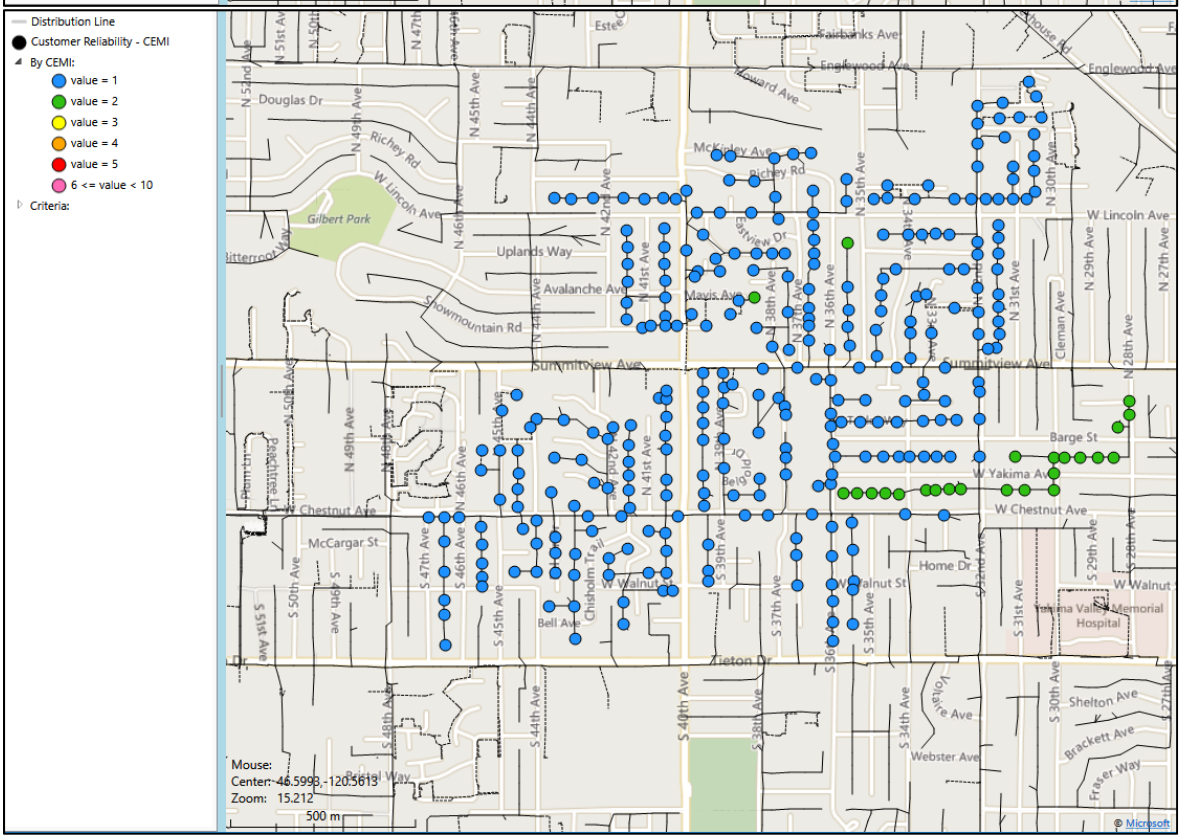
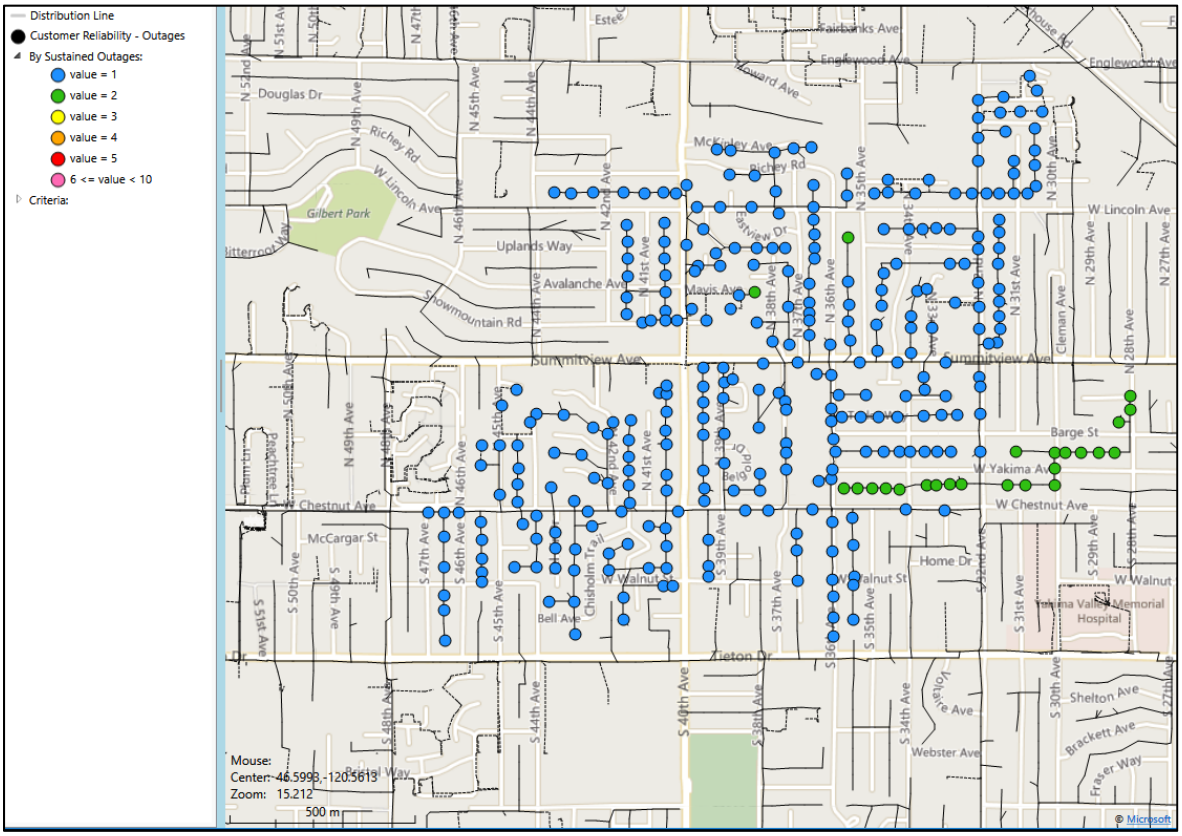
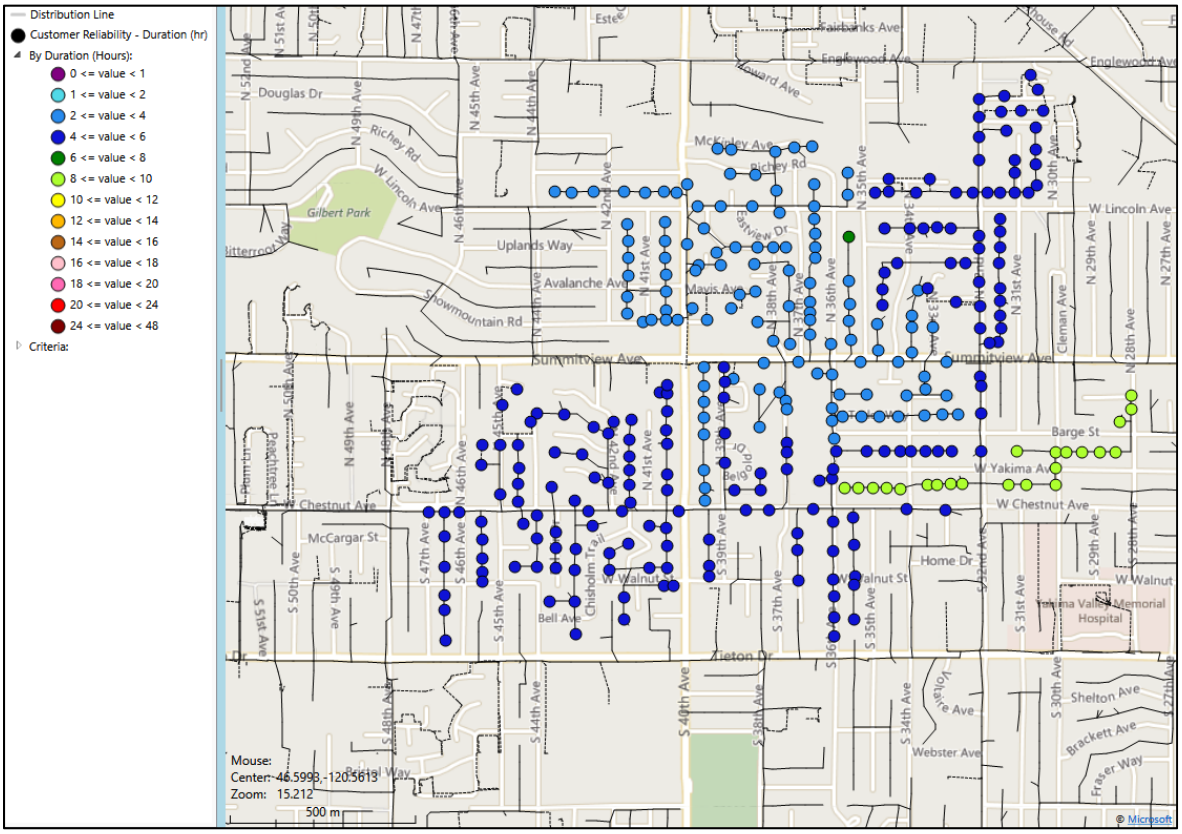
10 <= value < 12
12 <= value < 14
14 <= value < 16
16 <= value < 18
18 <= value < 20
20 <= value < 24
24 <= value < 48
Criteria:
W Huntzinger Rd
Helvoi Rd
Selah Loop Rd
Ames Rd
Archie Rd
Mouse:
Center: 46.7182,-120.5341
Zoom: 76.462
1 km

5.5 5Y498: Peach

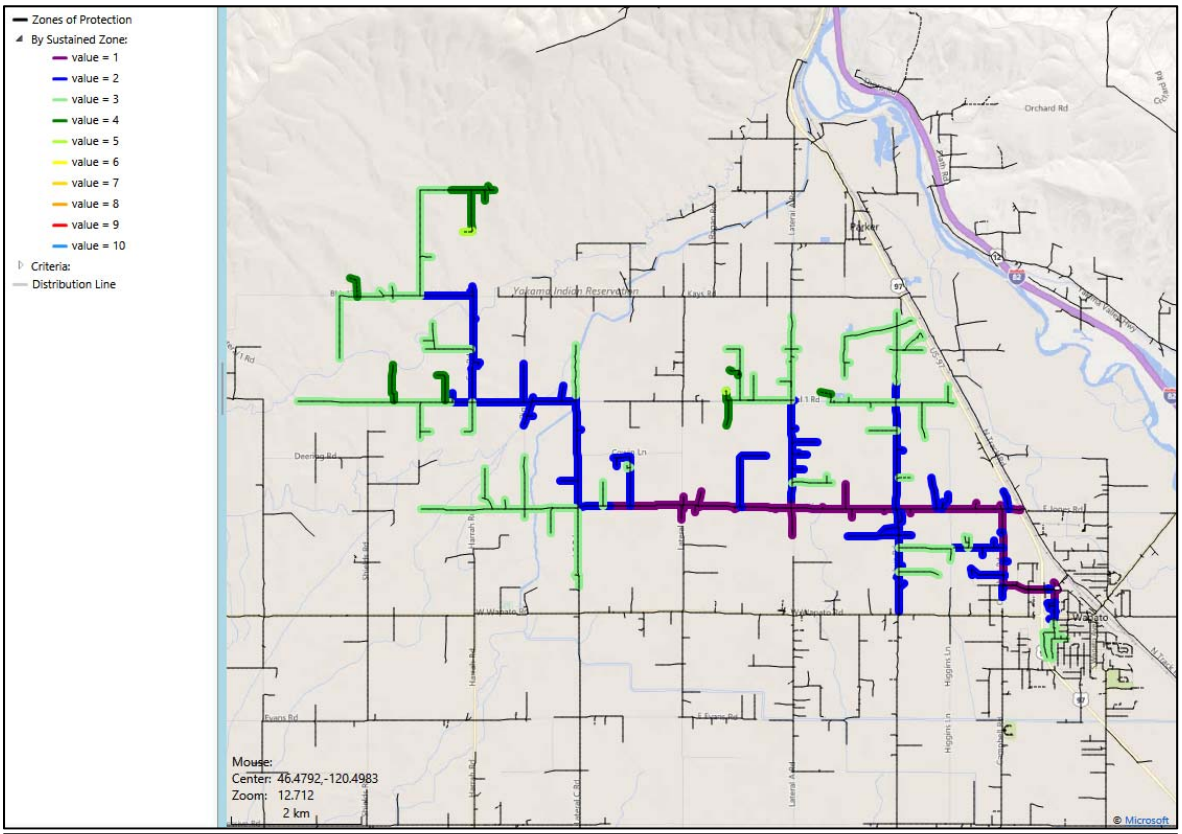


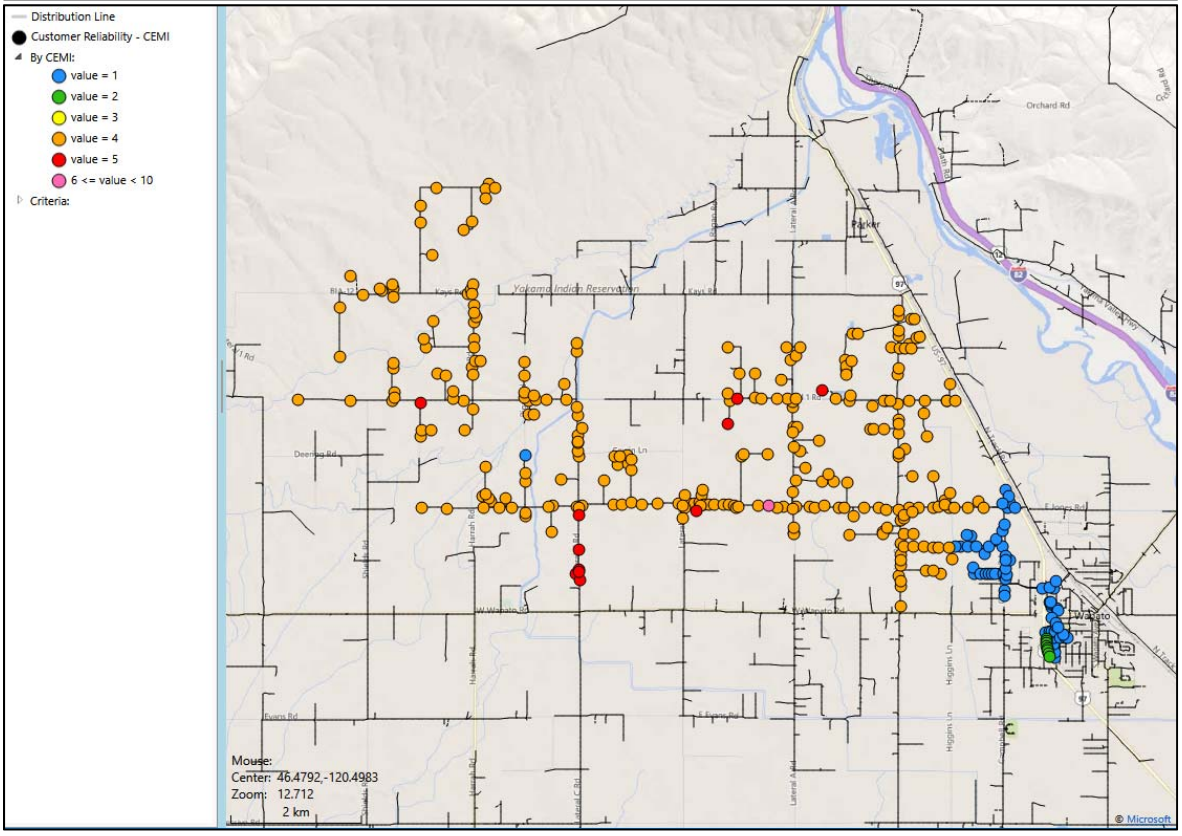


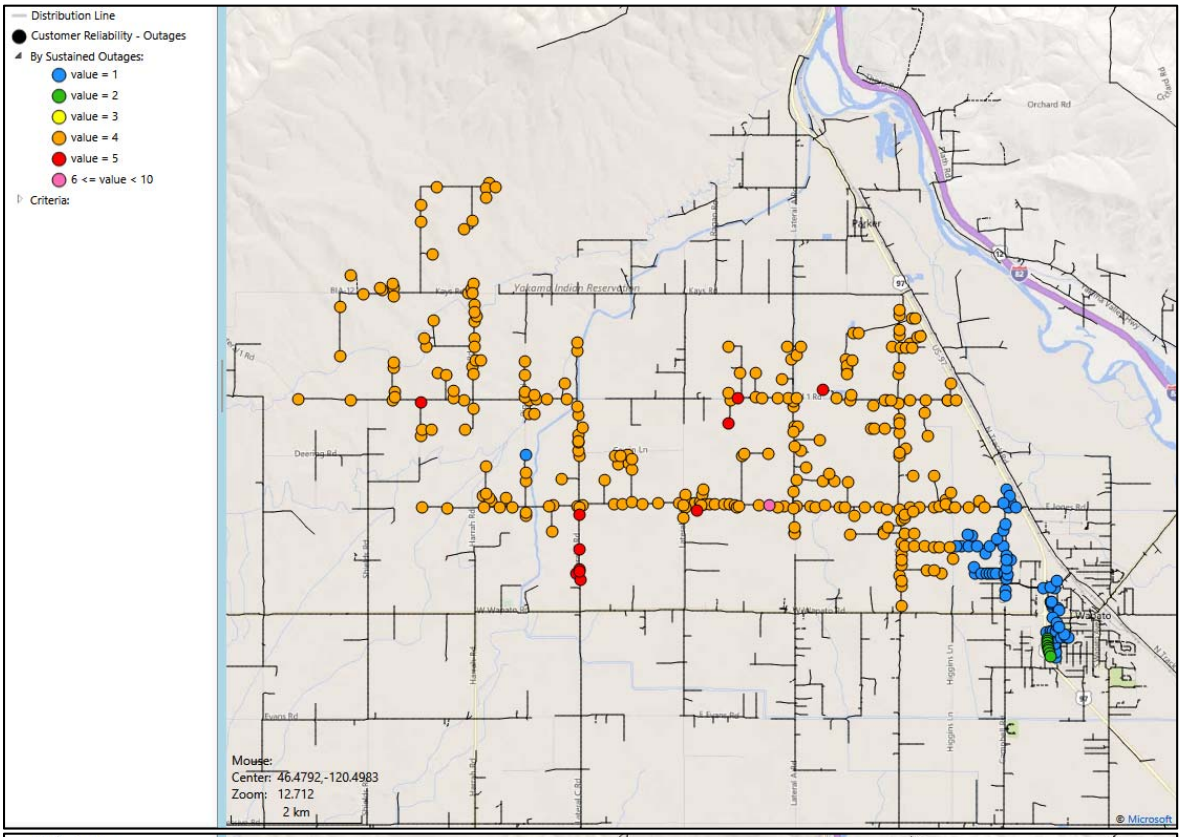

Distribution Line
Customer Reliability - Outages
By Sustained Outages:
value = 1
value = 2
value = 3
value = 4
value = 5
6 <= value < 10
Criteria:
Mouse:
Center: 46.5993, -120.5613
Zoom: 15.212
500 m
© Microsoft

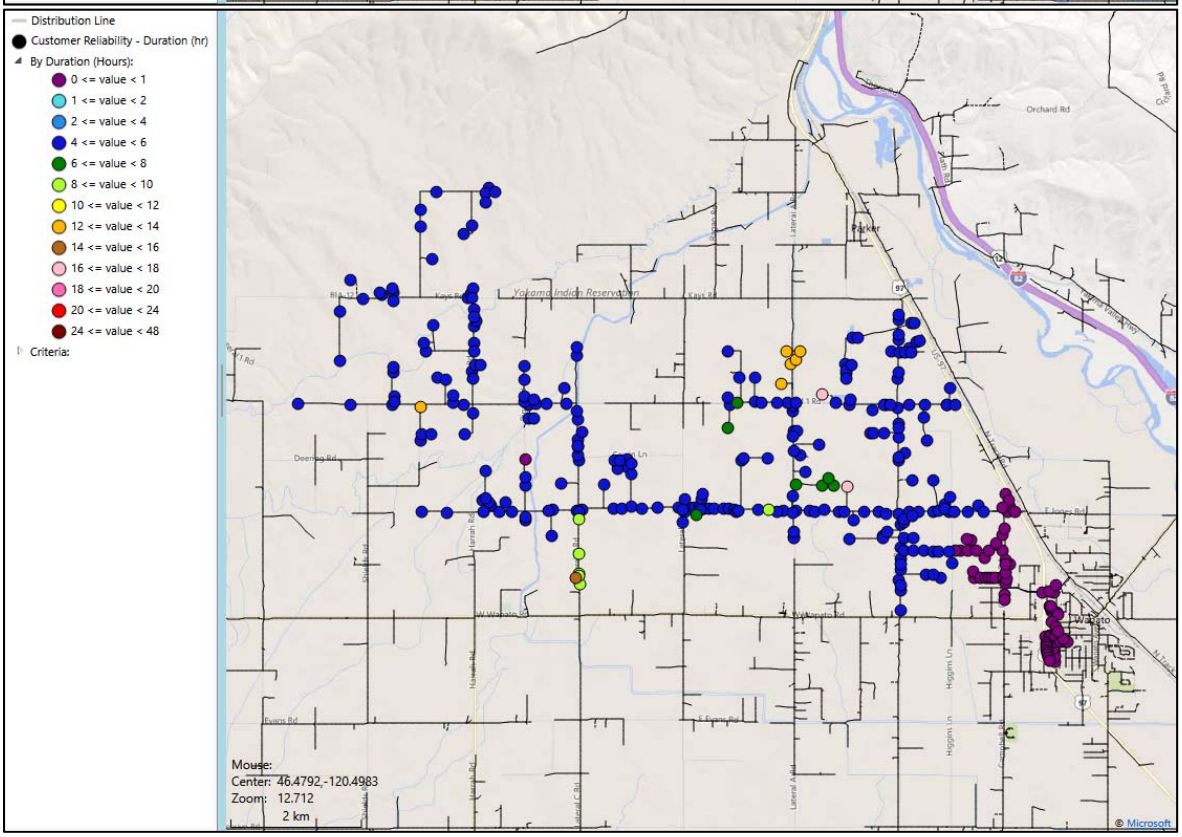

Distribution Line
Customer Reliability - Duration (hr)
By Duration (Hours):
0 <= value < 1
1 <= value < 2
2 <= value < 4
4 <= value < 6
6 <= value < 8
8 <= value < 10
10 <= value < 12
12 <= value < 14
14 <= value < 16
16 <= value < 18
18 <= value < 20
20 <= value < 24
24 <= value < 48
Criteria:
Mouse:
Center: 46.5993, -120.5613
Zoom: 15.212
500 m
© Microsoft

5.6 5Y205: Satus






Distribution Line
Customer Reliability - Outages
By Sustained Outages:
value = 1
value = 2
value = 3
value = 4
value = 5
6 <= value < 10
Criteria:
Mouse:
Center: 46.4792,-120.4983
Zoom: 12.712
2 km
© Microsoft


Distribution Line
Customer Reliability - Duration (hr)
By Duration (Hours):
0 <= value < 1
1 <= value < 2
2 <= value < 4
4 <= value < 6
6 <= value < 8
8 <= value < 10
10 <= value < 12
12 <= value < 14
14 <= value < 16
16 <= value < 18
18 <= value < 20
20 <= value < 24
24 <= value < 48
Criteria:
Mouse:
Center: 46.4792,-120.4983
Zoom: 12.712
2 km
© Microsoft

APPENDIX A: Reliability Definitions

This section will define the various terms[1] used when referring to interruption types, performance metrics and the internal measures developed to meet performance plans. A map of Pacific Power's service territory is included.

Interruption Types

Sustained Outage

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

Momentary Outage

A momentary outage event is defined as an outage equal to or less than 5 minutes in duration, and comprises all operations of the device during the momentary duration; if a breaker goes to lockout (it is unable to clear the faulted condition after the equipment's prescribed number of operations) the momentary operations are part of the ensuing sustained interruption. This sequence of events typically occurs when the system is trying to re-establish energy flow after a faulted condition, and is associated with circuit breakers or other automatic reclosing devices. Pacific Power uses the locations where SCADA (Supervisory Control and Data Acquisition) exists and calculates consistent with IEEE 1366-2003/2012. Where no substation breaker SCADA exists fault counts at substation breakers are to be used.

Reliability Indices

SAIDI

SAIDI (system average interruption duration index) is an industry-defined term to define the average duration summed for all sustained outages a customer experiences in a given period. It is calculated by summing all customer minutes lost for sustained outages (those exceeding 5 minutes) and dividing by all customers served within the study area. When not explicitly stated otherwise, this value can be assumed to be for a one-year period.

Daily SAIDI

In order to evaluate trends during a year and to establish Major Event Thresholds, a daily SAIDI value is often used as a measure. This concept was introduced in IEEE Standard P1366-2003/2012. This is the day's total customer minutes out of service divided by the static customer count for the year. It is the total average outage duration customers experienced for that given day. When these daily values are accumulated through the year, it yields the year's SAIDI results.

SAIFI

SAIFI (system average interruption frequency index) is an industry-defined term that attempts to identify the frequency of all sustained outages that the average customer experiences during a given period. 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.

CAIDI

CAIDI (customer average interruption duration index) is an industry-defined term that is the result of dividing the duration of the average customer's sustained outages by the frequency of outages for that average customer. While the Company did not originally specify this metric under the umbrella of the Performance Standards Program within the context of the Service Standards Commitments, it has since been determined to be valuable for reporting purposes. It is derived by dividing SAIDI by SAIFI.

[1] IEEE1366-2003/2012 was first adopted by the IEEE Commissioners on December 23, 2003. The definitions and methodology detailed therein are now industry standards, which have since been affirmed in recent balloting activities.

CEMI

CEMI is an acronym for Customers Experiencing Multiple (Sustained and Momentary) Interruptions. This index depicts repetition of outages across the period being reported and can be an indicator of recent portions of the system that have experienced reliability challenges. This metric is used to evaluate customer-specific reliability in Section 4 Customer Reliability Communications.

$MAIFI_E$

MAIFIE (momentary average interruption event frequency index) is an industry standard index that quantifies the frequency of all momentary interruption events that the average customer experiences during a given time-frame. It is calculated by counting all momentary interruptions which occur within a 5 minute time period, as long as the interruption event did not result in a device experiencing a sustained interruption.

CPI99

CPI99 is an acronym for Circuit Performance Indicator, which uses key reliability metrics of the circuit to identify underperforming circuits. It excludes Major Event and Loss of Supply or Transmission outages. The variables and equation for calculating CPI are:

CPI = Index * ((SAIDI * WF * NF) + (SAIFI * WF * NF) + (MAIFI * WF * NF) + (Lockouts * WF * NF))
Index: 10.645
SAIDI: Weighting Factor 0.30, Normalizing Factor 0.029
SAIFI: Weighting Factor 0.30, Normalizing Factor 2.439
MAIFI: Weighting Factor 0.20, Normalizing Factor 0.70
Lockouts: Weighting Factor 0.20, Normalizing Factor 2.00

Therefore, 10.645 * ((3-year SAIDI * 0.30 * 0.029) + (3-year SAIFI * 0.30 * 2.439) + (3-year MAIFI * 0.20 * 0.70) + (3-year breaker lockouts * 0.20 * 2.00)) = CPI Score

CPI05

CPI05 is an acronym for Circuit Performance Indicator, which uses key reliability metrics of the circuit to identify underperforming circuits. Unlike CPI99 it includes Major Event and Loss of Supply or Transmission outages. The calculation of CPI05 uses the same weighting and normalizing factors as CPI99.

Performance Types & Commitments

Pacific Power 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.

Major Events

Pursuant to WAC 480-100-393 Electric Reliability Annual Monitoring and Reporting Plan, modified February 2011, the company recognizes two types of major events in Washington:

- 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 1366-2003/2012.
- 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. 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. If any changes have occurred in outage reporting processes, those impacts need to be considered when making comparisons. Underlying events include all sustained interruptions, whether of a controllable or non-controllable cause, exclusive of major events, prearranged (which can include short notice emergency prearranged outages), customer requested interruptions and forced outages mandated by public authority typically regarding safety in an emergency situation.

Performance Targets

The Company and Commission, in the MidAmerican transaction docket, UE05-01590, agreed to extend Service Standards through 12/31/2011. Within Washington, because performance delivered by the Company falls within industry second quartile performance levels, the Company committed that it would achieve performance by 12/31/2011 that maintains performance targets set in prior Merger Commitment Periods. Additionally in WAC 480-100-393 the Company is required to set baseline metrics and when performance deviates from those baselines, explain the reasons for that deviation and any action plans which may result from that level of performance.

APPENDIX B: 2018 Major Event Filings

Report to the Washington Utilities and Transportation Commission

Electric Service Reliability - Major Event Report

Event Date:	January 5, 2018
Date Submitted:	February 16, 2018
Primary Affected Locations:	Walla Walla
Primary Cause:	Loss of Transmission
Exclude from Reporting Status:	Yes
Report Prepared by:	April Brewer
Report Approved by:	Heide Caswell / Kevin Putnam / David O'Neil / Pablo Arronte

Event Description

On January 5, 2018, Walla Walla, Washington, experienced a system average interruption frequency index (SAIFI)-based major event when transmission line conductors made contact phase-phase causing a fault which operated breakers at Mill Creek and Pomeroy. The outage affected 4,215[1] customers, or approximately 15% of the Walla Walla operating area's customers with 3,037 customers restored in 20 minutes and the remaining 1,178 customers restored in 30 minutes.

Event Outage Summary	
# Interruptions (sustained)	5
Total Customer Interrupted (sustained)	4,215
Total Customer Minutes Lost	94,643
State Event SAIDI	0.70 Minutes
CAIDI	22
Major Event Start	1/5/18 12:00 AM
Major Event End	1/6/18 12:00 AM

[1] A SAIFI-based major event threshold (as identified in PacifiCorp's reporting plan, pursuant to Washington Administrative Code (WAC) 480-100-393 & 398 Electric Reliability Annual Monitoring and Reporting Plan) 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. Walla Walla operating area's Calendar 2018 Frozen Customer Count is 28,594 customers.

Restoration Summary

Starting on January 4, 2018, a winter storm entered the Blue Mountain area of southeastern Washington and northeastern Oregon. During that time Walla Walla began experiencing icy weather conditions and heavy fog. By the morning of January 5th up to 3 inches of hoarfrost had developed on power lines. At 11:30 AM the hoarfrost which had grown on the 69 kV transmission line from Millcreek to Pomeroy unloaded from the conductor causing the transmission phases to contact, initiating a fault event at circuit breakers at the Mill Creek and Pomeroy substations to trip, which de-energized three substations that serve five circuits. Using, SCADA dispatch quickly responded, isolating sections on the line and successfully testing feeds to quickly restore all customers within 30 minutes.

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

Restoration Intervals

Total Customers Sustained	< 3 Hrs.	3 - 24 Hrs.	24+ Hrs.
4,215	4,215	0	0

Restoration Resources

Personnel Resources	
Journeyman	1
TOTAL	**1**

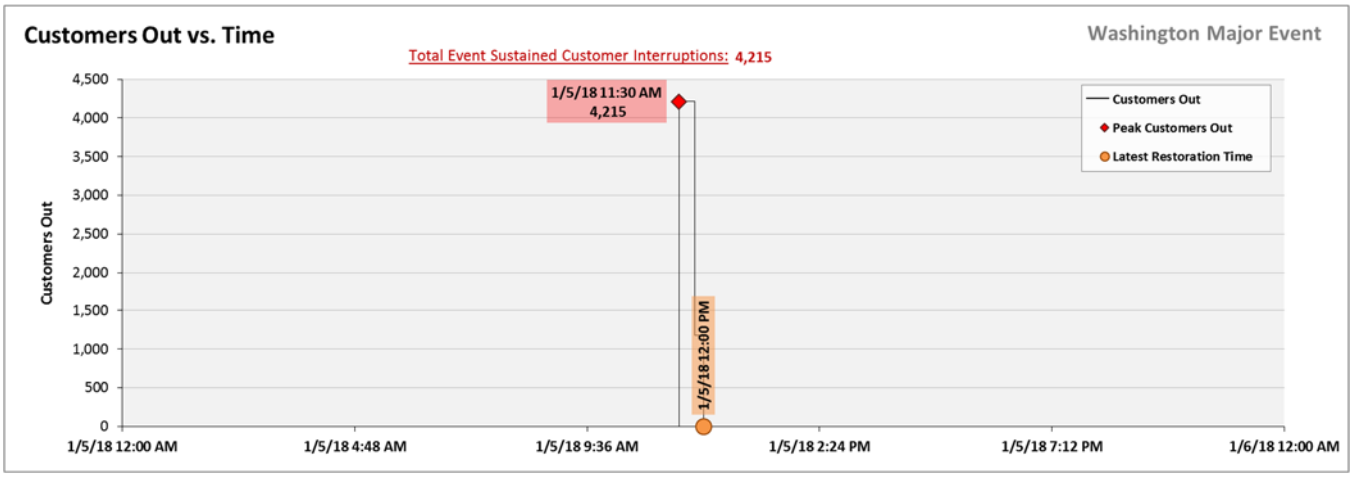
State Estimated Major Event Costs

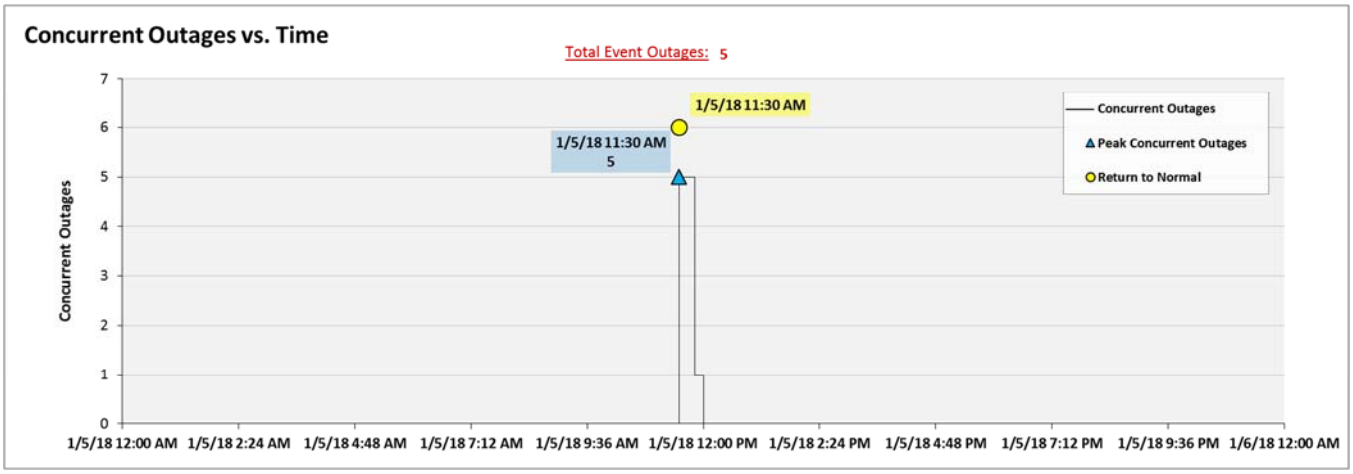
Estimate $	Labor	Material	Contract Resources *	Total
Capital	$0	$0	$0	**$0**
Expense	$810	$0	$0	**$810**
Total	**$810**	**$0**	**$0**	**$810**

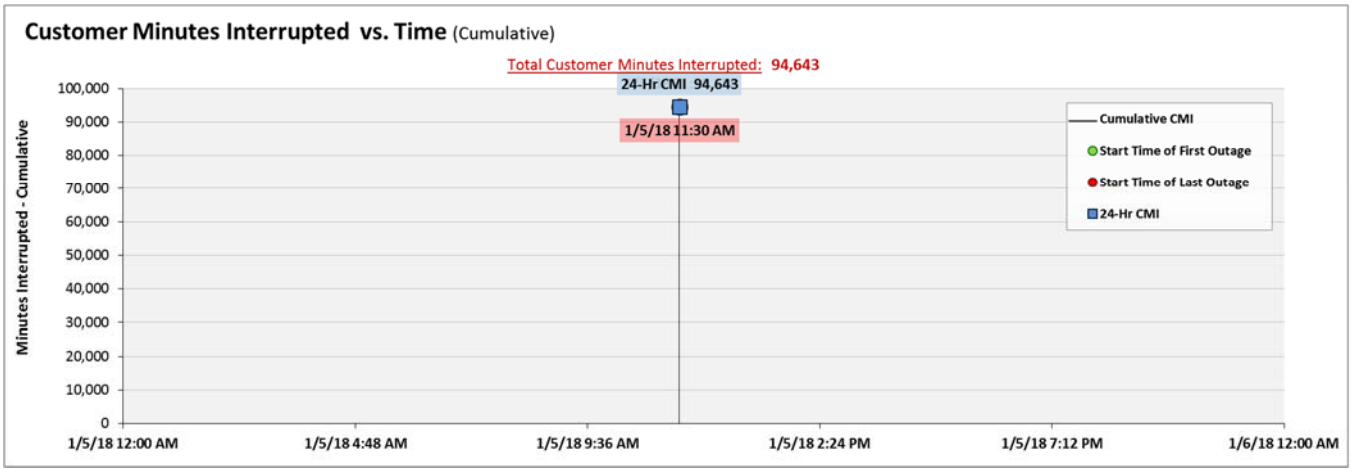
Major Event Declaration

Pacific Power is requesting designation of this event and its consequences to be classified as a "Major Event" for exclusion from underlying network performance reporting. This major event exceeded the company's current Washington system average interruption frequency index-driven (SAIFI) threshold of 10% total operating area customers served sustained interruptions (4,215 customers interrupted out of 28,594 Walla Walla operating area customers, or 15% of the operating area customers) simultaneously in a 24-hour period.

Event Detail







SAIDI, SAIFI, CAIDI by Reliability Reporting Region

Please see the attached system-generated reports.

Report to the Washington Utilities and Transportation Commission

Electric Service Reliability - Major Event Report

Event Date:	March 9, 2018
Date Submitted:	April 20, 2018
Primary Affected Locations:	Sunnyside
Primary Cause:	Loss of Transmission
Exclude from Reporting Status:	Yes
Report Prepared by:	April Brewer
Report Approved by:	Heide Caswell / Kevin Putnam / David O'Neil / Pablo Arronte

Event Description

On March 9, 2018, Sunnyside, Washington, experienced a system average interruption frequency index (SAIFI)-based major event when the circuit breaker opened at Wine Country substation due to a lockout relay which failed. The outage affected 14,886[1] customers, approximately 60% of Sunnyside total customers served, with outage durations ranging from 7 minutes to 2 hours 31 minutes.

Event Outage Summary	
# Interruptions (sustained)	14
Total Customer Interrupted (sustained)	14,886
Total Customer Minutes Lost	528,424
State Event SAIDI	3.90 Minutes
CAIDI	35
Major Event Start	3/9/18 12:00 AM
Major Event End	3/10/18 12:00 AM

Restoration Summary

At 1:13 a.m. on March 9, 2018, the circuit breaker at the Wine County substation operated due to the associated lockout relay failure. This operation caused two additional circuit breakers at the Wine Country substation to operate, as well as operating two adjacent Bonneville Power Administration (BPA) substation circuit breakers. The breaker operations resulted in the loss of 37 MW of customer load to Sunnyside, Sulphur Creek and Grandview substations serving 14,886 customers.

[1] A SAIFI-based major event threshold (as identified in PacifiCorp's reporting plan, pursuant to Washington Administrative Code (WAC) 480-100-393 & 398 Electric Reliability Annual Monitoring and Reporting Plan) 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. Sunnyside operating area's Calendar 2018 Frozen Customer Count is 24,752 customers.

At 1:21 a.m. the Region System Operations (RSO) operator restored Sunnyside substation via the Outlook substation source. At 1:36 a.m. Grid Operations received permission to restore Grandview substation via the BPA Grandview substation source.

After isolating the circuit breakers at Wine Country, RSO received permission from BPA to energize and pick up Sulphur Creek substation load from BPA Grandview. Prior to energizing Sulphur Creek, the RSO had opened distribution feeders to minimize the effects which could occur from inrush current resulting from extended cold conditions (called cold load pickup). At 3:25 a.m. RSO restored feed to circuit 5Y658, and at 3:45 a.m. RSO restored feed to circuit 5Y656 at Sulphur Creek restoring all customer load.

Between 3:46 a.m. and 7:30 p.m., efforts were undertaken to replace the failed lockout relay, and restore the Wine Country substation to its normal configuration.

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

Restoration Intervals

Total Customers Sustained	< 3 Hrs.	3 - 24 Hrs.	24+ Hrs.
14,886	14,886	0	0

Restoration Resources

Personnel Resources	
Wireman Journeyman	1
Line Crewman	1
Relay Tech	2
TOTAL	**4**

Materials	
Lockout Relay	1

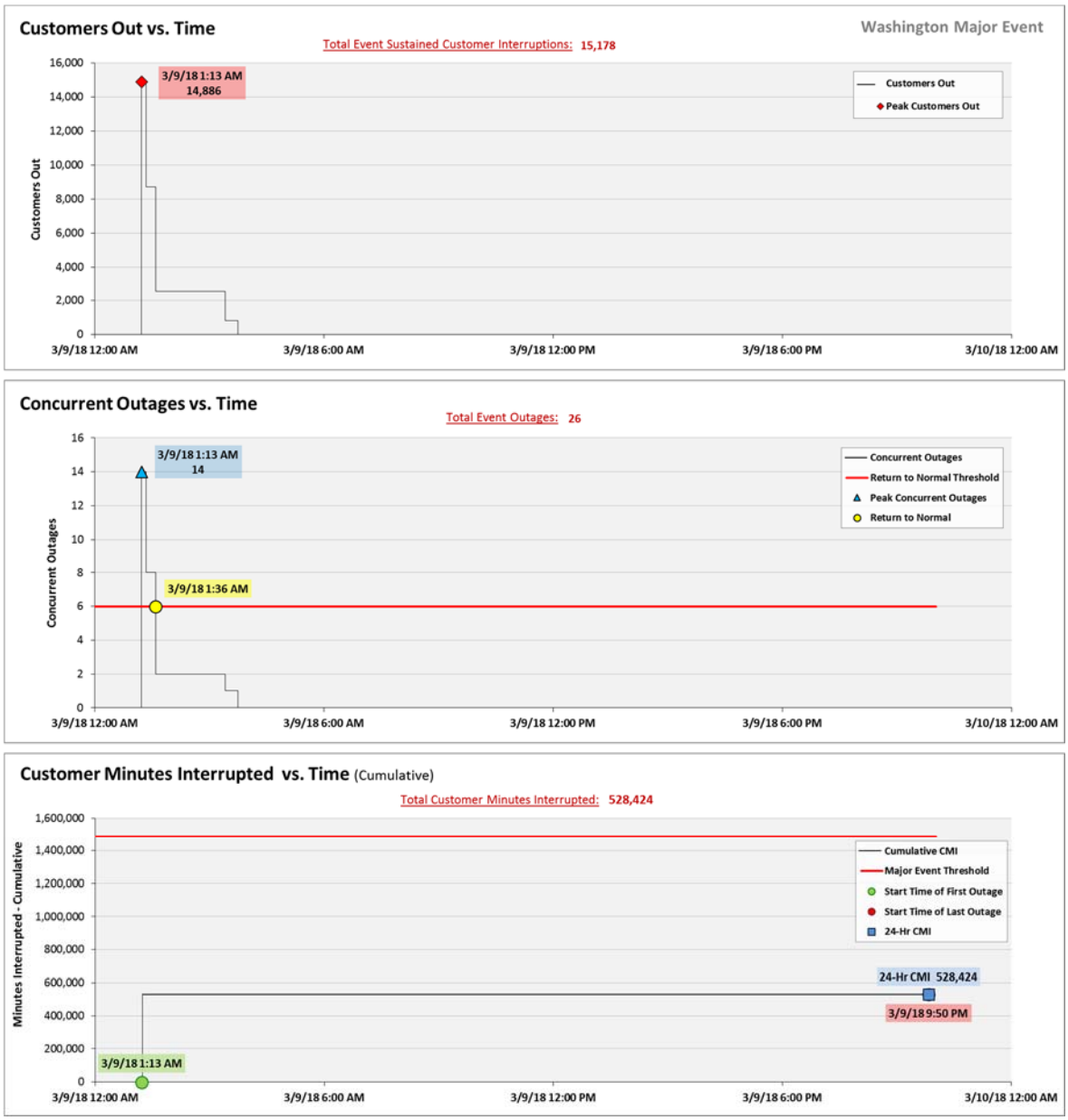
State Estimated Major Event Costs

Estimate $	Labor	Material	Overheads	Total
Capital	$5,318	$643	$1,036	**$6,997**
Expense	$0	$0	$0	**$0**
Total	**$5,318**	**$643**	**$1,036**	**$6,997**

Major Event Declaration

Pacific Power is requesting designation of this event and its consequences to be classified as a "Major Event" for exclusion from underlying network performance reporting. This major event exceeded the company's current Washington system average interruption frequency index-driven (SAIFI) threshold of 10% total operating area customers served sustained interruptions (14,886 customers interrupted out of 24,752 Sunnyside operating area customers, or 60% of the operating area customers) simultaneously in a 24-hour period.

Event Detail



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

Report to the Washington Utilities and Transportation Commission

Electric Service Reliability - Major Event Report

Event Date:	May 6, 2018
Date Submitted:	June 15, 2018
Primary Affected Locations:	Sunnyside
Primary Cause:	Loss of Supply-Lightning Caused
Exclude from Reporting Status:	Yes
Report Prepared by:	April Brewer
Report Approved by:	Heide Caswell / JD Podlesnik / David O'Neil / Pablo Arronte

Event Description and Restoration Summary

At 4:17 P.M., on May 6, 2018, Sunnyside, Washington, experienced a system average interruption frequency index (SAIFI)-based[1] major event when the Bonneville Power Administration (BPA) experienced a trip and reclose on their 230 kV line. The event tripped breakers at Outlook Substation, causing a loss of feed to Punkin Center and Toppenish substations. The outage affected nine circuits serving 9,974 customers, approximately 40% of Sunnyside total customers served, for a total of seven minutes. Operations support personnel quickly coordinated between the distribution dispatch, Grid Operations and BPA, and were able to restore power at 4:23 P.M. During the event central Washington experienced a lightning storm which was the suspected cause of the initial trip and reclose experienced by BPA. In addition to the loss of supply event, the company recorded several other storm-caused outages in the area.

Event Outage Summary	
# Interruptions (sustained)	14
Total Customer Interrupted (sustained)	9,979
Total Customer Minutes Lost	66,548
State Event SAIDI	0.49 Minutes
CAIDI	7
Major Event Start	5/6/18 12:00 AM
Major Event End	5/7/18 12:00 AM

[1] A SAIFI-based major event threshold (as identified in PacifiCorp's reporting plan, pursuant to Washington Administrative Code (WAC) 480-100-393 & 398 Electric Reliability Annual Monitoring and Reporting Plan) 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. Sunnyside operating area's Calendar 2018 Frozen Customer Count is 24,752 customers.

Restoration Intervals

Total Customers Sustained	< 3 Hrs.	3 - 24 Hrs.	24+ Hrs.
9,979	9,977	2	0

Restoration Resources

Personnel Resources	
Internal Local Crewmembers	4
Line Crewman	4
Foreman	2
Lineman Foreman	2
Lineman Journeyman	2
TOTAL	**14**

Materials	
# Transformers	4
# Crossarms	1
Insulators	6
Cutouts	6
Line Splices	1

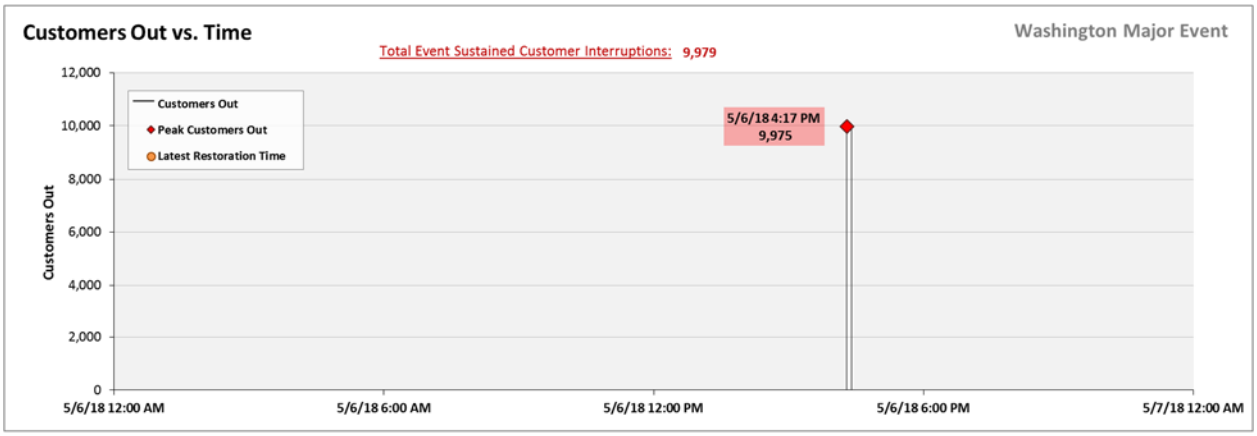
State Estimated Major Event Costs

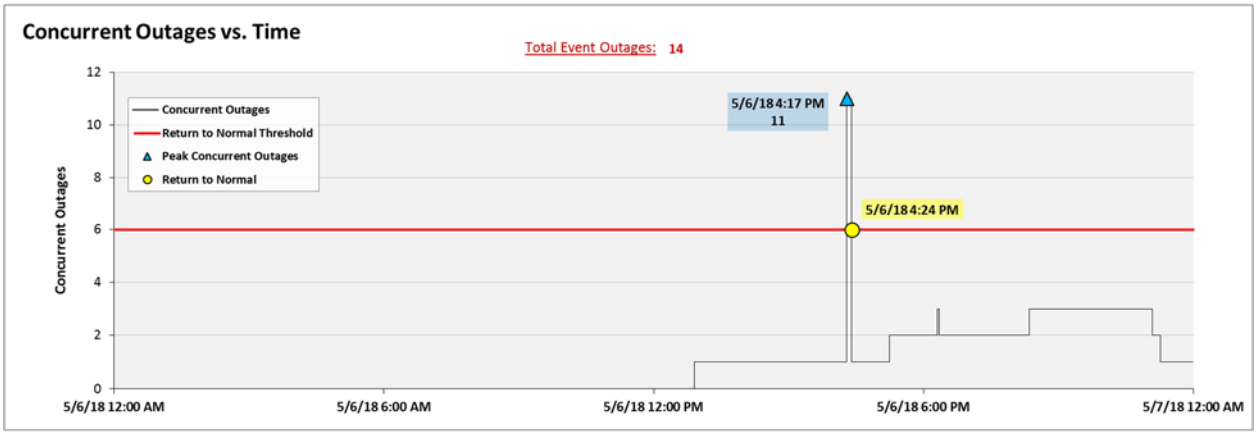
Estimate $	Labor	Material	Overheads	Total
Capital	$5,866	$5,083	$1,129	**$12,078**
Expense	$0	$0	$0	**$0**
Total	**$5,866**	**$5,083**	**$1,129**	**$12,078**

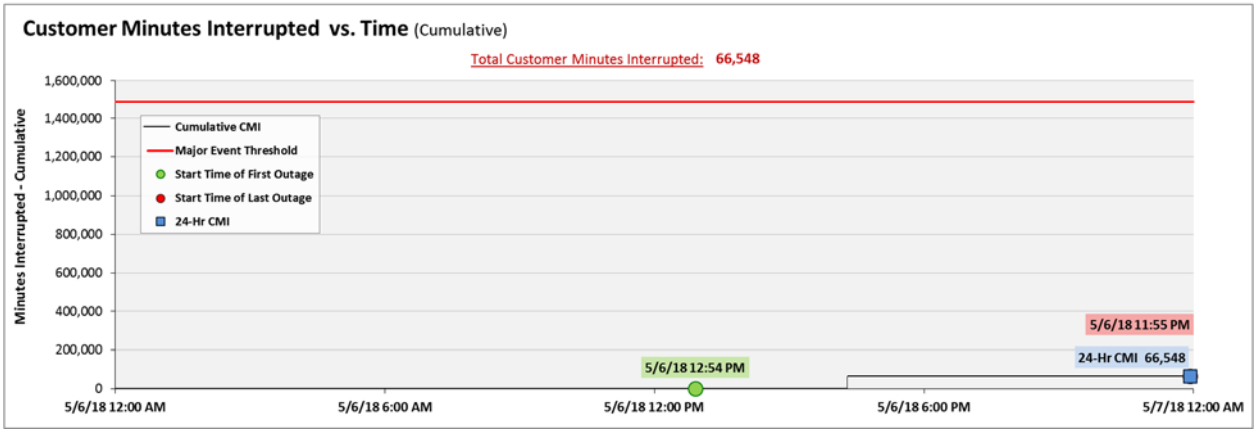
Major Event Declaration

Pacific Power is requesting designation of this event and its consequences to be classified as a "Major Event" for exclusion from underlying network performance reporting. This major event exceeded the company's current Washington system average interruption frequency index-driven (SAIFI) threshold of 10% total operating area customers served sustained interruptions (9,974 customers were interrupted out of 24,752 Sunnyside operating area customers, or 40% of the operating area customers) simultaneously in a 24-hour period.

Event Detail







SAIDI, SAIFI, CAIDI by Reliability Reporting Region

Please see the attached system-generated reports.

Report to the Washington Utilities and Transportation Commission

Electric Service Reliability - Major Event Report

Event Date:	July 9, 2018
Date Submitted:	August 15, 2018
Primary Affected Locations:	Walla Walla
Primary Cause:	Loss of Substation – Animal interference
Exclude from Reporting Status:	Yes
Report Prepared by:	April Brewer
Report Approved by:	Heide Caswell / David O'Neil / Pablo Arronte

Event Description and Restoration Summary

At 8:02 AM on July 9, 2018, Pacific Power experienced a major event in its Washington service territory when a squirrel caused damage to the circuit breaker by-pass disconnect at the Mill Creek Substation. The fault caused the power fuses to operate at both station transformers. The event initially affected 8,582 customers, fed from the five distribution circuits served by the Mill Creek substation in Walla Walla.

While diagnostic tests of the station equipment was underway, the network configuration was evaluated in an attempt to locate adjacent feeds that could be utilized to restore some of the affected customers. Additional crews were subsequently dispatched to restore a portion of the customers using a feeder tie out of the Central Substation. However, when the switching was initiated the load-breaking function did not operate properly causing the Central substation circuit breaker to trip, interrupting an additional 639 customers, totaling 9,221 customers affected.

At 12:17 PM work was completed the station's transformer fuses were replaced and four of the five Mill Creek circuits were restored. Meanwhile, a separate crew began repairing equipment and restoring customers fed from the Central substation. At 4:14 PM work to restore the circuit fed by the Central substation was completed and the 639 customers affected were brought back in power. At 5:59 PM step restoration of the remaining circuit fed from Mill Creek substation began and at 6:50 PM all customers served by the Mill Creek substation were restored. In total, customers experienced outages ranging in duration from 4 hours 14 minutes to 10 hours 47 minutes.

Event Outage Summary	
# Interruptions (sustained)	13
Total Customer Interrupted (sustained)	9,944
Total Customer Minutes Lost	3,147,290
State Event SAIDI	23.21 Minutes
CAIDI	317
Major Event Start	7/9/18 8:02 AM
Major Event End	7/10/18 8:02 AM

Restoration Intervals

Total Customers Sustained	< 3 Hrs.	3 - 24 Hrs.	24+ Hrs.
9,944	655	9,289	0

Restoration Resources

Personnel Resources	
Substation Crewmembers	4
Field Journeyman	10
Foreman	1
TOTAL	**15**

Materials	
Line Fuse	6
Animal Guard	12

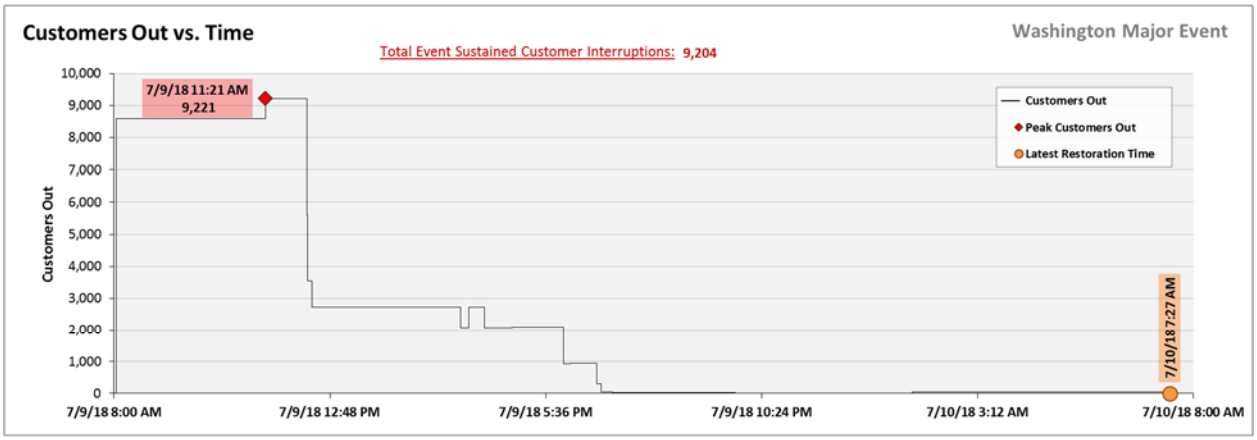
State Estimated Major Event Costs

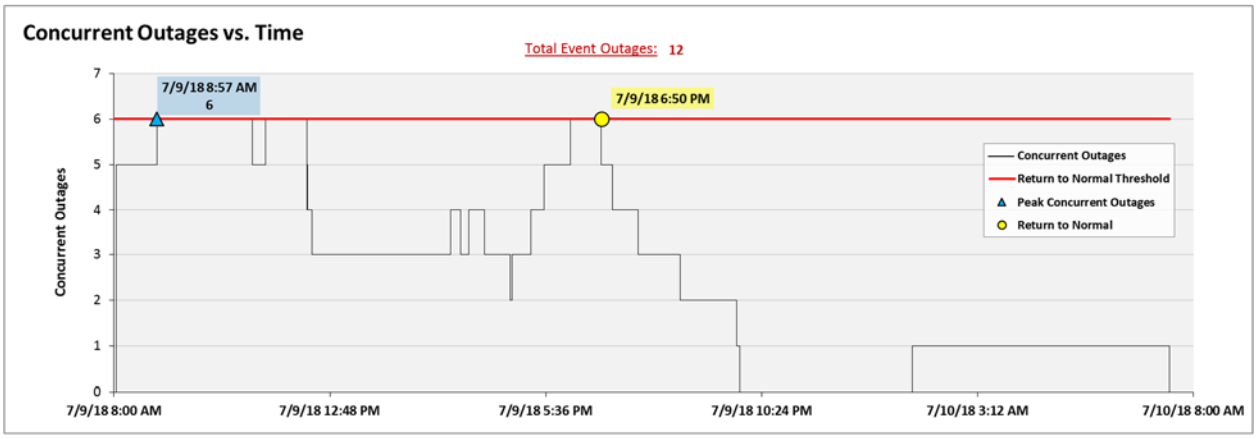
Estimate $	Labor	Material	Overheads	Total
Capital	$22,617	$8,558	$1,632	**$32,807**
Expense	$1,313	$3,245	$836	**$5,394**
Total	**$23,930**	**$11,803**	**$2,468**	**$38,201**

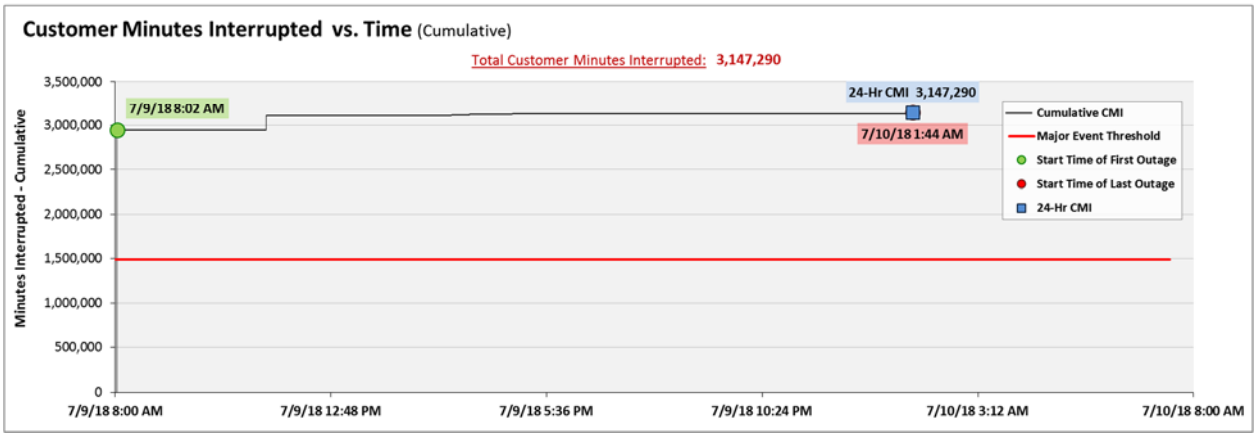
Major Event Declaration

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 2018 Washington threshold of 1,488,256 customer minutes lost (10.98 state SAIDI minutes) in a 24-hour period.

Event Detail







SAIDI, SAIFI, CAIDI by Reliability Reporting Region

Please see the attached system-generated reports.

Report to the Washington Utilities and Transportation Commission

Electric Service Reliability - Major Event Report

Event Date:	August 11, 2018
Date Submitted:	September 21, 2018
Primary Affected Locations:	Yakima
Primary Cause:	Fire/Smoke (attributed to arson)
Report Approved by:	Heide Caswell / David O'Neil

Event Description and Restoration Summary

On the morning of August 11, 2018, Pacific Power experienced a major event in its Washington service territory when an arsonist set fire to a lumber warehouse in Yakima. The fire took several hours to control, damaging the building, nearby semi-trucks, and burning two feeder's distribution poles and equipment, causing the substation circuit breaker to trip open.

At the request of the fire marshal crews to keep circuits de-energized, field engineers were contacted to begin reviewing the circuits' configuration and prepare switching orders to begin restoration activities from alternate sources if possible. Crew resources were limited due to concurrent work replacing equipment damaged in the White Swan fire that occurred almost simultaneously. Therefore, internal company crews and contractor crews from Hood River and Hermiston, Oregon were dispatched to assist with field switching and repair work to restore customers impacted from the lumber warehouse fire.

Customer restorations began 3 hours and 50 minutes after the two breakers tripped open. Crews continued to perform switching orders, restoring as many customers as was possible given the damaged equipment. A total of two circuits serving 3,850 customers from the River Road Substation were affected, with outage durations ranging from three hours 50 minutes to 23 hours 50 minutes. Nine Yakima line personnel were augmented by two internal crews and two contractor crews, totaling more than 25 resources during the response to the event.

Event Outage Summary	
# Interruptions (sustained)	7
Total Customer Interrupted (sustained)	3,889
Total Customer Minutes Lost	1,998,067
State Event SAIDI	14.74 Minutes
CAIDI	514
Major Event Start	8/11/18 12:00 AM
Major Event End	8/12/18 12:00 AM

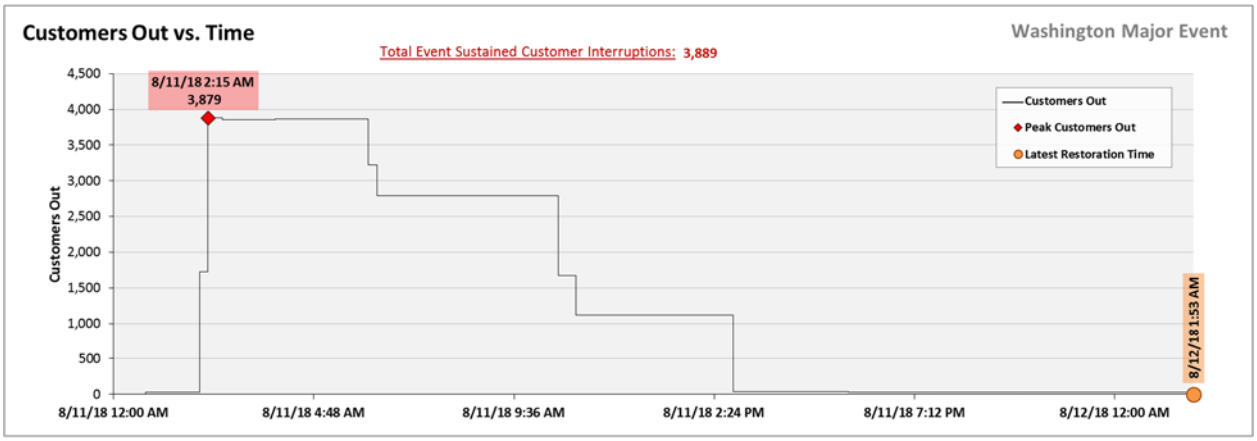
Restoration Intervals

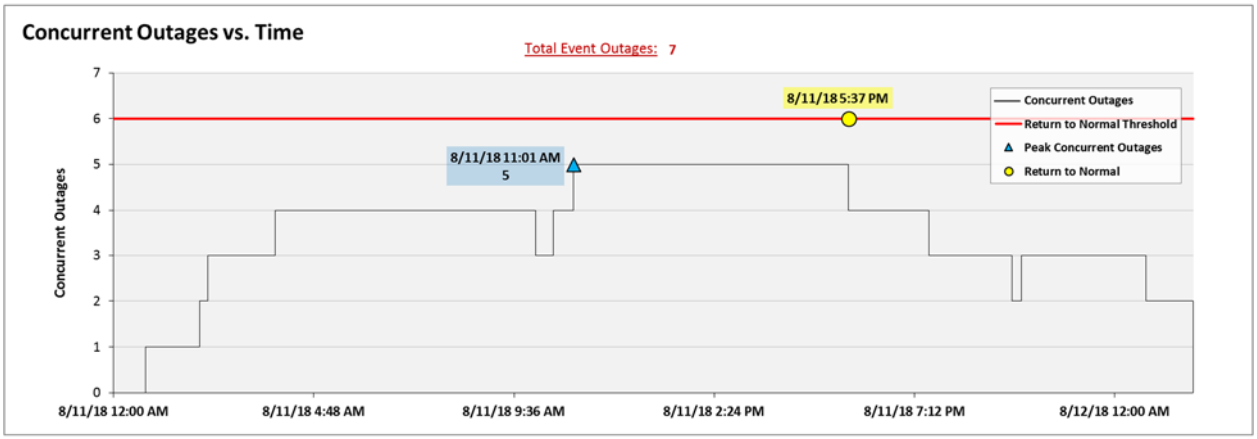
Total Customers Sustained	< 3 Hrs.	3 - 24 Hrs.	24+ Hrs.
3,889	26	3,863	0

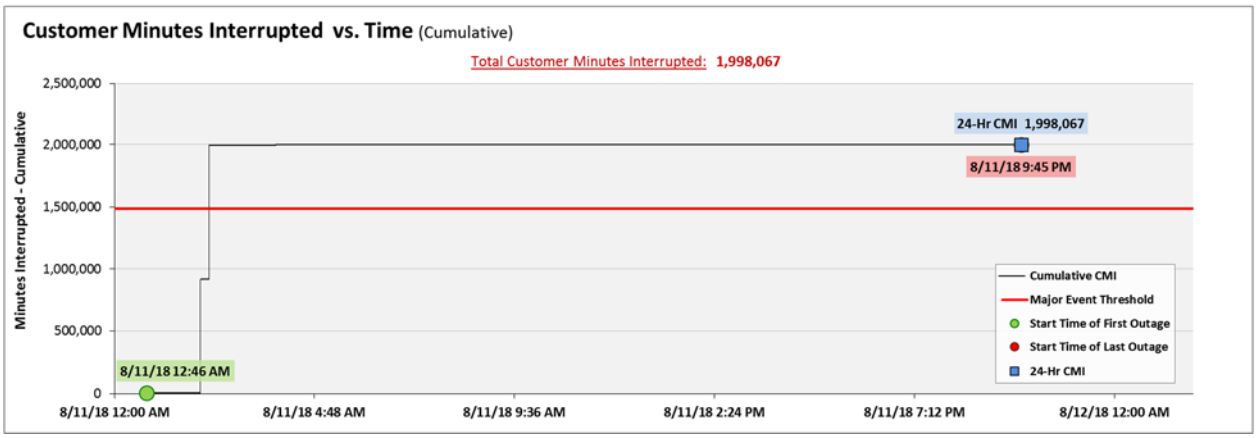
Major Event Declaration

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 2018 Washington threshold of 1,488,256 customer minutes lost (10.98 state SAIDI minutes) in a 24-hour period.

Event Detail







SAIDI, SAIFI, CAIDI by Reliability Reporting Region

Please see the attached system-generated reports.

Report to the Washington Utilities and Transportation Commission

Electric Service Reliability - Major Event Report

Event Date:	August 23, 2018
Date Submitted:	October 4, 2018
Primary Affected Locations:	Yakima
Primary Cause:	Loss of Substation - Fire
Exclude from Reporting Status:	Yes
Report Prepared by:	April Brewer
Report Approved by:	Heide Caswell / David O'Neil / Pablo Arronte

Event Description and Restoration Summary

At 6:00 p.m. on August 23rd, Pacific Power experienced a major event in its Washington service territory when a fire occurred at the Tieton substation in Yakima. The fire severely damaged three single phase voltage regulators and two 12 kV feeder breakers, causing an outage to 2,651 customers. At 6:52 p.m. the Portland Control Center opened and de-energized the 115 kV/20 kV power transformer inside the substation, due to the fire's proximity. This affected an additional 1,195 customers bringing the total customers affected to 3,846 customers.

Personnel began de-energizing the lines feeding into the substation so the fire could be extinguished. Area engineers began reviewing the surrounding network configuration and developed switching plans to begin step restoration. Meanwhile, it was determined that the extensive damage to equipment would require a mobile substation to restore power to those customers whose service delivery could not be energized from an alternative source.

At 9:24 p.m. crews were able to restore 329 customers from an alternative source. After a detailed inspection throughout the substation the 115 kV/20 kV power transformer was energized, restoring power to 1,195 customers on August 24th at 7:49 a.m. Crews began preparing the distribution portion of the substation for connection to the mobile substation by installing temporary poles and wire, readying it for the mobile substation. At 11:36 a.m. the installation was completed and personnel began energizing the distribution feed. At 12:36 p.m. the final of the 2,322 customers were restored.

Event Outage Summary	
# Interruptions (sustained)	14
Total Customer Interrupted (sustained)	3,923
Total Customer Minutes Lost	3,533,109
State Event SAIDI	26.06 Minutes
CAIDI	901
Major Event Start	8/23/18 6:00 p.m.
Major Event End	8/24/18 6:00 p.m.

Restoration Intervals

Total Customers Sustained	< 3 Hrs.	3 - 24 Hrs.	24+ Hrs.
3,923	72	3,851	0

Restoration Resources [1]

Personnel Resources	
Internal local crewmembers	8
Internal out of area crewmembers	13
Substation crewmembers	10
Lineman	11
Substation	10
Transmission	4
Warehouseman	1
Mechanic	2
Engineer	2
TOTAL	**61**

[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.

Materials	
# Transmission Poles	5
# Approximate conductor Line (feet)	2,860 ft.
# Transformers	2
# Crossarms	7
Insulators	55
Cutouts	2
Line splices	5
Recloser	2

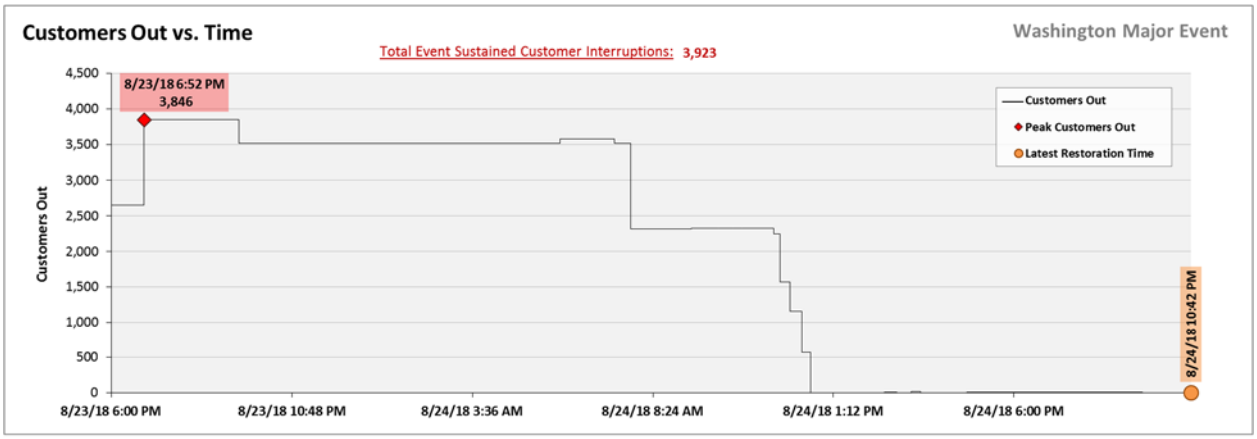
State Estimated Major Event Costs [1]

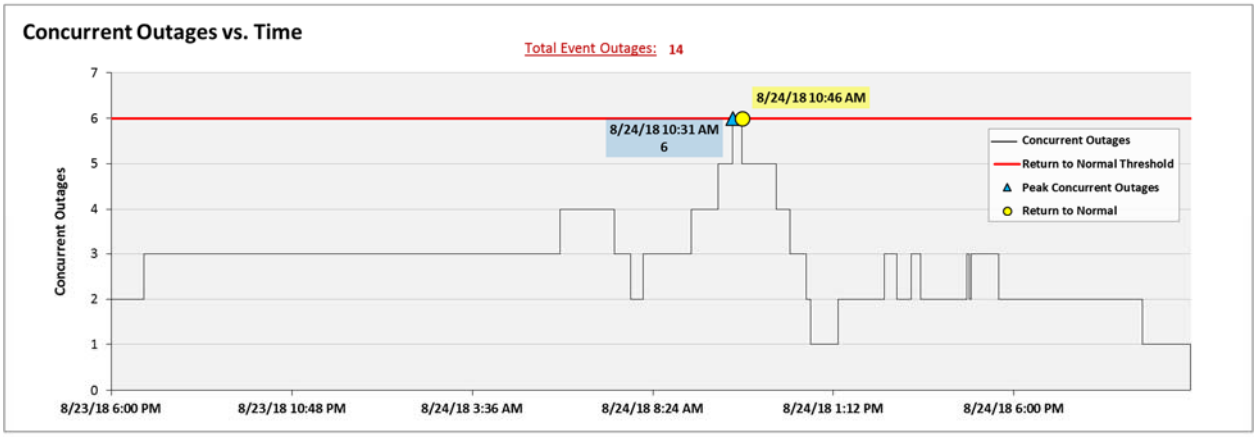
	Labor	Contracts	Material	Overheads	Total
Actual $					
Capital	$123,092	$0	$55,601	$19,391	**$198,084**
Expense	$10,875	$0	$0	$3,468	**$14,343**
Total	**$133,967**	**$0**	**$55,601**	**$22,859**	**$212,427**
Addition Forecasted $					
Capital	$150,000	$100,000	$191,000	$0	**$441,000**
Expense	$13,000	$0	$7,000	$0	**$20,000**
Forecasted Total	**$163,000**	**$100,000**	**$198,000**	**$0**	**$461,000**
Estimated Total	**$296,967**	**$100,000**	**$253,601**	**$22,859**	**$673,427**

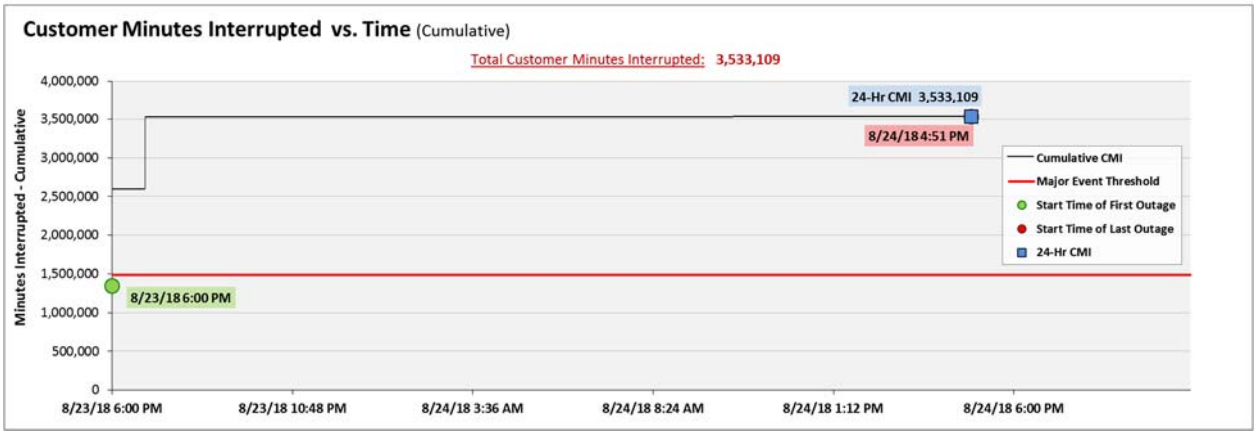
Major Event Declaration

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 2018 Washington threshold of 1,488,256 customer minutes lost (10.98 state SAIDI minutes) in a 24-hour period.

Event Detail







SAIDI, SAIFI, CAIDI by Reliability Reporting Region

Please see the attached system-generated reports.

Report to the Washington Utilities and Transportation Commission

Electric Service Reliability - Major Event Report

Event Date:	August 26, 2018
Date Submitted:	October 4, 2018
Primary Affected Locations:	Sunnyside
Primary Cause:	Loss of Feed from Supplier
Exclude from Reporting Status:	Yes
Report Prepared by:	April Brewer
Report Approved by:	Heide Caswell / JD Podlesnik / David O'Neil / Pablo Arronte

Event Description and Restoration Summary

At 5:25 a.m., on August 26th, Sunnyside, Washington, experienced a system average interruption frequency index (SAIFI)-based[1] major event when the Bonneville Power Administration (BPA) experienced a trip and reclose on their 230 kV line. The event tripped breakers at the Outlook Substation, causing a loss of feed to Punkin Center and Toppenish substations. The outage affected nine circuits serving 10,029 customers, approximately 41% of Sunnyside total customers served. With no automatic reclosing at the substation, Region System Operations (RSO) worked to coordinate restoration activities with field personnel and BPA. At 5:33 a.m. the RSO operator restored power to Punkin Center substation and two circuits fed from Toppenish substation, restoring power to 5,885 customers. At 5:44 a.m. the RSO operator energized power to an additional circuit fed from Toppenish substation, restoring power to 635 customers. At 6:01 a.m. the field personnel arrived at Toppenish substation and began closing the remaining circuit breakers, completing the restoration process for the remaining 3,509 customers by 6:06 a.m.

Event Outage Summary	
# Interruptions (sustained)	9
Total Customer Interrupted (sustained)	10,029
Total Customer Minutes Lost	196,638
State Event SAIDI	1.45 Minutes
CAIDI	20
Major Event Start	8/26/18 12:00 AM
Major Event End	8/27/18 12:00 AM

[1] A SAIFI-based major event threshold (as identified in PacifiCorp's reporting plan, pursuant to Washington Administrative Code (WAC) 480-100-393 & 398 Electric Reliability Annual Monitoring and Reporting Plan) 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. Sunnyside operating area's Calendar 2018 Frozen Customer Count is 24,752 customers.

Restoration Intervals

Total Customers Sustained	< 3 Hrs.	3 - 24 Hrs.	24+ Hrs.
10,029	10,029	0	0

Restoration Resources [1]

Personnel Resources	
Internal Local Crewmembers	2
Internal Regional Crewmembers	2
Substation Crewmembers	2
Lineman	2
TOTAL	**8**

State Estimated Major Event Costs [2]

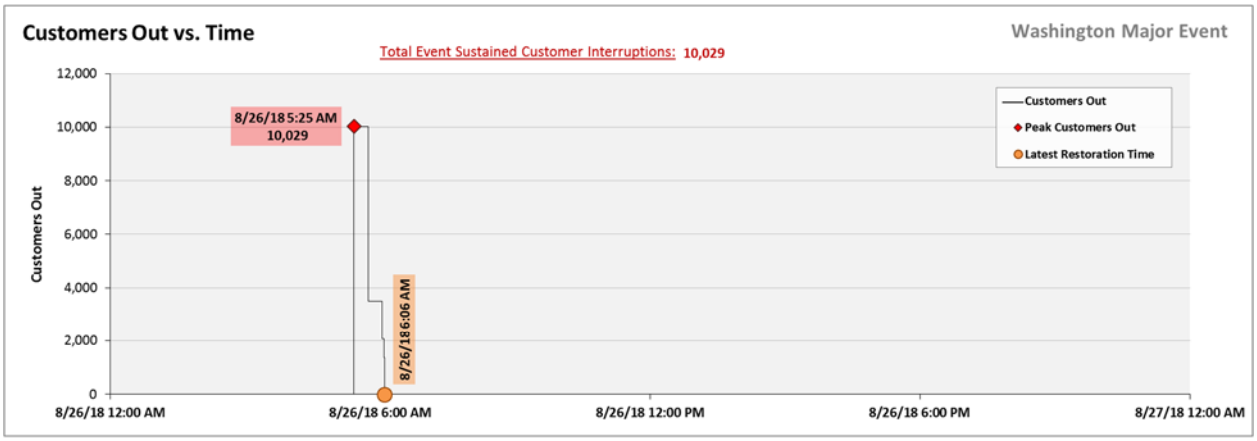
Estimate $	Labor	Material	Overheads	Total
Capital	$0	$0	$0	**$0**
Expense	$1,761	$0	$94	**$1,855**
Total	**$1,761**	**$0**	**$94**	**$1,855**

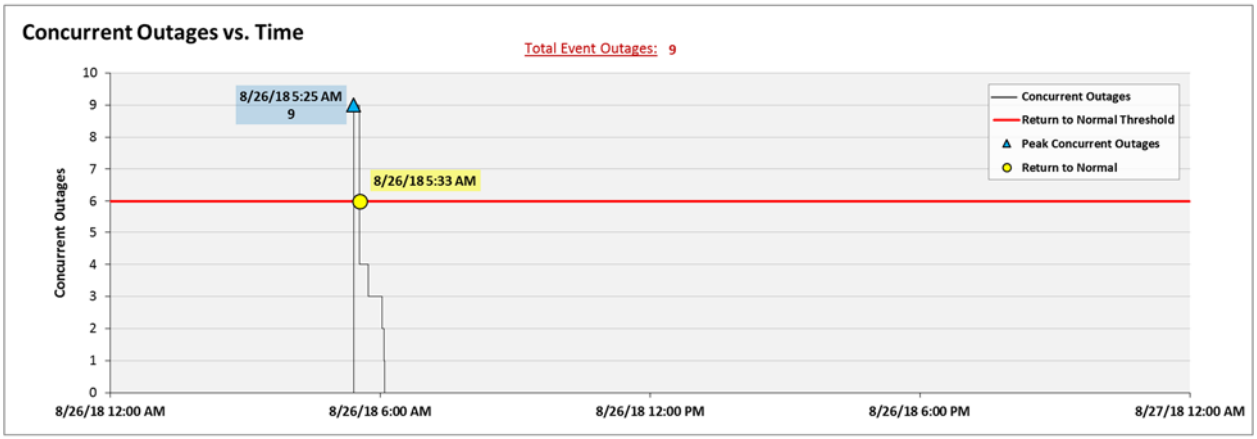
Major Event Declaration

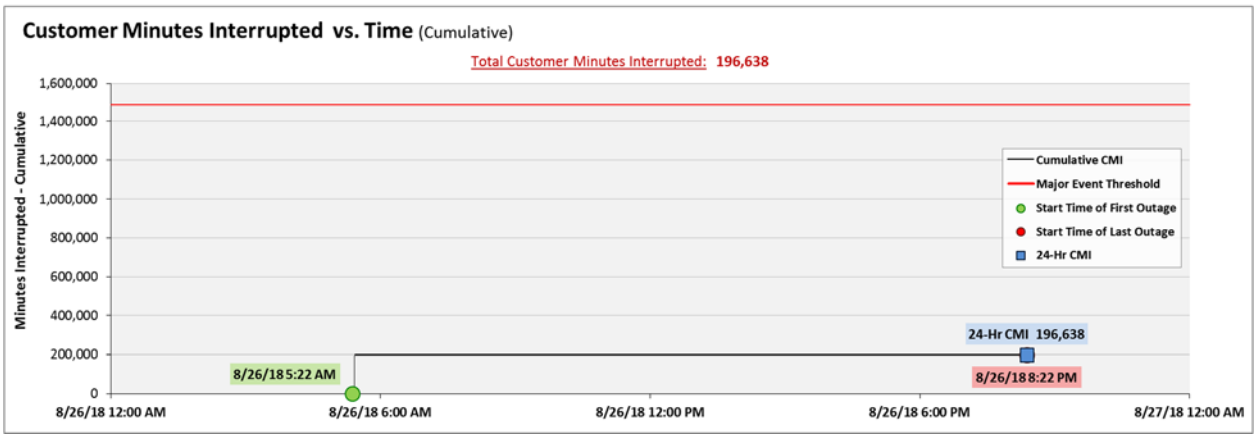
Pacific Power is requesting designation of this event and its consequences to be classified as a "Major Event" for exclusion from underlying network performance reporting. This major event exceeded the company's current Washington system average interruption frequency index-driven (SAIFI) threshold of 10% total operating area customers served sustained interruptions (10,029 customers were interrupted out of 24,752 Sunnyside operating area customers, or 41% of the operating area customers) simultaneously in a 24-hour period.

[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.

Event Detail







SAIDI, SAIFI, CAIDI by Reliability Reporting Region

Please see the attached system-generated reports.