2007
Electric Service
Reliability Monitoring
Annual Report

CONTENTS

Introduction

Pursuant to WAC 480-100-393 and WAC 480-100-398, Washington state investor-owned Electric companies must file a plan for monitoring and reporting electric service reliability information to the Commission annually.

This document reports Avista Utilities' reliability metrics for the calendar year 2007. 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. The Company may modify its baseline statistics as appropriate and will update the Commission accordingly.

New to this years report, is a new section which analyzes the areas where customers are experiencing multiple sustained outages. This new section will analyze a new 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 2007 represents the second full year of outage data collected through the Outage Management Tool (OMT). For 2007, 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.

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.

With the completion of the transition to the OMT system, there has been an increase in the variability of the data collected from 2001 to 2007. As described in the last three annual reports, the data that was most affected by moving to an OMT system is the number of customers associated with an outage. The OMT system improves the customer count accuracy because OMT uses the customer count from GIS, rather than an estimate. As the Company expected, the following reliability statistics were affected as a result of the areas being centralized:

- SAIFI and SAIDI – These statistics were expected to increase since the total number of customers affected by an outage will be used rather than the number of customers that have called in. The OMT system also significantly reduces the estimates made by the Distribution Dispatcher.
- CAIDI – This reliability index has not increased as much as anticipated due to the increases associated with both SAIFI and SAIDI. This is due to the better response time the Company can provide through the OMT system.
- MAIFI – This statistic is not expected to be effected by the implementation of OMT. The data for momentary outages is gathered from the System Operators log (not the Distribution Dispatchers). However, the MAIFI statistic may be increasing in the future as more of the distribution feeder Trips and Recloses are recorded through the SCADA system.

The Company believes that centralization will also provide better cause code classification. The improvement will be due to the concentration of dispatchers, associated increased training, and quality control.

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. No change is being proposed for 2007.

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. A new section will be added to the report after the Areas of Concern Section to summarize the analysis Avista performed on the 2007 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 these baseline statistics as the average of the 2001 through 2003 yearly indices plus two standard deviations (to provide 95% confidence level). Last year, 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 2007.

Major Event Days	SAIDI (Customer-Minutes)	Cause
2007 Major Event Day Threshold	8.017	
01-06-2007	9.98	Wind Storm
06-29-2007	32.64	Wind Storm
07-13-2007	12.79	Wind Storm
08-31-2007	21.30	Wind & Lightning Storm

Additional analysis of the 2007 Major Event Days is provided in this Annual Report starting on Page 52, 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

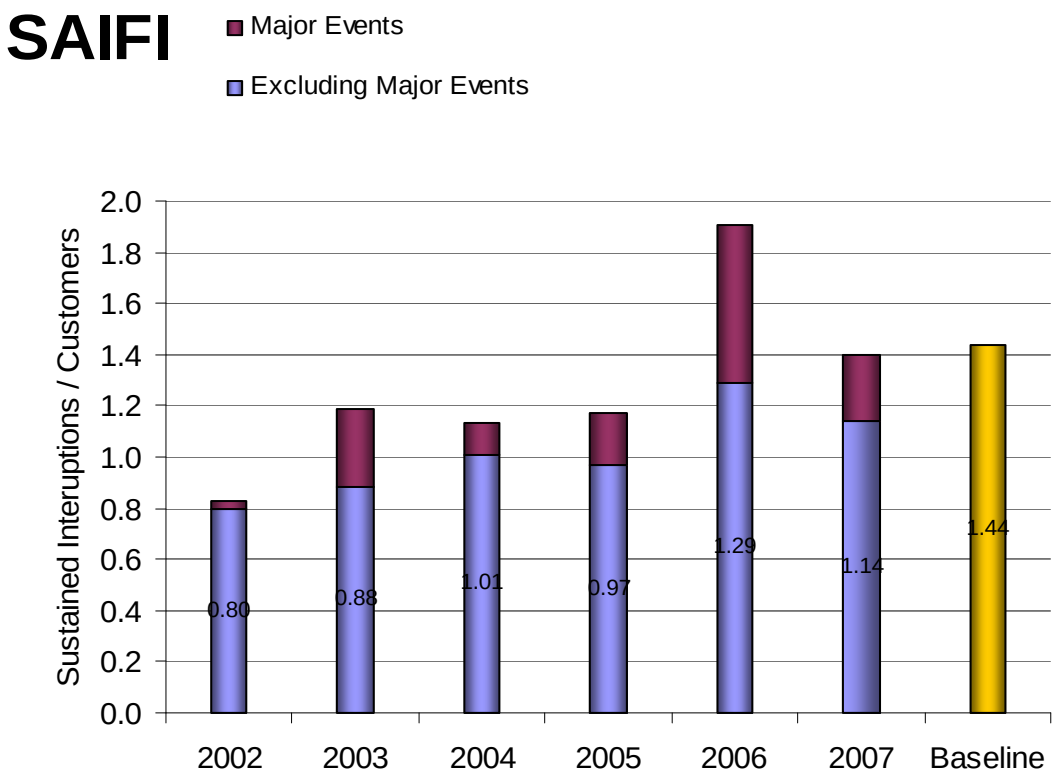
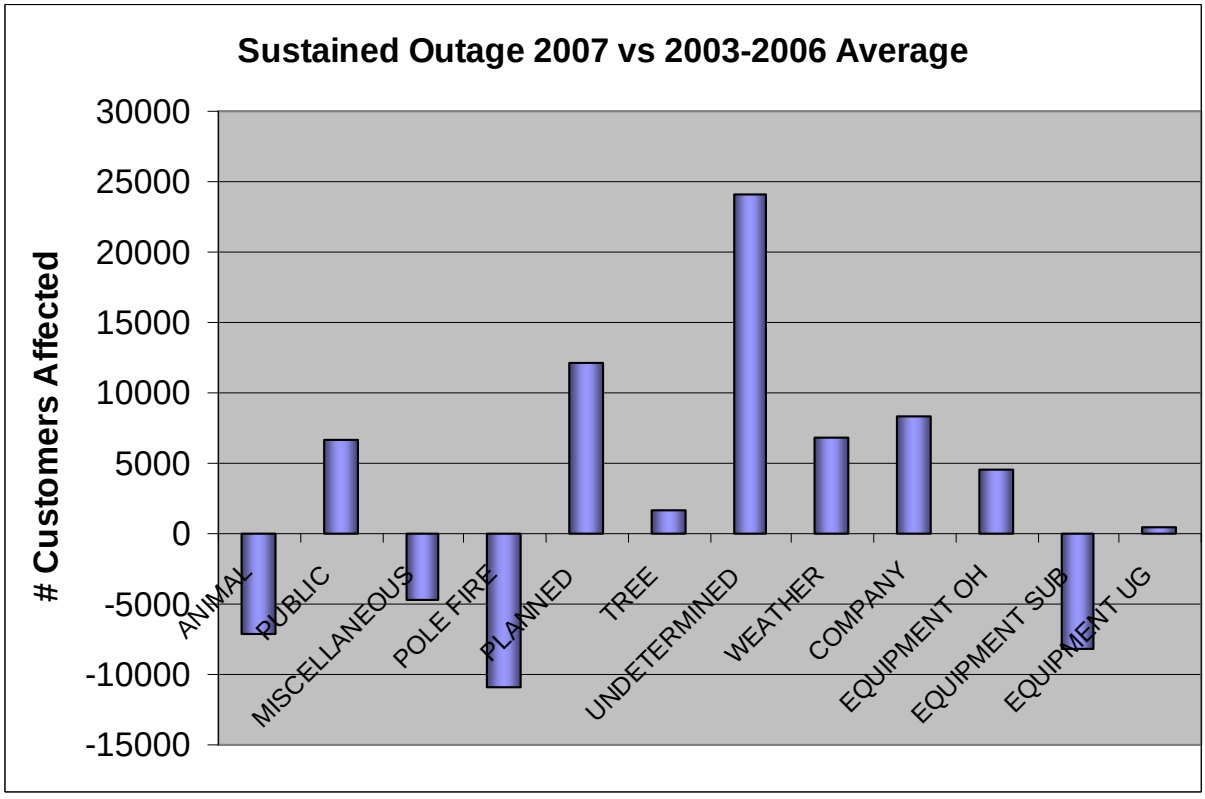


Chart 1.2 – Sustained Interruptions / Customer Historic Comparison



SAIFI for 2007 was within the existing baseline and 12% lower than 2006. Major contributors to this difference were lower weather, tree, public, and overhead equipment outages.

There were 71,949 customers affected by sustained outages caused by weather in 2007. This compares to the 2003–2006 average of 65,115 customers.

47,051 customers were affected by sustained outages associated with tree related incidents. This compares to the 2003-2006 average of 45,350 customers. The vast majority of the tree related reasons were associated with either tree fell or tree weather incidents.

Planned maintenance activities, and forced repairs affected 27,293 customers as compared to the 2003-2006 average of 15,164 customers. Additional maintenance activities associated with the Company cutout replacement program contributed to the increase in this cause and reduced the Overhead Equipment outage causes.

Equipment overhead (OH) failures resulted in outages to 53,397 customers as compared to the 2003-2006 average of 48,817. Major Equipment OH sub-categories were distribution fused cutouts, primary connector failures, arrester failures and other.

Cars hitting poles, felling trees and fires were a majority of the public caused outages.

A large increase in the number of Undetermined Causes occurred in 2007 as compared to the 2003-2006 average. 51,408 customer had undetermined causes as compared to the average of 27,250. A significant number of outages were associated with transformer fuses, but there was no known reason for the fuse to operate.

Chart 1.3 - MAIFI Momentary Interruption Events / Customer

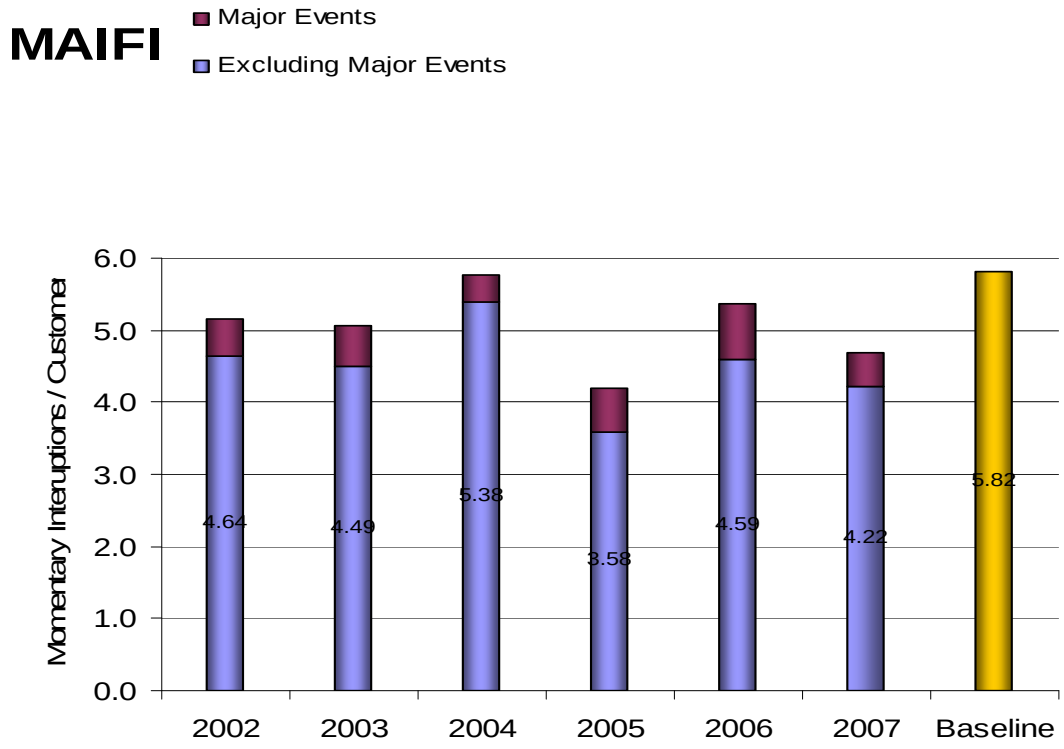
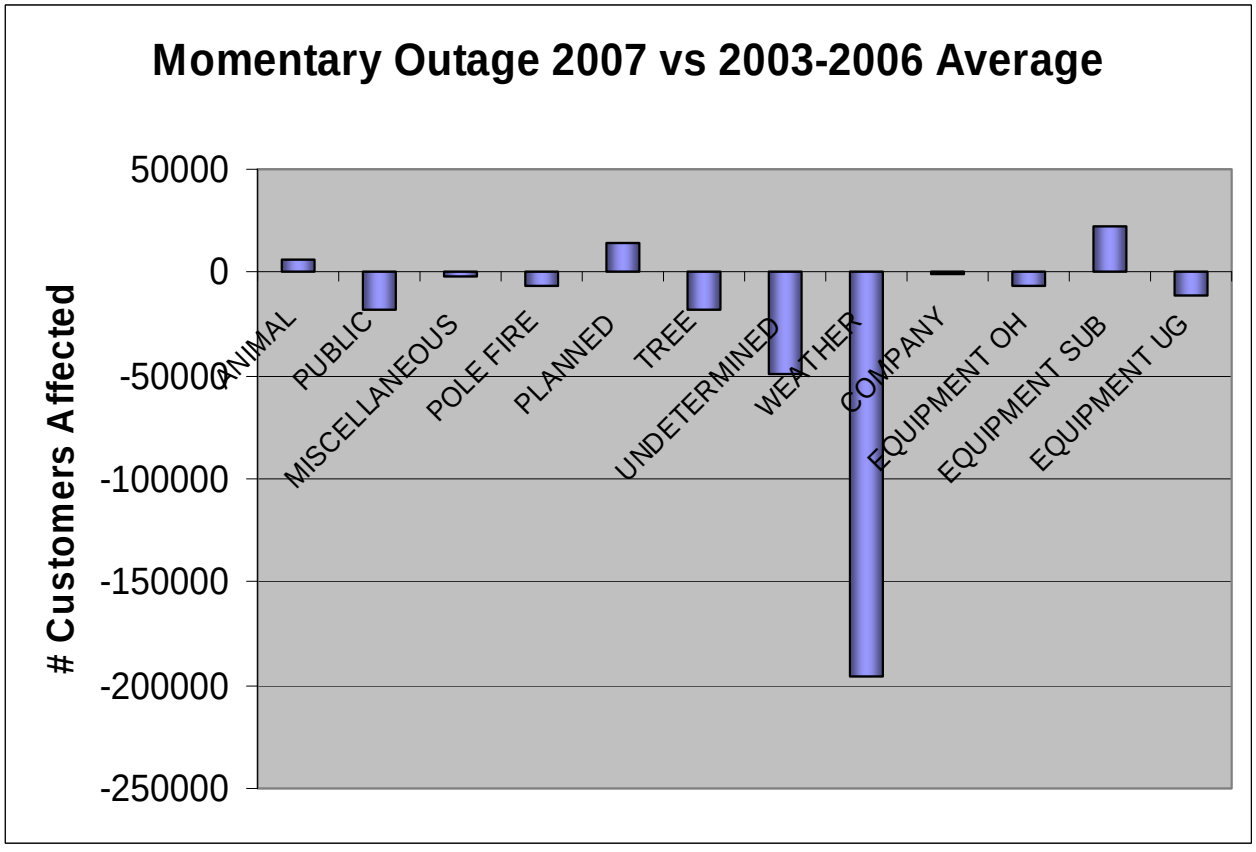


Chart 1.4 – Momentary Interruptions/ Customer Historic Comparison



The 2007 results for MAIFI show a small decrease in the number of incidents compared to the 2003 to 2006 average. There was a significant reduction in weather/undetermined related momentary outages, that were most likely due to the better overall weather conditions. Distribution Dispatch continues to make improvements in correlating the momentary outages with subsequent sustained outages, which reduces the undetermined causes. Wind contributed to 32,157 customers being impacted, Heavy Snow impacted 39,443 customers while Lightning accounted for impacts to 23,566 customers.

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

Chart 1.5 - SAIDI – Average Outage Time / Customer

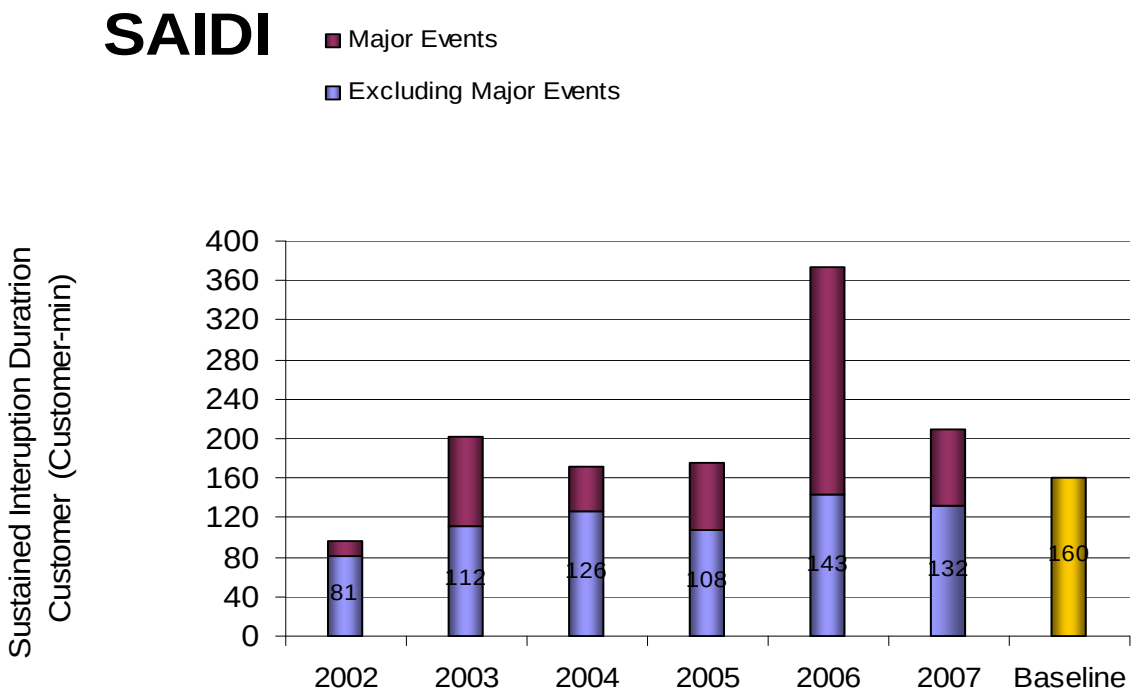
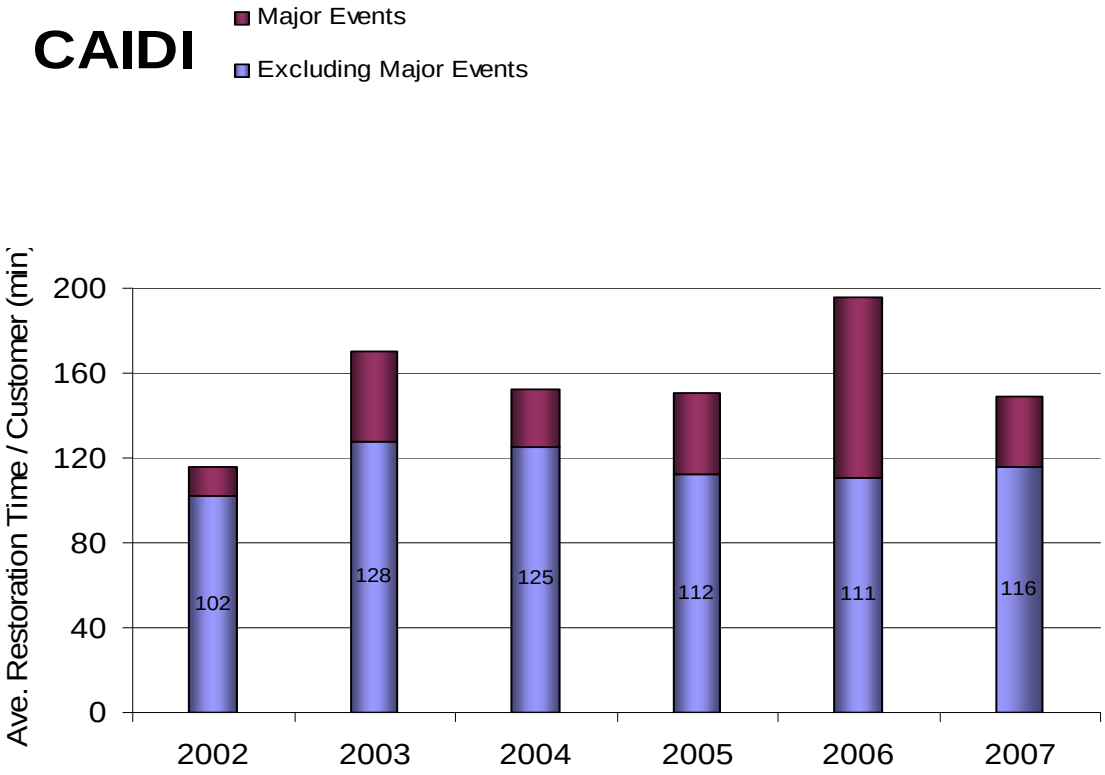


Chart 1.6 - CAIDI – Average Restoration Time



OFFICE Indices

Chart 2.1 – SAIFI - Sustained Interruptions / Customer

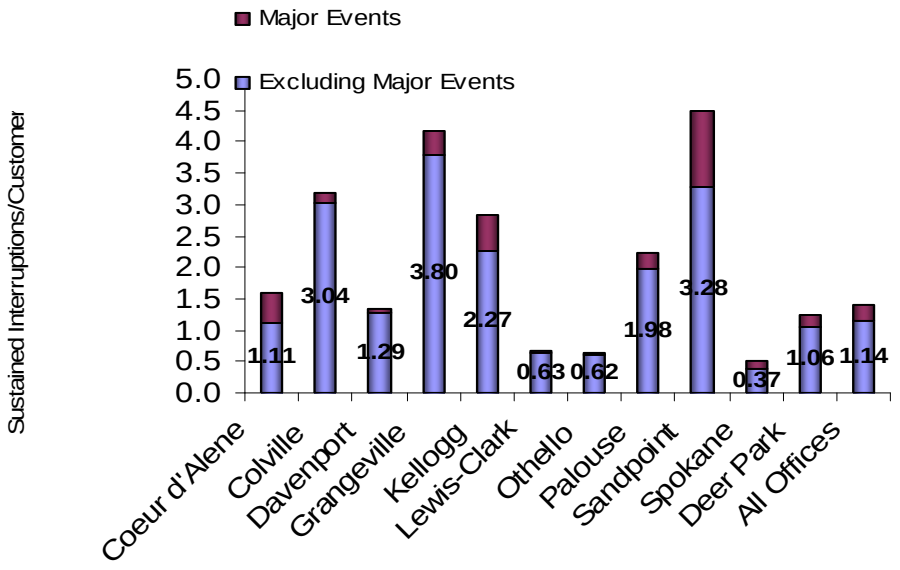


Chart 2.2 - MAIFI Momentary Interruption Events / Customer

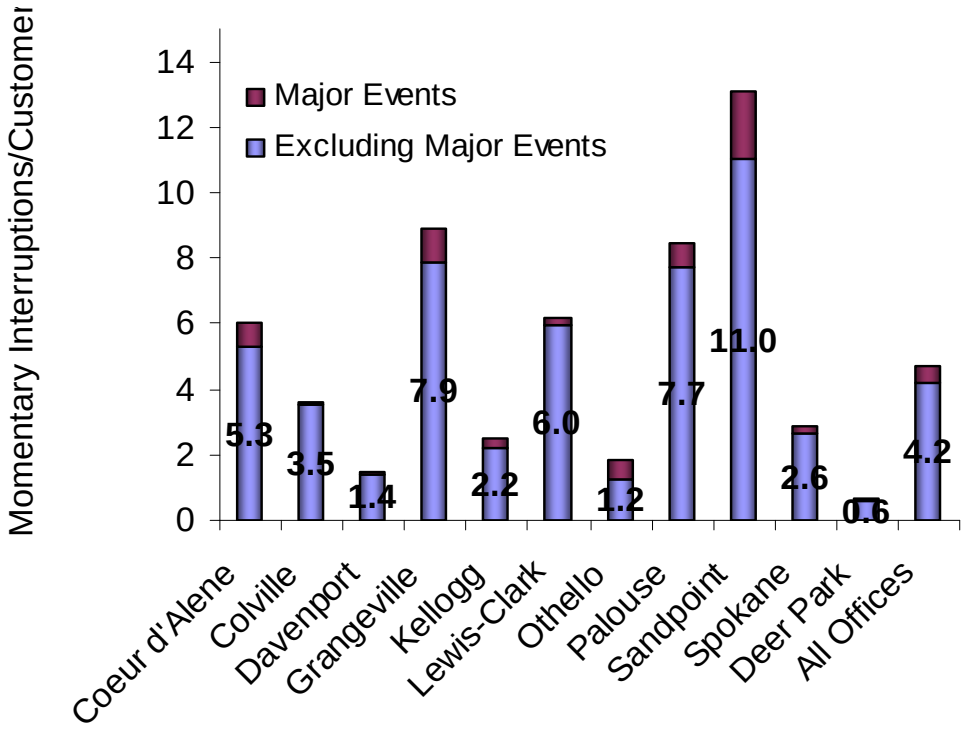


Chart 2.3 - SAIDI – Average Outage Time / Customer

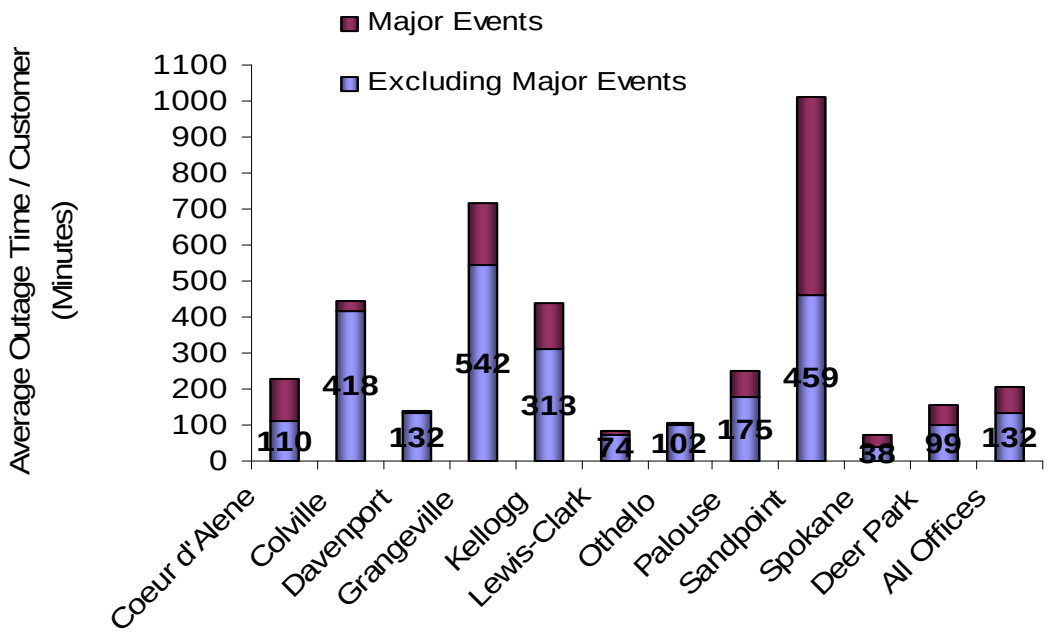
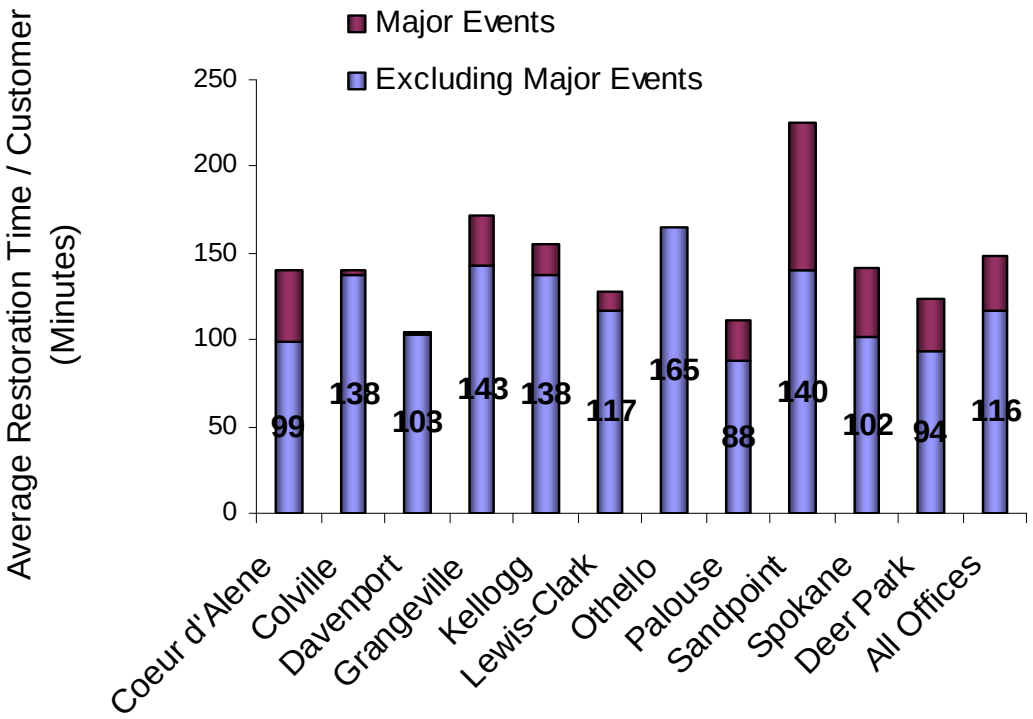


Chart 2.4 - CAIDI – Average Restoration Time



Areas of Concern

As in previous years, Colville has 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, five feeders (Gifford 34F1, Gifford 34F2, Colville 34F1, Colville 12F4, Chewelah 12F3 and Valley 12F1) were identified as areas of concern in 2006. For this report, six feeders are identified as the areas of concern for 2007. These feeders are Gifford 34F1, Gifford 34F2, Colville 34F1, Colville 12F4, Valley 12F3 and Valley 12F1.

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. Over time and when cost effective Avista moves sections of these 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.

The reliability of two of the Valley feeders has diminished over the last four years and will be added to the list for this year's report to reflect plans to improve the reliability in future years. Valley 12F3 has poorer reliability for 2007 than Valley 12F1 which was reported for the first time in the 2006 report.

Gifford 34F1

- 30.1% Weather: snow, wind and lightning storms
- 21.4% Equipment: poles, fused cutouts, & connectors
- 11.8% Pole fires
- 16.9% Trees
- 3.3% Planned outages

Colville 34F1

- 23.4% Weather; snow, wind and lightning storms
- 20.8% Equipment: crossarms and poles
- 0.1% Pole fires
- 34.1% Trees
- 10.7% Planned outages

Chewelah 12F3

- 3.7% Weather: snow, wind and lightning storms
- 35.7% Equipment: connector and arrester
- 23.0% Company
- 9.4% Trees
- 15.0% Planned outages
- 3.6% Animal: birds or squirrels

Gifford 34F2

- 14.0% Weather: Wind, snow, and lightning storms
- 0.1% Equipment: regulator failure
- 34.8% Pole Fires
- 37.5% Trees
- 6.3% Planned outages
- 2.6% Public: car hit pole, dig in

Valley 12F3

- 12.0% Weather: wind and lightning storms
- 33.5% Equipment: fused cutouts, insulator, and other
- 5.4% Trees
- 15.8% Public
- 15.5% Planned outages
- 0.5% Animal: birds or squirrels

Valley 12F1

- 3.6% Weather: snow, wind and lightning storms
- 42.6% Equipment: connector and arrester
- 0.3% Trees
- 9.2% Public
- 7.3% Planned outages
- 3.5% Animal: birds or squirrels

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

- An engineering review was completed in 2006 and construction jobs drawn up to implement improvements to the feeder protection scheme which should break up the exposure on the long single phase laterals. Construction work was completed in the later part of 2007 to replace two reclosers and to add two additional reclosers to the feeder. In addition, adding 320 neutral extension racks should help address the ice unloading issue. However, the work on the extension racks has been delayed for a couple of years.
- No URD cable was replaced in 2007, but 7500' of cable has been identified to be replaced in 2008.
- Vegetation Management was scheduled to complete ROW clearing in 2007, but this was rescheduled to be completed in 2008. Work was rescheduled due to forest access restrictions last summer and completing work on other parts of the Avista system.

Colville 34F1

- No URD cable was replaced in 2007; however a 6620' section of new URD cable was installed to replace a section of overhead line that had a lot of poles that would need to be replaced.
- The remaining 50% of the feeder was re-cleared during 2007. No additional work planned for 2008.
- An engineering review was completed and construction jobs drawn up to implement improvements to the feeder protection scheme, eliminating a step-up transformer, and several 34.5 to 13.2 kV step-down transformers on the HWY 25N-Williams Lake section of the feeder to improve the level of service to customers. Construction work was completed in 2007, however the new recloser installed failed to perform properly and has been removed from service and has been returned to the factory for evaluation.

Chewelah 12F3

- Engineering analysis completed in 2006 and a budget item prepared. Higher priority budget items left these reliability improvements unfunded for 2007. In early 2007, budget money was approved to complete this project. Three reclosers were installed 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.
- Hazard tree patrol and mitigation work was completed during 2007. No work is planned for 2008.
- 3300' of URD cable was replaced in 2007.

Gifford 34F2

- Engineering analysis was completed in 2006 and a budget item prepared to implement improvements to the feeder protection scheme. Higher priority budget items left these reliability improvements unfunded for 2007 and 2008. Current planning is to begin work in 2009.
- No tree trimming work was planned for either 2007 or 2008.
- There is several planned replacement jobs of less than 1000' of URD cable scheduled in 2008.

Valley 12F1

- Engineering analysis was completed in 2006 and a budget item prepared to implement improvements to the feeder protection scheme that should reduce the exposure on long single phase laterals. Higher priority budget items left these reliability improvements unfunded for 2007 and 2008. Work is scheduled to be start in 2009.
- Hazard tree patrol and mitigation work was completed in 2007. No work planned for 2008, but work is planned for 2009.

Valley 12F3

- Engineering analysis was completed in 2007 after a car hit pole incident and subsequent line recloser failure to evaluate the overall protection scheme.
- No tree trimming work was planned or completed for 2007, but work is planned for 2008.
- No URD cable was replaced in 2007 or is planned to be replaced in 2008.

The Company 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. In the last few years, new electronic fault indicators allow for quicker response to outages and help with restoration of customers. Fault indicators are being employed on some feeders to reduce the outage response times. 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.

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, the three projects described below were deferred until later years. Reliability specific projects were prioritized at a lower level than thermal capacity projects which is related to the recent economic growth in the Avista service territory. Many of these capacity projects have large capital expenditures associated with them and have taken the allocated capital budget resources. Also, as result of better data collection the analysis may show that these projects should have a higher priority over the next few years.

Feeder	Decisions/ basis	2008	2009 and beyond
Gifford 34F2	A small part of the initial budget item is being completed in 2008 on a portion of the feeder with the worst performance. The remaining portion of the budget item will be submitted again in 2009.	Planned	Planned
Valley 12F1	This feeder was first identified in mid 2006 as having areas that would be of concern. The priority of the projects identified for this feeder will be reviewed and resubmitted in future years.		Planned
Valley 12F3	A project has been identified to reconductor a section of this feeder near Waitts Lake to allow the addition of a third phase to a section of the feeder beyond the lake. Fusing protection will also be revised.	Planned	Planned

Besides the specific plans listed above, the Company performs ongoing maintenance activities in the Colville area that includes transmission aerial patrols, substation inspections and infrared surveys. Other maintenance activities occur daily as field personnel find and repair problems.

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 February, 2008, 4400 out of about 8000 of this type of porcelain cutout have been replaced on the system. An additional 3600 are being planned to be replaced before year end 2008.

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 five years. 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

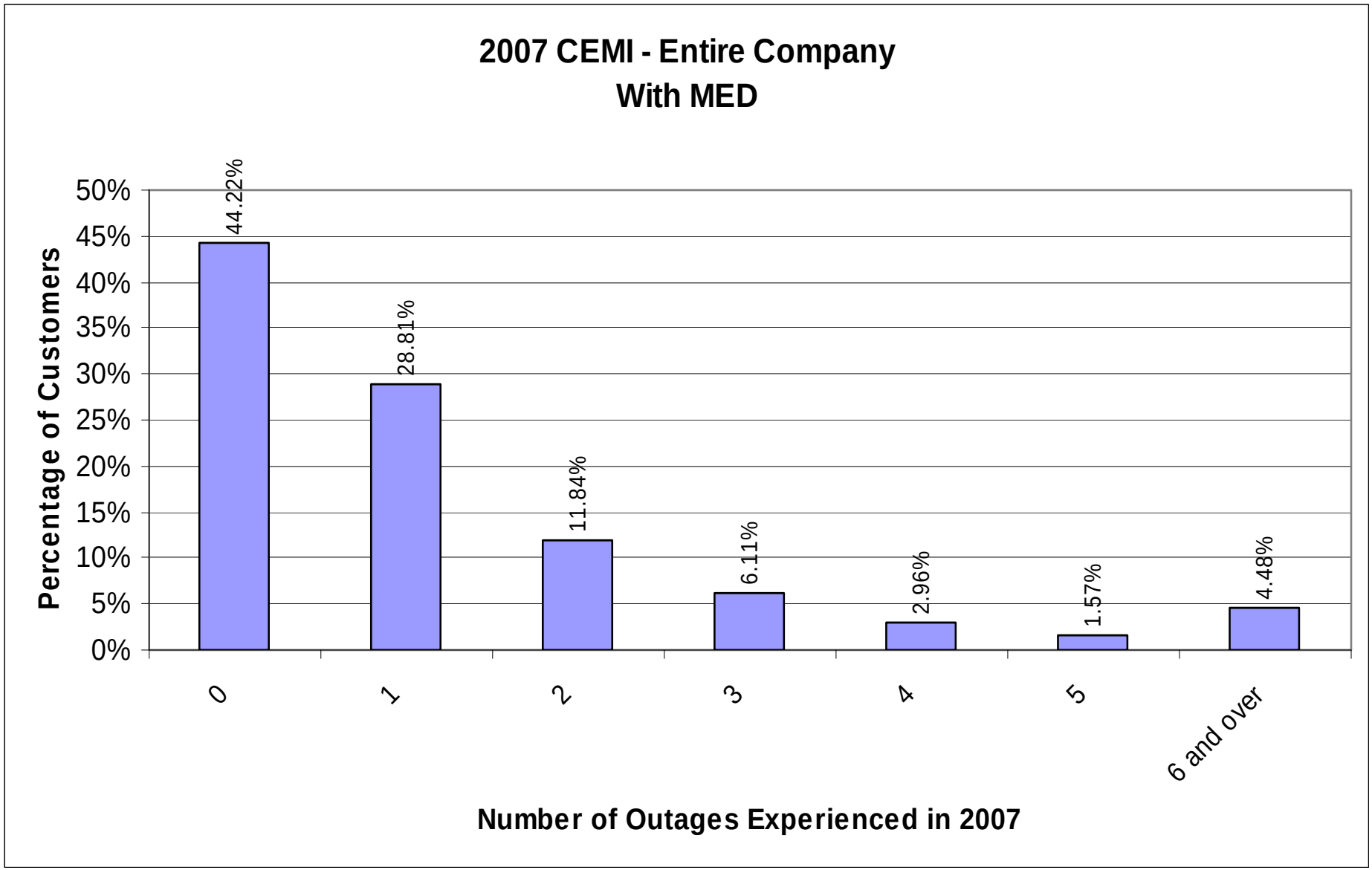
Avista has used the data from the OMT system integrated with the GIS system to geospatially display reliability data for specific conditions. The specific conditions imply looking at the number of sustained interruptions for each service point (meter point). This would be similar to the SAIFI indice, 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. 73 % of Avista customer had 1 or fewer sustained interruptions and 4.48% of Avista Customers had 6 or more sustained interruptions during 2007.

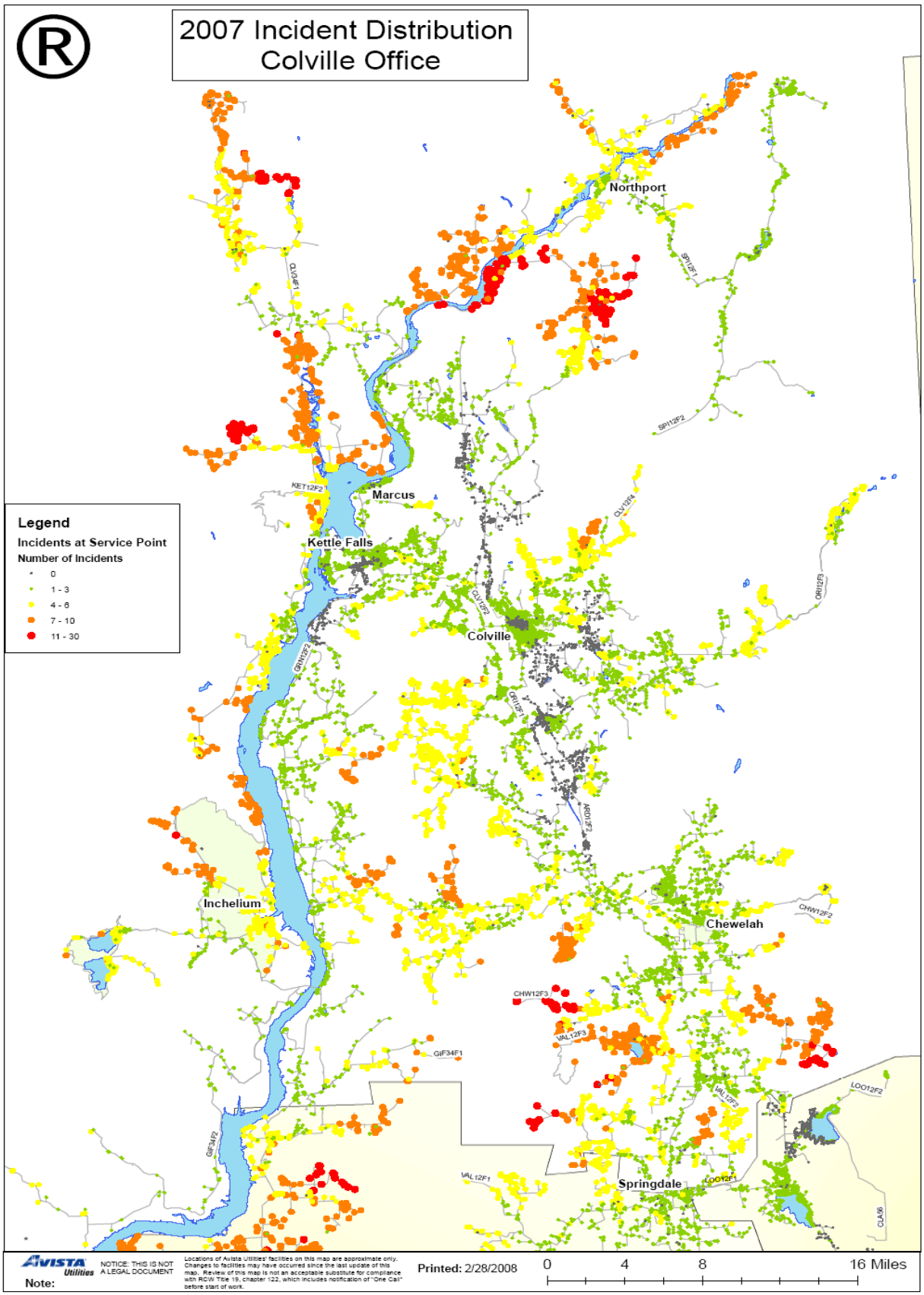
The remaining geographic plots show the sustained interruptions by color designation according to the legend on each plot for each office area. Note the office area is designated as the area in white for each plot and that there is overlap between adjacent office area plots. The adjacent office areas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

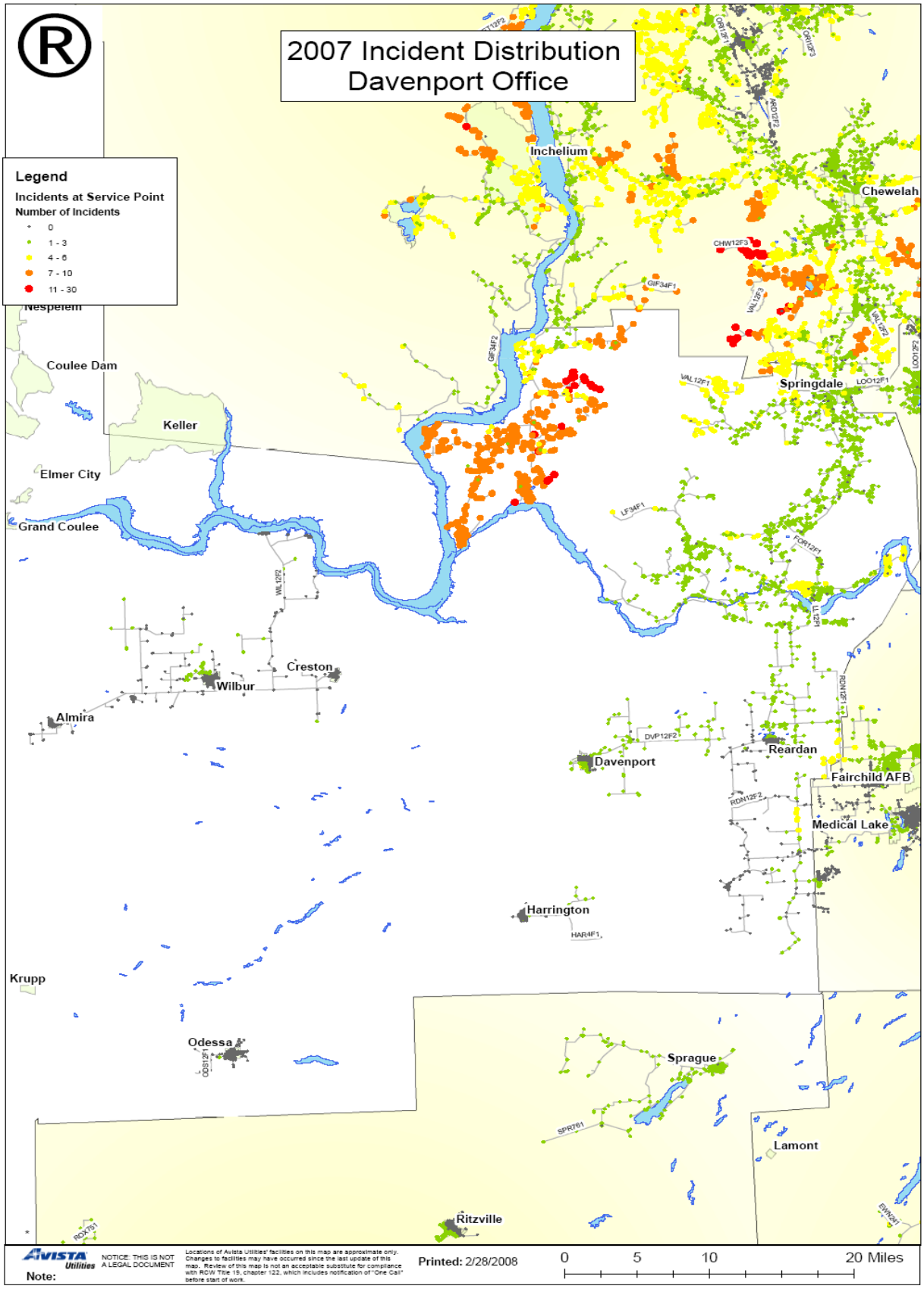
Avista Service Territory CEMI$_n$ Chart



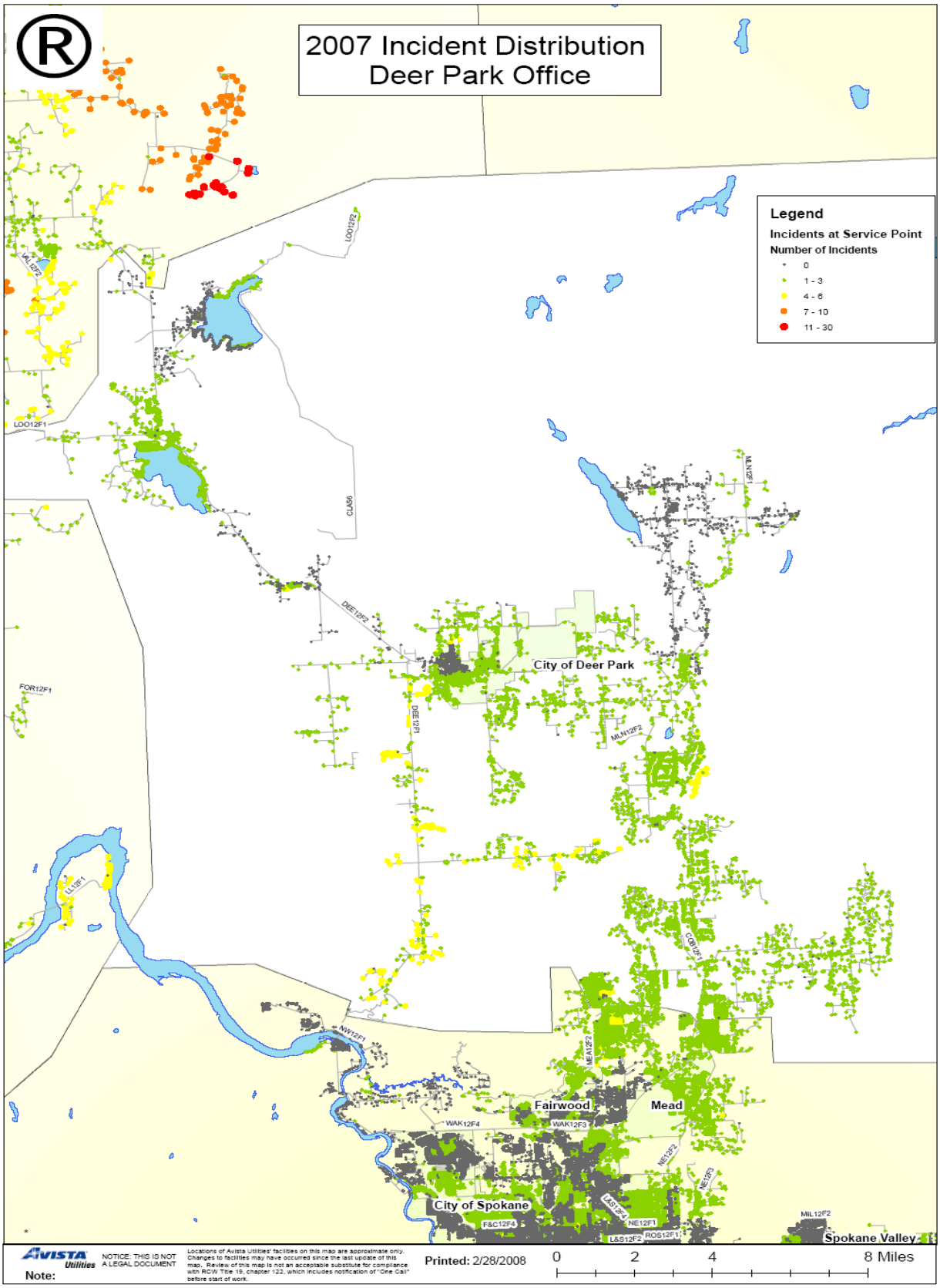
Colville Office - CEMI$_n$



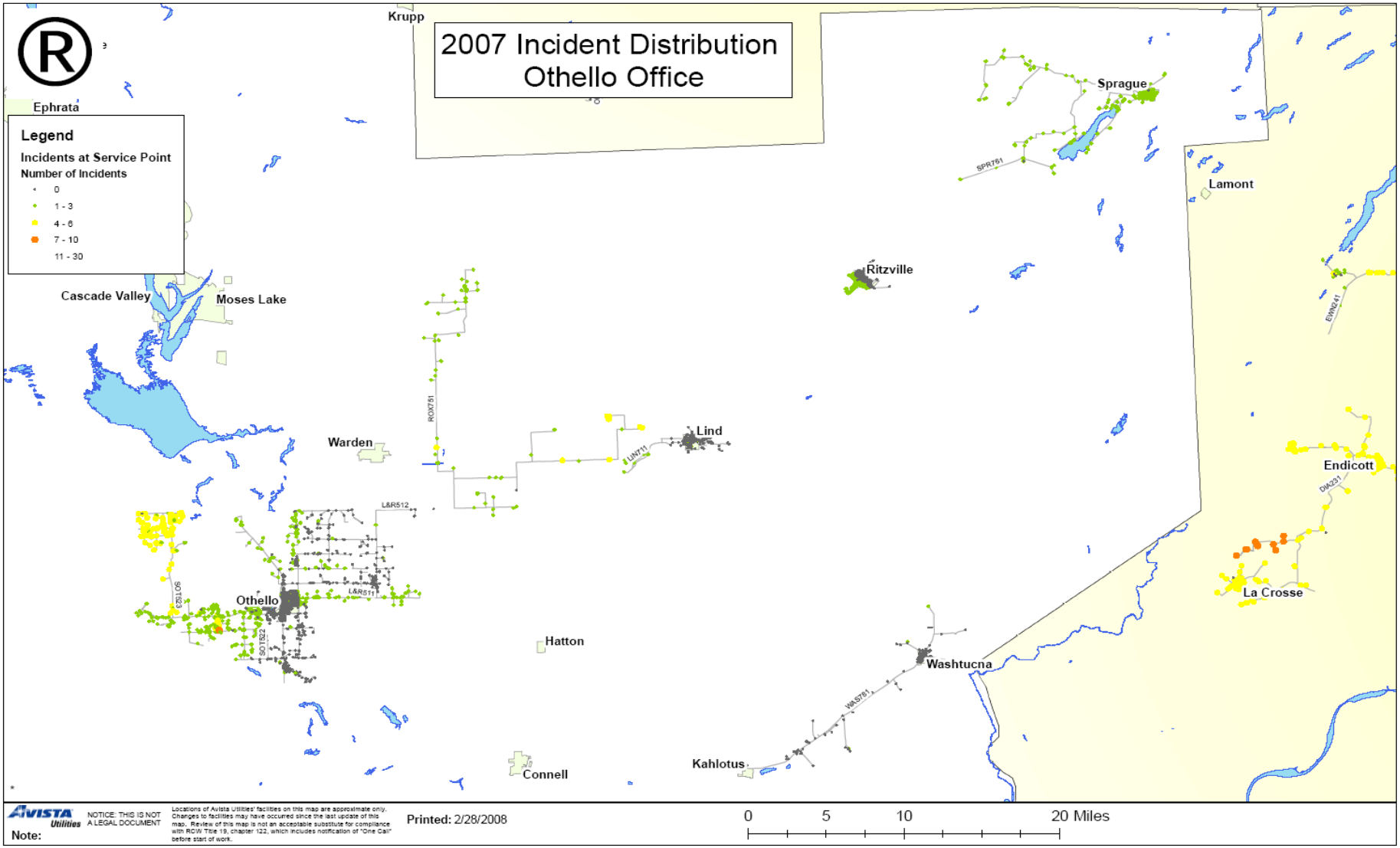
Davenport Office - $CEMI_n$



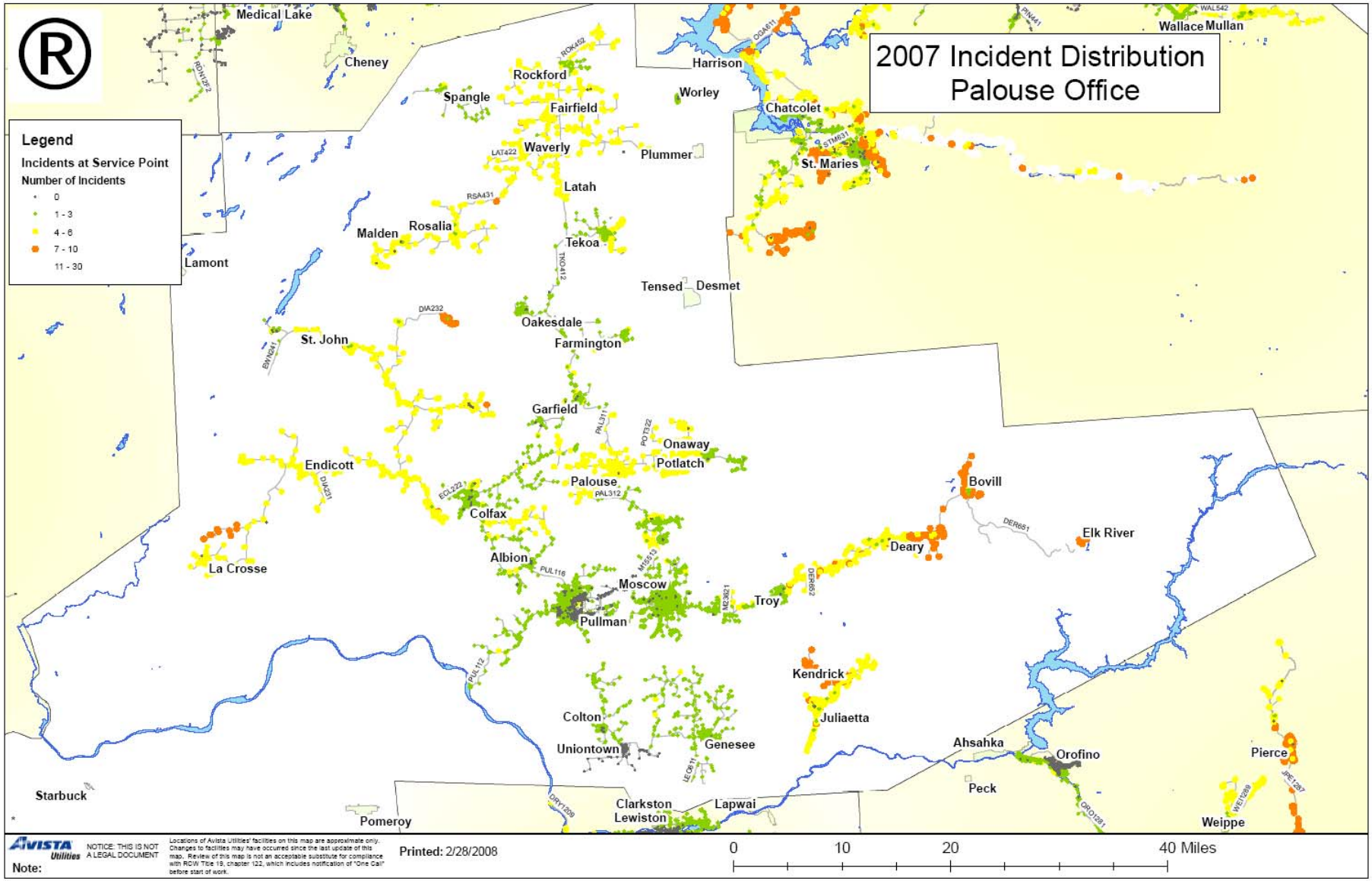
Deer Park Office - CEMI$_n$



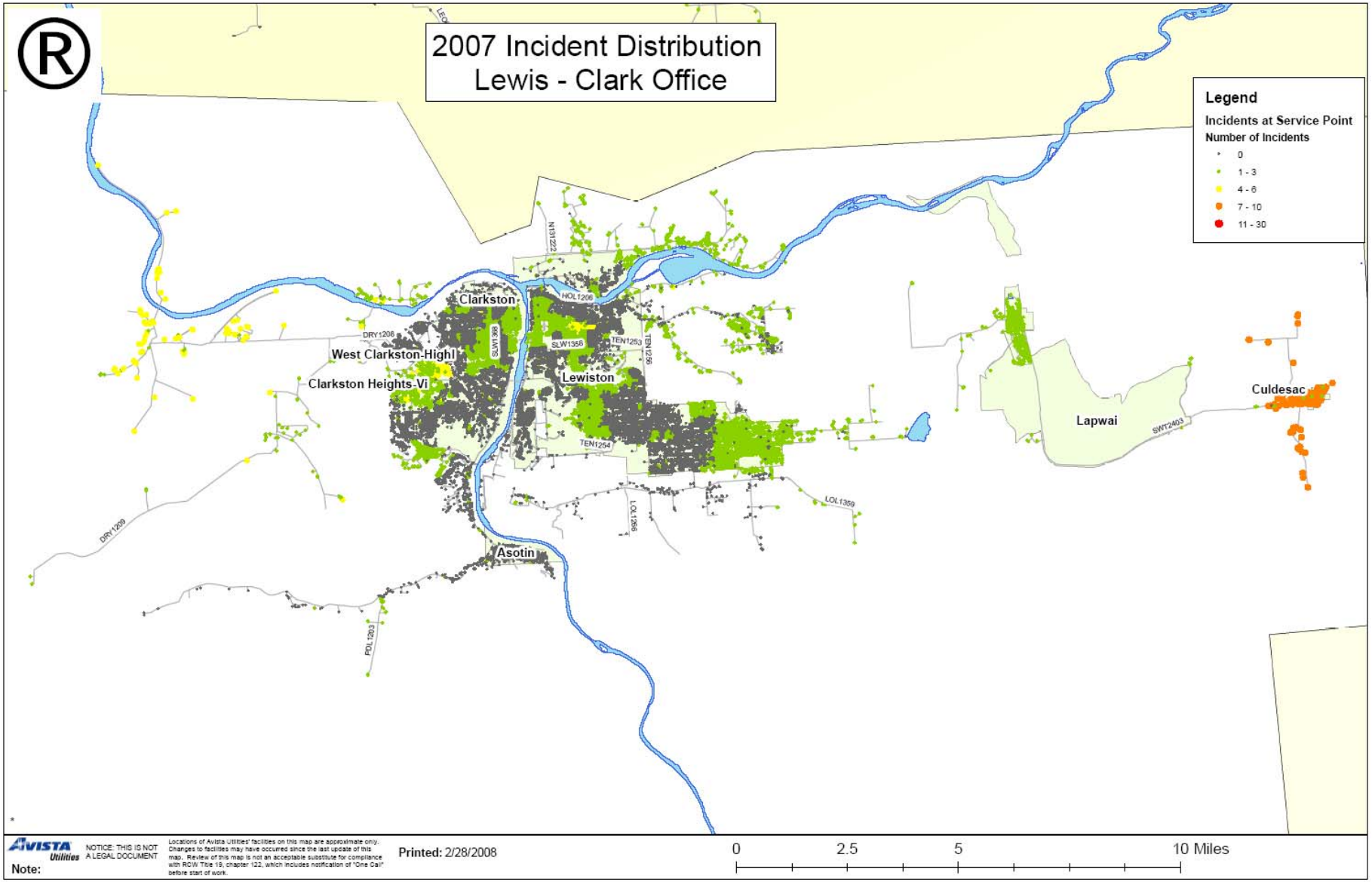
Othello Office - $CEMI_n$



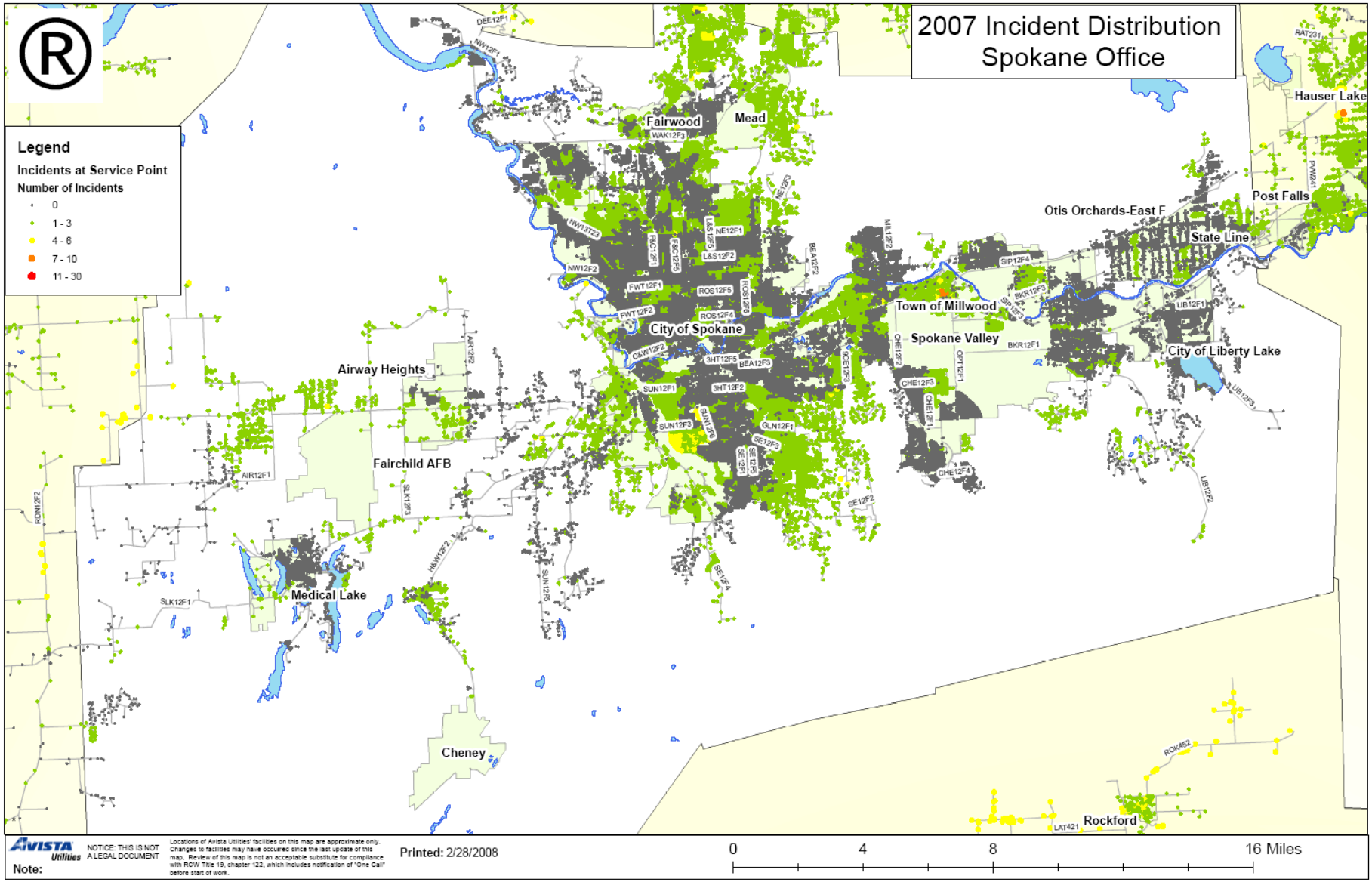
Palouse Office - CEMI$_n$



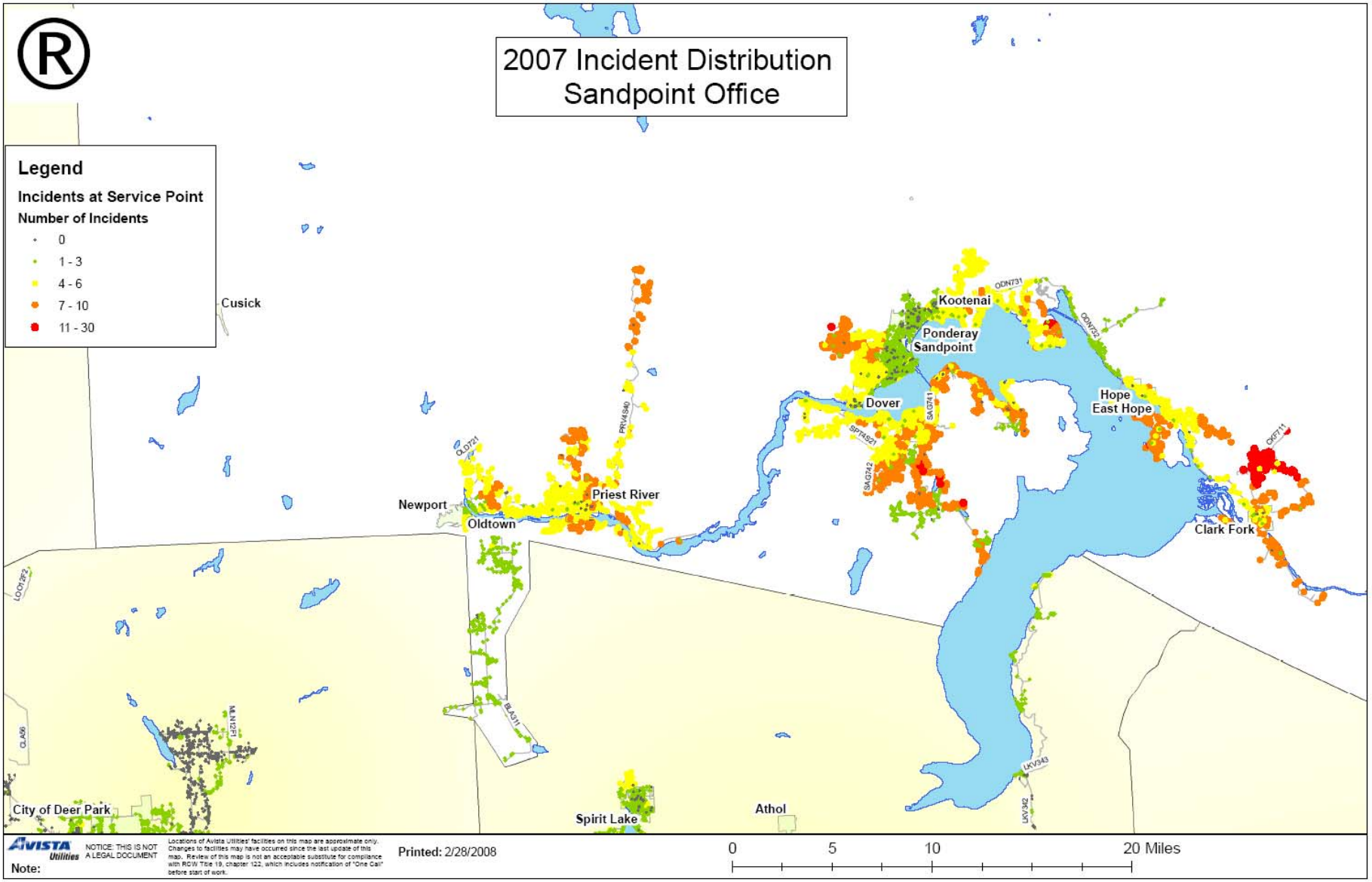
Lewis-Clark Office - $CEMI_n$



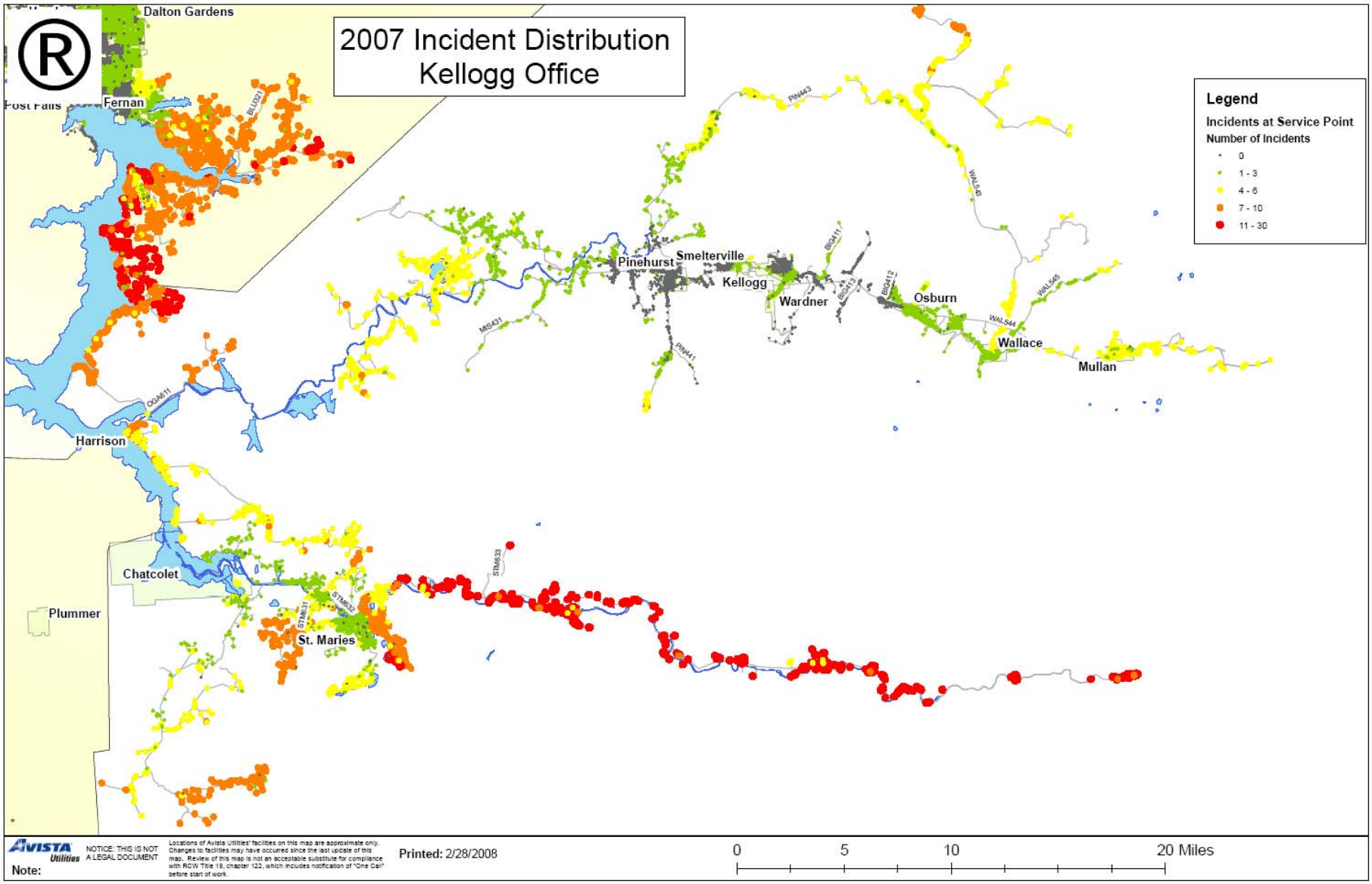
Spokane Office - $CEMI_n$



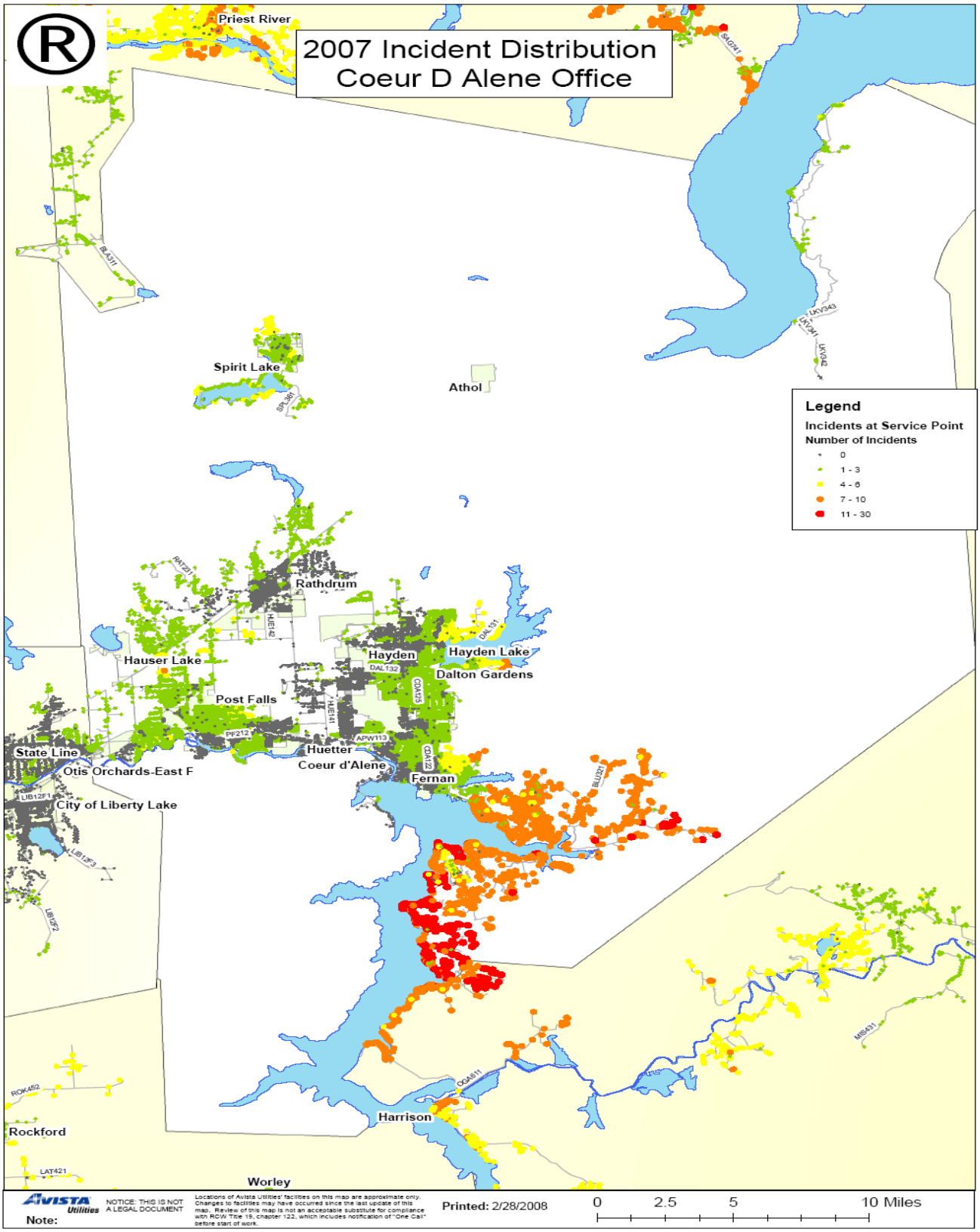
Sandpoint Office - $CEMI_n$



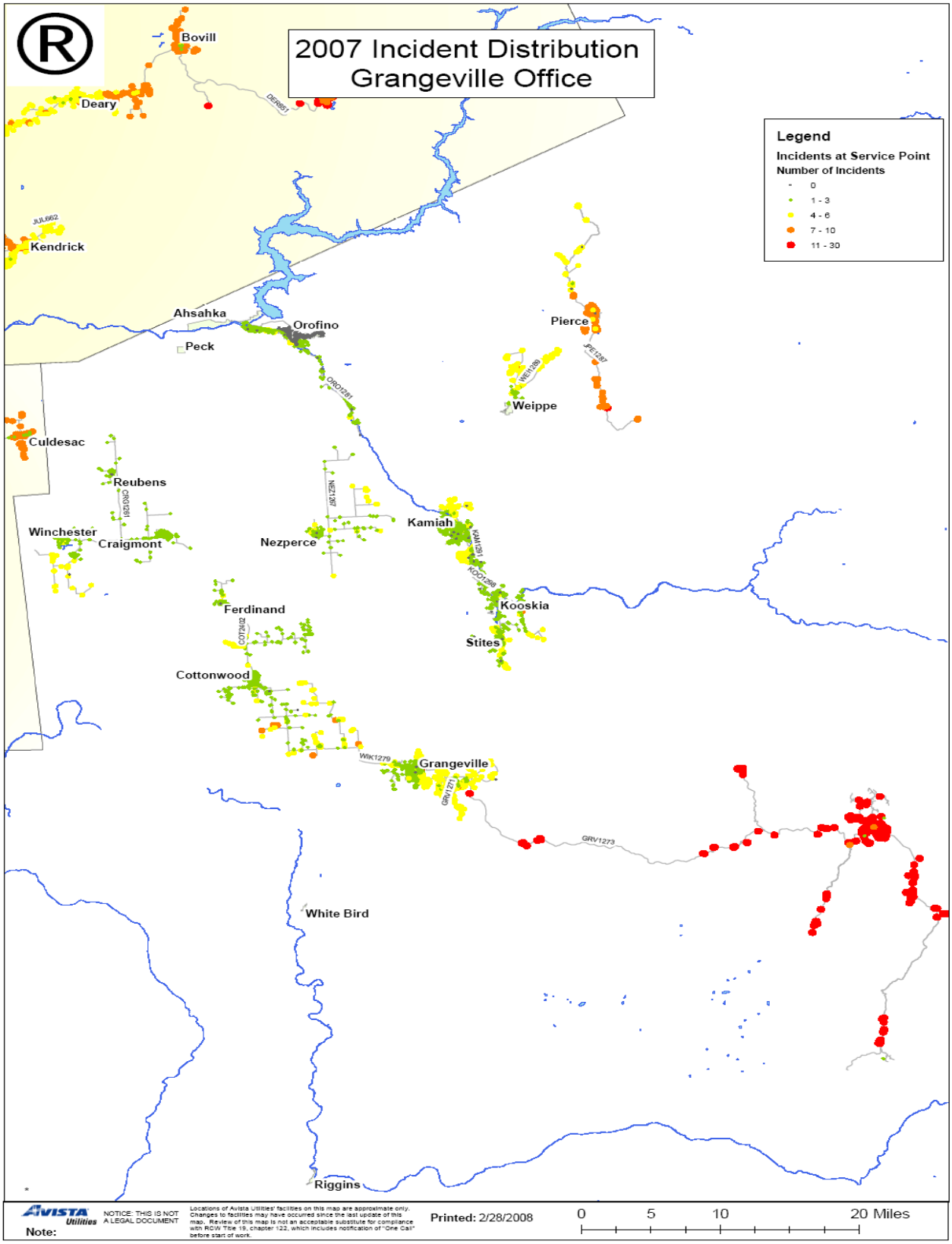
Kellogg Office - $CEMI_n$



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

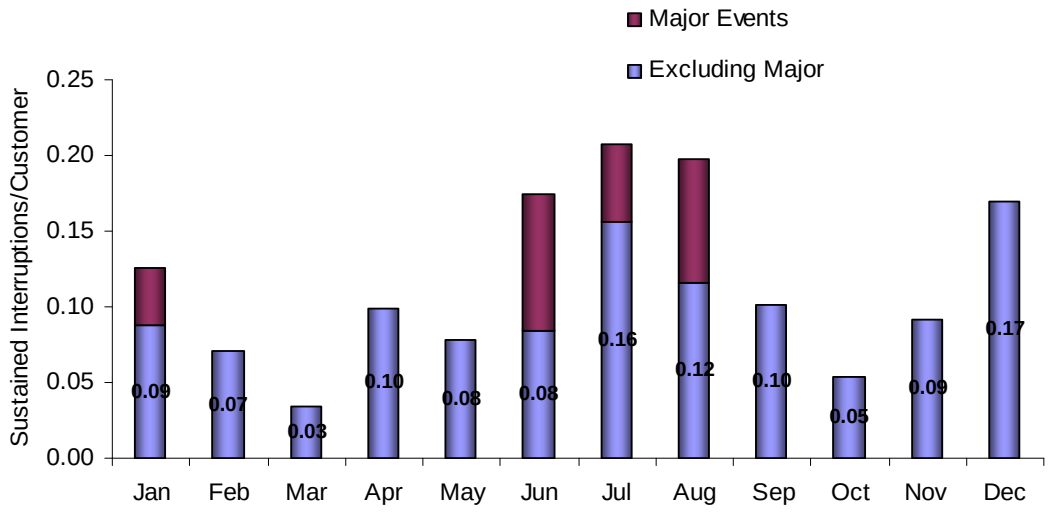


Chart 3.2 - MAIFI Momentary Interruption Events / Customer

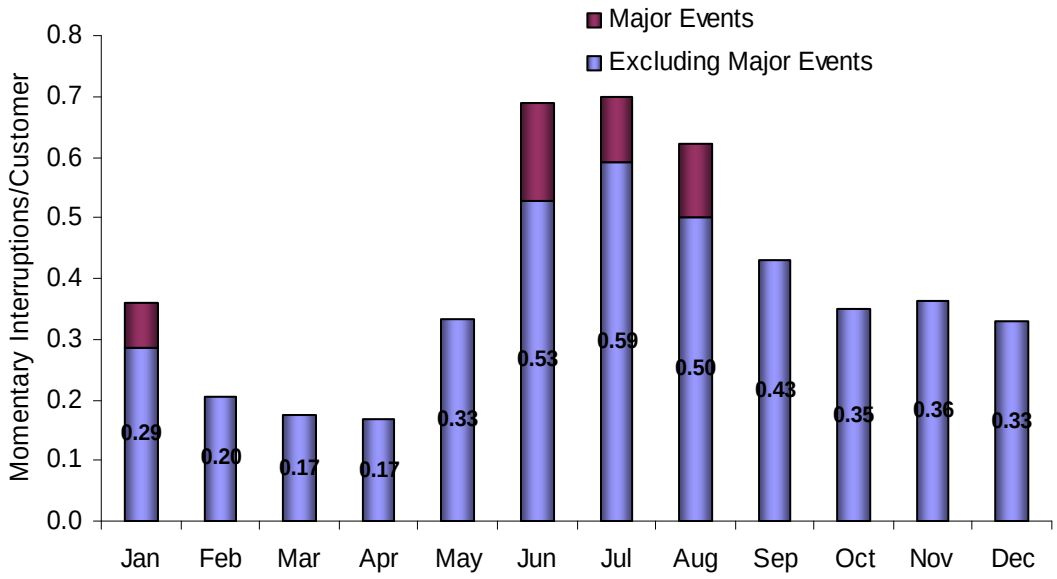


Chart 3.3 - SAIDI – Average Outage Time / Customer

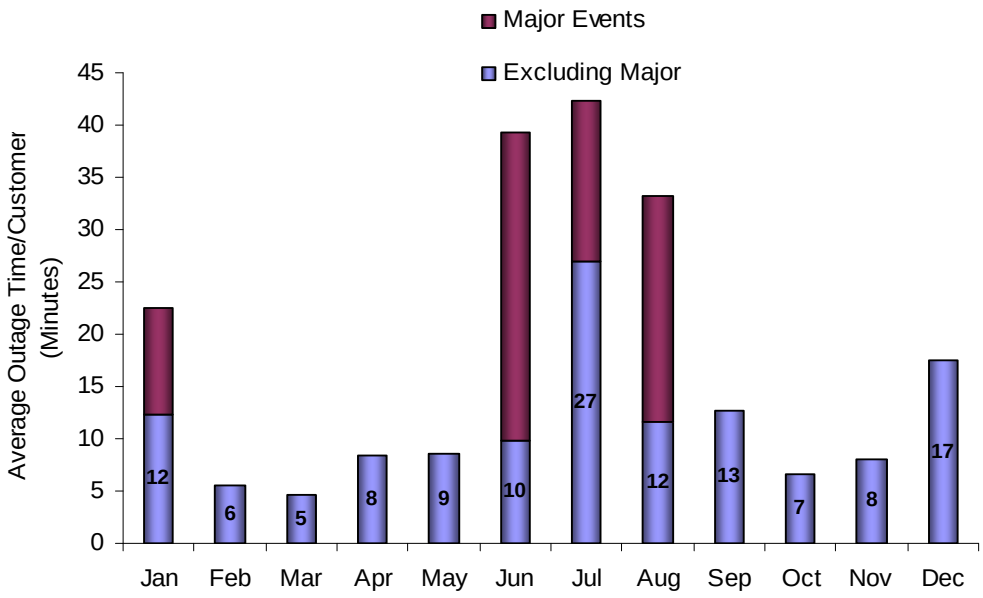
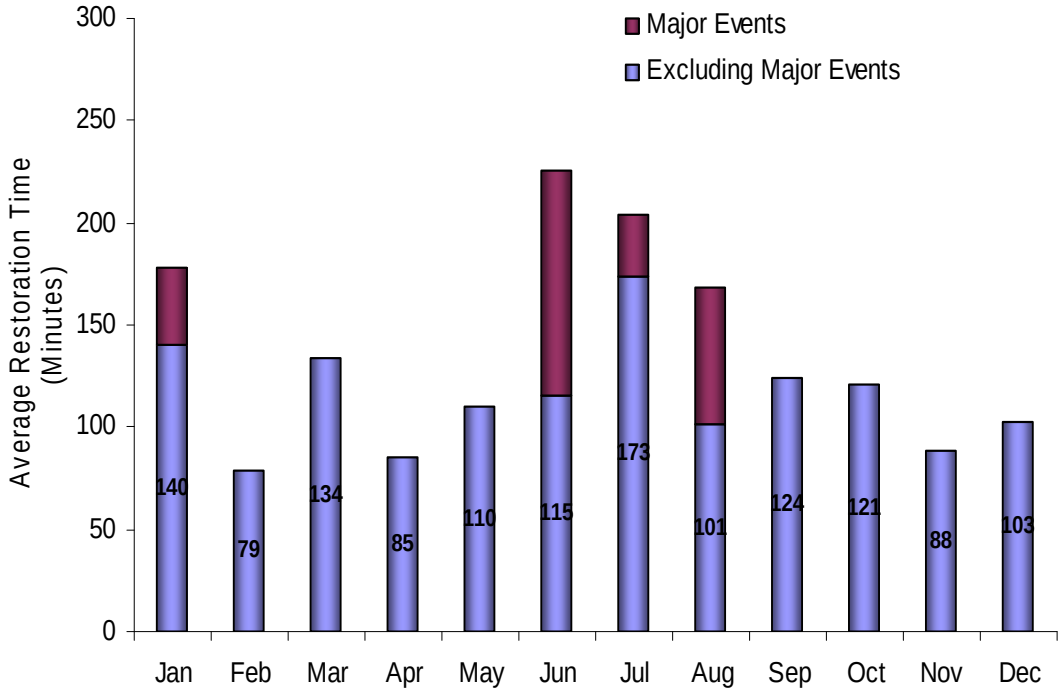


Chart 3.4 - CAIDI – Average Restoration Time



Customer Complaints

Commission Complaints

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

Customer Address	Complaint	Resolution
Chewelah, WA Chewelah 12F2	The area in which customer lives experiences periodic power outages. Yesterday they were without power for 18 hours for no apparent reason – no bad weather, etc. Neighbors have purchased $3000 generators. Customer does not feel he should have to purchase as generator.	4 sustained outages and 1 momentary outage. 8/03/07 Complaint Closed – Company upheld.

Customer Complaints

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

Customer / Feeder	Complaint	Resolution
Rice, WA Gifford 34F1	03/19/07 – Customer emailed Avista with a complaint about all of the outages in his area this year. Email forwarded on to the Colville office to answer his question.	Colville office sent Customer an email explaining that Avista was unaware that the customer was out of power. Apparently the customer does not live at this location and Avista is unaware when the power is out. Customer did not reply as of November 29, 2007.
Pullman, WA South Pullman 121	08/29/07 – Customer called to complain about several momentary outages over the past few days. Customer had counted 5 momentary outages in the last 4 days.	Electric Transmission Operations reported that this was a transmission problem that should be resolved now. 8/29/2007.
Rice, WA Gifford 34F1 or Gifford 34F2	07/17/07 - Customer called about power outage on July 22, 2007 that was scheduled.	Customer location could not be found, and call back phone number was not valid. No resolution.
Pullman, WA Pullman 112	10/02/07 –Customer called and is tired of coming home every day and having to reset all the clocks etc. due to Avista power surge issues or whatever is causing this in Pullman. Customer was told that if outage is less than 10 seconds it is not a big deal, but it happens constantly. Please get this fixed; customer doesn't have the option of choosing a different power company.	Complaint was forwarded to Pullman office. Customer was sent an apology letter after Avista left a message on his phone. Avista did experience some power outages about that time.
Hope, ID Clark Fork 711	08/14/07 – Customer unhappy power keeps going out. Would like someone to let him know what Avista is doing to fix this problem. Wants resolved before he goes out of town the 1st of September.	Sandpoint office made several attempts to contact the customer and never did talk to him directly. Hope area had numerous outages and momentary outages during the summer due to wind storms and lightning.

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	0.9%	2.6%	1.5%	3.1%	8.0%	3.5%	5.0%	0.8%	12.6%	14.8%	8.9%	5.7%
MISCELLANEOUS	0.1%	0.9%	0.0%	1.7%	0.0%	0.0%	0.1%	0.0%	0.0%	0.2%	0.0%	0.3%
POLE FIRE	0.4%	6.5%	12.6%	14.0%	3.0%	12.1%	18.0%	8.1%	0.6%	2.2%	20.4%	6.0%
WEATHER	16.6%	16.7%	9.4%	30.0%	32.4%	1.9%	11.1%	27.7%	16.9%	4.3%	6.7%	18.4%
UNDETERMINED	24.4%	6.0%	10.8%	12.6%	22.3%	18.4%	4.2%	10.3%	8.4%	11.3%	13.7%	13.1%
TREE	5.9%	20.6%	9.7%	8.1%	13.8%	18.7%	0.2%	9.9%	22.5%	2.3%	30.7%	12.2%
PUBLIC	16.4%	8.0%	10.3%	1.7%	3.9%	35.0%	26.6%	16.6%	1.7%	24.1%	5.6%	12.8%
COMPANY	19.2%	3.6%	0.1%	5.1%	0.1%	0.0%	0.0%	3.8%	7.6%	7.7%	0.5%	6.2%
EQUIPMENT OH	8.4%	18.0%	29.2%	15.0%	8.6%	7.8%	9.1%	14.2%	13.3%	17.6%	2.2%	13.6%
EQUIPMENT UG	0.5%	2.5%	4.9%	2.4%	0.6%	1.0%	3.7%	1.8%	0.1%	3.8%	1.0%	1.8%
EQUIPMENT SUB	2.3%	0.0%	6.3%	1.0%	6.2%	0.0%	0.0%	0.0%	6.6%	6.6%	0.0%	2.8%
PLANNED	4.8%	14.6%	5.2%	5.3%	1.2%	1.6%	22.1%	6.7%	9.7%	5.3%	10.2%	7.0%

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 4.1 – % SAIFI per Cause by Office

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

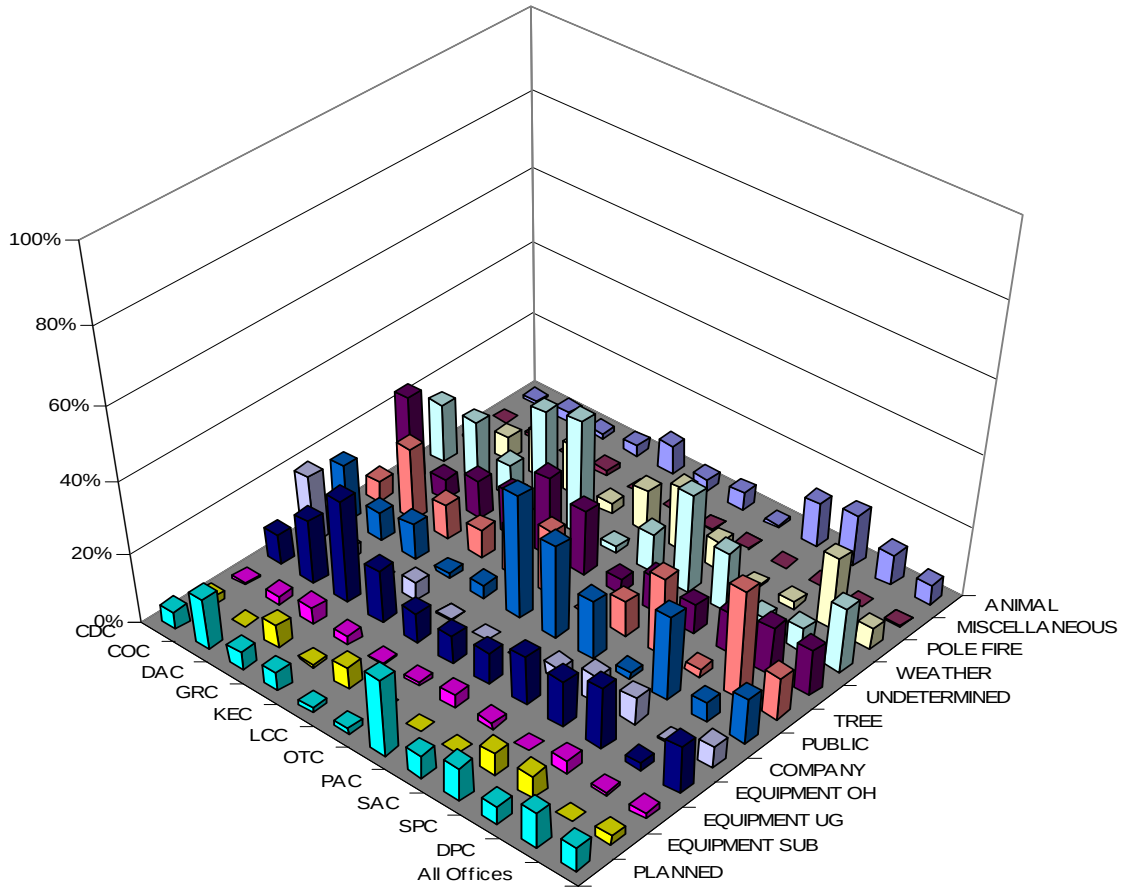


Table 4.2 - % SAIDI per Cause by Office

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%	1.7%	1.9%	1.3%	4.0%	3.3%	2.8%	0.5%	7.4%	13.3%	6.1%	4.1%
MISCELLANEOUS	0.1%	0.5%	0.0%	1.2%	0.0%	0.0%	0.1%	0.2%	0.0%	0.1%	0.0%	0.3%
POLE FIRE	1.2%	7.3%	31.2%	25.0%	3.4%	20.6%	42.3%	11.4%	0.5%	3.3%	16.5%	9.2%
WEATHER	27.7%	23.4%	14.9%	18.7%	43.3%	4.3%	15.7%	18.0%	35.3%	11.7%	18.3%	23.3%
UNDETERMINED	15.5%	5.1%	16.5%	9.3%	13.7%	14.4%	2.0%	5.8%	7.9%	6.8%	15.9%	9.1%
TREE	9.8%	20.6%	14.0%	12.0%	23.0%	12.6%	0.1%	15.9%	36.3%	3.9%	25.6%	17.3%
PUBLIC	21.0%	6.8%	6.3%	1.9%	3.5%	33.6%	12.9%	17.3%	1.9%	20.9%	5.3%	11.4%
COMPANY	0.7%	1.3%	0.0%	0.6%	0.0%	0.0%	0.0%	4.1%	0.7%	1.6%	0.3%	1.3%
EQUIPMENT OH	16.4%	14.1%	10.4%	14.3%	5.6%	8.3%	10.9%	13.3%	5.5%	16.7%	4.2%	12.0%
EQUIPMENT UG	1.9%	3.0%	2.0%	2.9%	0.9%	2.3%	6.8%	3.8%	0.1%	11.7%	2.4%	3.5%
EQUIPMENT SUB	3.1%	0.0%	0.5%	6.0%	1.9%	0.0%	0.0%	0.0%	1.8%	6.9%	0.0%	2.4%
PLANNED	1.6%	16.5%	2.3%	6.8%	0.7%	0.7%	6.5%	9.7%	2.6%	3.1%	5.4%	6.1%

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.

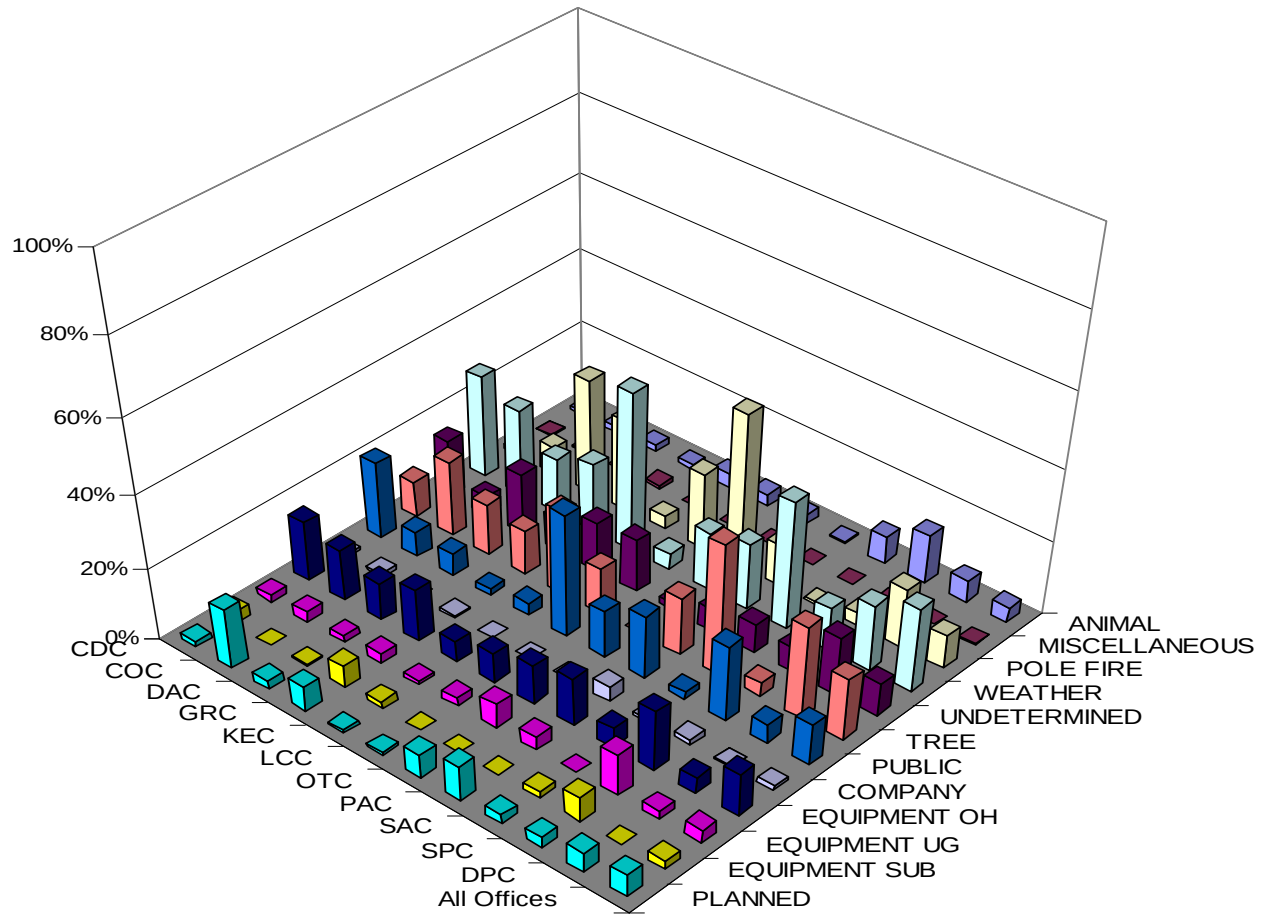


Table 4.3 - % SAIFI per Cause by Month

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	2.9%	0.4%	5.0%	18.9%	2.6%	14.5%	8.9%	5.7%	3.7%	3.1%	1.0%	0.4%	5.7%
MISCELLANEOUS	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	1.3%	0.0%	0.1%	0.1%	0.0%	0.8%	0.3%
POLE FIRE	0.0%	1.6%	12.0%	0.0%	0.6%	1.1%	14.0%	10.0%	24.0%	4.8%	1.4%	0.4%	6.0%
WEATHER	5.7%	16.7%	0.8%	0.1%	20.8%	15.5%	20.9%	3.1%	5.5%	0.3%	39.7%	50.0%	18.4%
UNDETERMINED	24.3%	20.4%	10.0%	11.1%	10.8%	2.7%	13.4%	14.2%	18.7%	21.5%	7.6%	8.3%	13.1%
TREE	33.1%	14.1%	8.9%	11.8%	11.3%	17.7%	2.3%	12.0%	17.0%	20.1%	5.0%	6.5%	12.2%
PUBLIC	18.1%	13.6%	33.6%	8.9%	8.3%	2.8%	18.6%	12.2%	10.1%	18.7%	3.6%	14.8%	12.8%
COMPANY	0.5%	0.0%	0.9%	8.0%	11.0%	4.2%	4.1%	13.1%	5.9%	0.2%	22.1%	1.6%	6.2%
EQUIPMENT OH	5.4%	8.2%	19.7%	32.4%	15.1%	27.6%	5.5%	18.9%	9.7%	16.4%	5.1%	10.4%	13.6%
EQUIPMENT UG	0.8%	0.2%	1.2%	0.1%	1.0%	3.8%	4.1%	2.0%	3.4%	4.1%	0.6%	0.3%	1.8%
EQUIPMENT SUB	4.3%	17.0%	3.3%	0.6%	0.0%	0.0%	0.0%	4.9%	0.0%	0.0%	9.2%	0.0%	2.8%
PLANNED	4.8%	7.7%	4.7%	8.1%	18.5%	10.0%	6.9%	3.8%	1.9%	10.7%	4.6%	6.5%	7.0%

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.

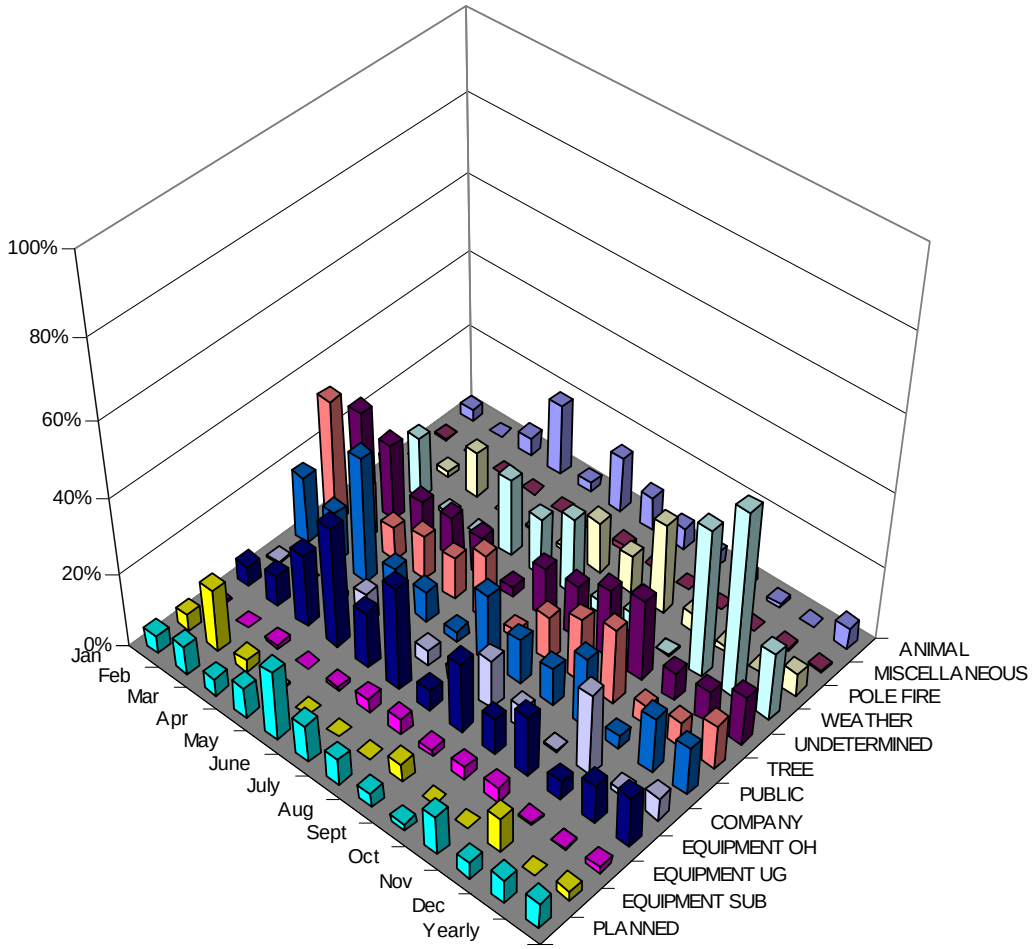


Table 4.4 - % SAIDI per Cause by Month

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

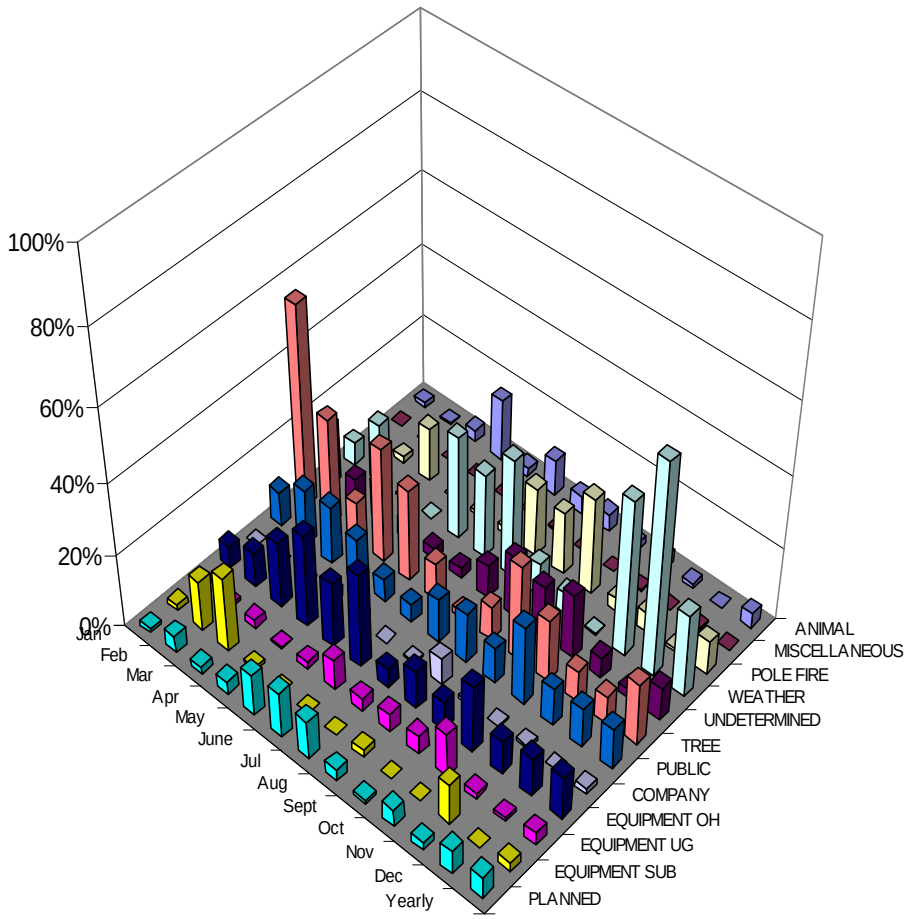
REASON	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Yearly
ANIMAL	1.5%	0.5%	3.1%	16.9%	2.4%	9.9%	4.9%	4.9%	2.0%	3.3%	1.4%	0.2%	4.1%
MISCELLANEOUS	0.1%	0.4%	0.0%	0.0%	0.0%	0.1%	0.7%	0.0%	0.0%	0.1%	0.0%	0.5%	0.3%
POLE FIRE	0.0%	1.7%	15.0%	0.0%	0.8%	1.6%	18.8%	17.3%	26.7%	3.6%	5.4%	0.7%	9.2%
WEATHER	6.4%	16.6%	0.8%	0.3%	28.6%	23.3%	32.8%	8.9%	5.8%	0.3%	43.1%	59.0%	23.3%
UNDETERMINED	16.9%	6.6%	10.6%	4.8%	3.0%	2.8%	9.0%	16.8%	14.4%	17.8%	5.9%	2.3%	9.1%
TREE	55.8%	29.6%	11.1%	31.8%	25.7%	10.2%	1.6%	9.3%	26.5%	17.3%	8.6%	7.3%	17.3%
PUBLIC	9.6%	15.4%	15.9%	12.3%	6.4%	4.9%	12.0%	13.9%	9.9%	21.8%	10.3%	11.0%	11.4%
COMPANY	0.3%	0.0%	0.5%	2.9%	1.9%	0.2%	0.4%	7.5%	0.7%	0.3%	0.9%	0.1%	1.3%
EQUIPMENT OH	5.9%	9.6%	18.1%	25.7%	17.9%	26.0%	5.3%	10.6%	7.9%	18.7%	9.3%	10.9%	12.0%
EQUIPMENT UG	1.0%	0.9%	2.1%	0.4%	2.0%	8.3%	3.6%	5.4%	5.0%	11.9%	1.6%	1.2%	3.5%
EQUIPMENT SUB	1.5%	14.0%	20.7%	1.1%	0.0%	0.0%	0.0%	2.1%	0.0%	0.0%	11.3%	0.0%	2.4%
PLANNED	1.1%	4.8%	2.0%	3.7%	11.4%	12.7%	10.8%	3.4%	1.1%	4.8%	2.3%	6.6%	6.1%

Table 4.4.1 Ave Outage Time (HH:MM)

Reason	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Yearly
ANIMAL	1:33	1:37	1:41	1:37	1:45	1:59	1:57	1:46	1:48	1:44	1:25	1:24	1:48
MISCELLANEOUS	1:18	2:20	0:00	0:00	2:05	25:27	1:47	0:05	0:11	2:09	0:59	0:40	3:06
POLE FIRE	0:00	2:52	3:37	4:25	2:21	3:57	3:38	5:23	3:19	3:04	4:16	2:26	3:45
WEATHER	2:57	2:29	9:48	4:33	3:01	4:26	11:07	5:01	3:11	2:04	3:42	2:43	5:02
UNDETERMINED	2:00	1:54	1:54	2:05	2:01	2:58	2:26	1:44	1:50	1:46	1:40	1:42	2:03
TREE	4:19	3:24	2:25	7:40	3:01	2:34	3:02	2:34	3:18	3:06	2:33	2:37	3:20
PUBLIC	2:28	2:56	2:05	2:19	2:21	2:14	2:27	2:29	2:56	2:37	2:48	3:49	2:34
COMPANY	1:55	2:09	1:06	1:29	2:21	0:53	1:16	1:59	0:22	2:18	0:25	0:23	1:18
EQUIPMENT OH	2:51	2:40	2:23	1:55	2:41	3:00	4:45	2:56	3:09	2:59	3:10	2:55	2:59
EQUIPMENT UG	3:55	6:00	3:53	4:07	4:30	4:55	6:41	5:46	5:32	5:20	4:59	4:39	5:19
EQUIPMENT SUB	0:50	1:02	13:59	1:47	2:50	0:00	0:00	0:42	0:00	0:00	2:17	0:00	2:16
PLANNED	0:57	1:19	0:49	1:14	1:33	1:24	1:28	1:09	1:00	1:06	0:44	1:09	1:09

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	0.1%	4.6%	0.0%	1.3%	0.0%	7.5%	0.0%	0.6%	6.2%	12.6%	0.0%	5.5%
POLE FIRE	1.6%	0.0%	0.0%	0.0%	0.0%	0.7%	0.0%	0.0%	0.0%	2.8%	0.0%	1.1%
WEATHER	22.4%	22.7%	53.2%	36.6%	23.8%	5.5%	9.5%	13.9%	13.9%	5.9%	0.0%	14.2%
TREE	2.2%	0.0%	0.0%	0.8%	0.0%	0.0%	0.0%	1.8%	5.3%	0.9%	0.0%	1.6%
PUBLIC	3.6%	0.0%	0.0%	0.0%	0.0%	1.1%	0.0%	3.9%	0.0%	4.5%	0.0%	2.8%
COMPANY	2.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	3.0%	3.2%	0.0%	1.7%
UNDETERMINED	51.7%	68.7%	46.8%	61.0%	76.2%	81.1%	84.8%	71.2%	60.2%	58.8%	0.0%	63.8%
EQUIPMENT UG	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%	1.4%	5.1%	0.0%	1.7%
EQUIPMENT OH	5.6%	4.0%	0.0%	0.2%	0.0%	2.8%	0.0%	5.2%	6.9%	4.8%	0.0%	4.5%
PLANNED	1.8%	0.0%	0.0%	0.0%	0.0%	0.0%	5.8%	1.2%	3.0%	1.3%	0.0%	1.2%
EQUIPMENT SUB	8.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.3%	0.0%	0.0%	0.0%	1.6%
NOT OUR ROBLEM	0.0%	0.0%	0.0%	0.0%	0.0%	1.3%	0.0%	0.0%	0.0%	0.0%	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	Grand Total
ANIMAL	0.0%	0.0%	0.0%	4.2%	0.0%	0.0%	4.4%	3.3%
POLE FIRE	1.4%	0.0%	0.0%	0.8%	0.0%	1.6%	5.2%	1.4%
WEATHER	26.7%	29.1%	29.8%	34.2%	100.0%	31.5%	19.1%	31.6%
TREE	1.8%	0.0%	0.0%	0.8%	0.0%	0.0%	0.0%	0.8%
PUBLIC	0.9%	0.0%	10.6%	2.7%	0.0%	0.0%	3.8%	2.6%
COMPANY	2.1%	0.0%	0.0%	2.1%	0.0%	0.7%	0.0%	1.7%
UNDETERMINED	63.0%	70.9%	59.6%	49.9%	0.0%	65.9%	52.0%	53.0%
EQUIPMENT UG	0.0%	0.0%	0.0%	2.1%	0.0%	0.3%	4.1%	1.9%
EQUIPMENT OH	3.9%	0.0%	0.0%	3.0%	0.0%	0.0%	8.9%	3.5%
PLANNED	0.1%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.1%
EQUIPMENT SUB	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.6%	0.3%

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.

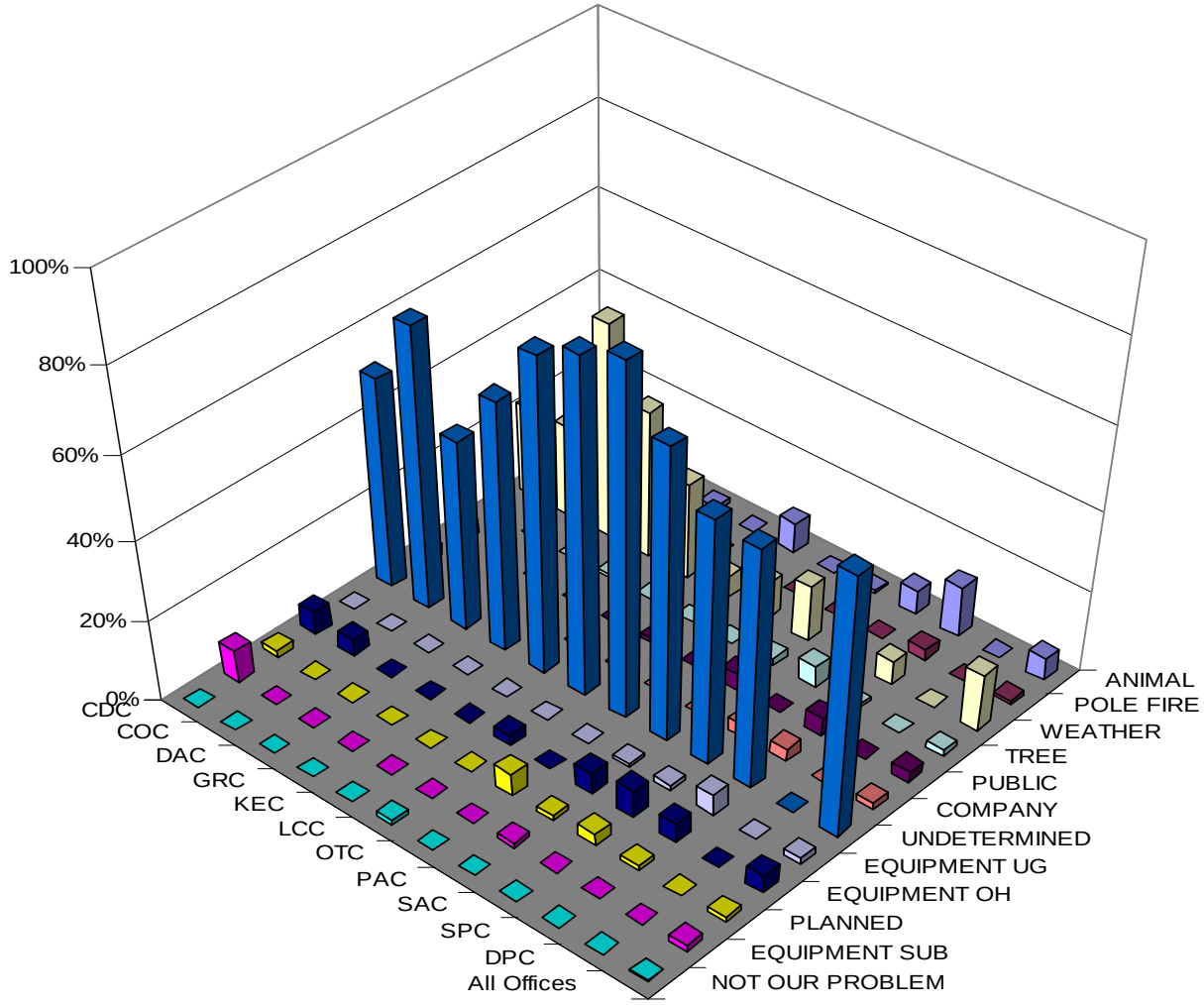


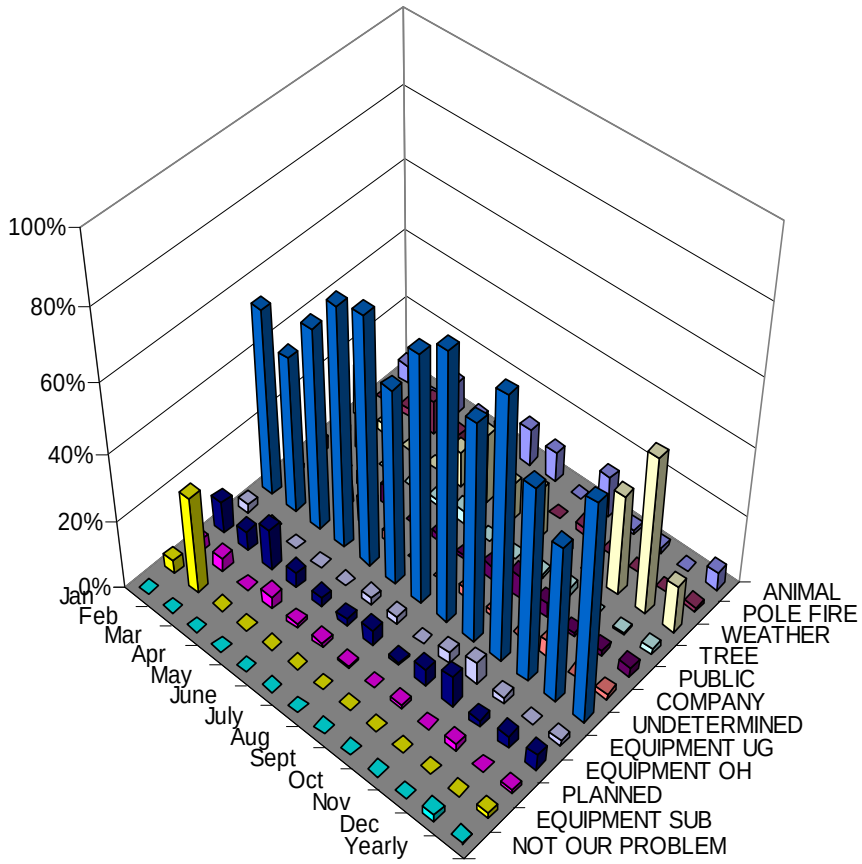
Table 5.2 - % MAIFI per Cause by Month

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	5.2%	0.0%	9.9%	4.2%	6.4%	10.8%	8.9%	0.2%	12.2%	1.6%	1.5%	0.0%	5.5%
POLE FIRE	0.0%	2.2%	9.6%	4.5%	2.7%	0.0%	0.1%	0.0%	2.5%	0.0%	0.0%	0.0%	1.1%
WEATHER	15.0%	2.9%	0.0%	0.0%	10.5%	20.9%	11.2%	14.7%	2.7%	0.0%	29.7%	46.2%	14.2%
TREE	1.3%	10.9%	0.0%	0.0%	1.6%	3.8%	0.0%	0.0%	1.1%	2.6%	0.0%	0.6%	1.6%
PUBLIC	3.3%	0.0%	4.1%	3.9%	2.2%	4.1%	2.3%	0.0%	1.3%	0.0%	8.8%	2.6%	2.8%
COMPANY	1.1%	0.0%	6.1%	7.6%	2.5%	0.0%	0.0%	2.8%	1.6%	0.0%	4.7%	0.0%	1.7%
UNDETERMINED	54.2%	45.7%	58.7%	69.7%	72.1%	56.9%	71.6%	77.5%	63.6%	76.1%	56.8%	45.7%	63.8%
EQUIPMENT UG	2.7%	0.0%	0.0%	0.0%	0.0%	2.0%	2.1%	0.0%	3.4%	6.2%	2.0%	0.0%	1.7%
EQUIPMENT OH	9.3%	5.8%	12.1%	4.6%	2.7%	2.2%	4.7%	0.9%	5.0%	8.9%	2.1%	3.8%	4.5%
PLANNED	3.5%	4.1%	0.0%	3.8%	1.4%	1.6%	0.5%	0.0%	1.1%	0.0%	2.1%	0.0%	1.2%
EQUIPMENT SUB	3.8%	28.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.6%
NOT OUR PROBLEM	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.0%	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.



Maintenance Plan Summary – Overhead Equipment with Sub Category Components

With the increasing quality of the SAIFI data, Avista has completed a preliminary analysis, based on our subject matter experts, indicating that performing a preventative maintenance or an inspection program will not provide the best value to our customers in all cases. As shown in the table, the projected failure rates impact on SAIFI do not justify the expenses of a preventative maintenance program on all of this equipment. However, we continue to evaluate and monitor these to determine if and when a preventative maintenance program would be in the best interest of our customers.

Visual Inspections of the poles and crossarms is being increased in 2008 to a 20 year cycle in order to maintain a reliable system. This visual inspection along with field personnel will identify some problem equipment during the course of their work and will get them repaired or replaced, but this is not part of a scheduled preventative maintenance program.

OH Equipment/Sub category component	Maintenance Plan Summary	Projected Average Annual SAIFI contribution
Arrestors	No Program	0.013
Capacitor	No Program	Not calculated
Conductor – Pri	No Program	0.013
Conductor – Sec	No Program	Very Small
Crossarm – Rotten	1-2% visually inspected annually but planning to move to 5% annually in 2008.	0.002
Cutout/Fuse	No specific program, but one vintage of cutout is being replaced on a planned basis.	0.073
Insulator	No Program	0.10
Insulator Pin	No Program	0.024
Other	No Program	Not calculated
Pole – Rotten	1-2% inspected annually but planning to move to 5% annually in 2008.	0.01
Recloser	Midline Reclosers – opportunistic or suspect, No defined cycle program. Substation Reclosers – 13 year maintenance cycle and planning to move to a 10 year cycle. Switchgear breakers – 7 year maintenance cycle.	0.025
Regulator	Substation Regulators inspected monthly with most midline regulators being inspected monthly.	0.003
Switch / Disconnect	No Program	0
Transformer - OH	No Program, but transformers that are removed from service for any reason and are older than 1980 are not refurbished and returned to service.	0.004

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

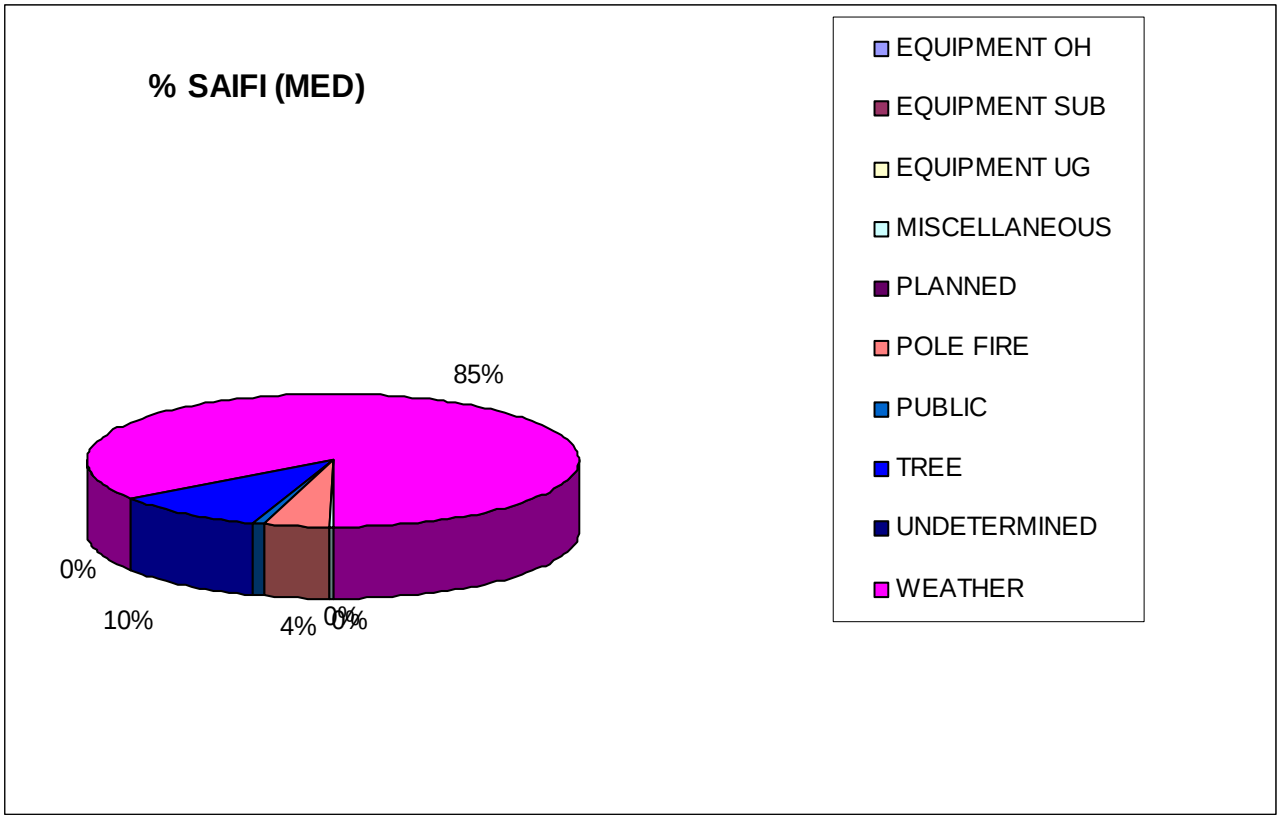


Table 6.1 – % SAIFI by Sub Cause Code for the Major Event Days

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	3799	9005:24
Total		3799	9005:24
TREE	Tree Fell	71	320
	Tree Growth	6	7
	Weather	9018	50031
Total		9095	50359
WEATHER	Snow/Ice	1980	378
	Lightning	28484	120689
	Wind	44823	252280
Total		75287	373348

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}.

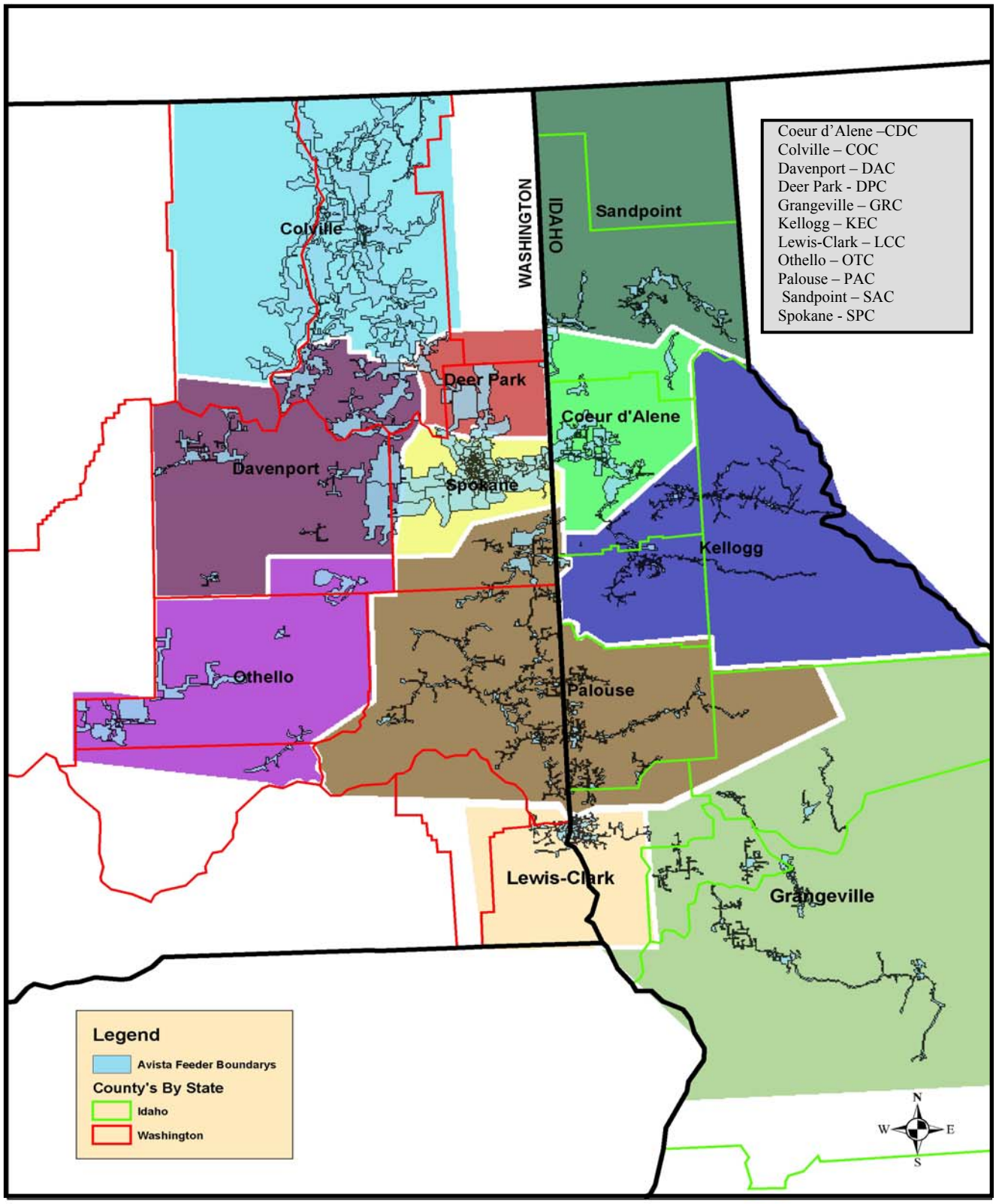
Year	Date	SAIDI	T_{MED}
2003	01-03-2003	5.38	4.96
	05-24-2003	5.11	
	09-08-2003	5.47	
	10-16-2003	6.62	
	10-28-2003	9.25	
	11-19-2003	57.06	
2004	05-21-2004	7.11	6.35
	08-02-2004	7.36	
	12-08-2004	31.00	
2005	06-21-2005	39.53	4.916
	06-22-2005	9.03	
	08-12-2005	19.60	
2006	01-11-2006	12.10	7.058
	03-09-2006	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			9.224

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	
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 can not 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. (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).

$$T_{MED} = e^{\square a2.5\, b} \qquad (25)$$

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	46032	13.3%
Colville	17349	5.0%
Davenport	6759	2.0%
Deer Park	10001	2.9%
Grangeville	9981	2.9%
Kellogg/St. Maries	13978	4.0%
Lewis-Clark	28713	8.3%
Othello	5949	1.7%
Palouse	37454	10.9%
Sandpoint	13793	4.0%
Spokane	155186	45.0%
System Total	**345195**	