WASHINGTON SERVICE QUALITY REVIEW

January 1 – December 31, 2019

Annual Report

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EXECUTIVE SUMMARY

During January 1 through December 31, 2019, 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 2019 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.

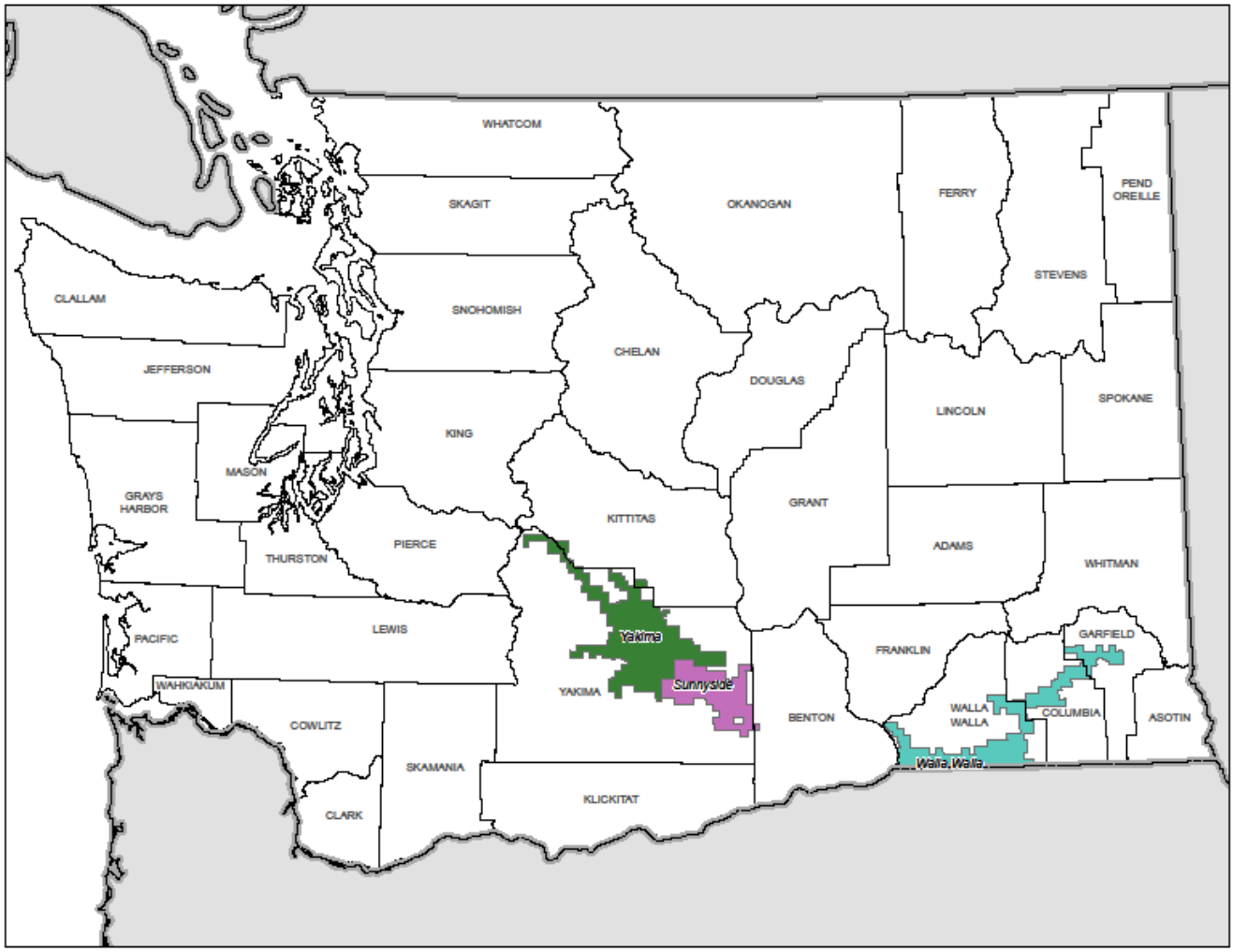
[1] The Company committed to Service Standards Programs that expired on 12/31/2011; during the program all elements committed to were delivered successfully. By terms of the commitment any changes to the program required the approval of the Commission. The Company has proposed no changes to the program, 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[3], colored by operating area.



[3] While Washington State doesn't recognize electric certificate areas, the graphic shows the regions in which PacifiCorp serves customers in the state.

2 CUSTOMER GUARANTEES SUMMARY

(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 88 minutes was much better than the approved SAIDI baseline of 150 minutes, while the year's "Major Events Excluded As Reported" SAIFI performance of 0.780 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
2019	130	1.034	106	0.933	112	0.780	88	0.679	88	0.780	98	0.707

[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.

3.2 System Average Interruption Duration Index (SAIDI)

In 2019, 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[4] 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[5] major events were recorded. The events designate 42.1 minutes to be excluded from underlying reporting metrics. Copies of the Company's filed major events are included in the Appendix of this report.

2019 Major Events			
Date	**Cause**	**SAIDI**	**SAIFI**
May 15-16, 2019	Loss of Transmission Line (tree)	11.8	0.061
* July 23, 2019	Sunnyside - Loss of Transmission Line	7.3	0.076
*August 9-10, 2019	Sunnyside - Loss of substation	3.1	0.076
* October 14-15, 2019	Walla Walla - Loss of Substation (Bird)	5.4	0.031
* October 28-29, 2019	Yakima - Loss of Substation	2.1	0.071
November 27-28, 2019	Wind storm	12.4	0.039
	SAIDI Based Major Event Total	**24.1**	**0.101**
	*** SAIFI Based Major Event Total**	**18.0**	**0.254**
	TOTAL	**42.1**	**0.355**

* SAIFI Based Major event

During the period, there were eight significant event days[6] (daily underlying SAIDI of 2.08 minutes or more). These eight days account for 29.3 SAIDI minutes and 0.196 SAIFI events, representing 33% of the underlying SAIDI and 29% of the underlying SAIFI.

SIGNIFICANT EVENT DAYS					
DATE	**PRIMARY CAUSE**	**SAIDI**	**SAIFI**	**% Underlying SAIDI (88 min)**	**% Underlying SAIFI (0.68 events)**
January 18, 2019	Circuit breaker trip due to unknown causes and car hit pole events	3.2	0.009	4%	1%
January 20, 2019	Unknown trip on the Transmission line	3.0	0.042	3%	6%
February 9, 2019	Tree took down line	5.2	0.020	6%	3%
March 24, 2019	Equipment failure/Pole fire/Car hit pole	4.2	0.026	5%	4%
April 5, 2019	Pole fires and lightning	6.1	0.029	7%	4%
April 9, 2019	Loss of transmission line due to damage equipment	2.8	0.015	3%	2%
May 13, 2019	Substation maintenance wiring error	2.4	0.038	3%	6%
May 26, 2019	Pole Fire	2.4	0.016	3%	2%
	TOTAL	**29.3**	**0.196**	**33%**	**29%**

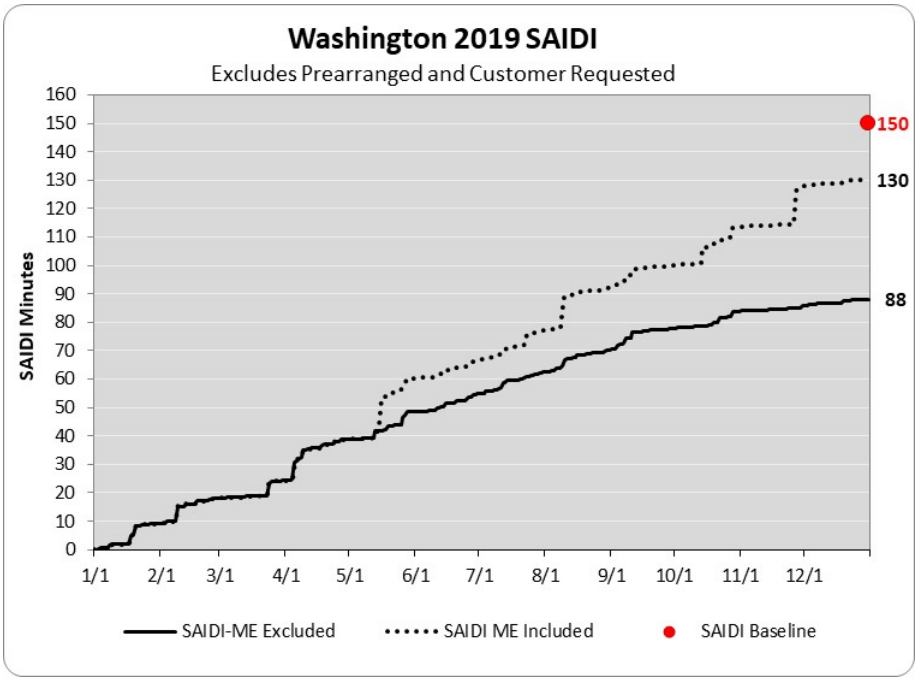
[4] During calendar 2019, the calculated threshold for a major event was 11.13 SAIDI Minutes; for 2020, it will be 10.52 SAIDI minutes.

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

[6] 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 2019, outage duration, or SAIDI, was better than baseline.

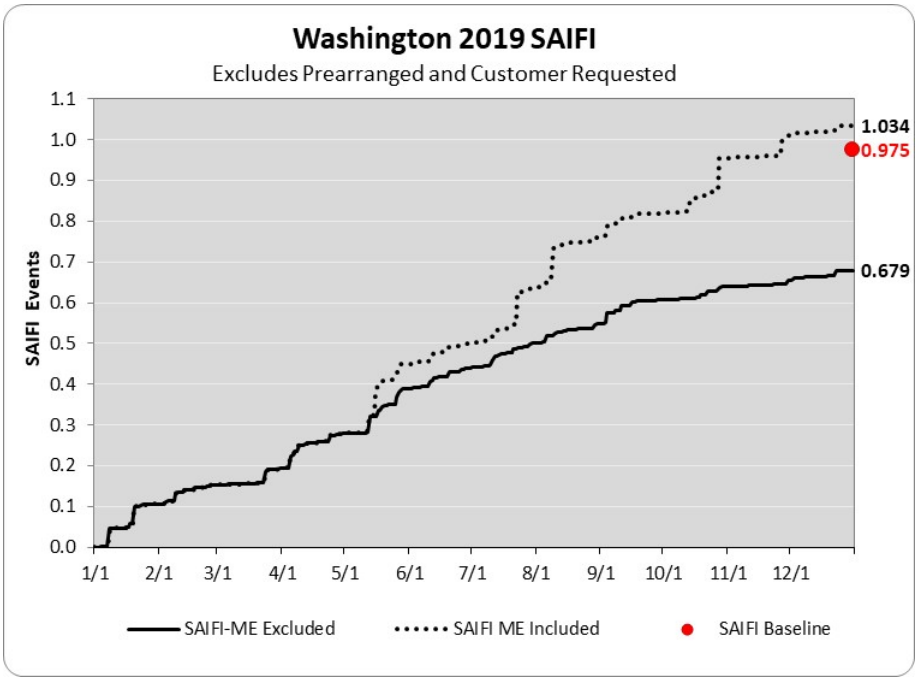
January 1 through December 31, 2019	
2019 SAIDI Internal Goal = 97	**SAIDI Actual**
Total Performance	130
SAIDI-based Major Events Excluded	24
SAIFI-based Major Events Excluded	18
Reported (Major Events Excluded)	**88**



3.3 System Average Interruption Frequency Index (SAIFI)

During 2019 outage frequency or SAIFI was better than baseline.

January 1 through December 31, 2019	
2019 SAIFI Internal Goal = 0.904	**SAIFI Actual**
Total Performance	1.034
SAIDI-based Major Events Excluded	0.101
SAIFI-based Major Events Excluded	0.254
Reported (Major Events Excluded)	**0.679**



3.4 Operating Area Metrics

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

January 1 – December 31, 2019	Sunnyside			Walla Walla[7]			Yakima		
	SAIDI	SAIFI	CAIDI	SAIDI	SAIFI	CAIDI	SAIDI	SAIFI	CAIDI
Including Major Events	190	1.631	117	96	0.743	129	124	0.947	131
Total SAIDI-based Major Events	102	0.975	105	0	0	0	30	0.240	123
Total SAIFI-based Major Events	0	0	0	24	0.137	178	0	0	0
Reported Major Events Excluded	88	0.657	134	71	0.606	118	94	0.706	133

2019 Sunnyside Customer Count: 25,081
2019 Walla Walla Customer Count: 28,792
2019 Yakima Customer Count: 82,913

[7] 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 1/1/2019 - 12/31/2019					
Direct Cause	**Customer Minutes Lost for Incident**	**Customers in Incident Sustained**	**Sustained Incident Count**	**SAIDI**	**SAIFI**
ANIMALS	72,959	771	101	0.53	0.006
BIRD MORTALITY (NON-PROTECTED SPECIES)	61,594	607	133	0.45	0.004
BIRD MORTALITY (PROTECTED SPECIES) (BMTS)	13,273	77	4	0.10	0.001
BIRD NEST (BMTS)	1,206	7	4	0.01	0.000
BIRD SUSPECTED, NO MORTALITY	12,413	168	15	0.09	0.001
ANIMALS	**161,446**	**1,630**	**257**	**1.18**	**0.012**
FIRE/SMOKE (NOT DUE TO FAULTS)	2,638	13	2	0.02	0.000
ENVIRONMENT	**2,638**	**13**	**2**	**0.02**	**0.000**
B/O EQUIPMENT	1,332,387	9,469	425	9.74	0.069
DETERIORATION OR ROTTING	1,265,364	6,057	382	9.25	0.044
OVERLOAD	26,050	98	1	0.19	0.001
POLE FIRE	2,794,958	18,595	91	20.43	0.136
STRUCTURES, INSULATORS, CONDUCTOR	8	1	2	0.00	0.000
EQUIPMENT FAILURE	**5,418,768**	**34,220**	**901**	**39.61**	**0.250**
DIG-IN (NON-PACIFICORP PERSONNEL)	3,202	26	4	0.02	0.000
OTHER INTERFERING OBJECT	82,236	954	16	0.60	0.007
OTHER UTILITY/CONTRACTOR	62,103	1,682	8	0.45	0.012
VANDALISM OR THEFT	3,012	16	4	0.02	0.000
VEHICLE ACCIDENT	1,096,850	8,015	62	8.02	0.059
INTERFERENCE	**1,247,402**	**10,693**	**94**	**9.12**	**0.078**
LOSS OF TRANSMISSION LINE	323,347	6,308	8	2.36	0.046
LOSS OF SUPPLY	**323,347**	**6,308**	**8**	**2.36**	**0.046**
FAULTY INSTALL	631	2	1	0.00	0.000
INCORRECT RECORDS	132	1	1	0.00	0.000
INTERNAL CONTRACTOR	270	1	1	0.00	0.000
TESTING/STARTUP ERROR	217,349	3,538	3	1.59	0.026
OPERATIONAL	**218,381**	**3,542**	**6**	**1.60**	**0.026**
OTHER, KNOWN CAUSE	437,786	5,941	14	3.20	0.043
UNKNOWN	689,516	7,341	109	5.04	0.054
OTHER	**1,127,302**	**13,282**	**123**	**8.24**	**0.097**
CONSTRUCTION	5,053	78	9	0.04	0.001
CUSTOMER NOTICE GIVEN	662,923	7,267	416	4.85	0.053
CUSTOMER REQUESTED	347	4	4	0.00	0.000
EMERGENCY DAMAGE REPAIR	279,458	5,463	84	2.04	0.040
ENERGY EMERGENCY INTERRUPTION	69	1	1	0.00	0.000
INTENTIONAL TO CLEAR TROUBLE	308,639	2,679	33	2.26	0.020
PLANNED	**1,256,489**	**15,492**	**547**	**9.19**	**0.113**
TREE - NON-PREVENTABLE	1,415,359	8,833	127	10.35	0.065
TREE - TRIMMABLE	151,756	1,085	20	1.11	0.008
TREES	**1,567,115**	**9,918**	**147**	**11.46**	**0.073**
LIGHTNING	793,287	2,417	138	5.80	0.018
SNOW, SLEET AND BLIZZARD	163,515	771	17	1.20	0.006
WIND	436,020	1,854	33	3.19	0.014
WEATHER	**1,392,821**	**5,042**	**188**	**10.18**	**0.037**
Washington Including Prearranged	**12,715,710**	**100,140**	**2,273**	**92.96**	**0.732**
Washington Excluding Prearranged	**12,052,440**	**92,869**	**1,853**	**88.11**	**0.679**

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

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. In the past the company had recognized the impact of pole fires on reliability and began establishing an approach to address this risk. As a result it has operationalized a process by which a pattern of pole fire risks exists, after which it inspects the equipment within the risk area, identifies deficient locations and creates work orders for correcting them. In 2019 it has continued that work and positioned additional circuits for the upcoming time period. Further, also reported previously, the company has improved its notification process to ensure that customers impacted by large, lengthy improvement efforts are given upfront notifications to better recognize the inconveniences they may experience now will result in better performance in the long term.

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 21 circuits in Section 3.7.

Substation	Circuit Name	Circuit	2019 Assessment	Baseline CPI99
Sunnyside	Waneta	5Y316	Circuit hardening (related to pole fire mitigation), replacing potted porcelain cutouts, installing cutout covers, installing covered jumper wires, installing fuses at isolated tap locations, shortening zone 1 and zone 2 exposure.	67
Prospect Point	Stone Creek	5W19	Circuit Hardening with cutout replacements and addressing bad order crossarms on the circuit. As part of the 2020 FIOLI four FuseSavers, fusing additions and changes, relay/recloser settings updates, will occur.	63
Wapato	Donald	5Y330	Circuit hardening related to pole fire mitigation, installation of cutout covers, and covered jumper wire. Construction of Flint Substation will eliminate much of the circuit exposure that currently exists on 5Y330. The construction, in places will be new wires, poles, and fixtures eliminating the failures related to aging equipment. Also, extension of 5Y352 from Toppenish and transfer of a part of 5Y330 to it will further reduce exposure to 5Y330.	117
Hopland	Nikola	5Y435	Circuit hardening (related to pole fire mitigation), replacing potted porcelain cutouts, shortening zone 1 and zone 2 by placing fuses on isolated tap locations	65
Gromore	Pippin	5Y860	Circuit hardening (related to pole fire mitigation), replacing potted porcelain cutouts, and shortening the protection zones by placing fuses on isolated tap locations.	78

3.7 Reduce CPI 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 1-15 have previously met improvement targets so are no longer shown in the performance update below.

WASHINGTON WORST PERFORMING CIRCUITS	BASELINE	Performance 12/31/2019
PROGRAM YEAR 20		
Bonneview 5Y302	44	32
Cannery 5W323	50	50
Gibson Rd 5Y601	126	63
Peach 5Y498	34	49
Satus 5Y205	80	87
TARGET SCORE = 55	**69**	**56**
PROGRAM YEAR 19		
GRANGER 5Y357	114	79
HAY 5Y131	191	276
MABTON EXPR 5Y174	113	62
WESLEY 5Y218	135	171
ZILLAH 5Y245	280	138
TARGET SCORE = 133	**167**	**145**

WASHINGTON WORST PERFORMING CIRCUITS	BASELINE	Performance 12/31/2019
PROGRAM YEAR 18		
Dazet 5Y434	30	10
Green Park 5W116	53	42
Harrah 5Y202	113	34
Orion 5Y577	89	22
Reser Road 5W16	50	69
GOAL MET! TARGET SCORE = 57	**67**	**35**
PROGRAM YEAR 17		
GURLEY 5Y358 (circuit split into 5Y850 and 5Y854)	119	41
BOYER 5W118	48	4
FERNDALE 5W106	88	41
NILE 4Y1	301	292
4TH St. 5Y468	91	64
GOAL MET! TARGET SCORE = 104	**129**	**81**
PROGRAM YEAR 16		
DRAPER 5Y156	162	40
PINE STREET (BOWMAN) 5W150	26	35
RUSSEL CREEK 5W121	23	30
TAUMARSON FEEDER 5W50	29	19
VAN BELLE 5Y312	149	58
GOAL MET! TARGET SCORE = 62	**78**	**36**

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 2019 = 82%					
January	February	March	April	May	June
89%	89%	92%	79%	98%	81%
July	August	September	October	November	December
74%	74%	88%	80%	71%	92%

3.9 Telephone Service and Response to Commission Complaints

COMMITMENT	GOAL	PERFORMANCE
PS5-Answer calls within 30 seconds	80%	85%
PS6a) Respond to commission complaints within 3 days[8]	95%	100%
PS6b) Respond to commission complaints regarding service disconnects within 4 hours	95%	100%
PS6c) Resolve commission complaints within 30 days	95%	100%

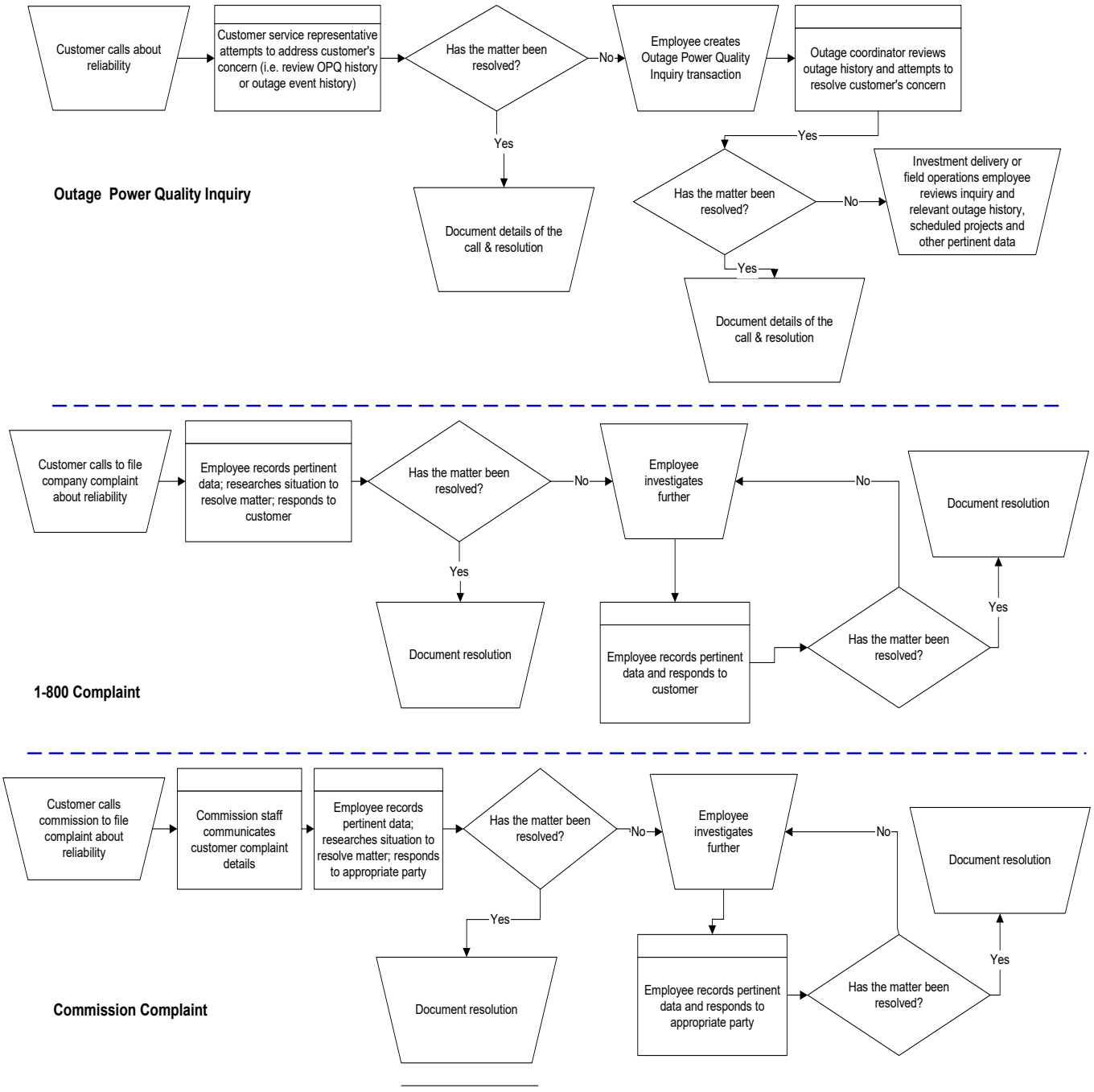
[8] Although the Performance Standard indicates that complaints will be responded to within 3 days, the Company acknowledges and adheres to the requirements set forth in WAC 480-100-173(3)(a).

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 which is addressed by the customer advocacy team. 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.

- **1-800 (Internally Elevated) Complaints**
  There was one Informal Complaints received by the company in the reporting period.

Received	Complaint Type	Site Address	Site ID	Sub-Complaint type	Summary	
12/10/19	Reliability and Restoration	16560 Yakima Valley Hwy, Yakima, WA	460003655	Miscellaneous	Power quality issues	Pacific Power is monitoring the performance; this complaint appeared to be the result of an isolated underground cable fault which was repaired. There hasn't been a performance history that would suggest replacement rather than repair is needed.

- **Commission Complaints**

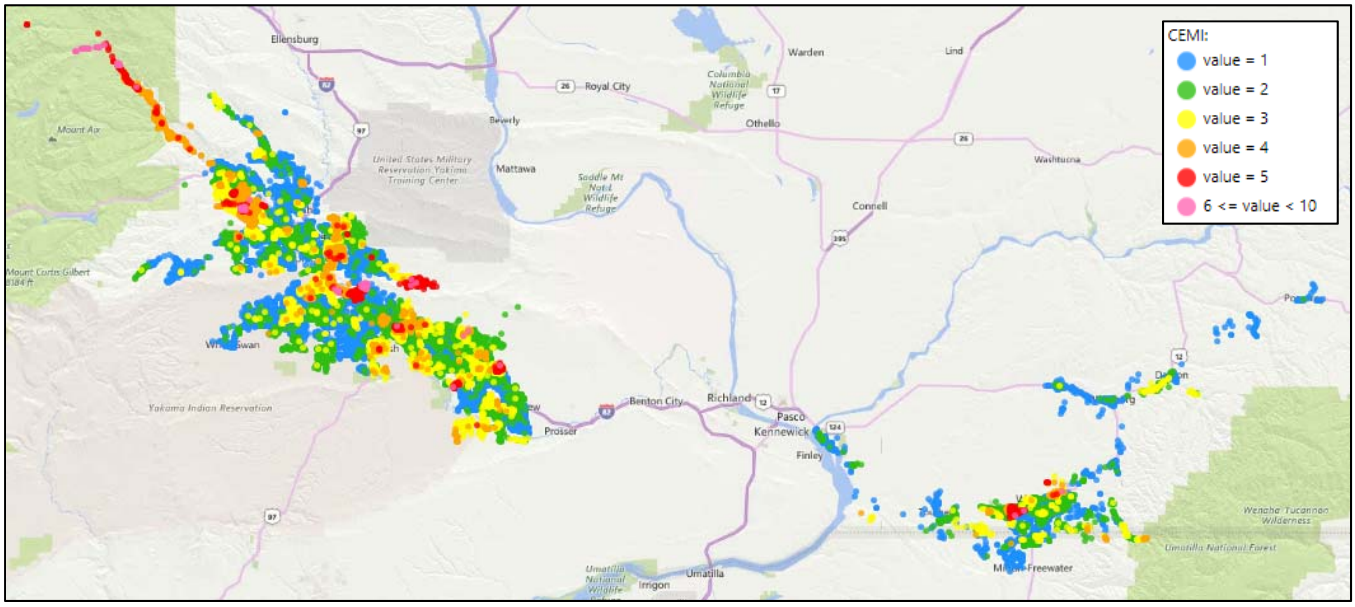
  There was one Commission Complaints in the reporting period.

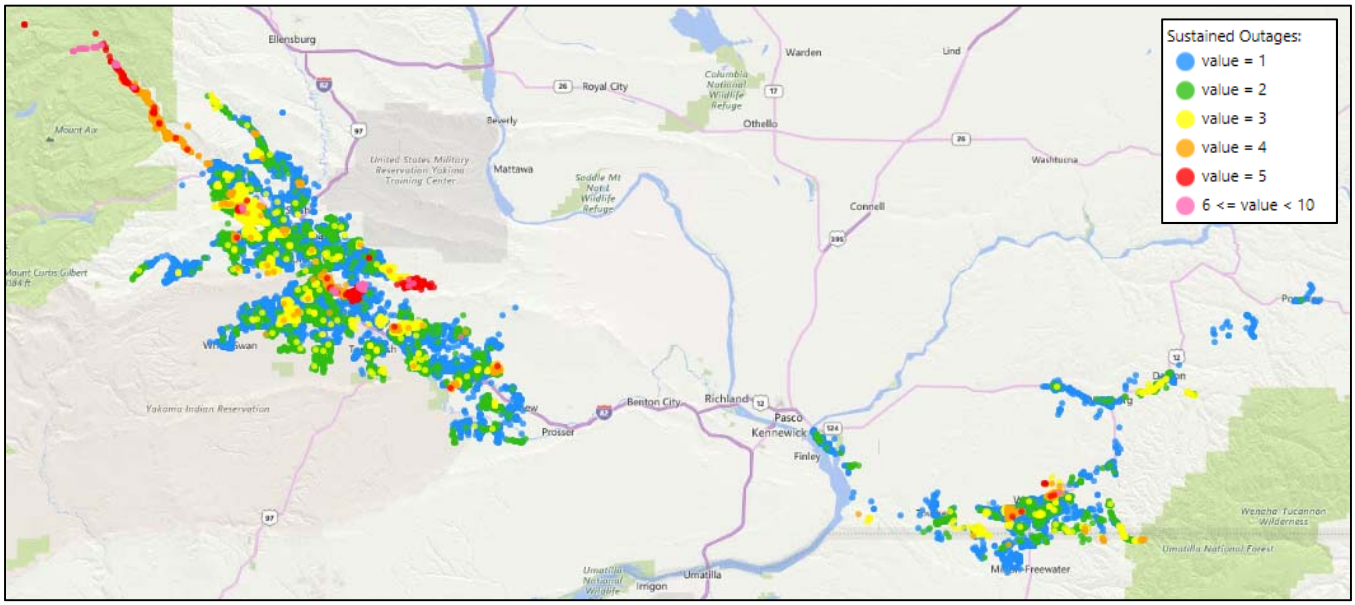
Received	Complaint Type	Site Address	Site ID	Sub-Complaint type	Summary	
6/26/2019	Reliability and Restoration	802 N 40th Ave. Unit 3 Yakima, WA	308328031	Frequency of Outages	Customer is concerned about frequent outages	Pacific Power is monitoring the performance; this complaint appears to be the result of three outage events which occurred in June 2019 on an isolated underground cable fault which was repaired; the customer did not experience any additional outages through the remainder of 2019.

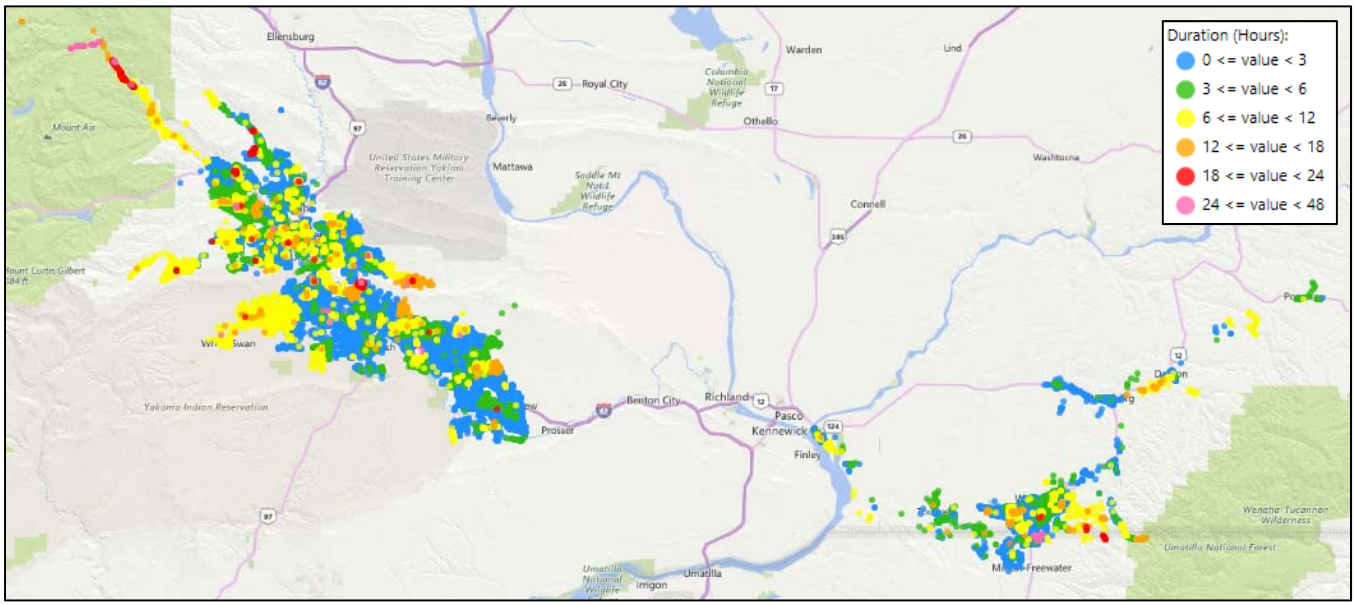
5 WASHINGTON RELIABILITY RESULTS DURING 2019

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.)

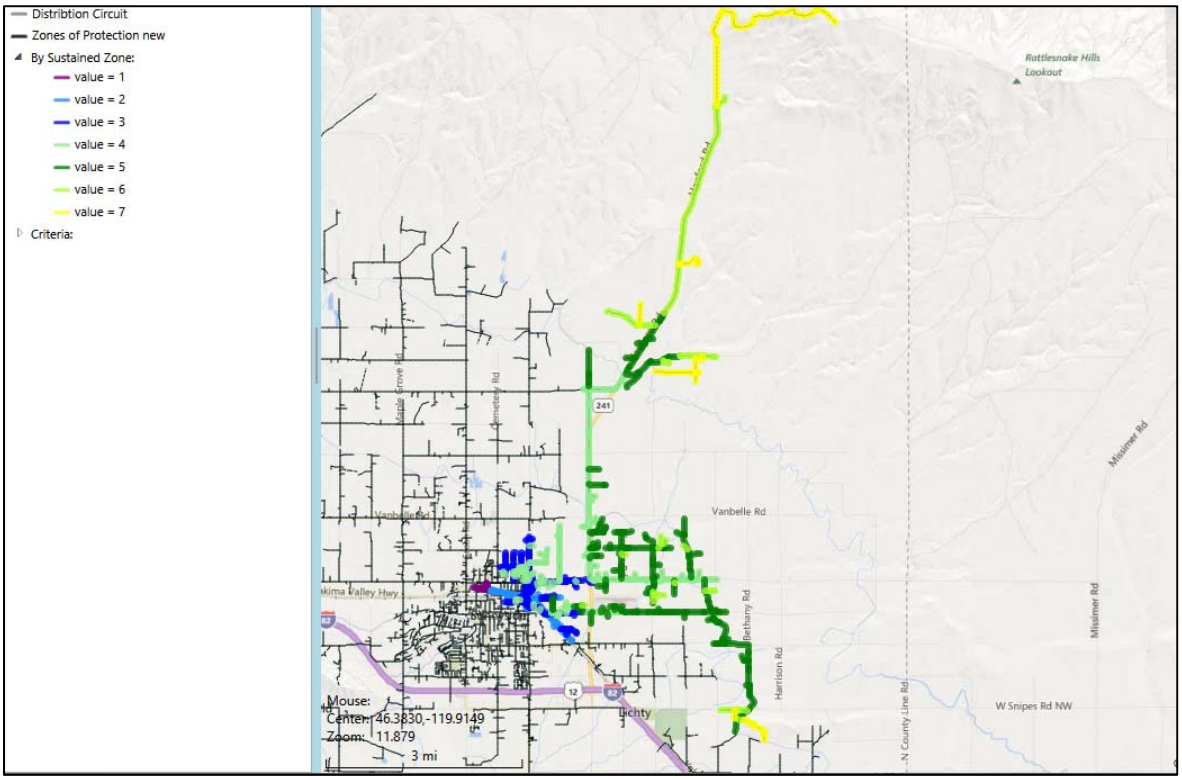
5.1 State Reliability

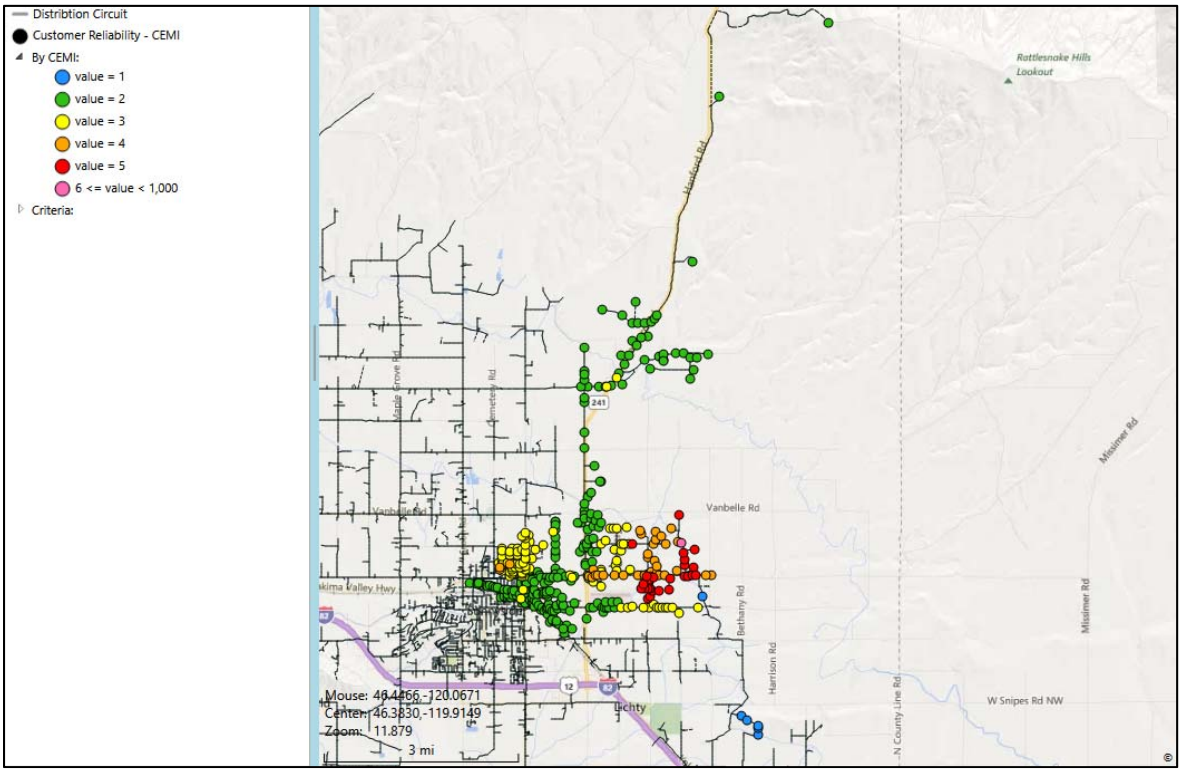


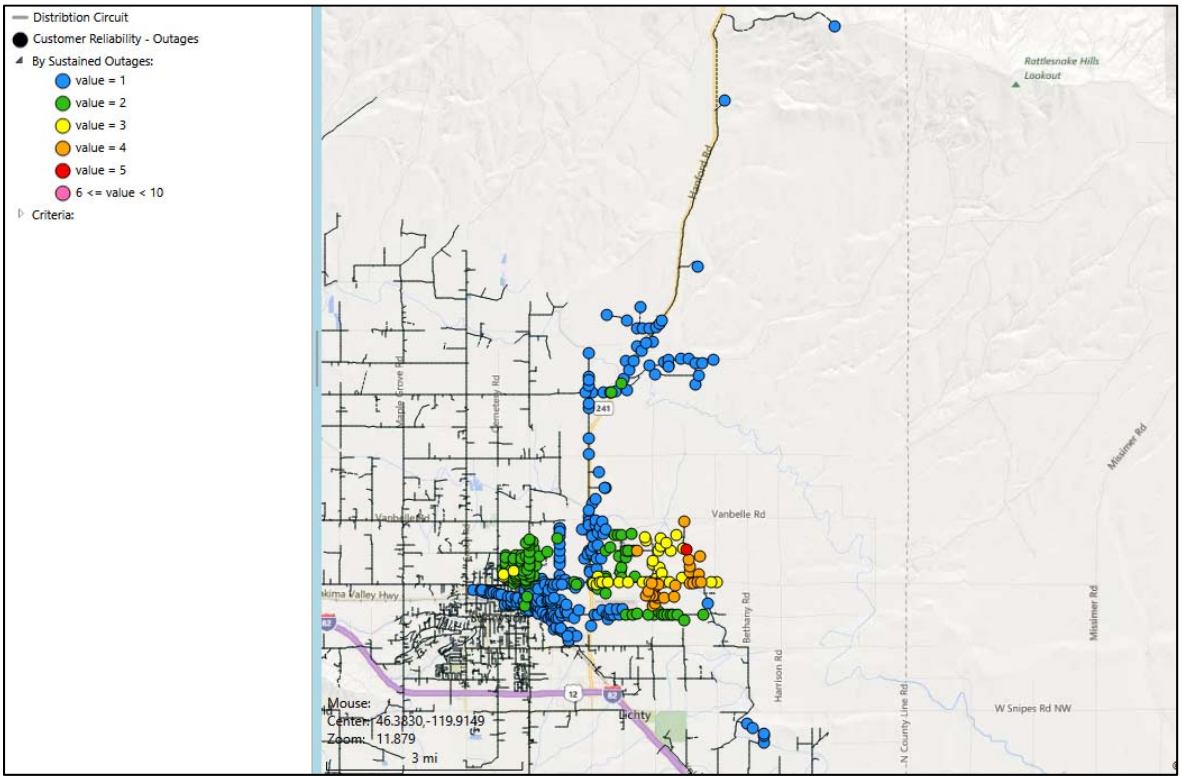

Sustained Outages:
value = 1
value = 2
value = 3
value = 4
value = 5
6 <= value < 10
Ellensburg
Royal City
Warden
Lind
Othello
Beverly
Mattawa
Washtucna
Connell
Benton City
Richland
Pasco
Kennewick
Finley
Prosser
Yakama Indian Reservation
Umatilla
Irrigon
Milton-Freewater
Wenaha-Tucannon Wilderness
Umatilla National Forest

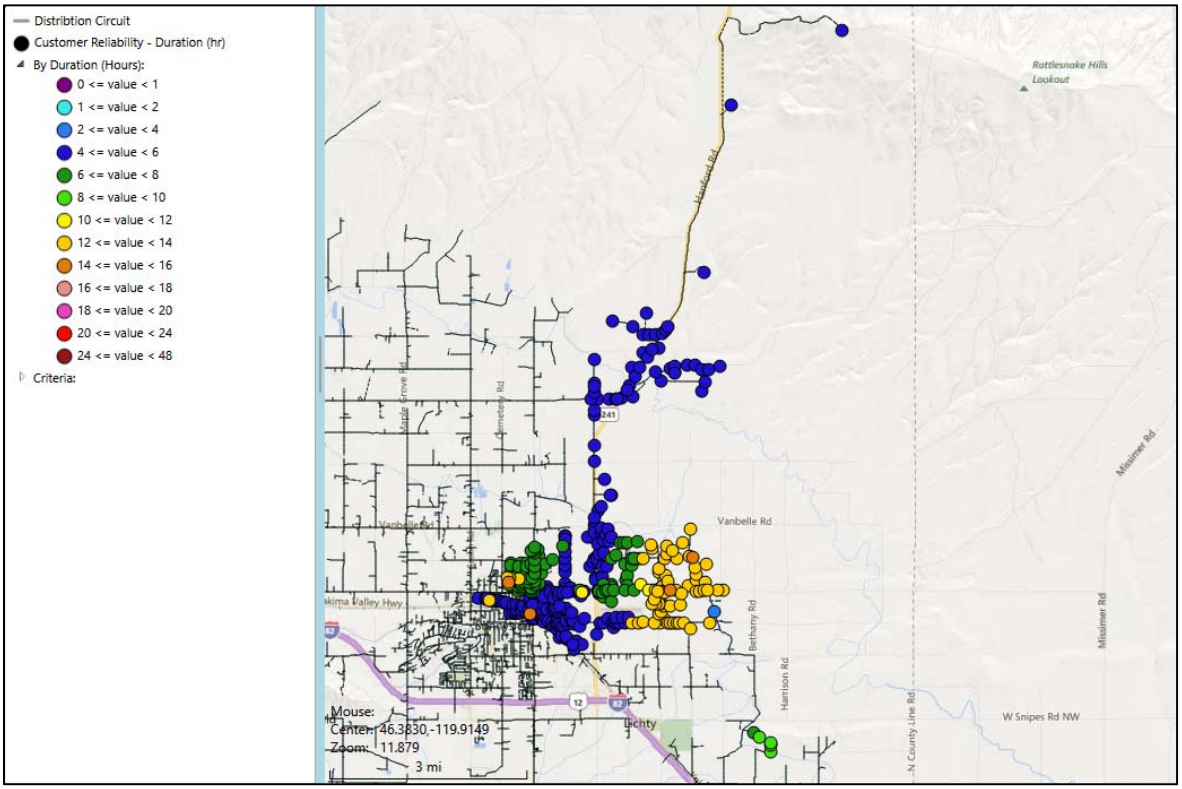

Duration (Hours):
0 <= value < 3
3 <= value < 6
6 <= value < 12
12 <= value < 18
18 <= value < 24
24 <= value < 48
Ellensburg
Royal City
Warden
Lind
Othello
Beverly
Mattawa
Washtucna
Connell
Benton City
Richland
Pasco
Kennewick
Finley
Prosser
Yakama Indian Reservation
Umatilla
Irrigon
Milton-Freewater
Wenaha-Tucannon Wilderness
Umatilla National Forest

5.2 5Y316: Waneta

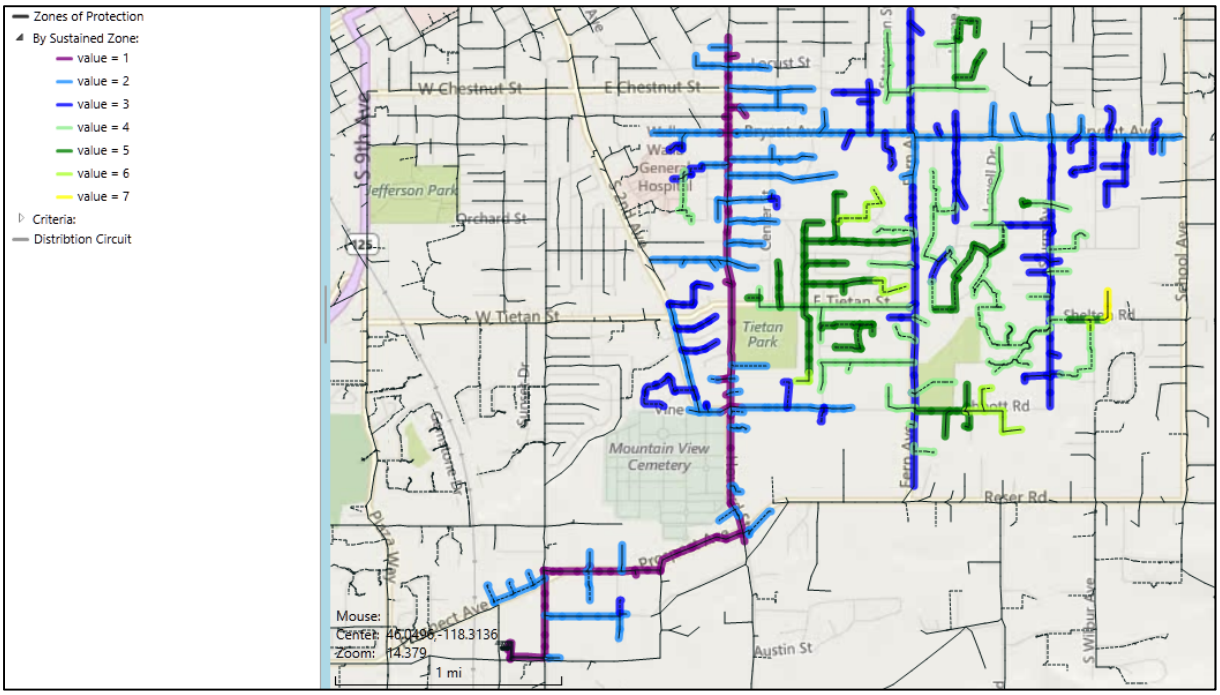


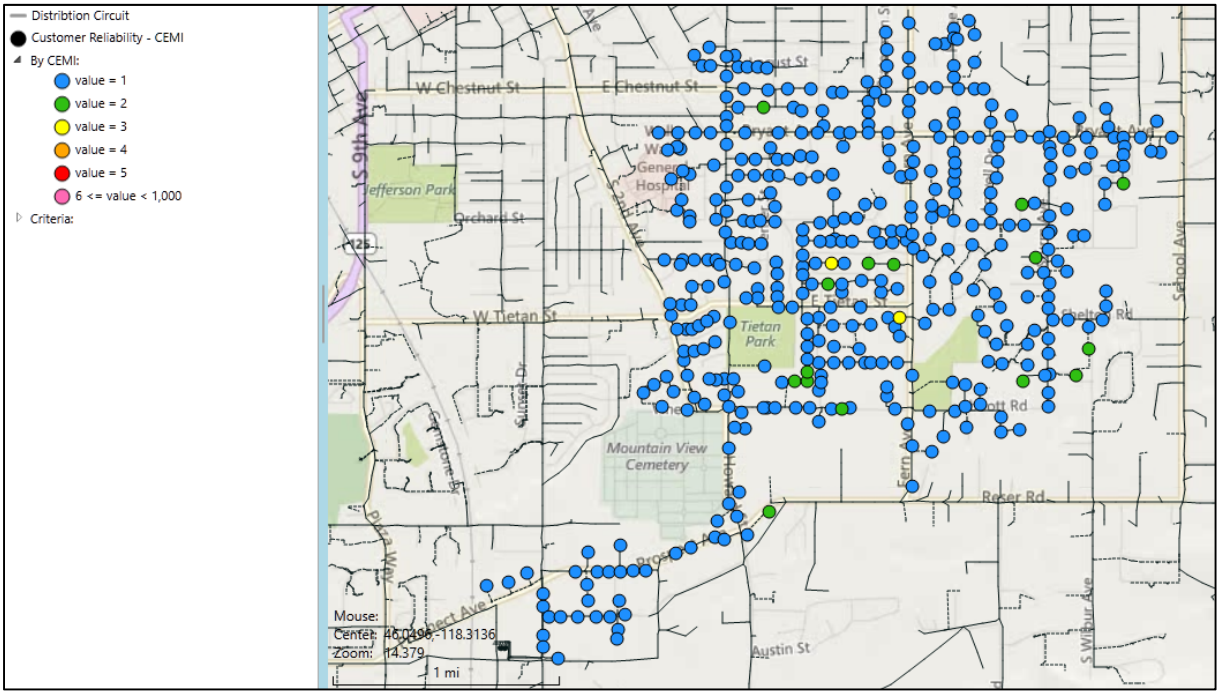


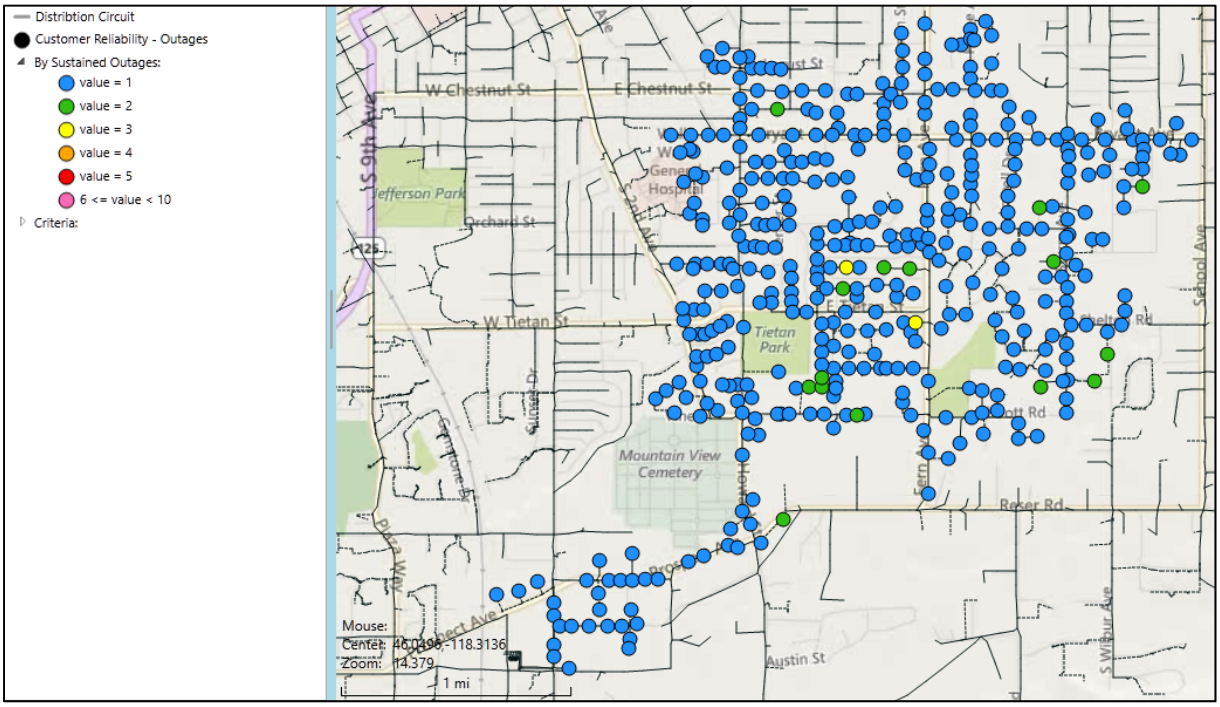

Distribtion Circuit
Customer Reliability - Outages
By Sustained Outages:
value = 1
value = 2
value = 3
value = 4
value = 5
6 <= value < 10
Criteria:
Rattlesnake Hills Lookout
Hanford Rd
Maple Grove Rd
Cemetery Rd
241
Vanbelle Rd
Missimer Rd
Yakima Valley Hwy
Bethany Rd
Harrison Rd
N County Line Rd
W Snipes Rd NW
12
Lichty
Mouse:
Center: 46.3830,-119.9149
Zoom: 11.879
3 mi

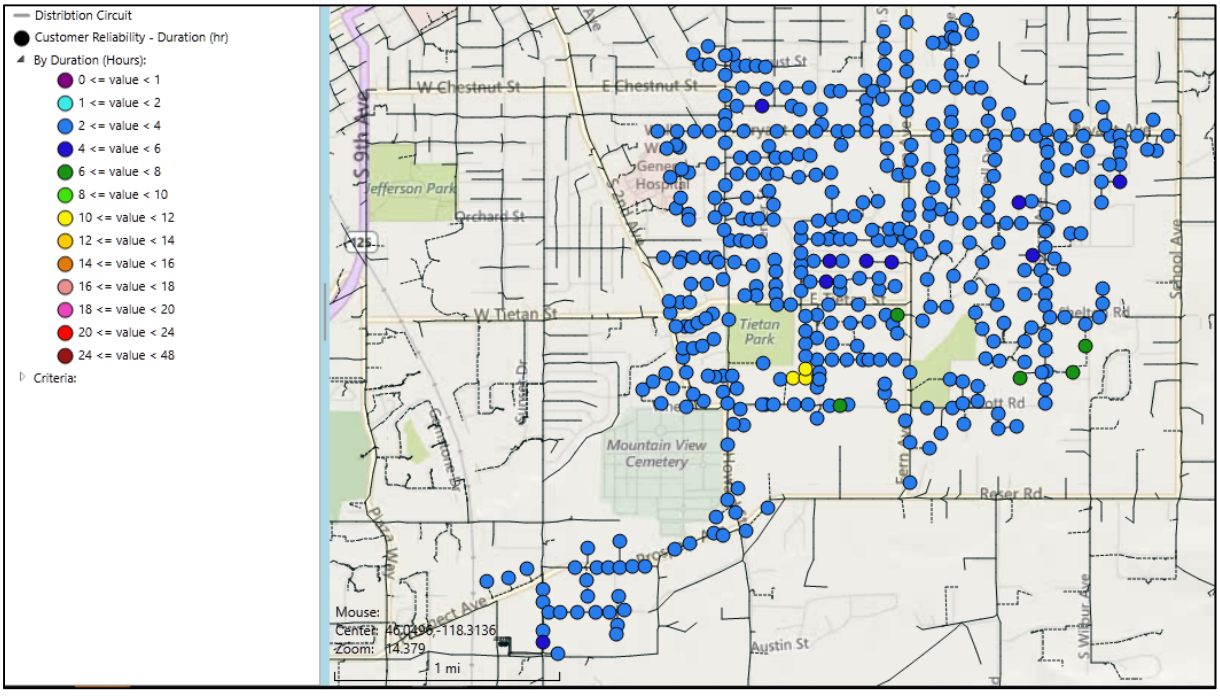

Distribtion Circuit
Customer Reliability - Duration (hr)
By Duration (Hours):
0 <= value < 1
1 <= value < 2
2 <= value < 4
4 <= value < 6
6 <= value < 8
8 <= value < 10
10 <= value < 12
12 <= value < 14
14 <= value < 16
16 <= value < 18
18 <= value < 20
20 <= value < 24
24 <= value < 48
Criteria:
Rattlesnake Hills Lookout
Hanford Rd
Maple Grove Rd
Cemetery Rd
241
Vanbelle Rd
Missimer Rd
Yakima Valley Hwy
Bethany Rd
Harrison Rd
N County Line Rd
W Snipes Rd NW
12
Lichty
Mouse:
Center: 46.3830,-119.9149
Zoom: 11.879
3 mi

5.3 5W19: Stone Creek






Distribtion Circuit
Customer Reliability - Outages
By Sustained Outages:
value = 1
value = 2
value = 3
value = 4
value = 5
6 <= value < 10
Criteria:
W Chestnut St
E Chestnut St
S 9th Ave
Jefferson Park
Orchard St
W Tietan St
Tietan Park
Mountain View Cemetery
Reser Rd
School Ave
Austin St
Mouse:
Center: 46.0496, -118.3136
Zoom: 14.379
1 mi


Distribtion Circuit
Customer Reliability - Duration (hr)
By Duration (Hours):
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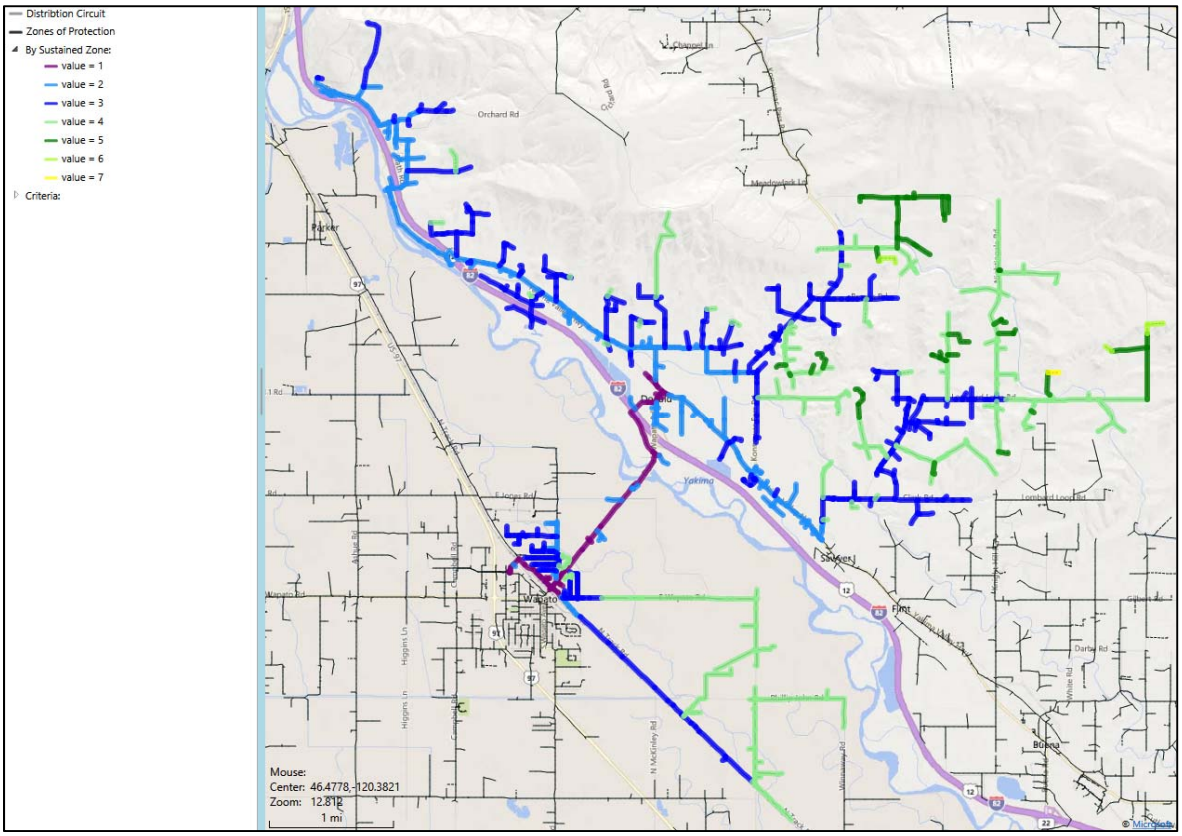
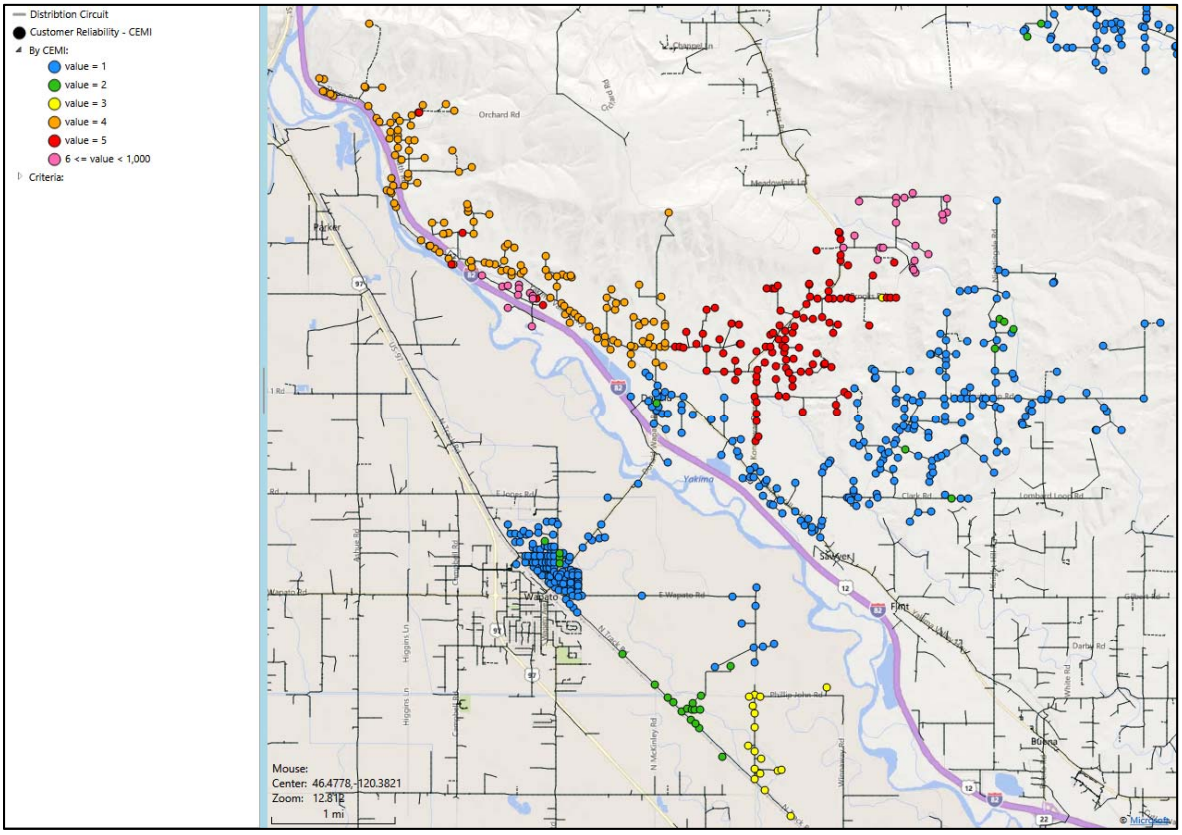
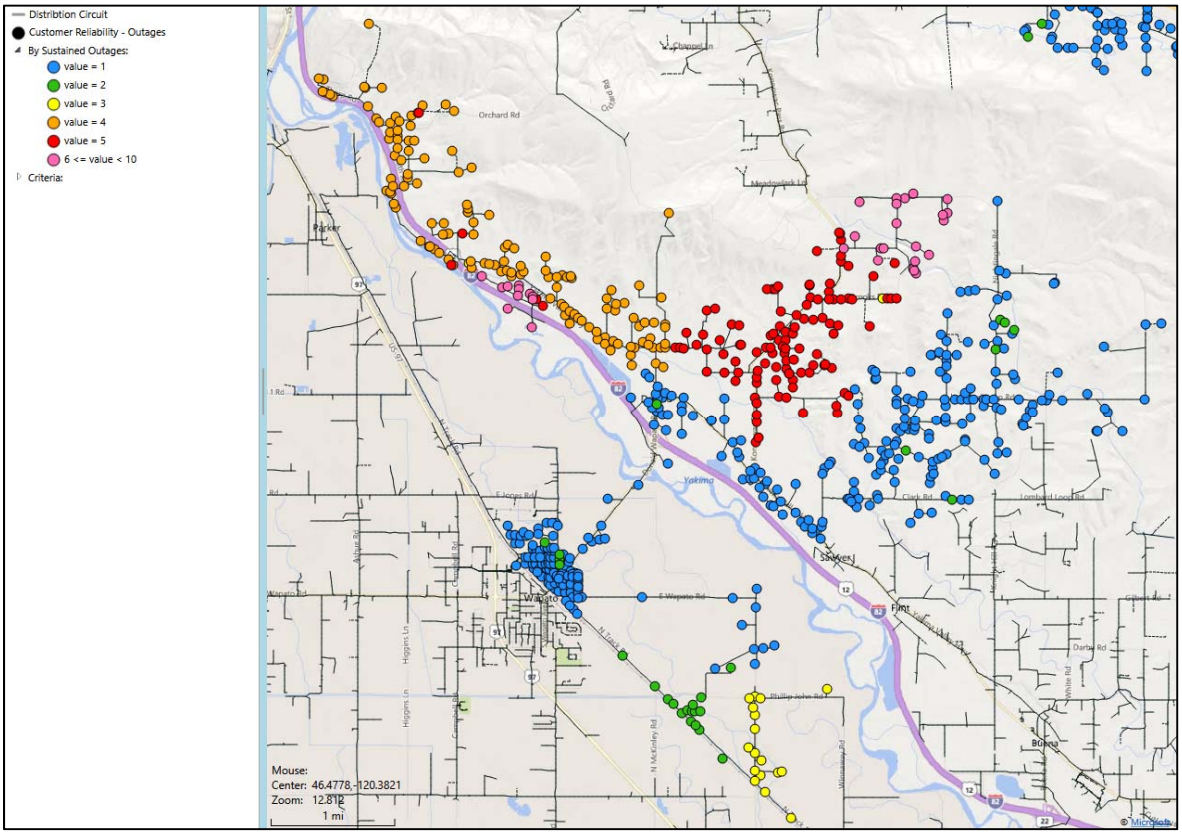
1 <= value < 2
2 <= value < 4
4 <= value < 6
6 <= value < 8
8 <= value < 10
10 <= value < 12
12 <= value < 14
14 <= value < 16
16 <= value < 18
18 <= value < 20
20 <= value < 24
24 <= value < 48
Criteria:
W Chestnut St
E Chestnut St
S 9th Ave
Jefferson Park
Orchard St
W Tietan St
Tietan Park
Mountain View Cemetery
Reser Rd
School Ave
Austin St
Mouse:
Center: 46.0496, -118.3136
Zoom: 14.379
1 mi

5.4 5Y330: Donald






Distribtion Circuit
Customer Reliability - Outages
By Sustained Outages:
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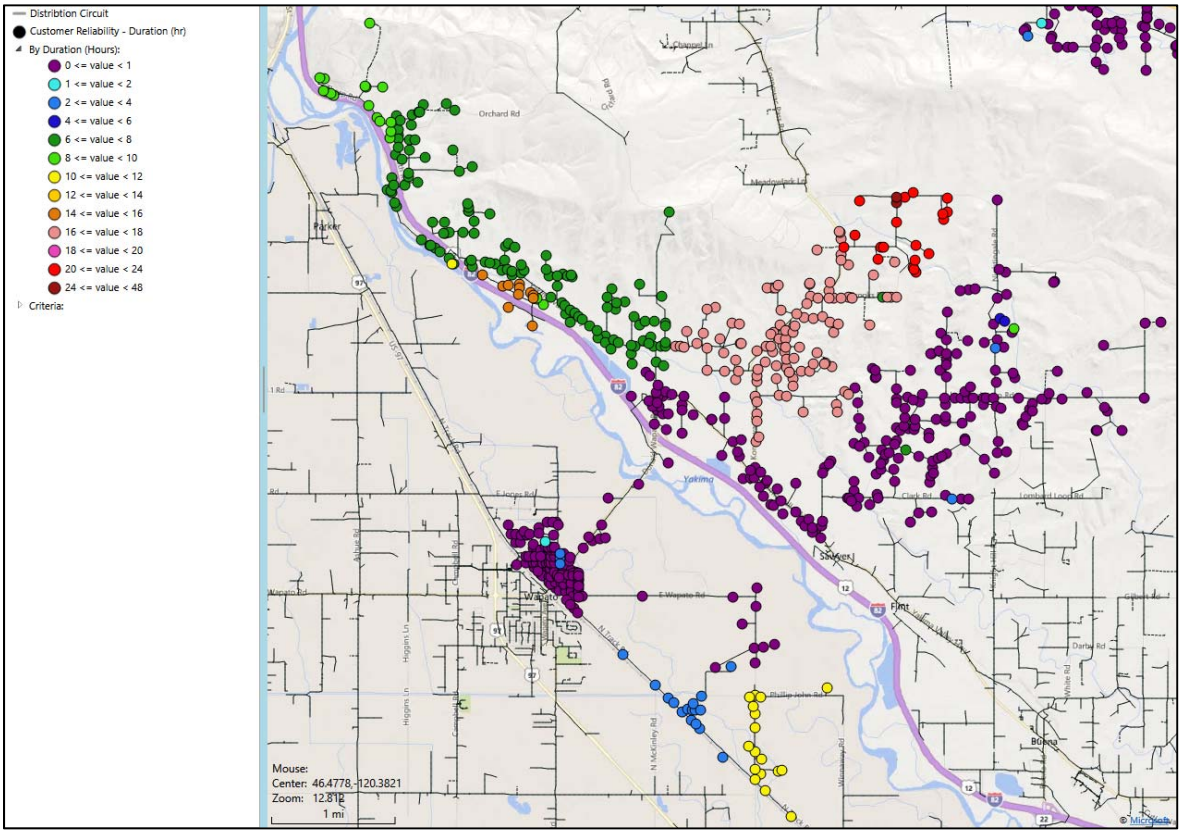
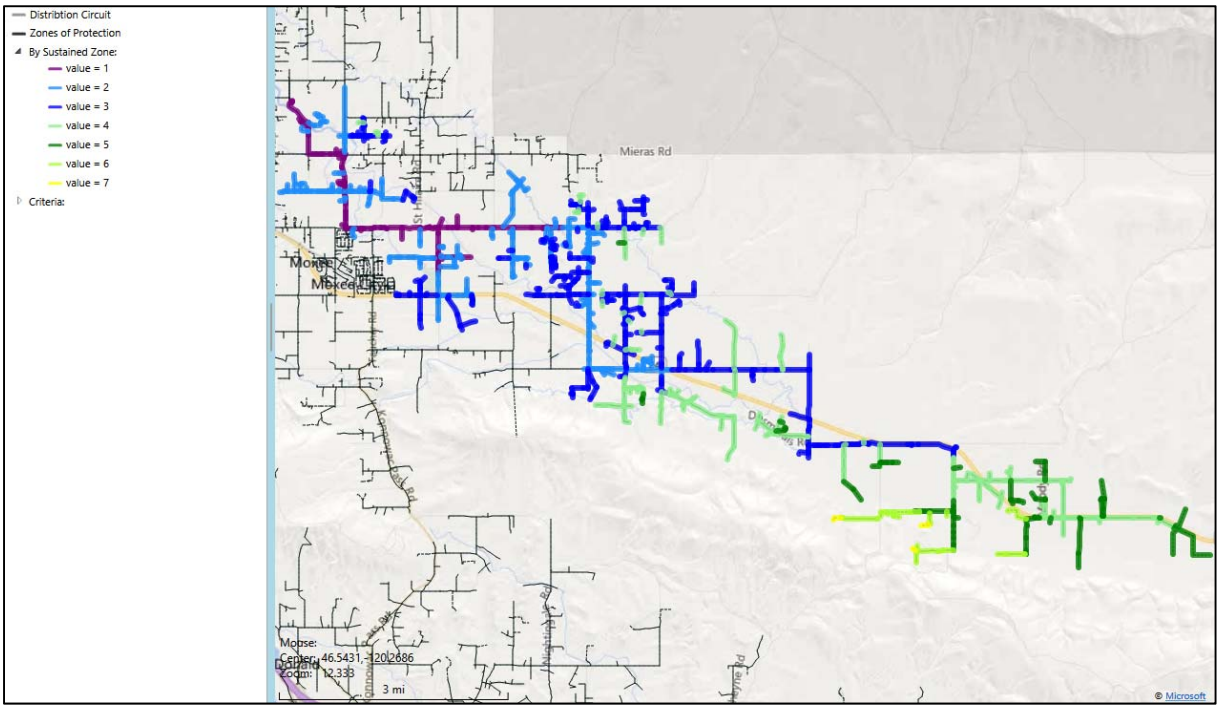
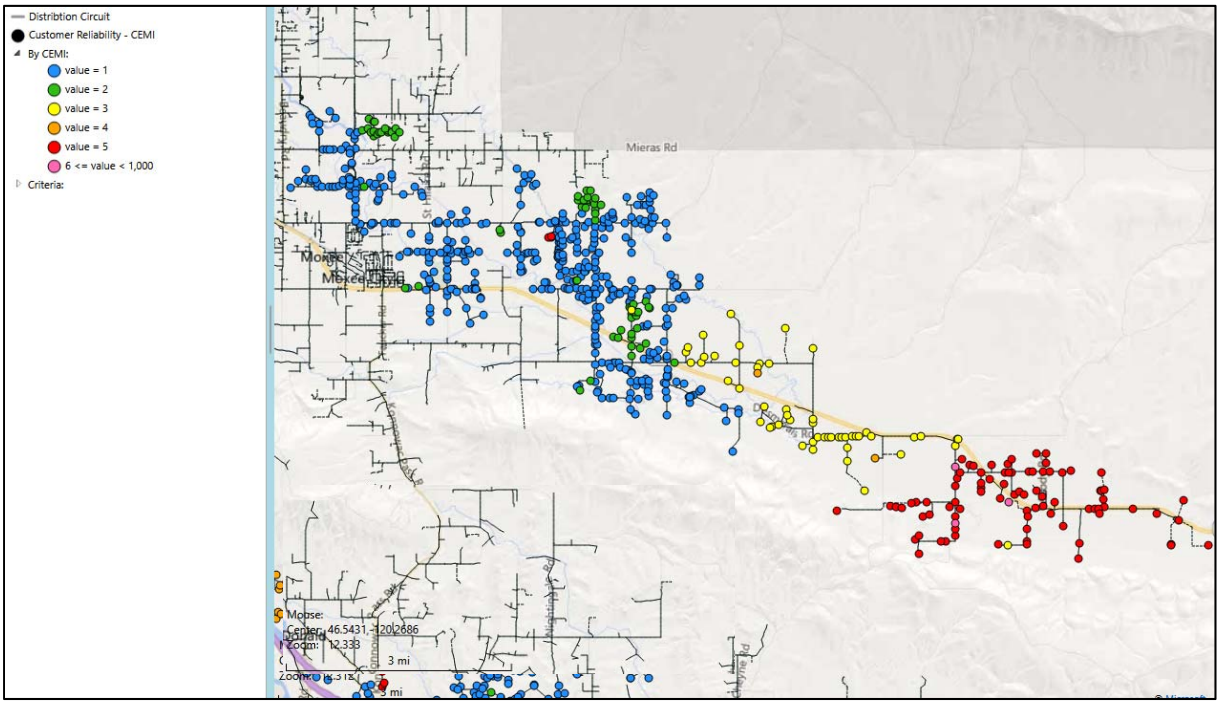
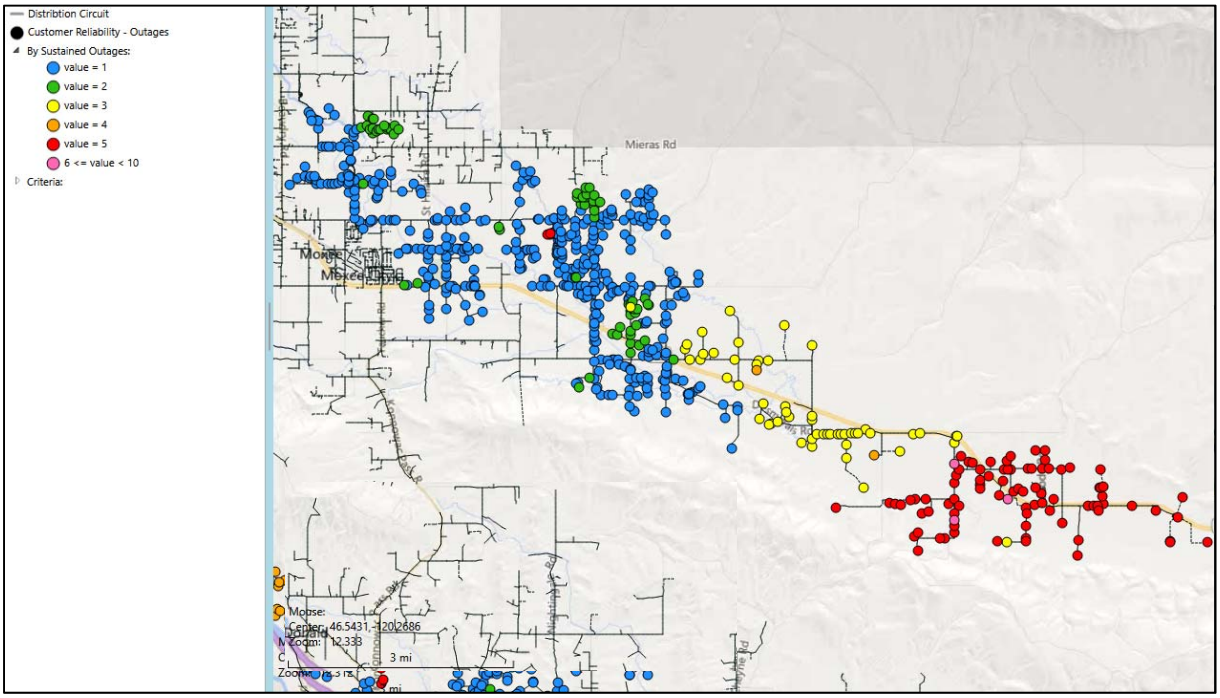
value = 2
value = 3
value = 4
value = 5
6 <= value < 10
Criteria:
Mouse:
Center: 46.4778, -120.3821
Zoom: 12.812
1 mi

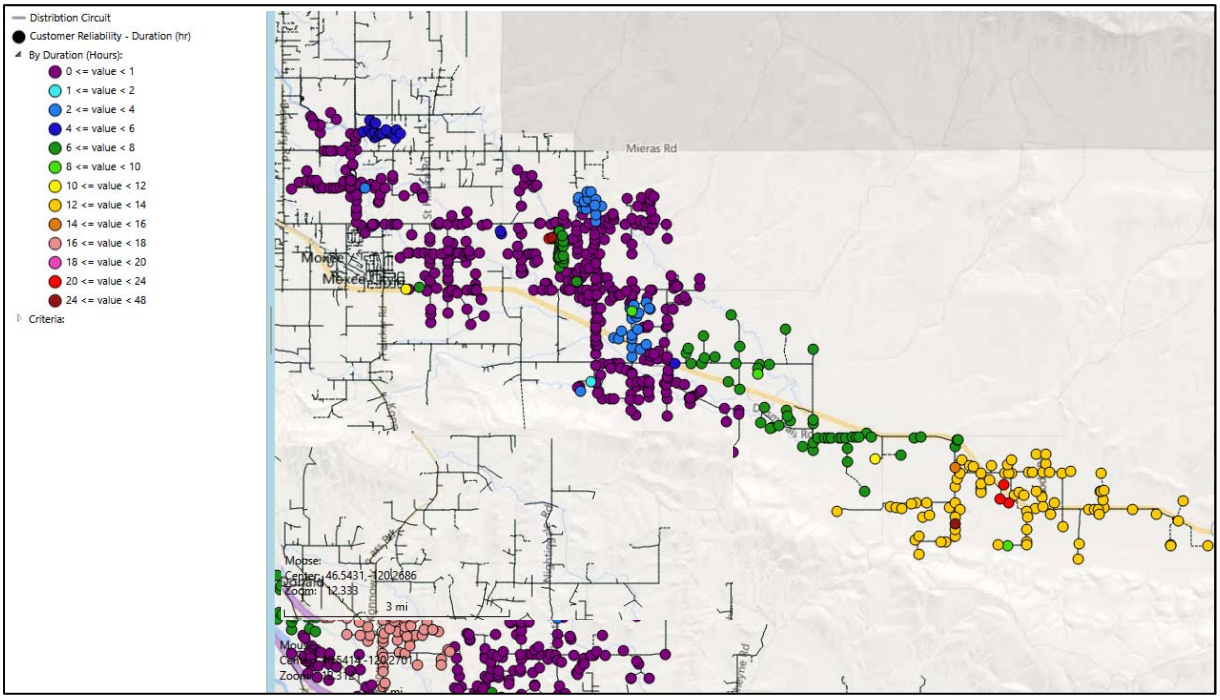

Distribtion Circuit
Customer Reliability - Duration (hr)
By Duration (Hours):
0 <= value < 1
1 <= value < 2
2 <= value < 4
4 <= value < 6
6 <= value < 8
8 <= value < 10
10 <= value < 12
12 <= value < 14
14 <= value < 16
16 <= value < 18
18 <= value < 20
20 <= value < 24
24 <= value < 48
Criteria:
Mouse:
Center: 46.4778, -120.3821
Zoom: 12.812
1 mi

5.5 5Y435: Nikola






Distribtion Circuit
Customer Reliability - Outages
By Sustained Outages:
value = 1
value = 2
value = 3
value = 4
value = 5
6 <= value < 10
Criteria:
Mieras Rd
Moose:
Center: 46.5431, -120.2686
Zoom: 12.333
3 mi


Distribtion Circuit
Customer Reliability - Duration (hr)
By Duration (Hours):
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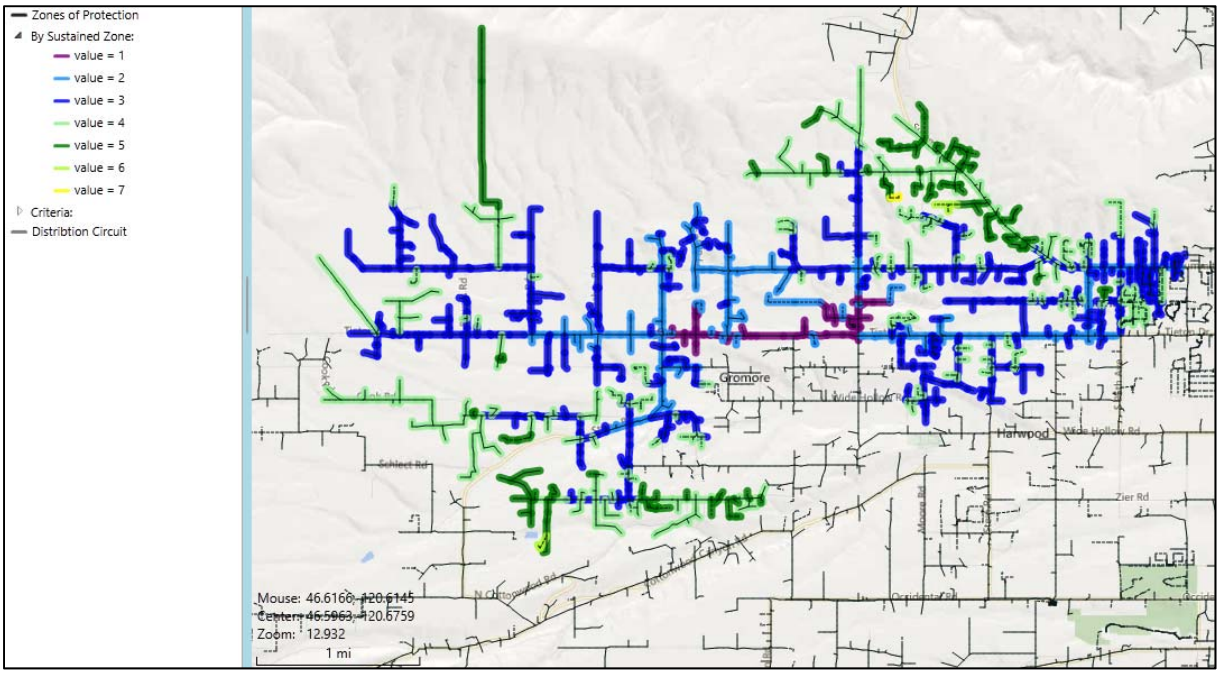
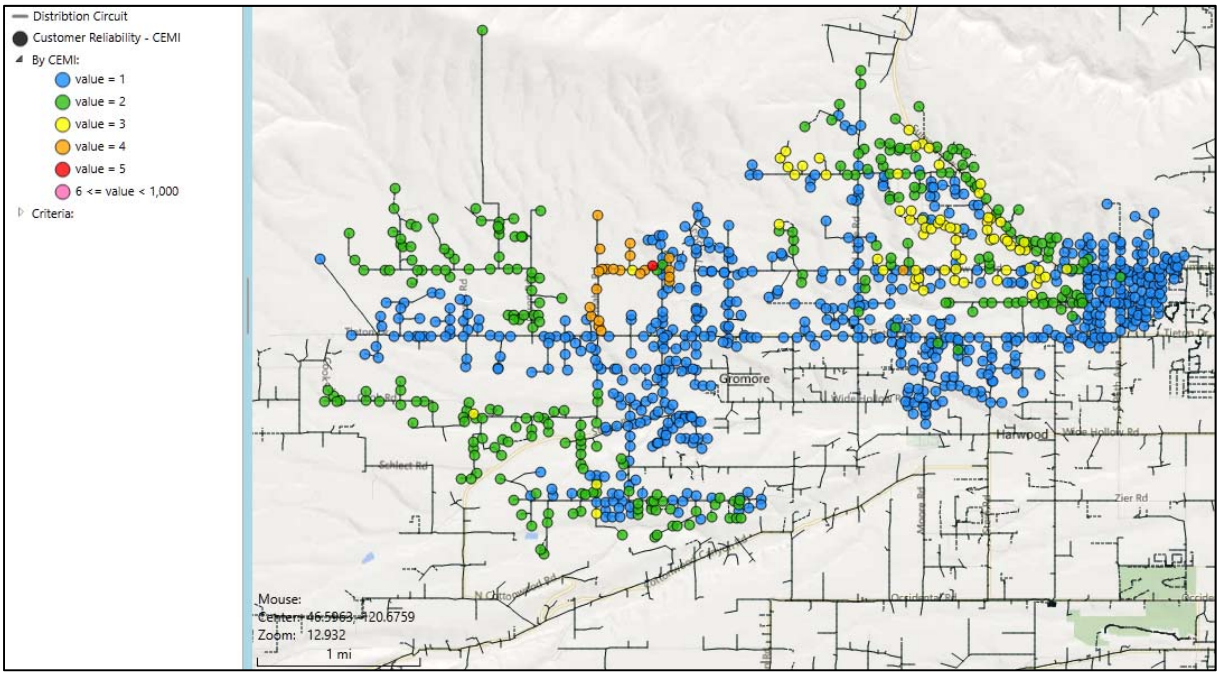
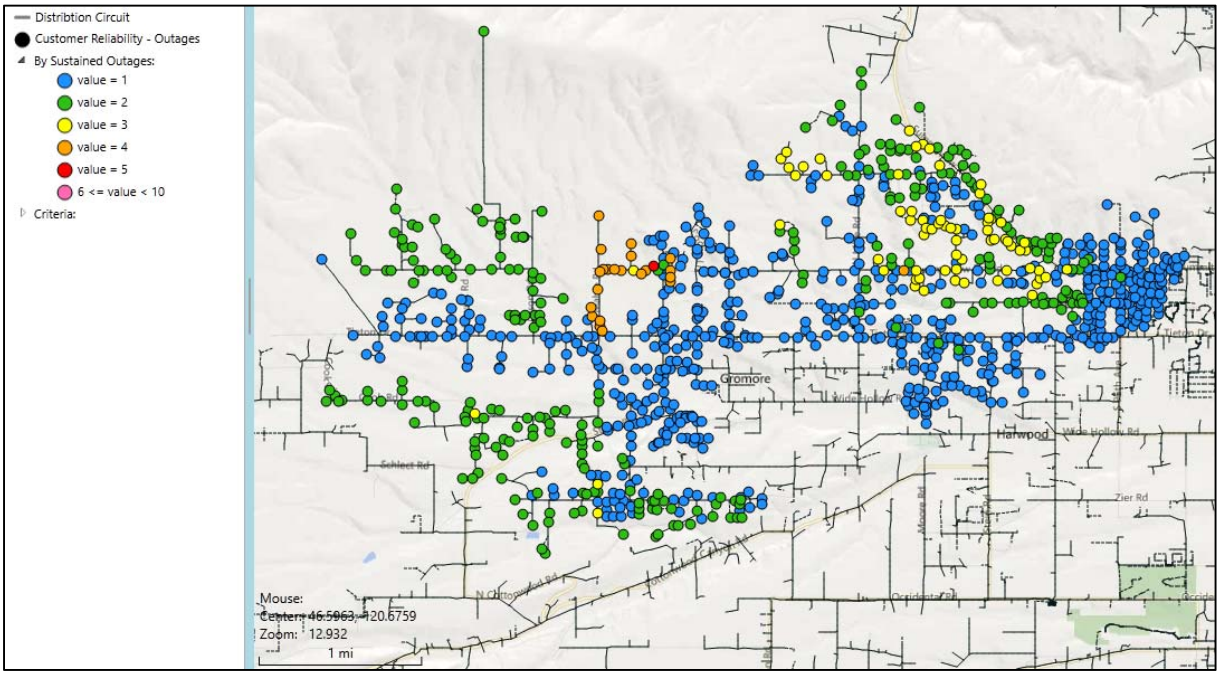
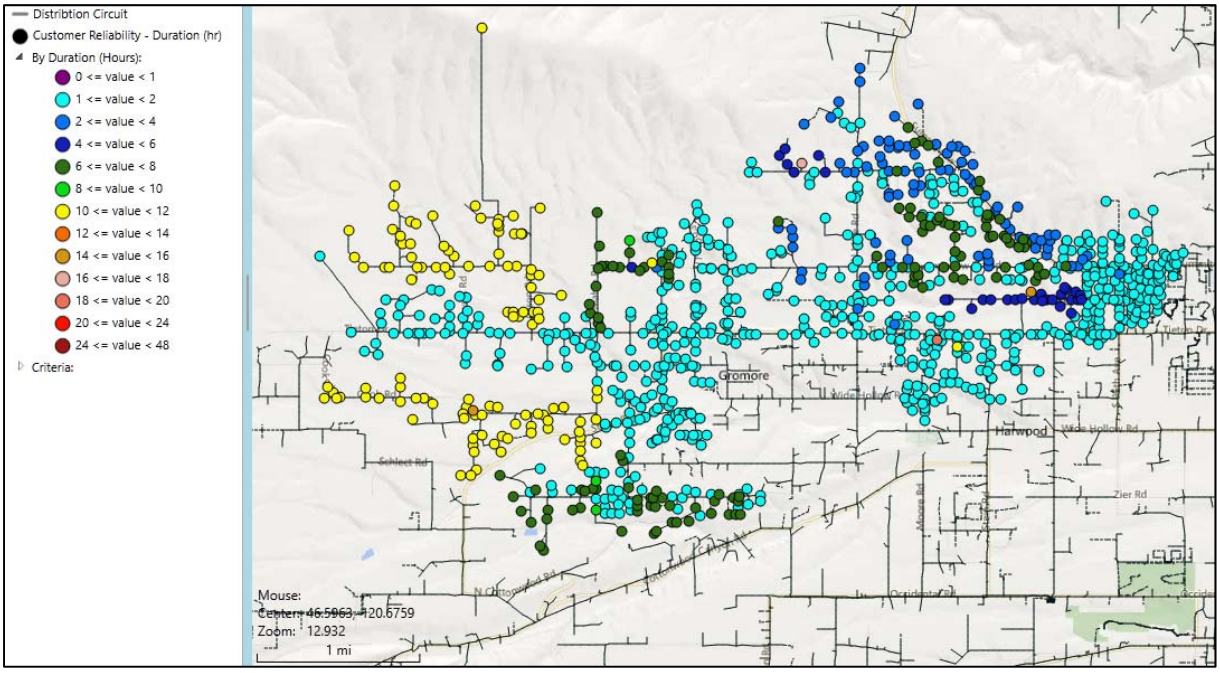
1 <= value < 2
2 <= value < 4
4 <= value < 6
6 <= value < 8
8 <= value < 10
10 <= value < 12
12 <= value < 14
14 <= value < 16
16 <= value < 18
18 <= value < 20
20 <= value < 24
24 <= value < 48
Criteria:
Mieras Rd
Moose:
Center: 46.5431, -120.2686
Zoom: 12.333
3 mi

5.6 5Y860: Pippin






Distribtion Circuit
Customer Reliability - Outages
By Sustained Outages:
value = 1
value = 2
value = 3
value = 4
value = 5
6 <= value < 10
Criteria:
Gromore
Harwpod
Zier Rd
Schlect Rd
Wide Hollow Rd
Mouse:
Center: 46.5963, -120.6759
Zoom: 12.932
1 mi


Distribtion Circuit
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:
Gromore
Harwpod
Zier Rd
Schlect Rd
Wide Hollow Rd
Mouse:
Center: 46.5963, -120.6759
Zoom: 12.932
1 mi

APPENDIX A: Reliability Definitions

This section will define the various terms[9] 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.

[9] 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: 2019 Major Event Filings

Report to the Washington Utilities and Transportation Commission

Electric Service Reliability - Major Event Report

Event Date:	May 15-16, 2019
Date Submitted:	June 27, 2019
Primary Affected Locations:	Yakima
Primary Cause:	Tree and Substation Loss of Supply
Exclude from Reporting Status:	Yes
Report Prepared by:	April Brewer
Report Approved by:	Heide Caswell / Carrie Laird

Event Description and Restoration Summary

Event Outage Summary	
# Interruptions (sustained)	13
Total Customer Interrupted (sustained)	8,441
Total Customer Minutes Lost	1,612,598
State Event SAIDI	11.79 Minutes
CAIDI	191
Major Event Start	5/15/19 11:17 p.m.
Major Event End	5/16/19 11:16 p.m.

At 12:03 p.m. on May 16, 2019, Pacific Power experienced a major event in its Washington service territory when a downed tree faulted impacting the Naches Substation. Additionally the relay on the tripped line momentarily failed, causing the substation transformer to trip de-energizing the other 3 three circuits served by the Naches substation. The initial event affected 5,314 customers, fed from the four distribution circuits served by the Naches substation in Yakima.

Upon arrival at the substation crews inspected equipment and determined the fault had occurred on Naches feeder 5Y133. From 1:21 p.m. to 1:28 p.m., crews began step restorations to the three affected circuits serviced out of the substation, restoring power to 2,050 customers. Meanwhile, crews patrolled line 5Y133 several times and were unable to locate the fault's cause. Substation operations, engineers, and dispatch attempted to restore portions of the system, but the system was unable to remain energized.

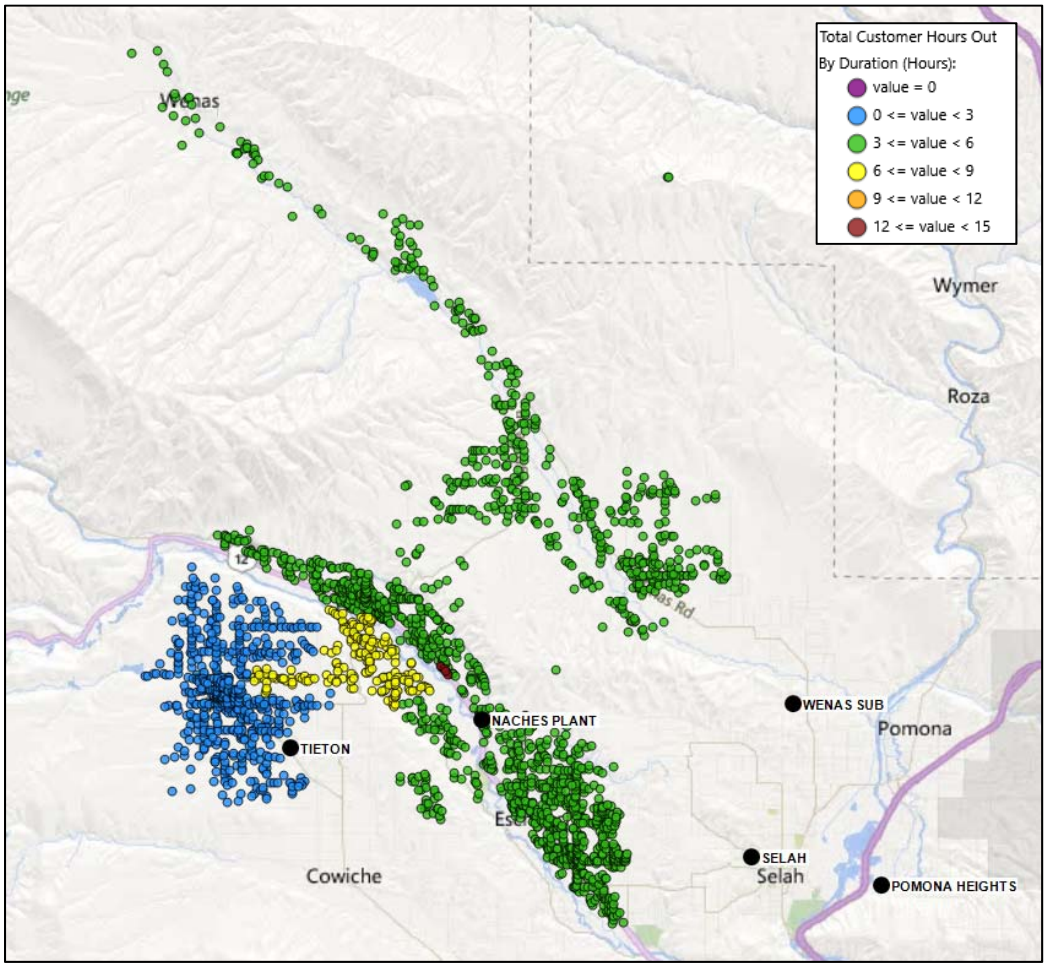
Crews took alternative measures to sectionalize to determine the fault location, after which it was determined that the issue was occurring outside the substation, and particularly crews had

located a damaged field switch (*figure 1*), which was believed to be the cause of the outage. The switch was cleared however the line was still unable to hold. Crews continued to sectionalize the line, restoring downstream sections of the line via feed from the Tieton substation, until they were able to sectionalize the outage down to nine customers where crews found a tree located in a river bed had fallen into the line (*figure 2*). The tree was located in a river bed which was difficult to access. Once the cause for the line fault was discovered crews were able to fully restore service to customers through alternative feeds and repairs to damaged equipment. By 1:59 a.m. on May 17th power was restored to all affected customers.

In total, 6,524 customers experienced outages ranging in duration from 1 hour 17 minutes to 13 hours 31 minutes.

Figure 1. Damaged line switch

Figure 2. Tree down fault



Restoration Intervals

Total Customers Sustained	< 3 Hrs.	3 - 24 Hrs.	24+ Hrs.
8,441	4,435	3,290	0

Restoration Resources

Personnel Resources	
General Foreman	2
Line Foreman	3
Line Patrolman	1
Lineman Journeyman	6
Lineman Representative	1
Relay Tech	3
Serviceman Journeyman	1
Substation Wireman	3
Tree crewmen	4
TOTAL	**24**

Materials	
Approx. Conductor line	20 feet
Insulators	10
Line splices	7

State Estimated Major Event Costs

Estimate $	Labor	Contracts	Material	Overheads	Total
Capital	$30,362	$3,977	$8,640	$4,865	**$47,844**
Expense	$8,180	$0	$490	$654	**$9,324**
Total	**$38,542**	**$3,977**	**$9,130**	**$5,519**	**$57,168**

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 2019 Washington threshold of 1,512,795 customer minutes lost (11.23 state SAIDI minutes) in a 24-hour period.

Event Detail

Report to the Washington Utilities and Transportation Commission

Electric Service Reliability - Major Event Report

Event Date:	July 23, 2019
Date Submitted:	September 3, 2019
Primary Affected Locations:	Sunnyside
Primary Cause:	Loss of Substation
Exclude from Reporting Status:	Yes
Report Prepared by:	April Brewer
Report Approved by:	Heide Caswell / Carrie Laird / Pablo Arronte

Event Outage Summary	
# Interruptions (sustained)	26
Total Customer Interrupted (sustained)	10,365
Total Customer Minutes Lost	420,633
State Event SAIDI	3.08 Minutes
CAIDI	41
Major Event Start	7/23/19 12:00 AM
Major Event End	7/24/19 12:00 AM

Event Description and Restoration Summary

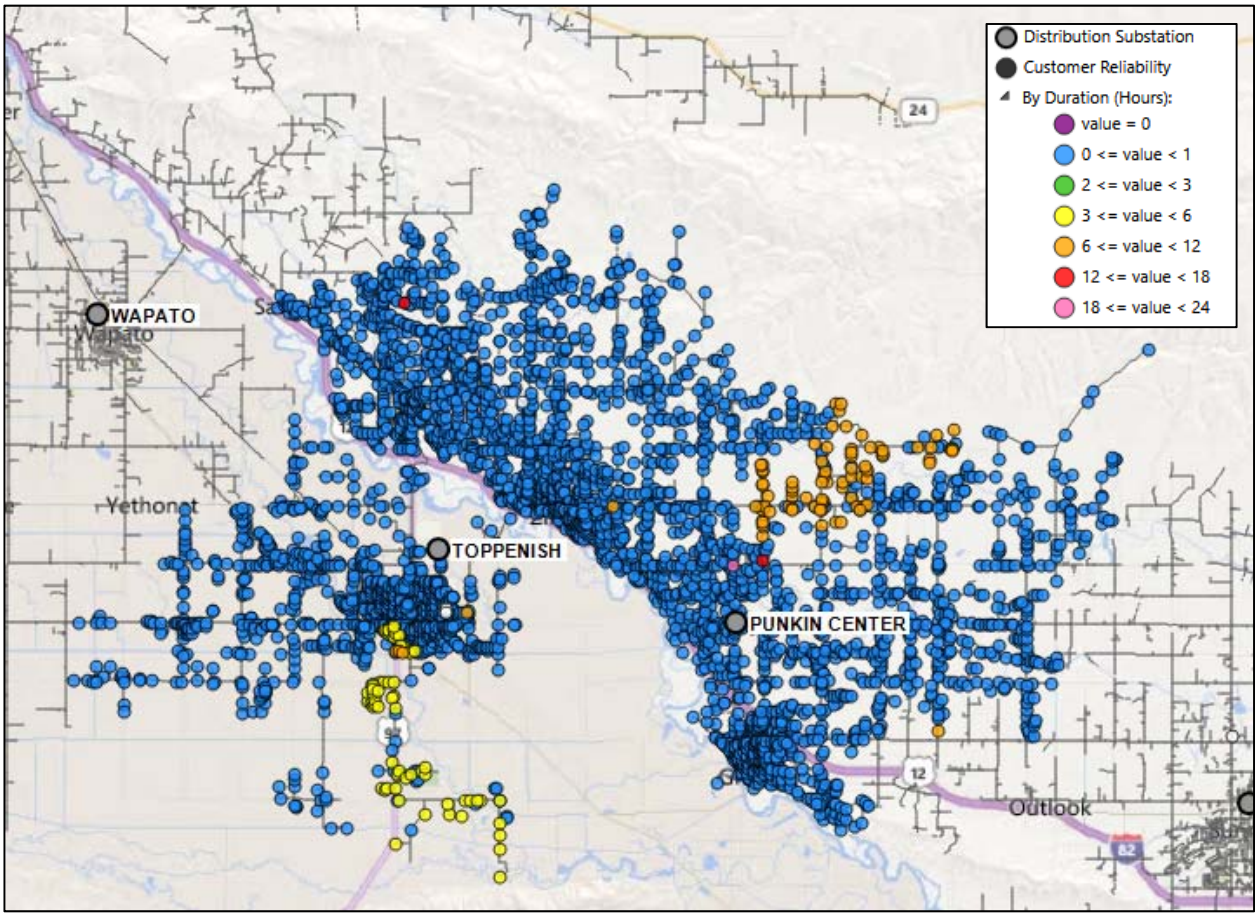
At 7:56 p.m., on July 23rd, 2019, Sunnyside, Washington, experienced a system average interruption frequency index (SAIFI)-based[1] major event when lightning from a summer storm caused a transmission line fault to occur on the Outlook to Toppenish line (the lightning history at and 2 hours before the strike event are shown in the graphic below). The outage de-energized two substations, feeding nine circuits, serving 10,119 customers, approximately 40% of Sunnyside's total customers served. The event set off several alarms at the Outlook substation, which supplies Punkin Center and Toppenish substation. Dispatch determined that the quickest way to restore power was to energize the distribution substations through alternative sources. Power was restored to the 10,119 customers in 33 minutes.

Crews were quickly dispatched to the Outlook Substation, and upon initial inspection personnel determined that the fault, due to lightning, could have significantly impacted the transmission

[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 2019 Frozen Customer Count is 25,081 customers.

transformer at the substation, and as a result apparatus support personnel were called in to test and inspect the transformer. After comprehensive testing it was determined the transformer would need to be replaced. An inspection was also performed on the transmission line which experienced the fault and no damaged was found. The company is currently procuring a replacement transformer for the Outlook substation.

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



Restoration Intervals

Total Customers Sustained	< 3 Hrs.	3 - 24 Hrs.	24+ Hrs.
10,365	10,147	218	0

Restoration Resources [1]

Personnel Resources	
Substation Crew members	7
Engineers	4
Field Services Specialist	2
General Foreman	1
Line Foreman	4
Line Patrolman	1
Lineman Representative	1
Lineman Journeyman	8
Local and Project Managers	3
Senior Design Specialist	1
Senior Project Controls Specialist	1
Equipment	
# Distribution Poles	8
# Transmission Poles	3
Conductor (ft.)	2,625
Transformers	23
Crossams	4
Insulators	43
Cutouts	38
Line Fuses	10
Line Splices	2
Guy Wire	5,000

State Estimated Major Event Costs [2]

Estimate $	Labor	Contracts	Material	Overheads	Total
Capital	$71,671	$3,341	$29,001	$9,430	**$113,443**
Expense	$62,076	$1,346	$27,941	$3,293	**$94,656**
Total	**$133,747**	**$4,687**	**$56,942**	**$12,723**	**$208,099**

Future Estimated Cost	
Transformer Upgrade	$3.7 million

[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. The current values do not reflect the current procurement of a replacement transformer nor the future personnel work billed to the project when installed.

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 (10,119 customers were interrupted out of 25,081 Sunnyside operating area customers, or 41% of the operating area customers) simultaneously in a 24-hour period.

Event Detail

Report to the Washington Utilities and Transportation Commission

Electric Service Reliability - Major Event Report

Event Date:	August 9-10, 2019
Date Submitted:	September 20, 2019
Primary Affected Locations:	Sunnyside
Primary Cause:	Loss of Transmission line
Exclude from Reporting Status:	Yes
Report Prepared by:	April Brewer
Report Approved by:	Heide Caswell / Carrie Laird / Pablo Arronte / Chad Ooten

Event Outage Summary	
# Interruptions (sustained)	22
Total Customer Interrupted (sustained)	10,435
Total Customer Minutes Lost	1,004,930
State Event SAIDI	7.35 Minutes
CAIDI	96
Major Event Start	8/9/19 11:03 PM
Major Event End	8/10/19 11:03 PM

Event Description and Restoration Summary

At 11:04 p.m., on August 9th, 2019, Sunnyside, Washington, experienced a system average interruption frequency index (SAIFI)-based[1] major event when a summer lightning storm struck; apparently lightning hit a section of the 115kV transmission line between the Sunnyside and Outlook Substations. The outage de-energized two substations (Sunnyside and Punkin), feeding nine circuits, serving 10,262 customers, approximately 41% of Sunnyside's total customers served.

Crews were dispatched to inspect the line (which is normal operation prior to test energizing during "fire season") and determined that the damage the line had sustained did not require immediate repair, rather restoration and follow up repair could occur. Therefore the substation breakers were cleared to close, re-energizing the transmission line. At 12:32 a.m. on August 10th the Sunnyside Substation was energized restoring feed to 6,239 customers. At 12:41 a.m. the Punkin Substation was energized restoring the remaining 4,023 customers. Permanent repairs to damaged insulators and arms on the 115kV line occurred on August 15th.

[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 2019 Frozen Customer Count is 25,081 customers.

Figure 1 displays customer outages during the event as shown by their duration in reference to the restoration stages. Figure 2 shows the lighting strikes from August 9th at 5:00 p.m. through August 11th at 1:00 a.m.

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

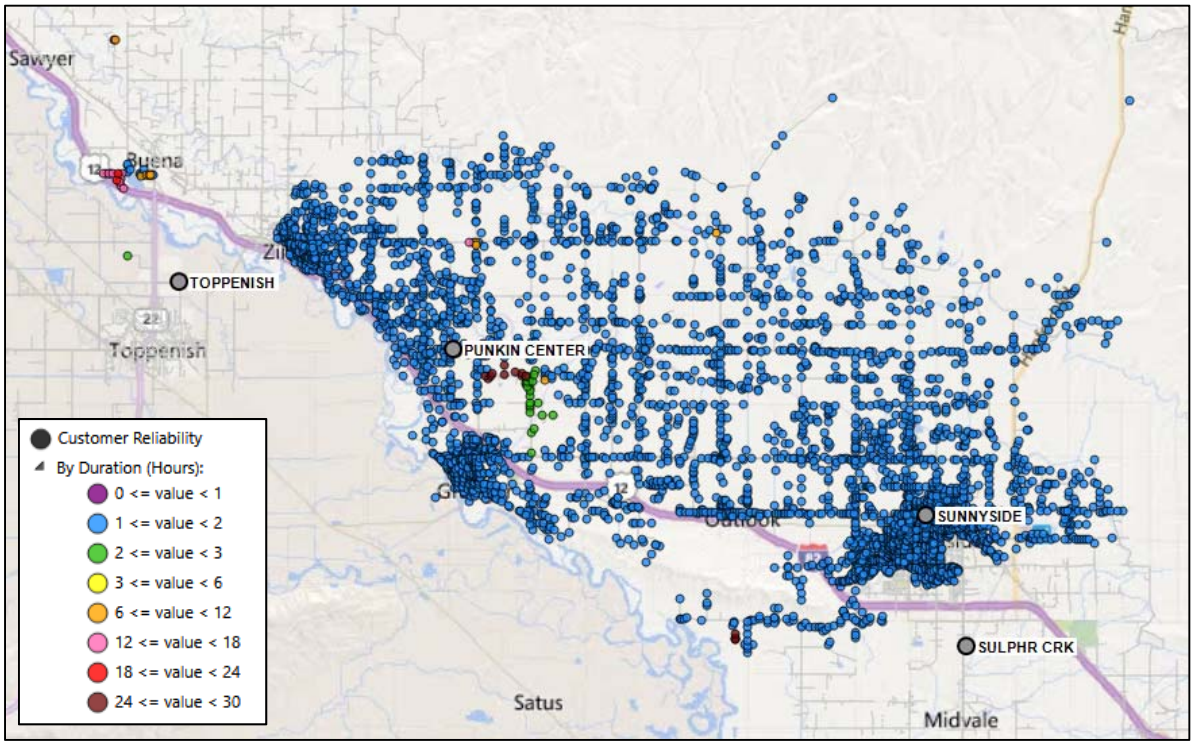


Figure 1: Outages experienced during the major event by duration.

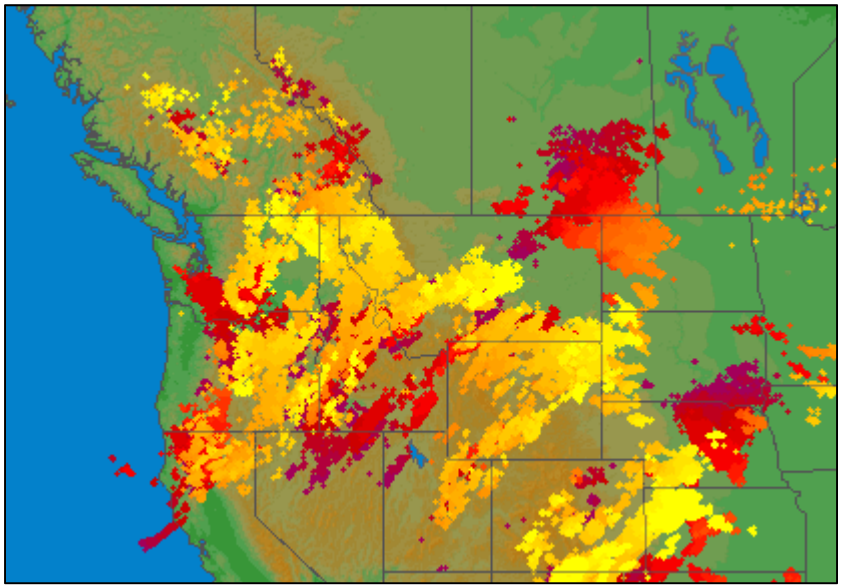


Figure 2 Recorded lightning strikes from August 9th at 5:00 p.m. through August 11th at 1:00 a.m.[1]

[1] http://www.lightningmaps.org/blitzortung/america/index.php?bo_page=archive&lang=en

Restoration Intervals

Total Customers Sustained	< 3 Hrs.	3 - 24 Hrs.	24-27 Hrs.
10,435	10,367	45	23

Restoration Resources [1]

Personnel Resources	
Field Journeyman	17
Estimator	1
Support	1
Substation Journeymen	1
Total	3
Total	23

Equipment	
# Transformers	16
# Crossarms	5
Insulators	43
Cutouts	35
Line splices	67

State Estimated Major Event Costs [3]

Estimate $	Labor	Material	Overheads	Total
Capital	$21,098	$18,971	$5,704	**$45,773**
Expense	$41,184	$7,787	$7,634	**$56,605**
Total	**$62,268**	**$26,758**	**$13,338**	**$102,378**

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 (10,275 customers were interrupted out of 25,081 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. The current values do not reflect the current procurement of a replacement transformer nor the future personnel work billed to the project when installed.

Event Detail

Report to the Washington Utilities and Transportation Commission

Electric Service Reliability - Major Event Report

Event Date:	October 14-15, 2019
Date Submitted:	November 25, 2019
Primary Affected Locations:	Walla Walla
Primary Cause:	Loss of Substation
Exclude from Reporting Status:	Yes
Report Prepared by:	April Brewer
Report Approved by:	Heide Caswell / Carrie Laird / Pablo Arronte

Event Outage Summary	
# Interruptions (sustained)	3
Total Customers Interrupted (sustained)	4,186
Total Customer Minutes Lost	740,792
State Event SAIDI	5.42 Minutes
CAIDI	177
Major Event Start	10/14/19 8:08 AM
Major Event End	10/15/19 8:08 AM

Event Description and Restoration Summary

At 8:08 a.m., on October 14th, 2019, Walla Walla, Washington, experienced a system average interruption frequency index (SAIFI)-based[1] major event when a woodpecker caused a fault on a distribution circuit breaker, causing extensive damage to one distribution circuit breaker and bus which caused the high side transformer fuses to open. The outage affected two circuits fed from the Mill Creek Substation, affecting 4,167 customers (14% of customers served in Walla Walla) with all customers restored within 2 hours 58 minutes.

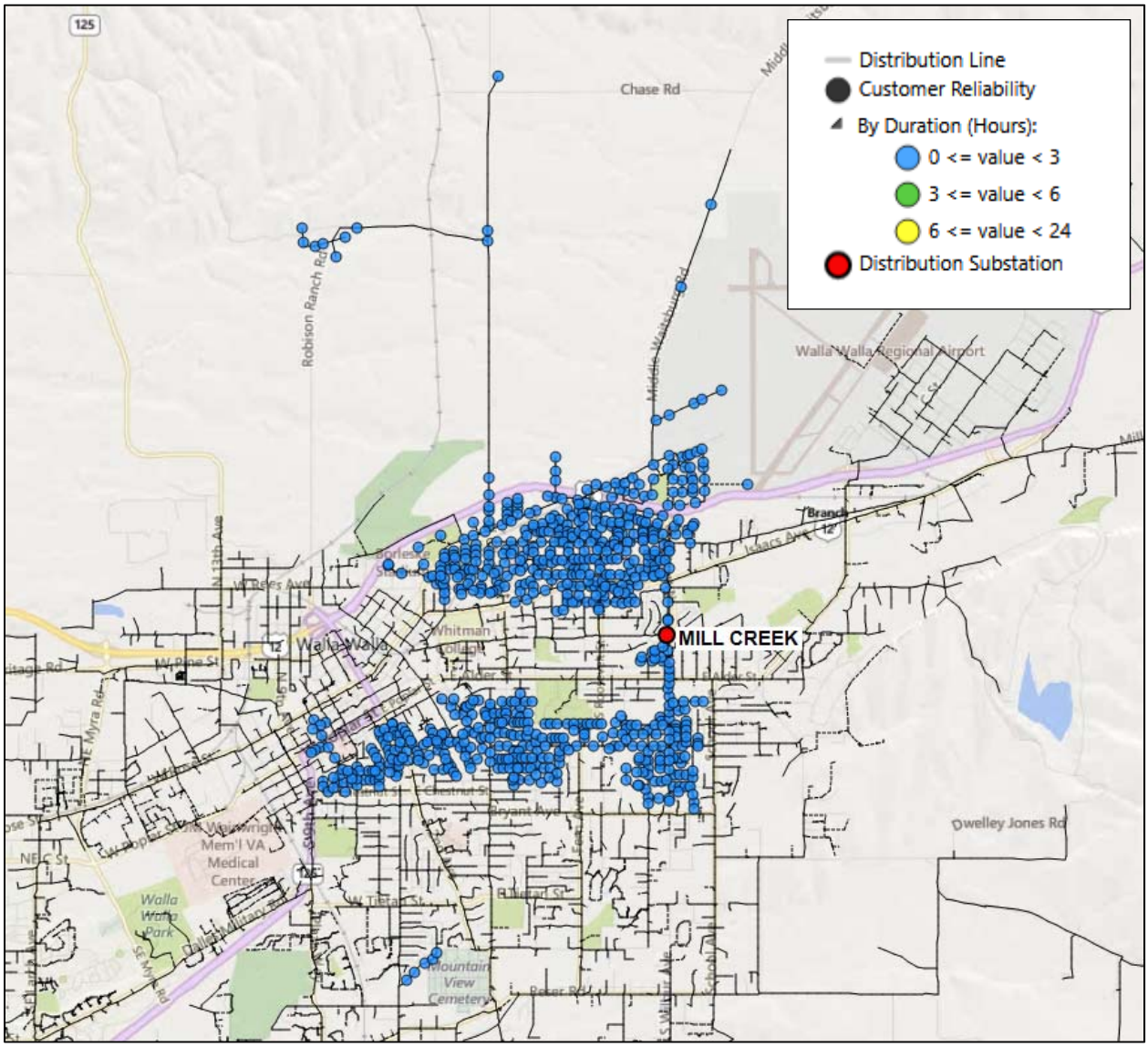
While crews were dispatched to the substation, engineers began analyzing loading levels of a second substation transformer to determine whether sufficient station capacity existed to energize the two tripped circuits in addition to the three circuits that it normally feeds. It was determined that there was capacity on the remaining 25mVA station transformer to support this, and crew members began efforts

[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 2019 Frozen Customer Count is 28,792 customers.

to transfer the two tripped circuits to restore customers. Before restoration of the circuit with the damaged breaker could be completed the bus tie breaker needed to be utilized in place of the damaged breaker. An attempt to close the bus tie breaker failed and had to be investigated before switching could be completed. A blown internal fuse was found in the station house and replaced. Switching resumed, after the remaining energized circuits were transferred to the main bus the first circuit breaker was re-energized restoring 2,102 customers after 2 hours 56 minutes. Switching continued to restore the de-energized circuit by placing the load onto the bus tie breaker, restoring the remaining 2,065 customers after 2 hours 58 minutes.

Subsequently the company determined that additional bird guarding in the substation was warranted, and is being initiated.

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



Restoration Intervals

Total Customers Sustained	< 3 Hrs.	3 - 24 Hrs.	24+ Hrs.
4,186	4,186	0	0

Restoration Resources [1]

Personnel Resources	
Relay Tech	2
Servicemen	2
Substation Wireman	2
Managers	2
Total	**8**

Equipment	
69kV Transformer Fuses	3

State Estimated Major Event Costs [2]

Estimate $	Labor	Material	Overheads	Total
Capital	$7,513	$7,950	$2,693	**$15,463**
Expense	$0	$0	$0	**$0**
Total	**$7,513**	**$7,950**	**$2,693**	**$15,463**

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 (4,167 customers were interrupted out of Walla Walla's 28,792 operating area customers, or 14% 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

Report to the Washington Utilities and Transportation Commission

Electric Service Reliability - Major Event Report

Event Date:	October 28-29, 2019
Date Submitted:	December 9, 2019
Primary Affected Locations:	Yakima
Primary Cause:	Loss of Transmission Line
Exclude from Reporting Status:	Yes
Report Prepared by:	April Brewer
Report Approved by:	Heide Caswell / Carrie Laird / Pablo Arronte

Event Outage Summary	
# Interruptions (sustained)	18
Total Customers Interrupted (sustained)	9,770
Total Customer Minutes Lost	289,110
State Event SAIDI	2.11 Minutes
CAIDI	30
Major Event Start	10/28/19 8:17 PM
Major Event End	10/29/19 8:17 PM

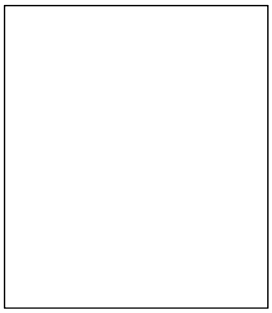
Event Description and Restoration Summary

At 8:17 P.M., on October, 28, 2019, Yakima, Washington, experienced a system average interruption frequency index (SAIFI)-based[1] major event due to a loss of transmission line event which occurred when high winds caused a tree to fall on the 115kV line between River Road and Orchard Substations. The event caused the Orchard Substation to de-energize, affecting all six distribution circuits fed from the substation, causing an outage to 9,179 customers. Operations quickly reacted to the de-energized substation by isolating the 115 kV line and energizing the substation through an alternate source, restoring power to the 9,179 customers within 6 minutes. Immediately following the switch to an alternate source, crews were dispatched to the area to investigate the loss of transmission feed; locally there was also awareness of several other outages that were the result of wind downed trees, and impacted another 591 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. Yakima operating area's Calendar 2019 Frozen Customer Count is 82,913 customers.

Upon inspection of the transmission line, crews determined that the tree which downed the transmission line had also taken down distribution under-build at the location, affecting customers fed from another substation and circuit. Crews began working on repairs to the damaged equipment and at 6:26 A.M. the following day, 10 hours and four minutes after the reported outage, the structures were rebuilt, and the transmission and distribution line were re-energized; this restored power to the 127 customers affected by downed distribution line, and restored the standard transmission line configuration. Shortly thereafter the Orchard substation was restored to its normal configuration.

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



Restoration Intervals

Total Customers Sustained	< 3 Hrs.	3 - 24 Hrs.	24+ Hrs.
9,770	9,306	464	0

Restoration Resources [1]

Personnel Resources	
Field Service Specialist	1
Line Patrolman	1
Servicemen	3
Lineman Journeyman	6
Lineman Representative	2
Line Foreman	3
General Foreman	1
Relay Tech	2
Substation Wireman	1
Tree Crewman	7
Total	**27**

Equipment	
# Poles (D)	1
Approximate Conductor Line (feet)	1,030
# Transformers	5
# Crossarms	1
Insulators	20
Line splices	17
Cutouts	12

State Estimated Major Event Costs [2]

Estimate $	Labor	Contracts	Material	Overheads	Total
Capital	$4,161	$0	$9,117	$2,146	**$15,424**
Expense	$30,931	$4,916	$231	$1,181	**$37,259**
Total	**$35,092**	**$4,916**	**$9,348**	**$3,327**	**$52,683**

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 (9,374 customers were interrupted out of Yakima's 82,913 operating area customers, or 11% 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

Report to the Washington Utilities and Transportation Commission

Electric Service Reliability - Major Event Report

Event Date:	November 27-28, 2019
Date Submitted:	January 8, 2020
Primary Affected Locations:	Yakima and Sunnyside
Primary Cause:	Wind and Trees
Exclude from Reporting Status:	Yes
Report Prepared by:	April Brewer
Report Approved by:	Heide Caswell / Carrie Laird / Chad Ooten

Event Description and Restoration Summary

Event Outage Summary	
# Interruptions (sustained)	104
Total Customer Interrupted (sustained)	5,382
Total Customer Minutes Lost	1,689,555
State Event SAIDI	12.35 Minutes
CAIDI	314
Major Event Start	11/27/2019 12:00 a.m.
Major Event End	11/28/2019 10:31 p.m.

On the morning of November 27, customers in Washington began experiencing outages when a wind storm severely impacted reliability in Yakima and Sunnyside. The storm produced sustained winds from the northeast, with gusts between 40 to 50 MPH. Although the wind directions can vary throughout the year in this region, it is more common for this region to see prevailing winds from the southwest. The irregular northeasterly direction of the wind coupled with high wind gusts caused significant damage to facilities, downing equipment and trees under the abnormal conditions.

During the event vegetation-related interference (essentially wind-borne debris) was the most significant cause of outages. Downed trees and broken branches caused 51% of all customer minutes lost and 38% of all customer outages. In addition to vegetation interference, wind was the second most significant cause of customer minutes lost, accounting for 29% of the total event minutes and 38% of all customer outages. The third most impactful cause of outages during the event were intentional outages to clear trouble, accounting for 11% of all customer minutes lost and 17% of all customer outages; these outages are taken in order to limit safety risks during the repair and restoration process.

Approximately 5,400 customer outages were experienced, some of which included multiple outages over the duration of the storm, see figure 1 below. The number of concurrent outages during the event peaked on the 27th at 5:16 p.m. simultaneous to the peak customers out, when 3,377 customers were out of power. Outage durations during the event ranged from 5 minutes to 23 hours 28 minutes, with an average cumulative outage duration of 5 hours 14 minutes, see figure 2.

Over the course of the almost two day event over 100 separate outage events were recorded. All available internal personnel were utilized and augmented by contractors. Due to other weather impacts across the company no out-of-area internal crews were deployed in the area. However, managers staffed the office to assist logistics, clerks, and general foreman, in directing resources to the largest and oldest outages first. Substation operations and estimators assisted the field in assessing damaged equipment. Internal crews were broken down into single responders as an additional five external contract crews were brought in to assist with field restoration activities which required a crew.

High, persistent winds, cold temperatures and downed trees and branches, all slowed restoration activities. Further impacts were experienced due to impeded access that often required the removal of area debris before being able to access and repair damaged equipment. Regional personnel functioning in support roles enabled crews to focus on clearing debris and restoring outages, which was very critical during the protracted wind event.

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

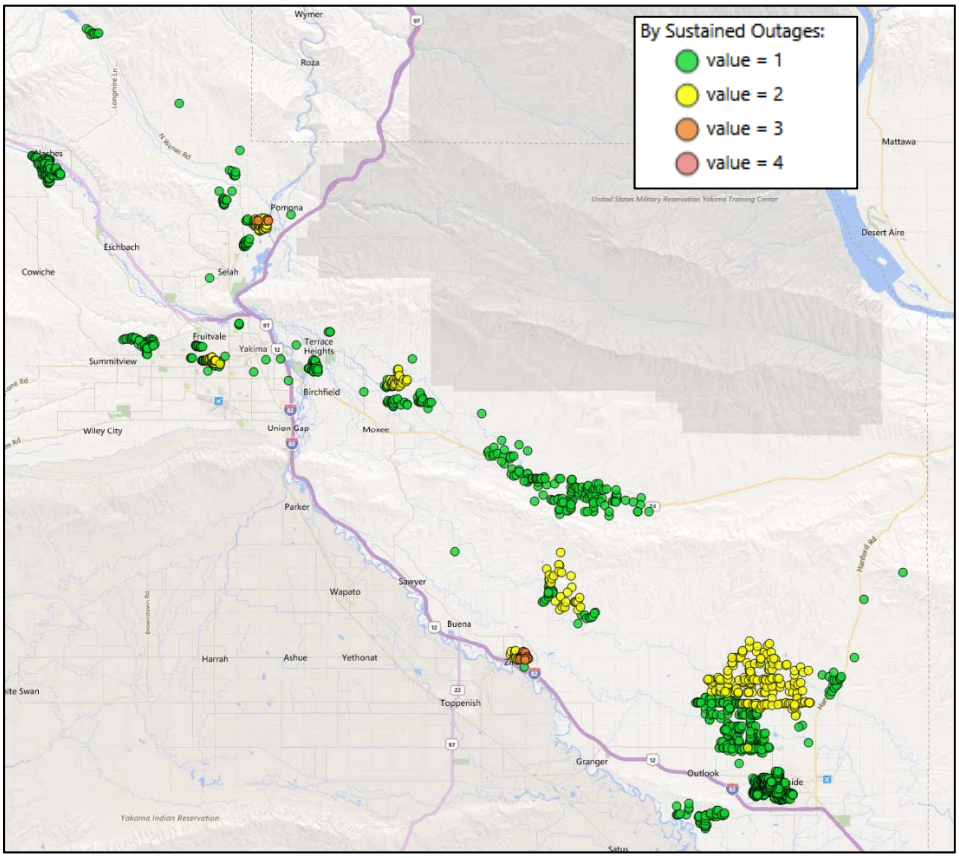


Figure 1. Number of sustained outages experience by customers during the event.

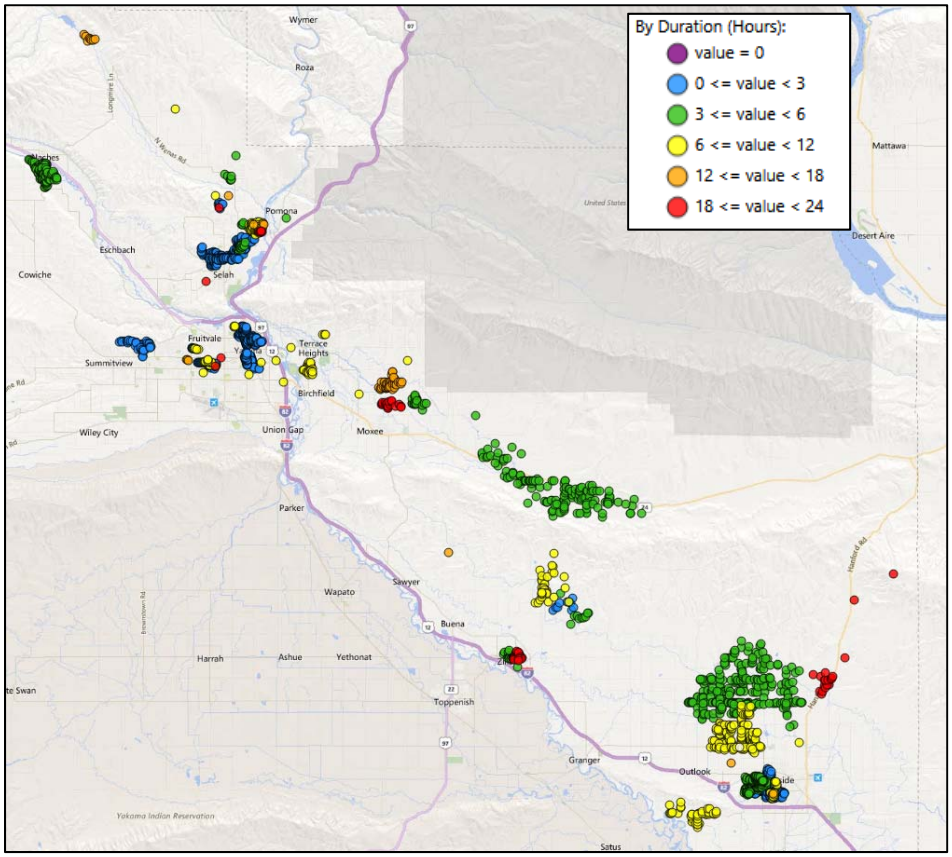


Figure 2. Combined total outage duration, by hours, experience by customers during the event.

Restoration Intervals

Total Customers Sustained	< 3 Hrs.	3 - 24 Hrs.	24+ Hrs.
5,382	2,346	3,036	0

Restoration Resources

Personnel Resources	
Troubleman/Assessors	5
Lineman	9
Foreman	4
External (contract) crewmembers	31
Substation crewmembers	4
Estimators	3
# Support staff	1
Lineman Representative	2
Assessor	Varied based on resources above
Serviceman	3
Warehouseman	2
Tree crewman	6
TOTAL	**70**

Materials	
# Distribution Poles	7
# Approx. conductor Line (feet)	11,410 ft.
# Transformers	6
# Crossarms	7
Insulators	60
Cutouts	15
Line fuses	20
Line splices	88

State Estimated Major Event Costs

Estimate $	Labor	Contracts	Material	Overheads	Total
Capital	$10,070	$114,148	$13,415	$10,795	**$148,428**
Expense	$98,726	$66,380	$2,934	$4,224	**$172,264**
Total	**$108,796**	**$180,528**	**$16,349**	**$15,019**	**$320,692**

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 2019 Washington threshold of 1,512,795 customer minutes lost (11.13 state SAIDI minutes) in a 24-hour period.

Event Detail