2014

Electric Service Reliability Report

TABLE OF CONTENTS

Introduction

Avista Utilities provides electric and natural gas service within a 26,000 square mile area of eastern Washington and northern Idaho[1]. Of the Company's 366,305 electric and 325,919 natural gas customers (as of December 31, 2013), 240,246 and 151,676, respectively, were Washington customers. The Company, headquartered in Spokane, also provides natural gas distribution service in southwestern and northeastern Oregon.

Pursuant to WAC 480-100-398, Avista Corporation dba Avista Utilities ("Avista" or "the Company") submits its annual Electric Service Reliability Report. The report describes the Company's reliability monitoring and reliability metrics for 2014. All numbers included in this report are based on system-data. The Company's system includes 11 geographical divisions with two of those divisions overlapping the Washington and Idaho border leading to a commingling of jurisdictional customers.

WAC 480-100-393 (3)(b) requires the establishment of baseline reliability statistics. The Company's baseline statistics are included in this report and compare the current year data to the baseline year of 2005 and years in between. The Company also provides a statistical target that represents an analysis based on an average over a time period and adding two standard deviations. Year to year variations should be below this target, but may provide information that shows continuing trends.

Avista has reported in its previous annual reports that the completion of the transition to the Outage Management Tool (OMT) system had caused an increase in the variability of the data collected from 2001 to 2007. The 2009 Annual Report (UE-100659) indicated that a gradual increase in the SAIFI and SAIDI numbers that cannot be attributed to the transition to the OMT system was occurring. Through 2012, the trend lines for SAIFI and SAIDI were both showing an upward trend. The trend line for SAIFI now shows a slightly downward trend with the inclusion of the 2014 data. The trend line for SAIDI is now showing a very slight upward trend with the inclusion of the 2014 data but has flattened from prior years. The charts on pages 8 and 11 show a trend line for SAIFI and SAIDI historical data.

The 2014 SAIFI and SAIDI reliability indices are slightly higher than the 2005 baseline, which may be due to the under reporting that may have occurred during the transition to OMT in 2005. The 2014 CAIDI index is higher than the 2005 baseline but lower than the 2013 index. On another note, the 2014 MAIFI reliability index is below the 2005 baseline.

Avista continues to review its annual baseline reliability statistics in light of operational experience under current regulatory protocol. Avista may modify its baseline statistics as appropriate and will update the Commission accordingly.

[1] Avista also serves approximately 28 retail electric customers in western Montana.

Definitions

"*Reliability Statistic"* – Standard Statistics measures and calculation methods are per the IEEE Standard 1366-2003 (or latest version) Titled "IEEE Guide for Electric Power Distribution Reliability Indices". Same as Reliability Indices.

"Major event" – Modified this definition to the IEEE Standard 1366-2012 (or latest version) of Major Event Day (MED), which uses a process "Beta Method" to identify a Major Event Day. The previous definition was "An event that impacts more than 5% of the Company's customers and causes outages of more than 24 hours in duration in any given division within its territory".

"Sustained Interruption" - An interruption lasting longer than 5 minutes.

"Momentary Event Interruption" – An interruption(s) of duration 5 minutes or less. Each event consists of one trip and one reclose operation that occur within 5 minutes. For example, if an interrupting device operates three times and then holds, this would be counted as three events with the number of customers affected as three times the Ni.

"Baseline reliability statistic" – Avista will compare its reliability statistics to the year 2005.

"Reliability Target" - A statistical method was developed in 2004 for baseline statistics. The method is defined as the average over a specific timeframe and 2 times the standard deviation. For 95% of the time, the Reliability Statistic should be below the target.

"*Customer Complaint"* - When a customer is not satisfied with the Company as it relates to Electric Reliability and makes a complaint directly to a Company representative.

"Commission Complaint" – When a customer is not satisfied with the Company as it relates to Electric Reliability and files a complaint directly with the Commission.

Data Collection and Calculation Changes

WAC 480-100-398 (2) requires the Company to report changes made in data collection or calculation of reliability information after initial baselines are set. This section addresses changes that the Company has made to data collection.

Data Collection

The data collected for 2014 represents the eighth full year of outage data collected through the Company's Outage Management Tool (OMT). For 2014, all data was collected using the OMT based on the Company's Geographic Information System (GIS). The OMT system automates the logging of restoration times and customer counts.

Even as good as the OMT system is at quantifying the number of customers and duration of the outage, there still are areas where the data collection is not precise. Determining the exact starting time of an outage is dependent on when a customer calls in, how well the Avista Distribution Dispatcher determines where the outage is, and defines the device that has opened to remove the faulted section.

As advanced metering infrastructure (AMI) is implemented, and the customer meter provides outage information to the OMT system through an interface, the SAIDI and CAIDI numbers are expected to increase.

Use of the OMT system and GIS data has improved the tracking of the numbers of customers without power, allowed for better prioritization of the restoration of service, and the improved dispatching of crews.

Interruption Cause Codes

Cause code information is provided in this report to give readers a better understanding of outage sources. Further, the Company uses cause information to analyze past outages and, if possible, reduce the frequency and duration of future outages.

Since 2011, Avista has stopped using the subcategory "protected" under the "Animal" category. Almost all birds are considered protected, so there is little differentiation between the "Bird" and "Protected" subcategories. Avista will include additional information in the Remarks section as reported from the field personnel.

Customers Experiencing Multiple Interruptions

The IEEE Standard 1366P-2003 provides for two methods to analyze data associated with customers experiencing multiple momentary interruptions and/or sustained interruptions. Avista's Outage OMT and Geographical Information System GIS provide the ability to geospatially associate an outage to individual customer service points. This association allows for graphically showing Customers Experiencing Multiple sustained Interruptions ($CEMI_n$) with Major Event Day data included onto GIS produced areas. Data can be exported to MS Excel to also create graphs representing different values of n. 2013 information is provided in the Customer Experiencing Multiple Interruptions (page 22) to summarize the analysis Avista performed on the 2013 outage data. The calculation for $CEMI_n$ and Customers

Experiencing Multiple Sustained and Momentary Interruptions $CEMSMI_n$ is provided in the Index Calculations section.

Major Events

Major Events and Major Event Days as used in this report are defined per the IEEE Guide for Electric Power Distribution Reliability Indices, IEEE P1366-2012. The following definitions are taken from this IEEE Guide.

> **Major Event** – Designates an event that exceeds reasonable design and or operation limits of the electric power system. A Major Event includes at least one Major Event Day (MED).
>
> **Major Event Day** – A day in which the daily system SAIDI exceeds a threshold value, T_{MED}. For the purposes of calculating daily system SAIDI, any interruption that spans multiple calendar days is accrued to the day on which the interruption began. Statistically, days having a daily system SAIDI greater than T_{MED} are days on which the energy delivery system experienced stresses beyond that normally expected (such as severe weather). Activities that occur on major event days should be separately analyzed and reported.

The Company will use the process defined in IEEE P1366 to calculate the threshold value of T_{MED} and to determine MED's. All indices will be reported both including and excluding MED's. The comparisons of service reliability to the baseline statistics in subsequent years will be made using the indices calculated without MED's.

Table 1.1 – 2014 Major Event Days

Major Event Days	SAIDI (Customer-Minutes)	Cause
2014 Major Event Day Threshold	8.72	
July 23, 2014	92.95	Wind
July 24, 2014	35.66	Wind
August 2, 2014	121.05	Wind
August 3, 2014	38.52	Wind
August 12, 2014	9.84	Wind

Avista's electric system experienced two major wind events during the summer of 2014. The first large storm blustered through our service territory leaving in its wake, downed trees and power lines as well as extensive damage to homes and property. Avista crews from throughout the region, along with approximately 20 contract crews, worked around-the-clock to restore power to nearly 40,000 customers who lost electricity due to the storm that hit late afternoon on July 23, 2014. Since Ice Storm in 1996, this was the worst damage our system has seen. Areas that were hit the hardest were in North Spokane, Davenport, Deep Park, and Colville. On Saturday, August 2, 2014, another forceful summer storm hit Avista's service territory and knocked out power to approximately 48,000 customers. The storm hit just six days after Avista, along with contract crews, finished mopping-up the July 23 storm. The initial day of each storm, July 23rd and August 2nd, represent the two highest daily T_{MED} values since 2006.

Customer Complaints

The Company tracks reliability complaints in two areas, Commission Complaints and Customer Complaints, which are defined in the Definitions section. See the Customer Complaints section on Page 36 for a summary of results for this year.

System Indices

The charts below show indices for Avista's Washington and Idaho ("system") electric service territory by year. Breakdown by division is included later in this report. Each chart shows eight years of data along with the baseline reliability statistic which is highlighted in green. The Company also has calculated a reliability target that is the average over the previous five years plus two standard deviations. This target is shown in yellow on the reliability index charts.

The reliability targets have been adjusted by removing Major Event Days, MED's, as defined in the previous section.

Table 2.1 - Reliability Statistic Target by Index

Index	2008-2013 Average (Excluding Major Events)	2005 Baseline	Reliability Target (Ave + 2 Standard Deviations)
SAIFI	1.24	0.97	1.61
MAIFI	3.12	3.58	4.89
SAIDI	149	108	200
CAIDI	120	112	138

Additional comparisons of the Reliability Indices are provided in the Office Indices section and Monthly Indices section of this report.

The Company continues to use the definition of major events as described above to be consistent with IEEE Standards. Therefore, the following charts show statistics including the effect of major events per this definition. Both the Baseline Statistic is shown for the year 2005 (green bar), along with the Avista Target Statistic which is shown as the yellow bar.

Refer to Attachment 1 – SAIDI and SAIFI Historical Summary for additional historical information.

Chart 2.1 – SAIFI - Sustained Interruptions / Customer

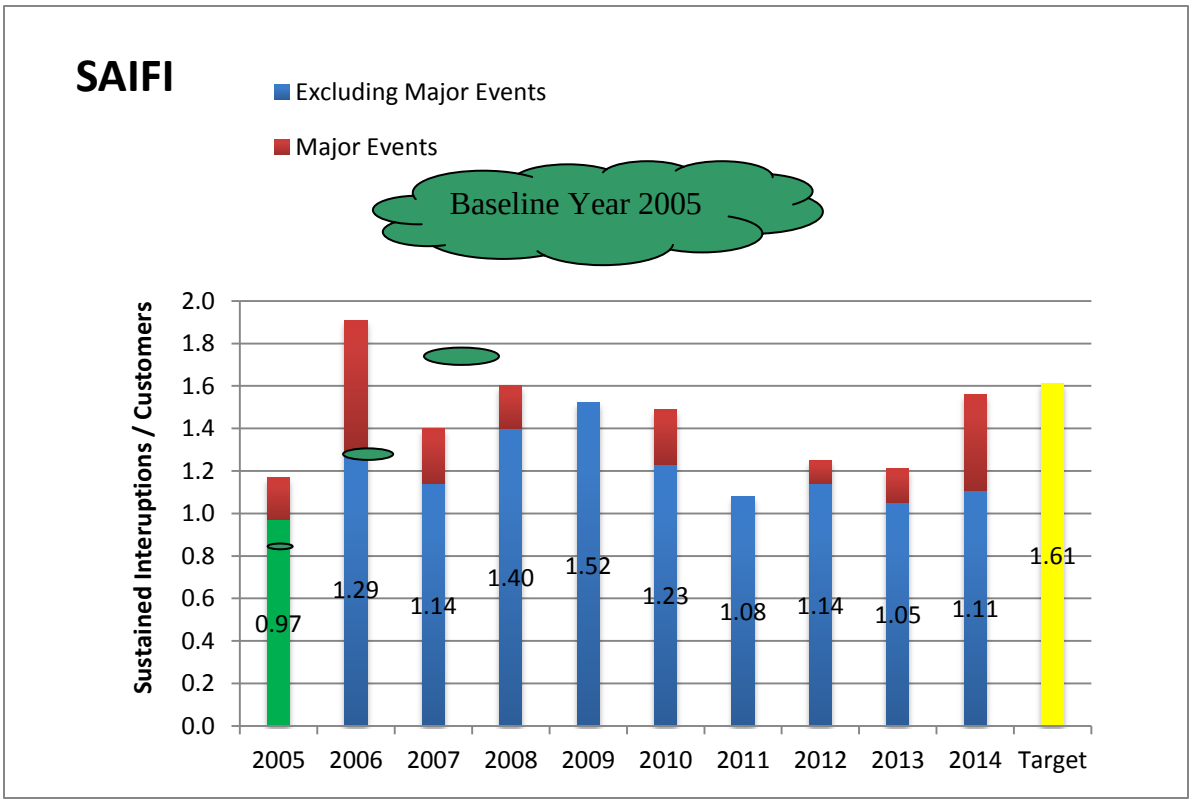
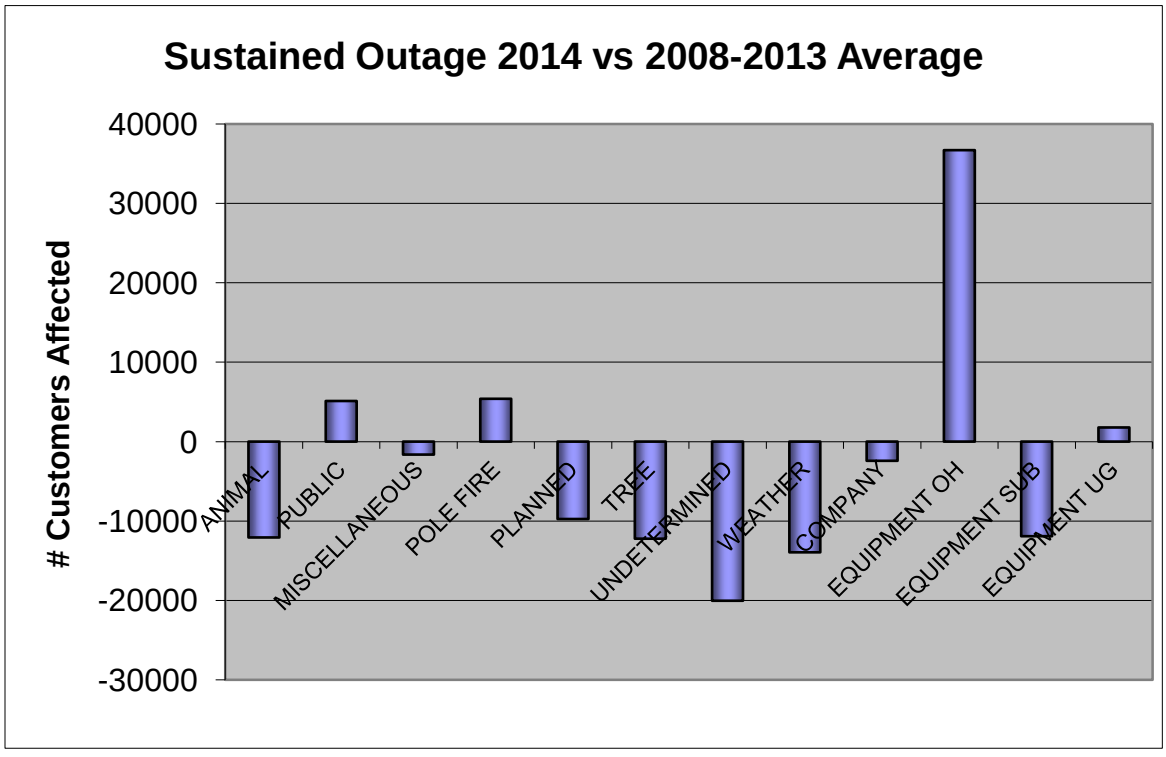


Chart 2.2 – Sustained Interruptions / Customer Historic Comparison



SAIFI for 2014 was slightly over the 2005 baseline statistic but represents a decreasing trend. The 2014 SAIFI number is higher than 2013 and lower than 2012 and may represent gains due to Company expenditures specifically targeting reliability. Using a simple linear regression to establish a trend line, it would look like about a -0.01% growth in the number of customers affected. A chart of this analysis has been provided just after this discussion.

There were 82,060 customers affected by sustained outages caused by weather in 2014. This compares to the 2008–2013 average of 96,004.

Overhead Equipment outages affected 81,708 customers as compared with the 2008-2013 average of 45,006. This increase is likely due to lingering damage to facilities after the two major summer wind events.

Planned outages numbered 37,126 customers for 2014 as compared to the previous 5-year average of 46,875 customers.

Public outages affected 41,332 customers as compared to the 2008-2013 average of 36,219 customers.

Outages associated with Tree causes affected 38,876 customers as compared to the 2008-2013 average of 51,105.

Undetermined cause outages affected 42,396 customers as compared with the 2008-2013 average of 62,438.

Chart 2.3 - SAIFI Linear Trend Line Chart

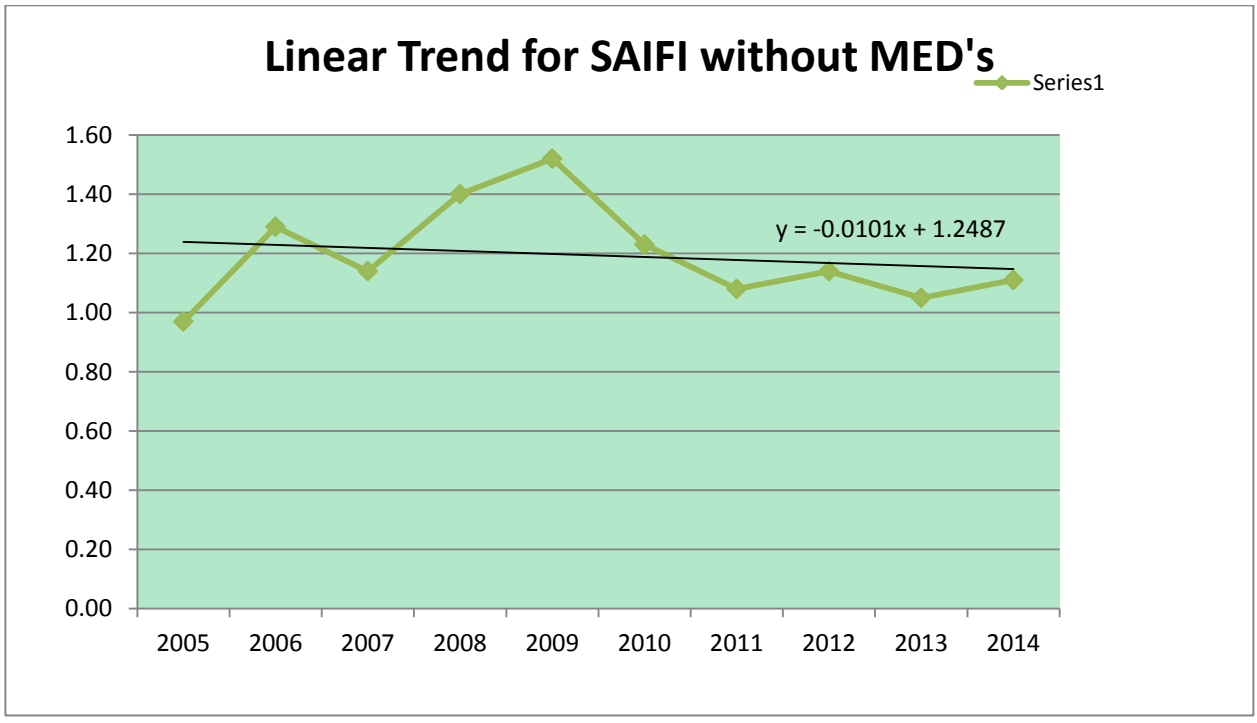


Chart 2.4 - MAIFI Momentary Interruption Events / Customer

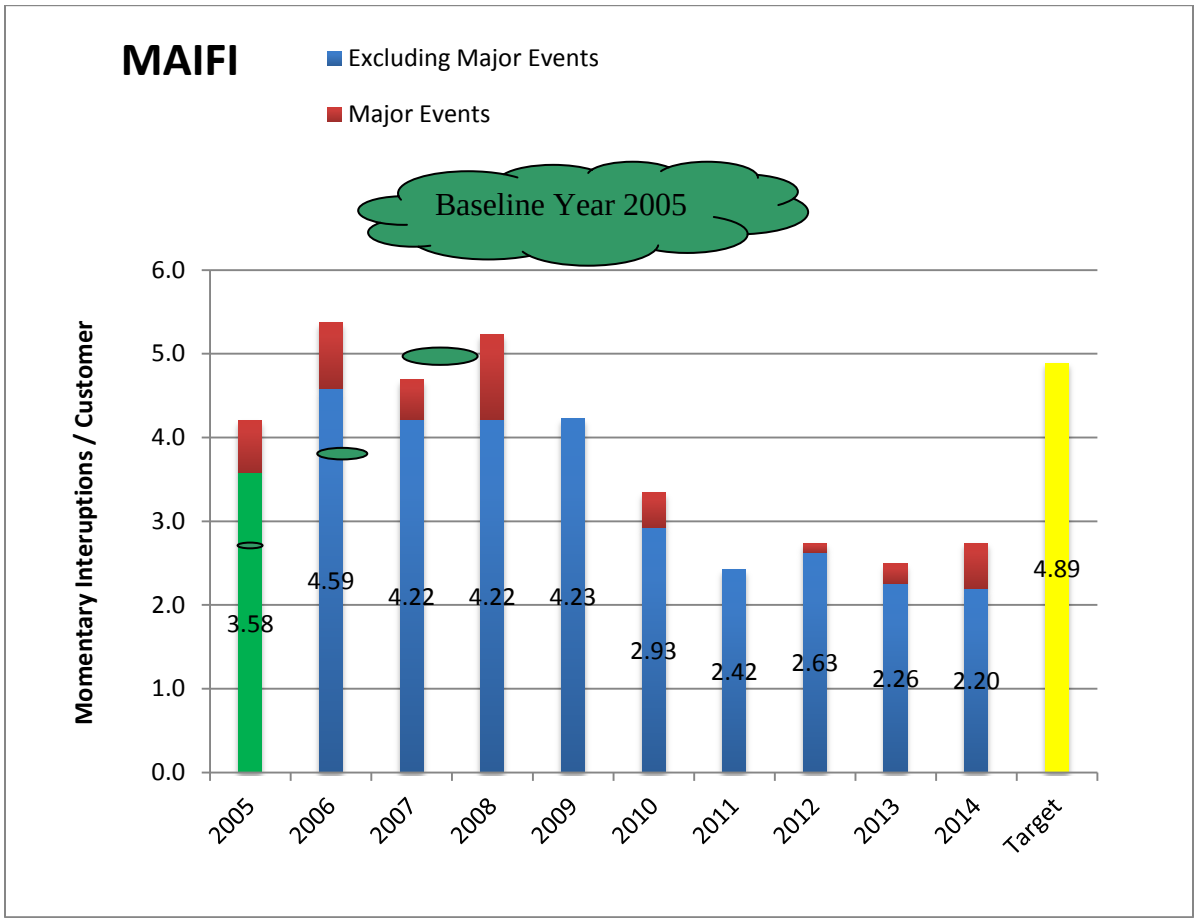
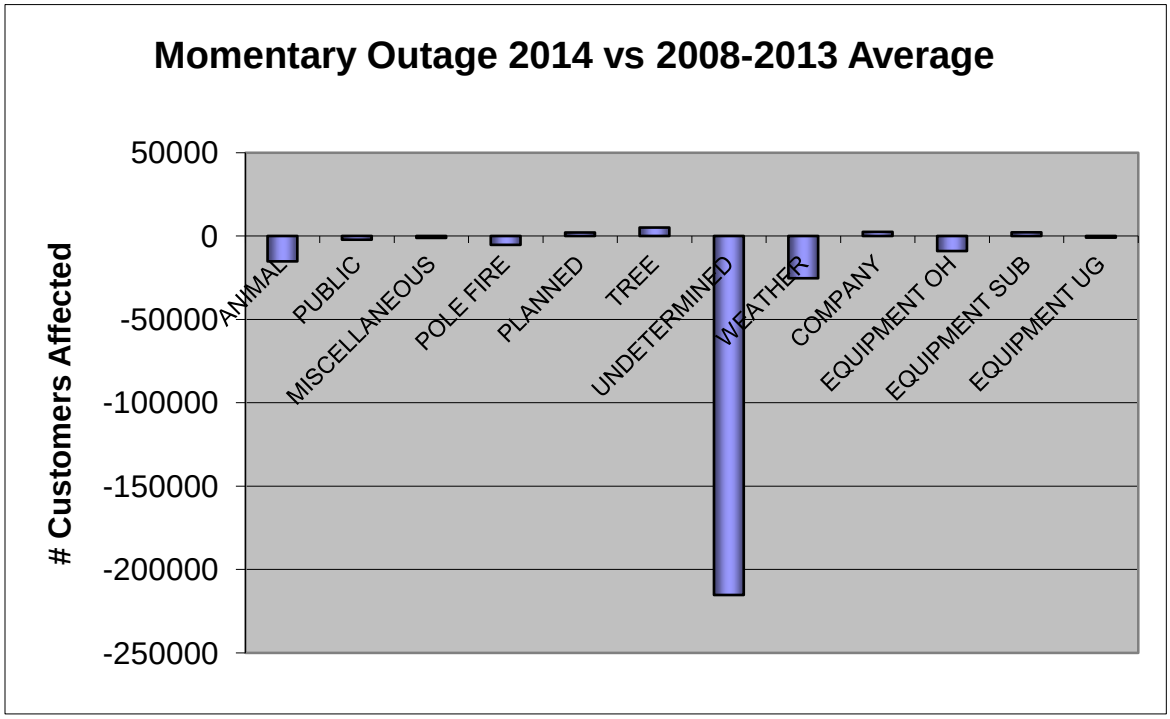


Chart 2.5 – Momentary Interruptions/ Customer Historic Comparison



The 2014 results for MAIFI show the lowest level we have seen, continuing the downward trend we have seen over the past few years. There was a decrease from the 5-year average for 2014 in the number of undetermined cause interruptions. This shift may be due to accuracy improvement efforts in Distribution Dispatch. The overall improvements in the MAIFI numbers may be due to tree trimming efforts along with Overhead Equipment replacement and Underground Equipment replacement. Some of the Urban areas have had the instantaneous trip function blocked, which reduces the total feeder customer momentary impacts, but may increase both SAIFI and SAIDI numbers for a few customers located downstream of a fused lateral.

Distribution Dispatch continues to make improvements in correlating the momentary outages with subsequent sustained outages, which reduces the undetermined causes.

Chart 2.6 - SAIDI – Average Outage Time / Customer

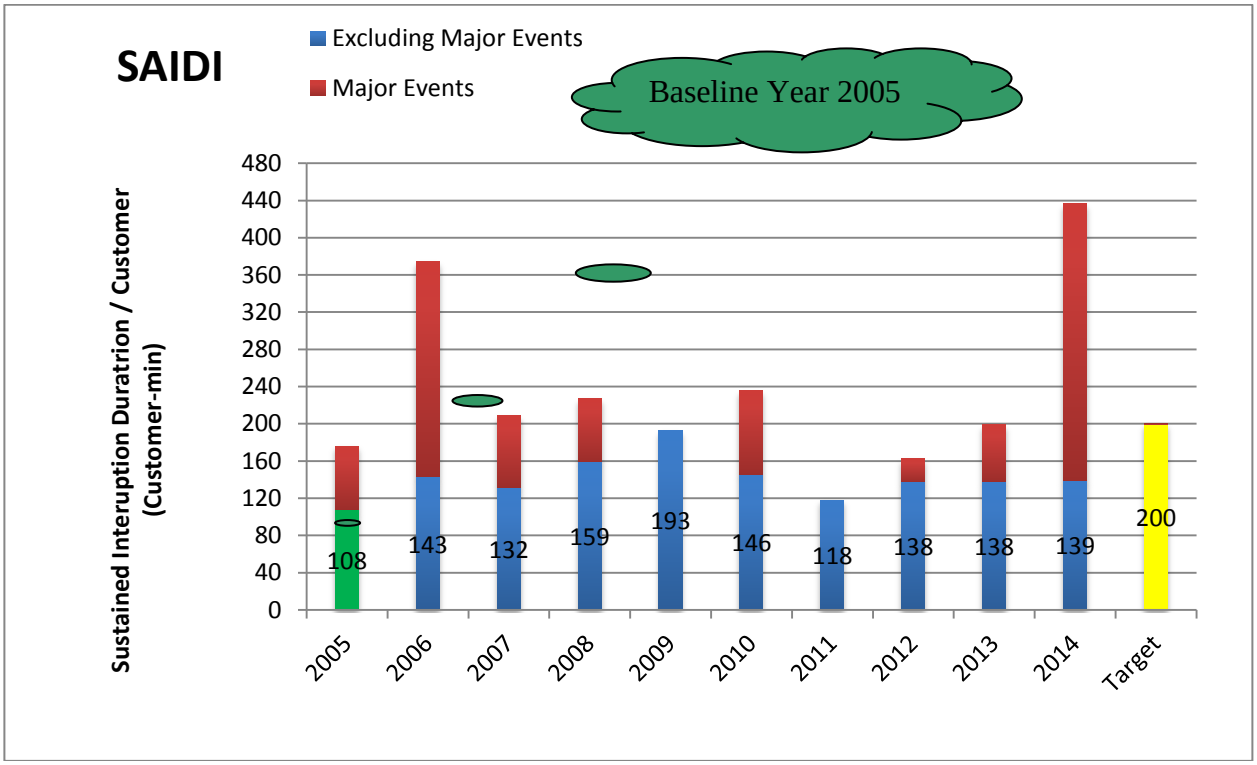


Chart 2.7 - SAIDI Linear Trend Line Chart

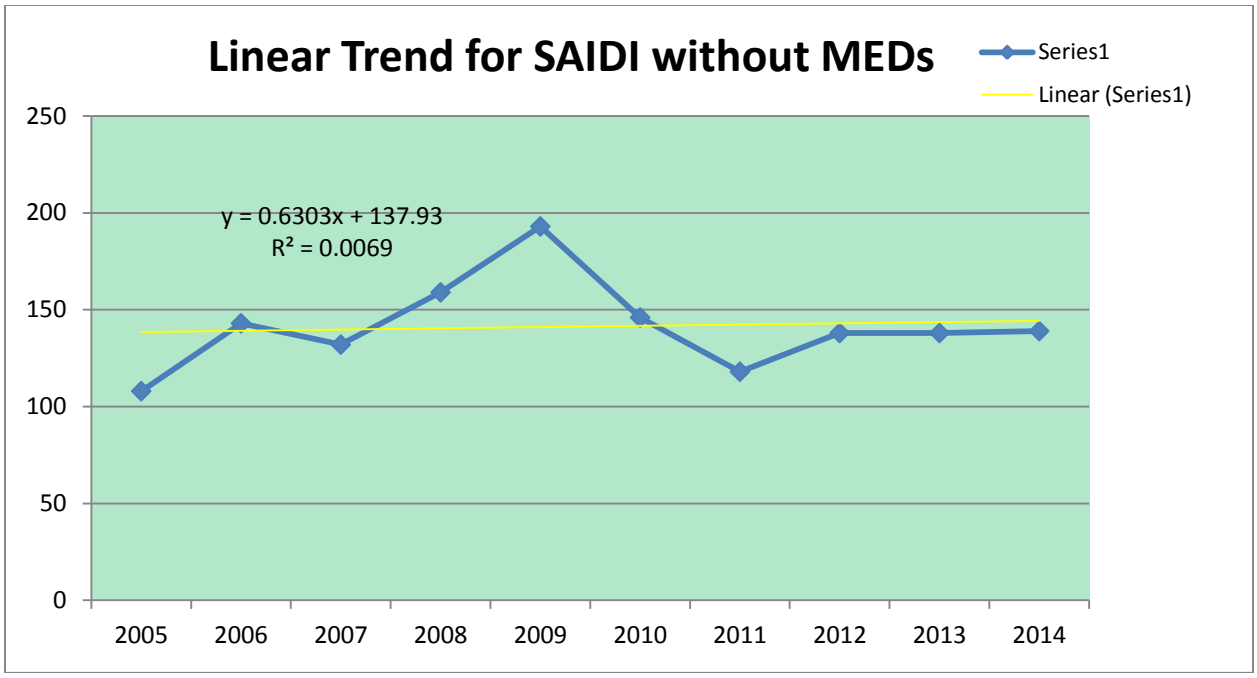
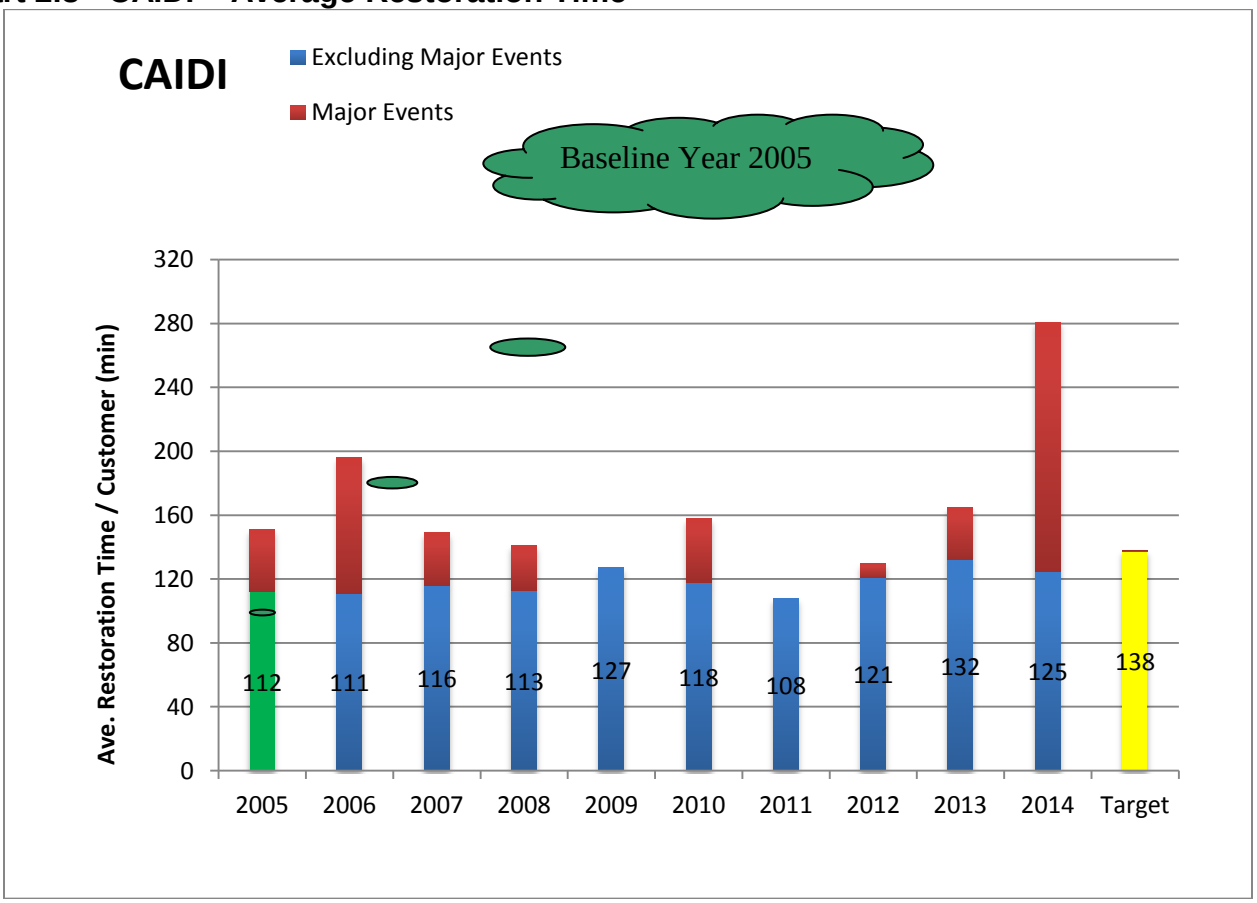


Chart 2.8 - CAIDI – Average Restoration Time



OFFICE Indices

Chart 3.1 – SAIFI - Sustained Interruptions / Customer

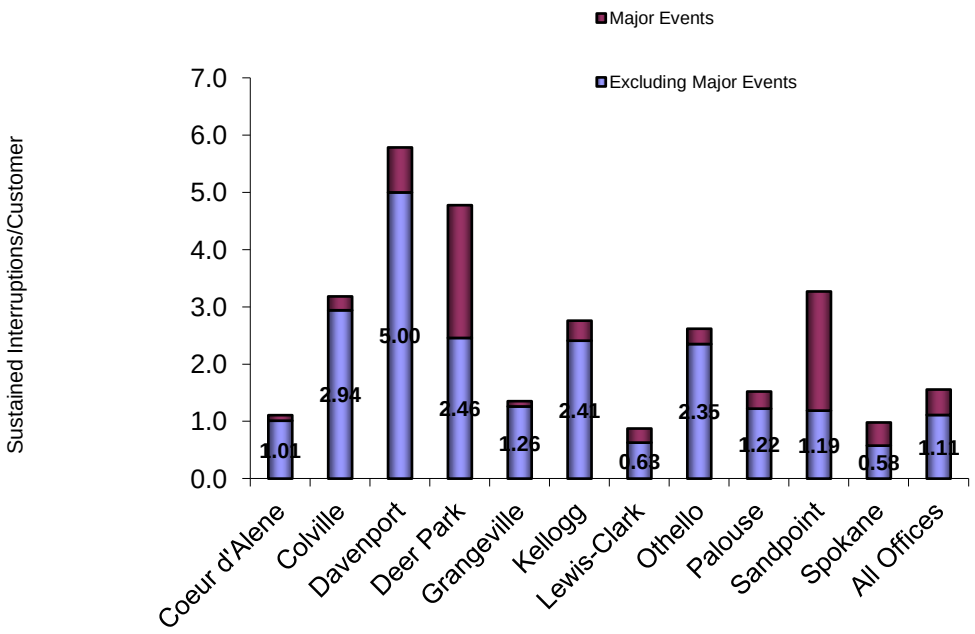


Chart 3.2 - MAIFI Momentary Interruption Events / Customer

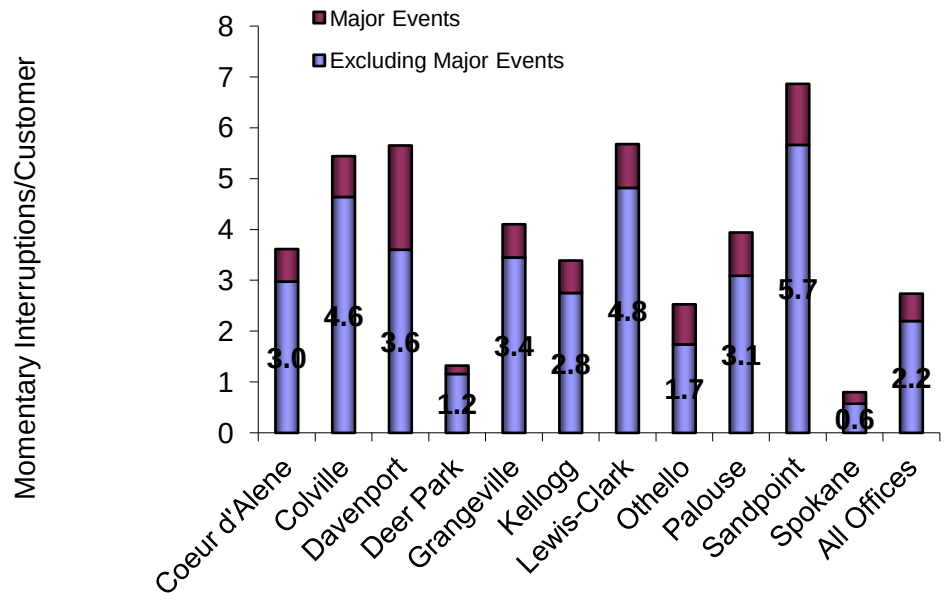


Chart 3.3 - SAIDI – Average Outage Time / Customer

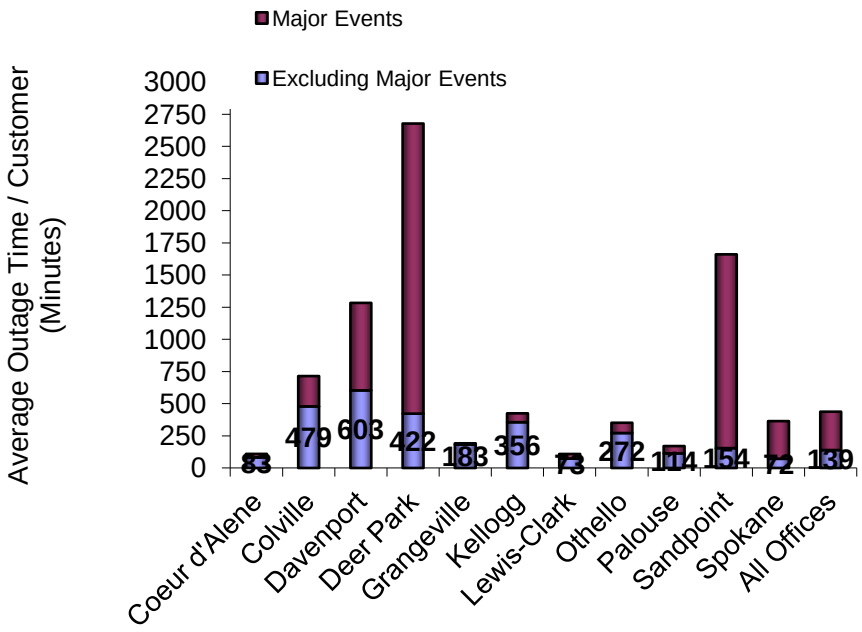
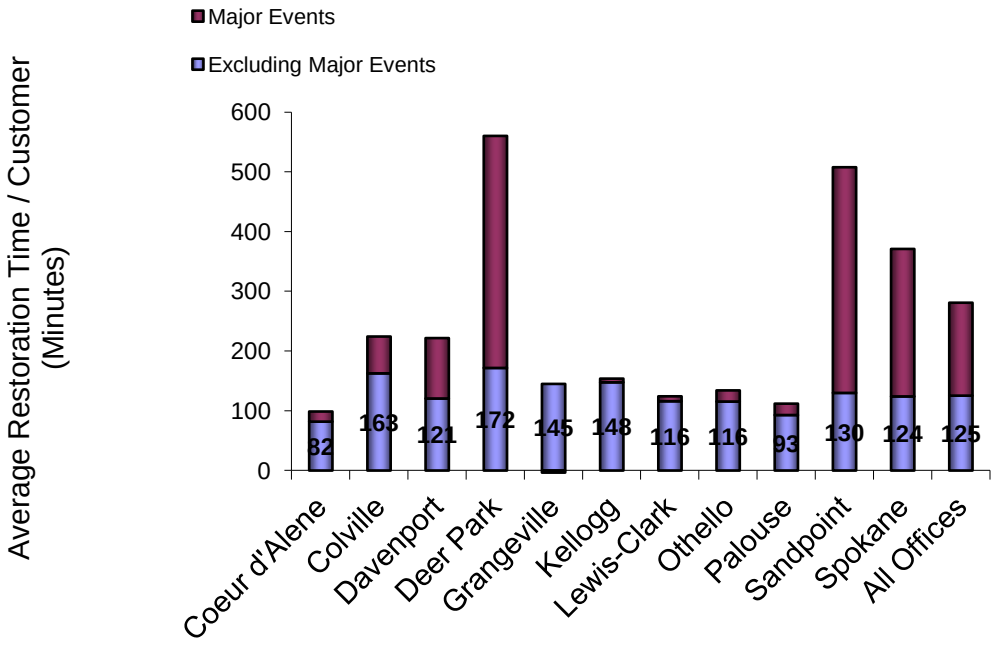


Chart 3.4 - CAIDI – Average Restoration Time



Areas of Concern

As in previous years, Colville continues to have the lowest reliability of Washington's operating areas. However, the Colville area continues to show improvement over previous years as work plans are implemented. Colville was judged lowest based on its performance in the yearly indices for SAIFI, SAIDI, CAIDI, and MAIFI. Within the Colville area, four feeders were identified as the Areas of Concern for 2014. Additionally three feeders in the Spokane area are included as areas of concern. These feeders are Gifford 34F1, Gifford 34F2, Spirit 12F1, Chewelah 12F2 in the Colville Area, and Colbert 12F1, Beacon 12F2, and Francis & Cedar 12F4 in the Spokane area. Chewelah 12F2 and all three Spokane area feeders are new areas of concern for 2014 while the remaining feeders were also identified in the 2013 report.

Cause Information

Generally, rural areas have a greater number of outages per customer. Colville is predominately rural and most feeders traverse forested areas. There are approximately 2,417 miles of distribution line exposed to weather, underground cable failures and tree problems. Unlike most of the Company's system, lines in this area are built on the narrow, cross-country rights-of-way, typical of PUD construction practices prior to Avista acquiring the system. These conditions make patrolling, tree trimming, rights-of-way clearing and other maintenance difficult. When cost effective, Avista moves sections of these overhead lines to road rights-of-way and/or converts them to underground.

Further, when outages occur in rural areas, the time required to repair damage is longer. More time is required for first responders to arrive and assess the damage and more time is required for the crew to reach the site. Often the damage is off road and additional time is required to transport materials and equipment to the site.

Snow loading on green healthy trees growing beyond the rights-of-way often causes them to bend or break and contact distribution lines. These trees are not cut as part of our vegetation management program because they are outside our rights-of-way and are considered healthy marketable timber.

A transmission pole fire was the main factor in Colbert 12F1 becoming an area of concern in 2014. The transmission outage resulted in a prolonged outage affecting the entire feeder. At the time of the outage, Colbert 12F1 was also carrying Colbert12F2, which contributed to a greater number of customers affected. This single event represented more than 50 percent of the total customer hours interrupted on the feeder for the year. The Colbert area was one of the most affected areas during the major windstorms during the summer of 2014. Nearly all of the incidents on this feeder this year were the result of windstorm repair, so it is believed that the reliability indices will normalize in the future.

A strong, isolated lightning event was the main factor in Beacon 12F2 becoming an area of concern in 2014. The lightning event caused damage to distribution, transmission and substation equipment and resulted in a prolonged outage affecting the entire feeder. This single event represented more than 90 percent of the total customer hours interrupted on the feeder for the year. It is believed that this is an isolated incident and that the reliability indices will normalize in the future.

Repair work done in the days after the summer 2014 windstorms were the main factor in Francis & Cedar 12F4 becoming an area of concern in 2014. The windstorms caused extensive damage that required

continued work in the days after each wind event. It is believed that the reliability indices will normalize in the future.

Listed below is a summary of the specific cause data for each feeder. This is a compilation of data from the Avista OMT and the reporting from our local servicemen to Distribution Dispatch. Data from the reporting system is shown as a percentage of total customer-outages, (SAIFI) for that feeder.

Gifford 34F1

ANIMAL	0.11%
POLE FIRE	1.33%
PUBLIC	20.13%
TREE	20.92%
UNDETERMINED	1.88%
WEATHER	17.56%
EQUIPMENT OH	28.52%
EQUIPMENT UG	0.13%
PLANNED	9.42%

Gifford 34F2

ANIMAL	0.05%
POLE FIRE	5.90%
PUBLIC	3.14%
TREE	0.83%
UNDETERMINED	0.66%
WEATHER	50.67%
EQUIPMENT OH	37.18%
EQUIPMENT UG	0.35%
PLANNED	1.21%

Spirit 12F1

ANIMAL	15.56%
POLE FIRE	0.12%
PUBLIC	9.53%
TREE	18.49%
UNDETERMINED	0.56%
WEATHER	13.12%
EQUIPMENT OH	6.72%
EQUIPMENT UG	0.00%
PLANNED	35.90%

Chewelah 12F2

ANIMAL	0.55%
POLE FIRE	0.00%
PUBLIC	4.89%
TREE	7.80%
UNDETERMINED	4.23%
WEATHER	18.29%
EQUIPMENT OH	53.20%
EQUIPMENT UG	0.00%
PLANNED	11.05%

Colbert 12F1

ANIMAL	0.00%
POLE FIRE	50.32%
PUBLIC	0.00%
TREE	0.12%
UNDETERMINED	0.07%
WEATHER	27.16%
EQUIPMENT OH	22.22%
EQUIPMENT UG	0.08%
PLANNED	0.02%

Beacon 12F2

ANIMAL	1.93%
POLE FIRE	5.06%
PUBLIC	0.03%
TREE	0.06%
UNDETERMINED	1.18%
WEATHER	90.89%
EQUIPMENT OH	0.02%
EQUIPMENT UG	0.00%
PLANNED	0.84%

Francis & Cedar 12F4

ANIMAL	23.94%
POLE FIRE	0.00%
PUBLIC	0.00%
TREE	2.08%
UNDETERMINED	0.21%
WEATHER	66.45%
EQUIPMENT OH	4.66%
EQUIPMENT UG	0.00%
PLANNED	2.66%

Colville Area Work Plans

The improvement work that has been accomplished or planned for historically low reliability feeders in the Colville area is listed below. The Company's reliability working group is continuing to study these feeders to develop additional work plans. Each of the identified feeders also had planned outages that correspond to the maintenance and replacement activities in the area.

Gifford 34F1

- Storm damage to lines led an effort to reconductor sections to 2/0 ACSR in 2012.
- A recloser is budgeted to be installed in 2014/2015 that will allow for better sectionalizing between the northern and southern sections of the feeder during outage events.
- $167k was spent in 2014 to replace 2 miles of overhead distribution line with underground cable.
- $250k is budgeted to reconductor 2 miles of overhead distribution line in 2015.
- Tentative plan to split existing feeder into two separate feeders possibly in 2015 or 2016.

Gifford 34F2

- Due to Cultural review issues on some of the Tribal lands only 3,000 feet of OH conductor was replaced in 2010. Continued work and negotiations for the remaining 5,000 feet occurred in 2011. Final work was completed in 2012.
- Vegetation Management work planned for 2012 was re-prioritized to 2011 after circuit assessment showed a large number of dead or dying trees within radius of contact of our lines. Line clearance crews trimmed 651 trees and removed 867 trees in 2011.
- $167k was spent in 2014 to reconductor 2 miles of overhead distribution line.
- $250k is budgeted to reconductor 2 miles of overhead distribution line in 2015.

Colville 34F1

- Vegetation Management crews were called to trim 3 trees and remove 59 trees as "unplanned" work on this circuit in 2011. A fall 2011 assessment of this circuit showed a significantly high mortality rate of trees within radius of contact of lines on the feeder. A line clearance crew began Risk Tree mitigation work on this circuit in February, 2012.
- $100k was budgeted in 2011 to replace outage prone overhead sections with URD cable.
- $62k was budgeted to install wild life guards in 2011. Approximately 65% of the CLV12F1 feeder was completed in 2011. Remaining work was completed in 2012.
- $250k was budgeted in 2013 to replace overhead line sections with URD cable to reduce tree exposure. Work was completed in 2013.
- $50k was budgeted in 2013 to install a recloser to allow for better outage sectionalizing. Work was completed in 2013.
- $250k is budgeted to reconductor 2 miles of overhead distribution line in 2015.

Spirit 12F1

- Feeder was part of the Grid Modernization program for 2014. Additional Grid Modernization work on this feeder is scheduled to take place in 2016. Feeder will also have reconductor and fusing work performed as well as other upgrades that may improve reliability.

Table 4.1 - Colville Area Major Reliability Projects by Feeder

Feeder	Decisions/ basis	2015	2016 and Beyond
Gifford 34F1	Reliability improvements	Reconductor work. Examine possible split into 2 feeders.	No work planned in the next 5 years.
Gifford 34F2	Reliability improvements	Reconductor work	No work planned in the next 5 years.
Colville 34F1	Reliability improvements	Reconductor work	No work planned in the next 5 years.
SPI12F1	Reliability Improvements	Grid Modernization Program Feeder	Finish Grid Modernization in 2016

Table 4.2 - Colville Area Historical & Proposed Future Reliability Projects by Feeder

Feeder Name	Last WPM Insp.	Proposed WPM Inspection	Proposed WPM Follow-up	Transformer Change-outs	Last Veg. Mgmt.	Veg. Mgmt. Proposed Year	Wildlife Guards Proposed Year
GIF34F1	2011-2014	25% per year for 4 yrs	25% in 2012 25% in 2013 25% in 2014 25% in 2015	18 in 2014	2009	2015	Last 2011 N/A on Proposed
GIF34F2	1995	Past 2018 Plan AM will need to project	N/A	69 in 2013/2014	2011	2016	N/A
CLV34F1	2007	2027 20 year cycle	2028	49 in 2015	2007	2013	Last 2011 N/A on Proposed
VAL12F1	2010	2030 20 year cycle	Completed in 2011 (except for WSDOT ROW poles)	188 in 2013/2014	2010	2016	N/A
SPI12F1	2013	2033 20 year cycle	Grid Modernization Project	6 in 2013	2011	2016	N/A
VAL12F3	1998	2019 20 year cycle	2020	22 changed out since 2010 38 more by end of 2016	2010	2015	N/A

Avista System Wide Work Plans

Material records show that some wildlife guards were installed on new distribution transformers installations starting in the mid 1980's. With the recognition of increases in animal caused outages, new materials and improvements have been made in the construction standards for new distribution transformer installations to reduce these types of outages. Initial indications show that the outage reduction on a feeder after wildlife guards are installed is significant.

2009 was the start of the multiyear wildlife guard installation program to reduce the squirrel and bird related outages on approximately sixty feeders in Washington and Idaho. Most of the wildlife guards were installed with a hot stick on existing transformers that do not have an existing wildlife guard.

Chart 4.1 – Squirrel Related Events

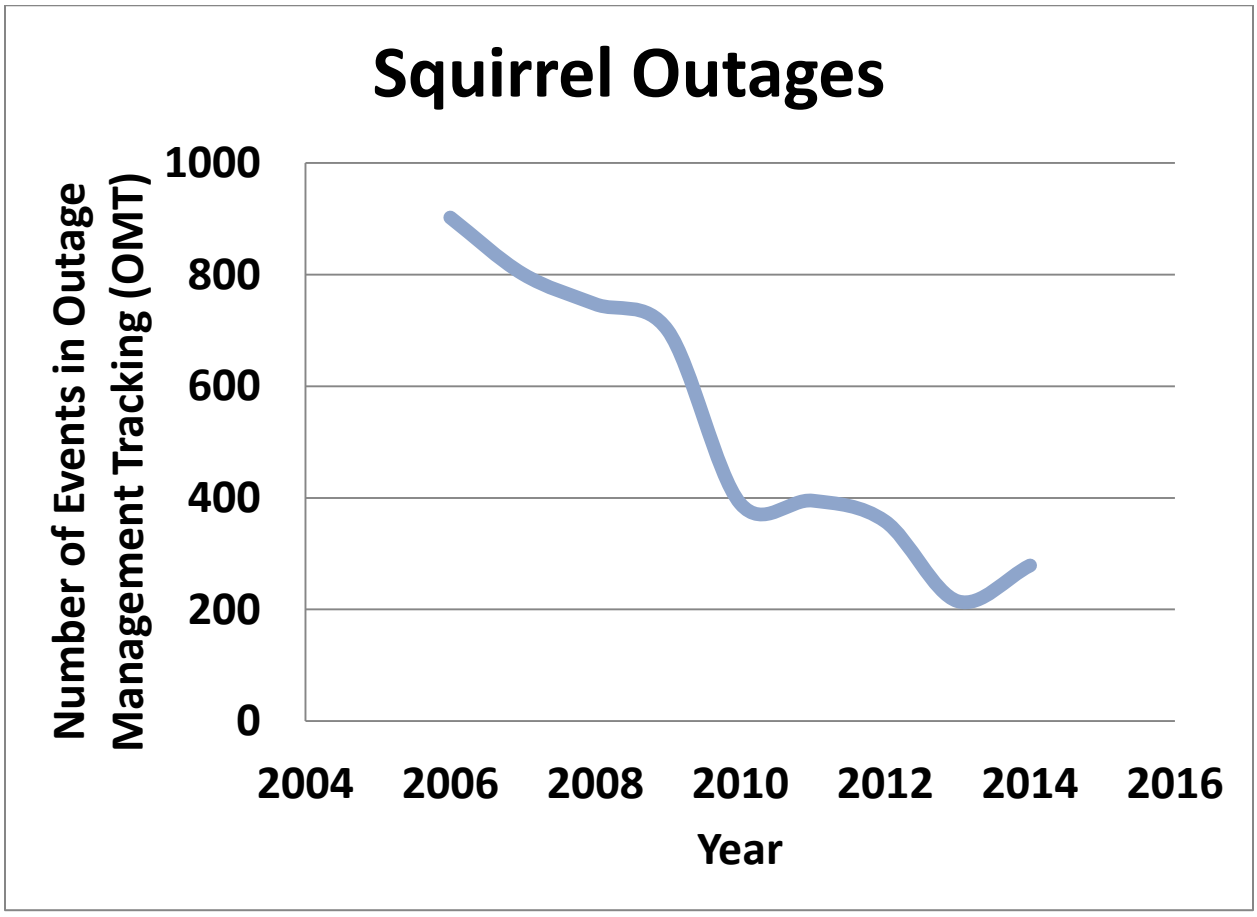
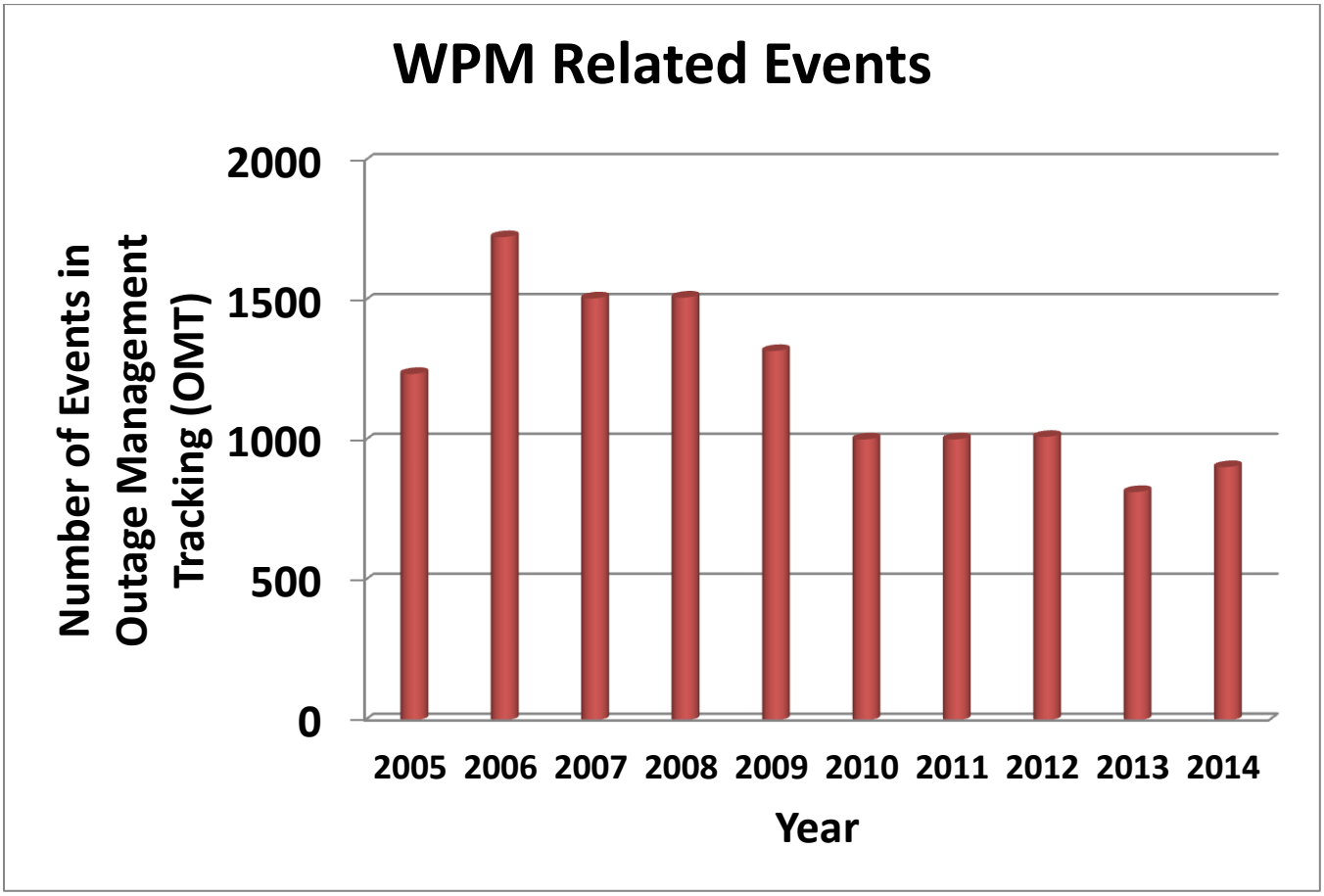
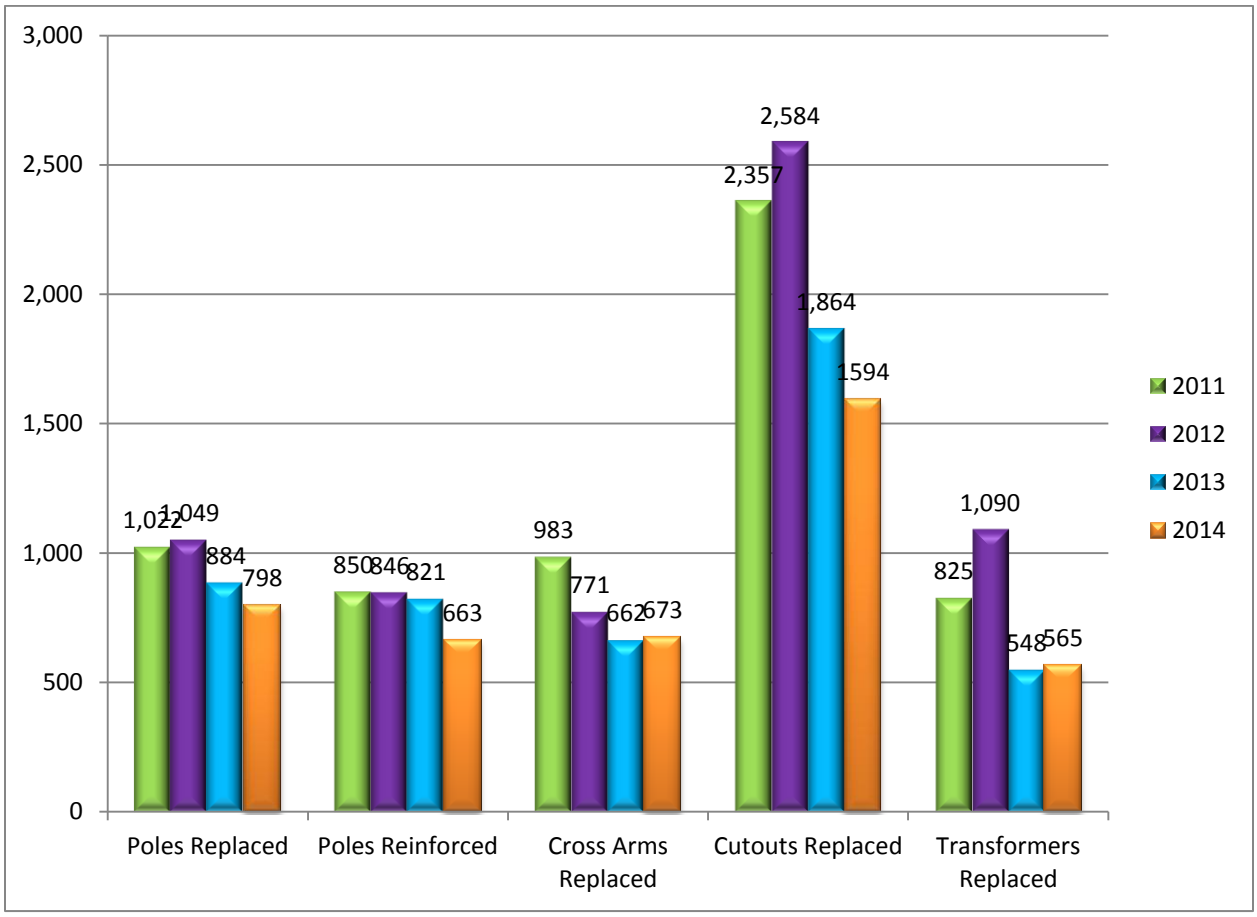


Chart 4.2 – Wood Pole Management Related Events



Asset Management in conjunction with the Wood Pole Management Program over the last four years has stubbed/reinforced or replaced numerous poles, replaced numerous pole top transformers and associated cutouts/arresters. The impacts of the program are shown in the chart above. Below is a chart that summarizes the Wood Pole Management activities.

Chart 4.3 – Wood Pole Management Actions



Avista Grid Modernization Program

Grid Modernization Program Overview

Avista has initiated a Grid Modernization Program that is designed to reduce energy losses, improve operation, and increase the long-term reliability of its overhead and underground electric distribution system. The program will include replacing the following item: poles, transformers, cross arms, arresters, air switches with steel arms, grounds, cutouts, riser wire, insulators, and conductors to address concerns related to age, capacity, high electrical resistance, strength, and mechanical ability. Changes, including the addition of wildlife guards, smart grid devices, switch capacitor banks, balancing feeders, removing unauthorized attachments, replacing open wire secondary, and reconfigurations are included in the Program.

Grid Modernization Program Objectives

- Safety – Focus on safe practices for crew work by designing work plans to avoid safety risks.
- Reliability – Replacing aging and failed infrastructure that has a high likelihood of creating an unplanned crew call-out.
- Energy Savings – Replace equipment that has high energy losses with new equipment that is more energy efficient and improve the overall feeder energy performance.
- Operational Ability – Replace conductor and equipment that hinders outage detection and install smart grid devices that enable isolation of outages.

Avista System Wide Vegetation Management Plan

Avista has an annual vegetation management plan and budget to accomplish the plan. The budget is allocated into distribution, transmission, administration, and gas line re-clearing.

Distribution

Avista's distribution system is managed by Avista's Utility Arborist. Every distribution circuit is scheduled to be line clearance pruned on a regular maintenance cycle of five years. The program also identifies risk trees system wide every two years. Risk tree management includes:

- Improved mid-cycle (two to three years after planned maintenance work is completed) Risk Tree assessment and mitigation on circuits in our more heavily vegetated areas (such as the Colville Division).
- Herbicide program to assess and address needed work on each circuit over a five year cycle (three years after line clearance work performed).

Transmission

The transmission system is managed by Avista's forester. All 230 kV lines are patrolled annually for hazard trees and other issues, and mitigation is done in that same year. Approximately one third of the 115 kV transmission system is patrolled annually for hazard tree identification and assessment of right-of-way clearing needs. Right-of-way clearing maintenance is scheduled and performed approximately every ten to fifteen years (for each line). Interim spot work is done as identified and needed. Engineering specifications for various voltages, line configurations are followed when clearing the right-of-way. Currently, the work is bid to a variety of contractors.

Customers Experiencing Multiple Interruptions

Avista has used the data from the OMT system integrated with the GIS system to geospatially display reliability data for specific conditions. The specific conditions imply looking at the number of sustained interruptions for each service point (meter point). This would be similar to the SAIFI index, but would be related to a certain number of sustained interruptions. Avista includes all sustained interruptions including those classified under Major Event Days. This provides a view of what each customer on a specific feeder experiences on an annual basis. Momentary Interruptions are not included in the $CEMI_n$ index because by IEEE definition only applies to sustained outages. Other Momentary Indices are not included because of the lack of indication at many rural substations and line locations.

The first chart below provides a view of the percentage of customers served from the Avista system that have sustained interruptions. 66.1 % of Avista customers had one or fewer sustained interruptions and 5.3% of Avista customers had six or more sustained interruptions during 2014.

The remaining geographic plots show the sustained interruptions by color designation according to the legend on each plot for each office area. Note the office area is designated as the area in white for each plot and that there is overlap between adjacent office area plots. The adjacent office areas are shown in light yellow.

The plots provide a quick visual indication of varying sustained interruptions, but significant additional analysis is required to determine underlying cause(s) of the interruptions and potential mitigation.

Chart 5.1 - Avista Service Territory - $CEMI_n$

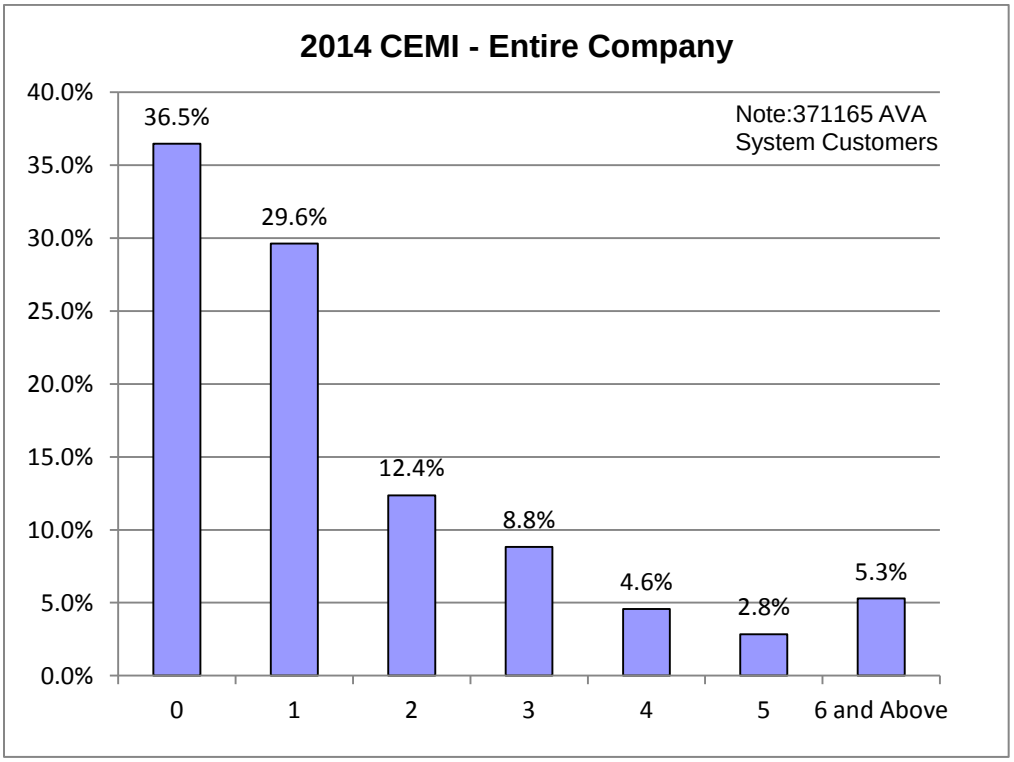


Chart 5.2 - Colville Office - $CEMI_n$

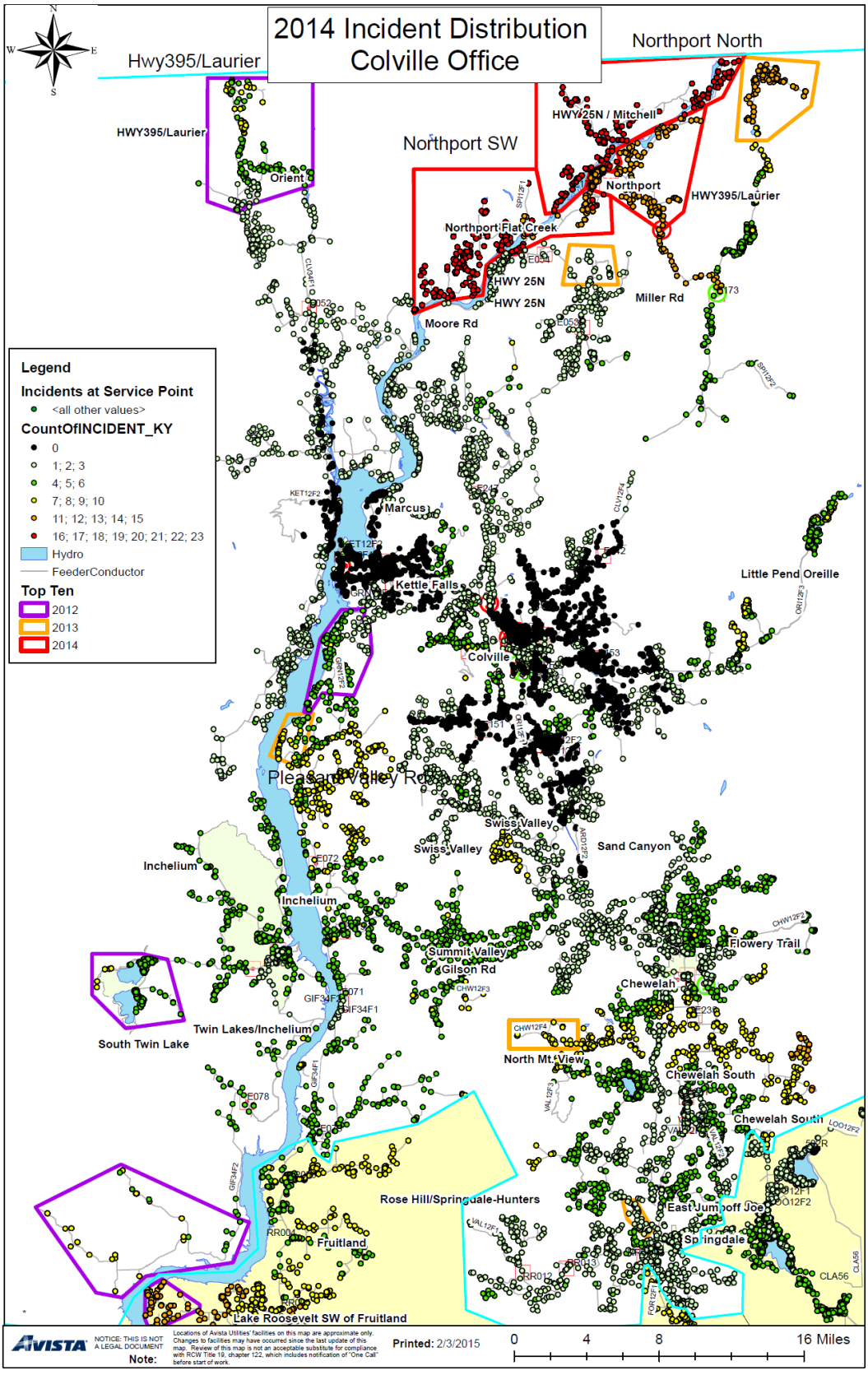


Chart 5.3 - Davenport Office - CEMI$_n$

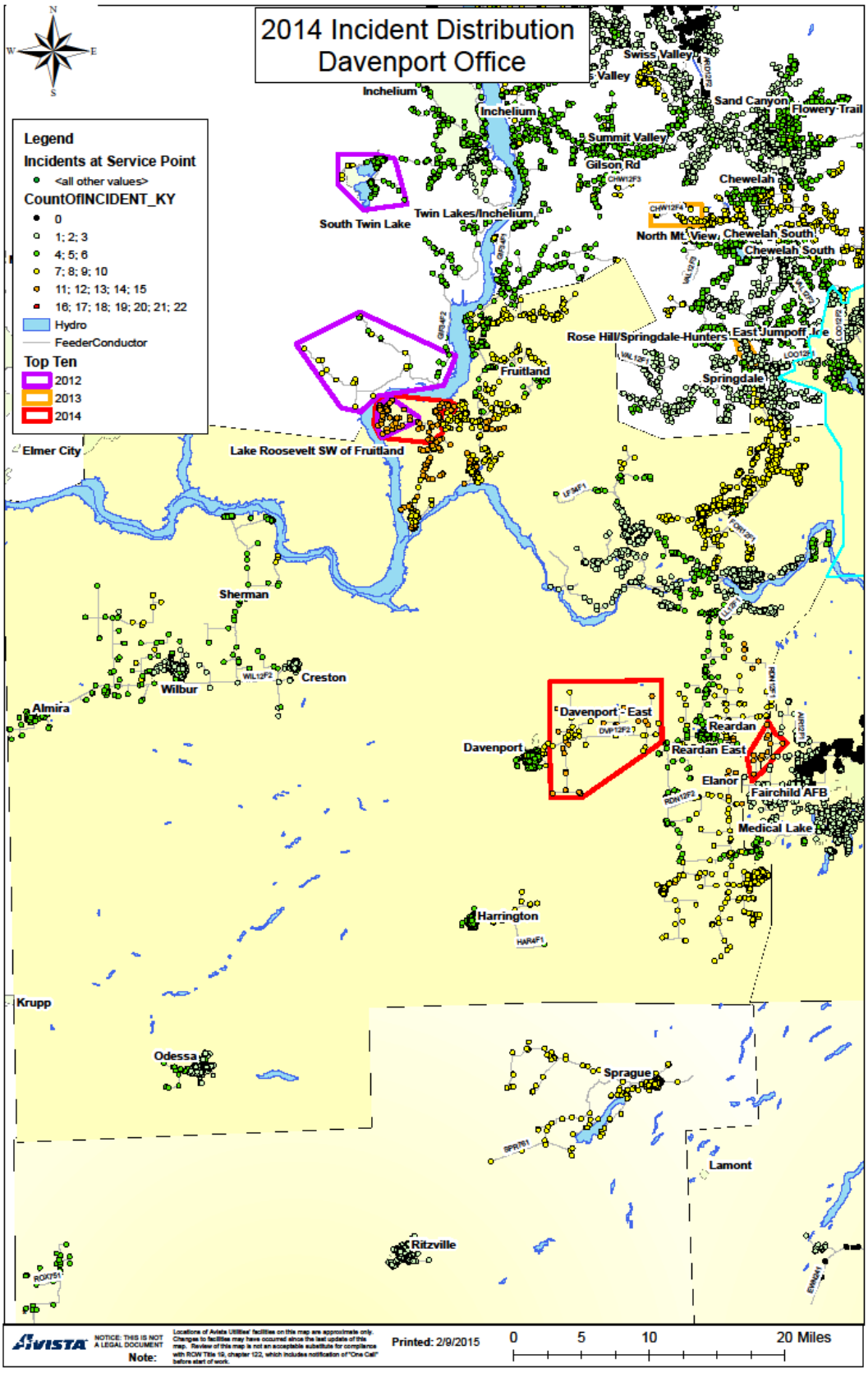


Chart 5.4 - Deer Park Office - $CEMI_n$

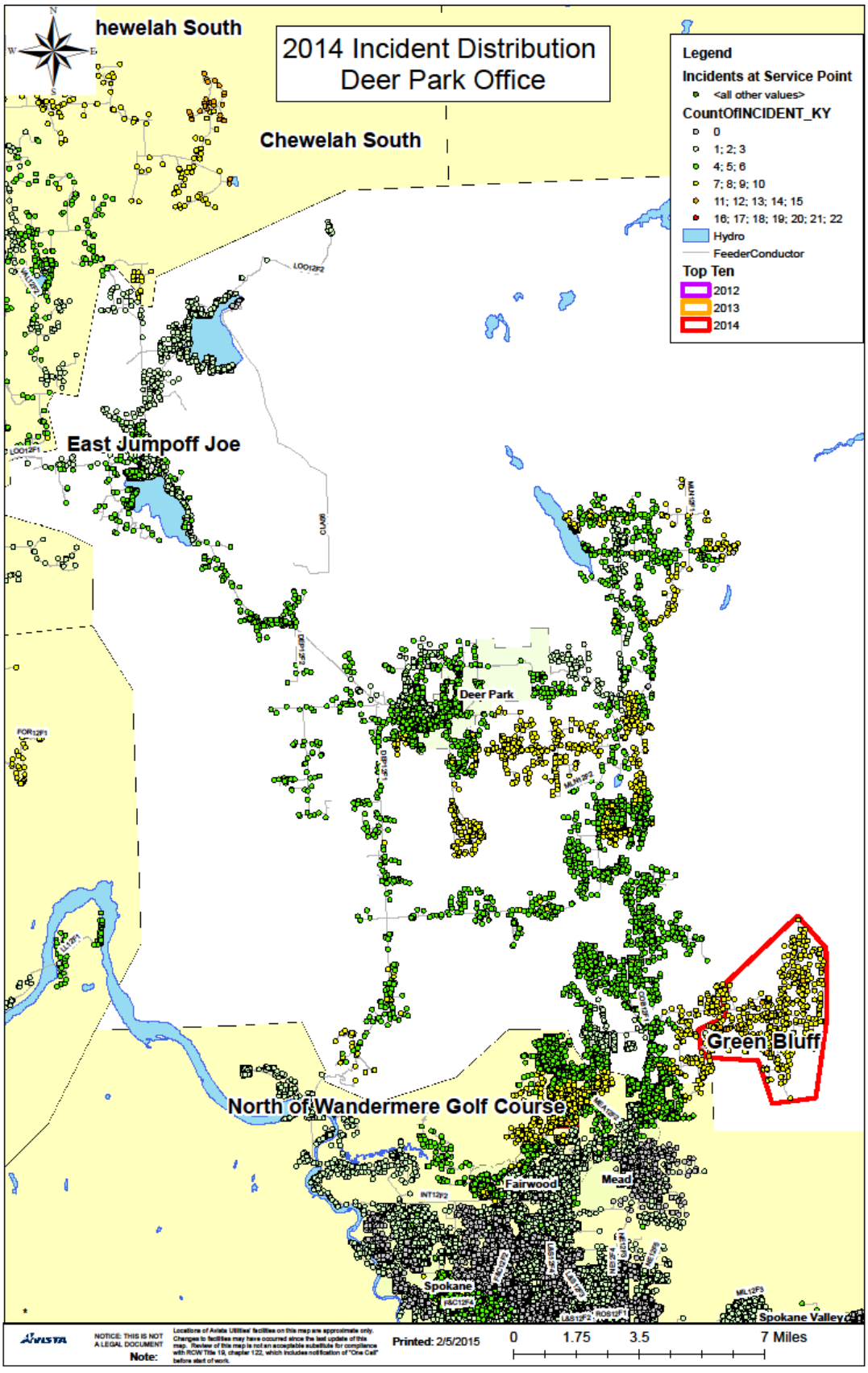


Chart 5.5 - Othello Office - CEMI$_n$

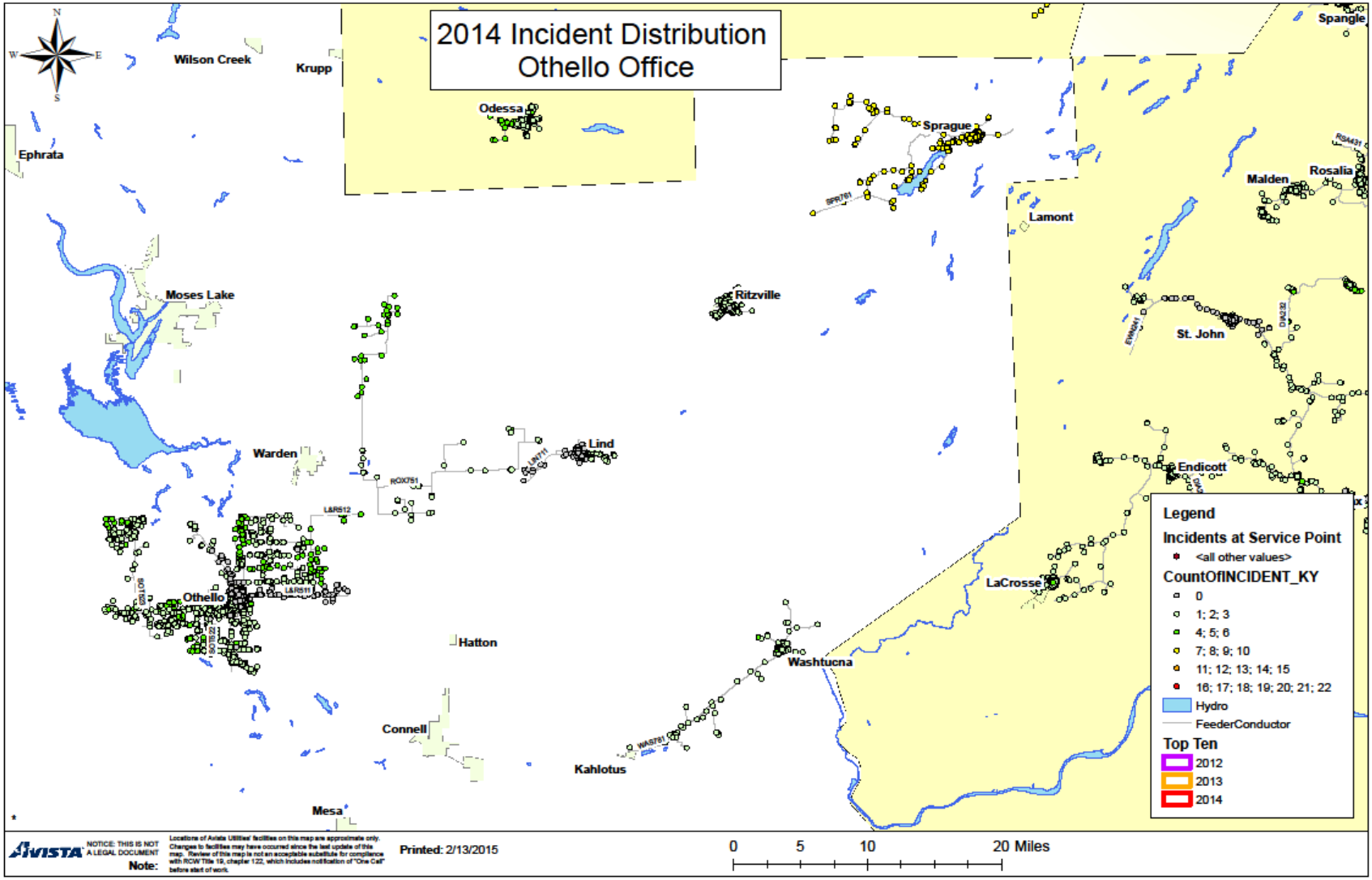


Chart 5.6 - Palouse Office - CEMI$_n$

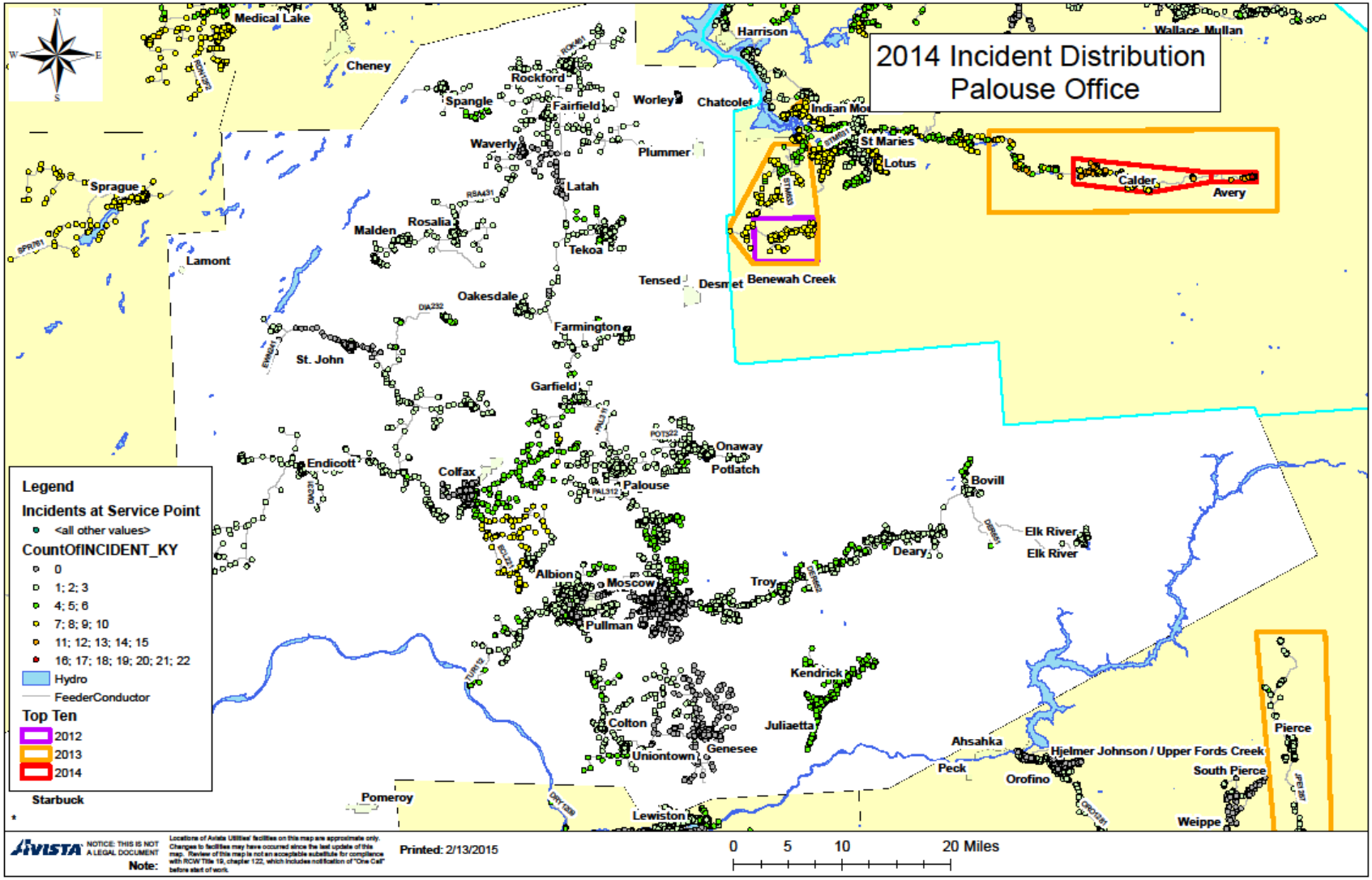


Chart 5.7 - Lewis-Clark Office - $CEMI_n$

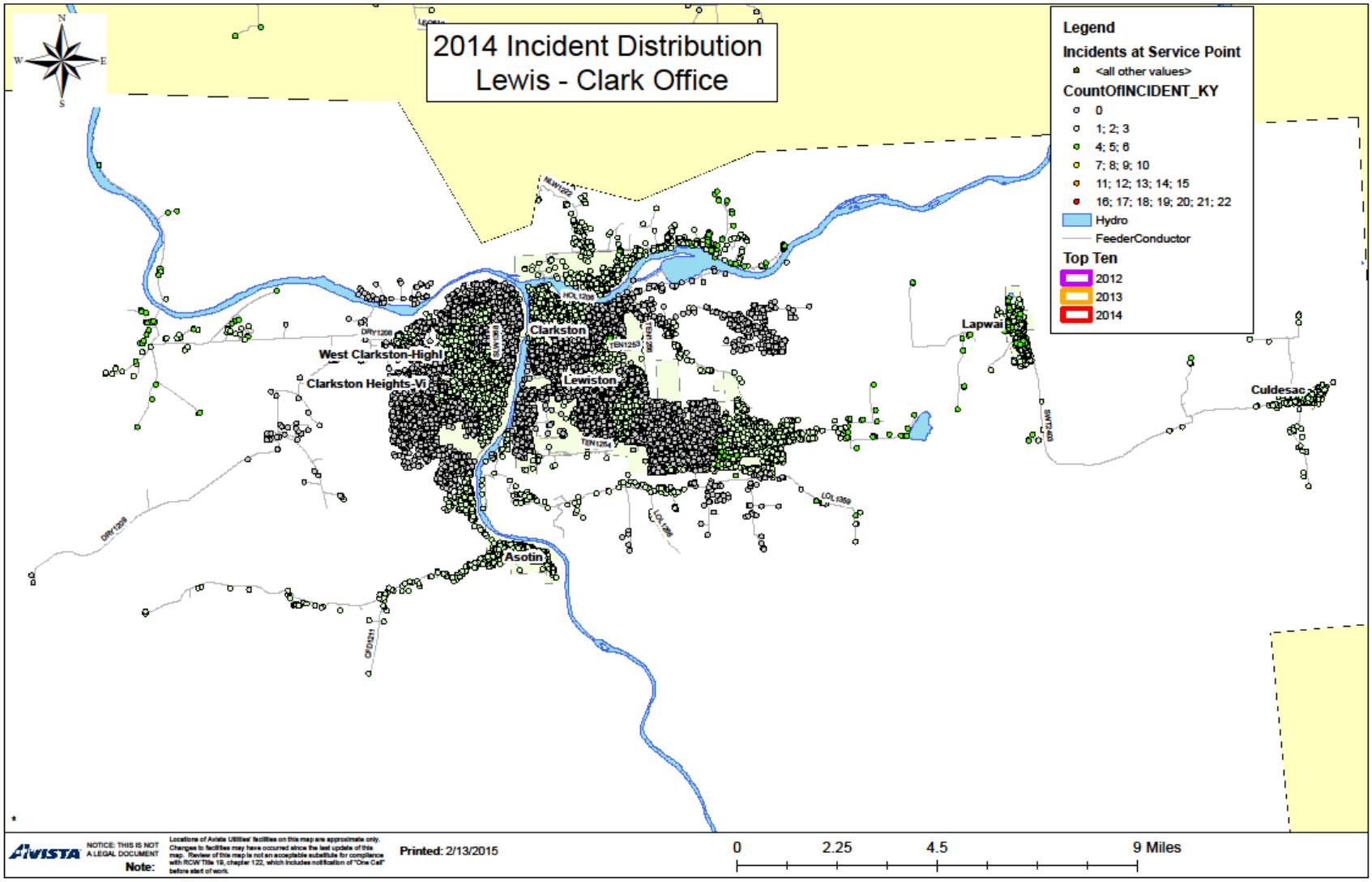


Chart 5.8 - Spokane Office - CEMI$_n$

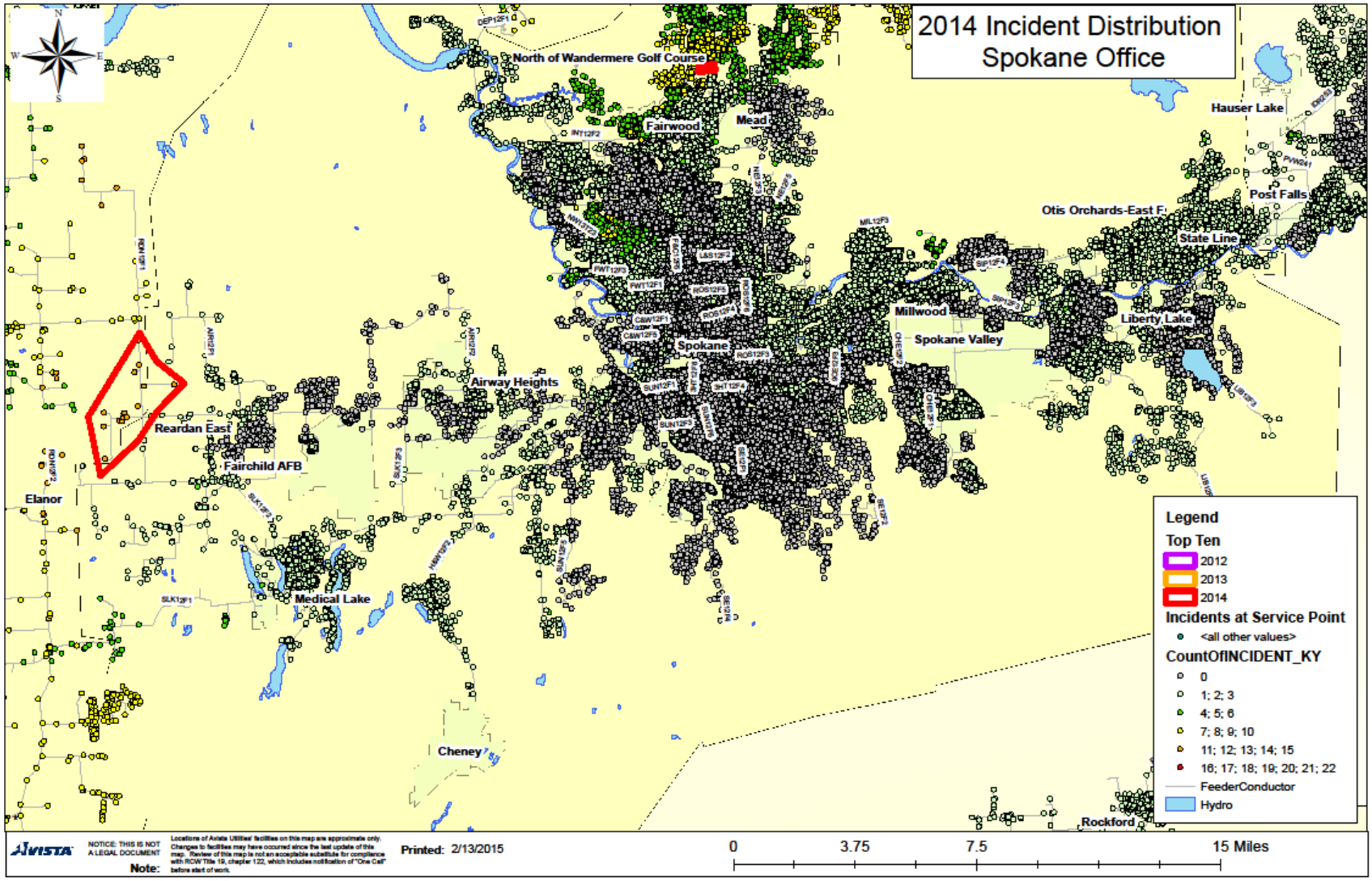


Chart 5.9 - Sandpoint Office - CEMI$_n$

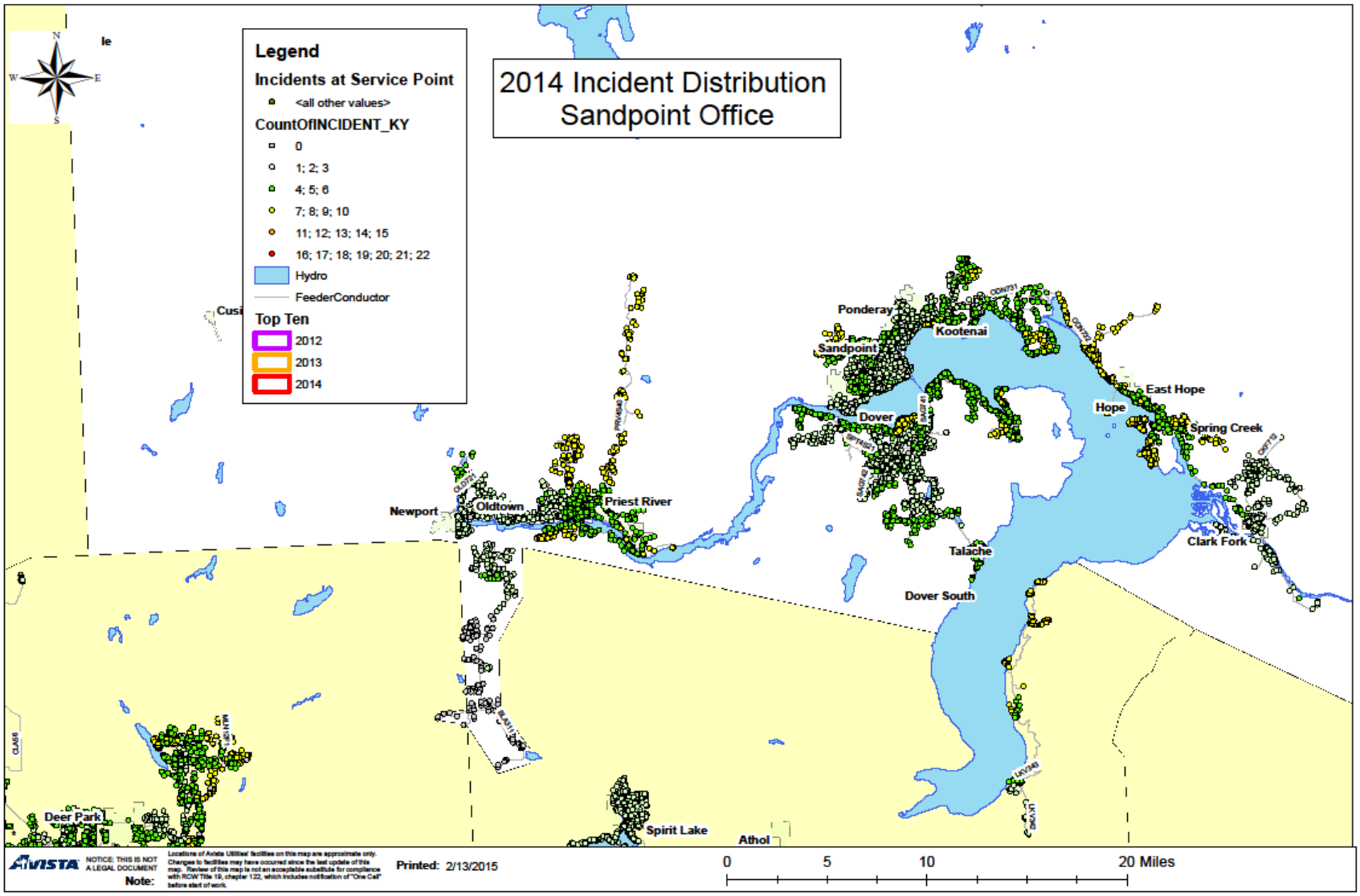


Chart 5.10 - Kellogg Office - CEMI$_n$

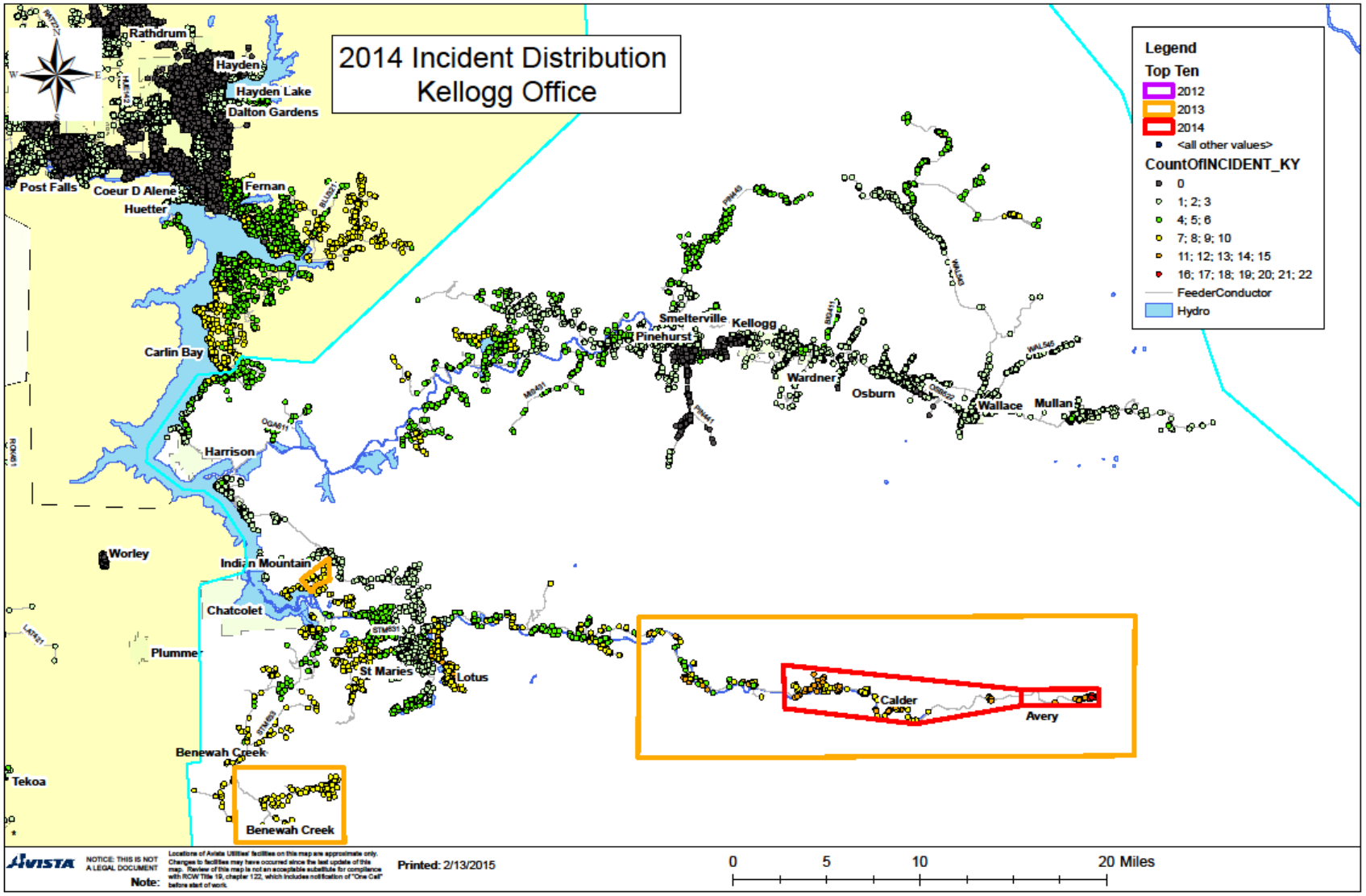


Chart 5.11 - Coeur d'Alene - $CEMI_n$

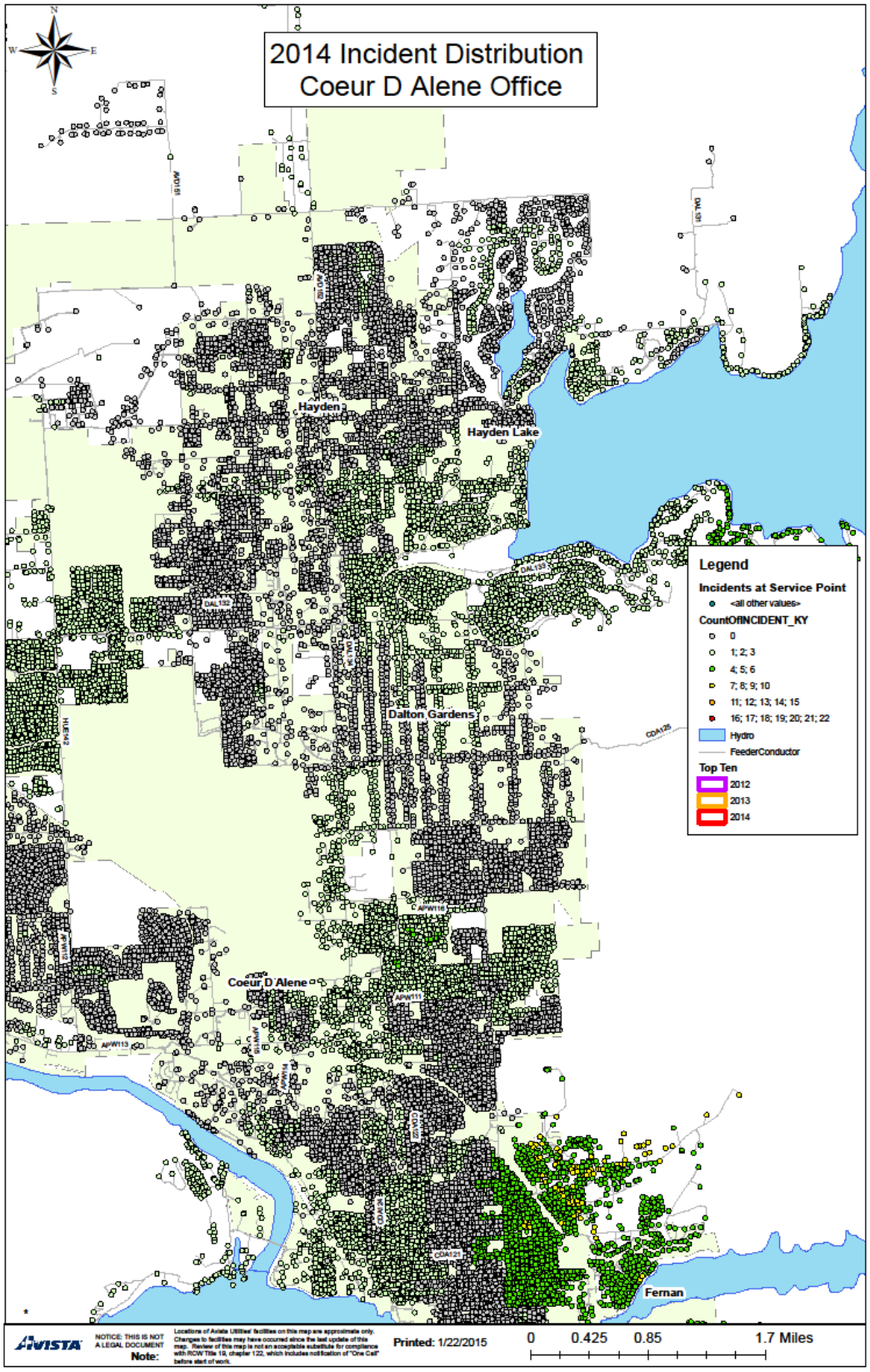
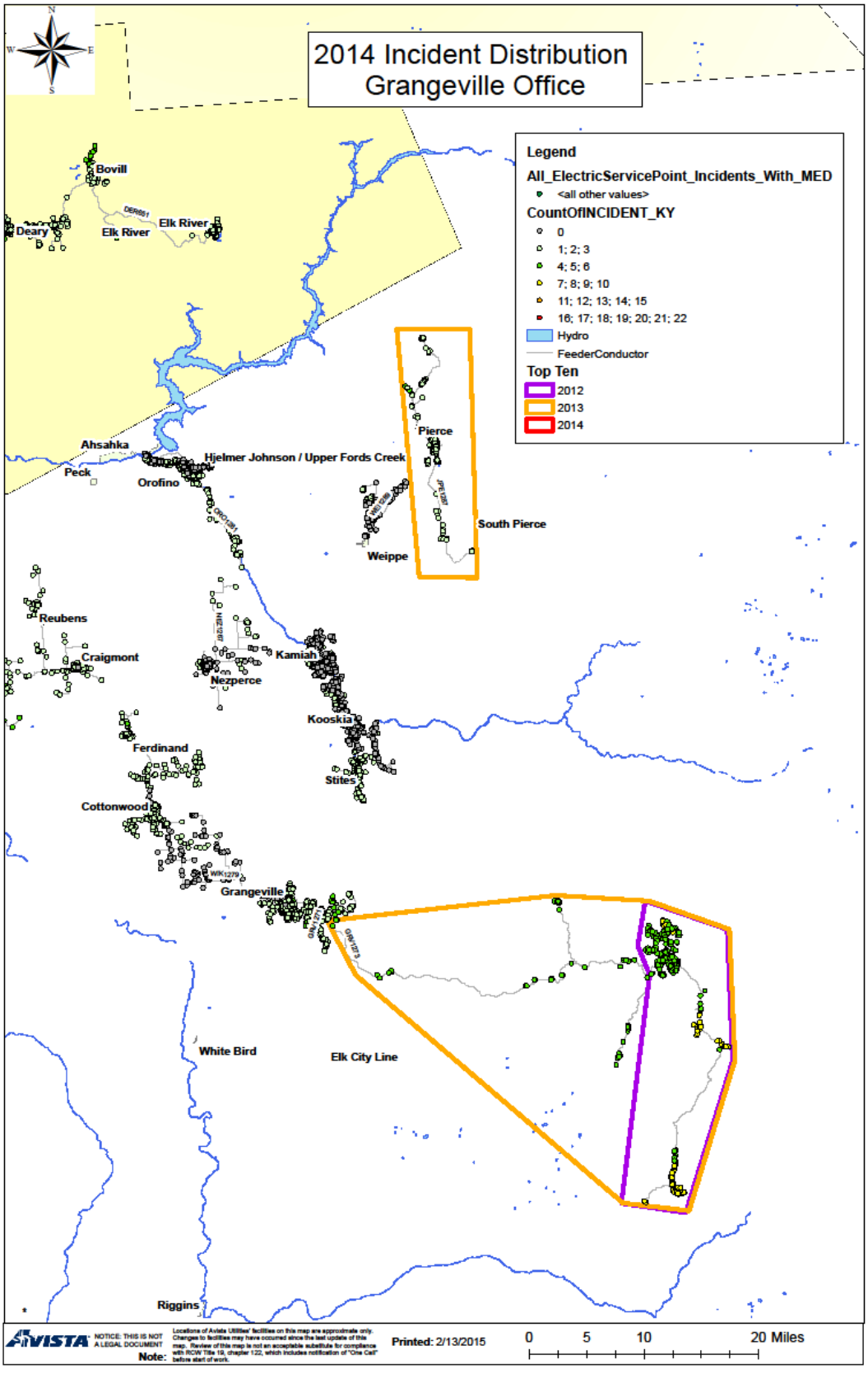


Chart 5.12 - Grangeville Office - CEMI$_n$



Monthly Indices

Each of the following indices, reported by month, shows the variations from month to month. These variations are partially due to inclement weather and, in some cases, reflect incidents of winter snowstorms, seasonal windstorms, and mid- and late summer lightning storms. They also reflect varying degrees of animal activity causing disruptions in different months of the year.

Chart 6.1 – SAIFI - Sustained Interruptions / Customer

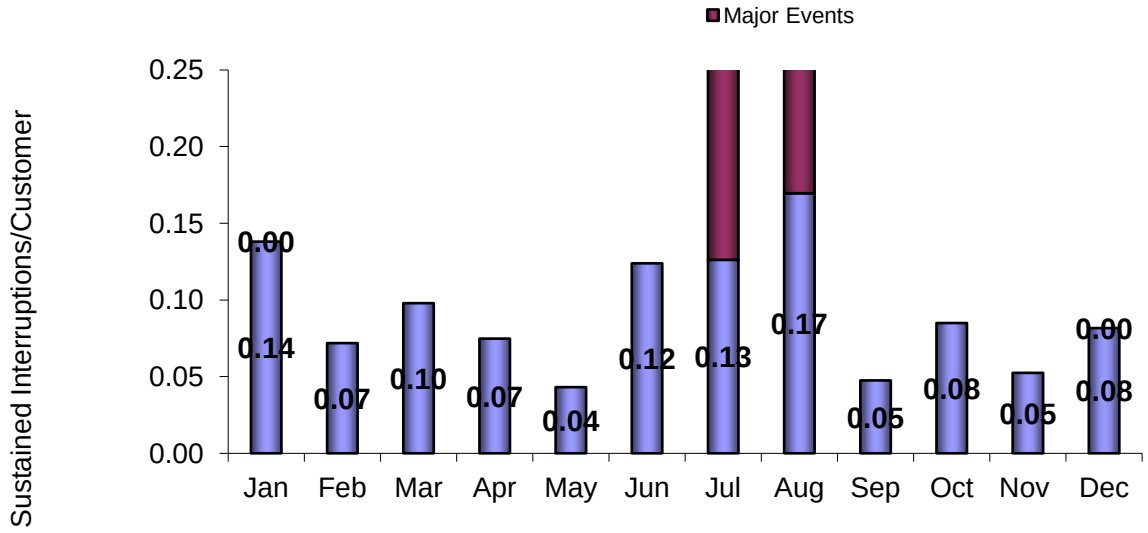


Chart 6.2 - MAIFI Momentary Interruption Events / Customer

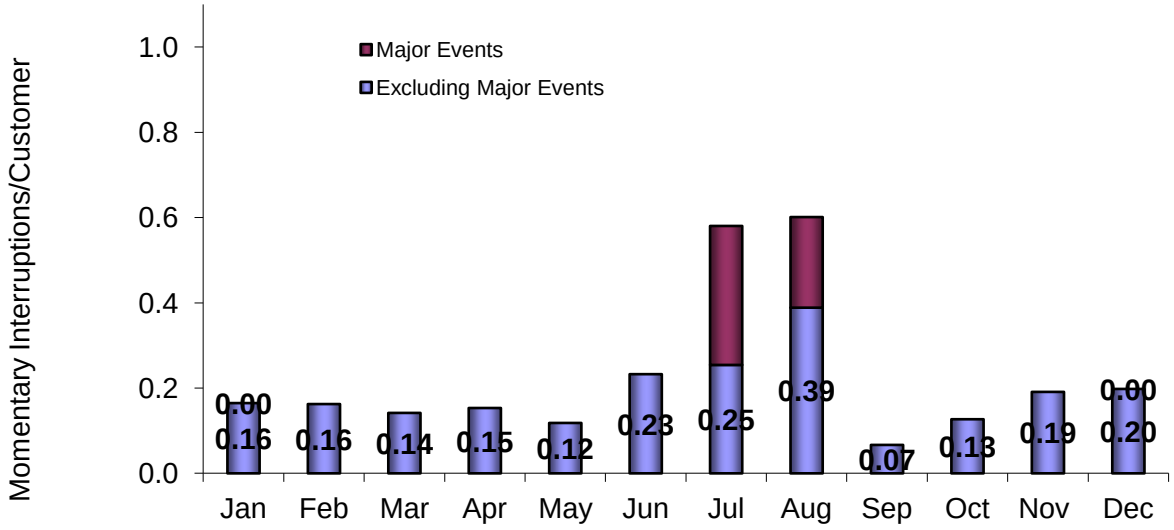


Chart 6.3 - SAIDI – Average Outage Time / Customer

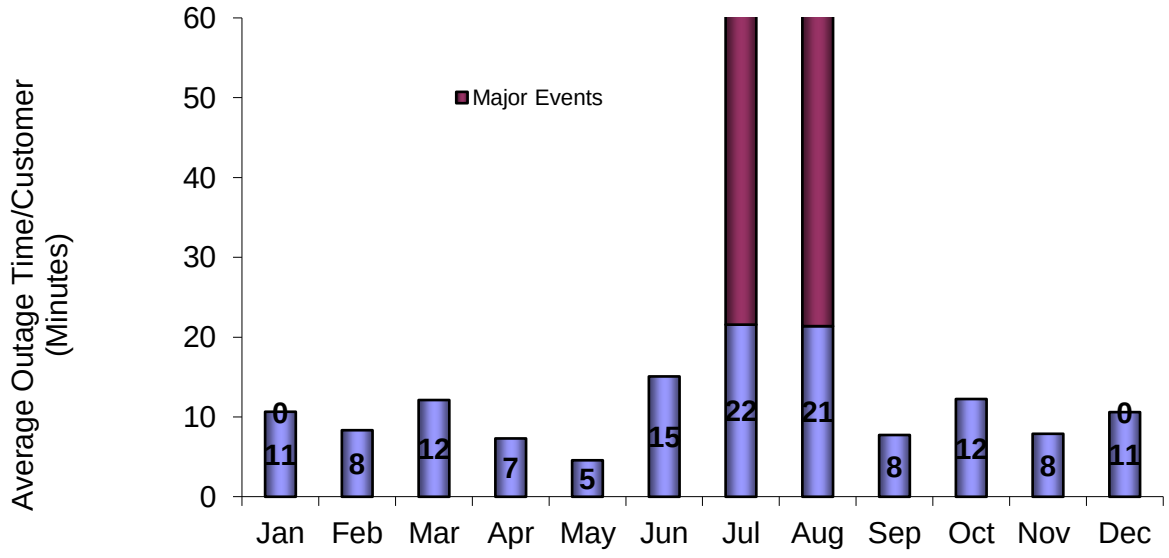
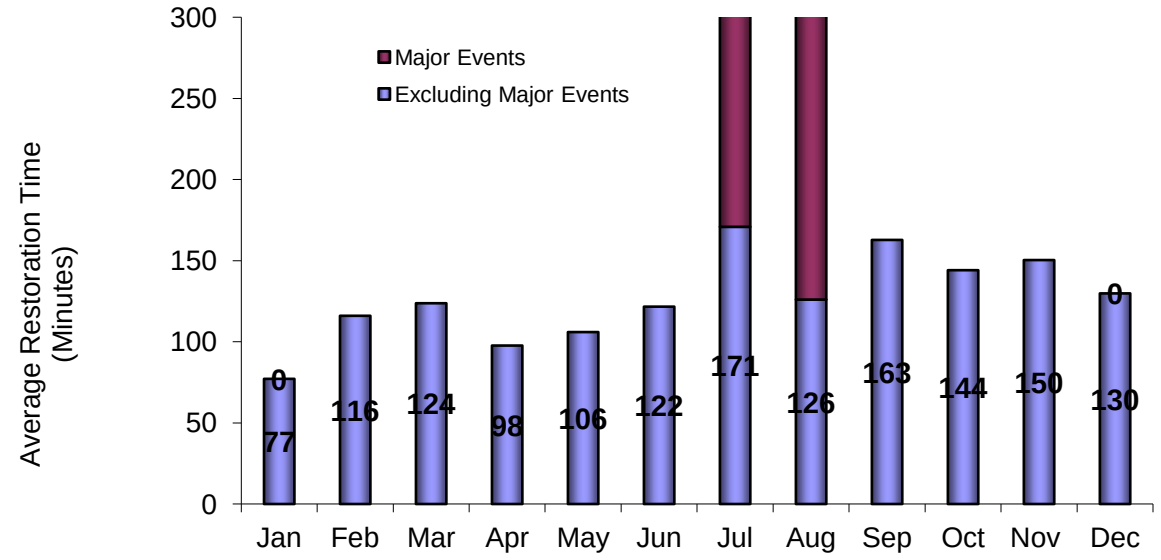


Chart 6.4 - CAIDI – Average Restoration Time



Customer Complaints

Table 7.1 - Commission Complaints

The following is a list of complaints made to the Commission during 2014.

Customer / Feeder	Complaint	Complaint Category	Resolution
0	0	0	0

Table 7.2 - Customer Complaints

The following is a list of complaints made to our Customer Service Representatives during 2014.

Office /State /Feeder	Complaint	Complaint Category	Resolution
Deary ID DER651	Electric customer states numerous outages in the last several months, feels he is receiving poor service, mentioned he had to purchase a new tv, CSR filed a claim for damage.	Outages	Customers have many trees and have had issues with snow/trees this year, would like to see trees trimmed. Local Rep set an appt to meet customers, and also set up with meterman to put recorder on residence. He is working with customers on an ongoing basis.
Chewelah WA CHW12F3	Customer is frustrated that he receives partial power on occasion. He said that it has ruined his equipment and been unreliable. He wishes he could get service with a different company due to the issues he has received at his address.	Outages	Contacted customer to discuss his concern about not receiveng a call back after his concern was investigated. Apologized for the followup not taking place and he seemed satisfied to get a call back.
CHewelah WA CHW12F3	Customer is upset at all the power outages. Asked since Avista is making millions of dollars why does the power go out each time it rains. Transferred to EQ. Call was disconnected.	Outages	Attempted to call customer to discuss outages - voicemail full - unable to leave message.
Reardan WA	Multiple outages. Customer wants to switch to new and more reliable provider. Did not want call back. Recent outage dates	Outages	None.

RDN12F2	2014: 1/22, 1/17, 1/13, 2013: 12/08, 3/11, 3/06. Customer works from home		
Spokane WA SPT4S21	Customer is upset about the # of power outages they have had in the last 6 months. Upset that the outages come without warning and it is an inconvenience - she has children in the home. Shes a very unhappy customer. Also stated that when trying to call us at 800-227-9187 she would get told she won a cruise. She got a new number from someone on facebook , 888-427-4303. Customer would like a call back.	Outages	Called and went over customers concerns. Explained outage situations, also explained that if 9187 at end of Customer Service number gets transposed to 9817 she will reach a scam line offering trip to Bahamas. Customer satisfied with information.
Mead WA COB12F1	Spoke with customer, shortly after the power went out. Customer was upset as this just happened a couple weeks ago. She stated that this happens frequently and that it always takes forever to get turned back on. She does business from home and can't afford for this to happen. She said if the wind barely blows the power goes out and it only seems to happen to them. Customer wants a return call.	Outages	Talked with customer, weather related. Explained process for evaluating damages and restoration times. Customer still not happy power was out twice.
Mead WA MEA12F2	Customer is upset that she has no service again, third time in a month. Thinks Avista needs to make some long-term changes.	Outages	Sympathized with customer but also pointed out that this has been a highly unusual summer for weather. She has never been without service except with the three storms we just had.
Spirit Lake ID SPI12F1	Customer feels system is not reliable. No accountability. Seems to have more and more outages each year. Customer feels upgrades should take place at night	Outages	Customer venting disappointment about outages. Explained this upgrade needs to take place during the day.
Sprague WA SPR761	Customer upset about power going out 3 times tonight. Customer feels service is not consistent and feels grid is unstable with repeated outages. Customer says this is not tolerable and would like a call back with resolution.	Outages	Local Rep talked to him in person and all is fine.
St. Maries ID STM633	Customer is unhappy regarding all of the outages he experiences in the St. Maries area. Customer says a manager called him a few years ago and wanted to downgrade the St. Maries crew and they are some of the best and most hardworking people. Customer thinks their lines need to be replaced out here instead of giving away cars on krem news. CSR explained the funding differences and he was nice but doesnt feel like anyone cares.	Outages	District Manager spoke to customer. Customer was not upset but would like Avista to provide more funding on upgrading infrastructure.
Priest River ID PRV4S40	Customer feels equipment is not up to date. Customer stated there were too many outages recently and feels Avista should bring in more crews.	Outages	Customer wanted to voice concerns over recent 4 outages.
Tekoa	Customer states: For at least the past week our entire town has	Outages	Customer could not be reached so message was left

WA TKO411	lost power every day. Sometimes it is only once a day for a minute or two, and other times we lose power multiple times for up to half an hour. It's getting ridiculous that we are paying such high rates for far less than satisfactory service. I have seen no efforts on your company's behalf to solve this problem.		explaining the reason for the outages - the weather conditions iced up the conductors and we had repeated failures all over the system. Customer was invited him to call back at their convenience to discuss further if wanted.
Pullman WA PUL116	Customer states: We have experienced a number of outages over the last few days. Is there some problem that we need to be aware of? Outages occurred on Saturday 2/1 twice, and on Monday 2/3 twice.	Outages	Explained that icy conditions have caused repeated outages throughout the area in addition to their outage.

Sustained Interruption Causes

Table 8.1 - % SAIFI per Cause by Office

The following table lists the percentage SAIFI contribution by causes for outages excluding major event days.

Reason	CDC	COC	DAC	GRC	KEC	LCC	OTC	PAC	SAC	SPC	DPC	All Offices
ANIMAL	12.0%	5.0%	3.1%	8.4%	2.5%	3.2%	1.5%	6.3%	1.4%	6.2%	0.7%	5.4%
MISCELLANEOUS	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
POLE FIRE	1.8%	7.6%	0.5%	10.4%	0.1%	10.1%	8.4%	4.4%	0.2%	10.7%	40.6%	8.1%
WEATHER	14.1%	24.4%	47.8%	13.7%	35.0%	11.0%	13.4%	9.9%	20.0%	16.5%	13.7%	19.9%
UNDETERMINED	17.1%	4.8%	9.1%	3.4%	21.6%	1.2%	8.5%	12.1%	11.4%	10.6%	0.4%	10.3%
TREE	11.2%	10.8%	4.1%	7.6%	14.3%	6.9%	0.5%	16.5%	36.7%	3.2%	1.9%	9.4%
PUBLIC	20.2%	8.2%	2.7%	9.9%	5.9%	11.2%	1.4%	20.7%	6.7%	4.1%	15.5%	10.0%
COMPANY	2.3%	0.0%	4.7%	0.0%	0.2%	17.7%	4.5%	4.0%	0.0%	8.4%	0.0%	4.0%
EQUIPMENT OH	5.0%	24.9%	24.5%	11.2%	16.2%	10.4%	49.7%	10.6%	18.6%	27.3%	21.5%	19.8%
EQUIPMENT UG	0.1%	0.2%	0.1%	0.8%	0.4%	11.8%	0.0%	1.6%	0.4%	2.5%	4.4%	1.7%
EQUIPMENT SUB	8.0%	0.0%	0.0%	0.0%	0.0%	11.9%	0.0%	6.5%	0.1%	0.0%	0.0%	2.3%
PLANNED	8.2%	14.1%	3.5%	34.6%	3.8%	4.7%	12.1%	7.4%	4.6%	10.6%	1.3%	9.0%

CDC	Coeur d'Alene	LCC	Lewiston-Clarkston
COC	Colville	OTC	Othello
DAC	Davenport	PAC	Palouse
DPC	Deer Park	SAC	Sandpoint
GRC	Grangeville	SPC	Spokane
KEC	Kellogg/ St. Maries		

Chart 8.1 – % SAIFI per Cause by Office

The following chart shows the percentage SAIFI contribution by causes for outages excluding major event days.

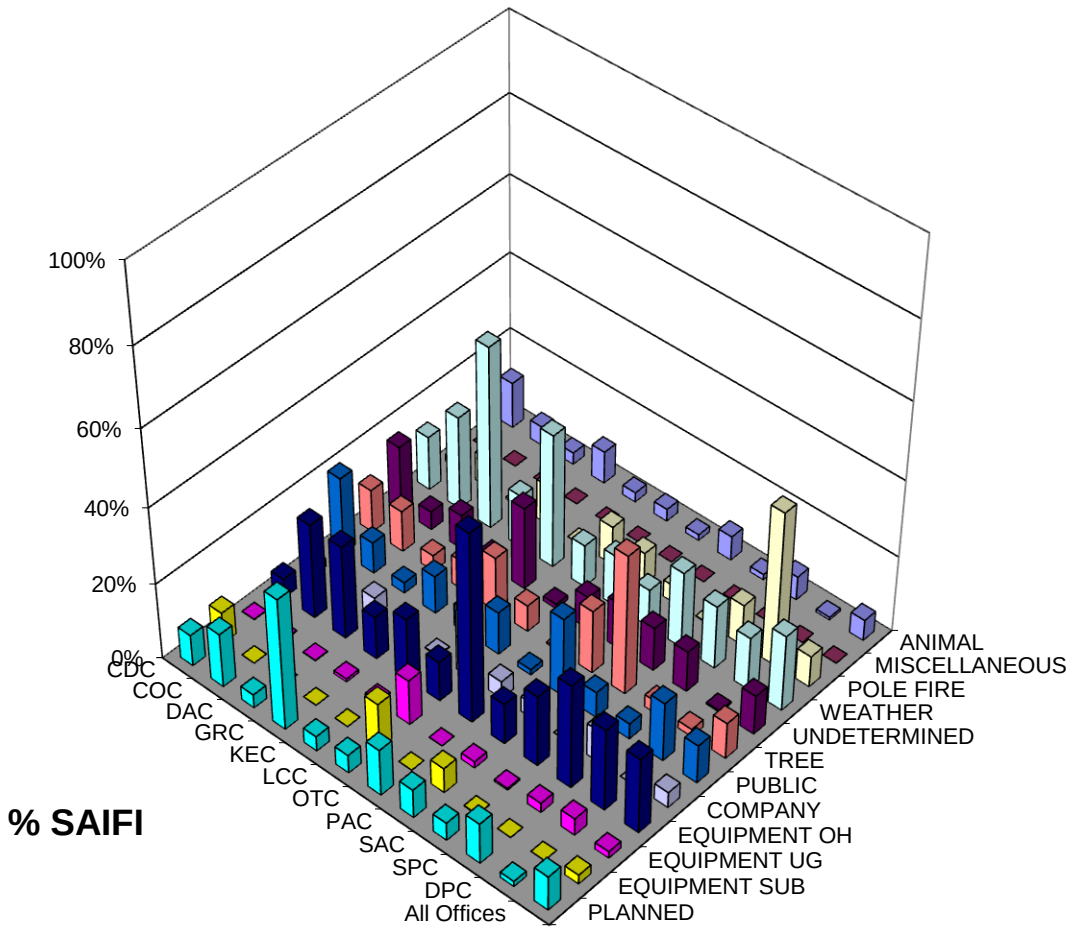


Table 8.2 - % SAIDI per Cause by Office

The following table lists the percentage SAIDI contribution by causes for outages excluding major event days.

Reason	CDC	COC	DAC	GRC	KEC	LCC	OTC	PAC	SAC	SPC	DPC	All Offices
ANIMAL	5.6%	6.4%	11.3%	5.4%	1.7%	1.9%	1.9%	4.5%	0.8%	3.3%	0.4%	4.2%
MISCELLANEOUS	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
POLE FIRE	1.9%	8.1%	0.4%	4.6%	0.1%	18.7%	14.5%	10.9%	0.3%	6.3%	35.8%	8.7%
WEATHER	17.0%	20.1%	36.3%	16.7%	33.7%	10.1%	3.1%	5.0%	35.6%	39.6%	35.6%	26.4%
UNDETERMINED	12.1%	3.3%	8.5%	3.7%	10.4%	1.0%	7.2%	5.9%	5.2%	6.2%	0.3%	5.9%
TREE	14.5%	12.9%	11.0%	2.8%	19.7%	2.7%	0.8%	12.7%	40.4%	3.7%	2.2%	10.5%
PUBLIC	19.1%	9.0%	2.2%	8.3%	7.2%	26.8%	3.8%	21.6%	3.5%	4.0%	7.0%	9.2%
COMPANY	0.2%	0.0%	1.8%	0.0%	0.0%	6.1%	2.1%	1.0%	0.0%	0.7%	0.0%	0.7%
EQUIPMENT OH	3.6%	24.1%	24.4%	20.8%	21.6%	12.6%	49.6%	14.4%	11.1%	17.4%	17.1%	18.9%
EQUIPMENT UG	0.4%	0.3%	0.5%	1.2%	2.2%	11.0%	0.0%	2.3%	1.4%	9.6%	0.8%	3.4%
EQUIPMENT SUB	8.6%	0.0%	0.0%	0.0%	0.0%	3.6%	0.0%	3.9%	0.3%	0.0%	0.0%	1.2%
PLANNED	17.0%	15.8%	3.7%	36.4%	3.3%	5.6%	17.0%	17.8%	1.4%	9.4%	0.8%	10.9%

CDC	Coeur d'Alene	LCC	Lewiston-Clarkston
COC	Colville	OTC	Othello
DAC	Davenport	PAC	Palouse
DPC	Deer Park	SAC	Sandpoint
GRC	Grangeville	SPC	Spokane
KEC	Kellogg/ St. Maries		

Chart 8.2 – % SAIDI per Cause by Office

The following chart shows the percentage SAIDI contribution by causes for outages excluding major event days.

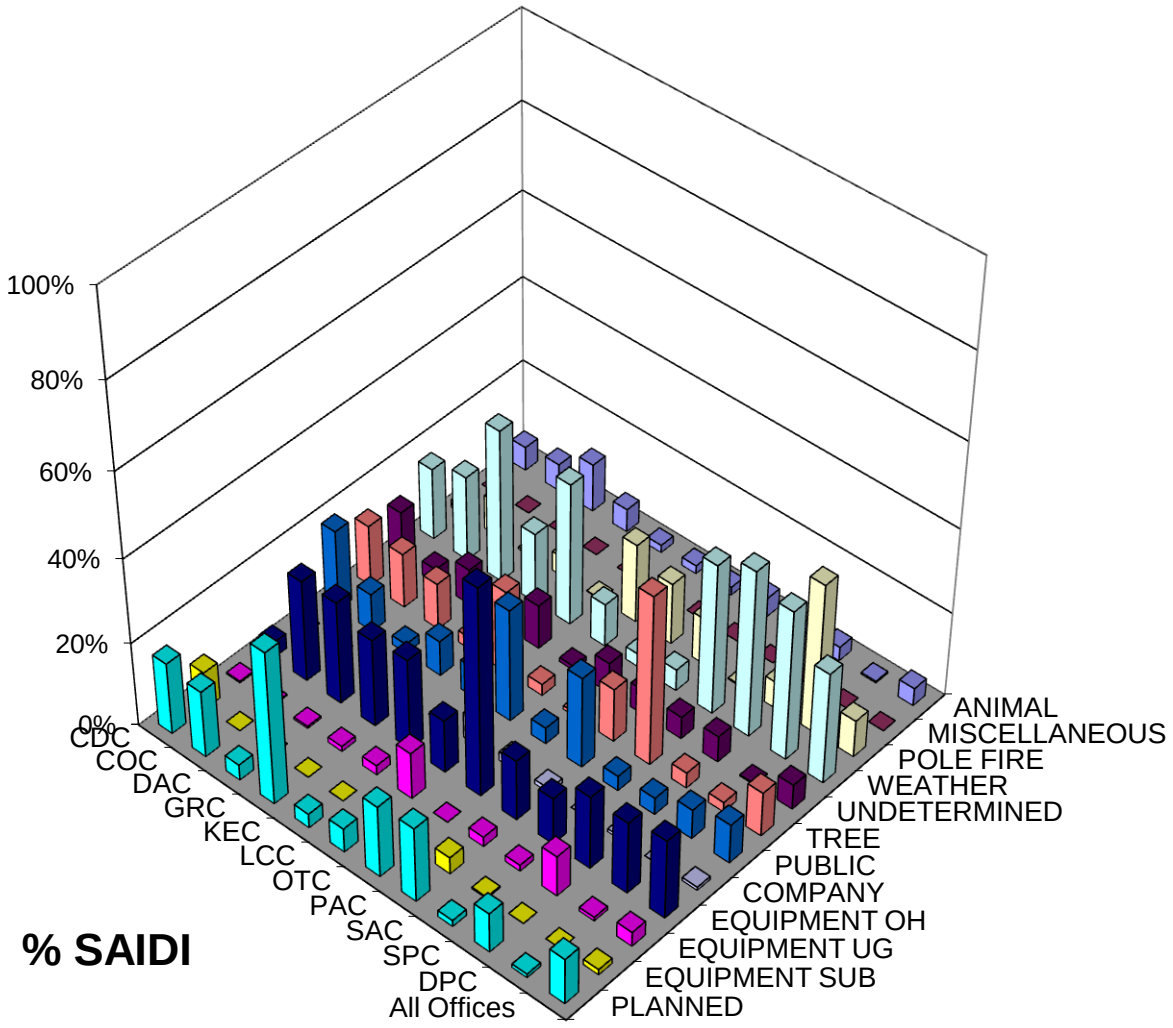


Table 8.3 - % SAIFI per Cause by Month

The following table lists the percentage SAIFI contribution by causes for all outages, excluding major event days.

Reason	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Yearly
ANIMAL	10.4%	0.7%	8.3%	0.8%	3.1%	11.3%	2.7%	3.2%	15.0%	4.4%	2.8%	0.4%	5.4%
MISCELLANEOUS	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
POLE FIRE	0.4%	3.2%	3.7%	6.1%	0.3%	9.2%	6.5%	26.8%	17.1%	3.3%	0.8%	3.3%	8.1%
WEATHER	39.2%	4.9%	11.8%	0.1%	1.6%	21.8%	30.1%	26.7%	1.2%	5.8%	12.4%	35.2%	19.9%
UNDETERMINED	11.7%	3.6%	7.0%	11.1%	25.6%	10.4%	4.3%	12.2%	21.9%	3.0%	12.0%	13.6%	10.3%
TREE	9.5%	14.6%	17.6%	10.2%	11.7%	2.1%	5.4%	6.3%	3.5%	14.3%	8.6%	15.6%	9.4%
PUBLIC	5.9%	14.2%	4.8%	42.6%	17.8%	17.7%	0.8%	3.1%	5.8%	13.6%	10.7%	0.9%	10.0%
COMPANY	4.9%	9.1%	7.6%	0.0%	12.9%	3.2%	6.2%	2.9%	0.0%	0.2%	2.9%	0.1%	4.0%
EQUIPMENT OH	9.9%	28.6%	31.7%	21.8%	10.9%	17.3%	22.1%	9.2%	4.3%	38.1%	33.8%	20.6%	19.8%
EQUIPMENT UG	0.1%	1.1%	0.1%	0.9%	0.2%	0.6%	5.4%	0.8%	2.0%	0.7%	6.2%	4.3%	1.7%
EQUIPMENT SUB	4.2%	8.0%	0.0%	0.0%	0.0%	0.0%	4.8%	5.0%	0.0%	0.0%	0.0%	0.1%	2.3%
PLANNED	3.8%	11.9%	7.3%	6.4%	16.0%	6.5%	11.7%	3.8%	29.1%	16.6%	9.9%	6.0%	9.0%

Chart 8.3 – % SAIFI per Cause by Month

The following chart shows the percentage SAIFI contribution by causes for all outages, excluding major event days.

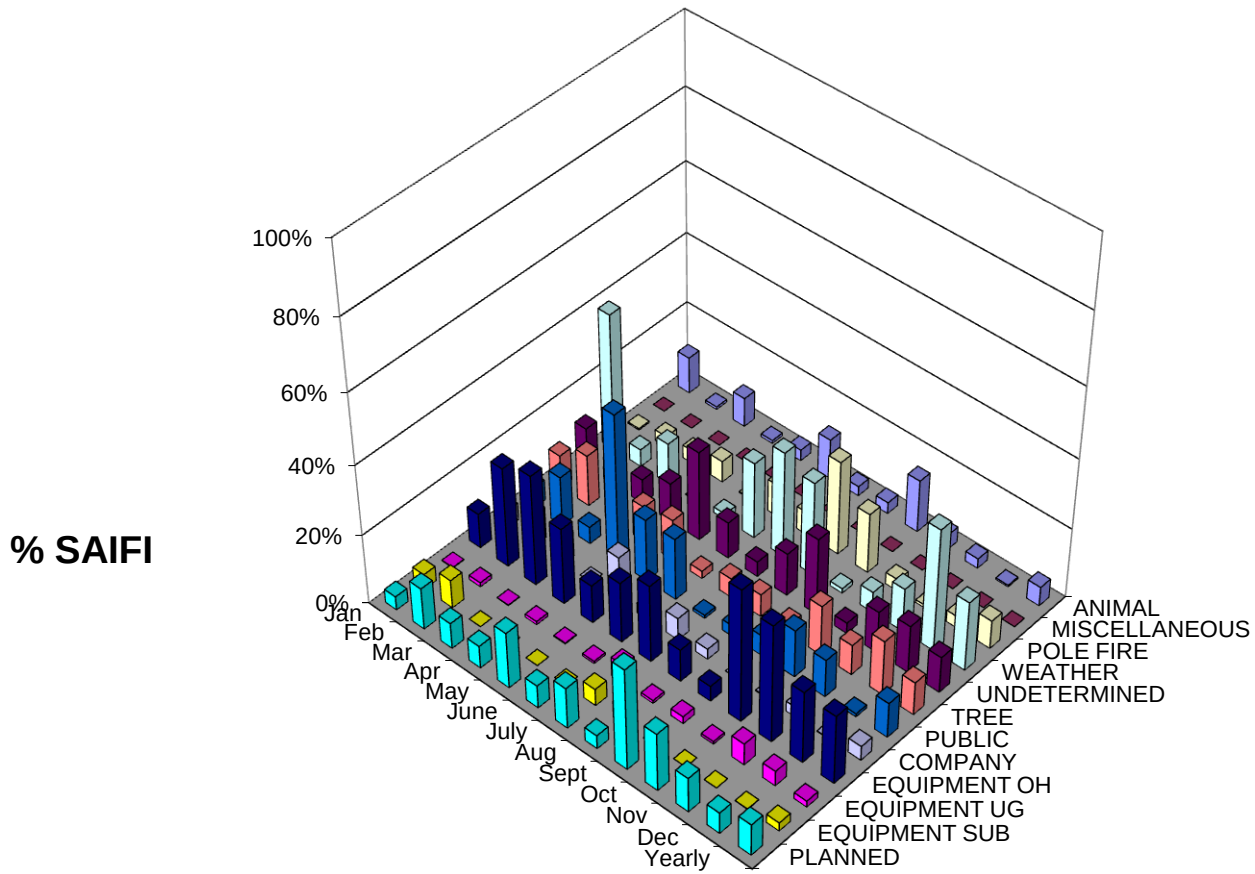


Table 8.4 - % SAIDI per Cause by Month

The following table lists the percentage SAIDI contribution by causes for outages excluding major event days.

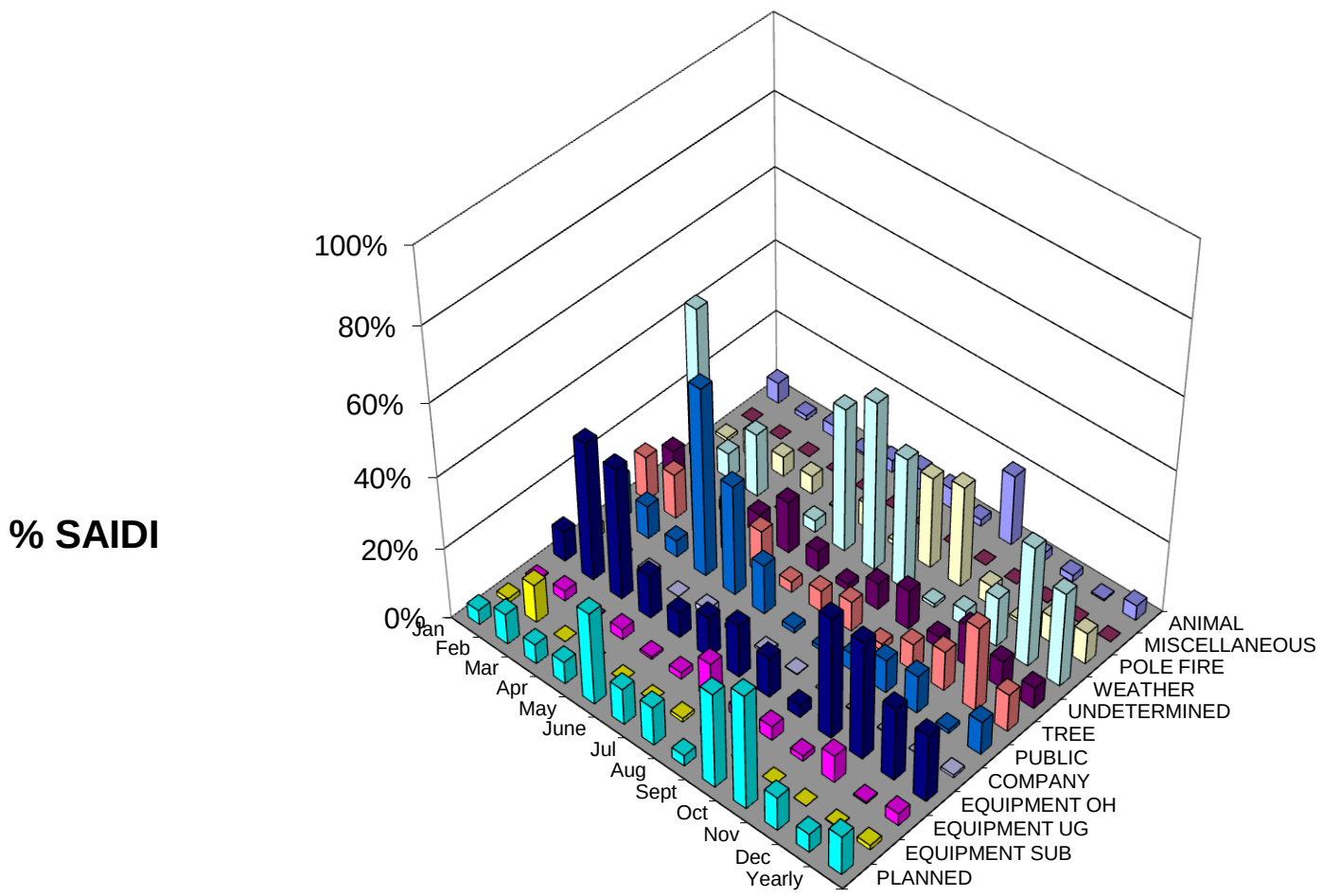
REASON	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Yearly
ANIMAL	5.8%	1.3%	3.2%	0.6%	3.4%	5.8%	5.6%	1.9%	19.7%	2.3%	1.9%	0.4%	4.2%
MISCELLANEOUS	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
POLE FIRE	0.9%	6.8%	5.5%	5.1%	0.4%	6.9%	1.3%	25.6%	28.3%	5.4%	0.8%	7.3%	8.7%
WEATHER	43.2%	7.1%	17.8%	0.1%	3.3%	40.2%	47.0%	36.7%	0.9%	4.4%	13.8%	33.6%	26.4%
UNDETERMINED	8.3%	1.7%	2.8%	5.6%	14.5%	5.7%	1.7%	7.4%	10.8%	3.2%	11.6%	7.6%	5.9%
TREE	12.4%	12.5%	22.1%	15.0%	12.1%	3.0%	5.9%	8.3%	1.9%	7.4%	11.1%	23.7%	10.5%
PUBLIC	12.1%	9.2%	4.6%	52.6%	30.9%	13.9%	1.3%	1.0%	4.7%	9.3%	10.5%	1.0%	9.2%
COMPANY	3.2%	0.6%	1.2%	0.0%	1.7%	1.2%	0.6%	0.1%	0.0%	0.2%	0.2%	0.1%	0.7%
EQUIPMENT OH	8.4%	38.8%	37.0%	12.0%	7.1%	11.4%	14.7%	11.2%	3.2%	34.0%	33.1%	20.5%	18.9%
EQUIPMENT UG	0.4%	2.8%	0.3%	2.8%	0.7%	1.8%	10.1%	2.7%	3.9%	1.5%	7.6%	0.4%	3.4%
EQUIPMENT SUB	1.2%	10.7%	0.0%	0.0%	0.0%	0.0%	1.0%	2.2%	0.0%	0.0%	0.0%	0.2%	1.2%
PLANNED	4.0%	8.5%	5.5%	6.2%	25.9%	10.1%	10.8%	2.9%	26.6%	32.2%	9.4%	5.2%	10.9%

Table 8.4.1 – Average Outage Time (HH:MM**)**

REASON	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Yearly
ANIMAL	0:43	3:22	0:48	1:08	1:56	1:02	5:56	2:02	3:33	1:16	1:41	2:04	1:42
COMPANY	0:50	0:08	0:19	1:19	0:13	0:46	0:16	0:05		2:23	0:08	0:55	0:22
EQUIPMENT OH	1:05	2:37	2:24	0:53	1:09	1:20	1:53	2:16	2:00	2:08	2:27	2:09	1:58
EQUIPMENT SUB	0:23	2:34	1:27				0:34	0:56		2:50		5:55	1:06
EQUIPMENT UG	3:19	4:44	5:37	5:13	5:36	5:52	5:20	6:30	5:22	5:14	3:05	0:13	4:06
MISCELLANEOUS											6:16		6:16
PLANNED	1:21	1:22	1:32	1:34	2:50	3:09	2:35	1:39	2:28	4:39	2:23	1:51	2:31
POLE FIRE	2:50	4:10	3:06	1:22	2:36	1:31	0:36	2:00	4:29	3:58	2:43	4:46	2:15
PUBLIC	2:38	1:15	1:58	2:00	3:03	1:35	5:05	0:42	2:12	1:38	2:27	2:37	1:56
TREE	1:40	1:38	2:35	2:23	1:50	2:52	3:15	3:46	1:26	1:14	3:13	3:16	2:27
UNDETERMINED	0:54	0:54	0:49	0:49	1:00	1:07	1:08	1:04	1:20	2:33	2:25	1:12	1:09
WEATHER	1:25	2:47	3:05	2:00	3:42	3:44	10:43	9:54	1:59	1:49	2:46	2:04	8:33

Chart 8.4 – % SAIDI per Cause by Month

The following chart shows the percentage SAIDI contribution by causes for outages excluding major event days.



Momentary Interruption Causes

The cause for many momentary interruptions is unknown. Because faults are temporary, the cause goes unnoticed even after the line is patrolled. Momentary outages are recorded using our SCADA system (System Control and Data Acquisition). On average, about 88% of Avista's customers are served from SCADA controlled stations.

Table 9.1 - % MAIFI per Cause by Office

The following table lists the percentage MAIFI contribution by causes for outages excluding major event days.

Reason	CDC	COC	DAC	GRC	KEC	LCC	OTC	PAC	SAC	SPC	DPC	All Offices
ANIMAL	0.7%	0.0%	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%
EQUIPMENT	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.2%	0.0%	0.0%	0.0%	0.2%
MISCELLANEOUS	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
POLE FIRE	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%
WEATHER	33.8%	37.4%	48.4%	33.1%	37.5%	22.9%	37.7%	42.5%	47.0%	36.6%	12.5%	35.6%
TREE	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.0%	3.7%	0.0%	0.9%
PUBLIC	1.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	0.0%	0.0%	0.0%	0.4%
COMPANY	1.3%	0.0%	0.0%	0.0%	0.0%	1.6%	0.0%	0.0%	0.0%	2.1%	0.0%	0.7%
CUSTOMER	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.4%	0.0%	0.0%	0.3%
UNDETERMINED	52.8%	47.0%	28.6%	38.0%	33.4%	46.8%	43.4%	42.0%	30.6%	29.0%	12.2%	41.7%
EQUIPMENT UG	0.0%	0.0%	0.0%	0.0%	0.0%	1.5%	0.0%	1.1%	0.0%	0.0%	0.0%	0.4%
EQUIPMENT OH	2.5%	0.0%	0.0%	0.0%	1.9%	1.2%	0.0%	0.0%	5.0%	1.7%	0.0%	1.5%
PLANNED	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
UNKNOWN	6.1%	15.5%	15.6%	17.7%	20.6%	25.2%	15.3%	8.8%	8.9%	21.2%	75.4%	15.4%
FORCED OUTAGE/SWITCHING	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
FORCED	0.0%	0.0%	7.4%	11.2%	0.0%	0.5%	3.6%	3.9%	0.0%	5.7%	0.0%	2.0%
TRANSMISSION	0.0%	0.0%	0.0%	0.0%	6.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%

CDC	Coeur d'Alene	LCC	Lewiston-Clarkston
COC	Colville	OTC	Othello
DAC	Davenport	PAC	Palouse
DPC	Deer Park	SAC	Sandpoint
GRC	Grangeville	SPC	Spokane
KEC	Kellogg/ St. Maries		

Table 9.1.1 - % MAIFI per Cause by Office (Washington only)

The following table lists the percentage MAIFI contribution by causes for outages excluding major event days.

Reason	COC	DAC	DPC	LCC - WA	OTC	PAC - WA	SPC	All Offices
ANIMAL	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
COMPANY	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
EQUIPMENT	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.9%	0.0%
PUBLIC	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.3%	0.0%
TREE	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
UNDETERMINED	0.0%	47.8%	28.6%	16.2%	57.9%	43.4%	22.0%	35.6%
WEATHER	0.0%	37.2%	48.4%	0.2%	27.8%	37.7%	53.2%	25.8%
EQUIPMENT OH	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	25.8%
EQUIPMENT UG	0.0%	0.0%	0.0%	0.0%	2.7%	0.0%	0.0%	0.0%
PLANNED	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
UNKNOWN	100.0%	14.8%	15.6%	83.7%	11.5%	15.3%	18.0%	12.9%
FORCED	0.0%	0.0%	7.4%	0.0%	0.0%	3.6%	2.7%	0.0%

COC	Colville	OTC	Othello
DAC	Davenport	PAC-WA	Palouse Washington
DPC	Deer Park	SPC	Spokane
LCC-WA	Lewiston-Clarkston Washington		

Chart 9.1 – % MAIFI per Cause by Office

The following chart shows the percentage MAIFI contribution by causes for outages excluding major event days.

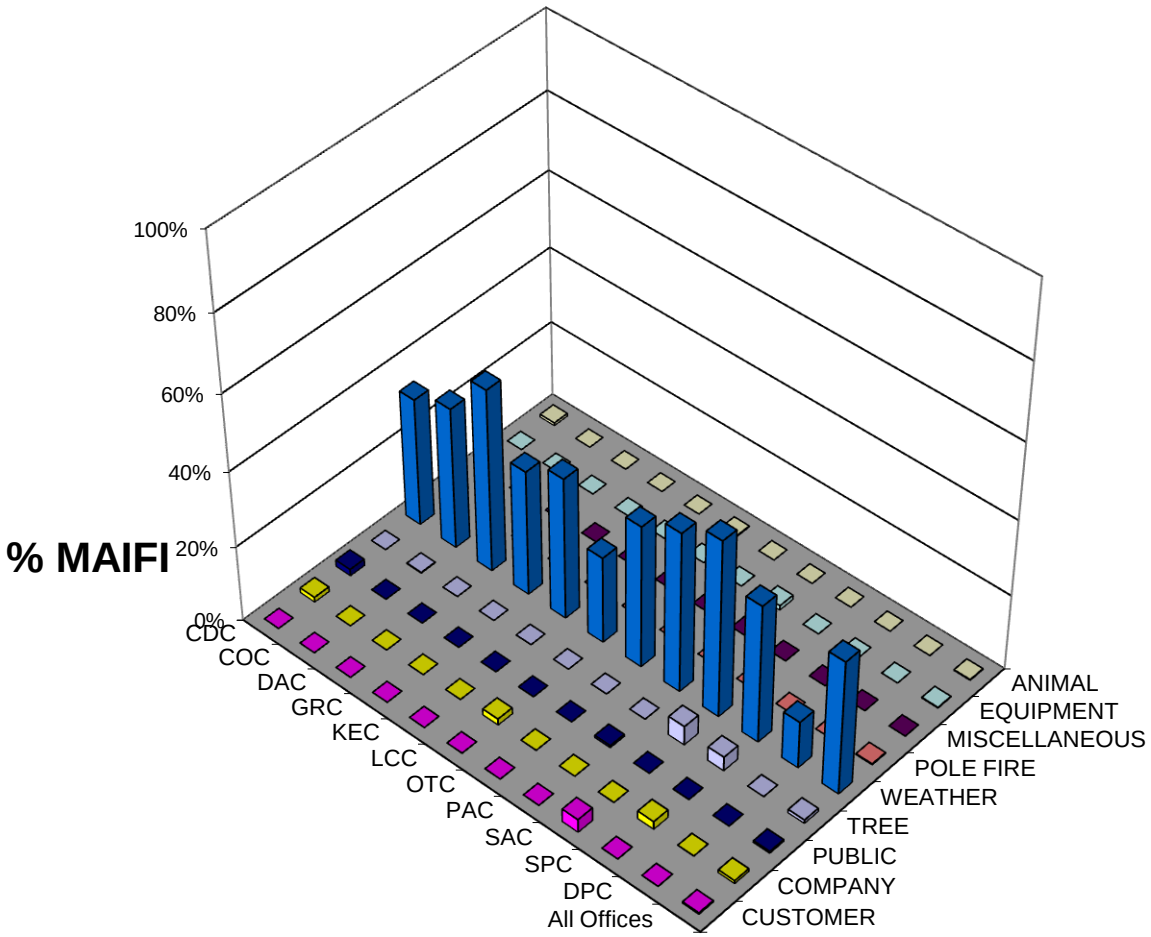


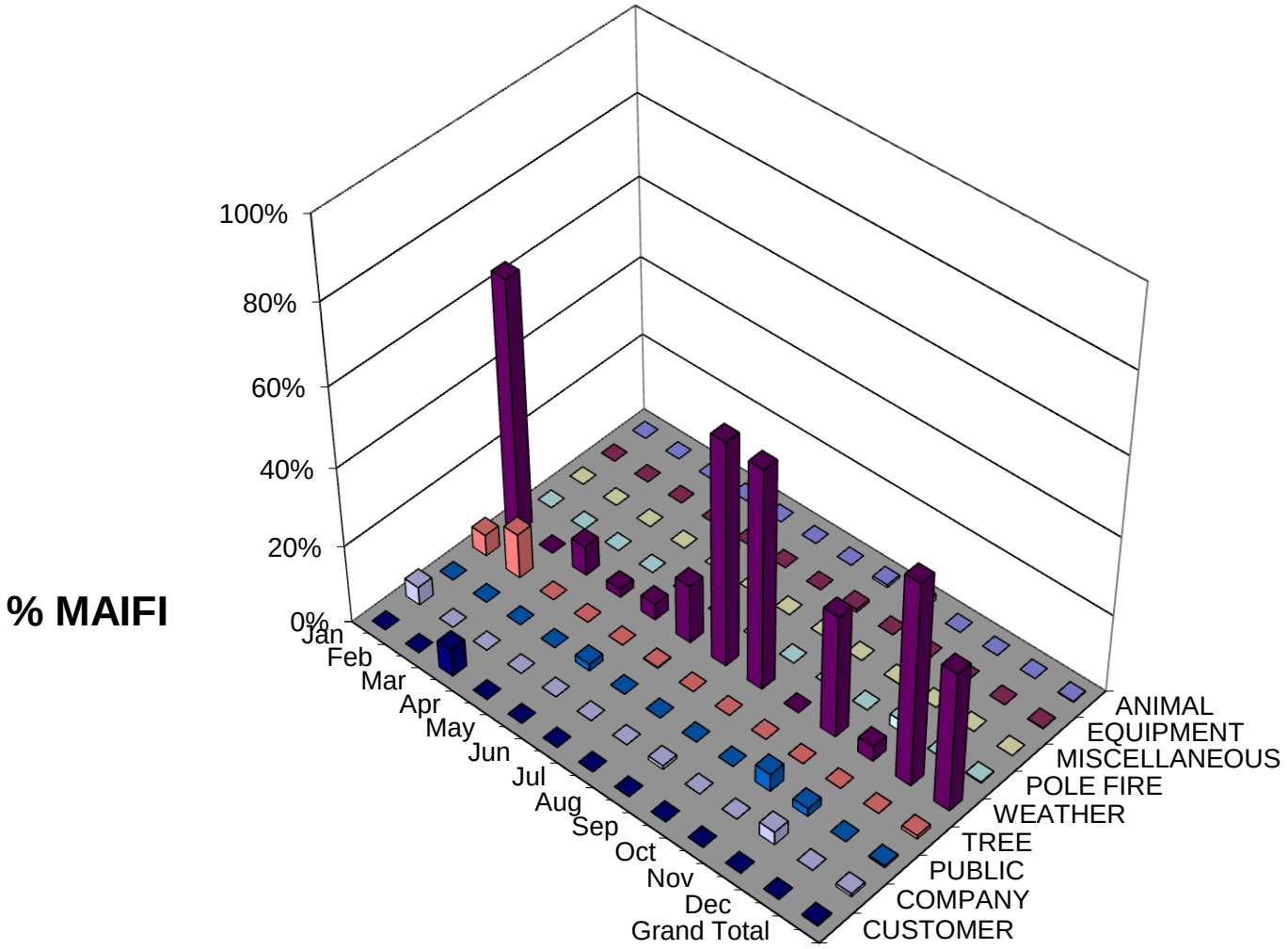
Table 9.2 - % MAIFI per Cause by Month

The following table lists the percentage MAIFI contribution by causes for outages excluding major event days.

Reason	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Grand Total
ANIMAL	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.69%	1.63%	0.00%	0.00%	0.00%	0.19%
EQUIPMENT	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.81%	0.00%	0.00%	0.00%	0.00%	0.17%
MISCELLANEOUS	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.06%	0.00%	0.00%	0.00%
POLE FIRE	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.84%	0.00%	0.22%
WEATHER	64.32%	0.00%	7.51%	2.17%	4.12%	14.91%	57.06%	56.05%	0.00%	31.37%	3.80%	51.89%	35.63%
TREE	5.38%	11.37%	0.00%	0.00%	0.00%	0.22%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.87%
PUBLIC	0.00%	0.00%	0.00%	0.00%	1.76%	0.00%	0.00%	0.00%	0.00%	4.42%	2.03%	0.00%	0.43%
COMPANY	4.62%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.91%	0.00%	0.00%	3.29%	0.00%	0.73%
CUSTOMER	0.00%	0.00%	6.96%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.34%
UNDETERMINED	15.37%	34.13%	85.36%	50.09%	67.41%	49.29%	25.64%	31.92%	97.74%	53.43%	53.60%	41.81%	41.73%
EQUIPMENT UG	0.00%	0.00%	0.00%	0.00%	5.69%	0.00%	0.00%	0.00%	0.00%	3.87%	0.00%	0.00%	0.42%
EQUIPMENT OH	0.00%	3.48%	0.00%	0.00%	0.00%	0.00%	2.37%	0.00%	0.00%	2.08%	2.85%	6.31%	1.48%
PLANNED	0.00%	0.00%	0.00%	0.00%	0.05%	0.00%	0.00%	0.00%	0.04%	0.00%	0.00%	0.00%	0.00%
UNKNOWN	4.83%	44.15%	0.00%	47.73%	13.05%	35.57%	13.24%	6.62%	0.59%	0.00%	29.74%	0.00%	15.43%
FORCED /SWITCHING	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
FORCED	5.47%	0.00%	0.17%	0.00%	7.91%	0.00%	1.69%	3.00%	0.00%	4.77%	1.86%	0.00%	2.04%
TRANSMISSION	0.00%	6.87%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.32%

Chart 9.2 – % MAIFI per Cause by Month

The following chart shows the percentage MAIFI contribution by causes for outages excluding major event days.



Major Event Day Causes

Chart 10.1 – % SAIFI by Cause Code for the Major Event Days

The following chart shows the percentage SAIFI contribution by causes for outages during major event days.

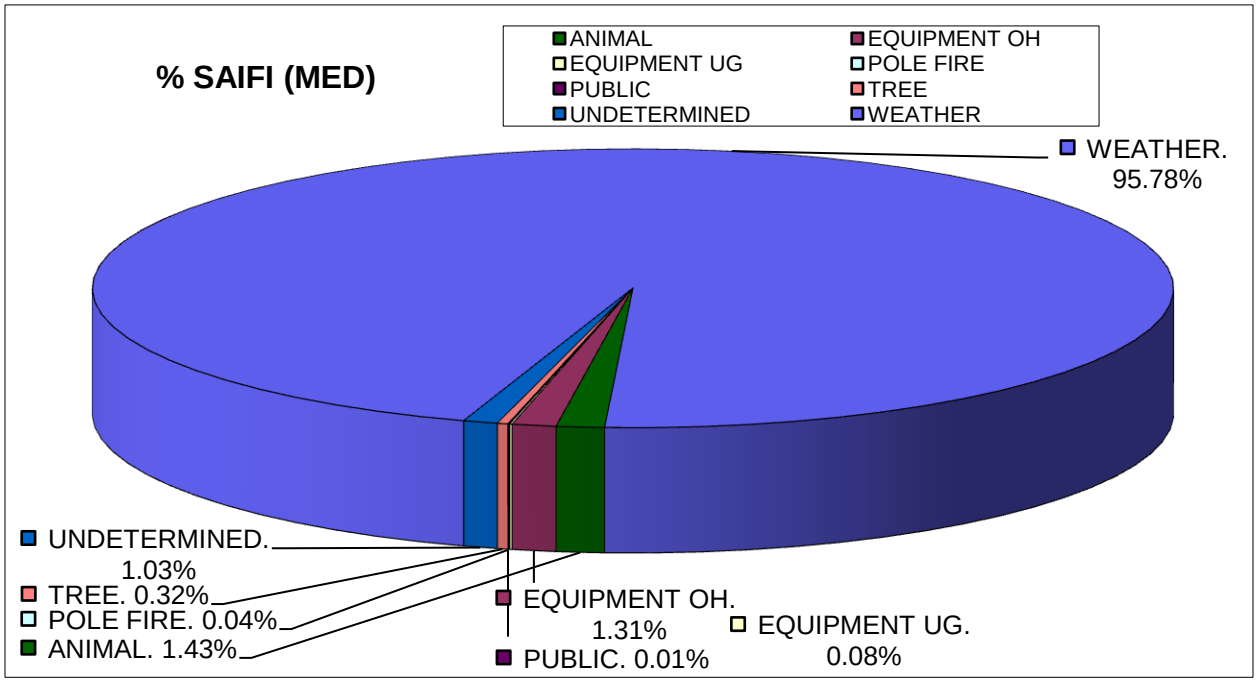


Table 10.1 – % SAIFI by Sub Cause Code for the Major Event Days

The following table shows the SAIFI contribution and Customer hours by cause for the 2014 major event days.

Reason	Sum of Ni	Sum of ri x Ni
ANIMAL	2363	6452:39
COMPANY	0	0:00
EQUIPMENT OH	2166	3190:58
EQUIPMENT SUB	0	0:00
EQUIPMENT UG	124	411:22
MISCELLANEOUS	0	0:00
PLANNED	0	0:00
POLE FIRE	62	148:33
PUBLIC	19	344:30
TREE	533	6356:15
UNDETERMINED	1697	308:56
WEATHER	157886	1826112:12
Total	164850	1843325:29

Table 10.2 – Yearly Summary of the Major Event Days

Table 10.2 is provided as an initial review of Major Event Day information. The main premise of the IEEE Major Event Day calculation is that using the 2.5b method should classify 2.3 days each year as MED's. The following table shows the previous major event days, the daily SAIDI value and the relationship of the yearly T_{MED}.

Year	Date	SAIDI	T_{MED}
2004	05-21-2004	7.11	6.35
	08-02-2004	7.36	
	12-08-2004	31.00	
2005	06-21-2005	39.53	4.916
	06-22-2005	9.03	
	08-12-2005	19.60	
2006	01-11-2006	12.10	7.058
	03-09-2006	8.58	
	11-13-2006	30.79	
	12-14-2006	29.26	
	12-15-2006	158.31	
2007	01-06-2007	9.98	8.017
	06-29-2007	32.64	
	07-13-2007	12.79	
	08-31-2007	21.30	
2008	01-27-2008	17.57	9.224
	07-10-2008	36.74	
	08-18-2008	9.49	
2009	None		9.925

2010	5/3/2010	21.04	11.110
	11/16/2010	68.67	
2011	None		10.848
2012	1/19/2012	9.93	9.489
	12/17/2012	14.35	
2013	8/25/2013	24.97	8.956
	8/26/2013	11.78	
	9/15/2013	14.01	
	11/16/2013	11.09	
2014	7/23/14	92.95	8.719
	7/24/14	35.66	
	8/25/14	121.05	
	8/3/14	38.52	
	8/12/14	9.84	
2015			8.219

Interruption Cause Codes

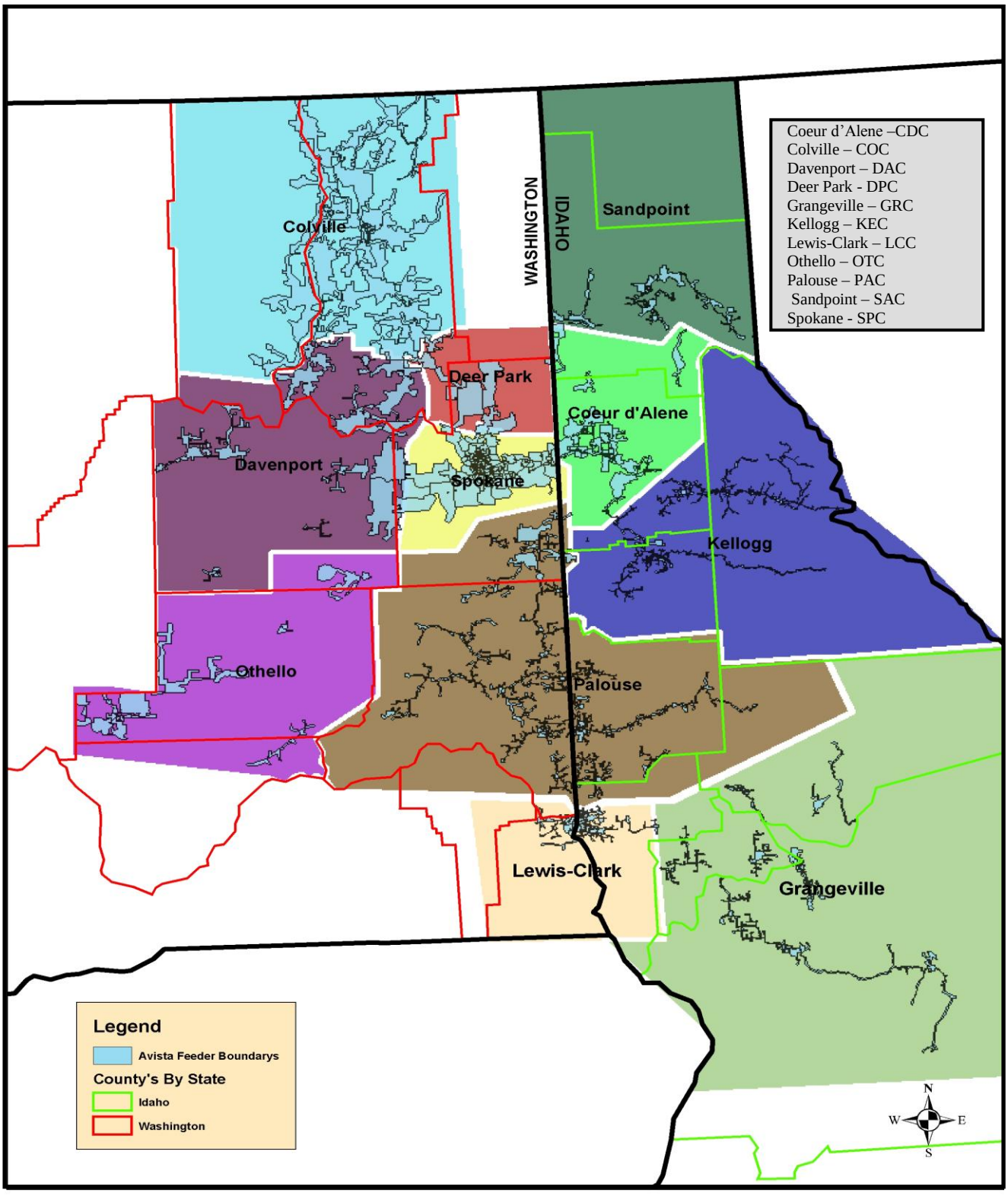
Table 11.1 – Interruption Cause Codes

MAIN CATEGORY **Proposed** (Changes Only)	SUB CATEGORY **Proposed** (Changes Only)	Definition
ANIMAL	Bird	Outages caused by animal contacts. Specific animal called out in sub category.
	Squirrel	
	Underground	
	Other	
PUBLIC	Car Hit Pad	Underground outage due to car, truck, construction equipment etc. contact with pad transformer, junction enclosure etc...
	Car Hit Pole	Overhead outage due to car, truck, construction equipment etc. contact with pole, guy, neutral etc.
	Dig In	Dig in by a customer, a customer's contractor, or another utility.
	Fire	Outages caused by or required for a house/structure or field/forest fire.
	Tree	Homeowner, tree service, logger etc. fells a tree into the line.
	Other	Other public caused outages
COMPANY	Dig in	Dig in by company or contract crew.
	Other	Other company caused outages
EQUIPMENT OH	Arrestors	Outages caused by equipment failure. Specific equipment called out in sub category.
	Capacitor	
	Conductor - Pri	
	Conductor - Sec	
	Connector - Pri	
	Connector - Sec	
	Crossarm- rotten	
	Cutout / Fuse	
	Insulator	
	Insulator Pin	
	Other	
	Pole - Rotten	
	Recloser	
	Regulator	
	Switch / Disconnect	
	Transformer - OH	
	Wildlife Guard	Wildlife guard failed or caused an outage
EQUIPMENT UG	URD Cable - Pri	Outages caused by equipment failure. Specific equipment called out in sub category.
	URD Cable- Sec	
	Connector - Sec	
	Elbow	
	Junctions	
	Primary Splice	
	Termination	
	Transformer - UG	
	Other	

MAIN CATEGORY Proposed (Changes Only)	**SUB CATEGORY** Proposed (Changes Only)	**Definition**
EQUIPMENT SUB	High side fuse Bus Insulator High side PCB High side Swt / Disc Low side OCB/Recloser Low side Swt / Disc Relay Misoperation Regulator Transformer Other	
MISCELLANEOUS	SEE REMARKS	For causes not specifically listed elsewhere
NOT OUR PROBLEM (*Outages in this category are not included in reported statistics*)	Customer Equipment SEE REMARKS Other Utility	Customer equipment causing an outage to their service. If a customer causes an outage to another customer this is covered under Public. Outages when another utility's facilities cause an outage on our system.
POLE FIRE		Used when water and contamination causes insulator leakage current and fire. If insulator is leaking due to material failure list under equipment failure. If cracked due to gunfire use customer caused other.
PLANNED	Maintenance / Upgrade Forced	Outage, normally prearranged, needed for normal construction work Outage scheduled to repair outage damage
TREE	Tree fell Tree growth Service Weather	For outages when a tree falls into distribution primary/secondary or transmission during normal weather Tree growth causes a tree to contact distribution primary/secondary or transmission during normal weather. For outages when a tree falls or grows into a service. When snow and wind storms causes a tree or branch to fall into, or contact the line. Includes snow loading and unloading.
UNDETERMINED		Use when the cause cannot be determined
WEATHER	Snow / Ice Lightning Wind	Outages caused by snow or ice loading or unloading on a structure or conductor. Use weather tree for snow and ice loading on a tree. Lightning flashovers without equipment damage. Equipment failures reported under the equipment type. Outages when wind causes conductors to blow into each other, another structure, building etc.

Office Areas

Chart 12.1 – Office Areas



Index Calculations

Sustained Interruption

- An interruption lasting longer than 5 minutes.

Momentary Interruption Event

- An interruption lasting 5 minutes or less. The event includes all momentary interruptions occurring within 5 minutes of the first interruption. For example, when an interrupting device operates two, three, or four times and then holds, it is considered a single event.

SAIFI – System Average Interruption Frequency Index

- The average number of sustained interruptions per customer
- = The number of customers which had ***sustained interruptions*** / Total number of customers served
- = $\frac{\sum N_i}{N_T}$

$MAIFI_E$ – Momentary Average Interruption Event Frequency Index

- The average number of momentary interruption events per customer
- = The number of customers which had ***momentary interruption events*** / Total number of customers served
- = $\frac{\sum ID_E N_i}{N_T}$
- MAIFI can be calculated by one of two methods. Using the number of momentary interruptions or the number momentary events. This report calculates $MAIFI_E$ using momentary events. The event includes all momentary interruptions occurring within 5 minutes of the first interruption. For example, when an automatic interrupting device opens and then recloses two, or three times before it remains closed, it is considered a single event.

SAIDI – System Average Interruption Duration Index

- Average sustained outage time per customer
- = Outage duration multiplied by the customers effected for all ***sustained interruptions*** / Total number of customers served
- = $\frac{\sum r_i N_i}{N_T}$

CAIDI – Customer Average Interruption Duration Index

- Average restoration time
- = $\frac{\text{Outage duration multiplied by the customers effected for all } \textbf{\textit{sustained interruptions}}}{\text{The number of customers which had } \textbf{\textit{sustained interruptions}}}$
- = $\frac{\sum r_i N_i}{\sum N_i}$

Quantities
i = An interruption event;
r_i *= Restoration time for each interruption event;*
T = Total;
ID_E *= Number of interrupting device events;*
N_i *= Number of interrupted customers for each interruption event during the reporting period;*
N_T *= Total number of customers served for the area being indexed;*

CEMI$_n$ – Customers Experiencing Multiple Sustained Interruptions more than n.

- CEMI$_n$
- = $\frac{\text{Total Number of Customers that experience more than } n \textbf{ sustained interruptions}}{\text{Total Number of Customers Served}}$
- = $\frac{CN_{(k>n)}}{N_T}$

CEMSMI$_n$ – Customers experiencing multiple sustained interruption and momentary interruption events.

- CEMSMIn
- = $\frac{\text{Total Number of Customers experiencing more than } n \textbf{ interruptions}}{\text{Total Number of Customers Served}}$
- = $\frac{CNT_{(k>n)}}{N_T}$

MED - Major Event Day

A major event day is a day in which the daily system SAIDI exceeds a threshold value. Its purpose is to allow major events to be studied separately from daily operation, and in the process, to better reveal trends in daily operation that would be hidden by the large statistical effect of major events.

T_{MED} is calculated (taken from the IEEE 1366-2003 Standard)
The major event day identification threshold value, T_{MED}, is calculated at the end of each reporting period (typically one year) for use during the next reporting period as follows:

a) Collect values of daily SAIDI for five sequential years ending on the last day of the last complete reporting period. If fewer than five years of historical data are available, use all available historical data until five years of historical data are available.
b) Only those days that have a SAIDI/Day value will be used to calculate the T_{MED} (do not include days that did not have any interruptions).
c) Take the natural logarithm (ln) of each daily SAIDI value in the data set.
d) Find a(Alpha), the average of the logarithms (also known as the log-average) of the data set.
e) Find b(Beta), the standard deviation of the logarithms (also known as the log-standard deviation) of the data set.
f) Compute the major event day threshold, TMED, using equation (25).

$$T_{MED} = e^{(a + 2.5\, b)} \qquad (25)$$

g) Any day with daily SAIDI greater than the threshold value TMED that occurs during the subsequent reporting period is classified as a major event day. Activities that occur on days classified as major event days should be separately analyzed and reported.

Numbers of Customers Served

The following numbers of customers were based on the customers served at the beginning of the year. These numbers were used to calculate indices for this report.

Table 13.1 – Numbers of Customers Served

Office	Customers	% of Total
Coeur d'Alene	53005	14.3%
Colville	19549	5.3%
Davenport	6023	1.6%
Deer Park	10957	3.0%
Grangeville	10317	2.8%
Kellogg/St. Maries	14486	3.9%
Lewis-Clark	29806	8.0%
Othello	6871	1.9%
Palouse	39810	10.7%
Sandpoint	14898	4.0%
Spokane	165443	44.6%
System Total	**371165**	

Attachment 1 – SAIDI and SAIFI Historical Summary

See attachment.

Company Contact

For further information regarding this document, please contact:

Avista Utilities
E. 1411 Mission Avenue
Spokane, WA 99220
Tyler Dornquast (509) 495 - 4580
Linda Gervais (509) 495 - 4975