



**WASHINGTON
SERVICE QUALITY
REVIEW**

January 1 – December 31, 2016

Annual Report

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EXECUTIVE SUMMARY

During January 1 through December 31, 2016, 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 2016 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 as was extended in UE-042131.

1.1 Pacific Power Customer Guarantees

<u>Customer Guarantee 1:</u> 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.
<u>Customer Guarantee 2:</u> Appointments	The Company will keep mutually agreed upon appointments which will be scheduled within a two-hour time window.
<u>Customer Guarantee 3:</u> 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.
<u>Customer Guarantee 4:</u> 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.
<u>Customer Guarantee 5:</u> 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.
<u>Customer Guarantee 6:</u> 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.
<u>Customer Guarantee 7:</u> 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 with 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 Standards¹

<u>Network Performance Standard 1:</u> Improve System Average Interruption Duration Index (SAIDI)	The Company will maintain SAIDI commitment target.
<u>Network Performance Standard 2:</u> Improve System Average Interruption Frequency Index (SAIFI)	The Company will maintain SAIFI commitment target.
<u>Network Performance Standard 3:</u> 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.
<u>Network Performance Standard 4:</u> 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.
<u>Customer Service Performance Standard 5:</u> 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.
<u>Customer Service Performance Standard 6:</u> 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.

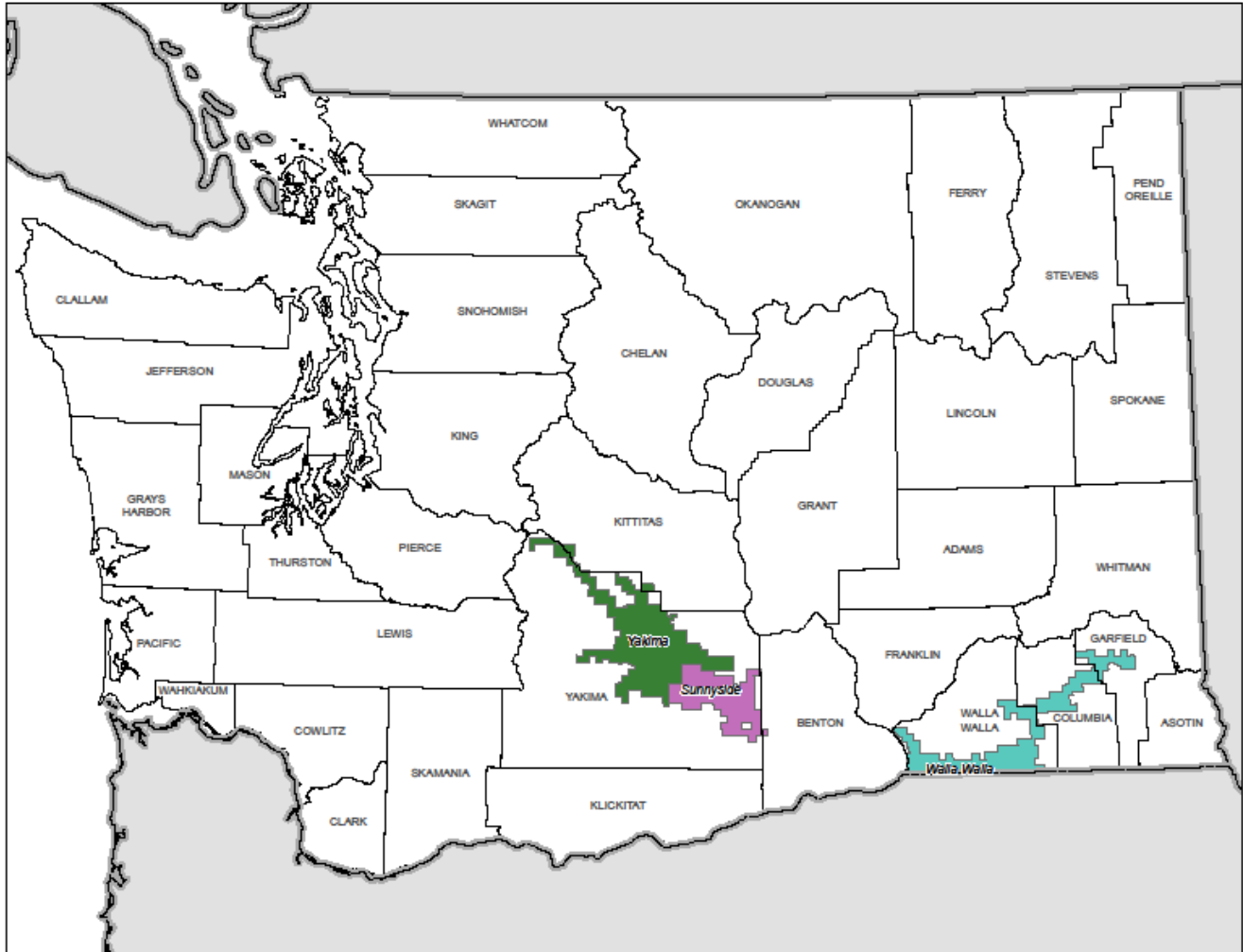
¹ The Company committed to Service Standards Programs that expired on 12/31/2011; during the program all elements committed to were delivered successfully. By terms of the commitment any changes to the program required the approval of the Commission. The Company has proposed no changes to the program,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

Description	2016				2015			
	Events	Failures	% Success	Paid	Events	Failures	% Success	Paid
CG1 Restoring Supply	85,726	0	100.00%	\$0	102,186	0	100.00%	\$0
CG2 Appointments	1,772	0	100.00%	\$0	1,873	4	99.79%	\$200
CG3 Switching on Power	2,619	1	99.96%	\$50	3,252	2	99.94%	\$100
CG4 Estimates	286	4	98.60%	\$200	283	0	100.00%	\$0
CG5 Respond to Billing Inquiries	293	0	100.00%	\$0	266	1	99.62%	\$50
CG6 Respond to Meter Problems	143	0	100.00%	\$0	165	0	100.00%	\$0
CG7 Notification of Planned Interruptions	2,833	2	99.93%	\$100	3,044	5	99.84%	\$250
	93,672	7	99.99%	\$350	111,069	12	99.99%	\$600

(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 85 minutes was much better than the approved SAIDI baseline of 150 minutes, while the year’s “Major Events Excluded As Reported” SAIFI performance of 0.643 events was also much better than the approved SAIFI baseline of 0.975 events. Various reliability metrics are shown below providing a historical perspective, including an additional 5-year rolling average metric.

3.1 Multi-Year Historical Performance

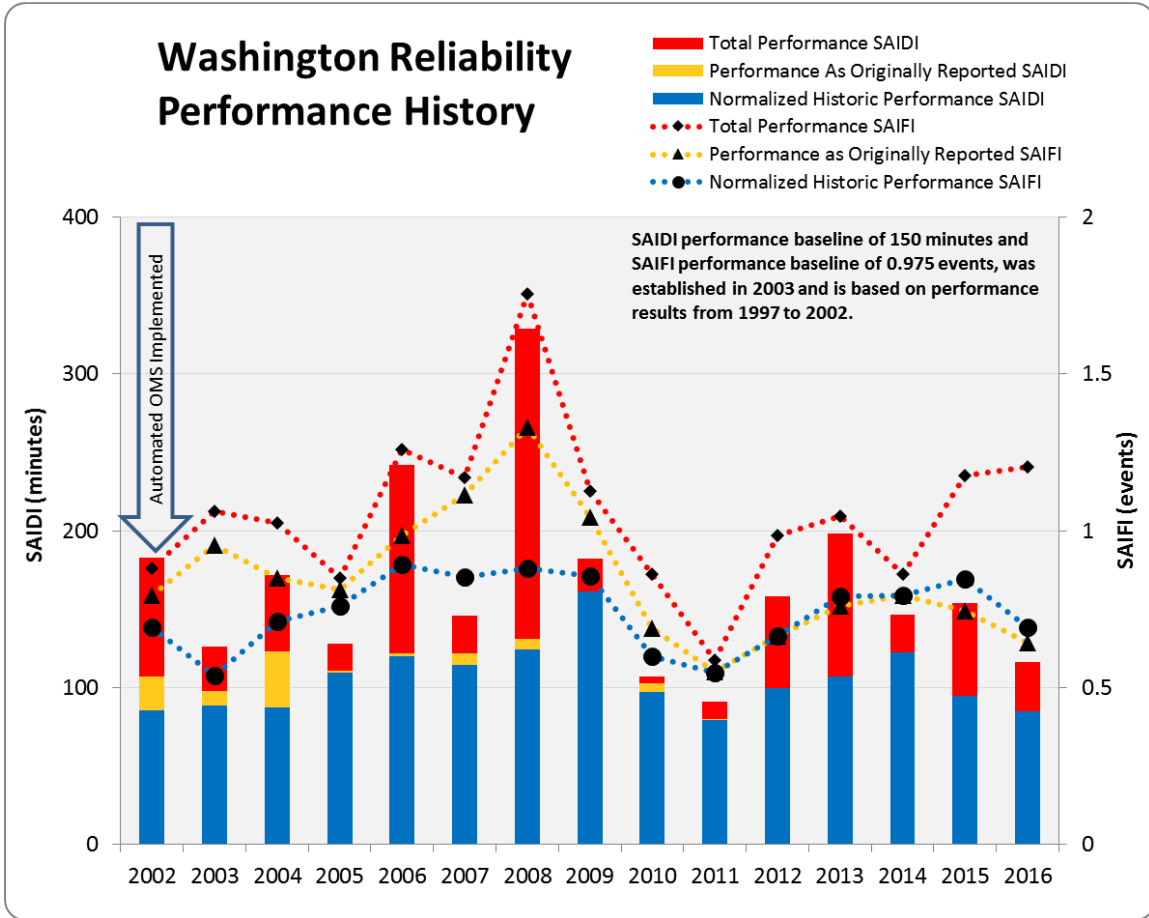
Year	Major Events Included ¹		SAIDI Based Major Events Excluded 2.5 beta		SAIFI Based Major Events Excluded 10% Op Area ²		SAIDI & SAIFI-Based Major Events Excluded As Reported (2.5 beta effective 2005)		Normalized Historic Performance ³		5 Year Rolling Average Performance	
	SAIDI	SAIFI	SAIDI	SAIFI	SAIDI	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

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

²If 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.

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

⁴Performance 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 2016, 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 event¹ 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, one SAIDI-based and seven SAIFI-based² major events were recorded. The events designate 30.8 minutes to be excluded from underlying reporting metrics. Copies of the Company’s filed major events are included in the Appendix of this report.

2016 Major Events			
Date	Cause	SAIDI	SAIFI
* February 15, 2016	Loss of substation: blown lightning arrestor	3.5	0.029
* May 21, 2016	Helicopter entangled in transmission line	2.1	0.031
* June 8, 2016	Loss of transmission - Lightning	3.2	0.031
* July 22, 2016	Loss of supply from BPA	1.4	0.114
* August 13, 2016	Loss of supply from BPA	2.5	0.129
August 15, 2016	Squirrel interference in substation transformer	13.1	0.048
* October 9, 2016	Pole fire	4.1	0.059
* November 18, 2016	Loss of Transmission – Relay	1.0	0.118
SAIDI Based Major Event Total		13.1	0.048
* SAIFI Based Major Event Total		17.8	0.511
TOTAL		30.9	0.559

* SAIFI Based Major event

During the period, there were nine significant event days³ (daily underlying SAIDI of 2.1 minutes or more). These nine days account for 28 SAIDI minutes and 0.171 SAIFI events, representing 30% of the underlying SAIDI and 23% of the underlying SAIFI.

SIGNIFICANT EVENT DAYS					
DATE	PRIMARY CAUSE	SAIDI	SAIFI	% Underlying SAIDI (85 min)	% Underlying SAIFI (0.643 events)
February 28, 2016	Wind storm	2.3	0.015	2%	2%
March 6, 2016	Equipment failures and pole fires	2.4	0.018	3%	2%
April 1, 2016	Blown substation transformer	2.0	0.028	2%	4%
May 14, 2016	Pole fires and tree related outages	2.8	0.011	3%	1%
June 10, 2016	Substation circuit breaker lockout.	3.1	0.011	3%	1%
October 8, 2016	Unknown outages caused breaker to trip	2.3	0.020	2%	3%
October 12, 2016	Substation breaker trip due to bad relay	3.4	0.025	4%	3%
October 15, 2016	Pole fires	7.7	0.035	8%	5%
December 17, 2016	Equipment Failure: failed jumper	2.3	0.008	2%	1%
TOTAL		28.3	0.171	30%	23%

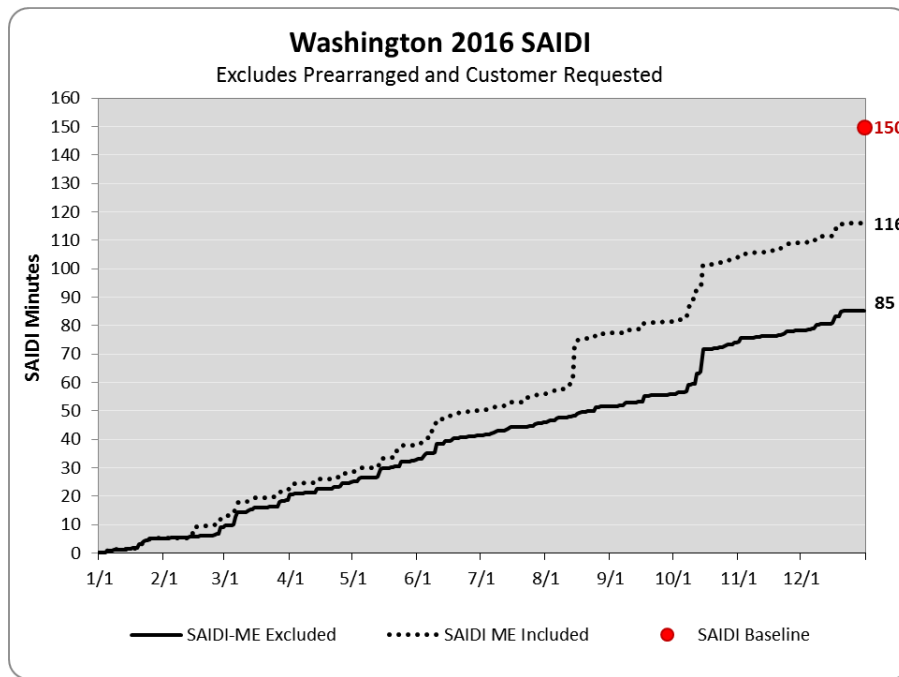
¹ During calendar 2016, the calculated threshold for a major event was 9.74 SAIDI Minutes; for 2017, it will be 10.77 SAIDI minutes.

² The SAIFI-based major event combines Sunnyside and Yakima operational areas.

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.

Through 2016, outage duration, or SAIDI was well below baseline.

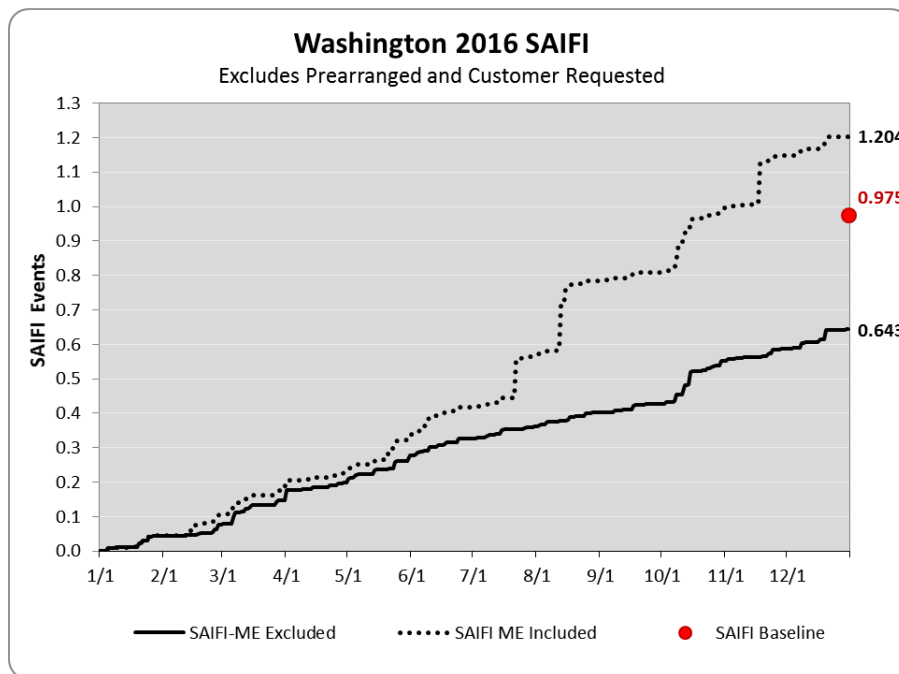
January 1 through December 31, 2016	
2016 SAIDI Goal = 82	SAIDI Actual
Total Performance	116
SAIDI-based Major Events Excluded	13
SAIFI-based Major Events Excluded	18
Reported Major Events Excluded	85



3.3 System Average Interruption Frequency Index (SAIFI)

Through 2016 outage frequency or SAIFI was better than baseline.

January 1 through December 31, 2016	
2016 SAIFI Goal = 0.772	SAIFI Actual
Total Performance	1.204
SAIDI-based Major Events Excluded	0.048
SAIFI-based Major Events Excluded	0.511
Reported Major Events Excluded	0.643



3.4 Operating Area Metrics

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

January 1 – December 31, 2016	Sunnyside			Walla Walla ¹			Yakima		
	SAIDI	SAIFI	CAIDI	SAIDI	SAIFI	CAIDI	SAIDI	SAIFI	CAIDI
Including Major Events	225	2.310	97	99	0.835	119	93	1.022	91
Excluding SAIDI-based Major Events	127	1.625	78	-	-	-	-	-	-
Excluding SAIFI-based Major Events	-	-	-	23	0.278	84	4	0.333	11
Reported Major Events Excluded	98	0.686	143	76	0.557	136	89	0.689	129

2016 Sunnyside Customer Count: 24,317
 2016 Walla Walla Customer Count: 28,310
 2016 Yakima Customer Count: 80,605

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

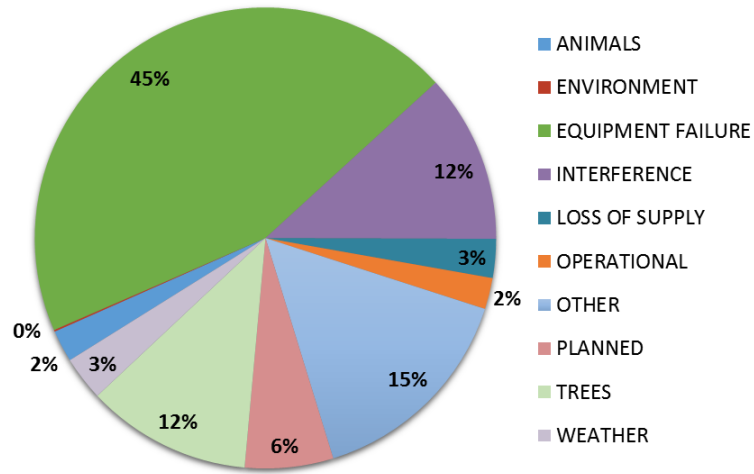
The table and charts below break out the number of outage incidents, customer minutes lost (CML), and sustained interruptions by cause code. CML is directly related to SAIDI (average outage duration); Sustained Interruptions is directly related to SAIFI (average outage frequency). Certain types of outages 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 01/01/2016 - 12/31/2016					
Direct Cause	Customer Minutes Lost for Incident	Customers in Incident Sustained	Sustained Incident Count	SAIDI	SAIFI
ANIMALS	81,072	842	90	0.61	0.006
BIRD MORTALITY (NON-PROTECTED SPECIES)	140,566	2,312	118	1.06	0.017
BIRD MORTALITY (PROTECTED SPECIES) (BMTS)	7,597	71	5	0.06	0.001
BIRD NEST (BMTS)	15,037	115	4	0.11	0.001
BIRD SUSPECTED, NO MORTALITY	10,286	109	11	0.08	0.001
ANIMALS	254,558	3,449	228	1.91	0.026
CONTAMINATION	222	1	1	0.00	0.000
FIRE/SMOKE (NOT DUE TO FAULTS)	478	2	2	0.00	0.000
FLOODING	12,850	14	2	0.10	0.000
ENVIRONMENT	13,551	17	5	0.10	0.000
B/O EQUIPMENT	1,751,427	13,108	235	13.15	0.098
DETERIORATION OR ROTTING	1,589,035	9,203	418	11.93	0.069
OVERLOAD	3,417	34	4	0.03	0.000
POLE FIRE	1,746,562	8,111	79	13.11	0.061
RELAYS, BREAKERS, SWITCHES	309	1	1	0.00	0.000
STRUCTURES, INSULATORS, CONDUCTOR	788	1	5	0.01	0.000
EQUIPMENT FAILURE	5,091,537	30,458	742	38.21	0.229
DIG-IN (NON-PACIFICORP PERSONNEL)	4,058	22	8	0.03	0.000
OTHER INTERFERING OBJECT	71,994	1,287	9	0.54	0.010
OTHER UTILITY/CONTRACTOR	139,222	1,739	11	1.04	0.013
VANDALISM OR THEFT	10,349	45	9	0.08	0.000
VEHICLE ACCIDENT	1,120,287	11,199	62	8.41	0.084
INTERFERENCE	1,345,909	14,292	99	10.10	0.107
LOSS OF TRANSMISSION LINE	310,506	2,329	4	2.33	0.017
LOSS OF SUPPLY	310,506	2,329	4	2.33	0.017
INTERNAL CONTRACTOR	249,129	2,892	4	1.87	0.022
PACIFICORP EMPLOYEE - FIELD	321	3	1	0.00	0.000
TESTING/STARTUP ERROR	23	3	1	0.00	0.000
OPERATIONAL	249,473	2,898	6	1.87	0.022
OTHER, KNOWN CAUSE	20,478	190	28	0.15	0.001
UNKNOWN	1,717,367	13,408	139	12.89	0.101
OTHER	1,737,845	13,598	167	13.04	0.102
CONSTRUCTION	2,241	42	9	0.02	0.000
CUSTOMER NOTICE GIVEN	532,489	2,833	215	4.00	0.021
CUSTOMER REQUESTED	4,113	36	15	0.03	0.000
EMERGENCY DAMAGE REPAIR	681,023	7,809	108	5.11	0.059
INTENTIONAL TO CLEAR TROUBLE	21,002	332	9	0.16	0.002
PLANNED NOTICE EXEMPT	4,785	20	3	0.04	0.000
PLANNED	1,245,653	11,072	359	9.35	0.083
TREE - NON-PREVENTABLE	1,293,378	8,224	111	9.71	0.062
TREE - TRIMMABLE	21,572	73	13	0.16	0.001
TREES	1,314,950	8,297	124	9.87	0.062

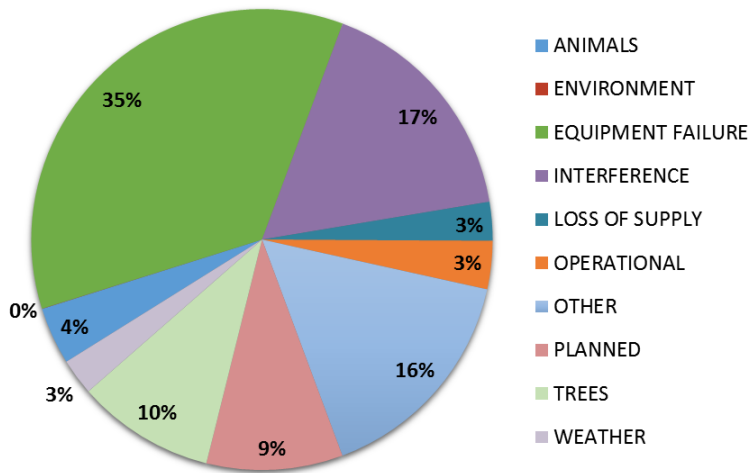
January – December 2016

Washington Cause Analysis - Underlying 01/01/2016 - 12/31/2016					
Direct Cause	Customer Minutes Lost for Incident	Customers in Incident Sustained	Sustained Incident Count	SAIDI	SAIFI
ICE	1,222	3	1	0.01	0.000
LIGHTNING	760	3	2	0.01	0.000
SNOW, SLEET AND BLIZZARD	92	1	1	0.00	0.000
WIND	351,473	2,179	16	2.64	0.016
WEATHER	353,547	2,186	20	2.65	0.016
Washington Including Prearranged	11,917,528	88,596	1,754	89	0.665
Washington Excluding Prearranged	11,376,141	85,707	1,521	85	0.643

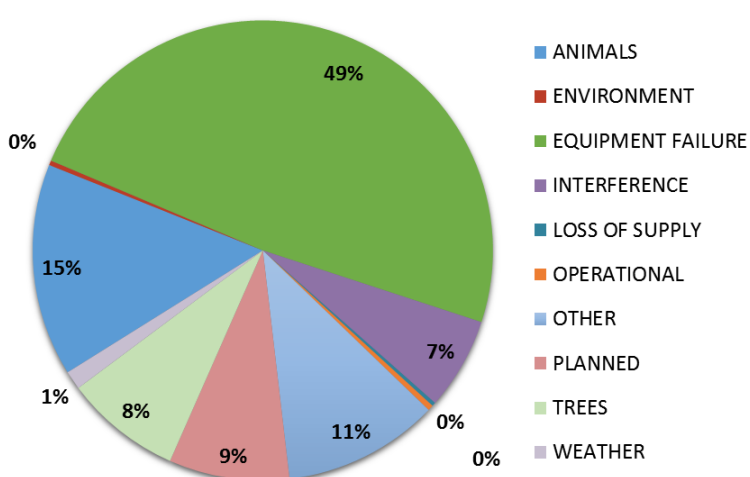
Washington 2016 Cause Analysis - SAIDI



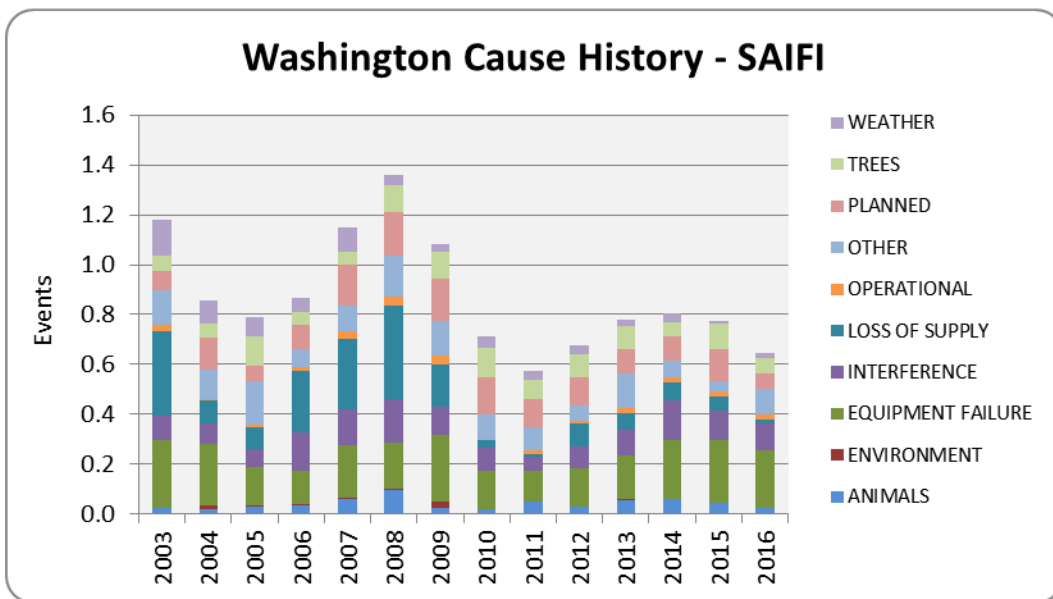
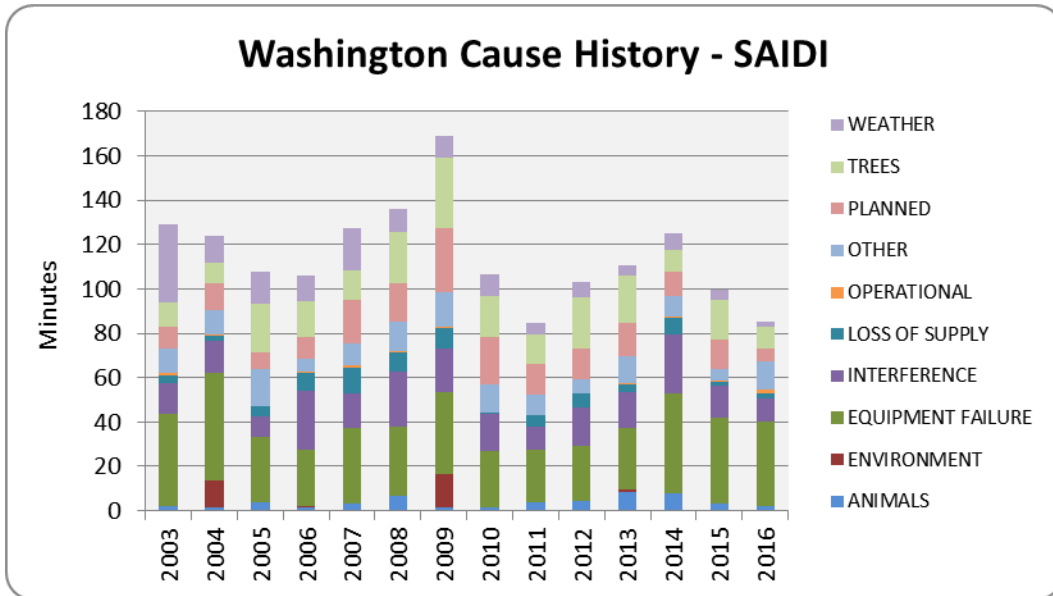
Washington 2016 Cause Analysis - SAIFI



Washington 2016 Cause Analysis - Incidents



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.
	<ul style="list-style-type: none"> • 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).
	<ul style="list-style-type: none"> • 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).
	<ul style="list-style-type: none"> • 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.
	<ul style="list-style-type: none"> • 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.
	<ul style="list-style-type: none"> • 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.
	<ul style="list-style-type: none"> • 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.
	<ul style="list-style-type: none"> • 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.
	<ul style="list-style-type: none"> • 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
	<ul style="list-style-type: none"> • Tree-Non-preventable • Tree-Trimable • Tree-Tree felled by Logger
Weather	Wind (excluding windborne material); snow, sleet or blizzard, ice, freezing fog, frost, lightning.
	<ul style="list-style-type: none"> • 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 customer exposure to 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. Finally, the Company has established a Reliability Forum, which is a venue for identifying reliability-centered “best practices” which it can then advance throughout the organization. The Forum investigates specific outage events, evaluates good practices as well as better approaches, establishes specific action items and deliverables and treats the Forum product as a tool for sharing improved methods across the organization.

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 18 circuits in Section 3.7.

Substation	Circuit Name	Circuit	2017 Project	Baseline CPI99
Wiley	Dazet	5Y434	Relays replaced at Wiley substation (in 2016), recloser installed and circuit exposure reduced by load transfer	30
Mill Creek	Green Park	5W116	Relay replacement at Mill Creek substation, install line recloser and coordinate circuit protection	53
Wapato	Harrah	5Y202	Coordinate circuit protection	113
River Road	Orion	5Y577 (previously 5Y444)	Zone 1 hardening (potted porcelain cutouts and deteriorated crossarms) and tap line fusing	89
Mill Creek	Reser Road	5W16	Relay replacement at Mill Creek substation	50

3.7 Reduce CPI¹ 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 12/31/2016
PROGRAM YEAR 17		
GURLEY 5Y358 (circuit split into 5Y850 and 5Y854)	119	176
BOYER 5W118	48	51
FERNDAL 5W106	88	115
NILE 4Y1	301 ²	186
4 TH St. 5Y468	91	112
TARGET SCORE = 104	129	128
PROGRAM YEAR 16		
DRAPER 5Y156	162	271
PINE STREET (BOWMAN) 5W150	26	42
RUSSEL CREEK 5W121	23	30
TAUMARSON FEEDER 5W50	29	30
VAN BELLE 5Y312	149	98
TARGET SCORE = 62	78	94
PROGRAM YEAR 15		
MEMORIAL 5W2	60	23
OCCIDENTAL 5Y382	35	34
TAMPICO 5Y380	100	70
10 TH STREET 5Y437	77	26
GRAVEL 5Y99	63	58
GOAL MET! TARGET SCORE =54	67	42
PROGRAM YEAR 14		
CITY 5W324	46	49
BONNEVIEW 5Y302	111	62
CHESTNUT 5Y458	119	27
SOUTH (WENAS) 5Y600	65	97
COUGAR 5Y658	113	37
GOAL MET! TARGET SCORE =73	91	54

¹ The company has historically used CPI05 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.

² 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) who baseline performance is 1215. RPI performance during 2016 (using the three-year weighted RPI score) was 1222. Previous performance scores as measured RPI were 1782 (through 2013), and 1582 (through 2014).

WASHINGTON WORST PERFORMING CIRCUITS	BASELINE	Performance 12/31/2016
PROGRAM YEAR 13		
DONALD 5Y330	57	61
FORNEY 5Y94	172	39
PRESCOTT 5W305	57	52
STEIN 5Y164	148	90
TERRACE HTS 5Y10	99	51
GOAL MET! TARGET SCORE =85	107	59

3.8 Restore Service to 80% of Customers within 3 Hours

The Company targets restoring power to 80% of its customers within 3 hours, during 2016 this target was met.

WASHINGTON RESTORATIONS WITHIN 3 HOURS					
January – December 2016 = 87%					
January	February	March	April	May	June
87%	96%	93%	89%	91%	55%
July	August	September	October	November	December
90%	82%	61%	91%	91%	83%

3.9 Telephone Service and Response to Commission Complaints

COMMITMENT	GOAL	PERFORMANCE
PS5-Answer calls within 30 seconds	80%	81%
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%

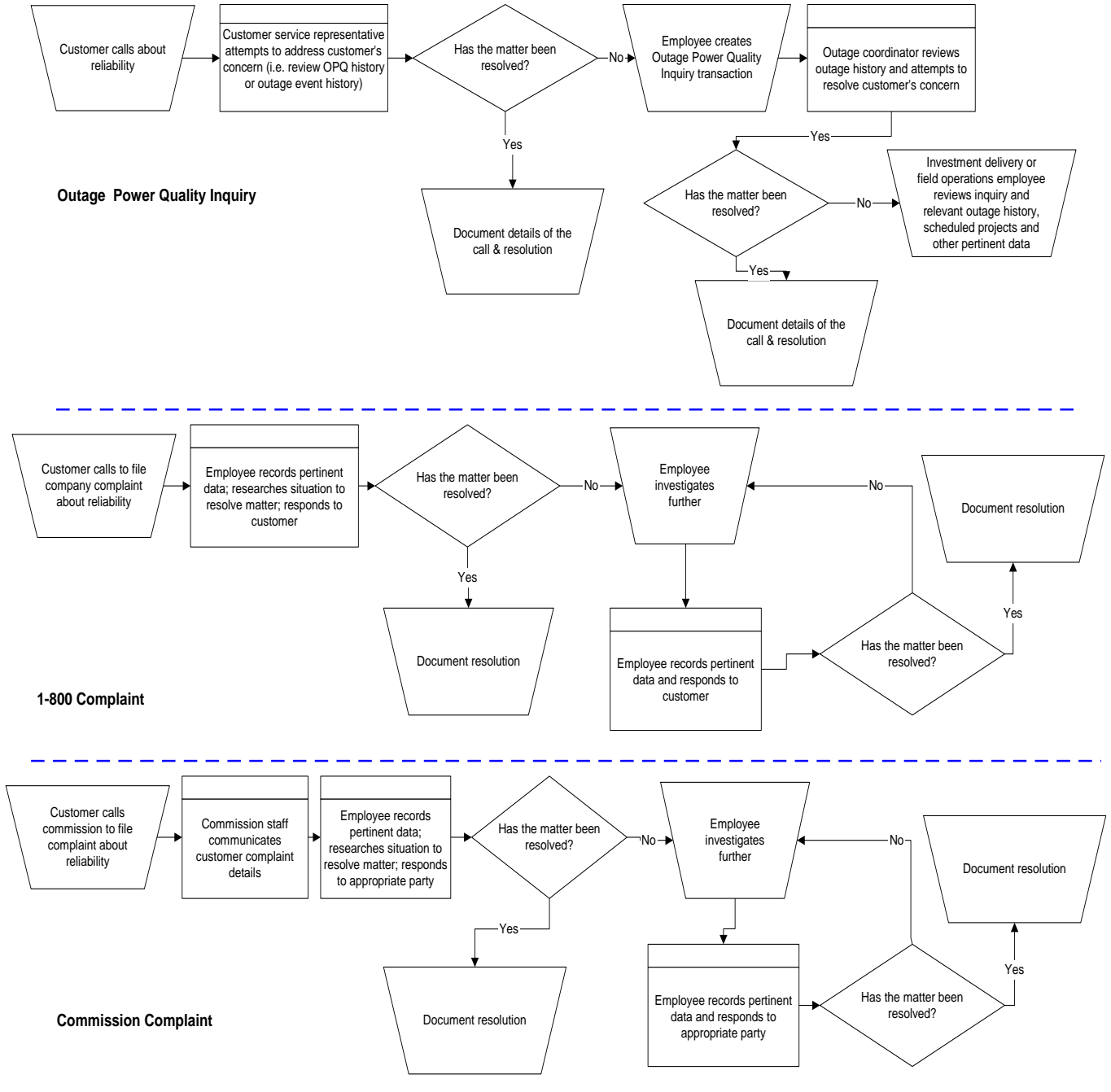
¹ Although the Performance Standard indicates that complaints will be responded to within 3 days, the Company acknowledges and adheres to the requirements set forth in 480-100-173(3)(a).

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 was one Informal Complaint received by the company in the reporting period. The letter included ten addresses in one neighborhood, which was also copied to the WUTC; response to the complaint is addressed below.

Received	Complaint Type	Site ID	Site Address	Summary
6/24/2016	Neighbors concerned about frequency of outages	See below	N 61 st Ave & Douglas Drive	Upset about the number of power outages they have experienced.

- **Commission Complaints**

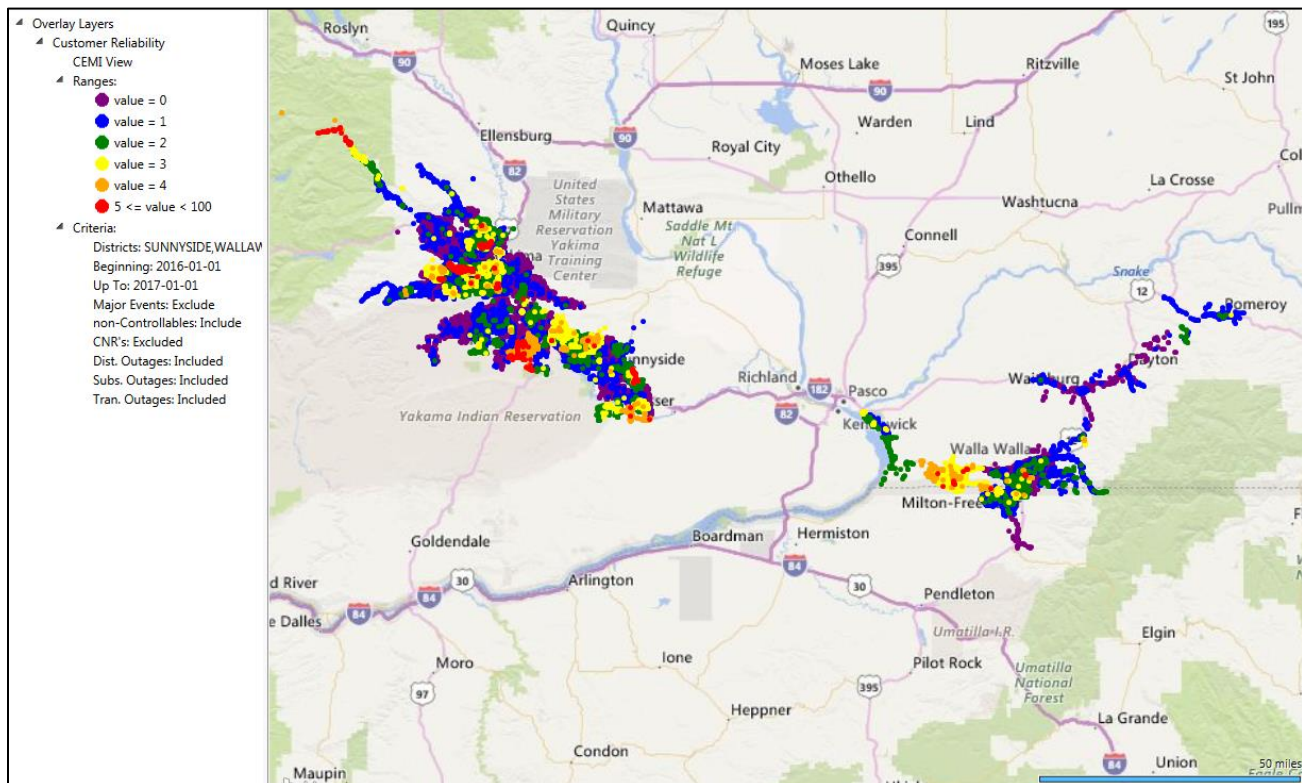
There were two Commission Complaints in the reporting period, with one of the complaints incorporating concerns from ten neighbors on one petition.

Received	Complaint Type	Site ID	Site Address	Summary
6/27/2016	Frequency of outages	734900365 704930365 735299965 741693565 740494765 623212165 623012365 741293965 741094165 737297965	6001 Douglas Drive 6008 Douglas Drive 6005 Douglas Drive 6006 Douglas Drive 6009 Douglas Drive 510 N 61 st Ave 6101 Douglas Ave 512 N 61 st Ave 6007 Douglas Drive 6010 Douglas Drive	Upset with the number of power outages they have experienced. Resolution: The company replaced damaged underground cable in early December 2016 which is expected to resolve local concerns about outage frequency.
11/29/2016	Frequency of outages	868967497	903 Goodlander Drive	Customer is concerned about multiple outages since he’s moved to the location. Resolution: The company replaced damaged underground cable in March 2017 which is expected to resolve local concerns about outage frequency.

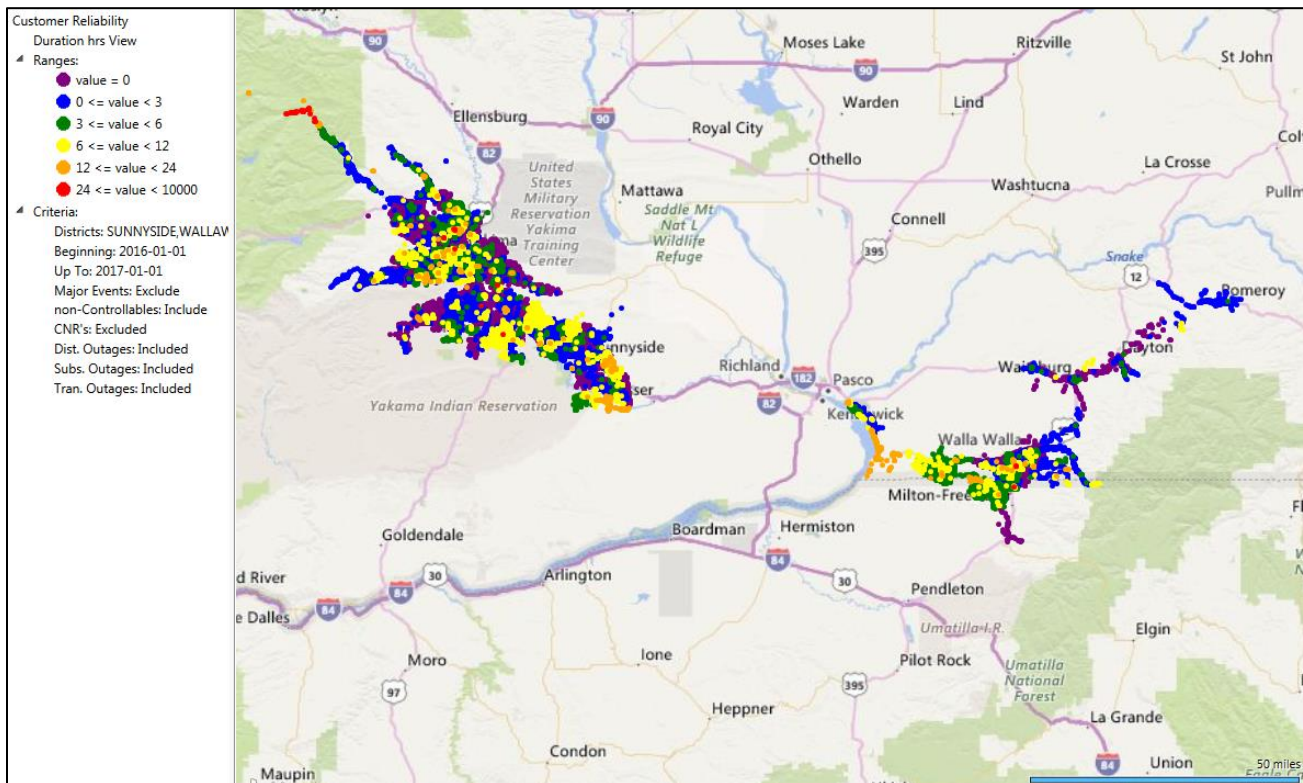
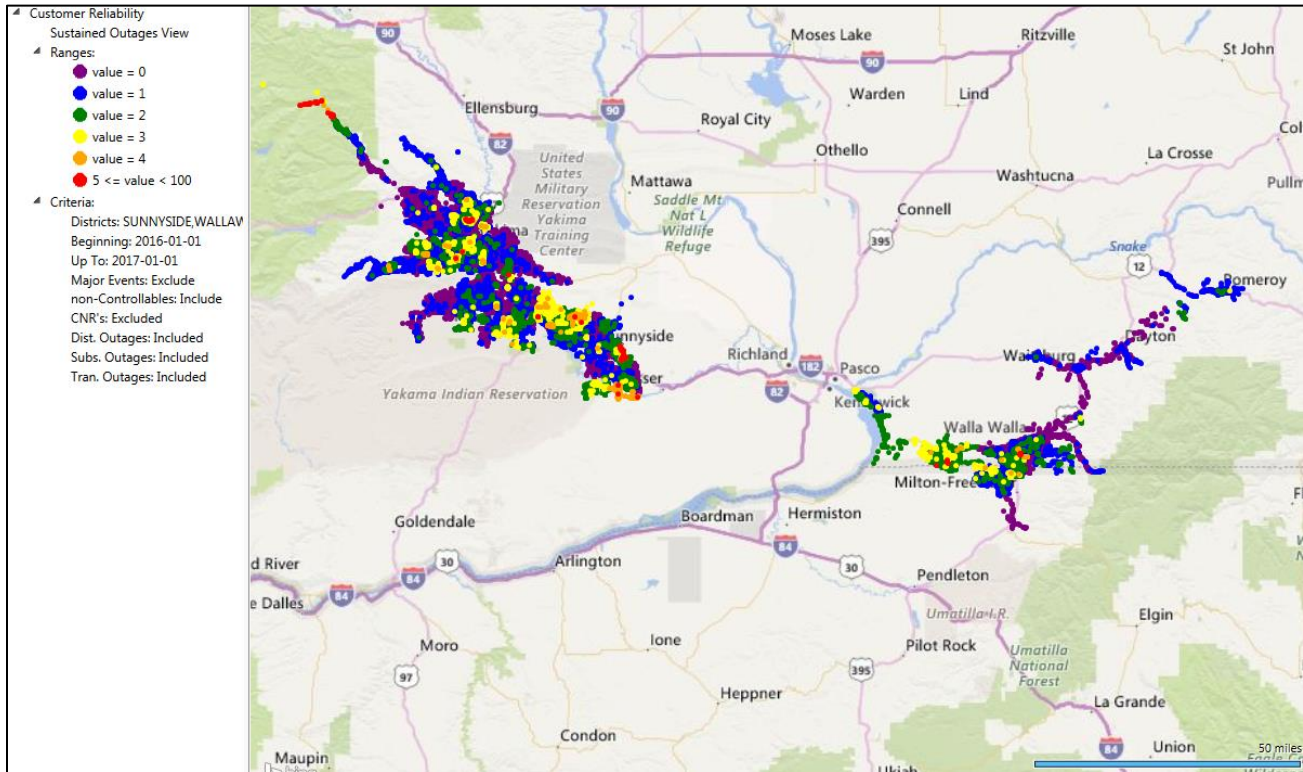
5 WASHINGTON RELIABILITY RESULTS DURING 2016

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.)

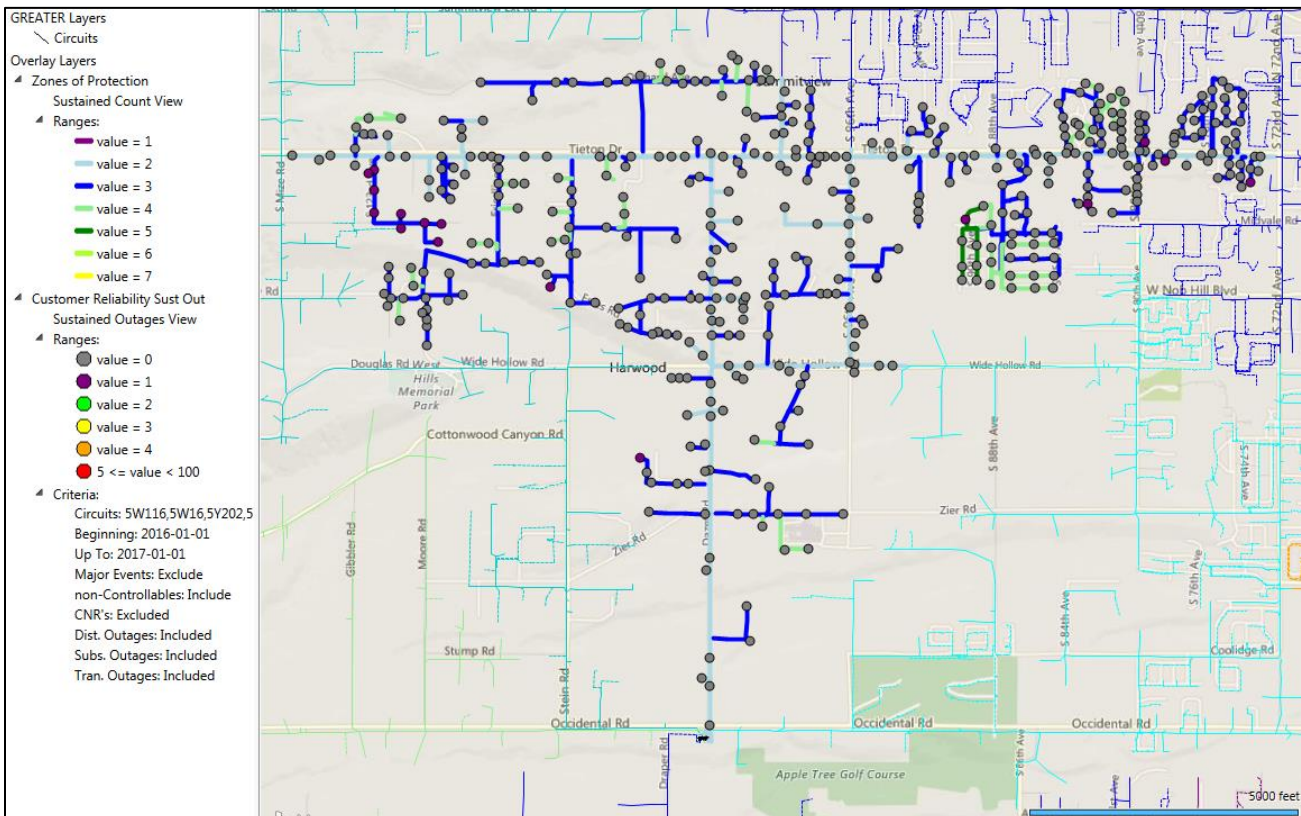
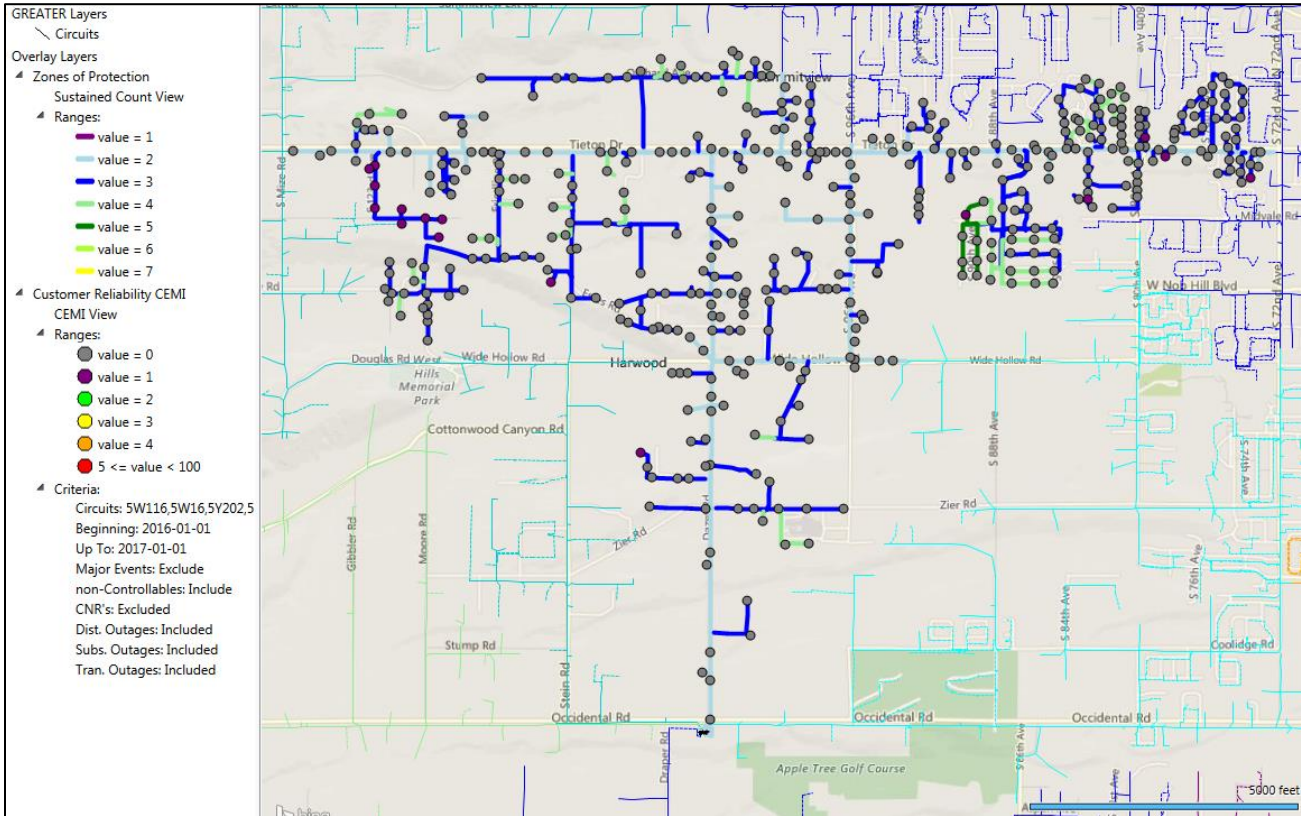
5.1 State Reliability

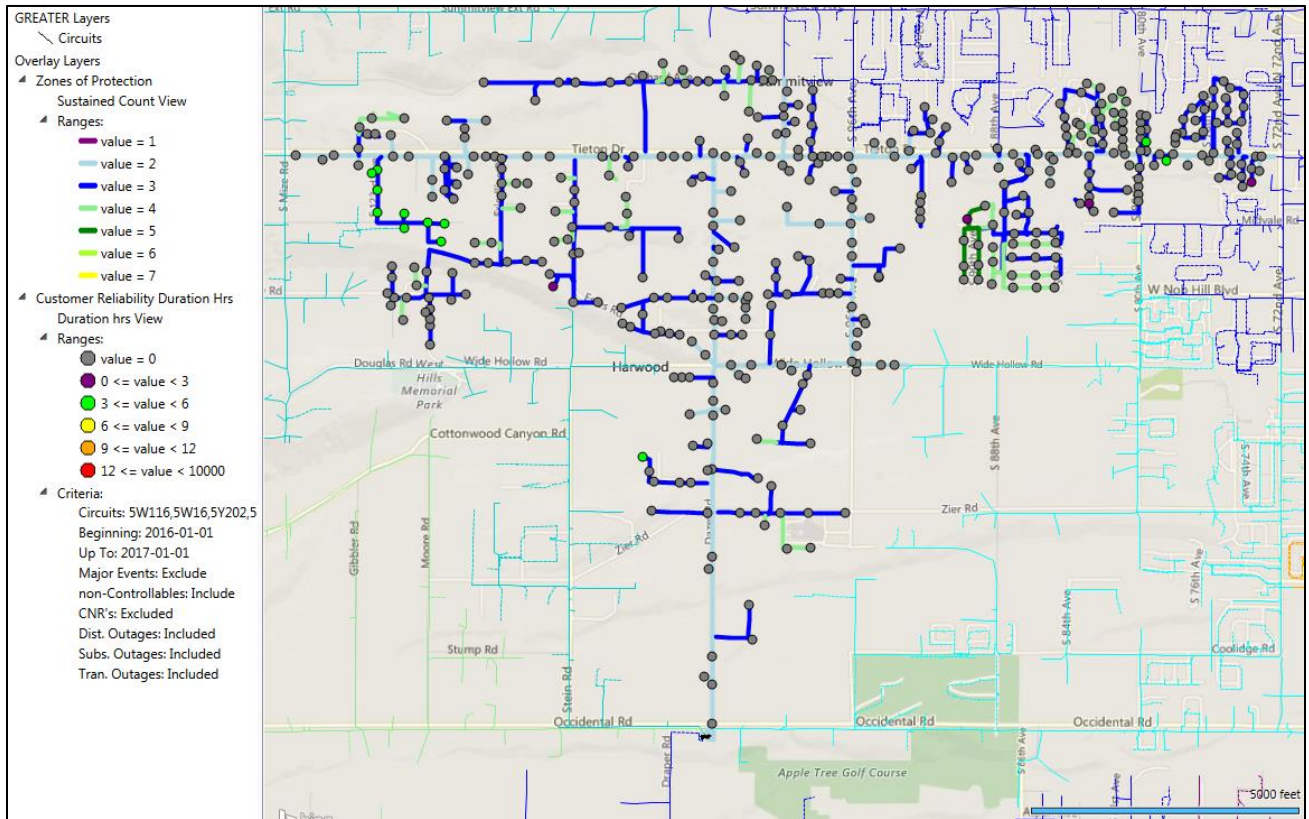


January – December 2016

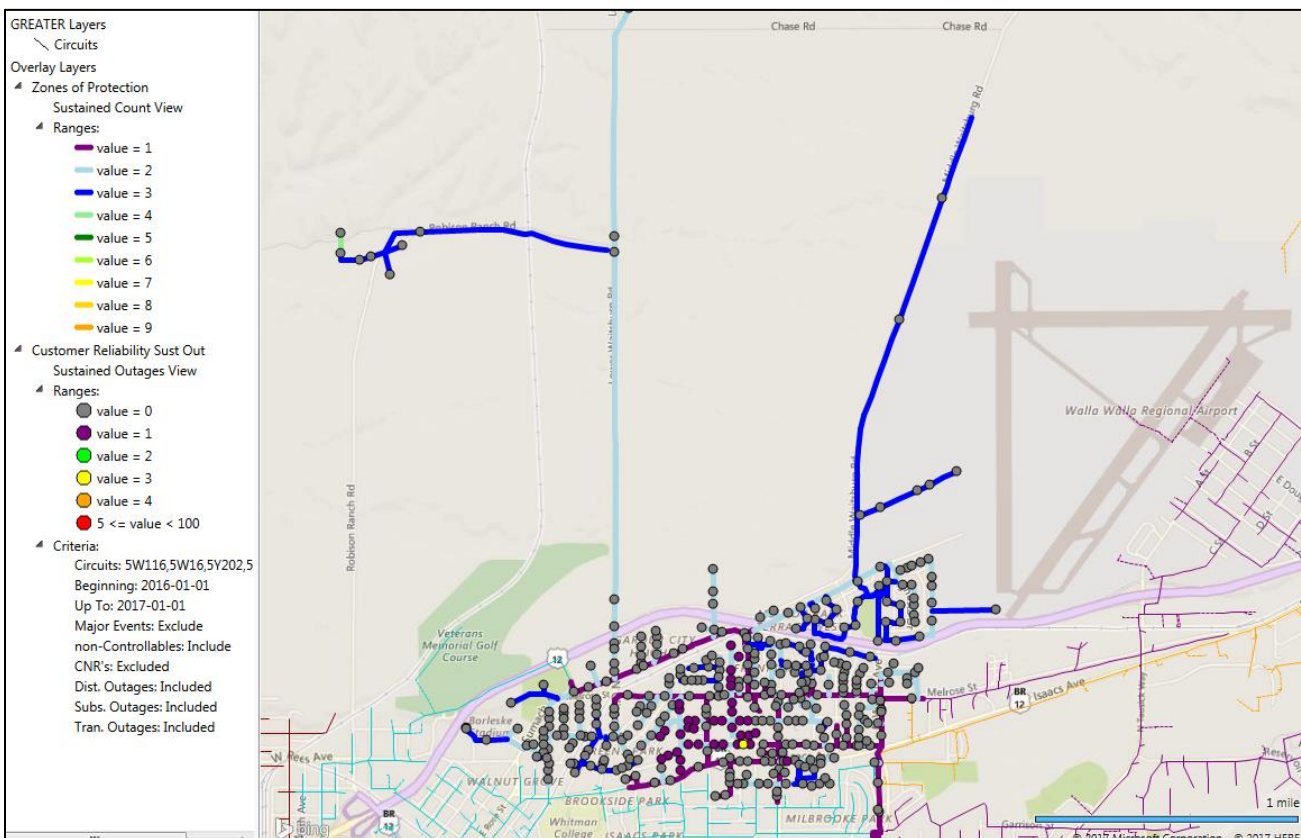
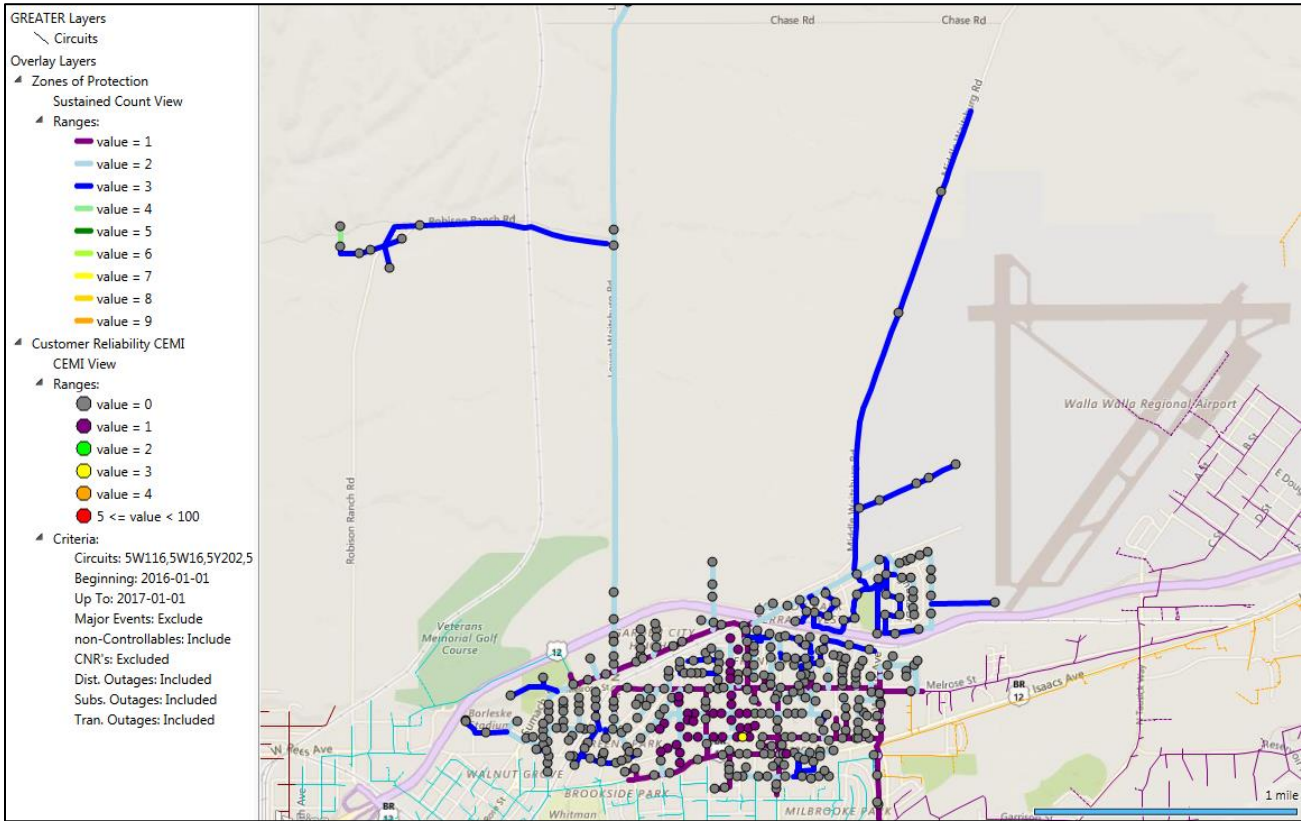


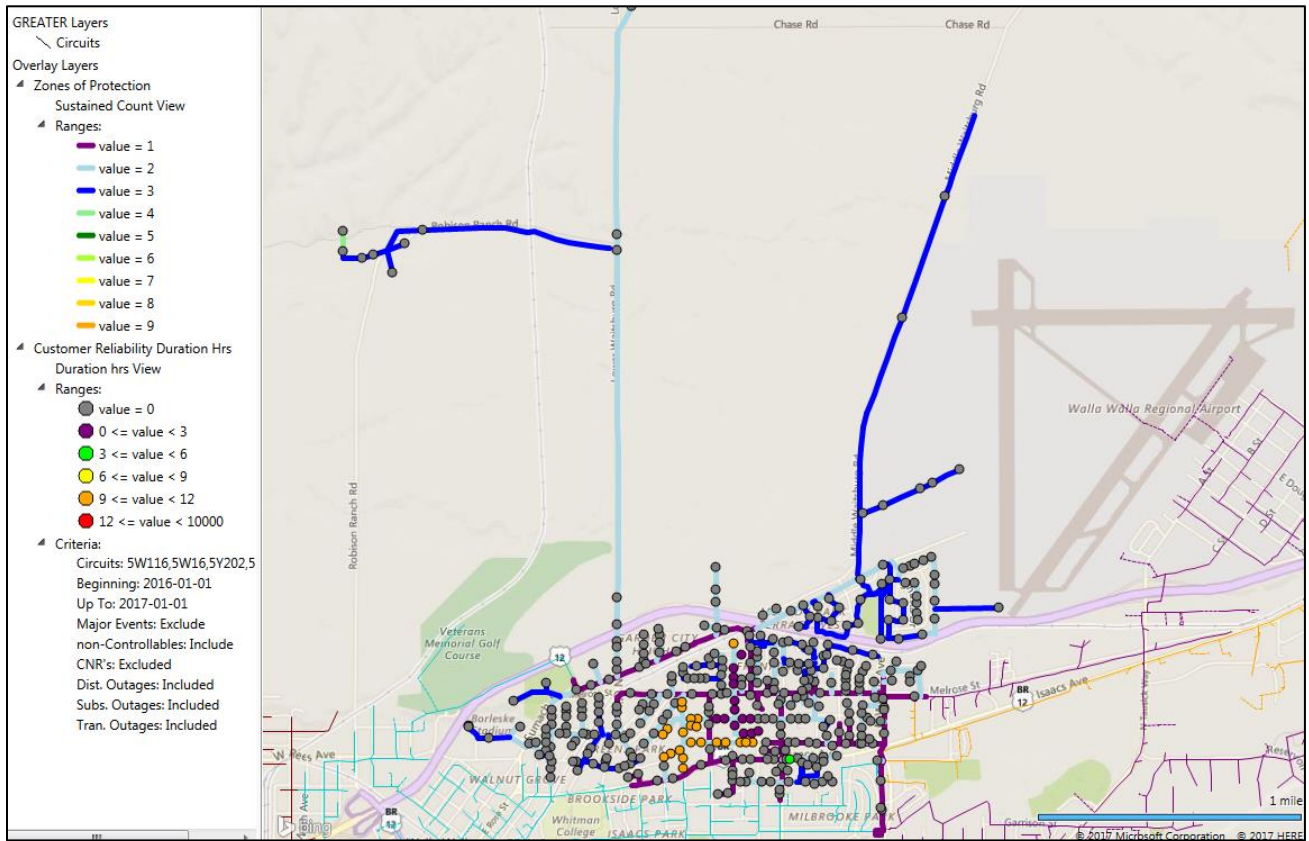
5.2 5Y434: Dazet



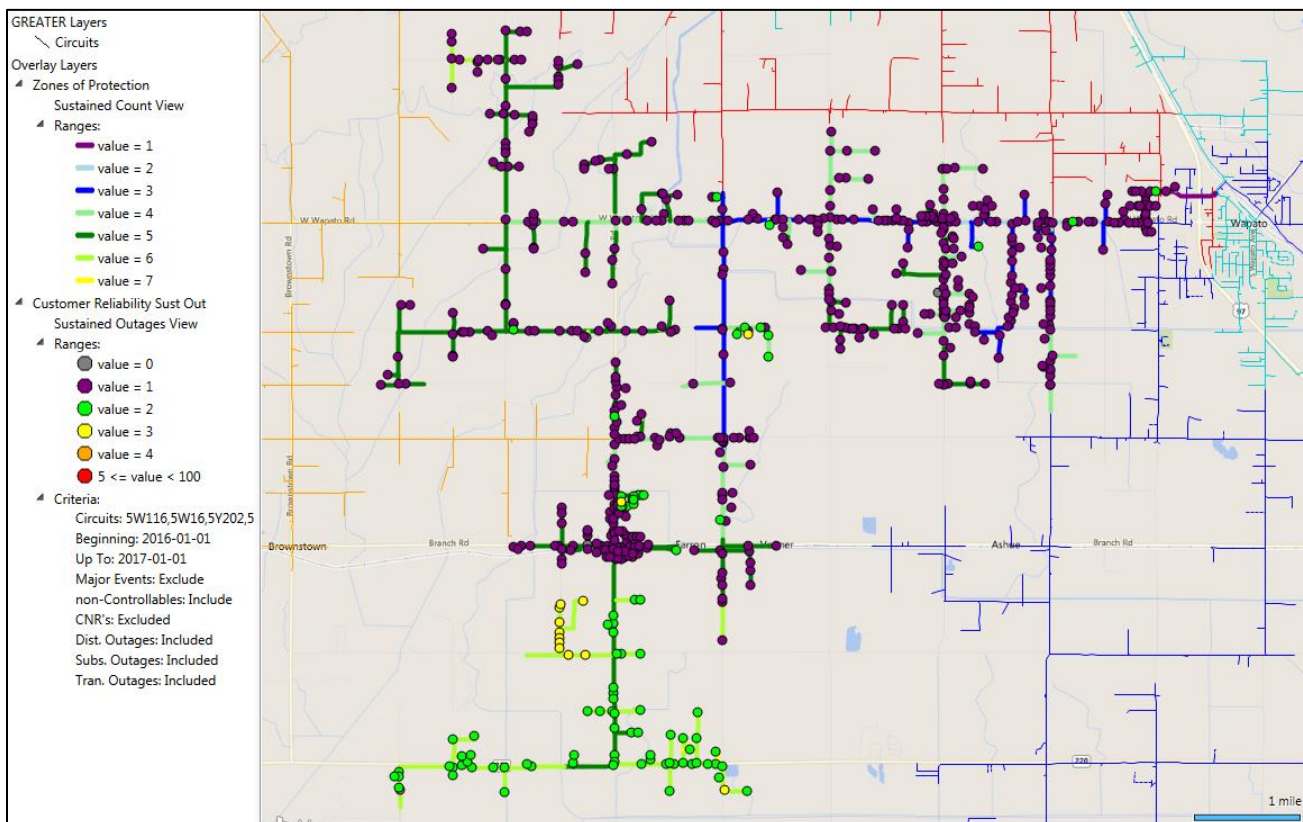
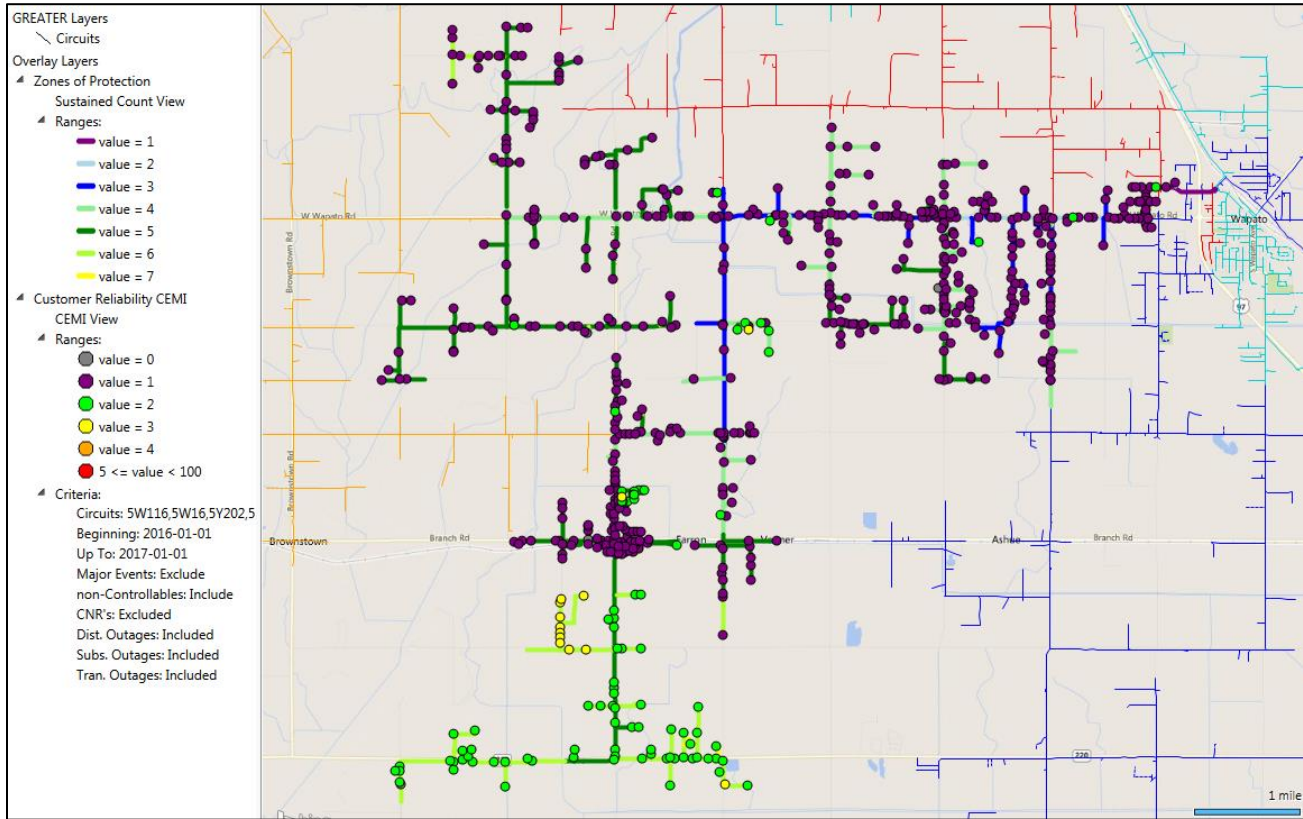


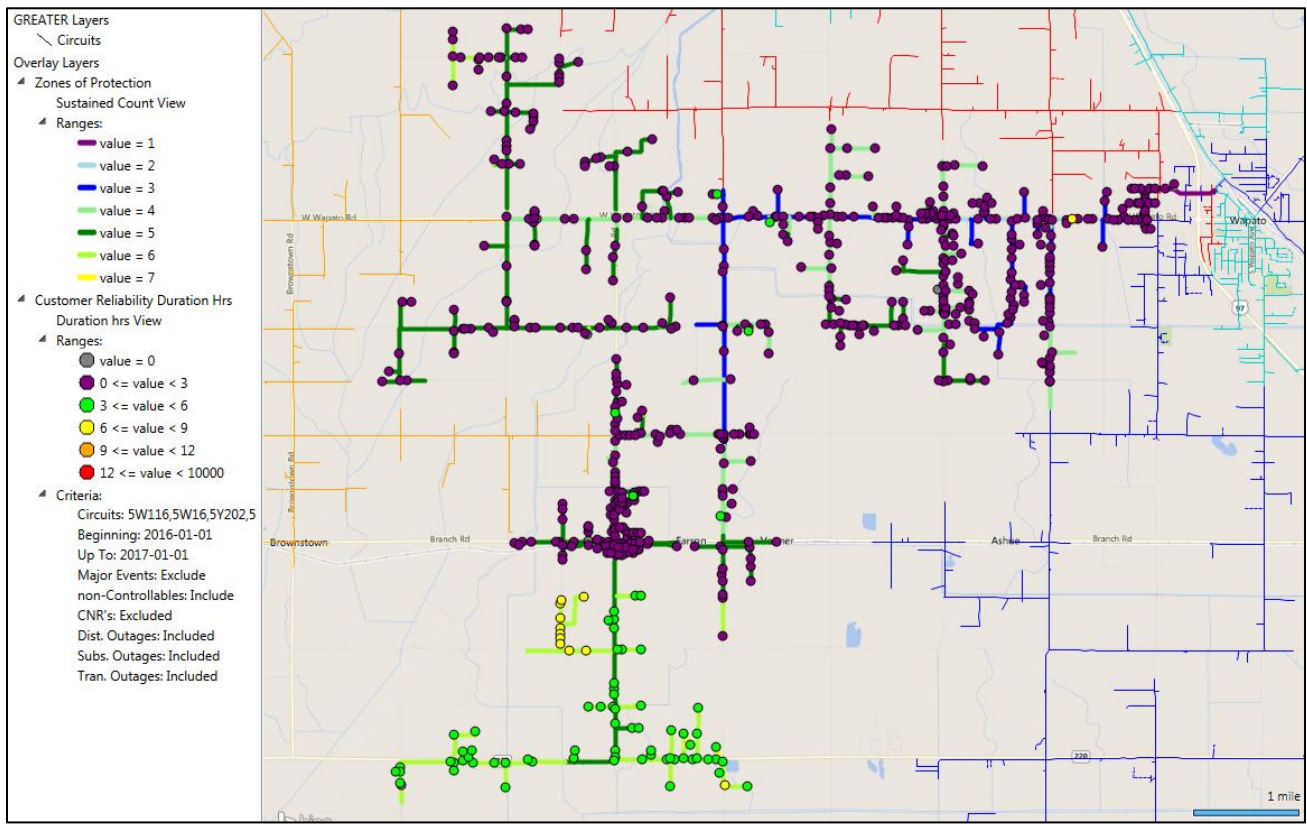
5.3 5W116: Green Park



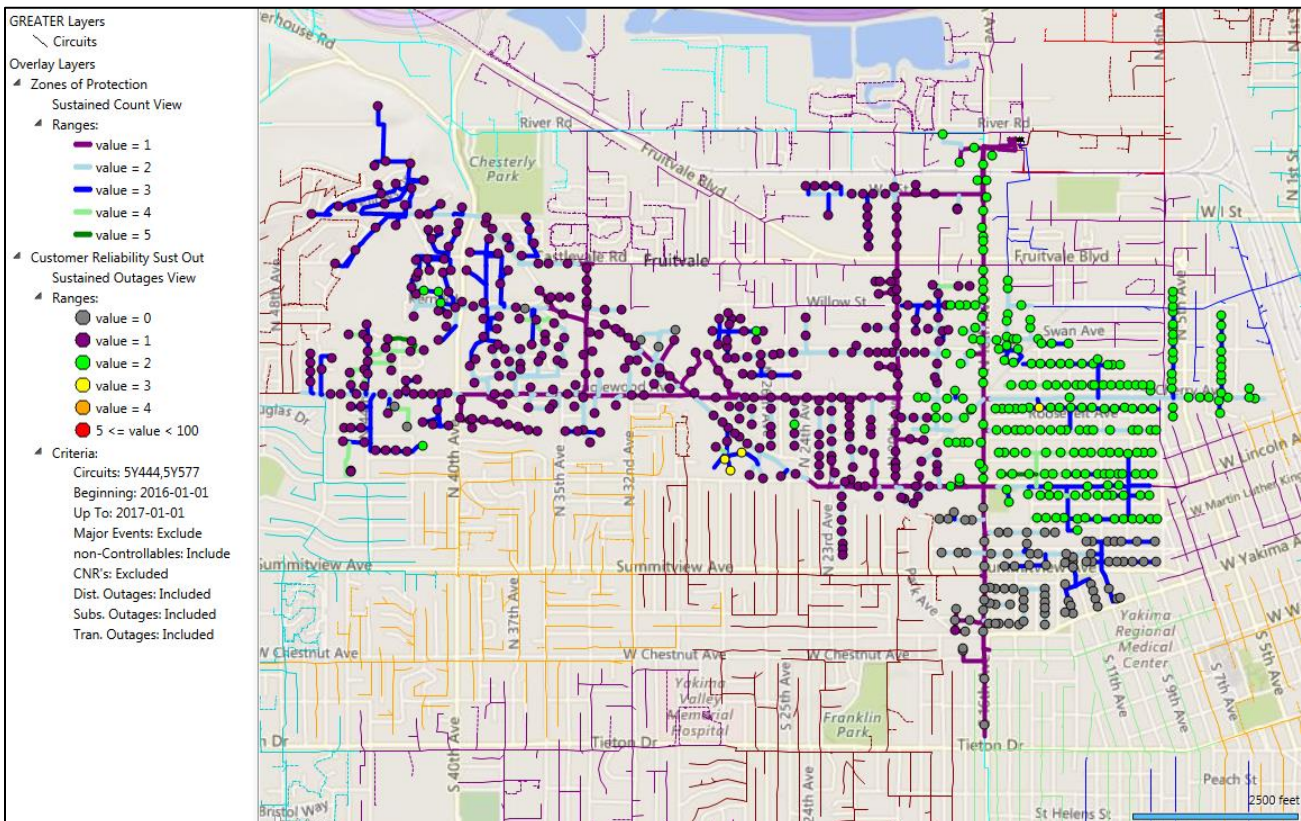
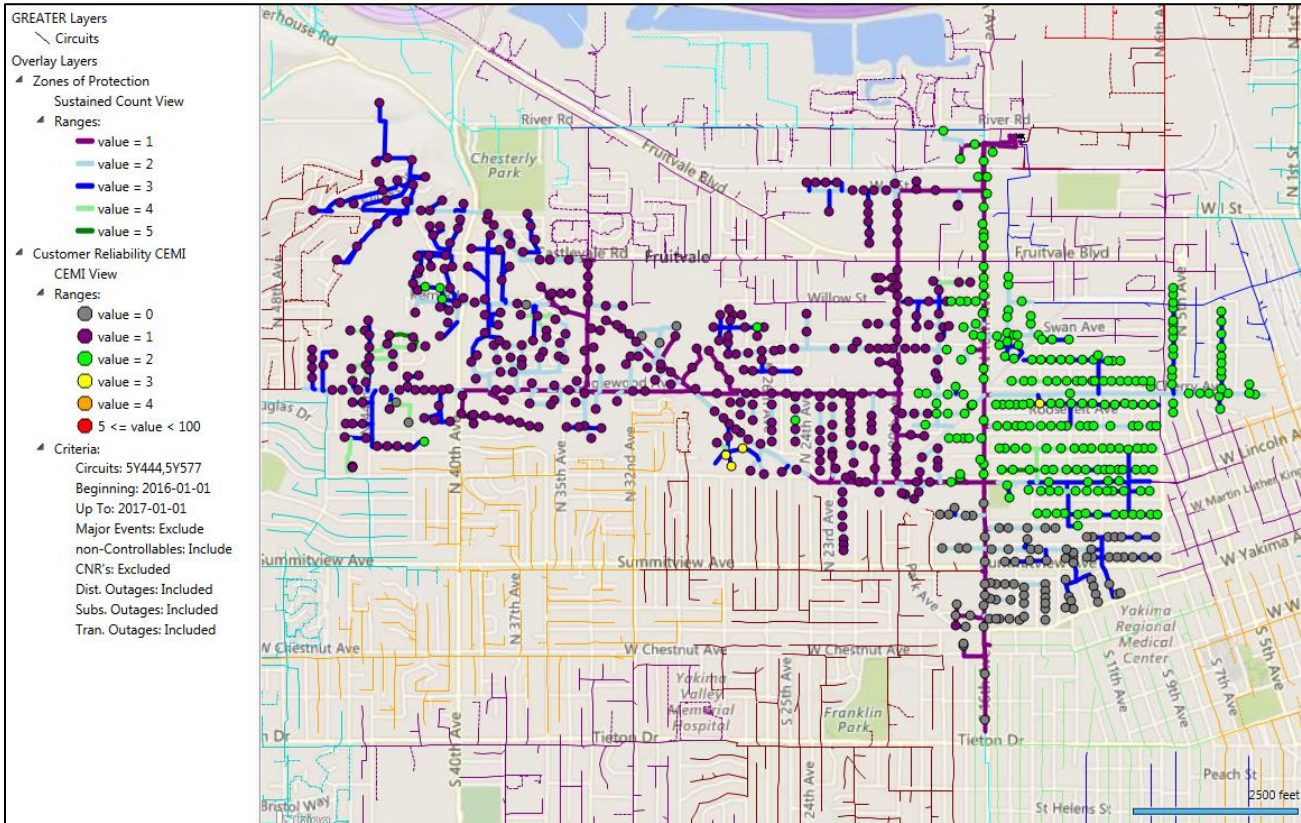


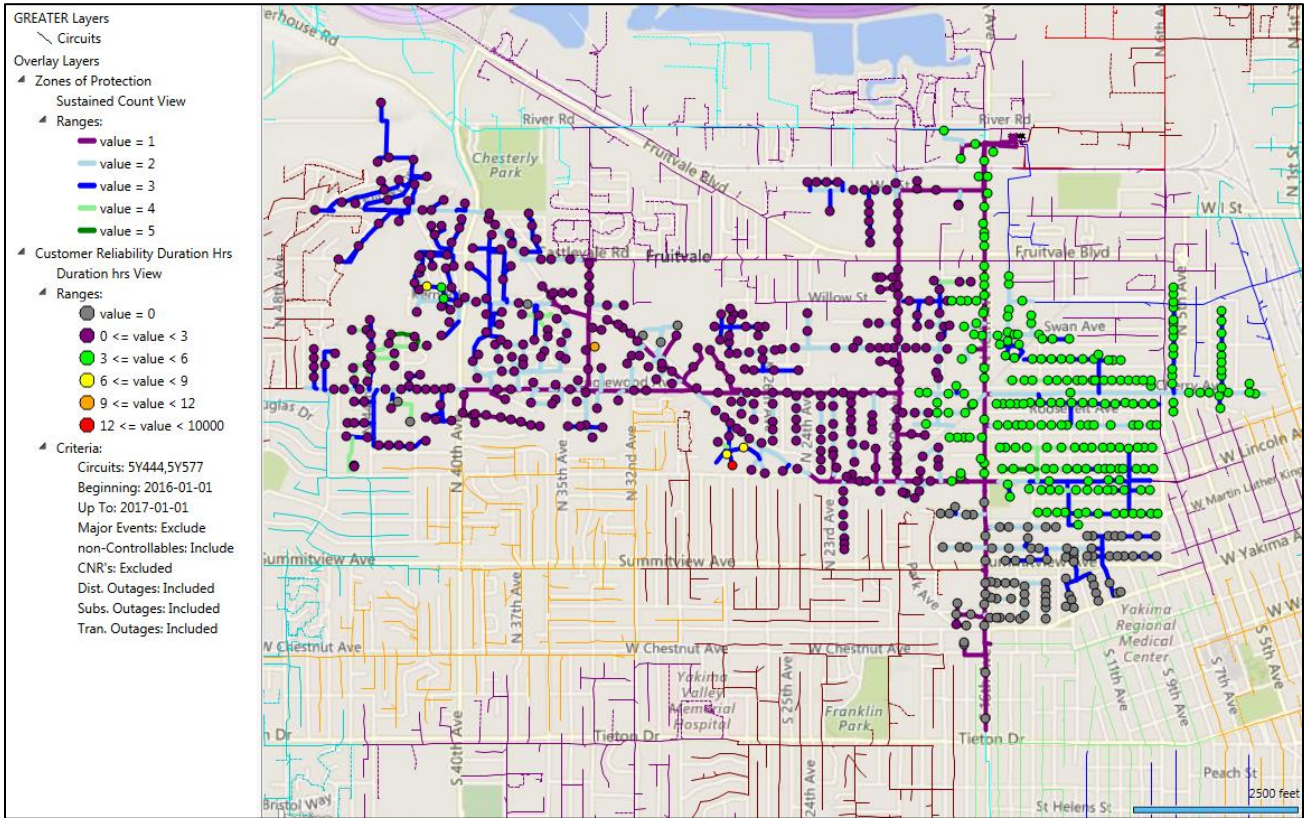
5.4 5Y202: Harrah



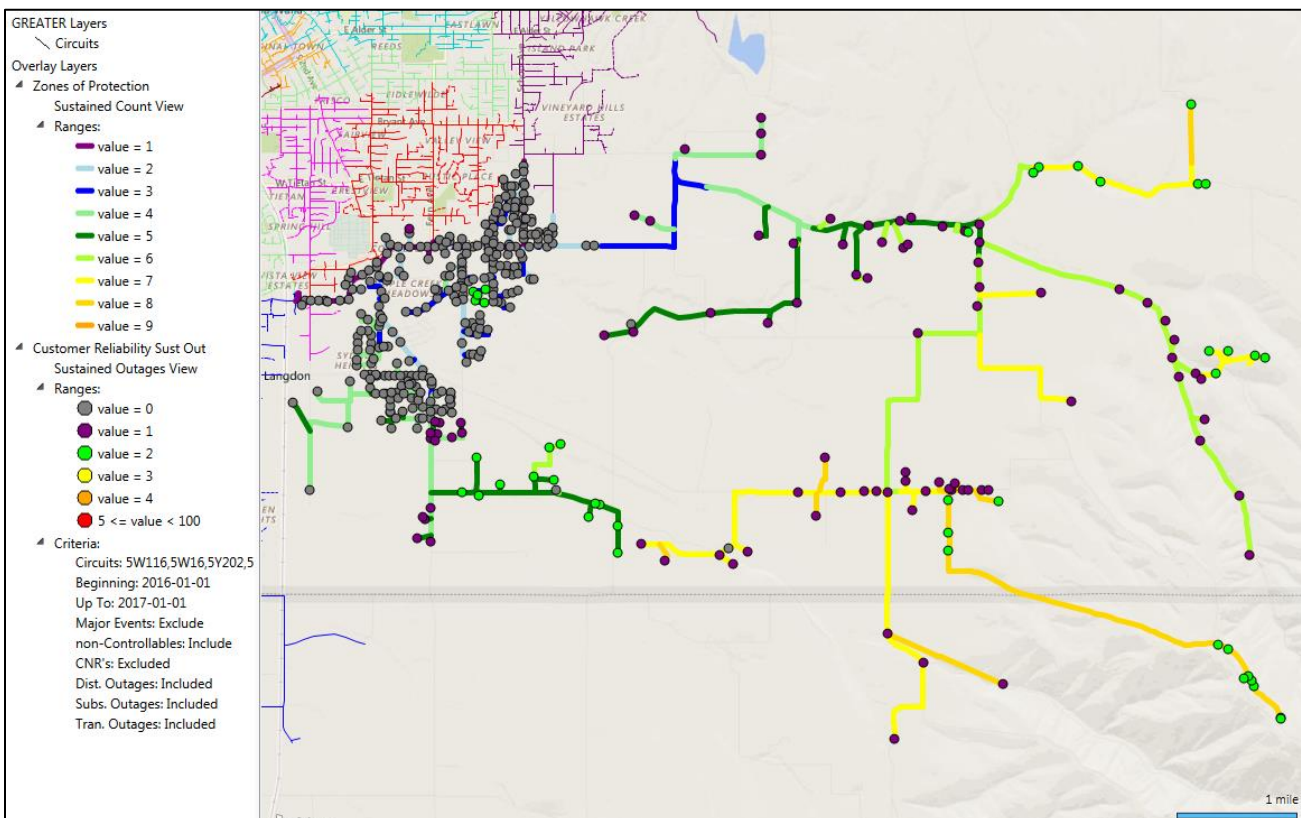
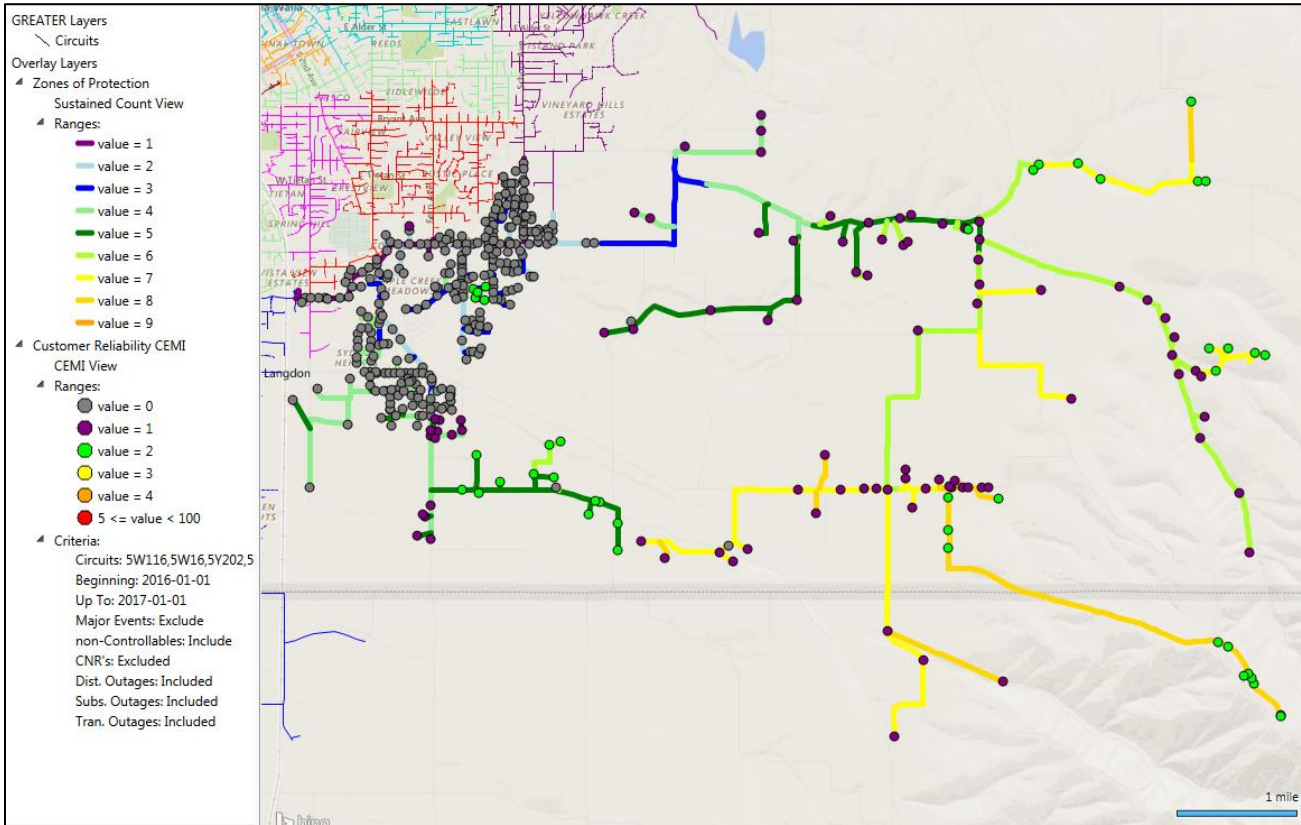


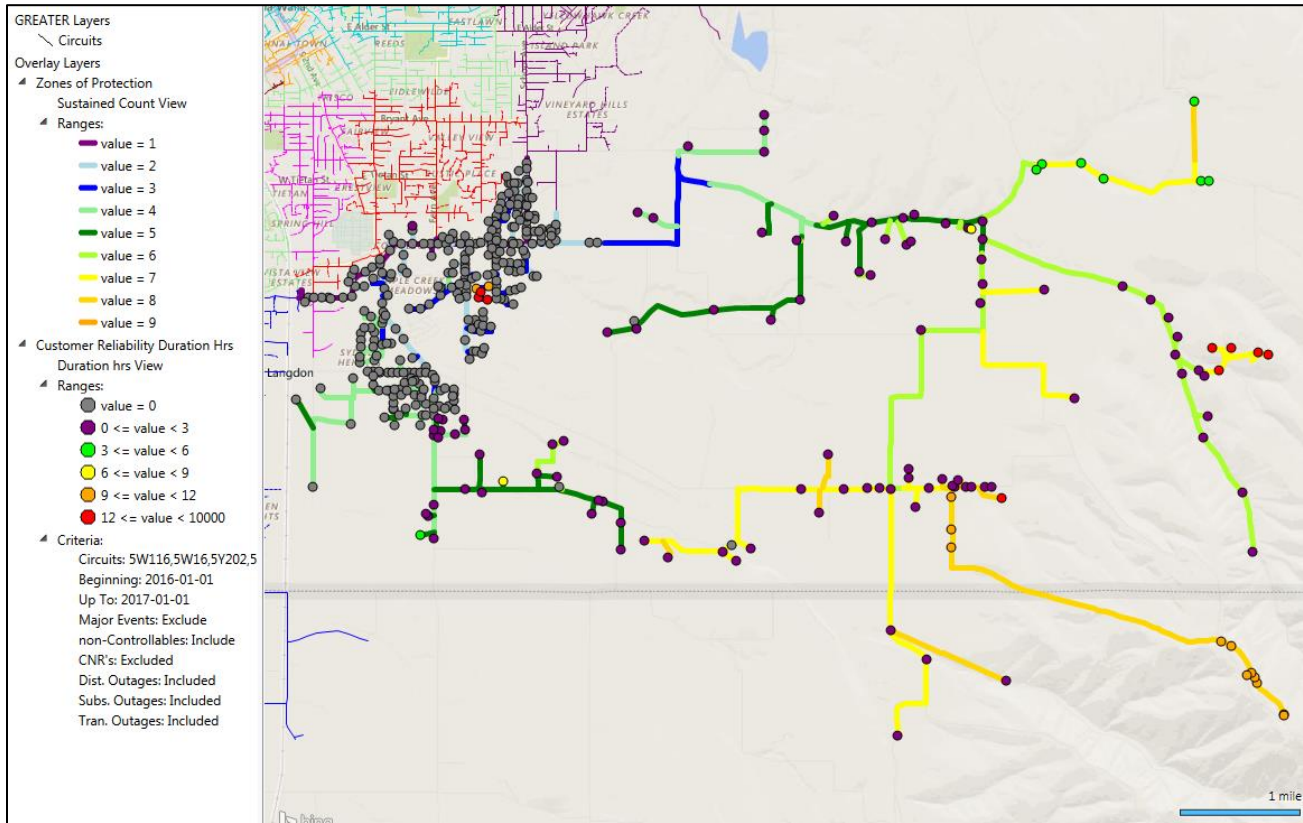
5.5 5Y577 (5Y444): Orion





5.6 5W16: Reser Road





APPENDIX A: Reliability Definitions

This section will define the various terms¹ 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

MAIFI_E (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:

$$\text{CPI} = \text{Index} * ((\text{SAIDI} * \text{WF} * \text{NF}) + (\text{SAIFI} * \text{WF} * \text{NF}) + (\text{MAIFI} * \text{WF} * \text{NF}) + (\text{Lockouts} * \text{WF} * \text{NF}))$$

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, $10.645 * ((3\text{-year SAIDI} * 0.30 * 0.029) + (3\text{-year SAIFI} * 0.30 * 2.439) + (3\text{-year MAIFI} * 0.20 * 0.70) + (3\text{-year breaker lockouts} * 0.20 * 2.00)) = \text{CPI Score}$

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: 2016 Major Event Filings

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

Event Date:	February 15, 2016
Date Submitted:	August 3, 2016
Primary Affected Locations:	Sunnyside
Primary Cause:	Loss of Substation
Exclude from Reporting Status:	Yes
Report Prepared by:	April Brewer
Report Approved by:	Heide Caswell / Kevin Putnam / David O’Neil / Steve Henderson

Event Description

On February 2, 2016, Sunnyside, Washington, experienced a system average interruption frequency index-driven (SAIFI)-based major event when a lightning arrestor failed. The outage affected 3,800¹ customers with all customer restorations completed within 2 hours 13 minutes. Sustained interruptions were experienced by approximately 16% of the Sunnyside operating area’s customers.

Event Outage Summary	
# Interruptions (sustained)	3
Total Customer Interrupted (sustained)	3,800
Total Customer Minutes Lost	460,282
Event SAIDI	3.45 Minutes
CAIDI	121
Major Event Start	2/15/16 12:00 AM
Major Event End	2/15/16 11:59 PM

Restoration Summary

On the evening of February 15, 2016, the Toppenish substation experienced a loss of supply event when a blown “A” phase arrestor caused the station transformer to trip open. The outage de-energized feeds to three circuits affecting 3,800 customers. Dispatch quickly notified the substation operation manager, who along with a serviceman responded to the

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 2016 Frozen Customer Count is 24,317 customers.

incident. Upon inspection the manager discovered the failed arrestor, and notified dispatch. Dispatch began preparing a switching plan to restore feeds to customers. When the substation technician arrived he performed the restoration switching. Stage restorations were performed to avoid cold load pick-up issues. Once all customers were restored the failed transformer was isolated and replacement to the lightning arrestors was performed. Upon completion of the repairs system configuration was returned to normal.

The first restoration occurred just short of two hours, with the final circuit restored in 2 hours 13 minutes. Restoration activities utilized 5 operations personnel.

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.
3,800	3,800	0	0

Restoration Resources

Resources	
Journeyman	5

Materials	
12kV arrestors	3

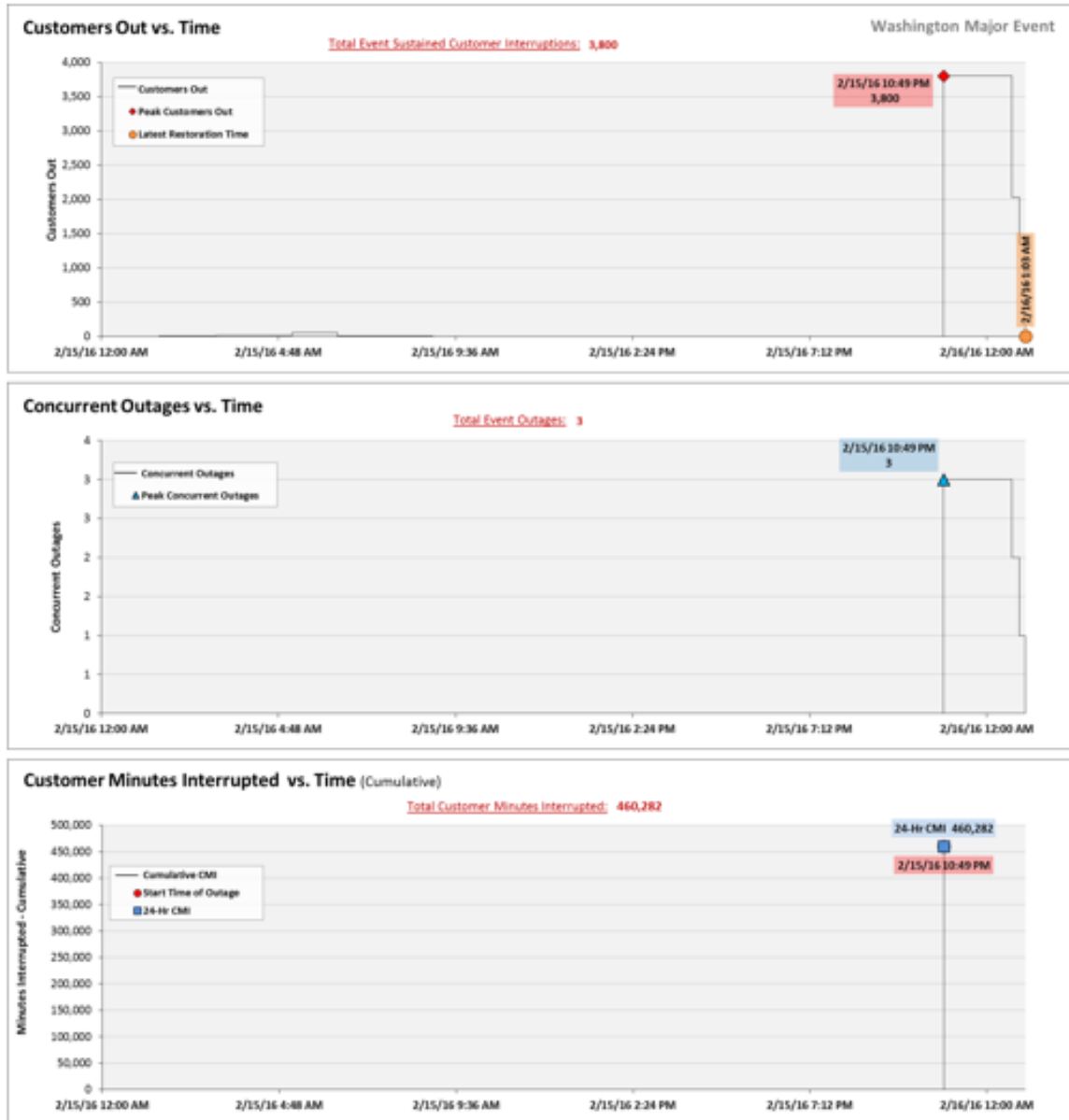
State Estimated Major Event Costs

Estimate \$	Labor	Materials	Total
Capital	\$0	\$0	\$0
Expense	\$4,645	\$2,212	\$6,857
Total	\$4,645	\$2,212	\$6,857

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 (3,800 customers interrupted out of 24,317 Sunnyside operating area customers, or 16% 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 21, 2016
Date Submitted:	August 3, 2016
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 / David O'Neil / Kevin Putnam

Event Description

On May 21, 2016, Walla Walla, Washington, experienced a system average interruption frequency index-driven (SAIFI)-based major event when a helicopter collided into a transmission line. The outage affected 4,175¹ customers with all customer restorations completed within 7 hours 43 minutes. Sustained interruptions were experienced by approximately 15% of the Walla Walla operating area's customers.

Event Outage Summary	
# Interruptions (sustained)	6
Total Customer Interrupted (sustained)	4,175
Total Customer Minutes Lost	277,942
Event State SAIDI	2.09 Minutes
CAIDI	67
Major Event Start	5/21/16 12:00 AM
Major Event End	5/21/16 11:59 PM

Restoration Summary

At 8:36 am on May 21, 2016, a helicopter spraying fields became entangled in the 69kV line which feeds the Mill Creek substation in Walla Walla de-energizing feeds to Waitsburg, Dayton, and Pomeroy substations. The incident also damaged a section of distribution underbuild along this span.

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 2016 Frozen Customer Count is 28,310 customers.

Crews were quickly dispatched to the area, based on fault location relay information, whereupon they begin patrolling the line. Meanwhile dispatch was able to restore power to the Pomeroy and Dayton substation through SCADA, energizing three circuits and power to 3,102 customers within 37 minutes. Once crews located the damage, and work repairs were assessed, field personnel were then able to manually close the circuit breaker restoring power to the Waitsburg substation and energize service to 1,057 customers; their power was restored within 2 hours 28 minutes. Service was restored to the final 16 customers, in 7 hours 42 minutes, when damage to the distribution underbuild was repaired.

Restoration activities utilized five operations personnel.

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.
4,175	4,159	16	0

Restoration Resources

Resources	
Journeyman	5
+	
Materials	
Conductor	400 ft.

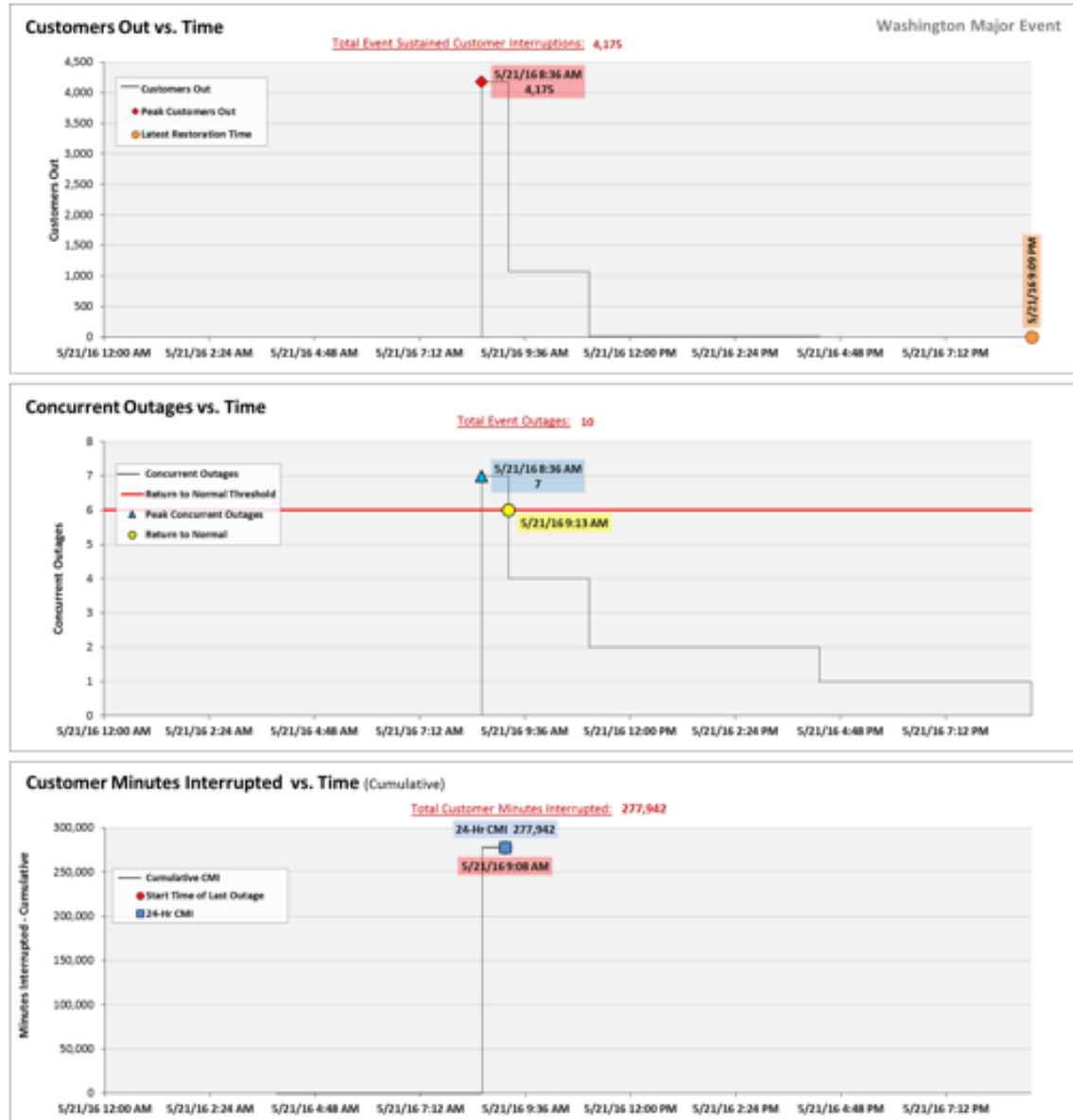
State Estimated Major Event Costs

Estimate \$	Labor	Materials	Total
Capital Expense	\$5,785	\$619	\$6,404
	\$0	\$0	\$0
Total	\$5,785	\$619	\$6,404

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 (4,175 customers interrupted out of 28,310 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:	June 8, 2016
Date Submitted:	August 3, 2016
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 / David O'Neil / Steve Henderson / Kevin Putnam

Event Description

On June 8, 2016, Walla Walla, Washington, experienced a system average interruption frequency index-driven (SAIFI)-based major event when a lightning storm caused a loss of supply event. The outage affected 4,169¹ customers with all customer restorations completed within 3 hours 32 minutes. Sustained interruptions were experienced by approximately 15% of the Walla Walla operating area's customers.

Event Outage Summary	
# Interruptions (sustained)	7
Total Customer Interrupted (sustained)	4,169
Total Customer Minutes Lost	423,287
Event SAIDI	3.18 Minutes
CAIDI	102
Major Event Start	6/8/16 12:00 AM
Major Event End	6/8/16 11:59 PM

Restoration Summary

At 2:43 pm on June 8, 2016, a fault occurred operating the breaker at the Mill Creek substation in Walla Walla de-energizing feeds to Waitsburg, Dayton, and Pomeroy substations. Dispatch quickly attempted to sectionalize the line at the Dayton substation by opening a SCADA switch. The switch was unable to open and an area lineman was called to

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 2016 Frozen Customer Count is 28,310 customers.

the substation to manually open the switch. Management was notified of the event and wiremen were directed to return to the Dry Gulch substation to restore the existing radial feed which had been taken out of service due to planned scheduled maintenance on the breaker. In the meantime an additional crew was dispatched to patrol the line. Crews restored power to the Dayton substation energizing two circuits and restoring power to 1,934 customers in 56 minutes. Waitsburg substation was the next to become energized, also restoring feeds to two circuits and 1,072 customers in just over 1 hours. Pomeroy substation was the last substation to energize, restoring feed to one circuit and 1,163 customers in 3 hours 32 minutes.

Restoration activities utilized 11 personnel.

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.
4,169	3,006	1,163	0

Restoration Resources

Resources	
Journeyman	11

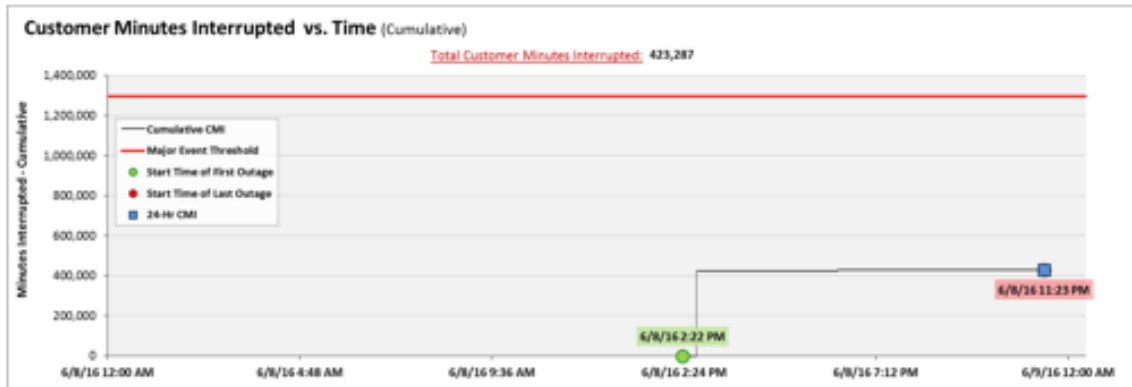
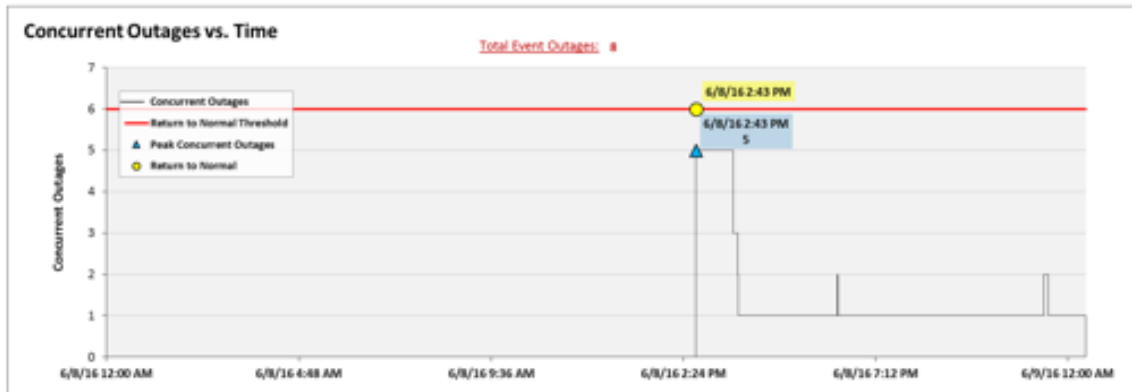
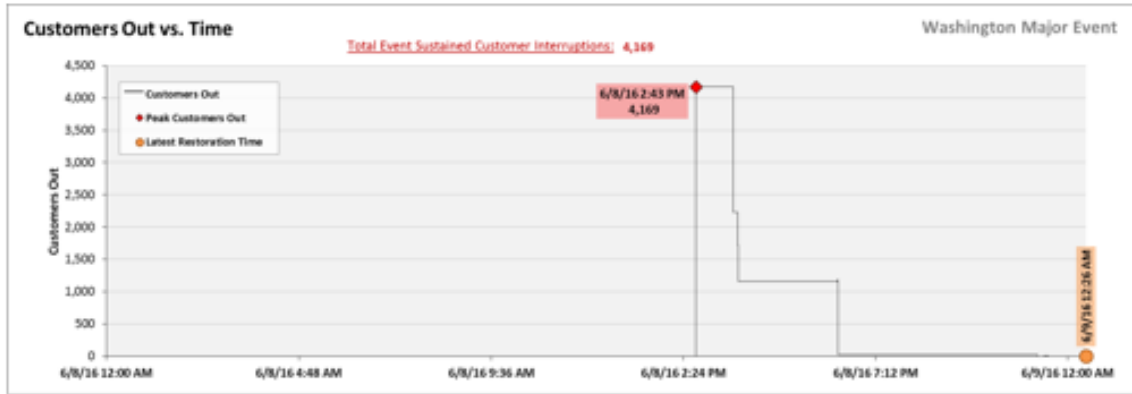
State Estimated Major Event Costs

Estimate \$	Labor	Materials	Total
Capital	\$0	\$0	\$0
Expense	\$7,427	\$0	\$7,427
Total	\$7,427	\$0	\$7,427

Major Event Declaration

Pacific Power is requesting designation of this event and its consequences to be classified as a "Major Event" for exclusion from 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 (4,169 customers interrupted out of 28,310 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:	July 22, 2016
Date Submitted:	October 13, 2016
Primary Affected Locations:	Sunnyside/Yakima
Primary Cause:	Loss of Supply
Exclude from Reporting Status:	Yes
Report Prepared by:	April Brewer
Report Approved by:	Heide Caswell / Kevin Putnam / David O'Neil / Steve Henderson

Event Description

On July 22, 2016, Sunnyside and Yakima operating areas, experienced a system average interruption frequency index-driven (SAIFI)-based major event when a loss of transmission event occurred on the Bonneville Power Administration (BPA) 230kV transmission feed. Initial indication is that the outage occurred as a result of a lightning strike on the BPA feed, causing Pacific Powers Outlook substation to trip open. The outage affected 15,205¹ customers with all customer restorations completed within 13 minutes. Sustained interruptions were experienced by 14% of the combined total customers in the Sunnyside and Yakima operating areas.

Event Outage Summary	
# Interruptions (sustained)	15
Total Customer Interrupted (sustained)	15,206
Total Customer Minutes Lost	187,013
Event SAIDI	1.40 Minutes
CAIDI	12
Major Event Start	7/22/16 12:00 AM
Major Event End	7/23/16 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 2016 Frozen Customer Count is 24,317 customers and Yakima's 2016 Frozen Customer Count is 80,605, for a combined total of 104,922.

Restoration Summary

On the morning of July 22, 2016, a loss of transmission feed from BPA Midway substation to PacifiCorp’s Outlook substation occurred. The loss of transmission affected power feeds from the Outlook substation to four other substations, feeding 13 distribution feeds, and approximately 15,205 customers. During the summer fire season automated system testing is turned off to allow personnel proper time to diagnose an outage. When the circuit breaker at the Outlook substation opened, dispatcher turned off reclosing prior to reenergizing this section of line. Once it was confirmed that the Midway substation was stable and energized, dispatch closed the circuit breaker at the Outlook substation restoring feeds and service to all substations and circuits downstream.

Impact to Pacific Power customers was increased during this event given an off-normal system configuration as part of the ongoing construction at the Union Gap Substation. Union Gap Substation is currently undergoing a multi-year rebuild project that includes constructing two new buses and adding a third transformer for improved system reliability, increasing load service to comply with North American Electric Reliability Corporation standards. Following completion of the Union Gap Substation rebuild in 2017, the system will be reconfigured such that customers will not experience a loss of supply for faults on the BPA line. A discussion with BPA regarding possible mitigation options is currently in the process of being scheduled.

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.
15,206	15,206	0	0

Restoration Resources

No additional restoration resources were used during this event.

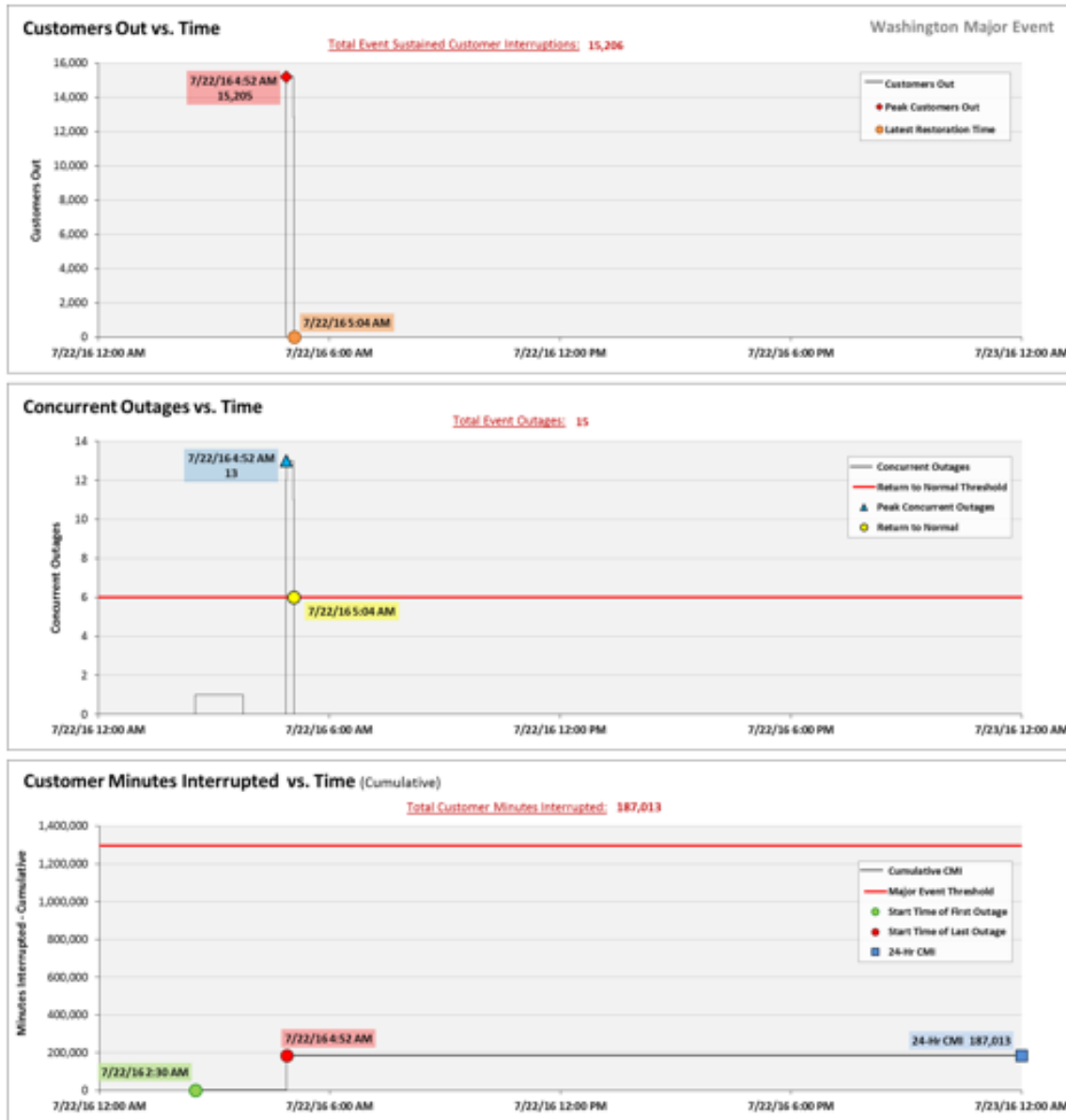
State Estimated Major Event Costs

No additional costs were accrued during this event.

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 (15,206 customers interrupted out of a combined total of 104,922 Sunnyside and Yakima operating area customers, or 14% 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:	August 13, 2016
Date Submitted:	October 20, 2016
Primary Affected Locations:	Sunnyside/Yakima
Primary Cause:	Loss of Supply
Exclude from Reporting Status:	Yes
Report Prepared by:	April Brewer
Report Approved by:	Heide Caswell / Kevin Putnam / David O’Neil / Steve Henderson

Event Description

On August 13, 2016, Sunnyside and Yakima operating areas, experienced a system average interruption frequency index-driven (SAIFI)-based major event when a loss of transmission event occurred on the Bonneville Power Administration (BPA) 230 kilovolt (kV) transmission feed. The outage event affected 17,196¹ customers with all customer restorations completed within 32 minutes. During the day, sustained interruptions were experienced by 16% of the combined total customers in the Sunnyside and Yakima operating areas.

Event Outage Summary	
# Interruptions (sustained)	24
Total Customer Interrupted (sustained)	17,238
Total Customer Minutes Lost	332,150
Event SAIDI	2.49 Minutes
CAIDI	19
Major Event Start	8/13/16 12:00 AM
Major Event End	8/14/16 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 2016 Frozen Customer Count is 24,317 customers and Yakima’s 2016 Frozen Customer Count is 80,605, for a combined total of 104,922.

Restoration Summary

Pacific Powers Outlook substation is fed from two 230 kV BPA sources; BPA’s North Bonneville and Midway substations. At 8:17 pm on August 13, 2016, BPA opened the 230kV Midway line feeding the Outlook substation for a scheduled outage. A failed light on the breaker indicated that the second feed to the Outlook substation from the Northern Bonneville 230 kV line was energized, when actually the breaker was open and the line was not energized. Subsequently, when the BPA de-energized feed from the Midway substation to the Outlook substation, the substation and its feeds were all de energized.

The loss in transmission affected power feeds from the Outlook substation to three other substations, feeding 15 distribution lines, and serving 17,196 customers. Grid operations quickly notified BPA of the outage and at 8:28 pm supply was restored to 11,085 customers. Field personnel were advised of the outages and dispatched to the Toppenish substation to manually close breakers, as no remote operation is possible. At 8:49 the remaining 6,111 customers were restored.

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.
17,238	17,231	25	0

Restoration Resources

No additional restoration resources were used during this event.

State Estimated Major Event Costs

No additional costs were accrued during this event.

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 (17,238 customers interrupted out of a combined total of 104,922 Sunnyside and Yakima operating area customers, or 16% of the combination of the two 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:	August 15, 2016
Date Submitted:	October 20, 2016
Primary Affected Locations:	Sunnyside
Primary Cause:	Animal Interference
Exclude from Reporting Status:	Yes
Report Prepared by:	April Brewer
Report Approved by:	Heide Caswell / Kevin Putnam / David O'Neil / Steve Henderson

Event Description

On the morning of August 15, 2016, six circuit feeds from the Sunnyside substation were lost, when a squirrel damaged insulators within the substation. The outage event affected 6,395 customers with all customers restored within 6 hours 33 minutes. The event affected 27% of the total customers served within the Sunnyside operating area.

Event Outage Summary	
# Interruptions (sustained)	13
Total Customer Interrupted (sustained)	6,452
Total Customer Minutes Lost	1,744,288
Event SAIDI	13.09 Minutes
CAIDI	270
Major Event Start	8/15/16 12:00 AM
Major Event End	8/16/16 12:00 AM

Restoration Summary

At 8:01 am on the morning of August 15, 2016, Sunnyside, Washington, experienced a loss of supply event when five of six transformer high side fuses operated at the Sunnyside substation, causing a loss of feed to 6 distribution circuits, serving 6,395 customers. Crews were quickly dispatched to the area to assess damage and begin restoration activities, with the first responder arriving at 08:39 am. Once personnel arrived at the substation it was determined that a squirrel had damaged insulators to the main bus, one circuit breaker, and also had damaged three disconnect switches.

Crews began working with dispatch and area engineers to develop the appropriate substation switching orders in an effort to begin restoring power to customers concurrent with isolating power feeds to the equipment needing repair. At 09:33 am implementation of the switching orders started and service restorations began. By 12:17 pm all switching orders were completed, restoring power to 5,464 customers. The remaining 931 customers remained out of power until 2:34 pm, when equipment repairs were completed. Upon the completion of the repairs substation switching was restored 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.
6,452	57	6,395	0

Restoration Resources

Personnel Resources	
Troublemens	16

Materials	
15KV Post Insulators	8
Misc. Fasteners	31

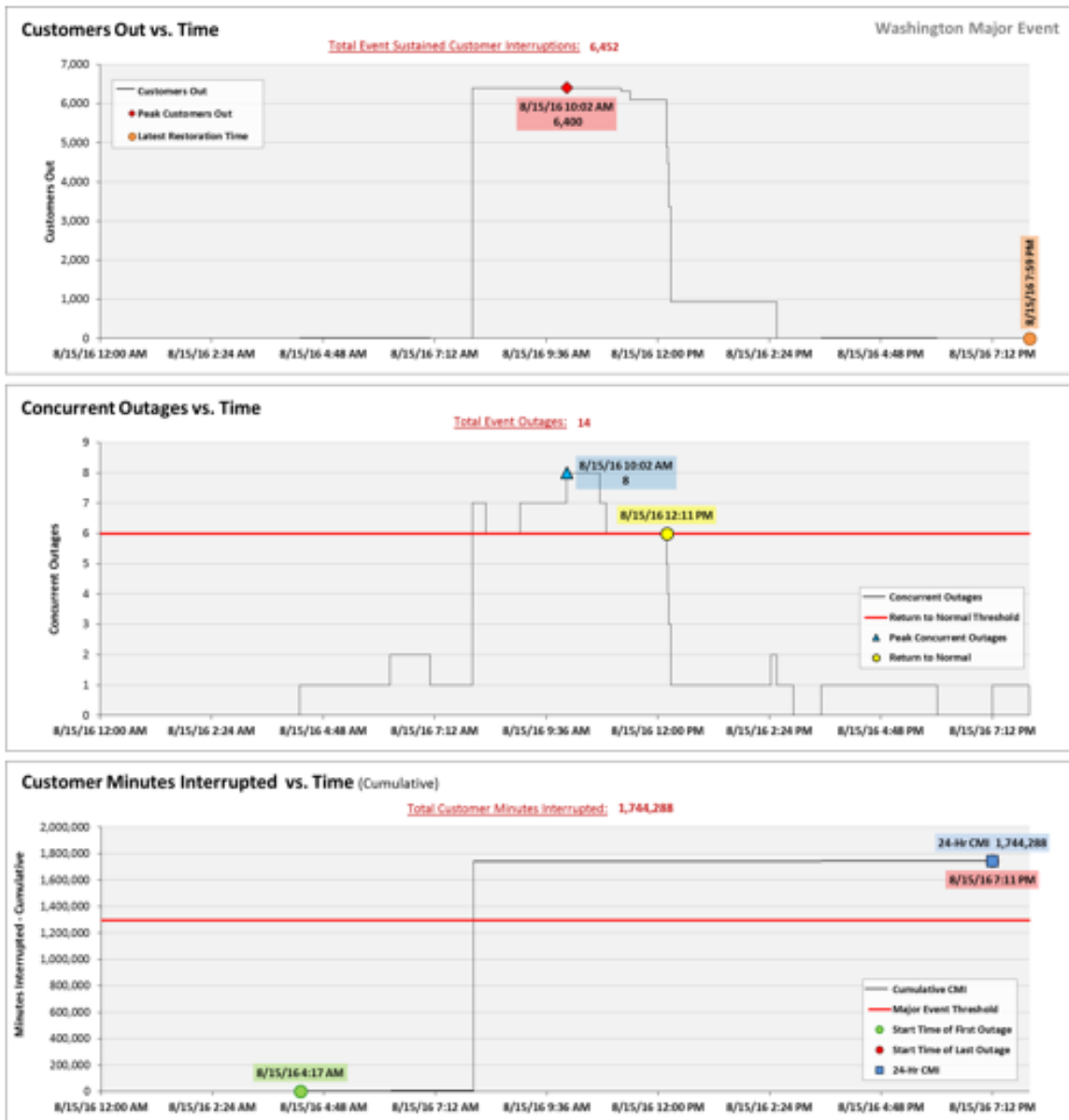
State Estimated Major Event Costs

Estimate \$	Labor	Contracts	Materials	Total
Capital	\$20,680	\$150	\$5,210	\$26,040
Expense	\$0	\$0	\$0	\$100
Total	\$20,680	\$150	\$5,210	\$26,040

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 current Washington threshold of 1,297,750 customer minutes lost (9.74 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:	October 9, 2016
Date Submitted:	November 9, 2016
Primary Affected Locations:	Sunnyside
Primary Cause:	Pole Fire/Loss in Transmission
Exclude from Reporting Status:	Yes
Report Prepared by:	April Brewer
Report Approved by:	Heide Caswell / Kevin Putnam / David O'Neil / Steve Henderson

Event Description

On October 9, 2016, Sunnyside, Washington, experienced a system average interruption frequency index-driven (SAIFI)-based major event when a fire occurred at the distribution underbuild of a 115 kV transmission pole. The outage affected 6,398¹ customers; approximately 26% of the Sunnyside operating area's customers. The initial outage from the pole fire affected 299 customers on a single distribution feed, however the transmission system operated to clear a fault condition and Sunnyside Substation was de-energized dropping feeds to six circuits serving 6,099 customers. The 6,099 customers affected by the transmission line were restored in 9 minutes, while the remaining 299 customers who were affected by the damaged distribution equipment were out for durations ranging from 4 hours 15 minutes to 17 hours 58 minutes.

Event Outage Summary	
# Interruptions (sustained)	14
Total Customer Interrupted (sustained)	7,904
Total Customer Minutes Lost	543,569
State Event SAIDI	4.08 Minutes
CAIDI	69
Major Event Start	10/9/16 12:00 AM
Major Event End	10/10/16 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 2016 Frozen Customer Count is 24,317 customers.

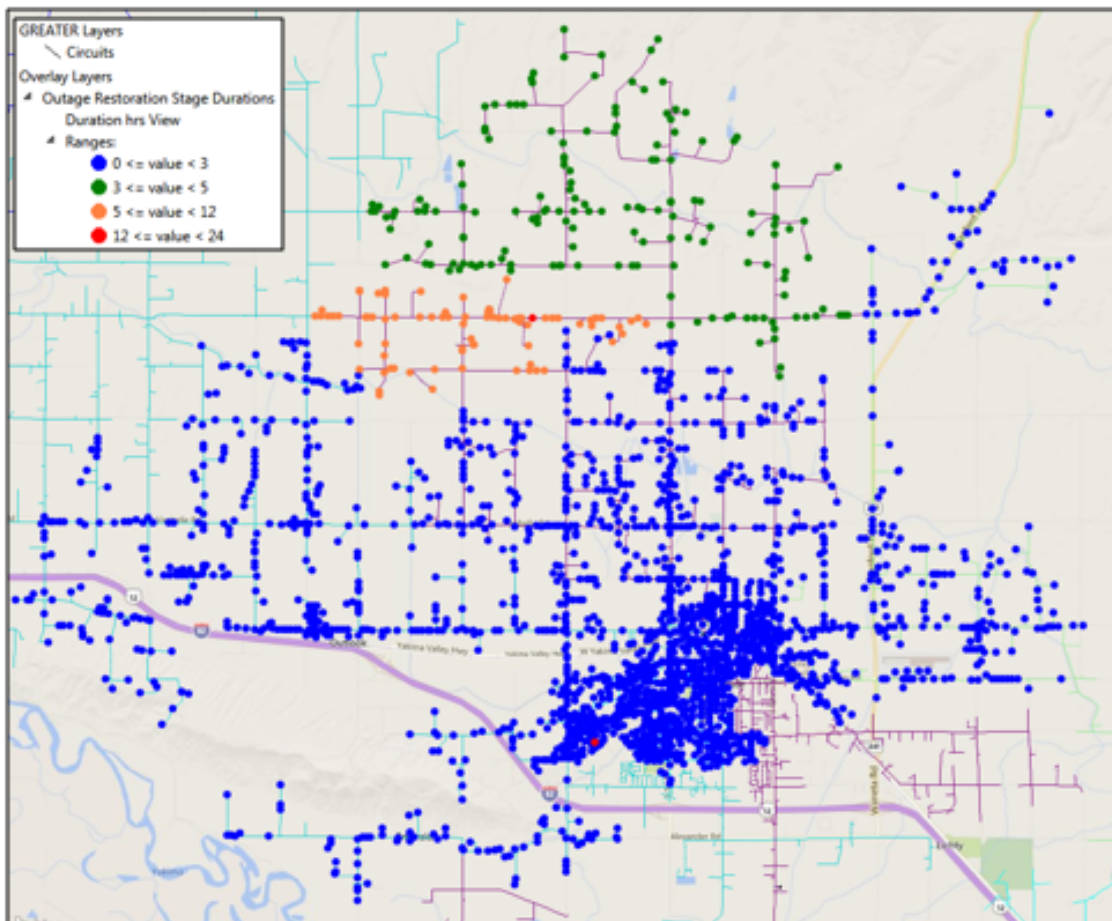
Restoration Summary

On the evening of October 9, 2016, Sunnyside, Washington, experienced several pole fire outages. At 8:18 pm a pole supporting both transmission and distribution circuits experienced a pole fire which burned the pole in half. The top half of the pole dropped into a distribution transformer bank, operating circuit breaker 5Y314 at the Sunnyside Substation; subsequently, at 9:50 pm, the transmission source experienced a fault event due to the same pole fire described above, de-energizing feeds into Sunnyside substation. Personnel quickly rerouted feeds for the substation restoring power in just 9 minutes.

Repairs and restorations to the other damaged distribution lines took slightly longer, since reconstruction of several poles was required. The transformer bank pole was removed due to the extensive fire damage, a new pole was set, and hardware attached. During the repair process alternate feeds were employed to restore power to as many customers as possible, however 229 customers were impacted for the entire duration of the repair. There were a variety of pole repairs made at other locations affecting a small number of customers.

A total of 29 employees took part in the restoration efforts that evening, replacing four poles, five insulators, 16 crossarms, and two transformers. The below graphic shows the customer affected by the pole fire, by their restoration stage and outage duration.

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.
7,904	6,125	1,779	0

Restoration Resources

Personnel	
General Help	3
Estimators	1
General Foremen	1
Journeyman	24

Materials	
Crossarms	16
Insulators	5
Cutouts	8
Transmission Poles	3
Distribution Poles	1
Pole mounted transformers	2

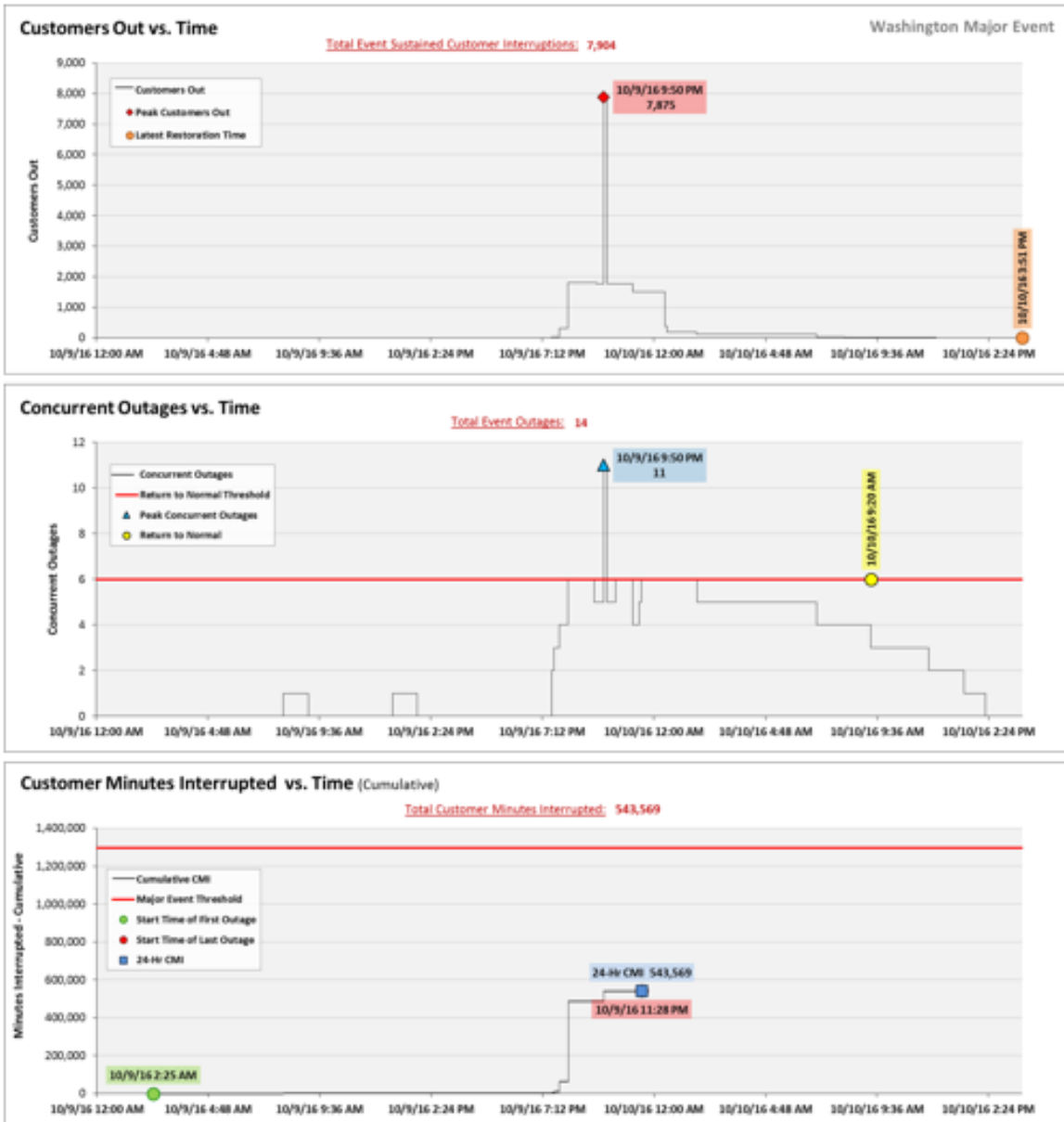
State Estimated Major Event Costs

Estimate \$	Labor	Material	Contract Resources	Total
Capital Expense	\$28,000	\$21,000	\$5,900	\$54,900
	\$42,000	\$16,000	\$18,000	\$76,000
Total	\$70,000	\$37,000	\$23,900	\$130,900

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 (6,398 customers interrupted out of 24,317 Sunnyside operating area customers, or 26% 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:	November 18, 2016
Date Submitted:	January 11, 2017
Primary Affected Locations:	Yakima
Primary Cause:	Loss in Transmission
Exclude from Reporting Status:	Yes
Report Prepared by:	April Brewer
Report Approved by:	Heide Caswell / Kevin Putnam / David O'Neil / Steve Henderson

Event Description

On November 18, 2016, Yakima, Washington, experienced a system average interruption frequency index (SAIFI)-based major event when the relay system tripped the 115 kV line feed from Pomona Substation to the Tieton Substation. The outage affected 15,762¹ customers; approximately 20% of the Yakima operating area's customers.

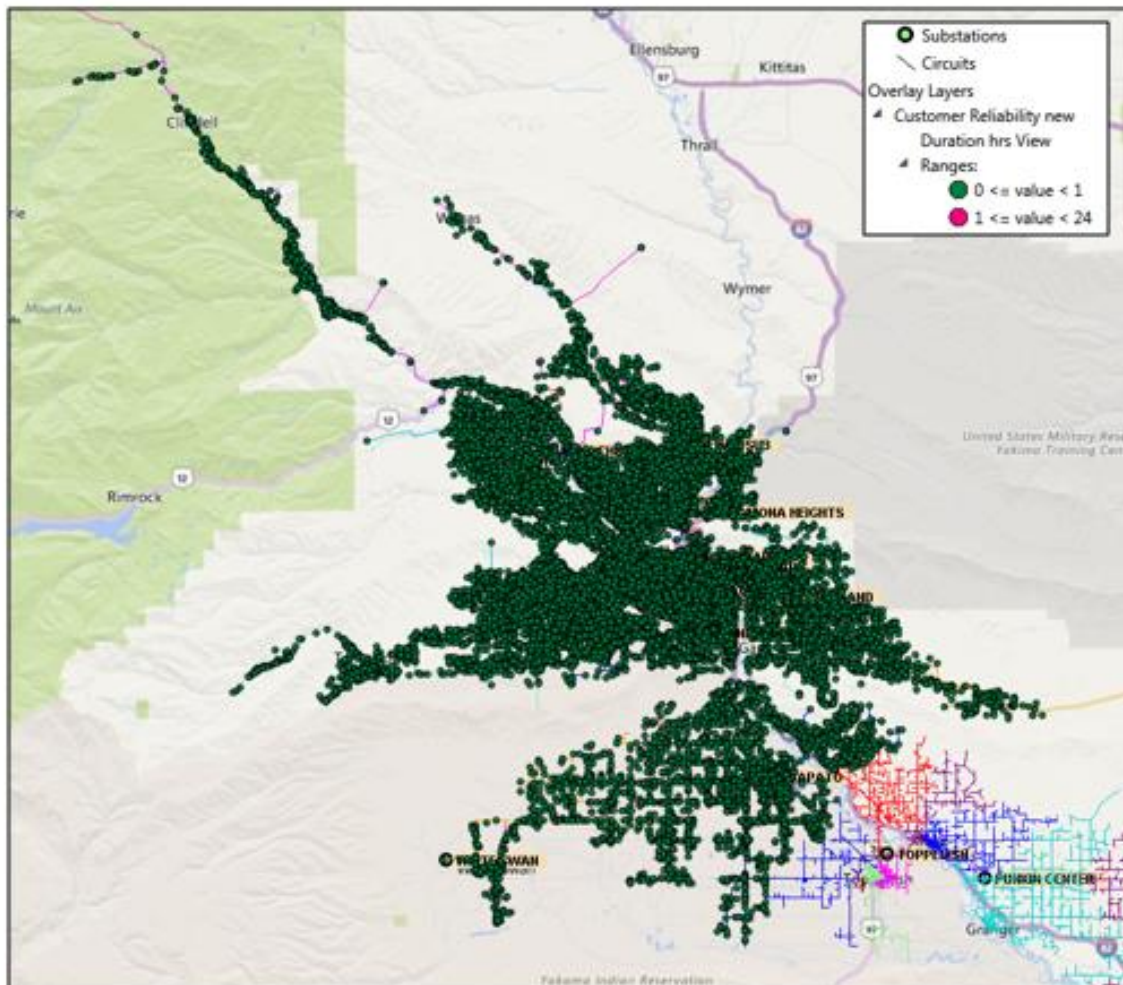
Event Outage Summary	
# Interruptions (sustained)	20
Total Customer Interrupted (sustained)	15,764
Total Customer Minutes Lost	133,831
State Event SAIDI	1.00 Minutes
CAIDI	8
Major Event Start	11/18/16 12:00 AM
Major Event End	11/19/16 12:00 AM

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. Yakima operating area's Calendar 2016 Frozen Customer Count is 80,605 customers.

Restoration Summary

At 9:04 am on the morning of November 18, 2016, Yakima, Washington, experienced a loss of supply event when a contractor was testing relays to a circuit breaker at the Pomona Substation and inadvertently sent out a trip signal. The system detected a fault and operated the 115 kV line feeding five substations (Wenas, Selah, Naches HE, and Tieton), 18 circuits and 15,762 customers. At 9:09 am an announcement was made to the Yakima Area crews to ensure all employees were clear of facilities and at 9:12 am the circuit breaker was closed via SCADA restoring power to all the customers.

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.
15,764	15,763	1	0

Restoration Resources

No additional restoration resources were used during this event.

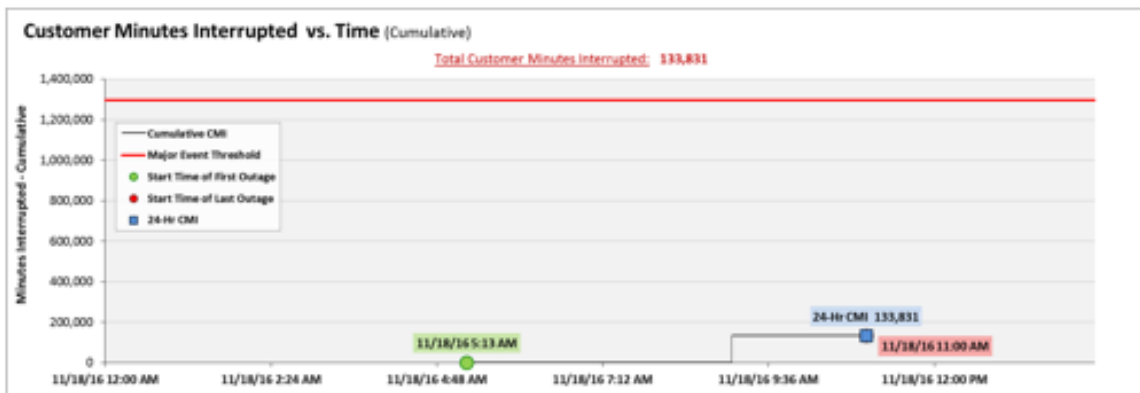
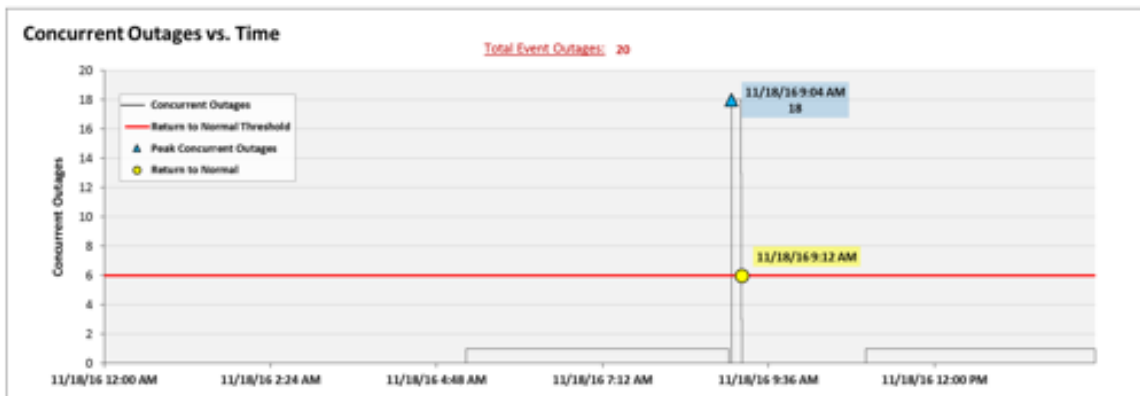
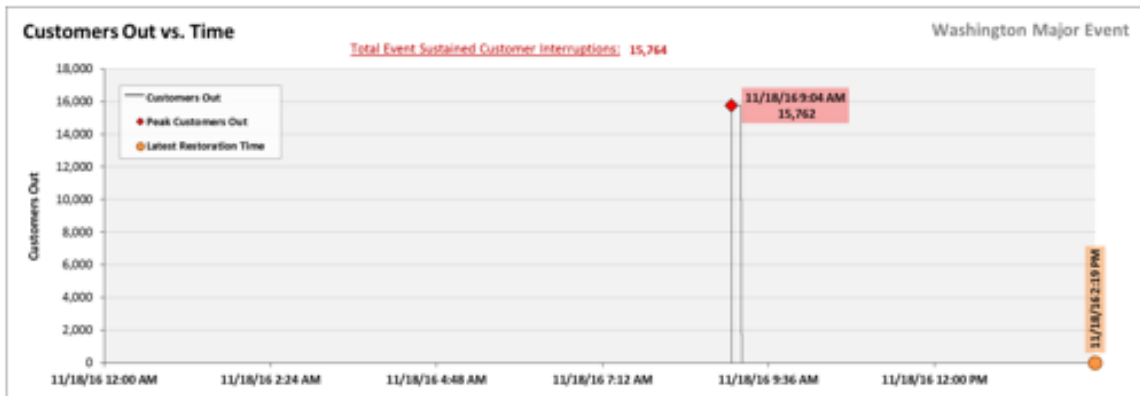
State Estimated Major Event Costs

No additional costs were accrued during this event.

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 (15,764 customers interrupted out of 80,605 Yakima operating area customers, or 20% 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.