2008
Electric Service
Reliability Monitoring
Annual Report

CONTENTS

INTRODUCTION 1

DATA COLLECTION AND CALCULATION CHANGES 2
Data Collection 2
Table Summary of Software coding error 3
Interruption Cause Codes 3
Customers Experiencing Multiple Interruptions 3

DEFINITIONS 4
Reliability Indices 4
Baseline Reliability Statistics 4
Major Events 6
Customer Complaints 7

SYSTEM INDICES 7
Chart 1.1 – SAIFI - Sustained Interruptions / Customer 8
Chart 1.2 – Sustained Interruptions / Customer Historic Comparison 8
SAIFI Linear Trend Line Chart 9
Chart 1.4 – Momentary Interruptions/ Customer Historic Comparison 10
Chart 1.5 - SAIDI – Average Outage Time / Customer 12
SAIDI Linear Trend Line Chart 12
Chart 1.6 - CAIDI – Average Restoration Time 13

OFFICE INDICES 13
Chart 2.1 – SAIFI - Sustained Interruptions / Customer 13
Chart 2.2 - MAIFI Momentary Interruption Events / Customer 14
Chart 2.3 - SAIDI – Average Outage Time / Customer 14
Chart 2.4 - CAIDI – Average Restoration Time 15

AREAS OF CONCERN 16
Cause Information: 16
Colville Area Work Plans: 18
Avista System Wide Work Plans: 20
Avista System Wide Vegetation Management Plan: 20

CUSTOMERS EXPERIENCING MULTIPLE INTERRUPTIONS 21
Avista Service Territory $CEMI_n$ Chart 22
Colville Office - $CEMI_n$ 23
Davenport Office - $CEMI_n$ 24
Deer Park Office - $CEMI_n$ 25
Othello Office - $CEMI_n$ 26
Palouse Office - $CEMI_n$ 27
Lewis-Clark Office - $CEMI_n$ 28
Spokane Office - $CEMI_n$ 29
Sandpoint Office - $CEMI_n$ 30
Kellogg Office - $CEMI_n$ 31
Coeur d'Alene - $CEMI_n$ 32
Grangeville Office - $CEMI_n$ 33

MONTHLY INDICES 34

Chart 3.1 – SAIFI - Sustained Interruptions / Customer 34
Chart 3.2 - MAIFI Momentary Interruption Events / Customer 34
Chart 3.3 - SAIDI – Average Outage Time / Customer 35
Chart 3.4 - CAIDI – Average Restoration Time 35

CUSTOMER COMPLAINTS 36
Commission Complaints 36
Customer Complaints 37

SUSTAINED INTERRUPTION CAUSES 38
Table 4.1 - % SAIFI per Cause by Office 38
Chart 4.1 – % SAIFI per Cause by Office 39
Table 4.2 - % SAIDI per Cause by Office 40
Chart 4.2 – % SAIDI per Cause by Office 41
Table 4.3 - % SAIFI per Cause by Month 42
Chart 4.3 – % SAIFI per Cause by Month 43
Table 4.4 - % SAIDI per Cause by Month 44
Table 4.4.1 Ave Outage Time 45
Chart 4.4 – % SAIDI per Cause by Month 46

MOMENTARY INTERRUPTION CAUSES 47
Table 5.1 - % MAIFI per Cause by Office 47
Table 5.1.1 - % MAIFI per Cause by Office (Washington only) 48
Chart 5.1 – % MAIFI per Cause by Office 49
Table 5.2 - % MAIFI per Cause by Month 50
Chart 5.2 – % MAIFI per Cause by Month 51

MAJOR EVENT DAY CAUSES 52
Chart 6.1 – % SAIFI by Cause Code for the Major Event Days 52
Table 6.1 – % SAIFI by Sub Cause Code for the Major Event Days 53
Table 6.2 – Yearly Summary of the Major Event Days 54

INTERRUPTION CAUSE CODES 55

OFFICE AREAS 57

INDICES CALCULATIONS 57

INDICES CALCULATIONS 58
Sustained Interruption 58
Momentary Interruption Event 58
SAIFI – System Average Interruption Frequency Index 58
$MAIFI_E$ – Momentary Average Interruption Event Frequency Index 58
SAIDI – System Average Interruption Duration Index 58
CAIDI – Customer Average Interruption Duration Index 59
$CEMI_n$ – Customers Experiencing Multiple Sustained Interruptions more than n. 59
$CEMSMI_n$ – Customers experiencing multiple sustained interruption and momentary interruption events 59
MED - Major Event Day 60

NUMBERS OF CUSTOMERS SERVED 61

Introduction

Washington state investor-owned electric companies are to provide statements describing their reliability monitoring in an annual report pursuant to WAC 480-100-393 and WAC 480-100-398.

This document reports Avista Utilities' reliability metrics for the calendar year 2008. All numbers in this document are based on system data. The Company's system includes eleven geographical divisions. Two of these divisions straddle the Washington and Idaho border and commingle jurisdictional customers. A map of Avista's operating area is included in a following section.

WAC 480-100-393 (3)(b) requires the establishment of baseline reliability statistics. The Company's baseline statistics are included in this report.

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

Avista added a new section to the 2007 annual report which analyzes the areas where customers are experiencing multiple sustained outages. This new section provides analysis of a reliability indice called $CEMI_n$, which implies Customers Experiencing Multiple sustained Interruptions more than n times.

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

- Since Avista's Electric Service Reliability Monitoring and Reporting Plan was filed in 2001, there have been several improvements in the methods used to collect outage data. In late 2001, centralizing the distribution trouble dispatch and data collection function for Avista's entire service territory began. The distribution dispatch office is located in the Spokane main complex. At the end of September 2005, 100% of the Company's feeders, accounting for 100% of the customers, are served from offices that employ central dispatching.

The data collected for 2008 represents the third full year of outage data collected through the Outage Management Tool (OMT). For 2008, all data was collected using the "Outage Management Tool" (OMT) based on the Company's Geographic Information System (GIS). The OMT system automates the logging of restoration times and customer counts.

Avista did discover a software coding error that has been within the OMT system since 2002 that will cause a small increase in the SAIDI and CAIDI for 2009. Previous years were also evaluated to determine the overall impact to the Avista baseline statistics and at this time Avista is not proposing a change to the baseline numbers. The software error only occurred during very specific outage conditions when a group of customers with an initial outage starting time were "rolled" up into another group of customers that were determined to be part of the first group outage. The second group may have had a later outage starting time. When the first group of customer outage information was rolled up, the original outage starting time was lost and the second group outage starting time was used for both groups of customers instead of using the first outage starting time. The number of customers was counted correctly.

Even as good as the OMT system is at quantifying the number of customers and duration of the outage duration, 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 AMR/AMI metering is implemented in the future and the customer meter provides outage information to the OMT system through an interface, the SAIDI and CAIDI numbers are expected to increase. This is similar to the above discussion.

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.

- Avista has reported in the previous two annual reports that the completion of the transition to the OMT system had caused an increase in the variability of the data collected from 2001 to 2007. With this Annual Report the data is beginning to show that there may be a gradual increase in the SAIFI and SAIDI numbers that cannot be attributed to the transition to the OMT system. Review the charts, on pages 9 and 12 that provide a trend line for SAIFI and SAIDI historical data.

Continued scrutiny will be important over the next year or so to determine if the increase in SAIFI/SAIDI continues, or can be slowed or reversed by reliability improvement programs underway in 2009. If it can not be slowed or reversed to examine if this is driven by other sources or conditions not recognized yet. See SAIFI Linear Trend Line Chart later in this document.

Table Summary of Software coding error

Summary of the Software coding error						
	SAIDI	SAIDI	SAIDI	CAIDI	CAIDI	CAIDI
year	before	after	error	before	after	error
2002	81	81	0	102	102	0
2003	112	136	24	128	135	7
2004	126	130	4	125	128	3
2005	108	114	6	112	117	5
2006	143	152	9	111	123	12
2007	132	135	3	116	119	3
2008	159	162	3	113	115	2

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.

- The Company made several changes in the classification of outage causes for the reporting of 2005 outages and subsequent years. The addition of one new subreason is being proposed for 2008 to track outages caused by wildlife guards.

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 Management Tool (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. 2008 information is again provided in the new section added to the 2007 report after the Areas of Concern Section to summarize the analysis Avista performed on the 2008 outage data. The calculation for $CEMI_n$ and Customers Experiencing Multiple Sustained and Momentary Interruptions $CEMSMI_n$ is provided in the Indices Section.

Definitions

Reliability Indices

SAIFI (System Average Interruption Frequency Indices), MAIFI (Momentary Average Interruption Frequency Indices), SAIDI (System Average Interruption Duration Indices), and CAIDI (Customer Average Interruption Duration Indices) are calculated consistent with industry standards as described below. Avista adopts these for purposes of tracking and reporting reliability performance. Further explanation and definitions are provided in the "Indices Calculation" section of this report. While these indices are determined using industry standard methods, it is important to note that differing utilities may use different time intervals for momentary and sustained outages. Avista defines momentary outages as those lasting five (5) minutes or less. Sustained outages are those lasting longer than five (5) minutes.

Baseline Reliability Statistics

WAC 480-100-393 (3) (b) requires the establishment of baseline reliability statistics. The Company's 2003 Electric Service Reliability Monitoring and Reporting Plan initially established Avista's Baseline Reliability Statistics. At that time, the Company selected the baseline statistics as the average of the 2001 through 2003 yearly indices plus two standard deviations (to provide 95% confidence level). In 2006 the Company reviewed the calculation of the baseline statistics in light of the completion of the transition to the OMT in 2005 and the data collected in 2006. Calculating the baseline reliability statistics including the 2004 through 2006 data show an increase in the values, which the Company believes, represents better reporting using OMT. The Company proposed the latest calculated Baseline Statistic values to reflect the best available data collection. Because the Company believes that the OMT data collection has affected the SAIFI index the most it used the years 2004 to 2006 for the SAIFI Baseline Statistic and the years 2002 to 2006 for the MAIFI and SAIDI Indices.

The baseline indices have been adjusted by removing Major Event Days, MED's, as defined in the following section.

The following table summarizes the baseline statistics by indices.

Indices	2004-2006 Average (Excluding Major Events)	Baseline Statistic (Ave + 2 Standard Deviations)
SAIFI	1.09	1.44

Indices	2002-2006 Average (Excluding Major Events)	Baseline Statistic (Ave + 2 Standard Deviations)
MAIFI	4.52	5.82
SAIDI	114	160

Additional comparison of the Baseline Indices is provided in the System Indices section of this report.

Avista is anticipating using the different years in the Baseline Statistics for SAIFI for at least a couple of years until a full five years of data is gathered using the current Outage Management Tool.

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 P1366-2003. 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.

The table below lists the major event days for 2008.

Major Event Days	SAIDI (Customer-Minutes)	Cause
2008 Major Event Day Threshold	9.224	
01-27-2008	17.57	Snow and Ice
07-10-2008	36.74	Wind Storm
08-18-2008	9.49	Wind Storm

Additional analysis of the 2008 Major Event Days is provided in this Annual Report starting on Page 53, section Major Event Days Causes.

Customer Complaints

The Company tracks reliability complaints in two areas, Commission complaints and Customer complaints. Commission complaints are informal complaints filed with and tracked by the Commission. Customer Complaints are recorded by our Customer Service Representatives when a customer is not satisfied with a resolution or explanation of their concern. 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.

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.

Chart 1.1 – SAIFI - Sustained Interruptions / Customer

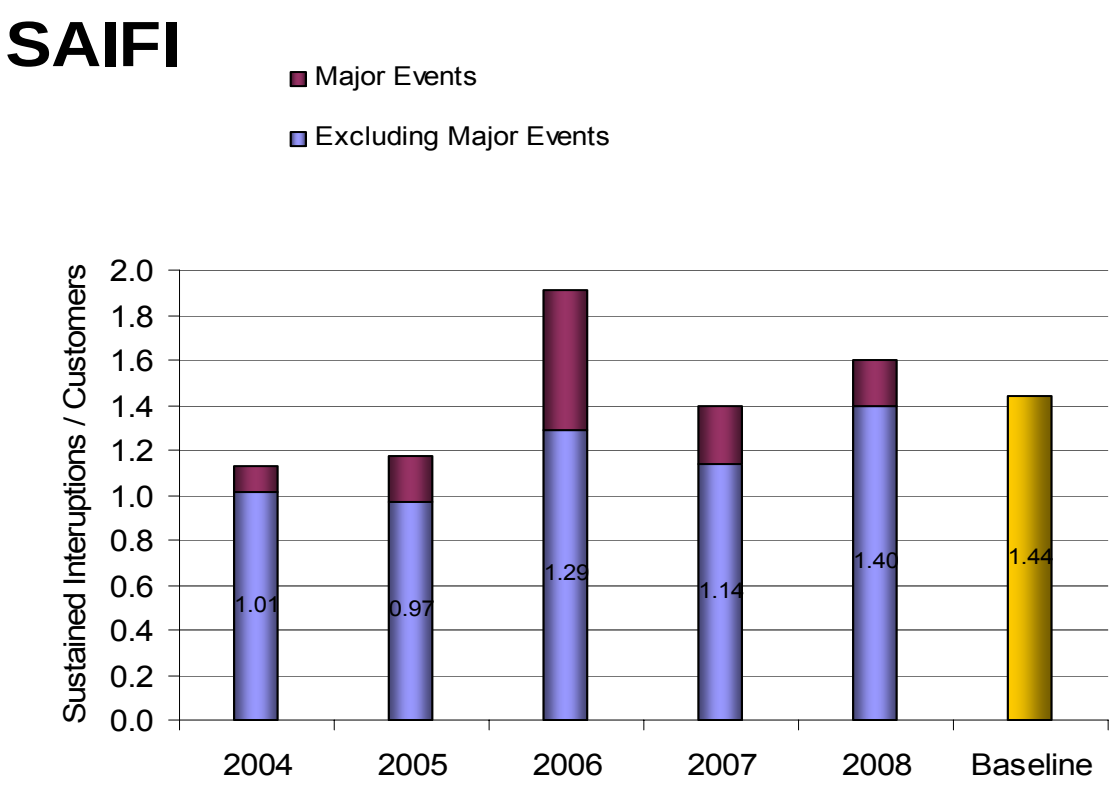
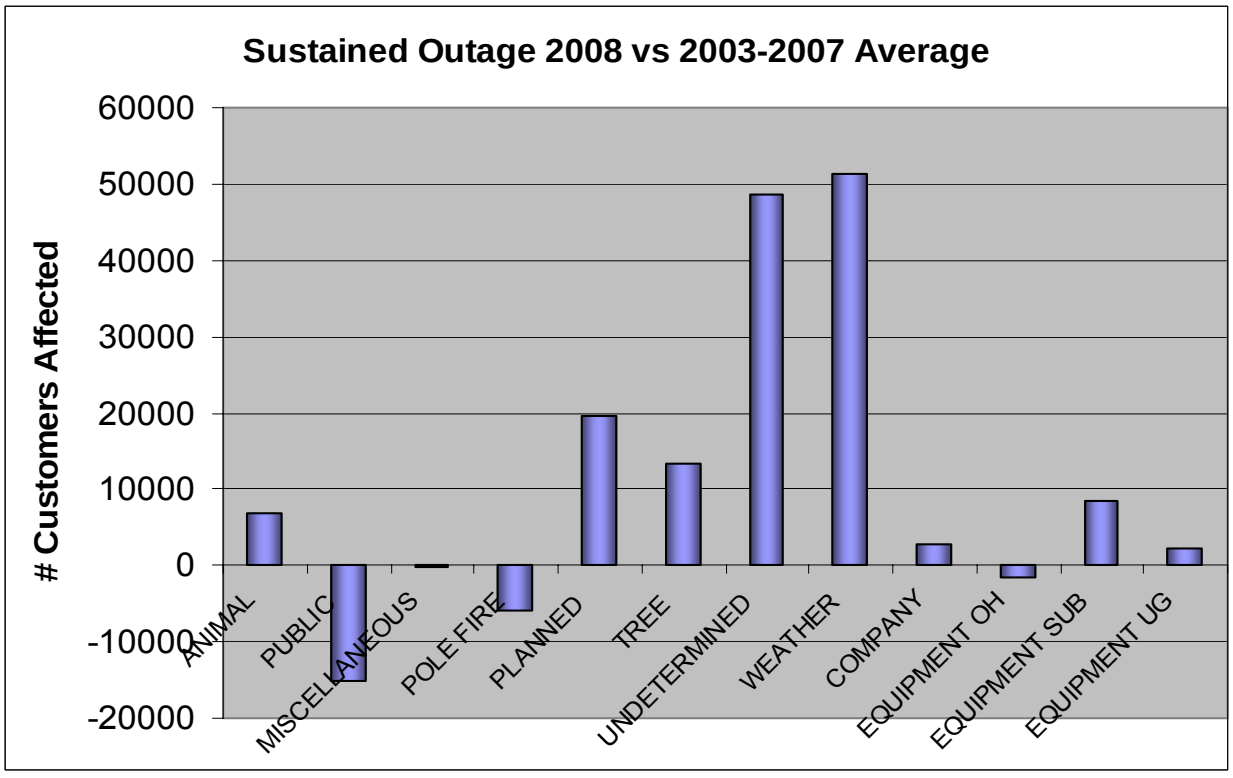


Chart 1.2 – Sustained Interruptions / Customer Historic Comparison



SAIFI for 2008 was just within the existing baseline established in 2006. Using a simple linear regression to establish a trend line, it would look like about a 9.5% growth in number of customers affected. The R^2 coefficient of determination shows some correlation to the data but not very strong. A chart of this analysis has been provided just after this discussion. Major contributors to this higher number of customers affected were planned outages, undetermined, and weather.

There were 124,225 customers affected by sustained outages caused by weather in 2008. This compares to the 2003–2007 average of 72,948 customers.

58,920 customers were affected by sustained outages associated with tree related incidents. This compares to the 2003-2007 average of 45,985 customers. The vast majority of the tree related reasons were associated with either tree fell or tree weather incidents.

Planned maintenance activities and also forced repairs affected 37,133 customers as compared to the 2003-2007 average of 17,659 customers. Continued maintenance activities associated with the Company cutout replacement program contributed to the increase in this cause and reduced the Overhead Equipment outage causes.

An increase in the number of Undetermined Causes occurred in 2008 as compared to the 2003-2007 average. 80,297 customer had undetermined causes as compared to the average of 31,630. A significant number of outages were associated with transformer fuses, but there was no known reason for the fuse to operate. In 2009, additional analysis maybe worth doing to see if there is a common element that is suspected.

SAIFI Linear Trend Line Chart

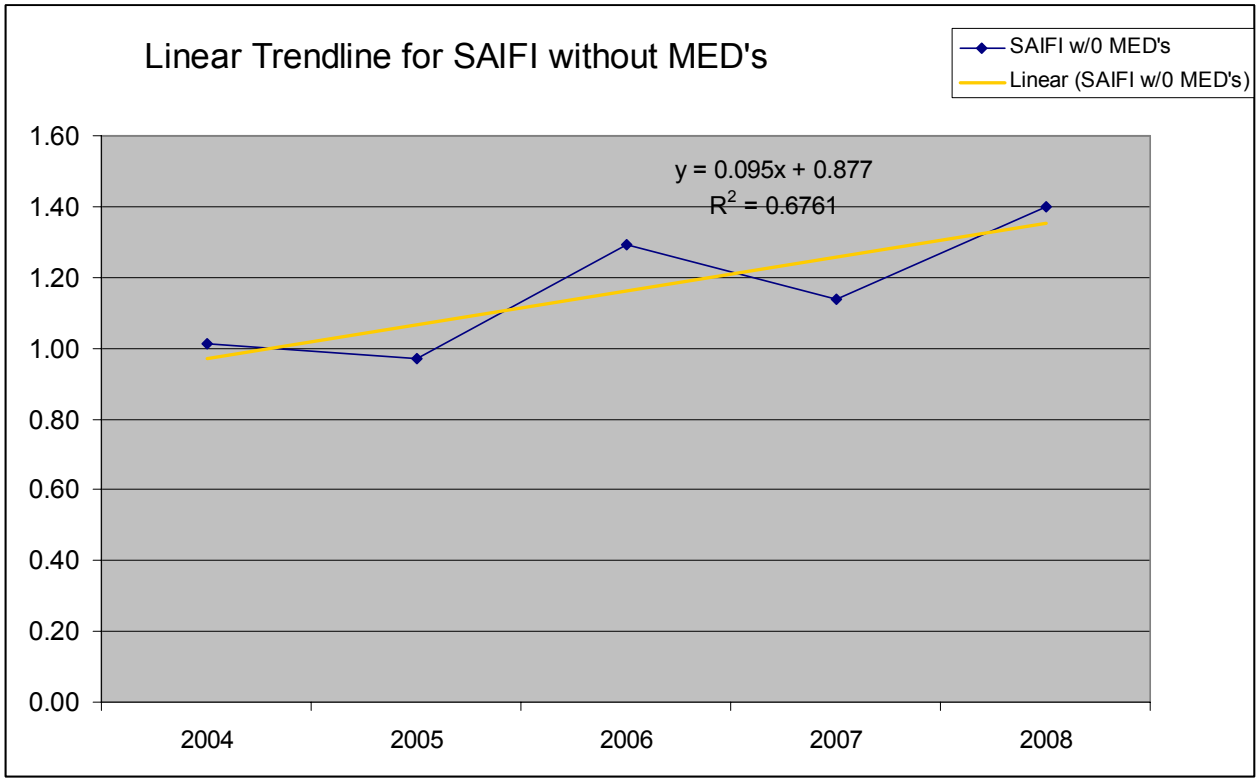


Chart 1.3 - MAIFI Momentary Interruption Events / Customer

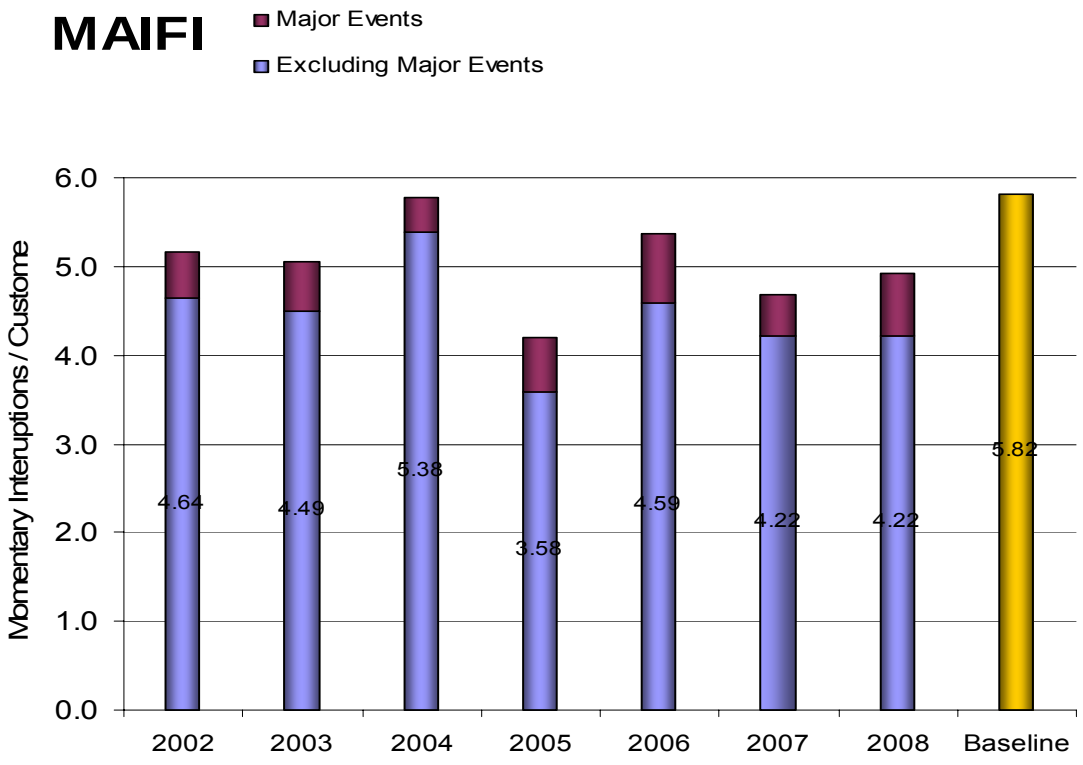
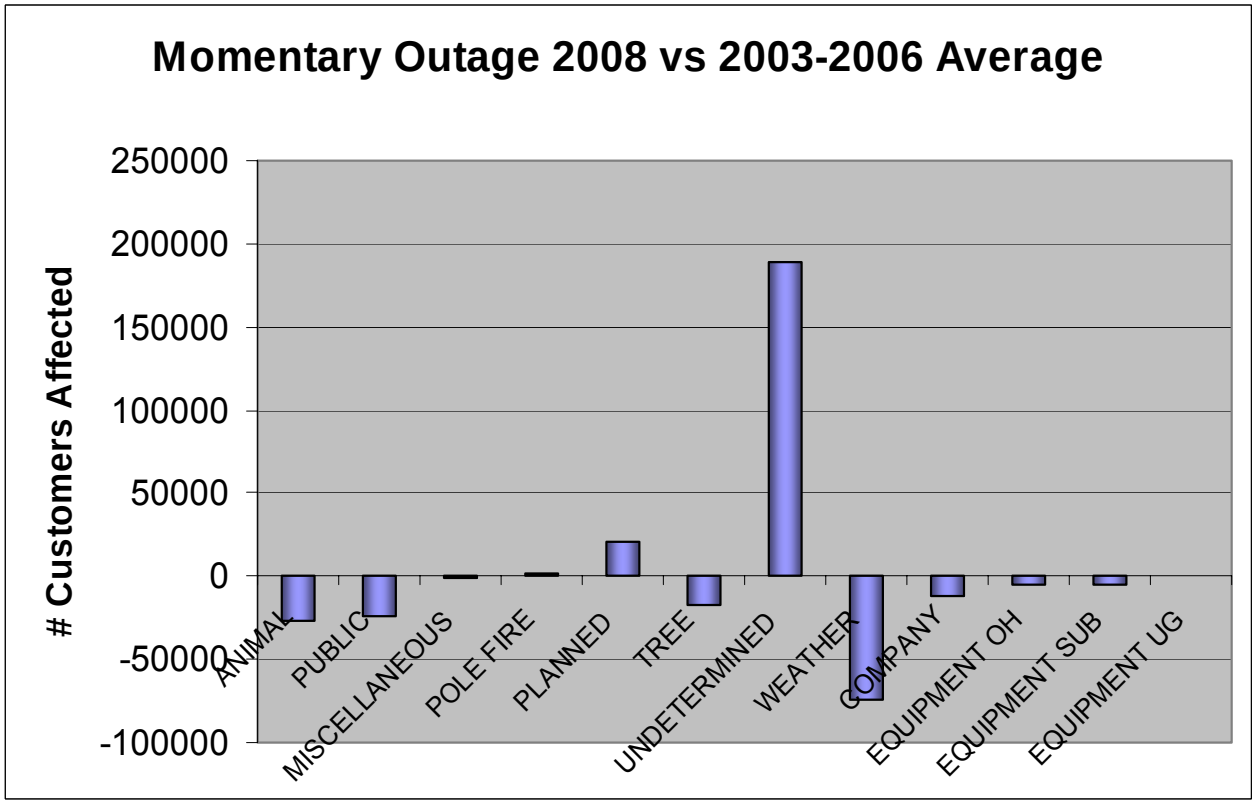


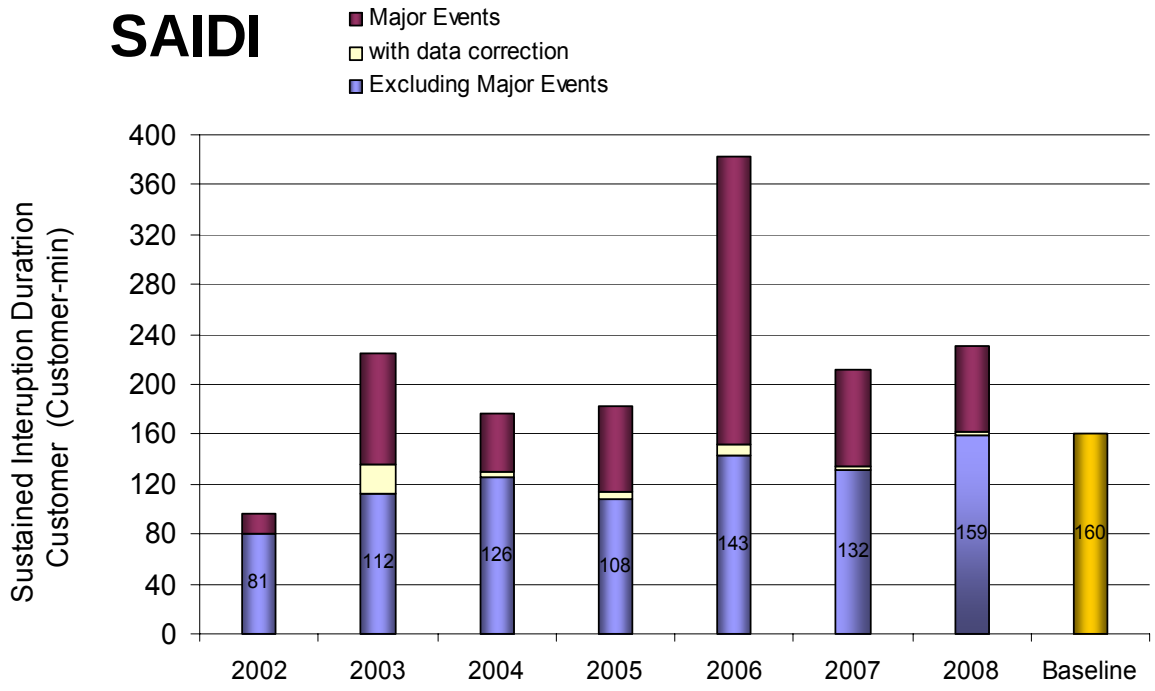
Chart 1.4 – Momentary Interruptions/ Customer Historic Comparison



The 2008 results for MAIFI show a small increase in the number of incidents compared to the 2003 to 2007 average. There was a reduction in weather related momentary outages that cannot be explained on weather conditions alone. There was a corresponding increase in the number of undetermined outages, which can reflect that weather conditions did cause outages. Distribution Dispatch continues to make improvements in correlating the momentary outages with subsequent sustained outages, which reduces the undetermined causes.

All other categories showed either a slight decrease that would be consistent with previous years.

Chart 1.5 - SAIDI – Average Outage Time / Customer



SAIDI Linear Trend Line Chart

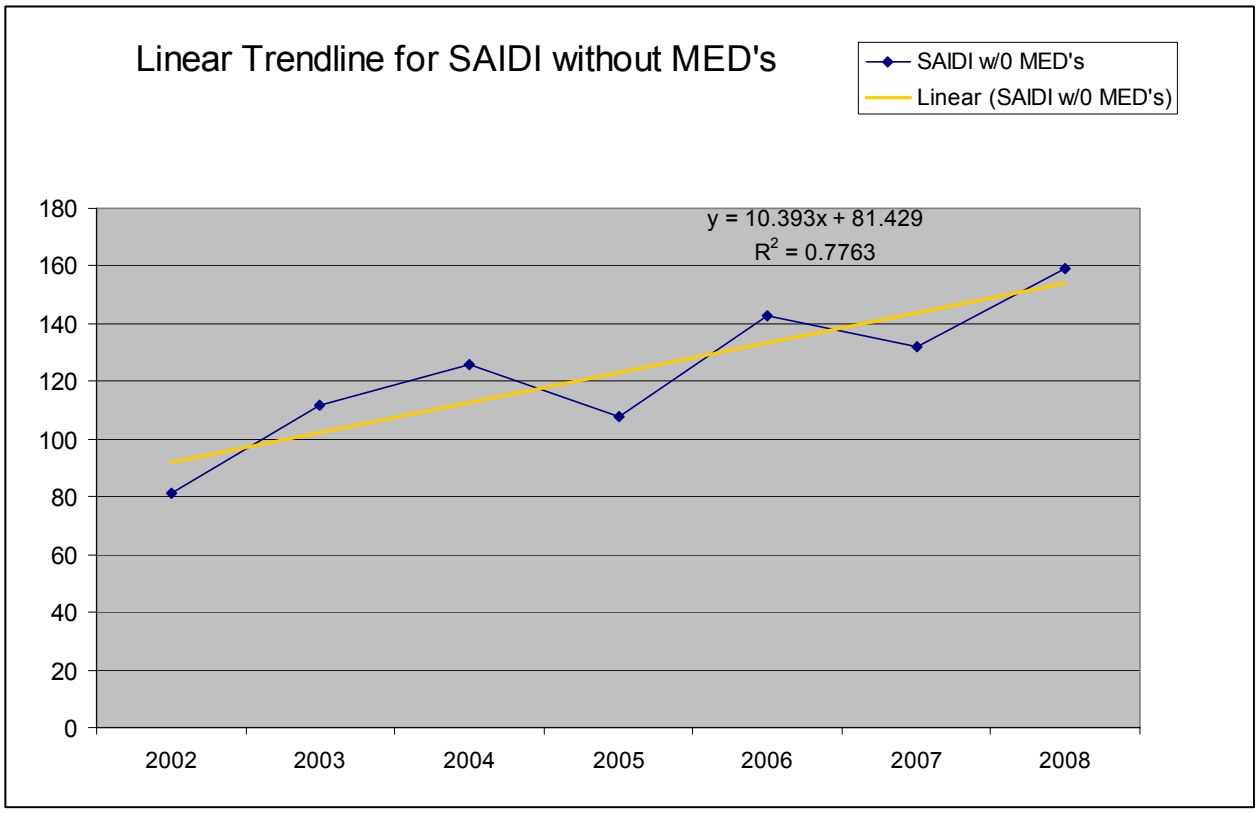
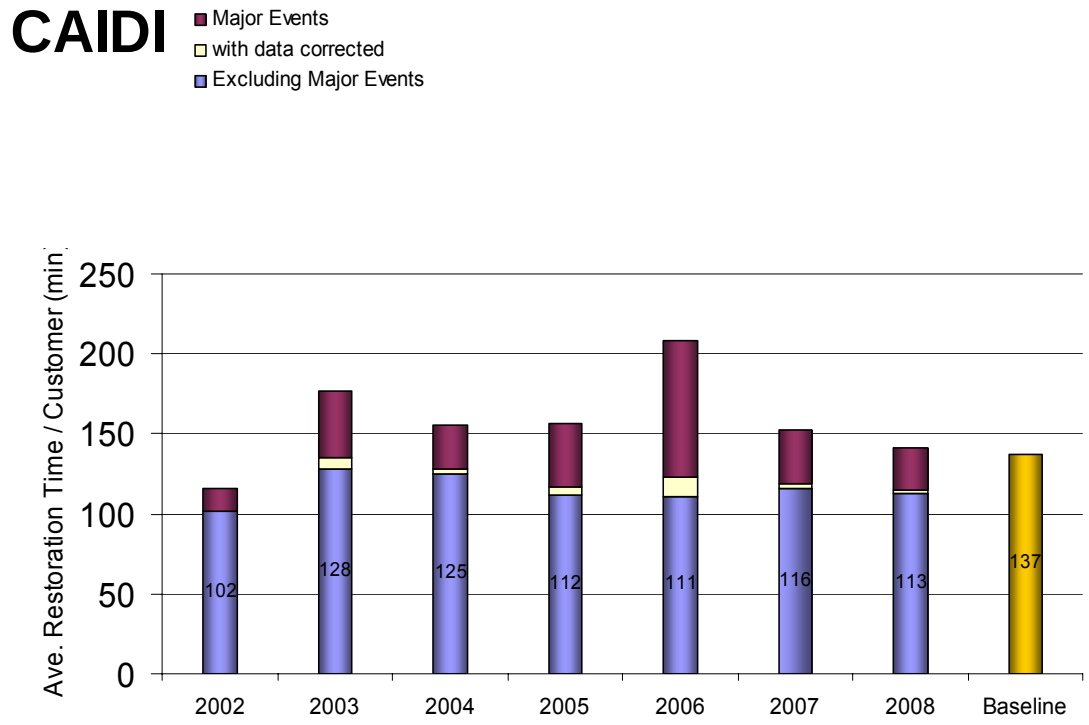


Chart 1.6 - CAIDI – Average Restoration Time



OFFICE Indices

Chart 2.1 – SAIFI - Sustained Interruptions / Customer

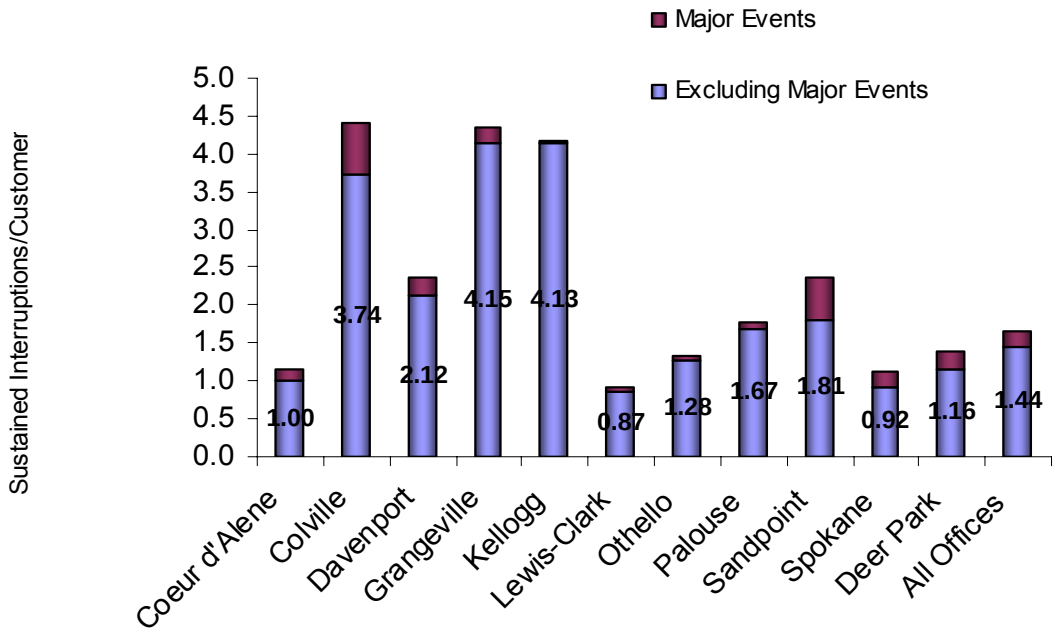


Chart 2.2 - MAIFI Momentary Interruption Events / Customer

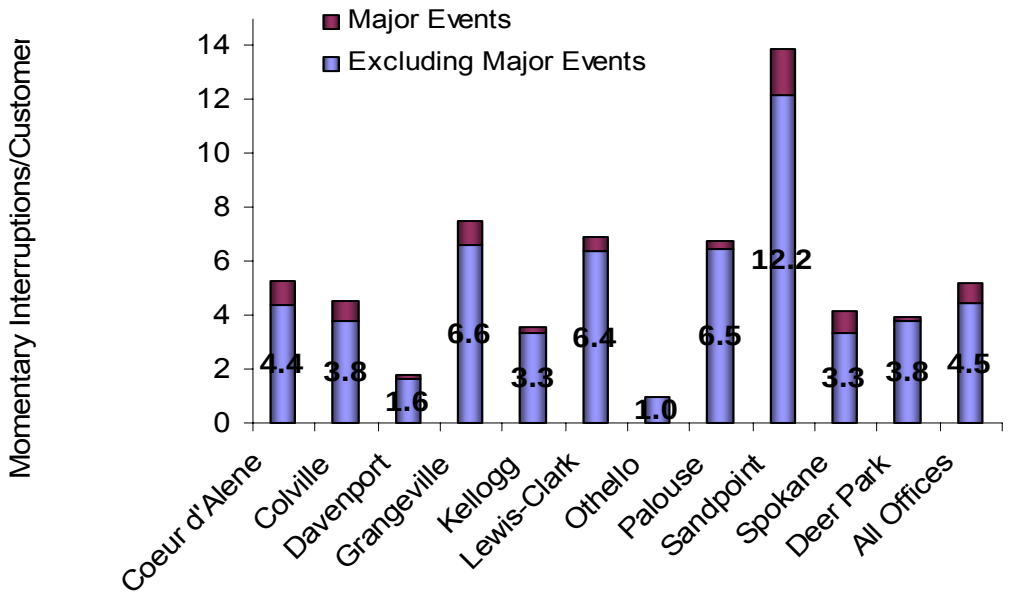


Chart 2.3 - SAIDI – Average Outage Time / Customer

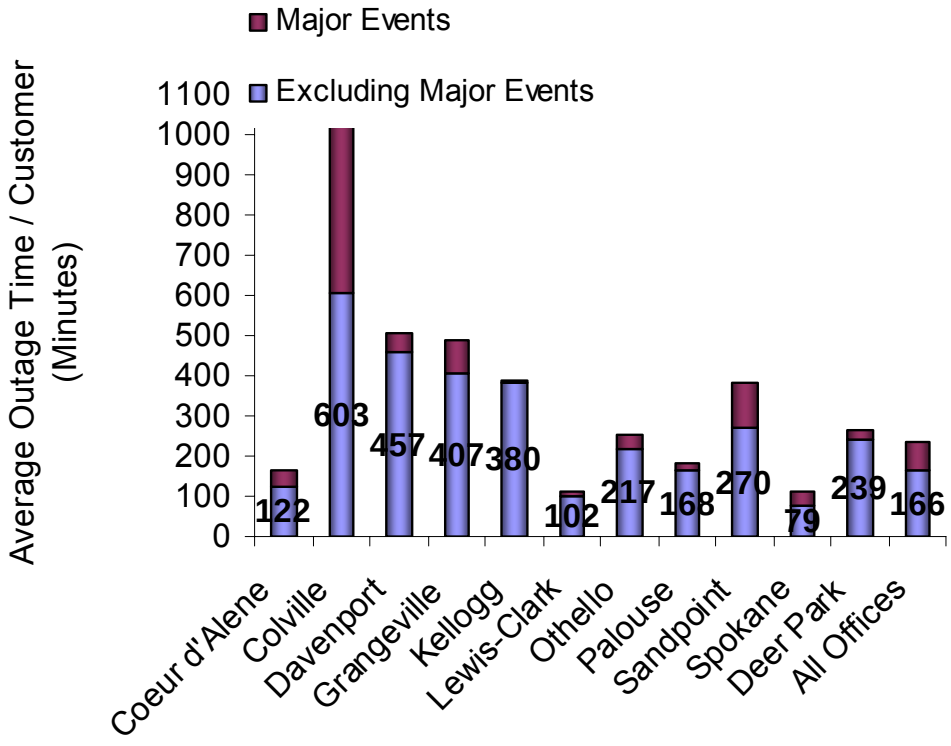
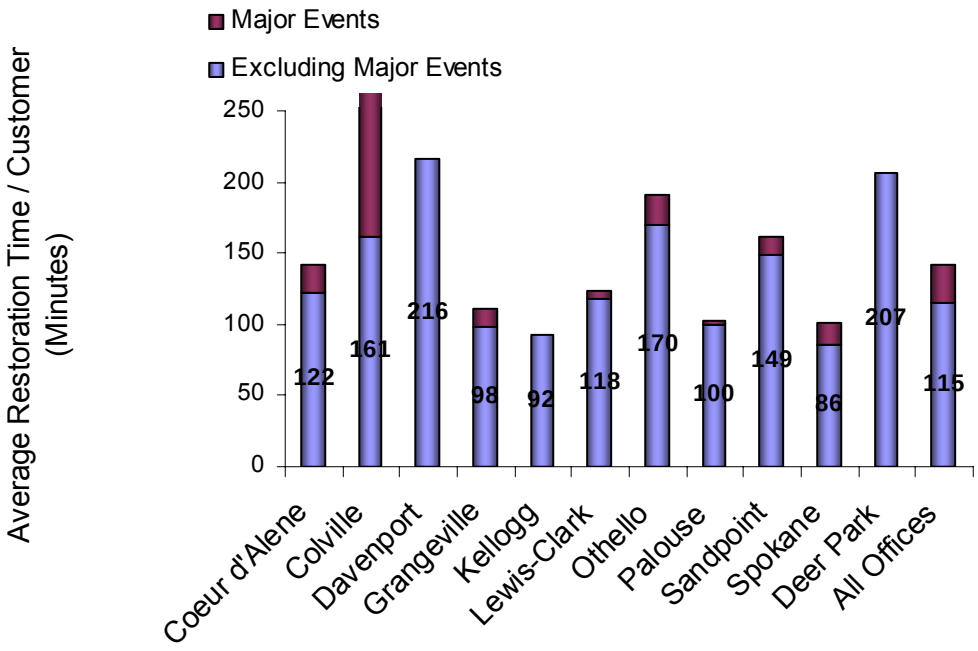


Chart 2.4 - CAIDI – Average Restoration Time



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, six feeders were identified as the areas of concern for 2008. These feeders are Gifford 34F1, Gifford 34F2, Colville 34F1, Colville 12F4, Valley 12F3 and Valley 12F1. For this report, these same six feeders are identified as the areas of concern for 2008.

Cause Information:

Generally rural areas have a greater number of outages per customer. Colville is a predominately rural and forested area. There are approximately 2342 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, right 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.

Listed below is a summary of the specific cause data for each feeder. This is a compilation of data from the Avista Outage Management Tool 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.

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 right of way and are considered healthy marketable timber.

Gifford 34F1

- 24.4% Weather: snow, wind and lightning storms
- 9.3% Equipment
- 1.2% Pole fires
- 9.3% Trees
- 14.0% Planned outages

Colville 34F1

- 28.1% Weather; snow, wind and lightning storms
- 9.4% Equipment
- 4.2% Pole fires
- 12.5% Trees
- 10.4% Planned outages

Chewelah 12F3

- 38.7% Weather: snow, wind and lightning storms
- 5.4% Equipment
- 9.0% Trees
- 4.5% Planned outages
- 8.1% Animal: birds or squirrels

Gifford 34F2

- 25.0% Weather: Wind, snow, and lightning storms
- 12.5% Equipment
- 2.8% Pole Fires
- 6.9% Trees
- 9.7% Planned outages
- 4.2% Animal: birds or squirrels

Valley 12F1

- 13.8% Weather: snow, wind and lightning storms
- 9.4% Equipment
- 10.3% Trees
- 3.4% Public
- 17.2% Planned outages
- 10.3% Animal: birds or squirrels

Valley 12F3

- 13.8% Weather: wind and lightning storms
- 9.4% Equipment
- 8.5% Trees
- 4.2% Public
- 8.7% Planned outages
- 10.3% Animal: birds or squirrels

Colville Area Work Plans:

The improvement work that has been accomplished or planned for each feeder 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

- 9114' of URD cable was replaced in 2008 and 6780' of cable has been identified to be replaced in 2009.
- Vegetation Management completed unplanned trimming of 150 trims and 657 tree removals that was completed in 2008. Planned Work for 2008 was completed in early 2009 that included 2673 tree trims and 3935 tree removals.

Colville 34F1

- 2800' of URD cable was replaced in 2008 along with installing 6620' of URD cable to replace a section of overhead line that had a lot of poles that would need to be replaced. In 2009 about 7000' of URD cable will be replaced on this feeder.
- Vegetation Management performed unplanned work of 7 tree trims in 2008. No additional work is planned for 2009.

Chewelah 12F3

- In early 2007, budget money was approved to complete the project of adding three reclosers on the feeder to improve the temporary fault protection. Local personnel identified areas where turkeys roost and fly into the distribution facilities during early morning hours. No Turkey outages reported in 2008. A project was engineered in 2008 and construction has started in 2009 to add a substation breaker to split the very long feeder into two parts. Another section of the feeder is going to be multi phased and part of it placed underground. Both of these projects should improve the reliability.
- Vegetation Management performed unplanned work of 8 tree trims and 58 tree removals in 2008. No additional work is planned for 2009.
- No URD cable was replaced in 2008, but about 250' of URD cable is to be replaced in 2009.

Gifford 34F2

- Vegetation Management completed unplanned work of 150 tree trims and 657 tree removals along with planned work of 2673 tree trims and 3935 tree removals in 2008. No planned work for 2009.
- There was 3665' of URD cable replaced in 2008 and there is an estimated 7000' of URD cable scheduled for replacement in 2009.

Valley 12F1

- During 2009 money is budgeted to implement improvements identified in previous years to the feeder protection scheme that should reduce the exposure on long single phase laterals. Other improvements are also being looked at.
- Unplanned Vegetation Management of 12 tree removals was completed in 2008. No work planned for 2009

- About 2 miles of overhead circuit is planned to be replaced in 2009 by URD cable that is in a remote location, has limited access and has been high maintenance.

Valley 12F3

- A third phase was added to a one mile section of overhead line on Waitts Lake Rd. to balance the load on the three phases, which should help improve the reliability on this section of the feeder.
- No tree trimming work was planned or completed for 2007, but work is planned for 2008.
- Converted 7500 feet of problematic overhead line to underground. No URD cable was replaced on this feeder, but 1260 feet is expected to be replaced in 2009.

Avista typically uses several different protective devices on its feeders to isolate faulted or overloaded sections and also continue to serve the remaining customers. Generally, two different protection schemes are used to either "save" the lateral fuse or "blow" the lateral fuse by using or not using the instantaneous over current trip. Depending on the feeder, number of customers, types of faults, (temporary or permanent), customer type, time of year, etc. both of these schemes may be used on an individual feeder at different times at the discretion of the field personnel. With the better data and cause code collection that OMT provides and the customer growth on some of the Colville feeders, changes to the type of scheme used has been reviewed. Engineering reviews of some of the sections of the feeder(s) in the Colville area show that the addition of surge arrester protection should reduce outages on the feeder(s) due to lightning.

Feeder	Decisions/ basis	2009	2010 and beyond
Gifford 34F2	Reliability improvements		Planned
Valley 12F1	This feeder was first identified in mid 2006 as having areas that would be of concern. Capital dollars have been budgeted in 2009 to identify and implement some reliability improvement. Engineering is on going.	Budgeted	Planned
Valley 12F3	Fusing protection was revised and updated. Additional reliability improvements maybe budgeted in future years.		Planned
Diamond 232*	Engineering is on going along with Wood Pole Management related work to identify reliability improvements for this feeder.	Budgeted	Planned
Grangeville 1273*	Engineering is on going along with Wood Pole Management related work to identify reliability improvements for this feeder.	Budgeted	Planned

* Not included as an area of concern in this report.

Avista System Wide Work Plans:

Avista develops a detailed annual budget for various improvements to the facilities it owns and operates. With the emphasis on Generation upgrades, Electric Transmission upgrades, Electric Substation capacity increases, and Electric Distribution capacity projects many reliability projects were deferred until 2009. For 2009, three reliability feeder projects (one has been deferred to 2010) are scheduled for engineering, construction and implementation in addition to two other projects for two of the feeders mentioned above. Additionally Asset Management has developed some specific projects that are expected to improve reliability on several feeders system wide. These projects are summarized in the table below.

Porcelain cutout failures continue to contribute to outages and also have caused several pole fires on a system wide basis. As a result, Avista began purchasing a newer design of cutout with a polymer insulator beginning in January of 2005. Porcelain cutout failures tend to occur at a higher rate in areas with colder temperatures and wide temperature fluctuations, such as the Colville area. Avista started a system wide change out program in early 2007 to proactively replace problematic porcelain cutouts before this specific style fails. As of the end of March 2009, 4300 of this type of porcelain cutout was replaced on the system in 2008. An additional 430 have been changed out so far in 2009 with the remaining cutouts to be completed by year end.

2009 is the start of the multi year 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 will be installed with a hot stick on distribution transformers on existing transformers that do not have an existing wildlife guard.

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.

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 reclearing.

Distribution

Our current plan for Avista's distribution system is managed by Asplundh Tree Expert Co. Every distribution circuit is scheduled to be line clearance pruned on a regular maintenance cycle of four year urban and seven years rural. Other distribution vegetation management activities include hazard tree patrol and herbicide application.

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 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

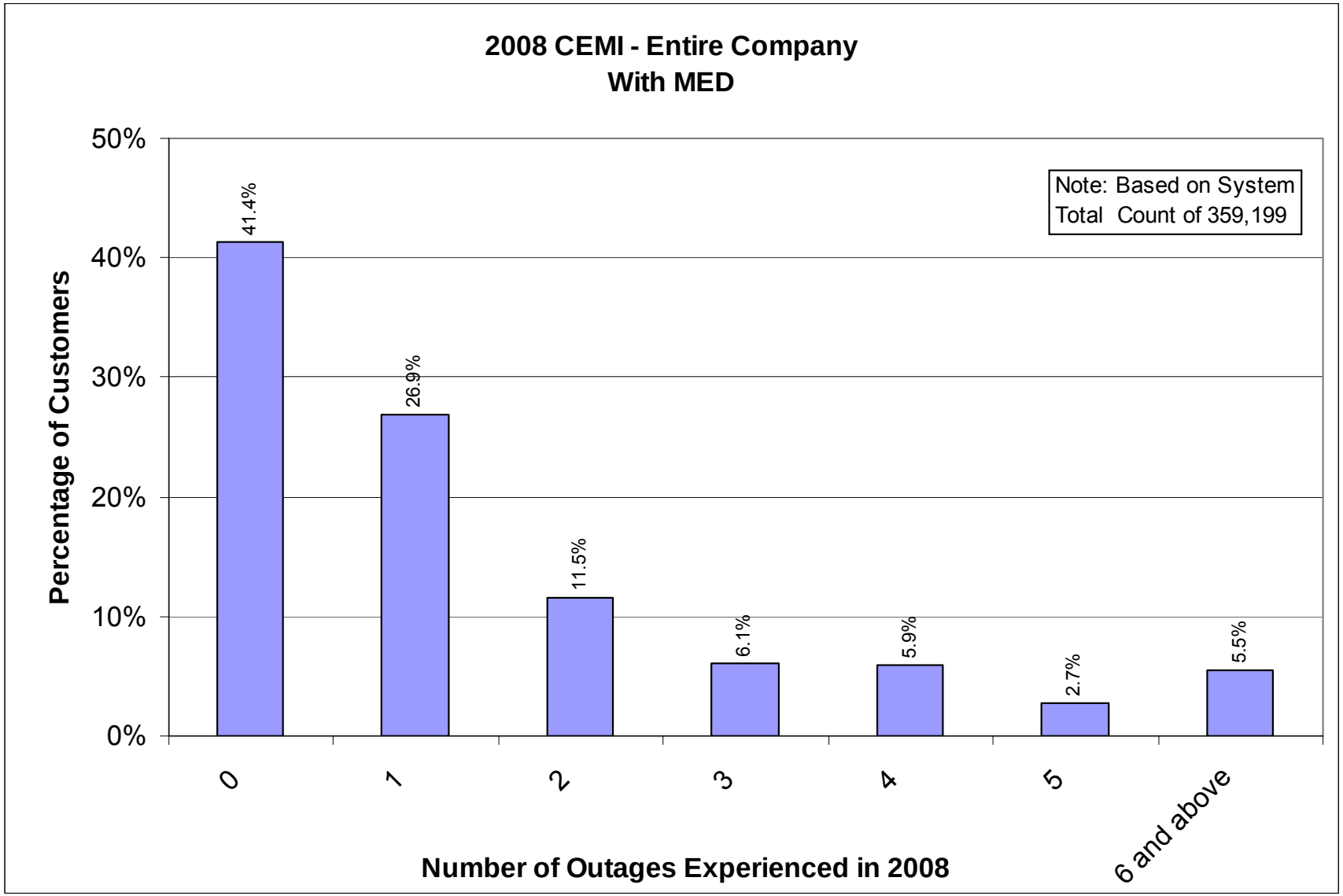
Avista has used the data from the OMT system integrated with the GIS system to geospatially display reliability data for specific conditions. The specific conditions imply looking at the number of sustained interruptions for each service point (meter point). This would be similar to the SAIFI indice, 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 $CEMI_n$ indice, because of the lack of indication on many of the rural feeder reclosers.

The first chart below provides a view of the percentage of customers served from the Avista system that have sustained interruptions. 68 % of Avista customers had 1 or fewer sustained interruptions and 5.5% of Avista customers had 6 or more sustained interruptions during 2008.

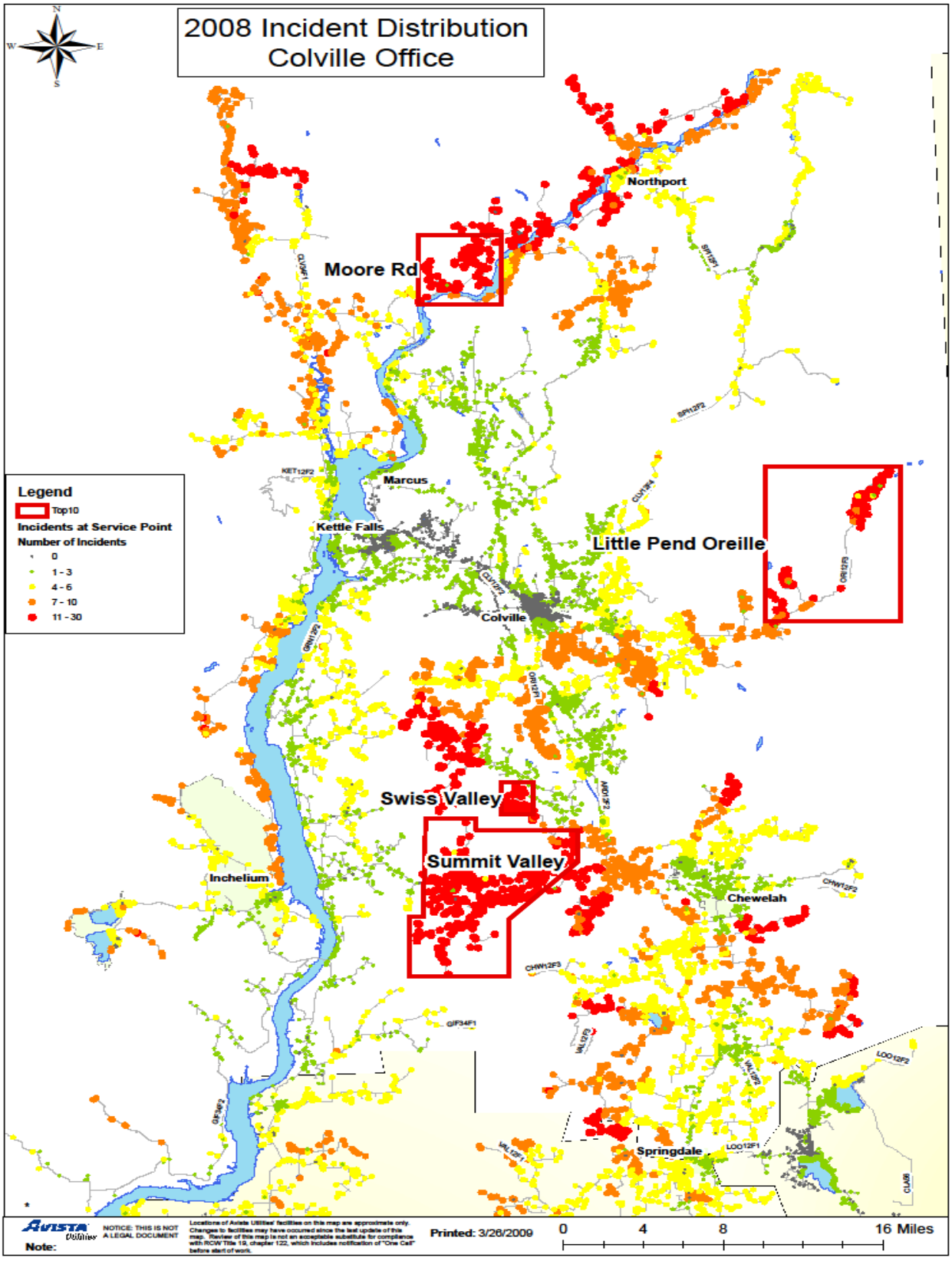
The remaining geographic plots show the sustained interruptions by color designation according to the legend on each plot for each office area. Note the office area is designated as the area in white for each plot and that there is overlap between adjacent office area plots. The adjacent office areas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

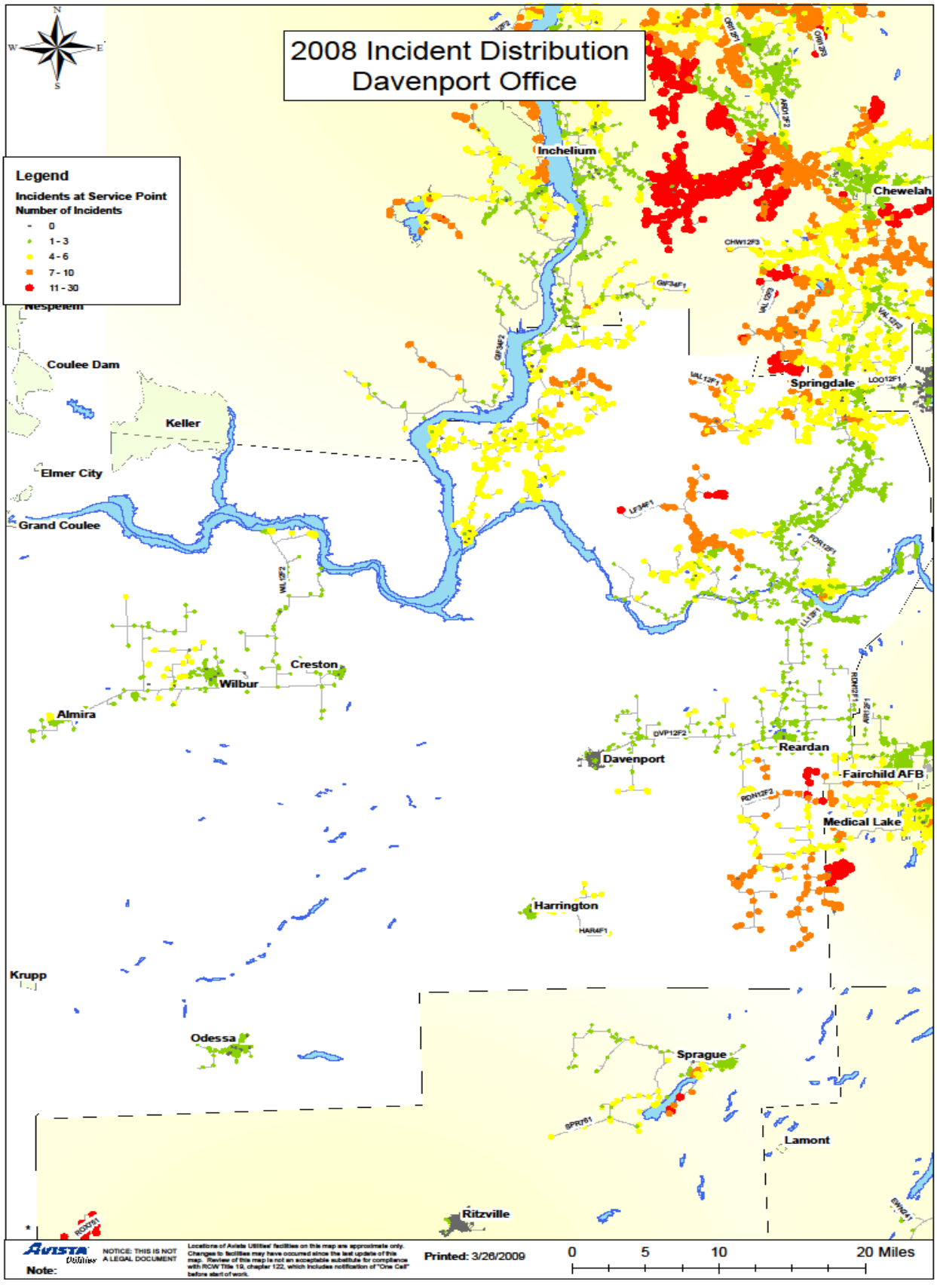
Avista Service Territory CEMI$_n$ Chart



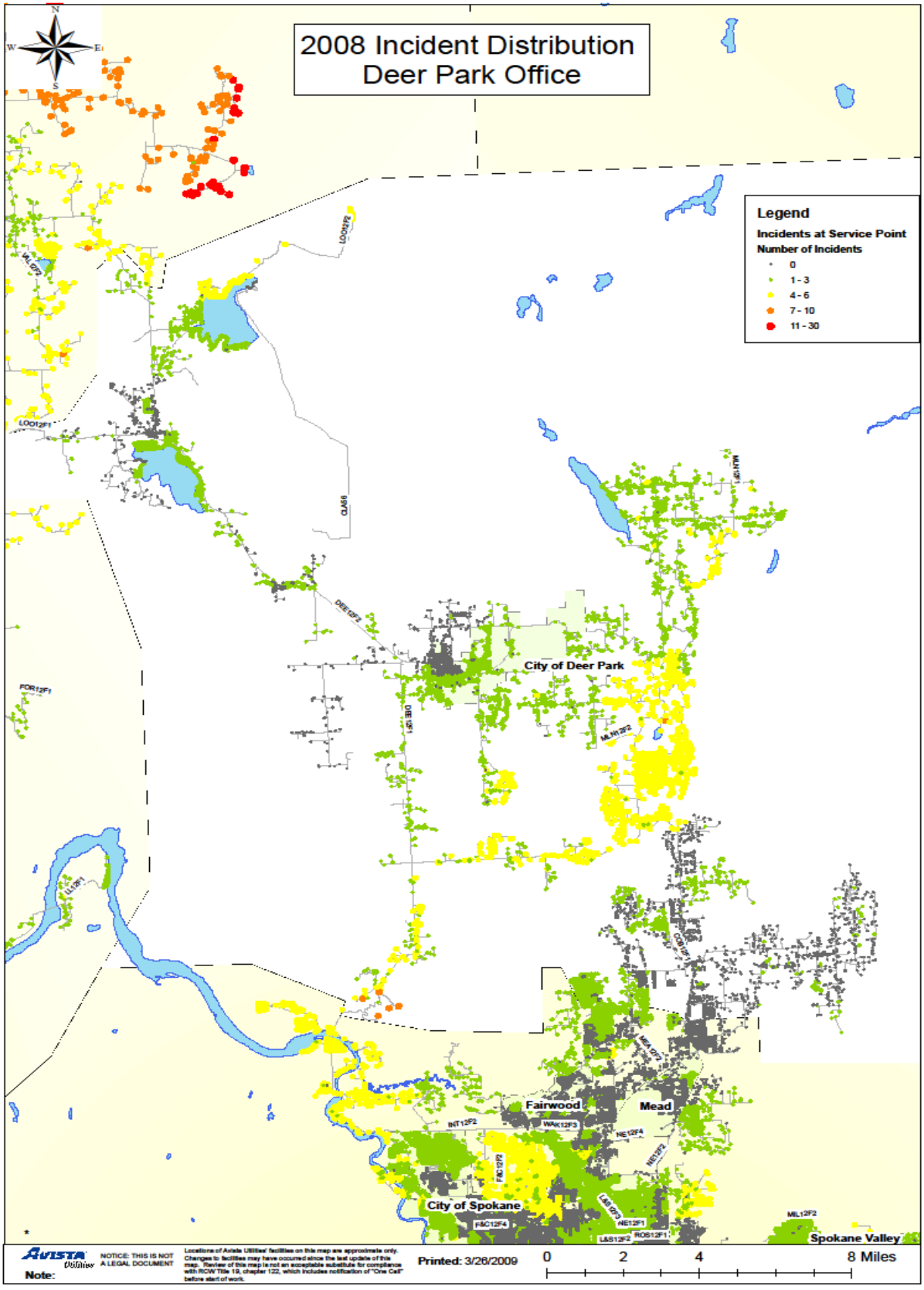
Colville Office - $CEMI_n$



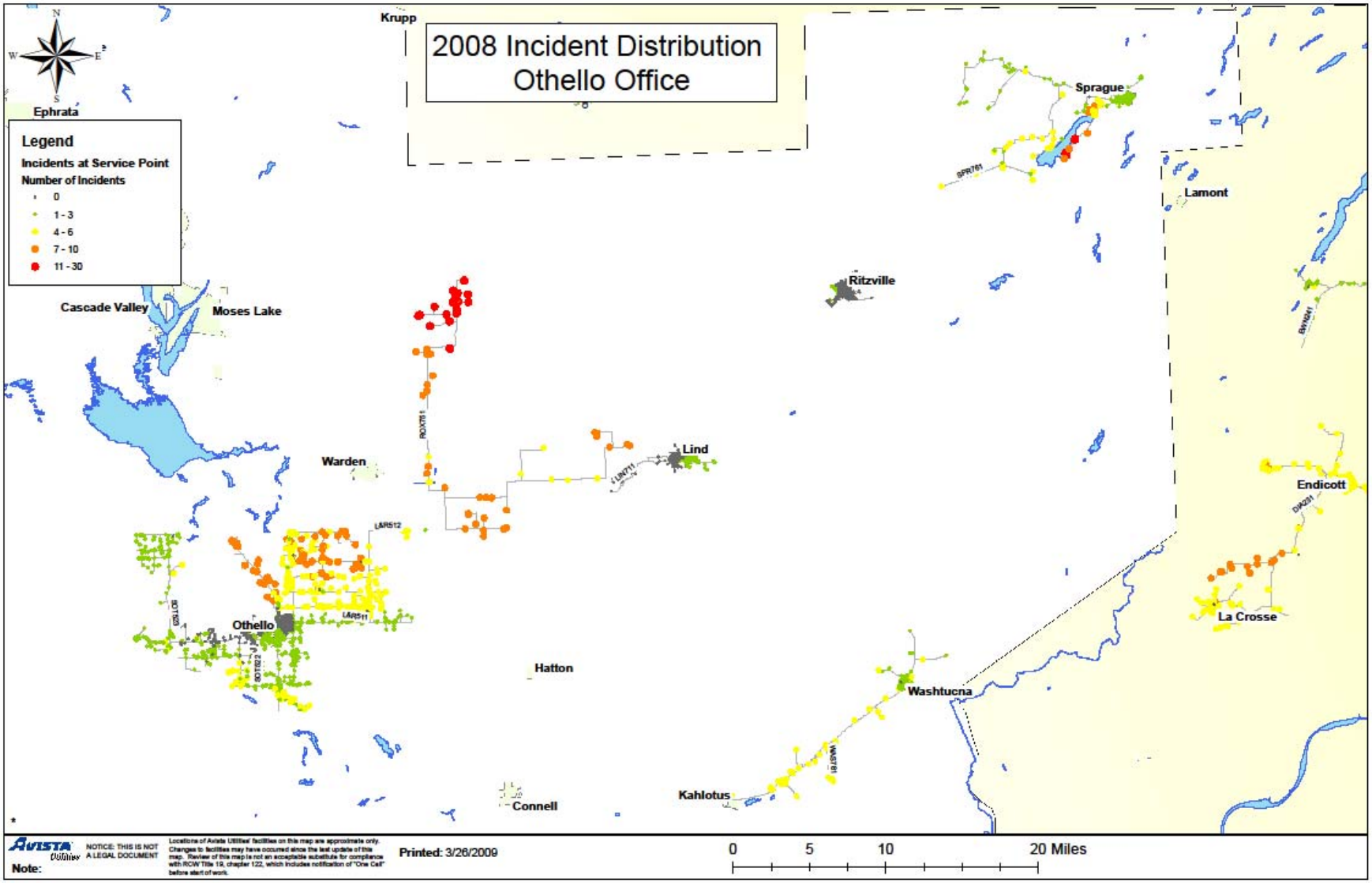
Davenport Office - $CEMI_n$



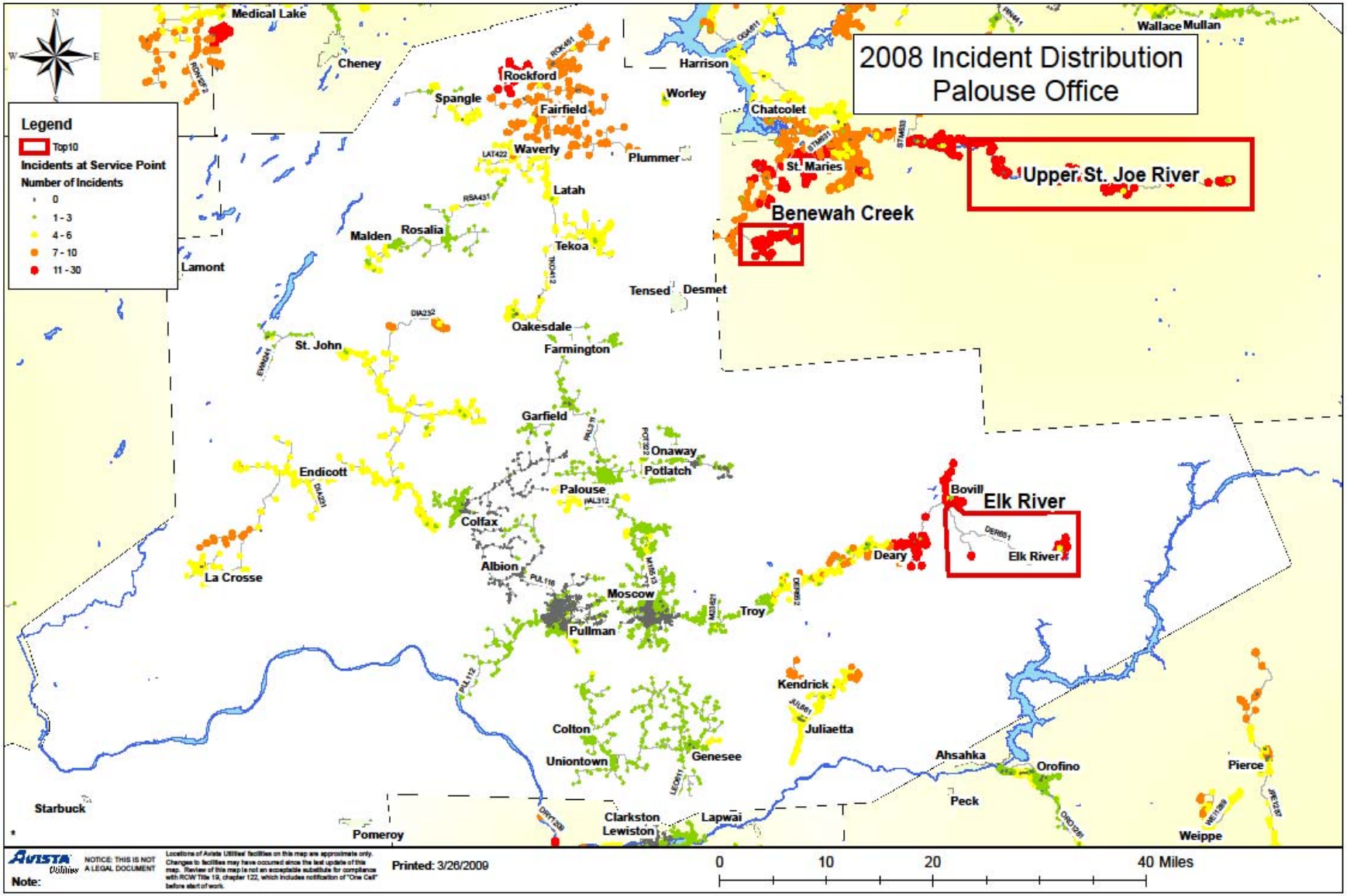
Deer Park Office - $CEMI_n$



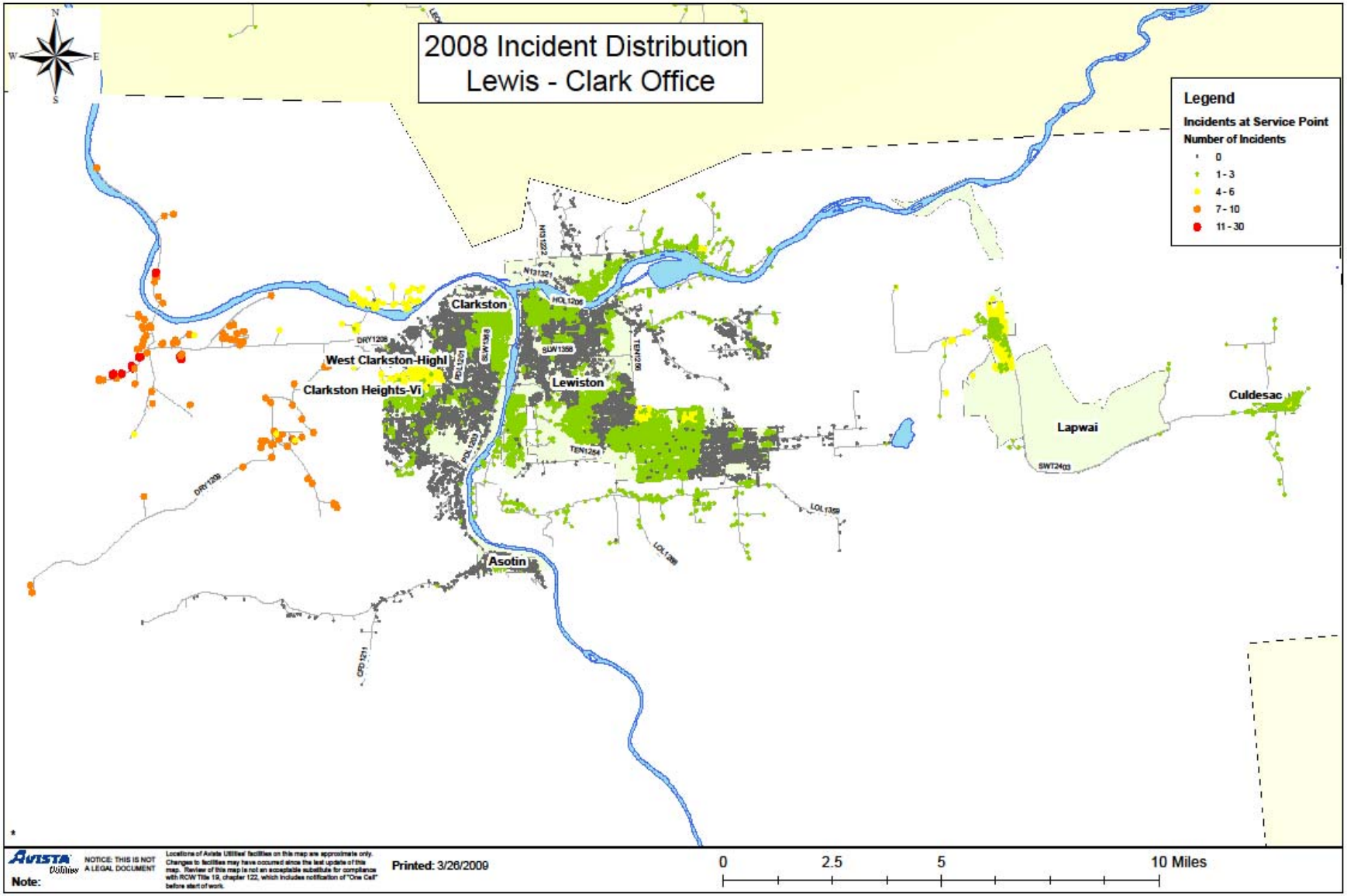
Othello Office - $CEMI_n$



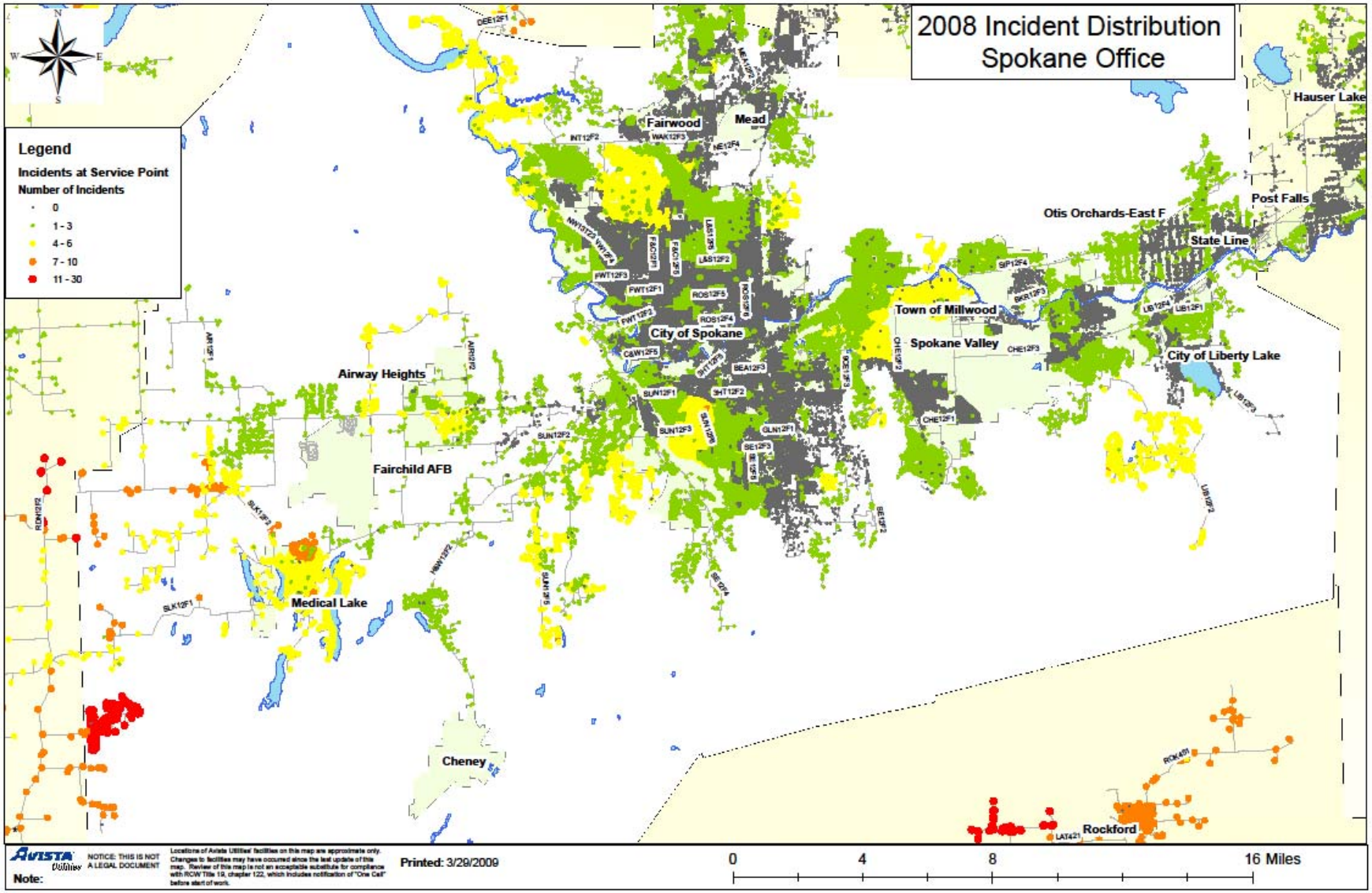
Palouse Office - $CEMI_n$



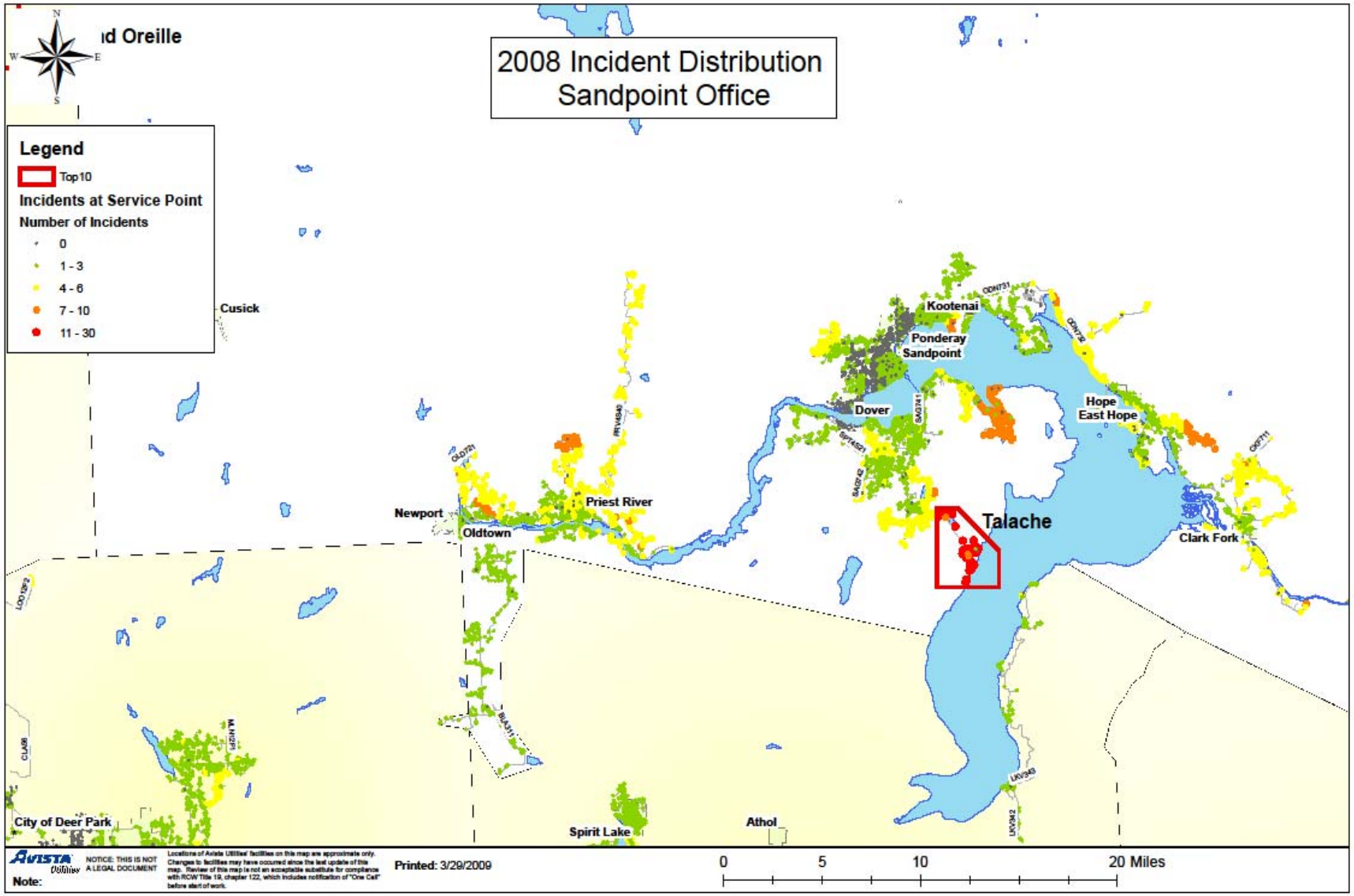
Lewis-Clark Office - $CEMI_n$



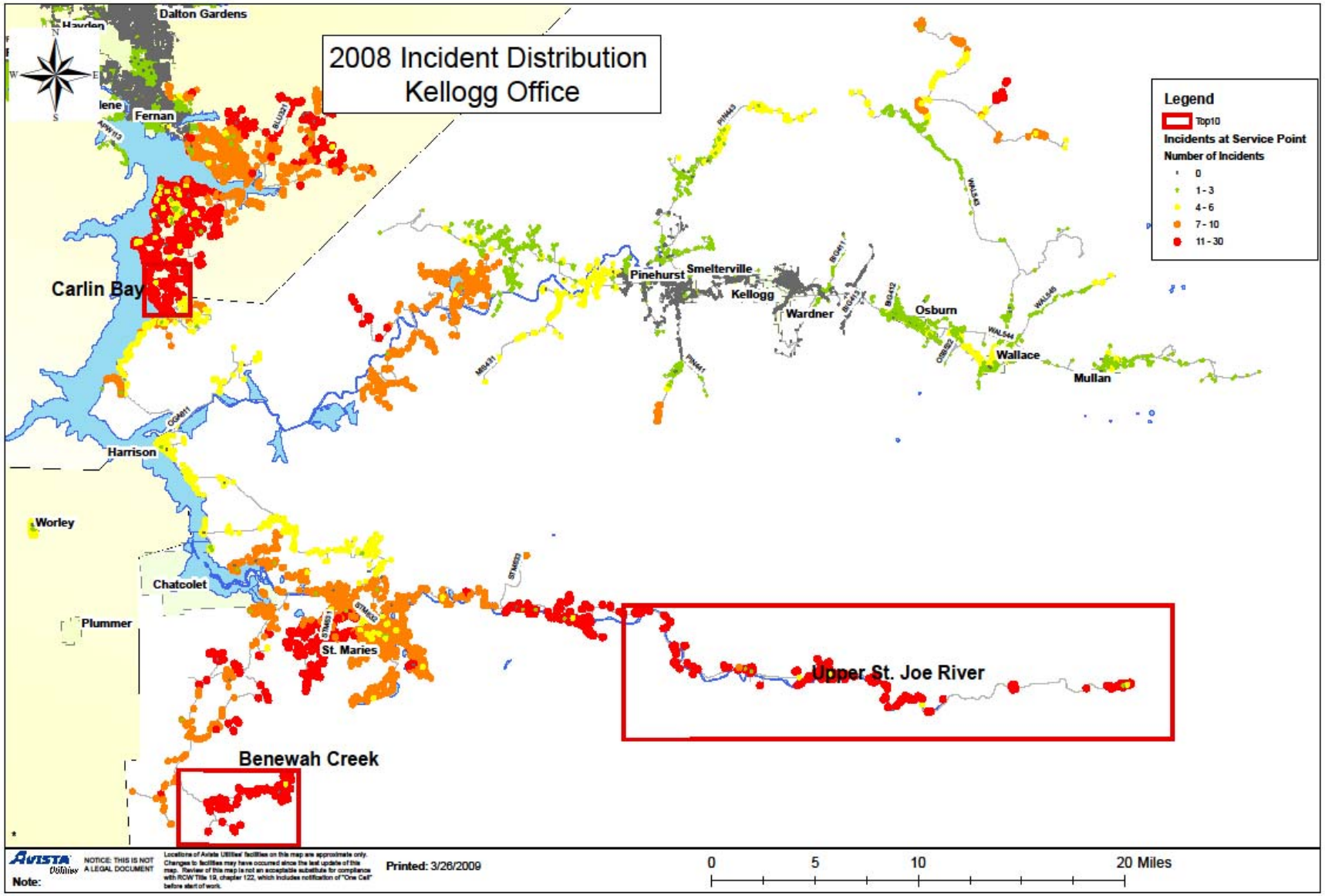
Spokane Office - $CEMI_n$



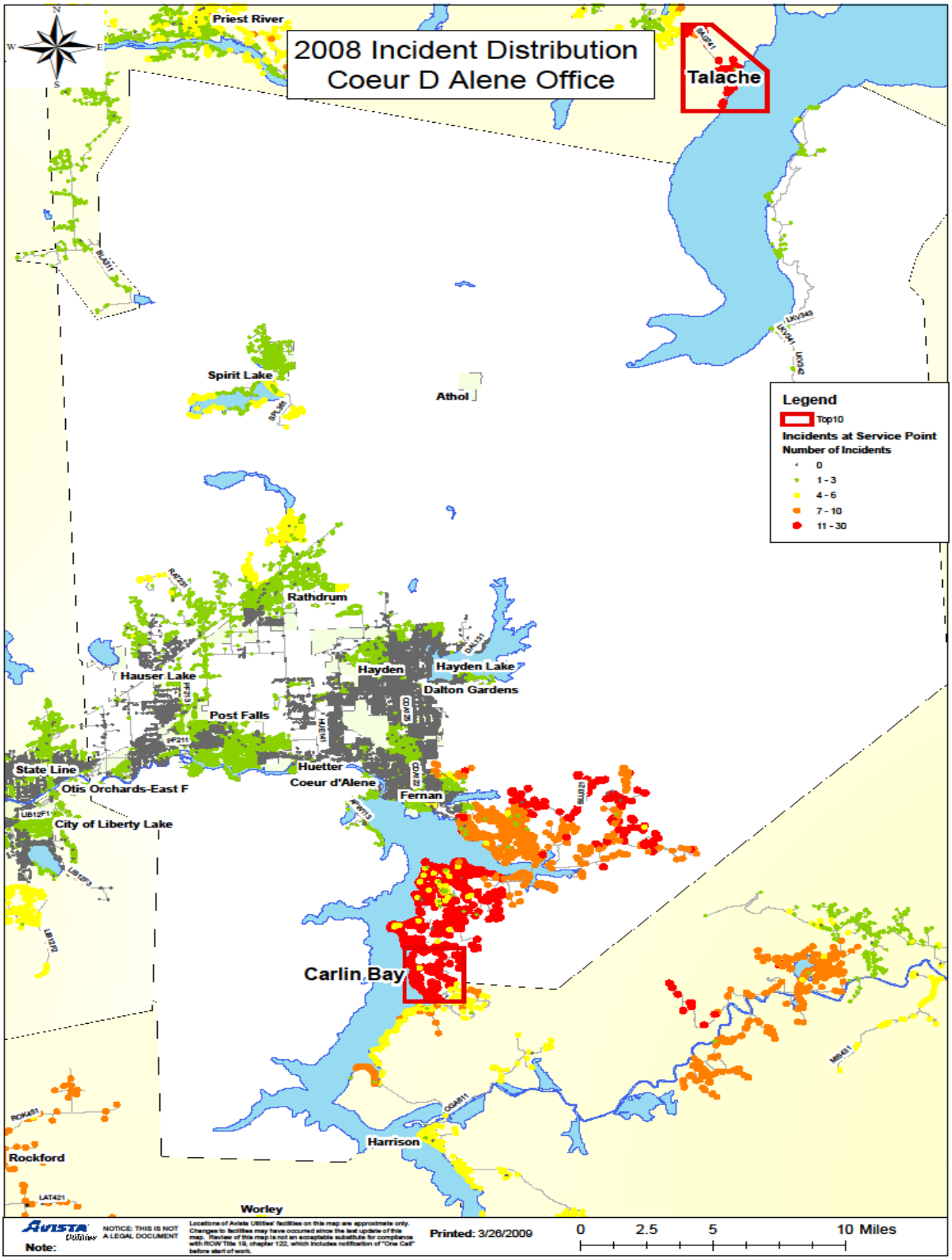
Sandpoint Office - $CEMI_n$



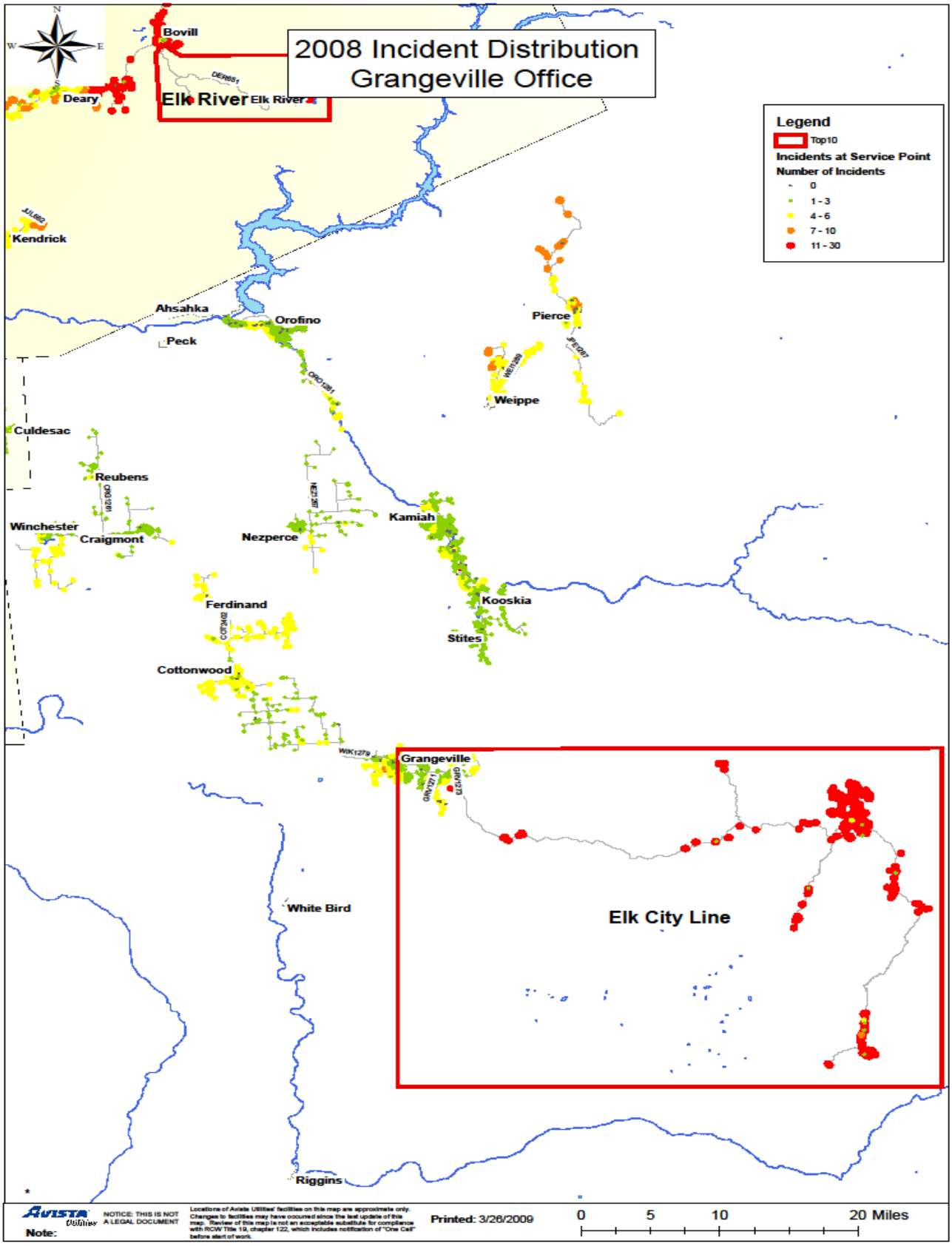
Kellogg Office - $CEMI_n$



Coeur d'Alene - $CEMI_n$



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 in mid- and late summer lightning storms. They also reflect varying degrees of animal activity causing disruptions in different months of the year.

Chart 3.1 – SAIFI - Sustained Interruptions / Customer

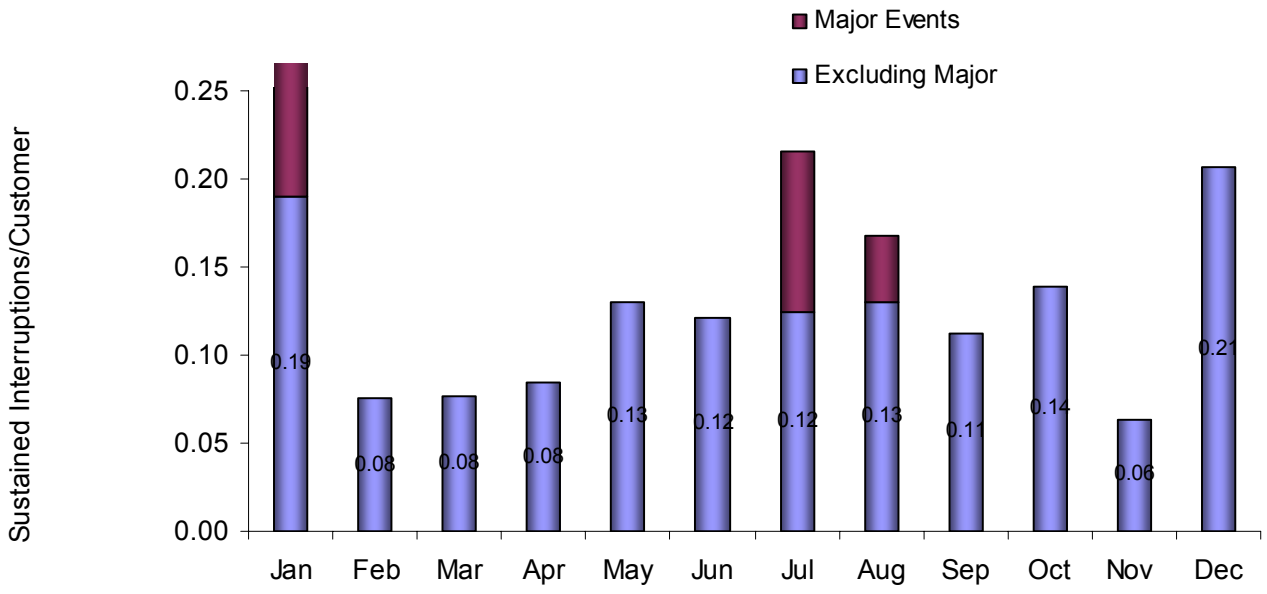


Chart 3.2 - MAIFI Momentary Interruption Events / Customer

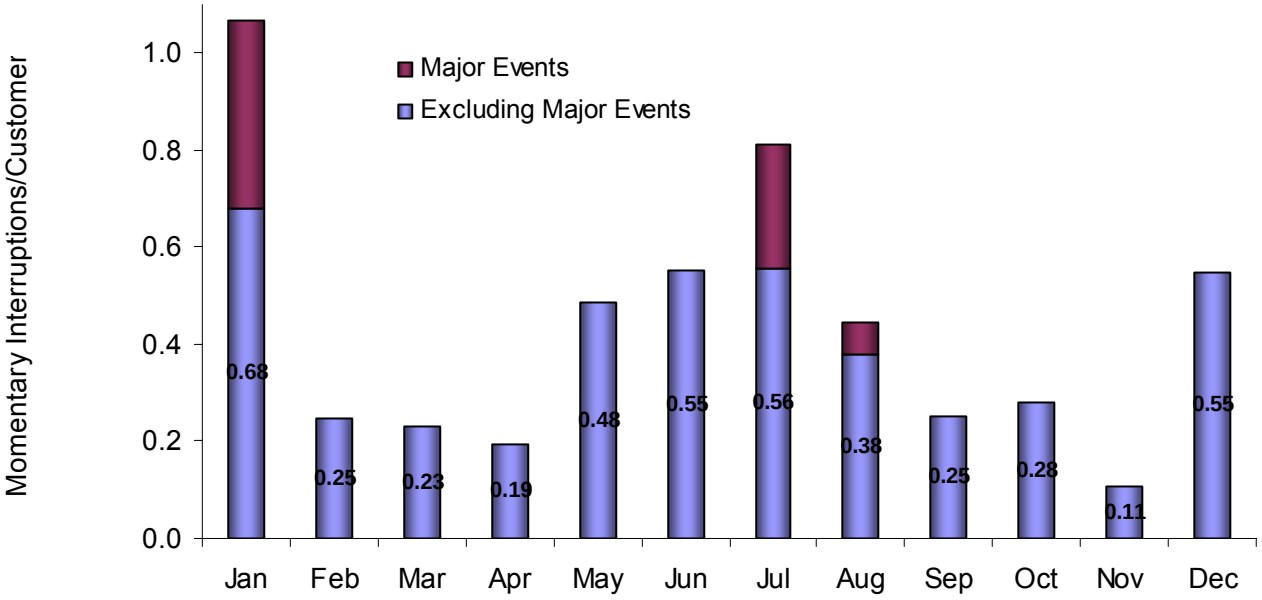


Chart 3.3 - SAIDI – Average Outage Time / Customer

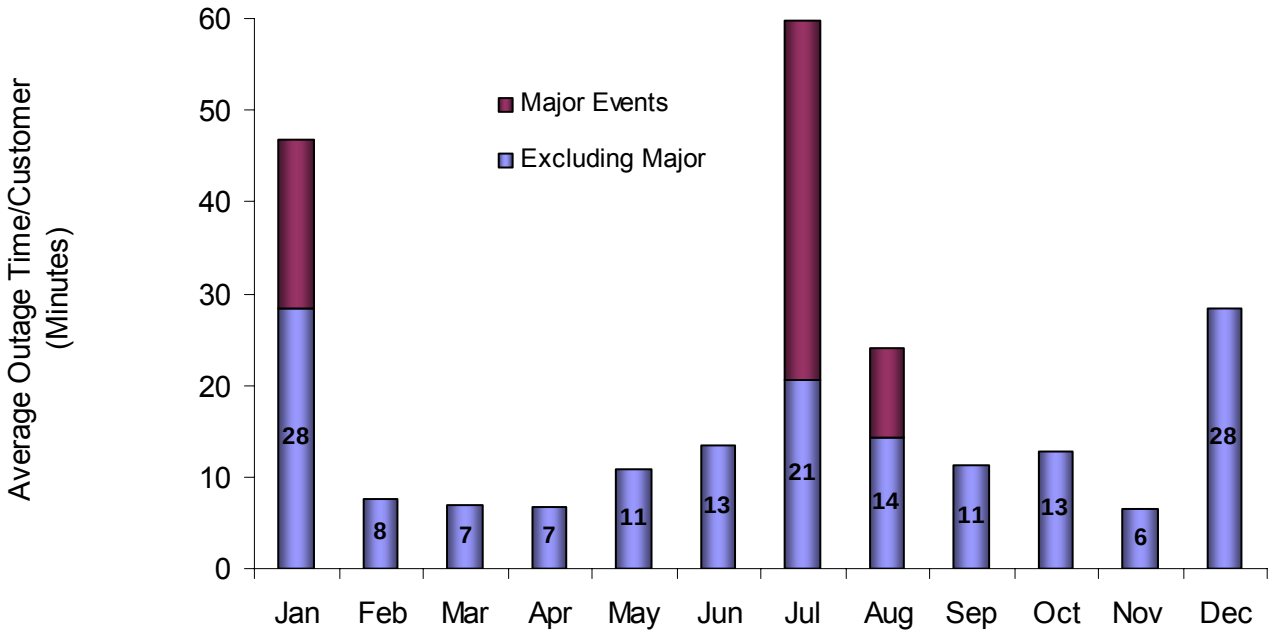
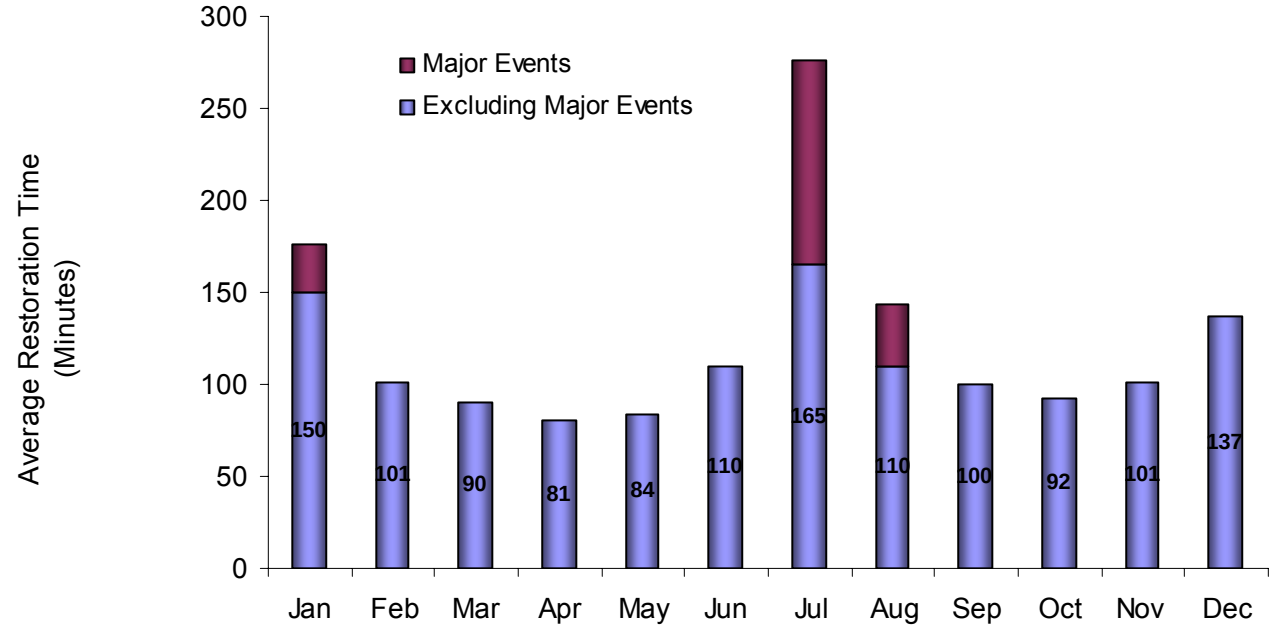


Chart 3.4 - CAIDI – Average Restoration Time



Customer Complaints

Commission Complaints

The following is a list of Complaints made to the Commission during this year.

Customer Address	Complaint	Resolution
Grangeville ID Grangeville 1274	Customer concerned about lack of timely notification for planned outages. He uses oxygen & needs power or a decent notice so he has backup power for his batteries. Customer stated that Avista told him after the last incident that notification would be printed in the local paper to let everyone in Grangeville know about the planned power outage a week before outage.	No resolution documented

Customer Complaints

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

Customer / Feeder	Complaint	Resolution
Deer Park, WA Deer Park 12F1	8/19/2008 Customer upset that he does not have consistent power. Said we don't clear our lines properly and always blames the weather. He has 40 horses and is always worrying if the power will go down and he won't be able to give them water. Said he will be at every public meeting we have and may file a complaint with the commission. Would like a call back on 8/26. He will be out of town until then.	Deer Park office was to call customer back on 8/26/2008. Resolution unknown.
Spokane, WA Sunset 12F6	05/28/2008 – Customer Complaining about outages in last week including today. Customer says he has a home Business with no backup generator. Wanted to speak with someone in Corporate about the outages.	Spokane Office called customer back and left voicemail. Customer called back and was upset regarding the outage. Avista reported a squirrel caused outage. Avista considers resolved.
Spokane, WA Sunset 12F3	02/06/2008 – Customer called wanting to know why it took so long to get services restored.	Spokane Office was to call customer back. No resolution was documented.
Spokane, WA Chester 12F1	08/17/2008 – Customer called during an outage just to curse and yell about Avista. Comments were not documented or will be reprinted but the words were very ugly. Customer was very abusive to Customer Representative, but he wanted to make sure his comments were recorded.	Customer Representative handled the call and no further follow up was completed.
Hayden, ID Avondale 151	07/26/2008 – Customer commented that power is always going out on the weekend- would like supervisor to call him -wanted one to come out with the crew on Sat 7/26	Coeur d'Alene Construction Manager was to call. No resolution documented.
Post Falls, ID Appleway 112	01/29/2008 – Customer has been experiencing many outages over the past 6 months and would like to know if the system needs updated or what the problem is.	Coeur d'Alene Office was to call customer back. No resolution documented.

Sustained Interruption Causes

Table 4.1 - % 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	1.4%	0.9%	4.1%	2.3%	0.3%	2.0%	2.0%	1.3%	9.8%	19.7%	1.0%	7.0%
MISCELLANEOUS	0.1%	1.8%	1.1%	0.0%	0.0%	5.3%	0.0%	2.3%	0.6%	0.3%	0.0%	1.0%
POLE FIRE	0.5%	8.9%	6.3%	5.0%	0.2%	16.1%	5.3%	3.8%	3.9%	7.2%	15.4%	5.8%
WEATHER	39.0%	20.5%	23.8%	11.6%	34.9%	22.0%	22.6%	42.5%	37.7%	12.5%	31.4%	24.9%
UNDETERMINED	9.2%	18.4%	28.2%	12.9%	18.0%	13.1%	39.9%	16.6%	3.0%	18.7%	3.3%	16.1%
TREE	13.9%	15.9%	11.9%	5.6%	16.3%	14.5%	1.5%	8.1%	21.2%	8.2%	26.5%	11.8%
PUBLIC	14.5%	3.9%	2.9%	5.6%	1.3%	5.4%	10.6%	2.3%	4.5%	8.2%	5.4%	6.0%
COMPANY	5.8%	7.3%	0.0%	1.5%	7.8%	2.1%	0.3%	3.7%	0.7%	0.3%	0.0%	3.2%
EQUIPMENT OH	4.8%	9.2%	12.0%	23.5%	5.0%	14.7%	6.2%	9.9%	8.8%	9.5%	0.9%	9.8%
EQUIPMENT UG	0.6%	1.0%	0.6%	0.8%	0.2%	0.6%	0.5%	2.5%	8.5%	1.7%	11.4%	1.8%
EQUIPMENT SUB	4.4%	2.7%	2.5%	2.0%	13.2%	0.0%	0.0%	1.6%	0.0%	8.2%	0.0%	5.1%
PLANNED	5.9%	9.4%	6.4%	29.3%	2.6%	4.1%	11.1%	5.3%	1.3%	5.4%	4.8%	7.5%

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 4.1 – % SAIFI per Cause by Office

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

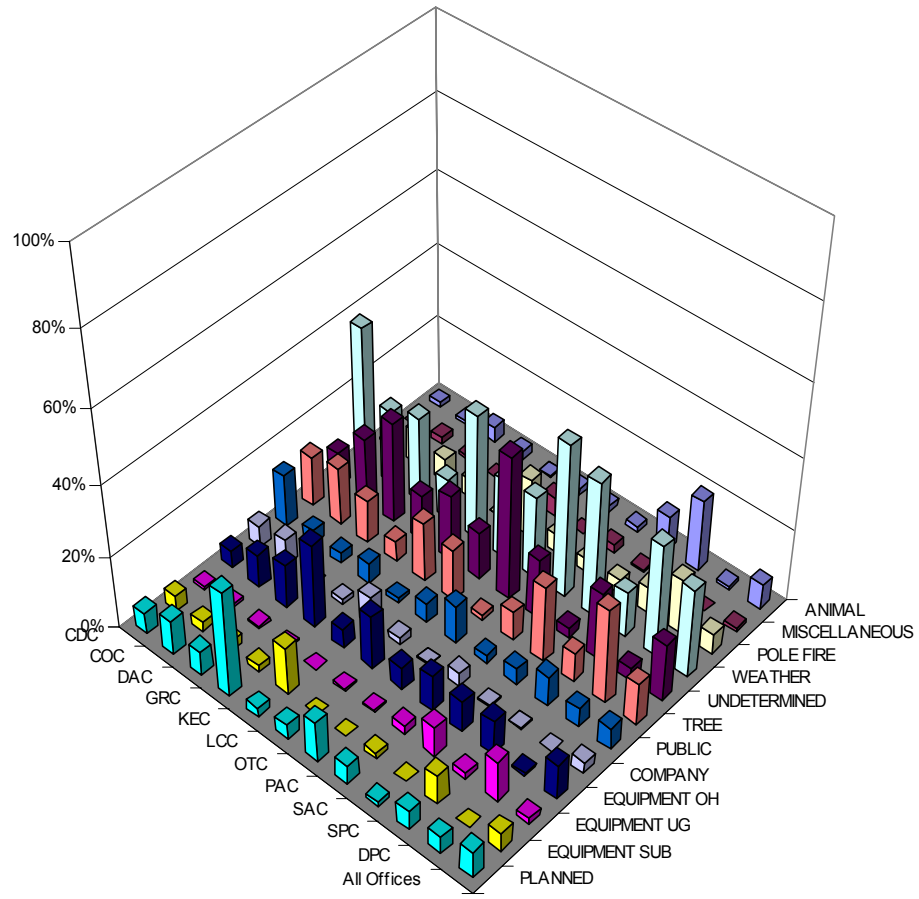


Table 4.2 - % SAIDI per Cause by Office

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	1.1%	0.7%	2.6%	0.8%	0.2%	1.6%	1.7%	0.9%	3.1%	14.8%	0.4%	4.1%
MISCELLANEOUS	0.2%	1.0%	0.3%	0.0%	0.0%	2.0%	0.0%	0.9%	0.5%	0.8%	0.0%	0.6%
POLE FIRE	1.9%	20.7%	5.9%	7.5%	0.4%	11.1%	17.0%	7.8%	3.4%	6.9%	26.3%	9.4%
WEATHER	45.7%	29.9%	33.3%	16.6%	32.6%	34.7%	24.3%	47.2%	51.6%	17.1%	26.4%	31.5%
UNDETERMINED	3.0%	10.0%	25.4%	8.5%	14.4%	8.5%	21.8%	9.8%	1.8%	10.4%	2.2%	9.8%
TREE	19.0%	14.2%	9.2%	9.6%	24.6%	12.0%	1.9%	5.9%	27.5%	7.7%	31.3%	13.9%
PUBLIC	11.4%	4.3%	3.2%	13.2%	4.5%	14.8%	13.4%	6.0%	6.1%	9.0%	3.5%	7.6%
COMPANY	1.3%	0.4%	0.0%	0.3%	6.0%	0.1%	0.1%	1.0%	0.5%	0.3%	0.0%	1.0%
EQUIPMENT OH	4.1%	10.6%	15.3%	22.6%	7.2%	10.1%	13.3%	10.6%	3.0%	13.1%	0.7%	10.4%
EQUIPMENT UG	0.8%	2.0%	1.0%	1.6%	0.6%	1.1%	1.3%	5.2%	1.5%	6.8%	5.8%	3.1%
EQUIPMENT SUB	3.5%	0.3%	2.9%	0.8%	7.6%	0.0%	0.0%	2.1%	0.0%	8.6%	0.0%	3.4%
PLANNED	8.0%	5.8%	0.8%	18.5%	1.8%	3.9%	5.2%	2.5%	1.0%	4.6%	3.4%	5.1%

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 4.2 – % SAIDI per Cause by Office

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

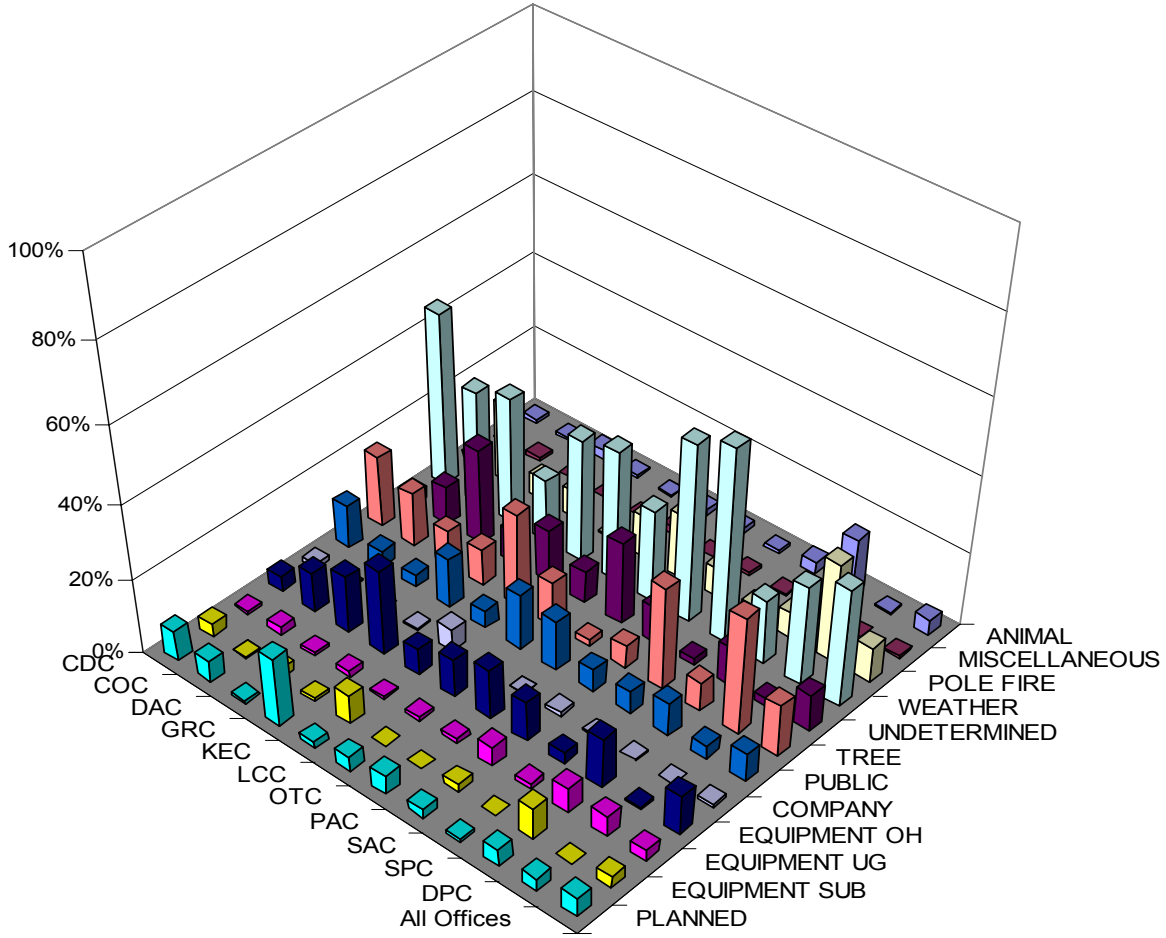


Table 4.3 - % SAIFI per Cause by Month

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	0.4%	1.0%	4.7%	7.7%	34.2%	2.9%	7.2%	1.6%	2.2%	13.2%	4.5%	3.8%	7.0%
MISCELLANEOUS	1.1%	0.0%	0.0%	0.4%	0.0%	1.3%	0.0%	3.4%	0.0%	0.0%	0.7%	2.5%	1.0%
POLE FIRE	3.6%	0.0%	0.3%	0.9%	4.0%	3.2%	11.9%	6.4%	29.2%	1.9%	1.1%	3.9%	5.8%
WEATHER	69.0%	55.4%	33.9%	3.1%	14.5%	10.2%	15.3%	22.0%	2.9%	5.0%	7.3%	32.5%	24.9%
UNDETERMINED	4.0%	5.7%	12.8%	22.2%	14.5%	12.9%	21.2%	25.0%	38.5%	14.3%	37.5%	6.6%	16.1%
TREE	12.5%	16.0%	10.3%	6.1%	10.0%	10.9%	7.2%	17.8%	2.4%	8.3%	10.6%	21.2%	11.8%
PUBLIC	0.9%	9.1%	11.9%	8.9%	4.3%	5.6%	14.3%	4.6%	4.9%	7.7%	10.8%	1.3%	6.0%
COMPANY	0.0%	0.0%	0.8%	20.2%	0.1%	0.2%	0.1%	4.3%	0.1%	13.8%	2.4%	1.2%	3.2%
EQUIPMENT OH	5.1%	5.7%	11.0%	18.5%	13.8%	25.7%	6.8%	6.0%	2.4%	8.0%	6.4%	10.1%	9.8%
EQUIPMENT UG	0.3%	1.6%	2.2%	1.1%	1.0%	6.3%	4.8%	2.3%	0.5%	1.9%	0.4%	0.4%	1.8%
EQUIPMENT SUB	0.0%	0.0%	0.0%	4.1%	0.0%	10.9%	4.7%	0.0%	5.1%	14.0%	13.9%	8.3%	5.1%
PLANNED	3.0%	5.3%	12.1%	6.8%	3.8%	9.9%	6.4%	6.7%	12.0%	11.9%	4.4%	8.3%	7.5%

Chart 4.3 – % SAIFI per Cause by Month

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

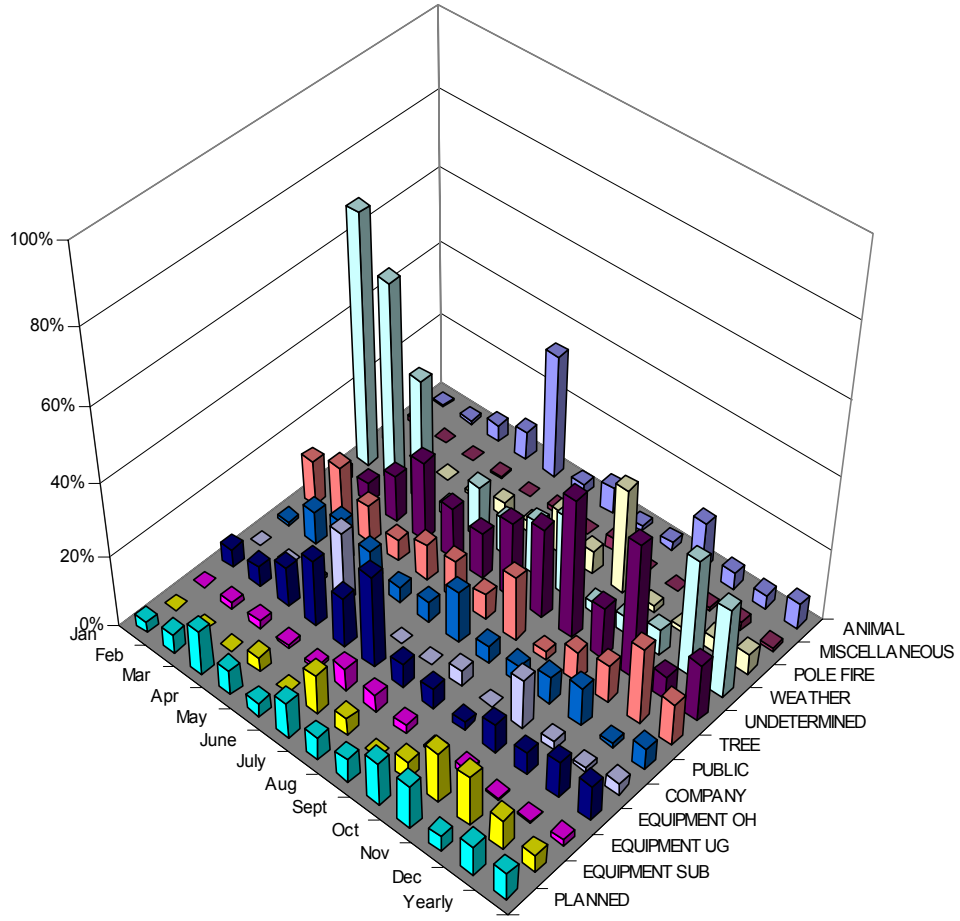


Table 4.4 - % SAIDI per Cause by Month

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

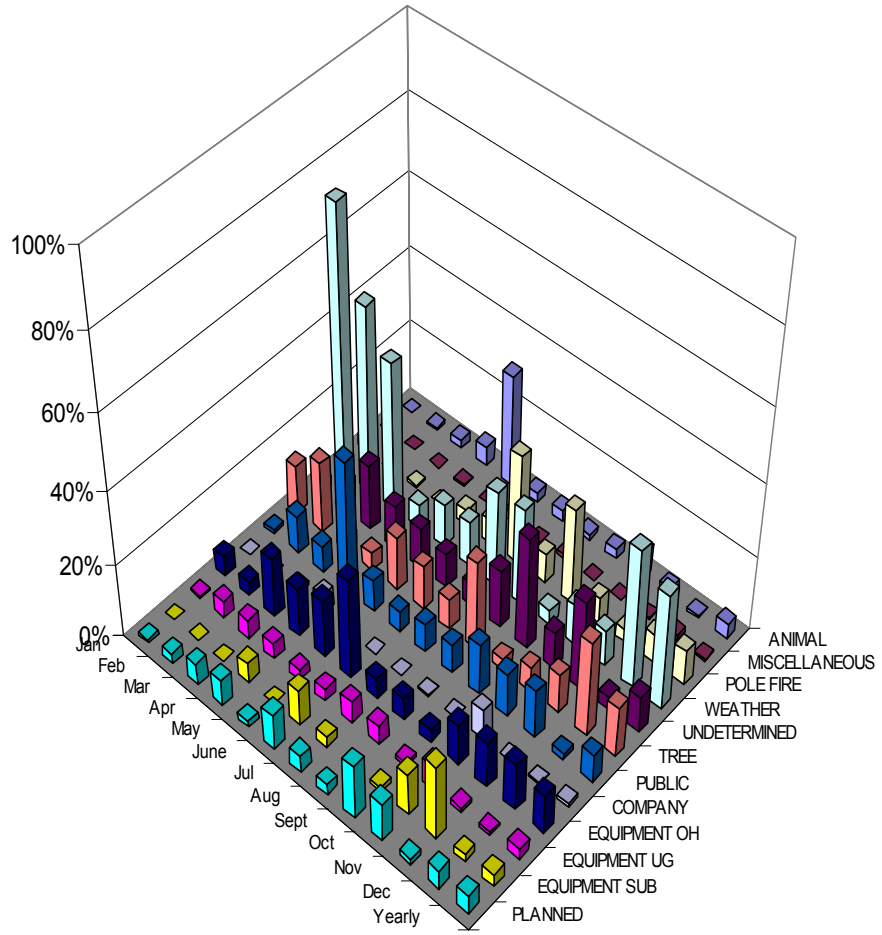
REASON	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Yearly
ANIMAL	0.3%	0.8%	2.4%	5.3%	30.3%	2.7%	3.0%	1.5%	2.6%	7.2%	2.8%	0.8%	4.1%
MISCELLANEOUS	0.4%	0.0%	0.0%	0.4%	0.0%	2.3%	0.0%	1.4%	0.0%	0.0%	0.5%	1.4%	0.6%
POLE FIRE	3.4%	0.1%	0.8%	0.5%	4.1%	6.6%	29.9%	8.0%	25.8%	6.8%	3.1%	7.9%	9.4%
WEATHER	72.4%	50.5%	40.2%	6.1%	11.5%	12.0%	25.8%	26.5%	4.2%	10.7%	9.8%	37.8%	31.5%
UNDETERMINED	2.2%	7.6%	17.9%	11.8%	10.9%	9.2%	6.4%	15.7%	30.1%	9.8%	24.4%	3.8%	9.8%
TREE	13.1%	19.2%	3.4%	4.6%	14.6%	11.9%	8.5%	24.3%	3.2%	6.7%	10.7%	25.7%	13.9%
PUBLIC	1.1%	10.2%	7.2%	35.9%	8.6%	5.5%	7.7%	8.0%	13.8%	11.6%	13.1%	1.6%	7.6%
COMPANY	0.0%	0.0%	1.1%	5.3%	0.1%	0.1%	0.0%	0.3%	0.1%	8.1%	0.2%	0.3%	1.0%
EQUIPMENT OH	5.7%	4.0%	16.1%	13.4%	15.7%	27.0%	5.5%	6.2%	3.4%	11.0%	12.4%	12.7%	10.4%
EQUIPMENT UG	0.5%	4.8%	5.1%	4.3%	2.8%	3.4%	6.0%	5.4%	1.1%	6.4%	1.2%	0.9%	3.1%
EQUIPMENT SUB	0.0%	0.0%	0.0%	5.3%	0.0%	9.7%	2.8%	0.0%	1.1%	11.3%	20.1%	2.1%	3.4%
PLANNED	0.8%	2.8%	5.7%	7.2%	1.6%	9.6%	4.4%	2.7%	14.6%	10.4%	1.6%	5.2%	5.1%

Table 4.4.1 Ave Outage Time (HH:MM)

Reason	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Yearly
ANIMAL	1:40	1:21	0:46	0:56	1:14	1:43	1:07	1:46	2:00	0:50	1:03	0:27	1:06
COMPANY	1:40	0:00	2:09	0:21	1:42	1:00	1:42	0:08	1:31	0:54	0:06	0:34	0:35
EQUIPMENT OH	2:47	1:10	2:11	0:58	1:35	1:55	2:13	1:53	2:22	2:06	3:16	2:53	2:02
EQUIPMENT SUB	0:00	0:00	0:00	1:44	0:00	1:37	1:38	0:00	0:22	1:14	2:26	0:34	1:17
EQUIPMENT UG	3:58	4:57	3:27	5:20	4:03	0:59	3:25	4:18	3:58	5:08	4:52	5:00	3:15
MISCELLANEOUS	0:53	1:53	0:00	1:09	0:00	3:12	0:00	0:45	0:00	0:00	1:14	1:14	1:15
PLANNED	0:40	0:53	0:42	1:24	0:34	1:46	1:52	0:44	2:02	1:20	0:36	1:25	1:19
POLE FIRE	2:20	2:38	3:19	0:43	1:25	3:46	6:53	2:17	1:28	5:27	4:48	4:35	3:07
PUBLIC	2:49	1:53	0:54	5:27	2:48	1:48	1:28	3:09	4:42	2:19	2:01	2:57	2:26
TREE	2:37	2:01	0:29	1:01	2:02	2:00	3:16	2:29	2:16	1:14	1:42	2:45	2:15
UNDETERMINED	1:24	2:14	2:06	0:42	1:02	1:18	0:49	1:09	1:17	1:03	1:05	1:17	1:10
WEATHER	2:37	1:32	1:46	2:40	1:06	2:10	4:38	2:12	2:25	3:19	2:15	2:39	2:25

Chart 4.4 – % SAIDI per Cause by Month

The following chart shows the percentage SAIFI 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 5.1 - % 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	0.8%	0.9%	0.0%	0.0%	2.1%	3.6%	0.0%	1.5%	3.7%	3.3%	0.0%	2.4%
POLE FIRE	0.0%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%	0.0%	2.8%	0.0%	1.2%
WEATHER	45.3%	19.6%	19.7%	23.7%	24.1%	12.1%	0.0%	20.9%	27.7%	26.4%	0.0%	26.1%
TREE	0.2%	1.6%	0.0%	0.9%	0.0%	1.7%	0.0%	0.9%	1.6%	1.3%	0.0%	1.1%
PUBLIC	1.9%	0.0%	0.0%	0.0%	4.1%	0.0%	4.0%	2.9%	0.0%	2.3%	0.0%	1.6%
COMPANY	1.7%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%	0.0%	0.1%	0.0%	0.5%
WEATHER	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.0%	0.6%	0.0%	0.0%	0.0%	0.1%
UNDETERMINED	48.2%	56.3%	68.5%	73.8%	69.7%	76.9%	45.3%	65.3%	64.3%	55.4%	0.0%	60.7%
EQUIPMENT UG	0.4%	0.0%	0.0%	0.8%	0.0%	0.0%	0.0%	1.2%	0.0%	3.3%	0.0%	1.5%
EQUIPMENT OH	1.5%	4.1%	11.8%	0.0%	0.0%	4.3%	10.3%	3.7%	2.6%	2.8%	0.0%	2.8%
PLANNED	0.0%	13.4%	0.0%	0.7%	0.0%	1.0%	40.4%	1.1%	0.1%	1.6%	0.0%	1.7%
EQUIPMENT SUB	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	0.6%	0.0%	0.2%

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 5.1.1 - % 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	OTC	SPC	DPC	PAC-WA	LCC-WA	All WA Offices
ANIMAL	0.86%	4.15%	2.00%	19.74%	0.99%	1.54%	2.95%	10.71%
COMPANY	7.33%	0.00%	0.32%	0.31%	0.00%	6.18%	8.07%	2.81%
MISCELLANEOUS	1.79%	1.08%	0.00%	0.34%	0.00%	0.00%	0.00%	0.64%
POLE FIRE	8.91%	6.29%	5.32%	7.22%	15.38%	6.73%	3.82%	7.71%
PUBLIC	3.91%	2.93%	10.56%	8.23%	5.36%	3.05%	0.13%	6.08%
TREE	15.94%	11.93%	1.47%	8.16%	26.46%	7.86%	13.00%	10.78%
UNDETERMINED	18.38%	28.17%	39.89%	18.67%	3.31%	17.42%	42.47%	19.41%
WEATHER	20.53%	23.84%	22.57%	12.46%	31.42%	46.10%	19.71%	20.31%
EQUIPMENT OH	9.19%	11.97%	6.24%	9.54%	0.92%	3.49%	3.73%	8.26%
EQUIPMENT UG	1.04%	0.65%	0.49%	1.73%	11.40%	3.98%	1.38%	2.15%
EQUIPMENT SUB	2.71%	2.54%	0.01%	8.20%	0.00%	2.84%	0.00%	5.24%
PLANNED	9.42%	6.44%	11.14%	5.39%	4.75%	0.82%	4.75%	5.91%

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

Chart 5.1 – % MAIFI per Cause by Office

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

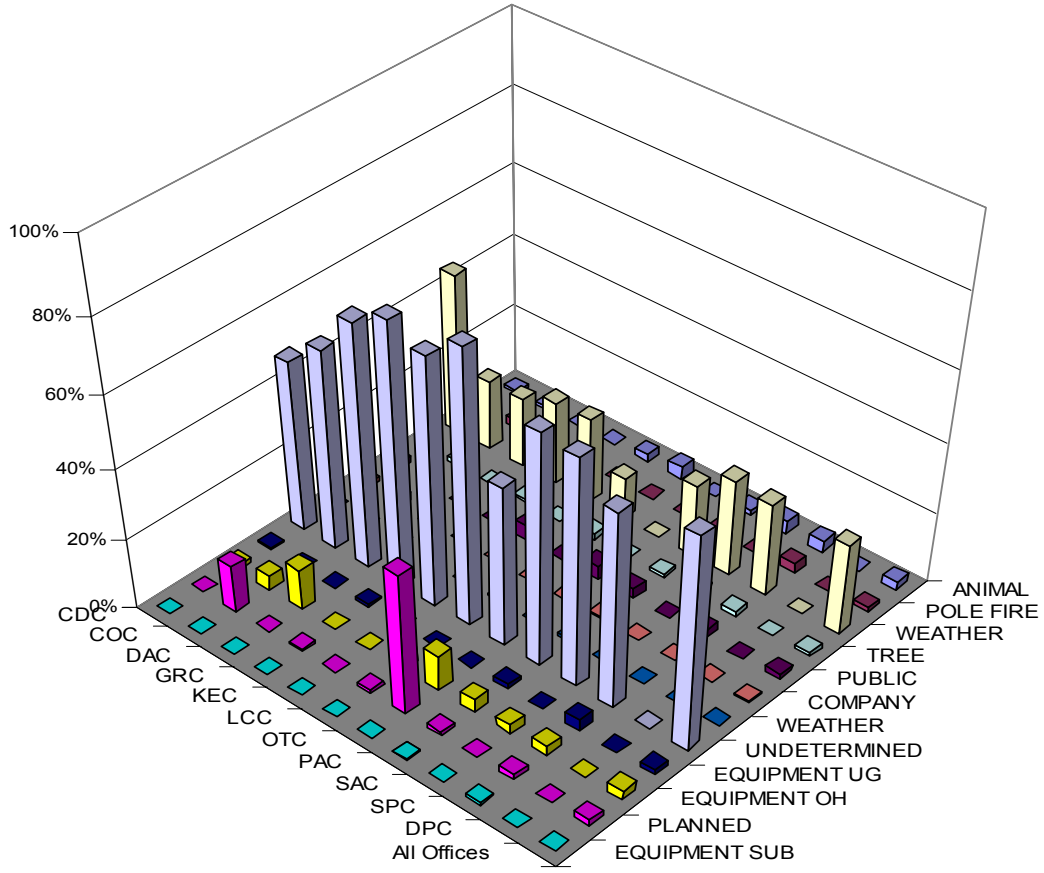


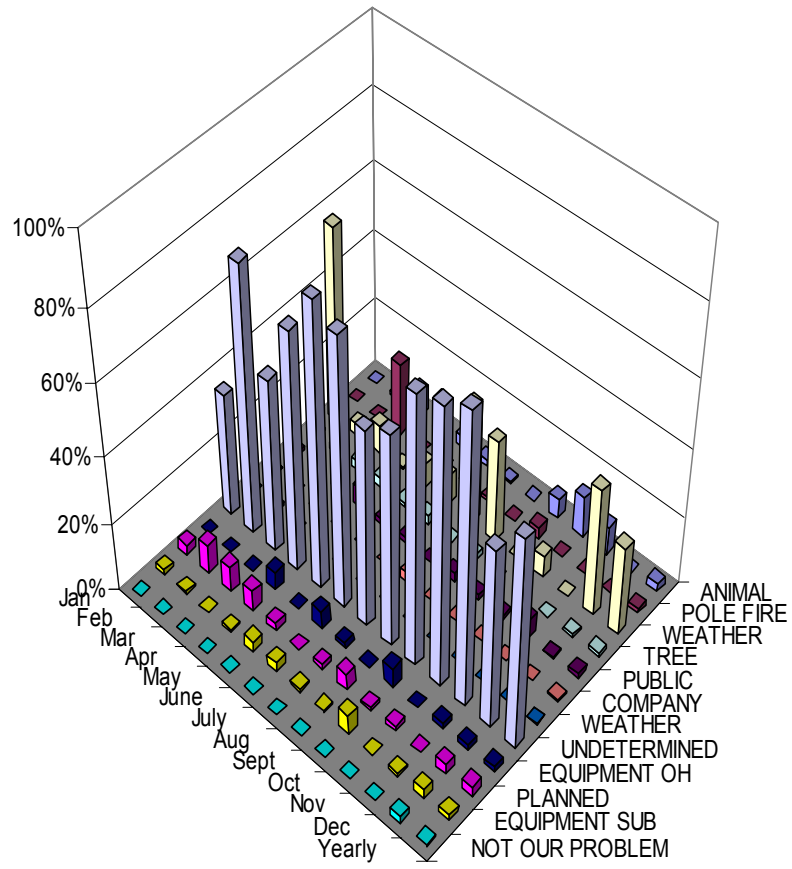
Table 5.2 - % MAIFI per Cause by Month

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

REASON	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Yearly
ANIMAL	0.0%	1.1%	7.5%	9.5%	3.2%	1.9%	0.6%	0.0%	5.7%	11.8%	8.3%	0.0%	2.4%
POLE FIRE	0.0%	0.0%	21.4%	0.0%	0.0%	0.0%	0.8%	0.0%	3.2%	0.0%	0.0%	0.0%	1.2%
WEATHER	57.2%	3.5%	8.4%	1.0%	7.2%	8.6%	35.1%	29.7%	0.0%	6.4%	0.0%	37.4%	26.1%
TREE	0.9%	1.9%	2.8%	2.7%	1.0%	2.6%	0.2%	1.5%	0.0%	0.0%	0.0%	0.7%	1.1%
PUBLIC	1.0%	6.4%	2.1%	5.7%	1.4%	1.7%	0.0%	2.4%	1.5%	1.0%	5.7%	0.4%	1.6%
COMPANY	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	2.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%
UNDETERMINED	0.4%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
EQUIPMENT UG	35.7%	77.2%	50.3%	68.8%	81.7%	77.5%	57.1%	61.2%	77.3%	79.3%	83.3%	51.9%	60.7%
EQUIPMENT OH	0.0%	0.0%	0.0%	5.4%	0.0%	5.0%	1.4%	0.0%	5.9%	0.0%	1.7%	1.7%	1.5%
PLANNED	2.9%	8.4%	7.4%	6.1%	2.0%	0.0%	1.4%	4.7%	0.8%	1.6%	0.0%	3.1%	2.8%
EQUIPMENT SUB	1.5%	0.7%	0.0%	0.8%	3.1%	2.8%	0.9%	0.5%	5.5%	0.0%	0.9%	2.8%	1.7%
NOT OUR PROBLEM	0.0%	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.1%	0.2%

Chart 5.2 – % 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 6.1 – % 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

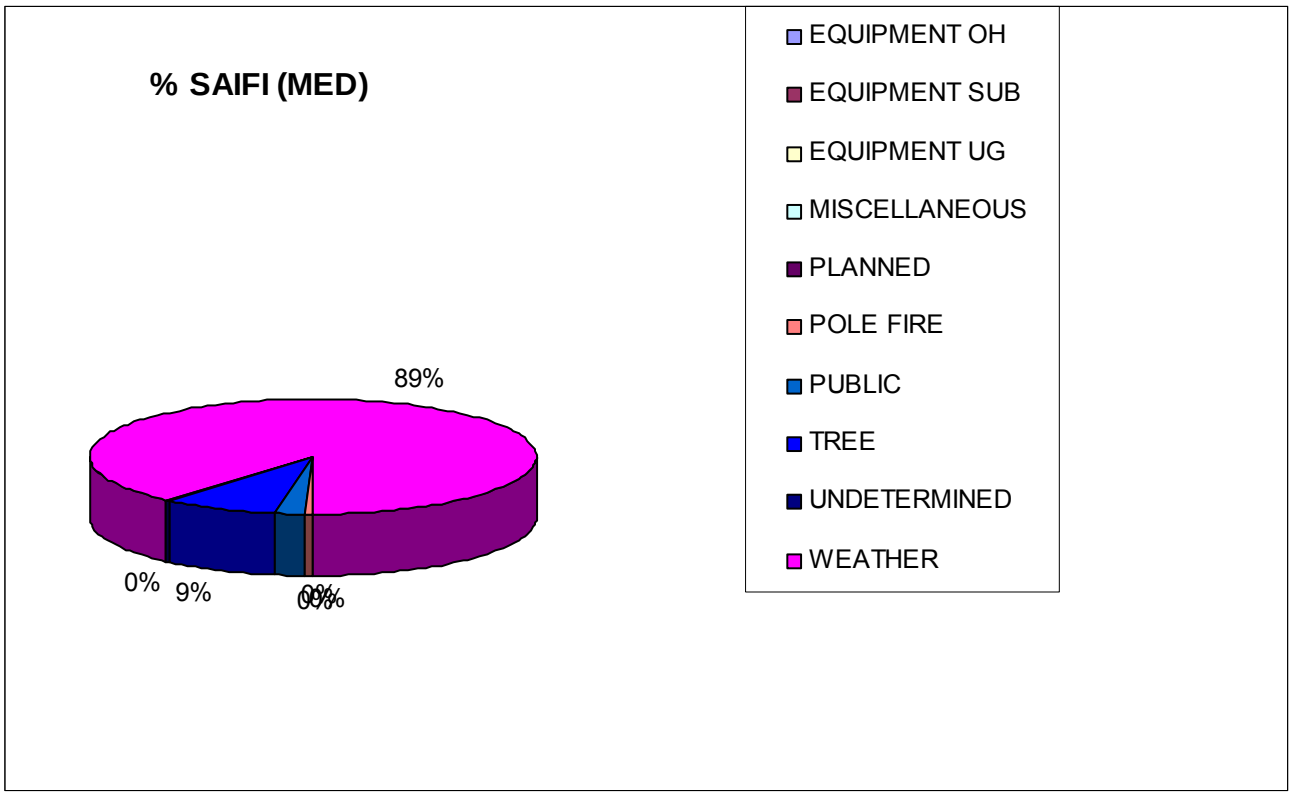


Table 6.1 – % SAIFI by Sub Cause Code for the Major Event Days

The following table shows the SAIFI contribution and Customer hours by sub causes code for the three main outage causes during major event days.

Cause Code	Sub reason	Sum of Ni	Sum of ri x Ni (hours)
POLE FIRE	Pole Fire	257	3066:52
Total		257	3066:52
TREE	Tree Fell	8	467:55
	Weather	5980	32275:53
Total		5988	32743:48
WEATHER	Snow/Ice	21995	92431
	Lightning	6358	21610
	Wind	33506	231371
Total		61859	344411

Table 6.2 – Yearly Summary of the Major Event Days

Table 6.2 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 2.5bmethod 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}.

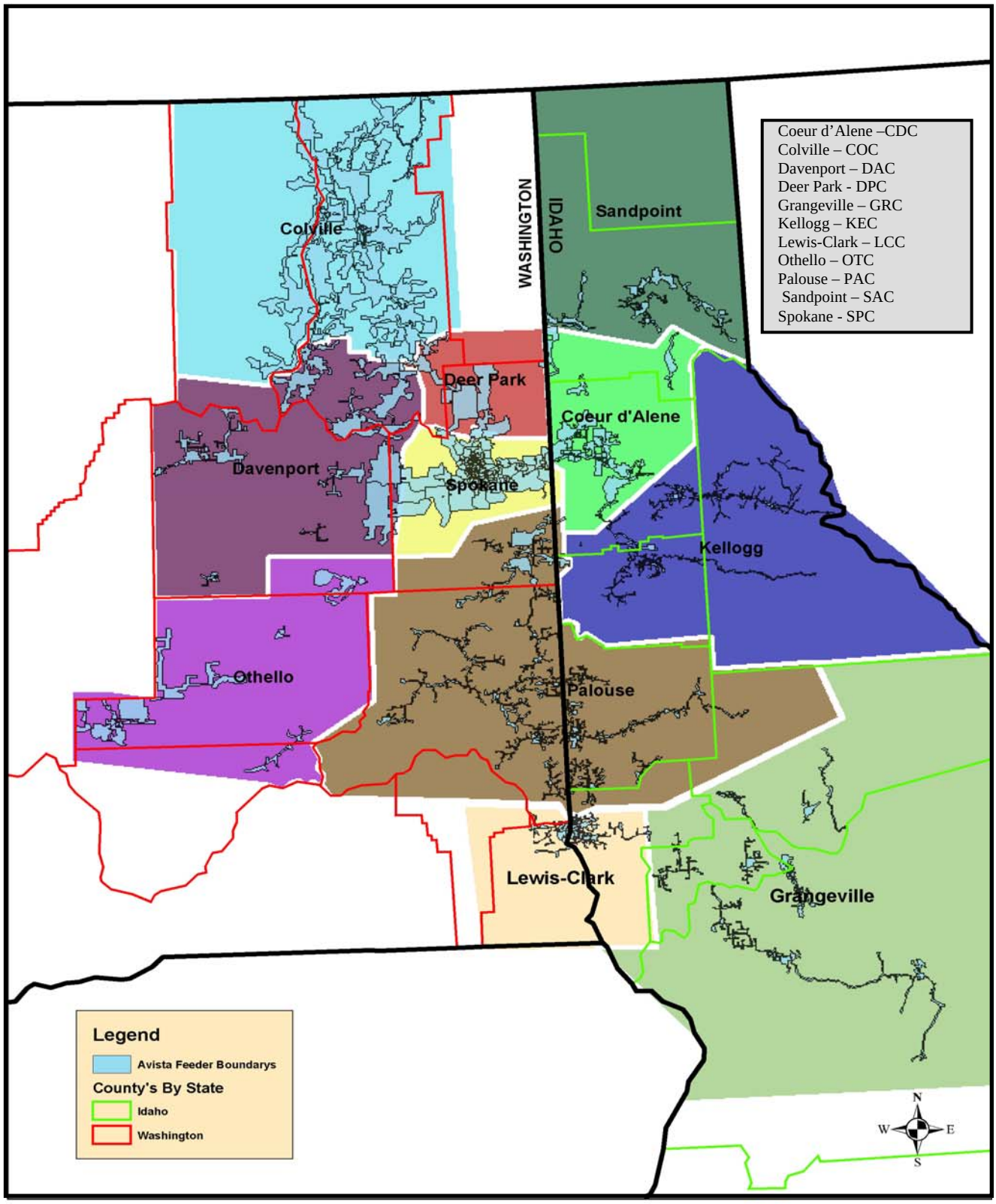
Year	Date	SAIDI	T_{MED}
2003	01-03-2003	5.38	4.96
	05-24-2003	5.11	
	09-08-2003	5.47	
	10-16-2003	6.62	
	10-28-2003	9.25	
	11-19-2003	57.06	
2004	05-21-2004	7.11	6.35
	08-02-2004	7.36	
	12-08-2004	31.00	
2005	06-21-2005	39.53	4.916
	06-22-2005	9.03	
	08-12-2005	19.60	
2006	01-11-2006	12.10	7.058
	03-09-2006	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			9.925

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.
	Protected	
	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	Customer equipment causing an outage to their service. If a customer causes an outage to another customer this is covered under Public.
	Other Utility	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	For outages when a tree falls into distribution primary/secondary or transmission during normal weather
	Tree growth	Tree growth causes a tree to contact distribution primary/secondary or transmission during normal weather.
	Service	For outages when a tree falls or grows into a service.
	Weather	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 can not be determined
WEATHER	Snow / Ice	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	Lightning flashovers without equipment damage. Equipment failures reported under the equipment type.
	Wind	Outages when wind causes conductors to blow into each other, another structure, building etc. (WEATHER/TREE) used for tree contacts.

Office Areas



Indices 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
- = Outage duration multiplied by the customers effected for all ***sustained interruptions*** / The number of customers which had ***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.

- $CEMI_n$
- = Total Number of Customers that experience more than *n* **sustained interruptions** / Total Number of Customers Served
- = $\frac{CN_{(k>n)}}{N_T}$

$CEMSMI_n$ – Customers experiencing multiple sustained interruption and momentary interruption events.

- CEMSMIn
- = Total Number of Customers experiencing more than *n* **interruptions** / 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 ą(Alpha), the average of the logarithms (also known as the log-average) of the data set.
e) Find ḅ(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).

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

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.

Office	Customers	% of Total
Coeur d'Alene	48773	13.7%
Colville	17793	5.0%
Davenport	6838	1.9%
Deer Park	10317	2.9%
Grangeville	10199	2.9%
Kellogg/St. Maries	14196	4.0%
Lewis-Clark	29043	8.2%
Othello	6312	1.8%
Palouse	37958	10.7%
Sandpoint	14101	4.0%
Spokane	159235	44.9%
System Total	**354765**	