We Energies
231 W. Michigan Street
Milwaukee, WI 53203

www.we-energies.com

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March 10, 2014

Michigan Public Service Commission
Attn: Executive Secretary
P. O. Box 30221
Lansing, MI 48909

Dear Executive Secretary:

RE: ANNUAL INTERRUPTION SUMMARY

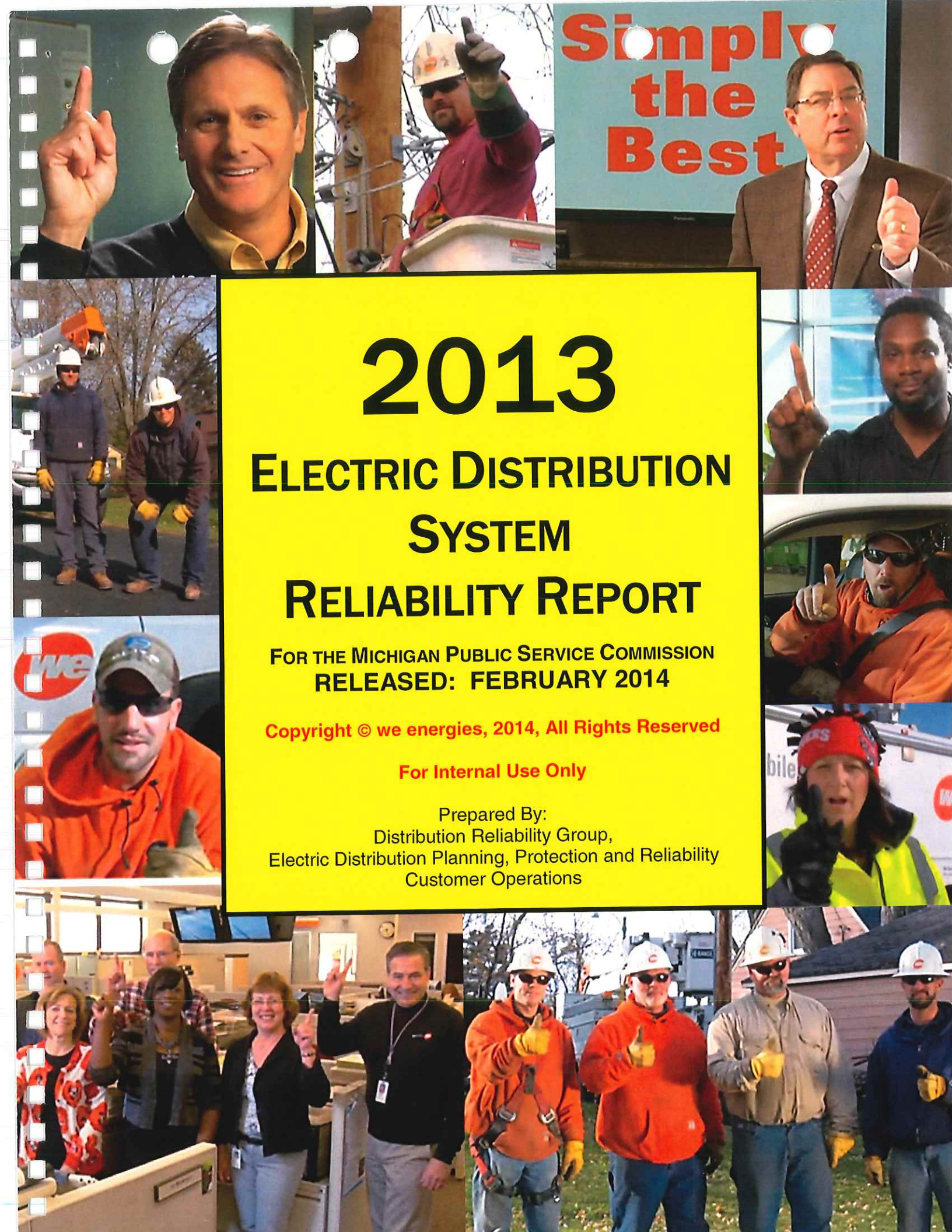
Enclosed are three copies of Wisconsin Electric Power Company d/b/a We Energies' 2013 Annual Interruption Summary pursuant to the Commission's Order Approving Settlement Agreement in MPSC Case No. U-10000 dated January 17, 1992.

Sincerely,

James A. Schubilske
Vice President
State Regulatory Affairs

Enclosures

cc: Peter Derkos (MPSC)
R. Patterson (w/o encl.)
D. Tschudy (w/o encl.)
Rates File



2013

ELECTRIC DISTRIBUTION SYSTEM RELIABILITY REPORT

FOR THE MICHIGAN PUBLIC SERVICE COMMISSION
RELEASED: FEBRUARY 2014

Prepared By:
Distribution Reliability Group,
Electric Distribution Planning, Protection and Reliability
Customer Operations

We Energies

2013 Electric Distribution System Reliability Report (EDSRR)

For the Michigan Public Service Commission

Please Note

This document reports only on the We Energies electric distribution system consisting of voltage levels of 34.5 kV or below. It does not report on any part of the We Energies gas distribution system.

Interpretation of reliability data is complex. If you have any questions regarding the content of this report, or if you require additional information or a more in depth explanation of any of the material presented, please contact a member of the Distribution Reliability Group listed below.

Jennifer Rothwell
Supervising Engineer

Val Werner
Principal Electrical Engineer

Andy Lemminger
Senior Engineer

THE 2013 ELECTRIC DISTRIBUTION SYSTEM RELIABILITY REPORT WAS PRODUCED BY:

Val Werner

ADDITIONAL CONTRIBUTIONS BY:

Jennifer Rothwell

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National ReliabilityOne™ Excellence Award Presented to We Energies!

Plus - Nine Out of the Last Twelve Years We Energies' Electric Reliability Judged Best in the Midwest!

PA Consulting Group presented We Energies with its highest honor: the 2013 ReliabilityOne™ National Award for Outstanding Reliability Performance. The company also earned the Best in the Midwest regional award for the ninth time in 12 years. The award was accepted by Kevin Fletcher, senior vice president – customer operations; Joan Shafer, senior vice president – customer services; and several members of the leadership team at an awards ceremony on November 20, 2013 at 7 World Trade Center in New York.

"This honor was made possible by our relentless pursuit of customer satisfaction and world-class reliability. My sincerest thanks for your focus and dedication," said We Energies Chairman, President and CEO Gale Klappa. "Because of you, We Energies is simply the best."

In addition, for the ninth time in the past 12 years, We Energies has won the ReliabilityOne™ award in the Midwest for the superior reliability of its electric system. The award is based on the company's performance for the year 2012, and is given annually by PA Consulting Group to utilities that have excelled in delivering the most reliable electric service to their customers.

All utilities operating electric delivery networks in North America are eligible for the ReliabilityOne™ award. There are five regional awards – Northeast, Mid-Atlantic, Midwest, Plains, and West – and one community award. The selection is based primarily on reliability statistics that measure the frequency and duration of customer outages. After provisional recipients are identified, each company undergoes an on-site certification, which provides an independent review of the processes and systems used to collect, analyze and report a company's reliability results.

"We Energies fosters a culture of continuous improvement; their employees are committed to reliability and are always looking for new ways to better serve their customers", said Jeff Lewis, Program Director for ReliabilityOne™. "PA was particularly impressed with We Energies' proactive communications with their customers and their innovative use of technology and process to provide outstanding reliability. The employees at We Energies demonstrate clear industry leadership and this recognition is a brilliant achievement."

M.E.D.S.R.R. 2013

EXECUTIVE SUMMARY

This report presents and evaluates the 2013 reliability performance of the We Energies electric distribution system and its effects on customers. This report is intended to provide information on the 2013 system performance as well as background information concerning distribution system reliability. **NOTE: Beginning this year the report displays reliability charts using Michigan customers only in accordance with MPUC Order U-16065. The rest of the report is based on the entire We Energies service territory**. The following items summarize the contents of the report.

For Michigan Customers only

- Including all outage events:
  - SAIFI of 1.01 is the lowest in the past three years.
  - SAIDI of 213 is the second lowest in the past three years.
  - CAIDI of 211 is the highest in the past three years.
  - SAIFI performed better than the five year average; SAIDI, CAIDI and ASAI did not.

- Excluding IEEE Major Event Days:
  - SAIFI of 0.51 is the lowest in the past three years.
  - SAIDI of 62 is the lowest in the past three years.
  - CAIDI of 122 is the highest in the past three years.
  - SAIFI, SAIDI and ASAI all performed better than the five year averages, CAIDI did not.

- Six Major Event Days occurred in 2013 compared to two in 2012. The Major Event Days average is five per year over the last three years.

For the We Energies Entire Service Territory

- The major outage causes in 2013 include: Equipment Failure/Deterioration 36%, Vegetation 27%, Weather 16%, and Wildlife 9%.

- The 10,020 outage events in 2013 is the lowest number of outage events since 2009.
  - The number of Equipment, Unknown, and Other caused outage events in each category was the lowest in the past five years.
  - The lowest number of public related outage events since at least 1999 occurred in 2013.
  - Cutout, Cable, and Connector (including insulinks) failures were the leading causes of Equipment caused outage events and were responsible for 23% of all outage events.
  - The highest number of ice related outage events occurred in 2013, three times as high as any year in the prior four years.
  - Squirrel caused outage events in 2013 are at the lowest in the past five years.

- Vegetation outage events were responsible for 43% of the Customer Minutes of Interruption in 2013

DEFINITIONS

Customer: For reliability reporting purposes, a customer is defined as a separate electrical service point. Customers may be residential, commercial, industrial, or municipal. If a customer has more than one service point assigned to an account, the account is considered a "customer" for reliability reporting purposes.

Outage: An outage is a failure of the power supply system to serve customers causing an interruption to one or more customers. For example, a service drop failure, a fuse operation affecting a portion of a feeder, and a substation breaker trip affecting an entire feeder are each counted as single outages. The loss of a one leg of a single phase service is considered an outage; this is often called partial power. The loss of one or two phases of a three phase service is also considered an outage.

Unplanned Outage: An unplanned outage is one that cannot be avoided or deferred.

Planned Outage: A planned outage is one that can be avoided or deferred, and any customer that is to be interrupted is notified in advance in accordance with Public Service Commission and internal company guidelines.

Momentary Outage: A momentary outage is an unplanned outage lasting five minutes or less, resulting in a loss of power to a customer or group of customers.

Sustained Outage: A sustained outage is an unplanned outage lasting more than five minutes, resulting in a loss of power to a customer or group of customers.

Customer Interruption: The loss of service (power) due to an outage for one or more customers. For example, a service drop failure results in one customer interruption, while failure of a transformer serving four customers results in four customer interruptions.

Customer Minutes of Interruption: The number of minutes of outage duration multiplied by the number of customers affected. For instance a 90 minute outage on a circuit serving 100 customers would result in a total of 9,000 Customer Minutes of Interruption.

Number of Customers Served: The sum of the number of customers served by the distribution system over a defined area. Examples include single circuits, geographic areas, or the total system.

Outage Duration (Minutes): Duration is measured in minutes from the time of the outage until a restoration is made. A restoration can be anything from one customer put back in service or a whole feeder put back in service or any partial restoration in between. The number of customers does not enter into the outage duration.

SAIFI or System Average Interruption Frequency Index: SAIFI is an industry standard reliability measurement index that is designed to give information about the average frequency of sustained interruptions per customer over a defined area during a year. In words it is defined as:

$$\text{SAIFI} = \frac{\text{Total Number of Customer Interruptions}}{\text{Total Number of Customers Served}}$$

As an example, a system SAIFI of 1.0 means that on average, a customer on the distribution system would experience one interruption in a year, while a SAIFI of 0.5 would equate to one interruption every two years.

SAIDI or System Average Interruption Duration Index: SAIDI is an industry standard reliability measurement index that is designed to give information about the average time that customers are interrupted over a defined area during a year. In words it is defined as:

$$\text{SAIDI} = \frac{\text{Total Number of Customer Minutes of Interruption}}{\text{Total Number of Customers Served}}$$

As an example, a system SAIDI of 50 minutes means that on average a customer on the distribution system would experience 50 minutes of interruption in a year.

CAIDI or Customer Average Interruption Duration Index: CAIDI is an industry standard reliability measurement index that is designed to approximate the average length of time required to complete service restoration following a sustained interruption over a defined area. In words it is defined as:

$$\text{CAIDI} = \frac{\text{Total Number of Customer Minutes of Interruption}}{\text{Total Number of Customer Interruptions}}$$

As an example, a system CAIDI of 100 minutes means that if a customer experiences an interruption, the average duration of the interruption would be 100 minutes.

ASAI or Average Service Availability Index: ASAI is an industry standard reliability measurement index that is designed to represent the fraction of time, often in percentage, that a customer has power provided during a defined time period. In words the definition is:

$$\text{ASAI} = \frac{\text{Customer Hours of Available Service}}{\text{Customer Hours of Demand}}$$

As an example: a system ASAI of 0.99975 means that the electric service to a customer was available 99.975% of the time.

CEMI_n or Customers Experiencing Multiple Interruptions: CEMI is an industry standard that indicates for the number of customers experiencing n or more number of interruptions divided by the number of customers on the system. We Energies uses n=5 to find "pockets" of customers on our system that may need addition work done on their isolated portion of the electric system.

MED or Major Event Day: Defined by IEEE Std 1366-2012. "A day in which the daily system System Average Interruption Duration Index (SAIDI) exceeds a Major Event Day threshold value. 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 TMED are days on which the energy delivery system experienced stresses beyond that normally expected (such as during severe weather). Activities that occur on Major Event Days should be separately analyzed and reported."

INTRODUCTION

This report summarizes the 2013 reliability performance of the We Energies electric distribution system and its effects on customers. It is intended to provide information on 2013 system performance as well as background information concerning distribution system reliability. The report will continue to evolve to meet the current and future needs of its readers.

The tool used to aggregate electric distribution outage information is called the CADOPS* Outage Reporting System (CORS). Outage information is both manually and automatically entered in CORS through CADOPS and the CORS Outage Detail Form. Mobile Data (CAD) was implemented for Troubleshooters in Southeastern Wisconsin in 2004, Fox Valley in 2007, and Iron Range in 2008. The Troubleshooters enter some or all of the outage information directly into CORS using Mobile Data. In 2009, most crews were trained in Mobile Data (CAD) to enter customer restoration data during storms and/or to complete a multi-step customer restoration outage event. Communication between EMS and CADOPS to automatically transfer device status was rolled out to the entire service territory in 2013. In addition, code was added to auto-populate some of the outage data including customers based on the interrupting device, tag number, and phase as reported in Mobile CAD.

The use of CADOPS has increased the accuracy of outage reporting. In nine of the past 12 years, including 2013, PA Consulting Group certified We Energies' process for collecting, analyzing, verifying and reporting reliability for its accuracy and completeness. As was done in past years, the customer count at the circuit level was reviewed and updated. These updated customer numbers were used in reporting of 2013 reliability performance. For 2013, a customer count of 1,132,204 We Energies electric customer accounts was used to compute reliability indices.

A review of the information contained in this report indicates that the performance of the majority of the distribution system remained relatively the same when compared to years prior to 2013. This report graphically presents various causes of the outages affecting the distribution system and includes monthly trends. It is reported using unplanned and sustained outage data that includes all outage causes except where noted. It examines outage duration, response time, and momentary interruption issues based on recloser and circuit breaker operations counts. It contains a section on CAIDI improvement, defining and explaining CAIDI's role in reliability. This report contains information on the progress of various reliability-related programs designed to identify portions of the system where improvement is most needed, and then to take corrective action, as required, to improve the system. The ultimate goal is providing acceptable service to We Energies customers.

*Computer Aided Distribution OPeration System

I. Transmission Events

Below is a listing of transmission events by month. Months with no activity are not shown.

There were two Transmission related outages during the month of **May**.

A transmission related outage occurred in the Iron Range Area that began at 12:42 PM on May 15, 2013. This affected 1,587 customers originating from the Greenstone Substation with outage durations greater than five minutes, for a total of 360,249 customer minutes of interruption.

A second transmission related outage also occurred in the Iron Range Area that began at 5:16 PM on May 30, 2013. This affected 1,588 customers, again originating from the Greenstone Substation with outage durations greater than five minutes, for a total of 620,540 customer minutes of interruption.

There was one Transmission related outage during the month of **July**.

A transmission related outage occurred in the Iron Range Area that began at 1:10 AM on July 7, 2013. This affected 1,582 customers originating from the Greenstone Substation with outage durations greater than five minutes, for a total of 669,186 customer minutes of interruption.

There was one Transmission related outage during the month of **August**.

A transmission related outage occurred in the Iron Range Area that began at 2:00 AM on August 26, 2013. This affected 1,587 customers originating from the Greenstone Substation with outage durations greater than five minutes, for a total of 807,783 customer minutes of interruption.

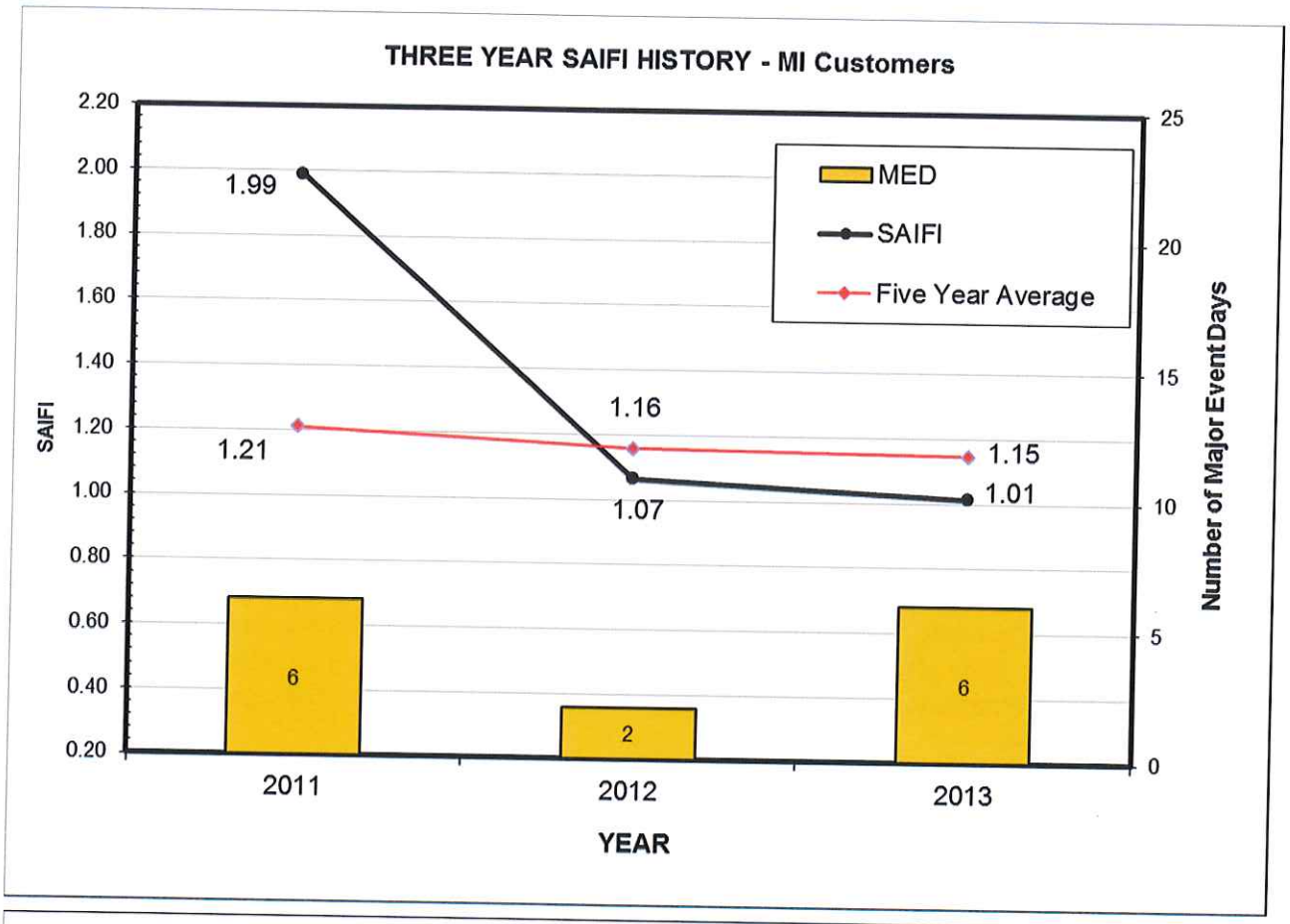
II. RELIABILITY INDICES

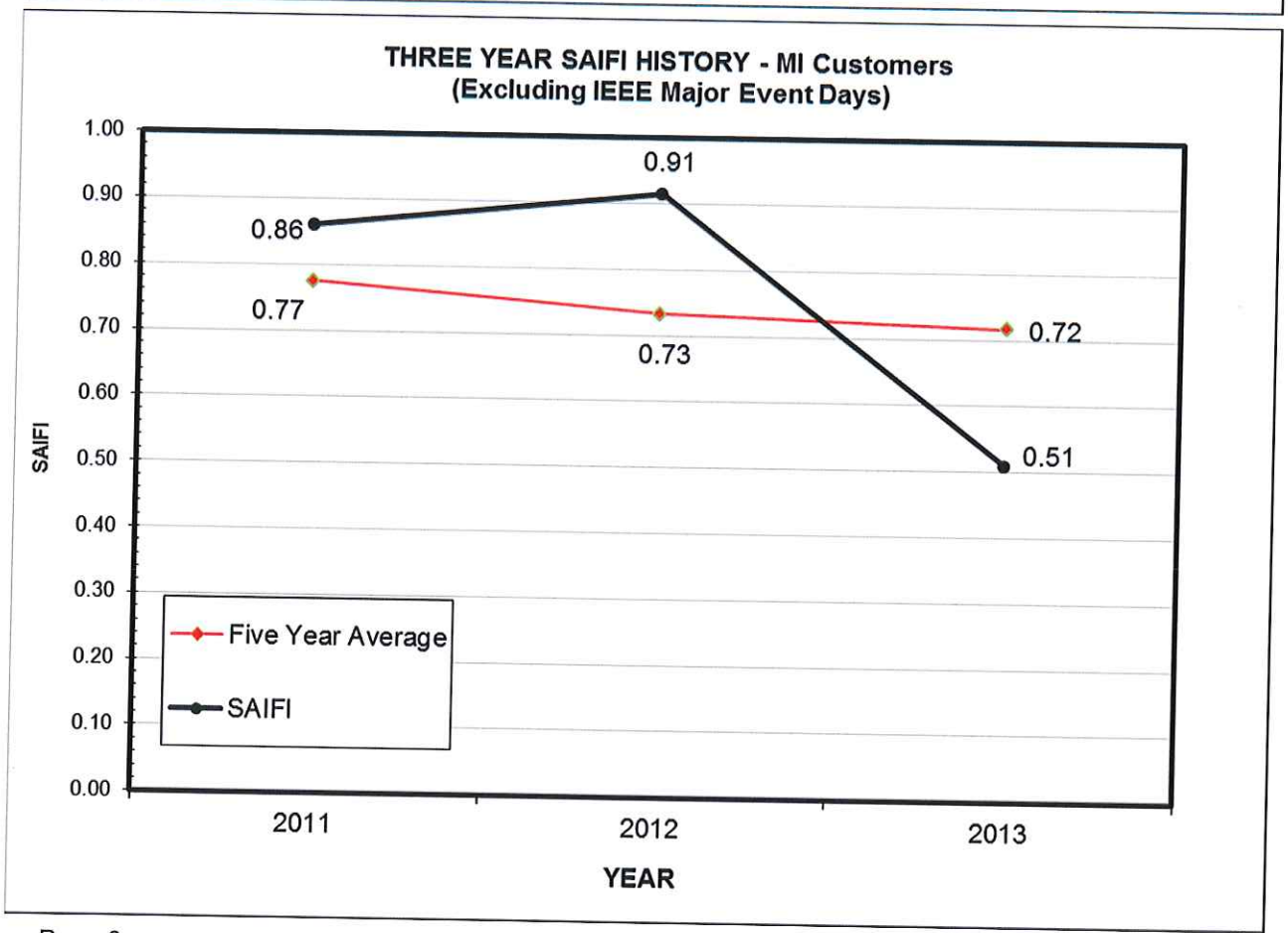
Indices Explanation

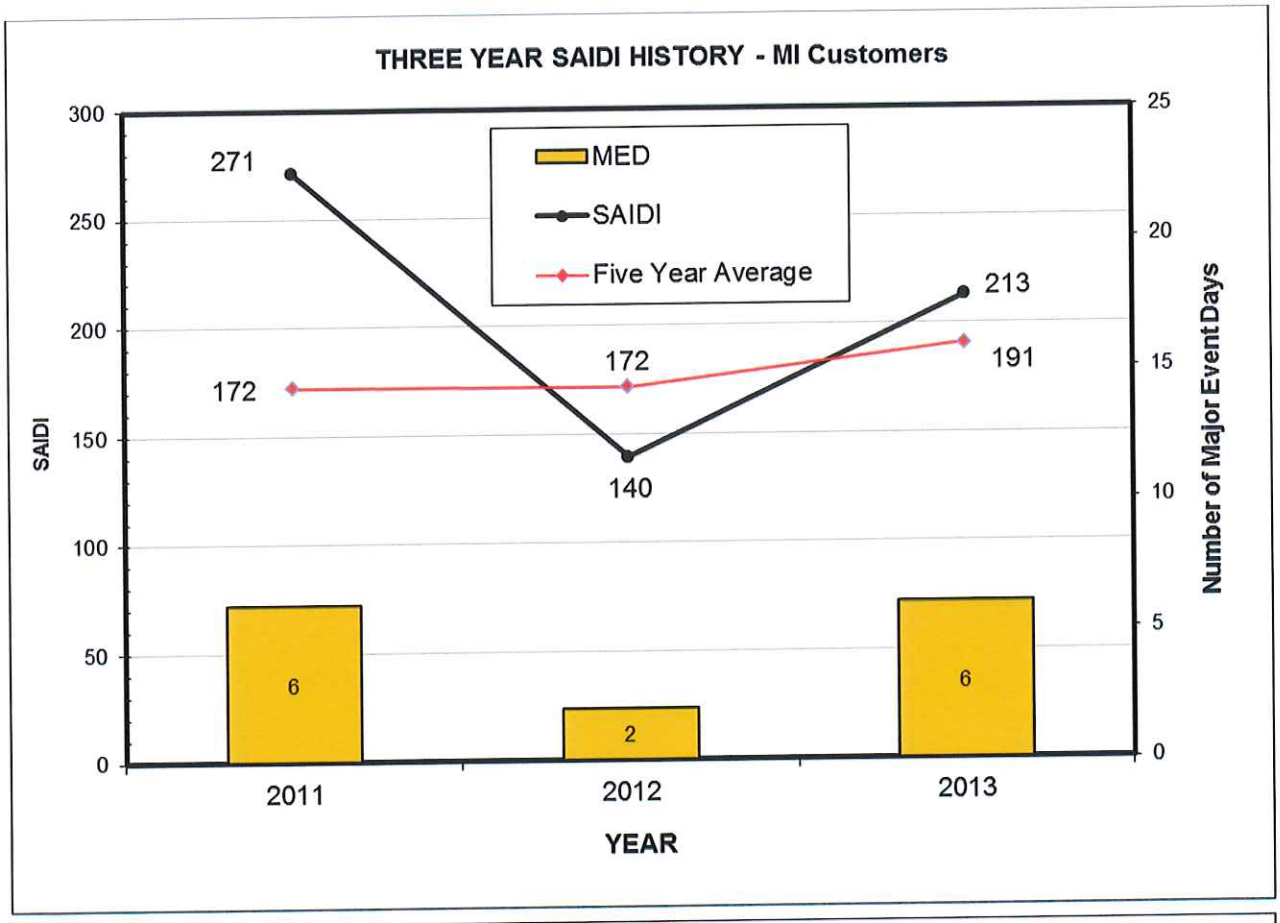
We Energies uses the industry standard distribution system reliability indices SAIFI, SAIDI, CAIDI, and ASAI to measure and track performance. The charts on the following pages display the three-year historical performance of the distribution system for these indices. Each chart shows the yearly reliability index values as well as the rolling five-year average. The top chart on each page shows the indices with all sustained outages included. The bottom chart shows the indices without Major Event Days. The 2013 indices in this report are based on a count of 27,**730** customers of We Energies' Michigan customers.

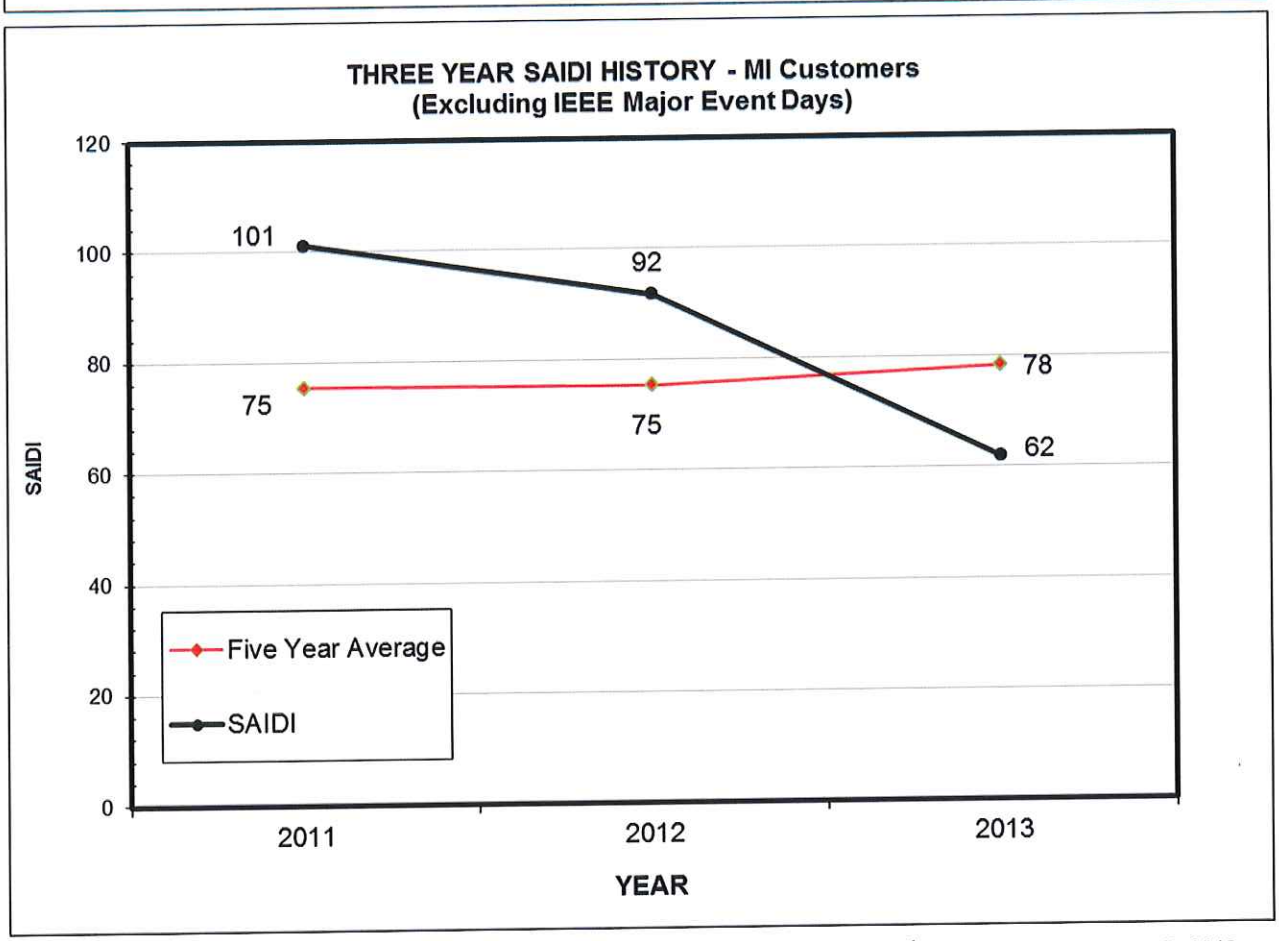
As described in the Definitions section of this report, SAIFI is a measure that is designed to give an indication of the frequency of outages that affect customers. SAIDI, CAIDI, and ASAI are measures that are designed to give indications of the duration of outages that affect customers.

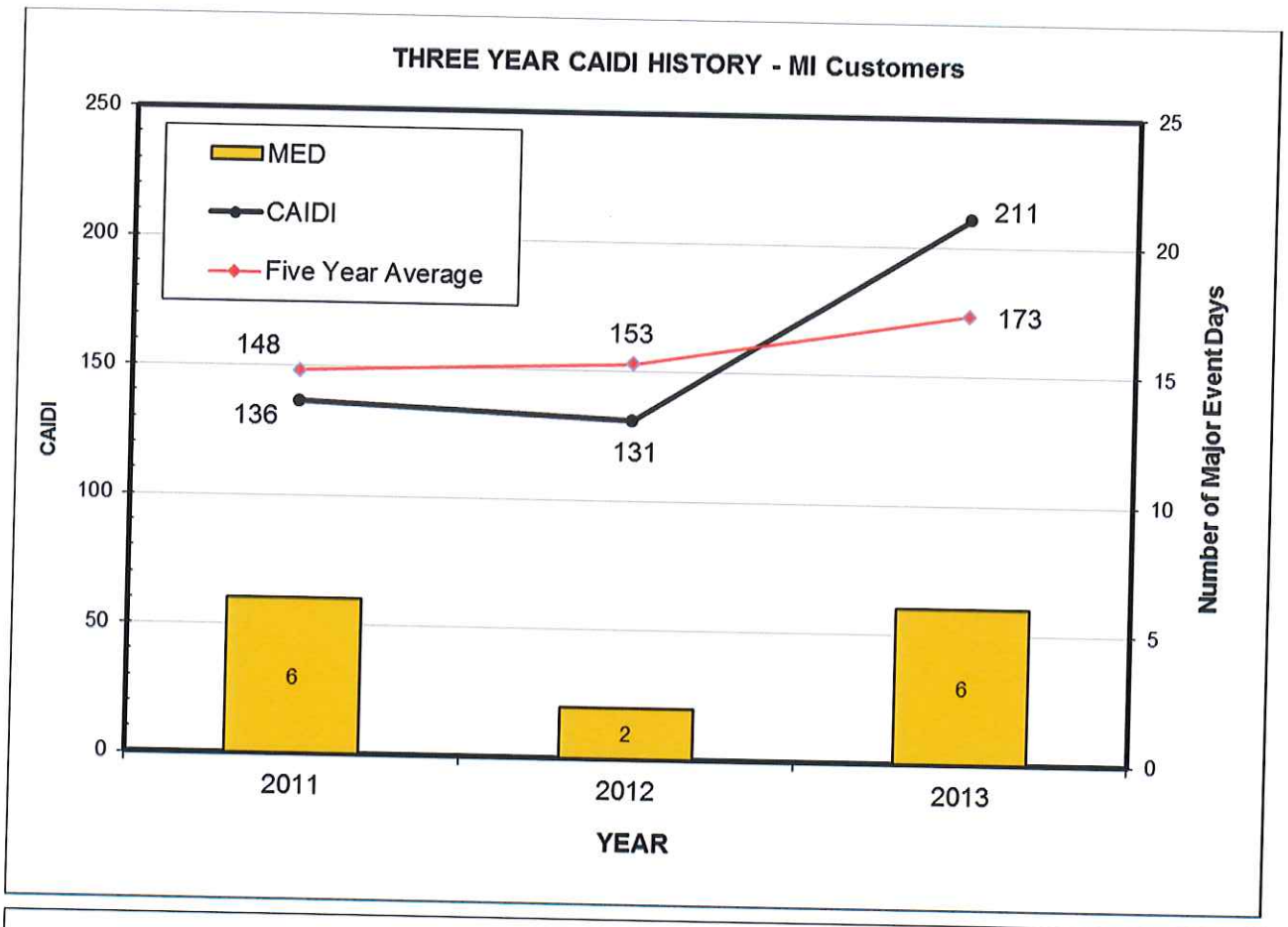
We Energies participates in various reliability benchmarking studies. We Energies is typically a top quartile performer for SAIFI, a second/third quartile performer for SAIDI, and a second/third quartile performer for CAIDI. This is according to surveys based on electrical system performance *prior* to 2013. It is expected that We Energies' SAIFI index will remain in the top quartile, and make strides to improve SAIDI, CAIDI, and ASAI in future benchmarking studies.

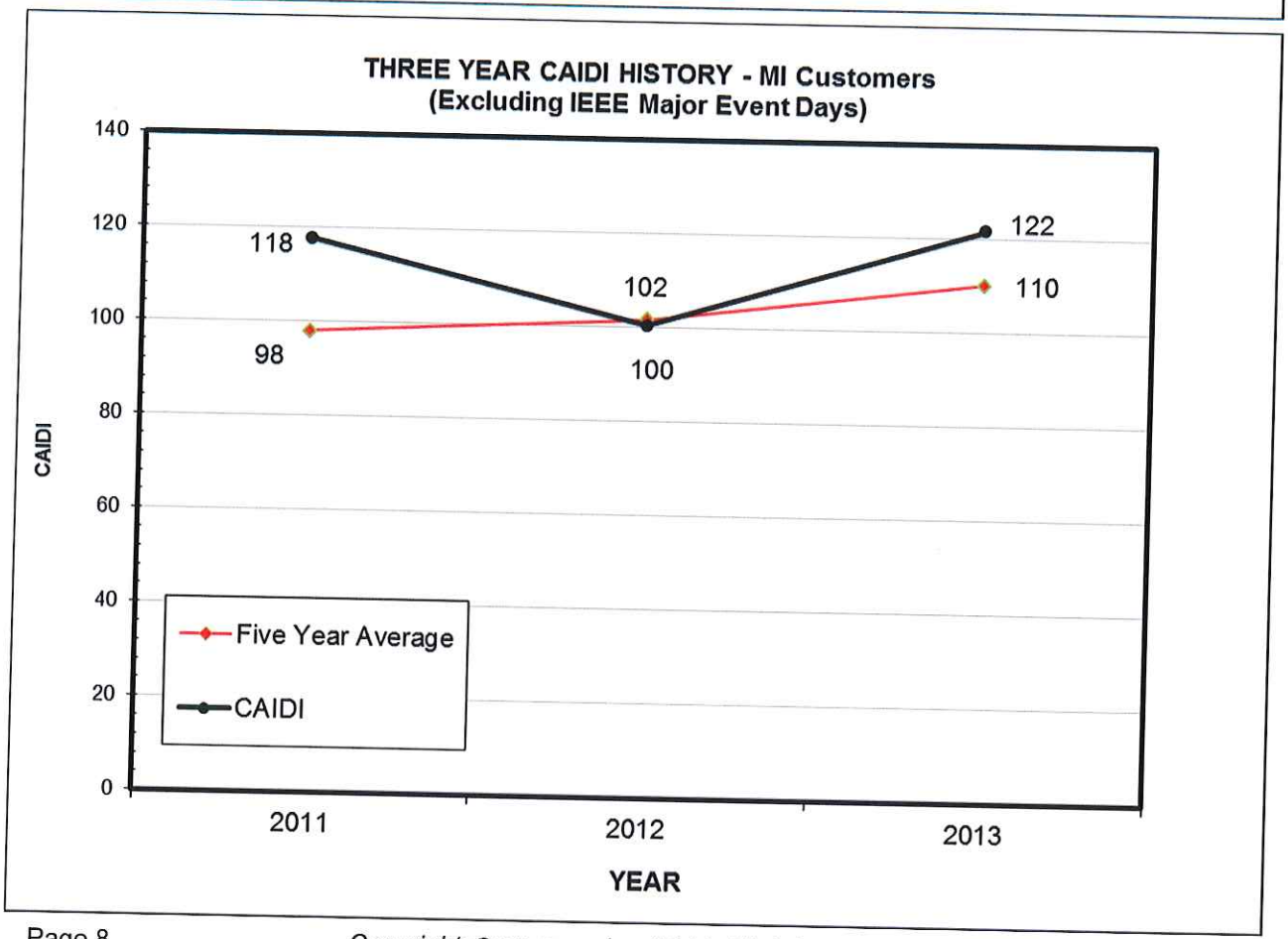


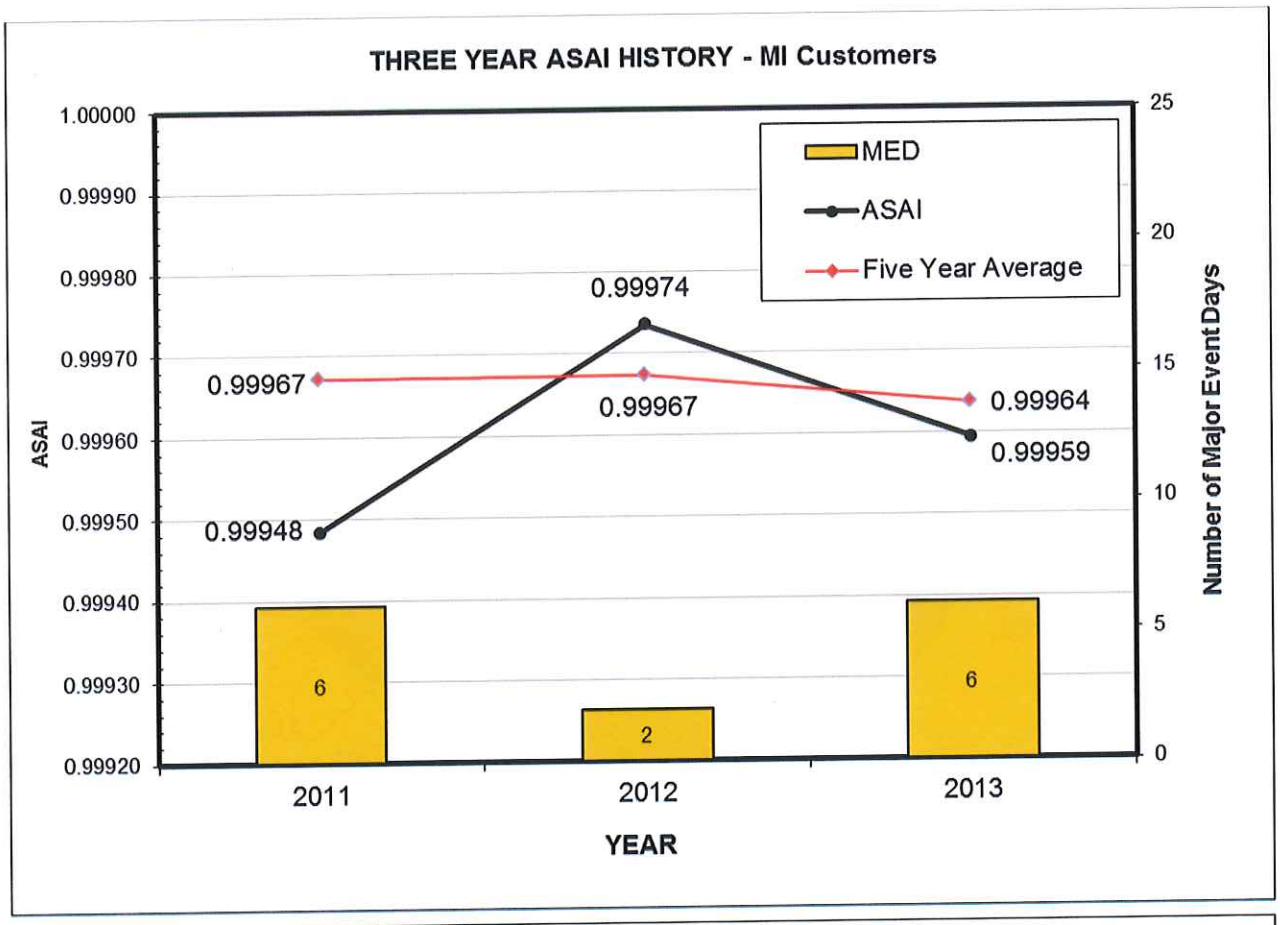


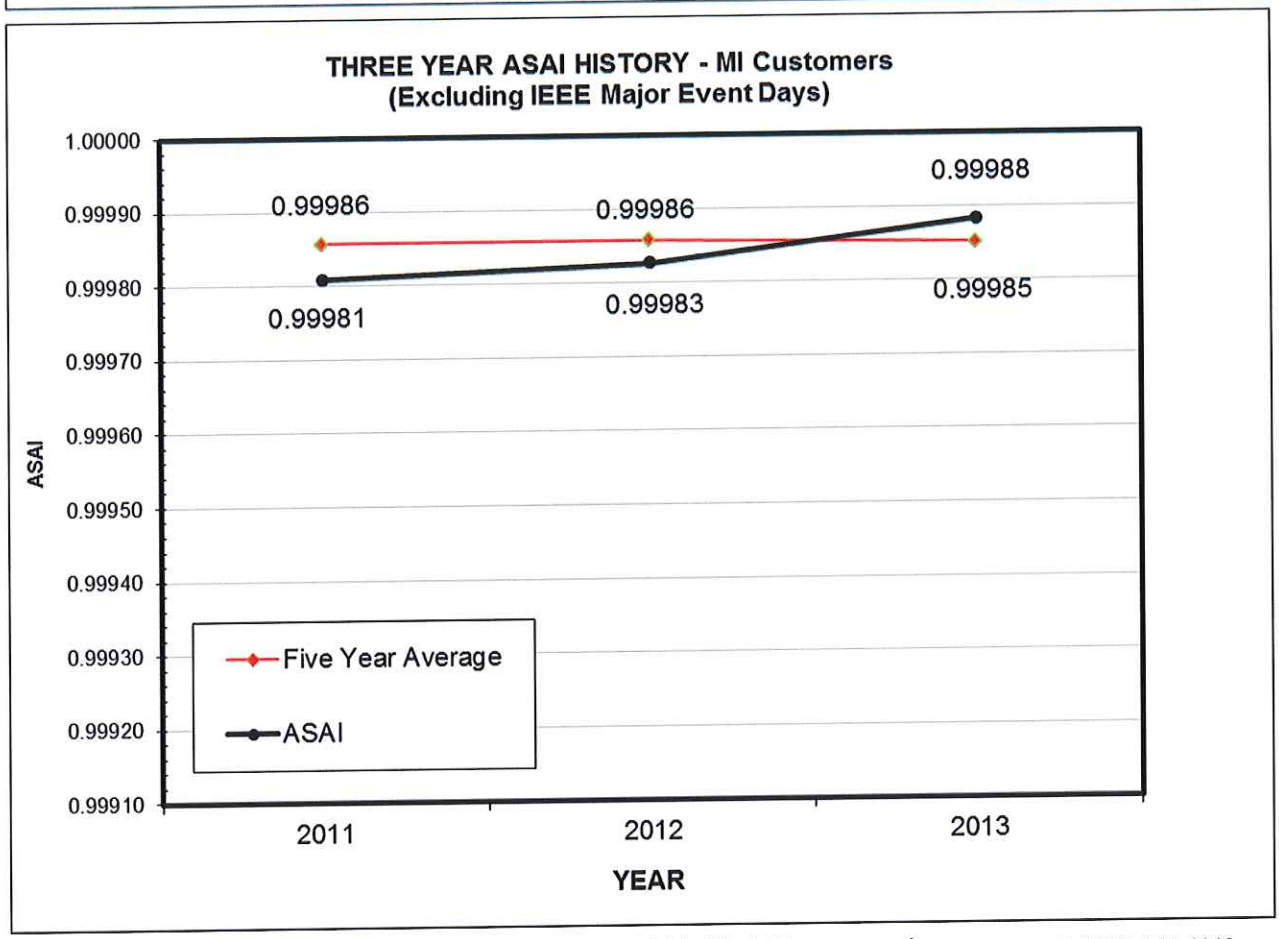






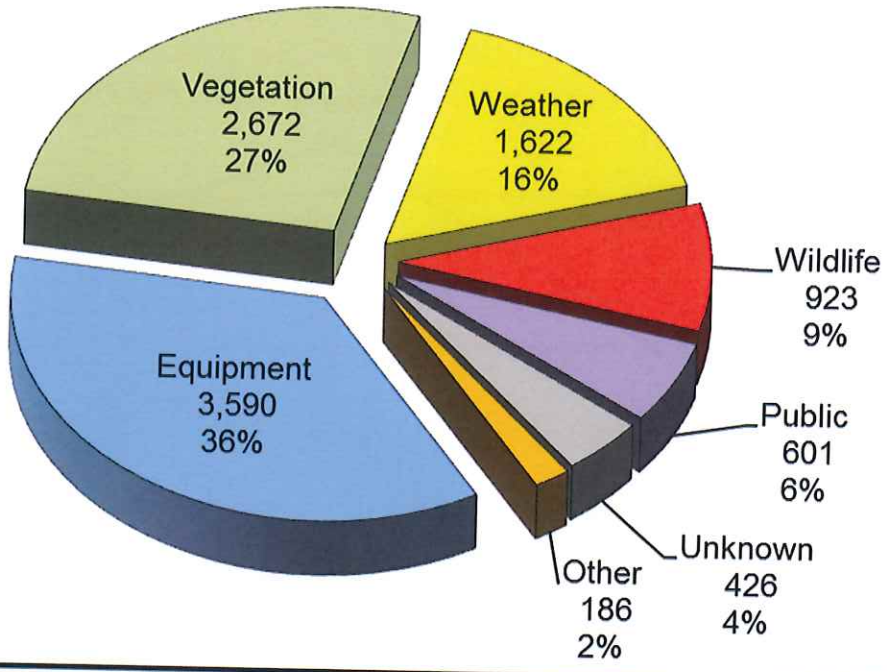






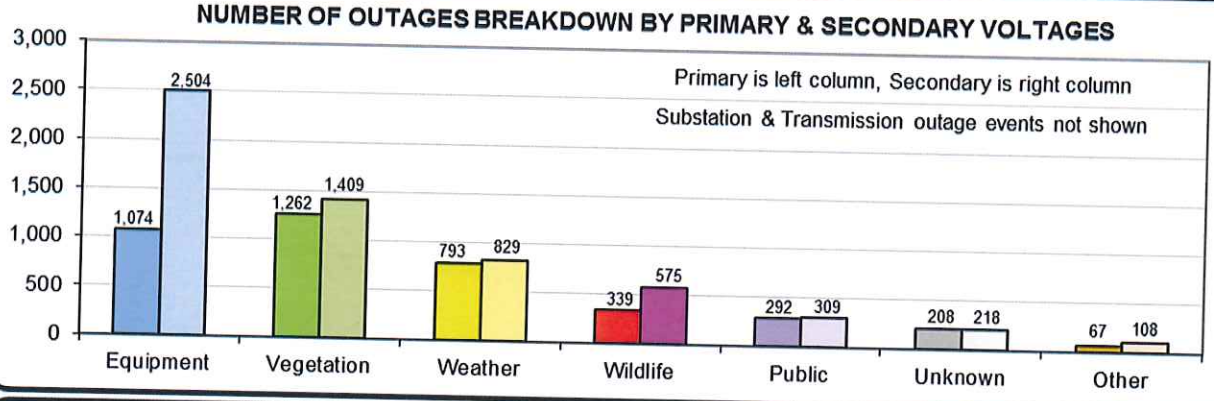
III. CAUSES OF OUTAGE EVENTS

2013 OUTAGES BY CAUSE

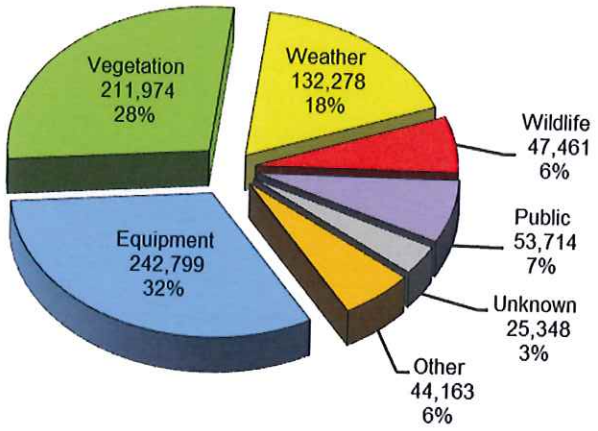


NUMBER OF OUTAGES	
Primary	4,035
Secondary	5,952
Substation	29
Transmission	4
Total	10,020

NUMBER OF OUTAGES BREAKDOWN BY PRIMARY & SECONDARY VOLTAGES

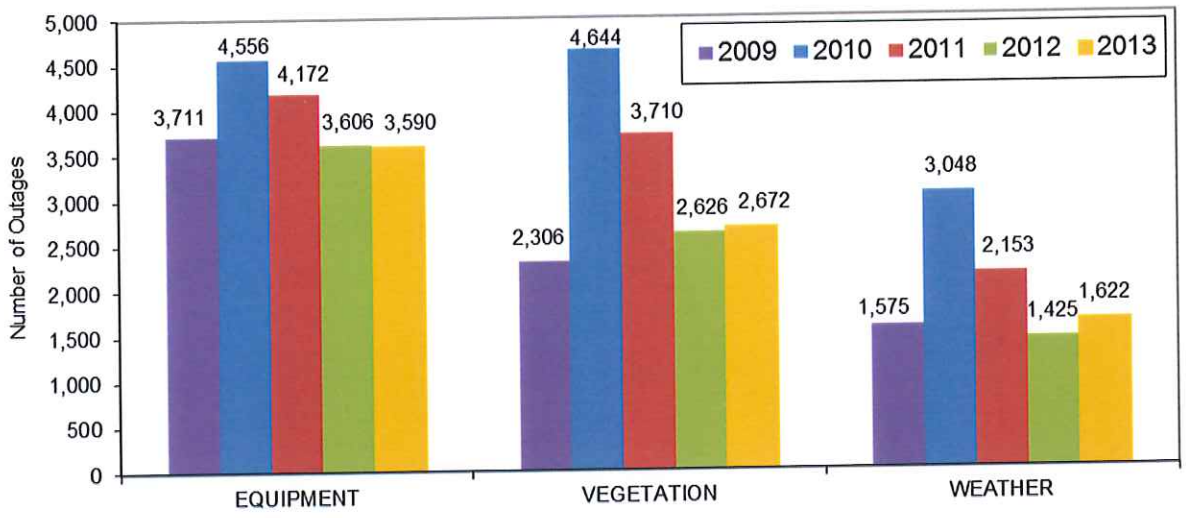


2013 CI BY CAUSE

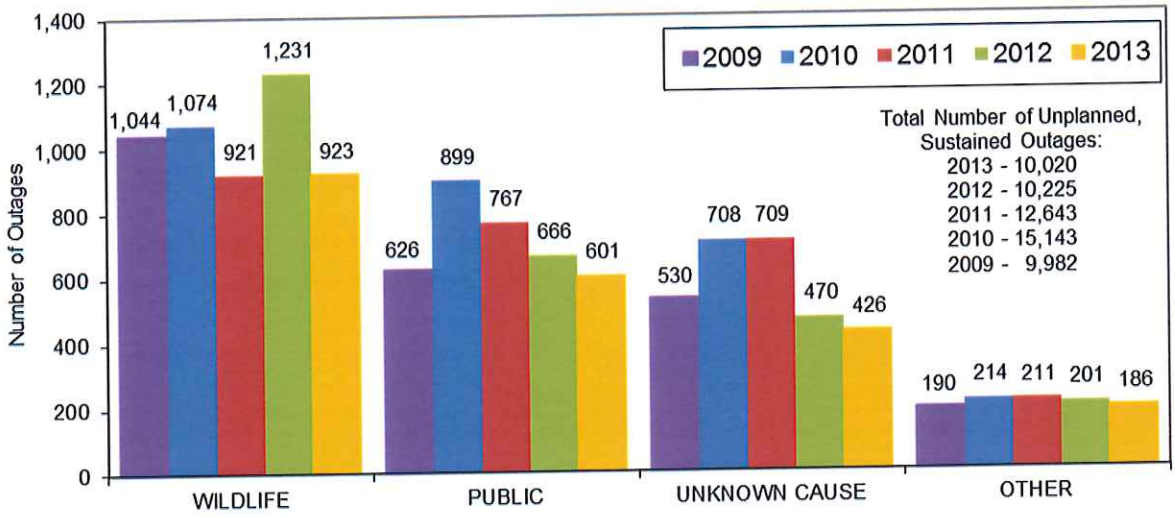


NUMBER OF CI's	
Primary	658,353
Secondary	26,790
Substation	66,250
Transmission	6,344
Total	757,737

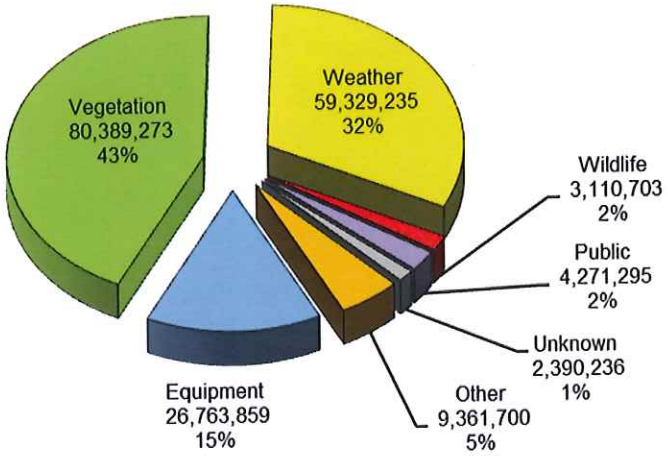
FIVE YEAR OUTAGE CAUSES (PART 1)



FIVE YEAR OUTAGE CAUSES (PART 2)

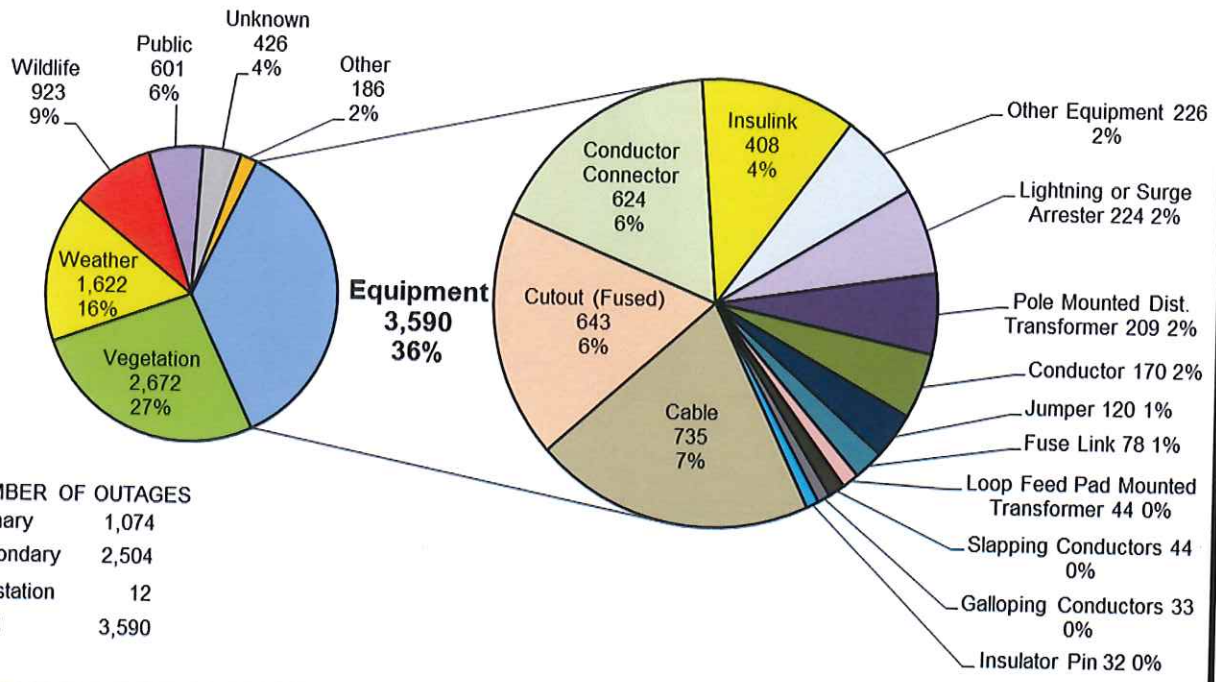


2013 CMI BY CAUSE



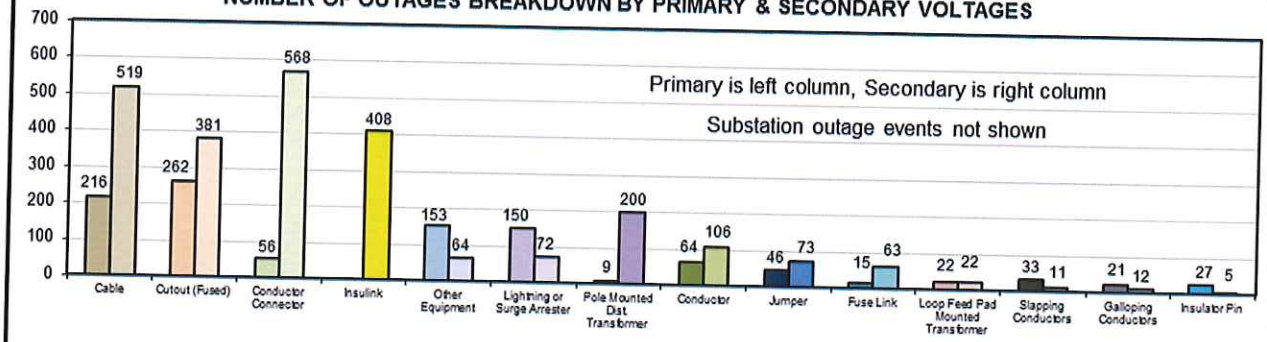
NUMBER OF CMI's	
Primary	169,112,033
Secondary	4,940,249
Substation	9,106,261
Transmission	2,457,758
Total	185,616,301

2013 OUTAGE CAUSES- EQUIPMENT FAILURE / DETERIORATION

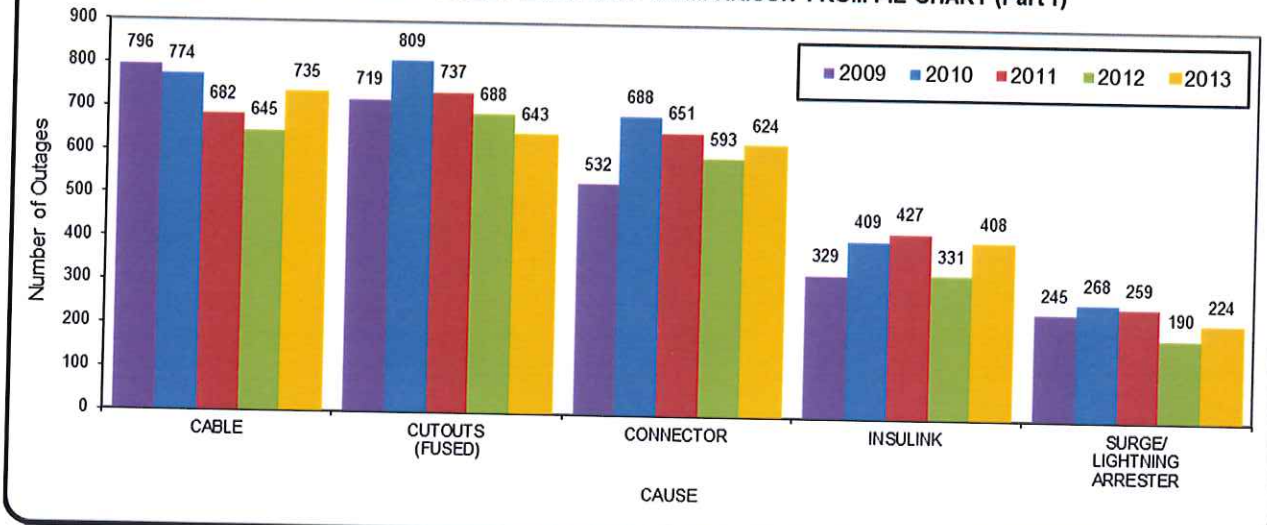


NUMBER OF OUTAGES	
Primary	1,074
Secondary	2,504
Substation	12
Total	3,590

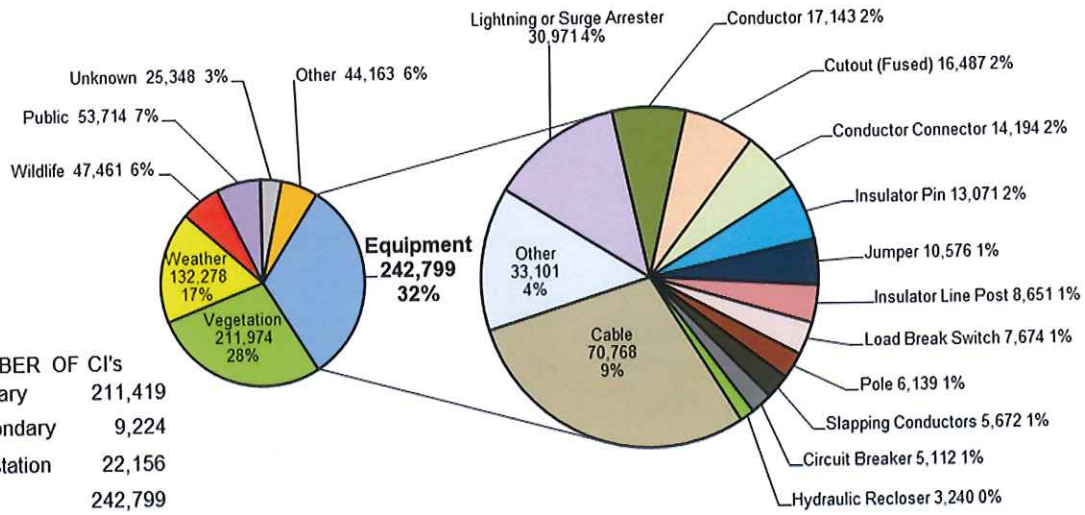
NUMBER OF OUTAGES BREAKDOWN BY PRIMARY & SECONDARY VOLTAGES



FIVE YEAR OUTAGE CAUSES - FAILED EQUIPMENT COMPARISON FROM PIE CHART (Part 1)

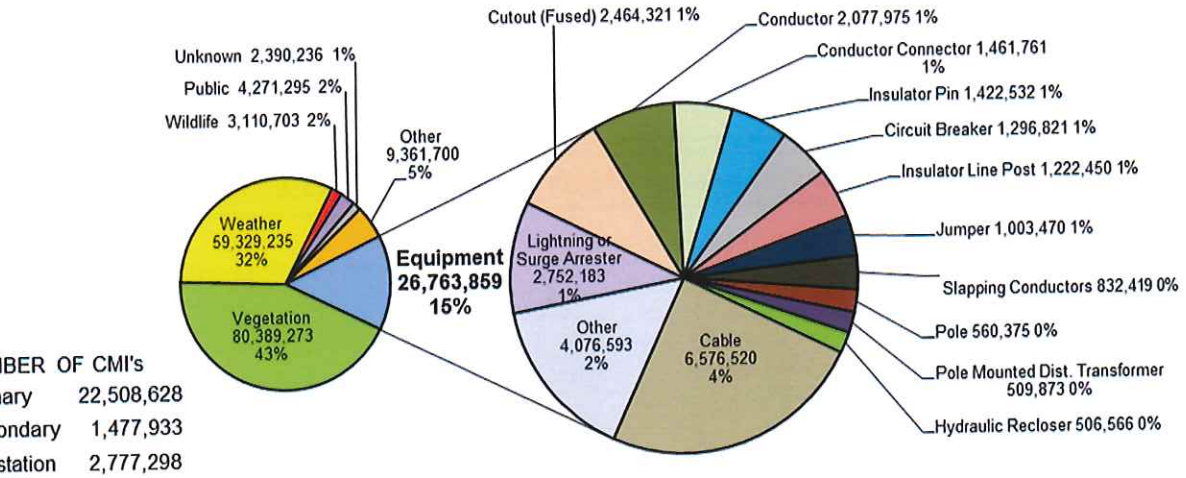


2013 OUTAGE CAUSES- EQUIPMENT FAILURE / DETERIORATION - CI



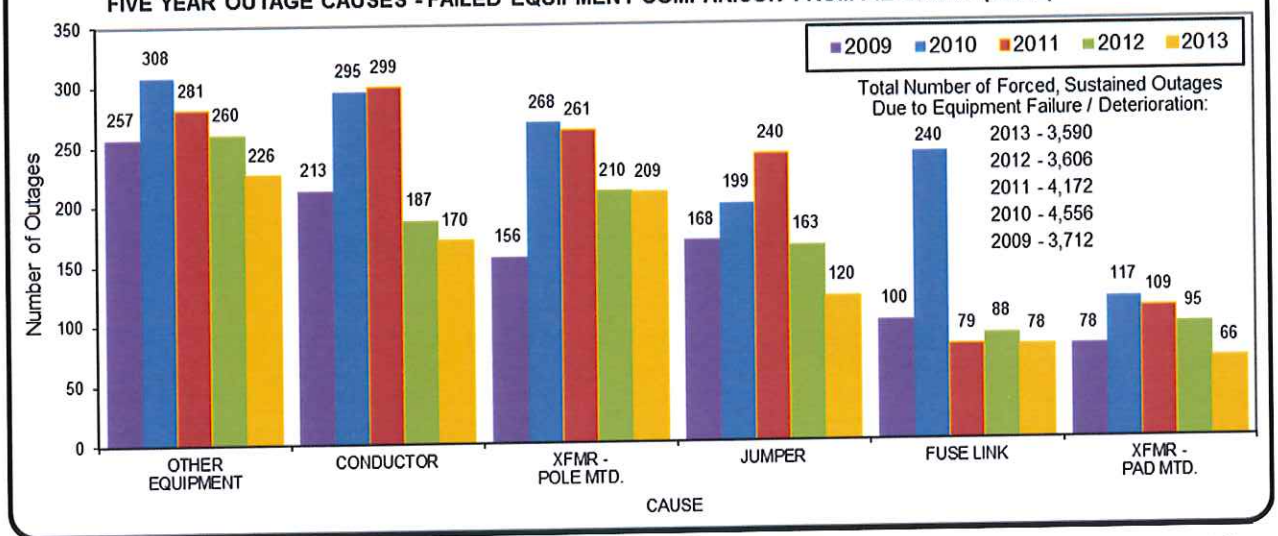
NUMBER OF CI's	
Primary	211,419
Secondary	9,224
Substation	22,156
Total	242,799

2013 OUTAGE CAUSES- EQUIPMENT FAILURE / DETERIORATION - CMI

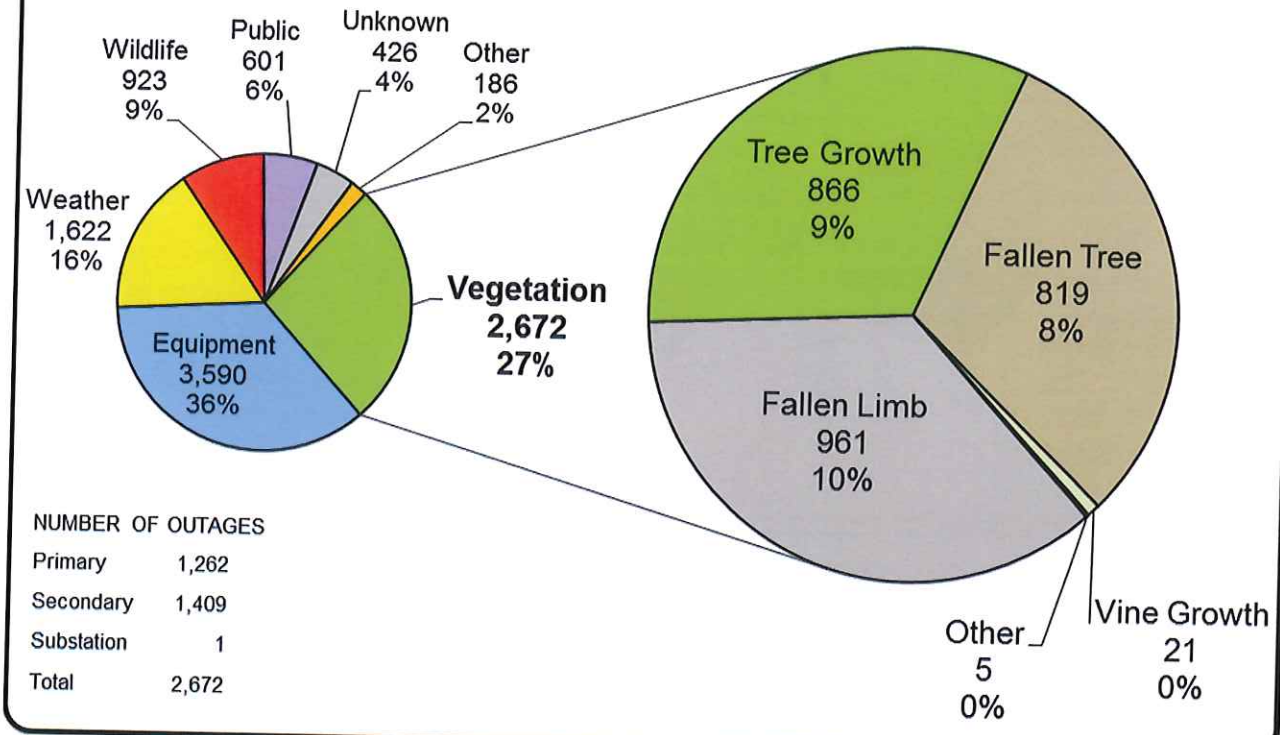


NUMBER OF CMI's	
Primary	22,508,628
Secondary	1,477,933
Substation	2,777,298
Total	26,763,859

FIVE YEAR OUTAGE CAUSES - FAILED EQUIPMENT COMPARISON FROM PIE CHART (Part 2)

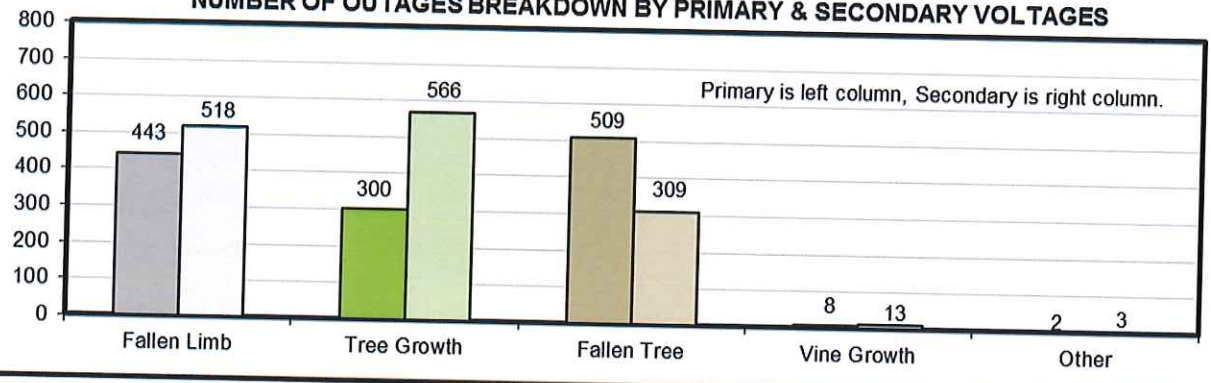


2013 OUTAGE CAUSES - VEGETATION

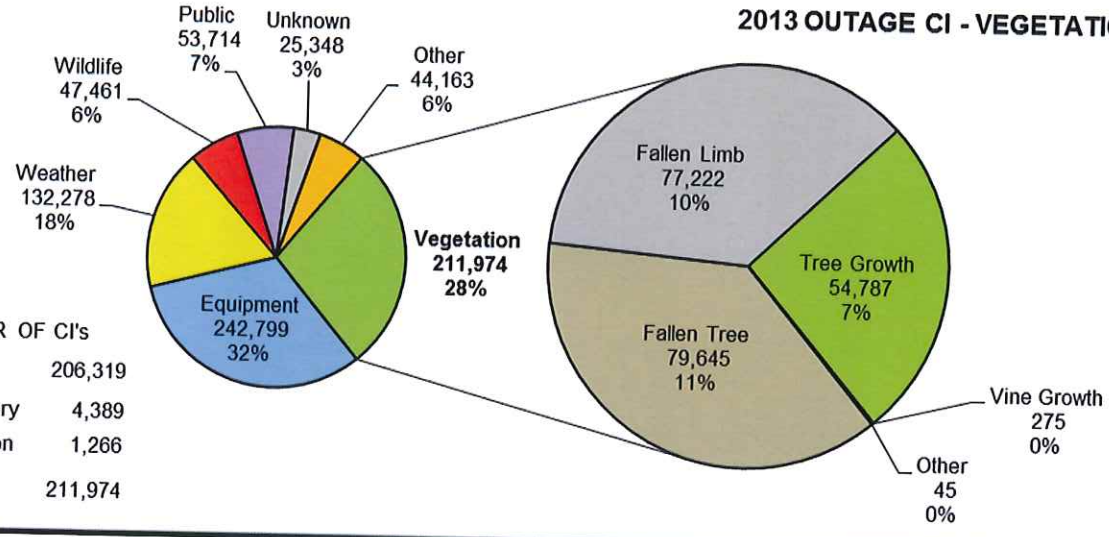


NUMBER OF OUTAGES	
Primary	1,262
Secondary	1,409
Substation	1
Total	2,672

NUMBER OF OUTAGES BREAKDOWN BY PRIMARY & SECONDARY VOLTAGES

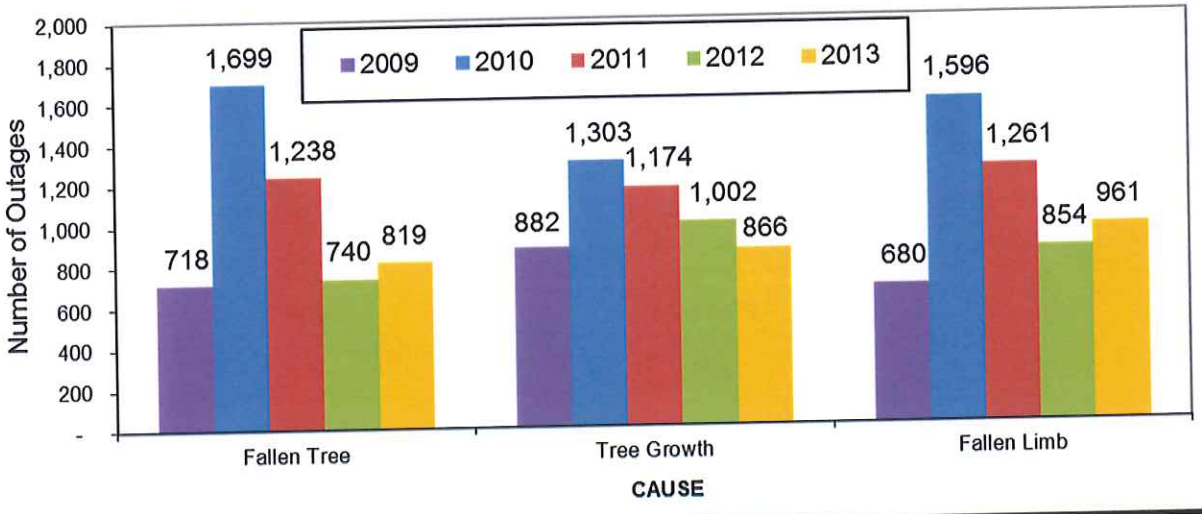


2013 OUTAGE CI - VEGETATION

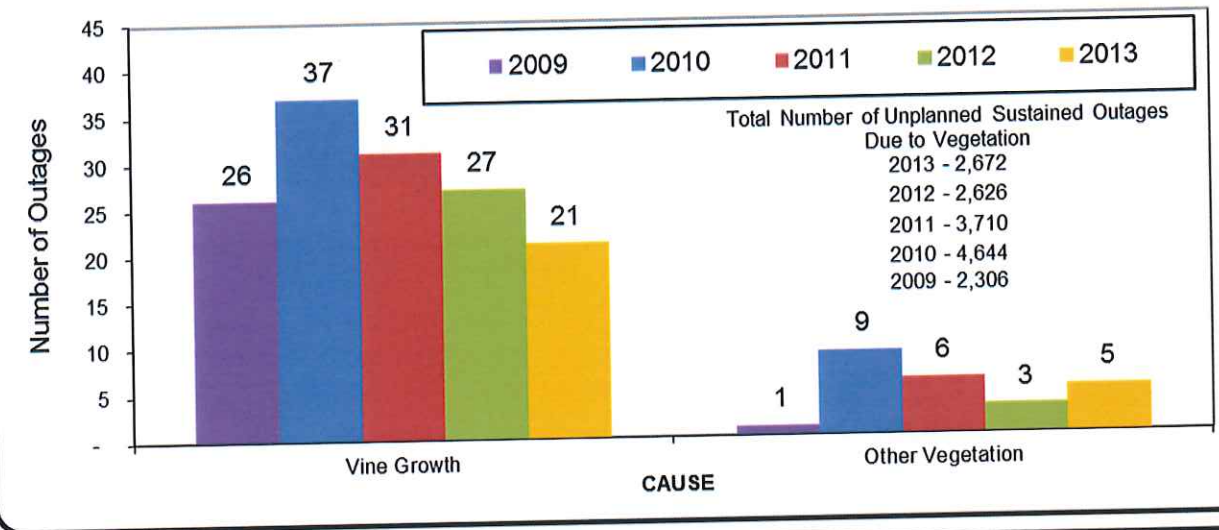


NUMBER OF CI's	
Primary	206,319
Secondary	4,389
Substation	1,266
Total	211,974

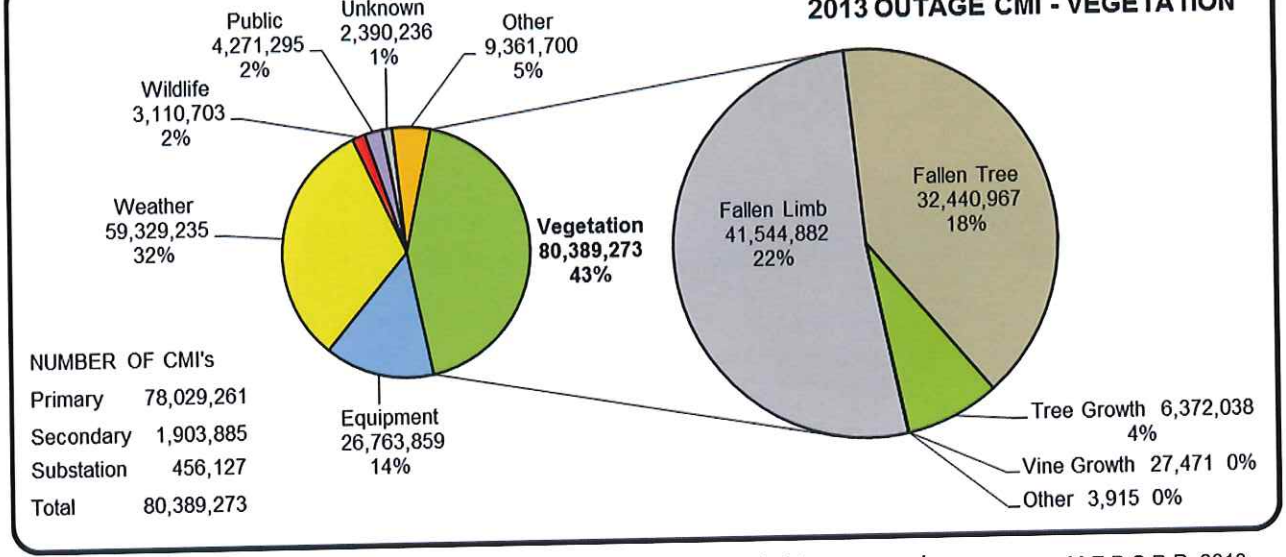
FIVE YEAR OUTAGE CAUSES - VEGETATION COMPARISON (PART 1)



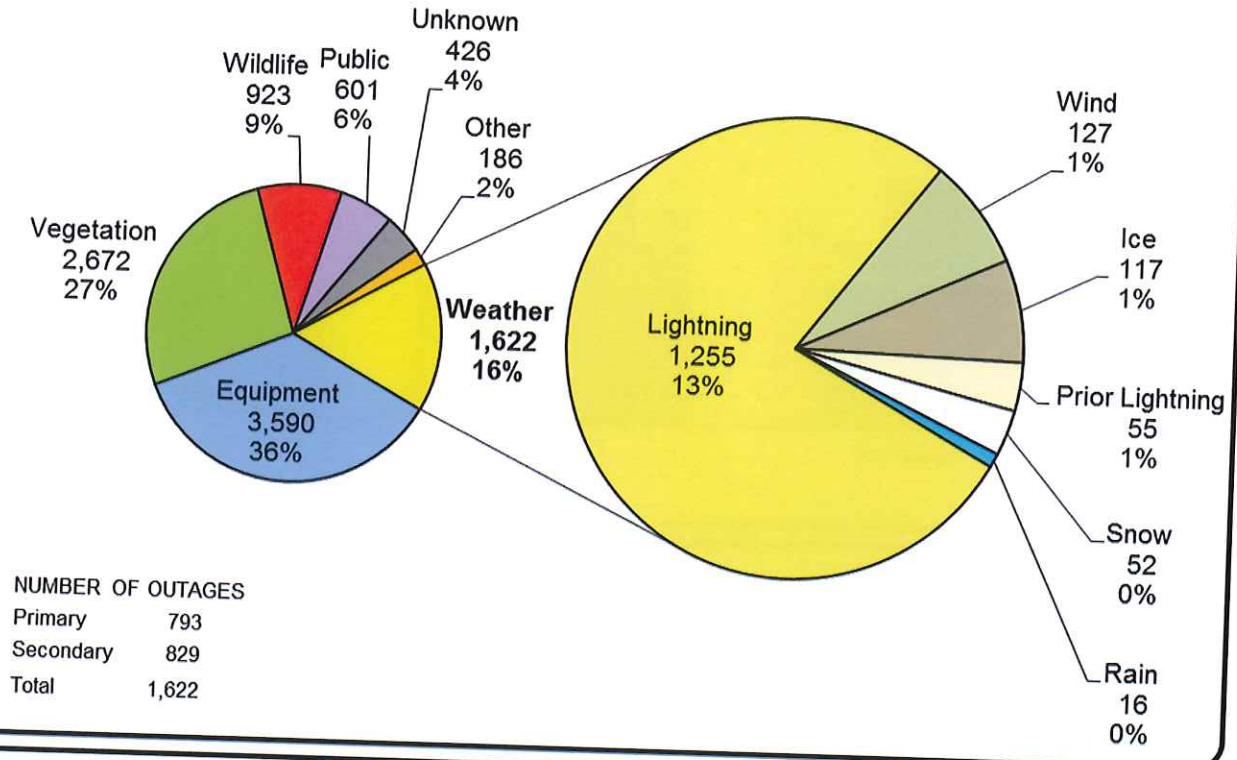
FIVE YEAR OUTAGE CAUSES - VEGETATION COMPARISON (PART 2)



2013 OUTAGE CMI - VEGETATION

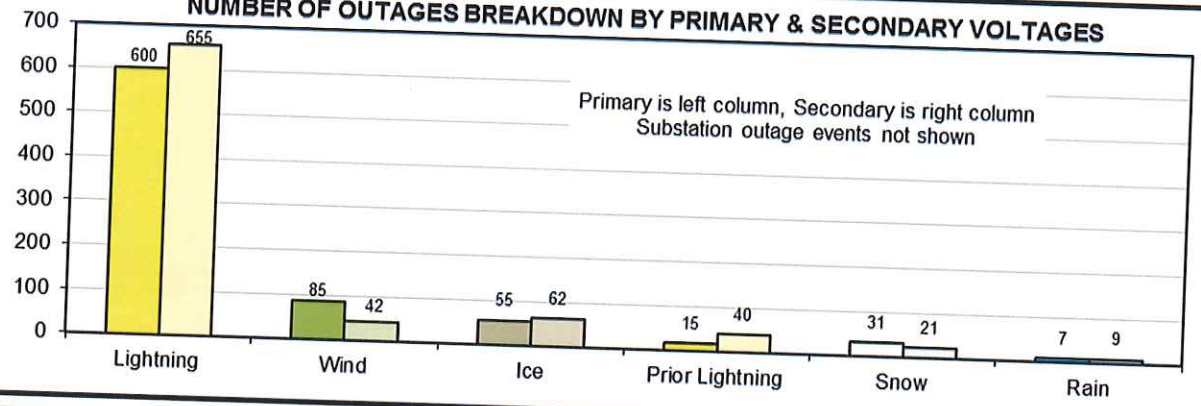


2013 OUTAGE CAUSES - WEATHER

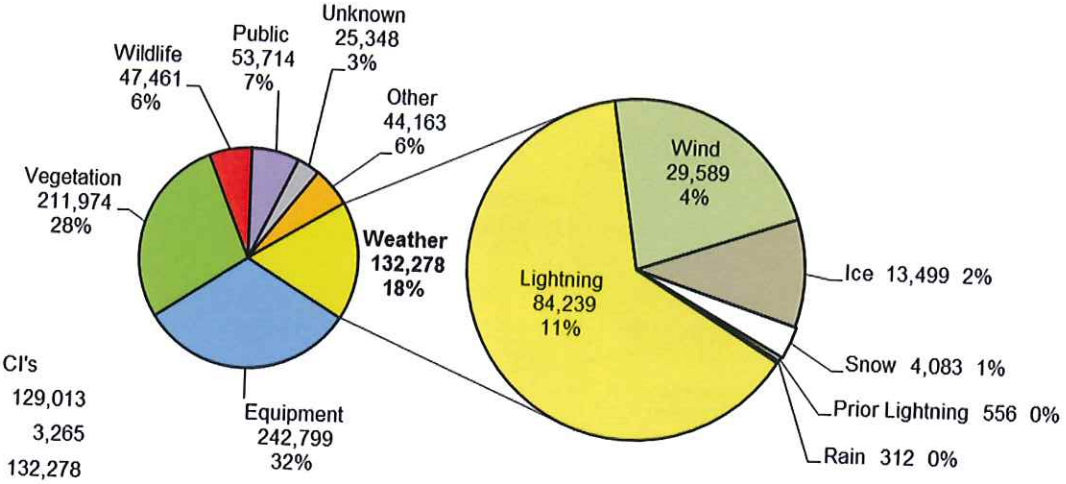


NUMBER OF OUTAGES	
Primary	793
Secondary	829
Total	1,622

NUMBER OF OUTAGES BREAKDOWN BY PRIMARY & SECONDARY VOLTAGES

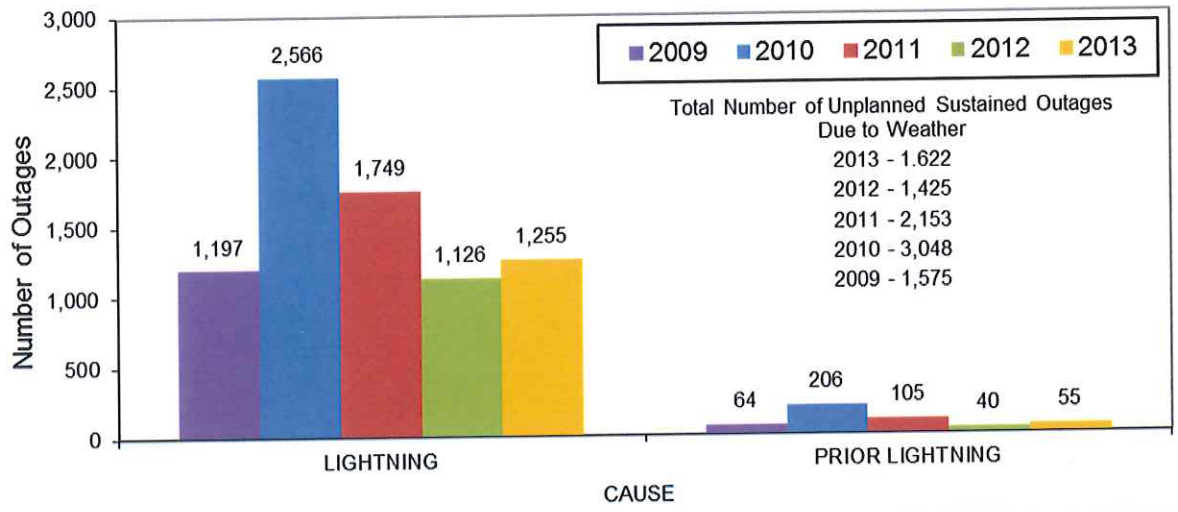


2013 OUTAGE CI - WEATHER

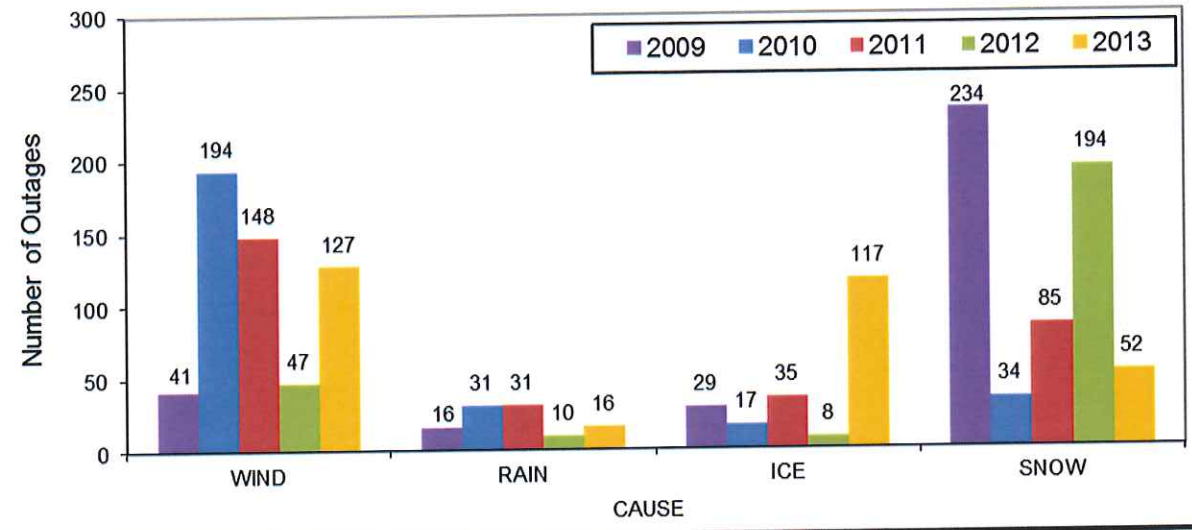


NUMBER OF CI's	
Primary	129,013
Secondary	3,265
Total	132,278

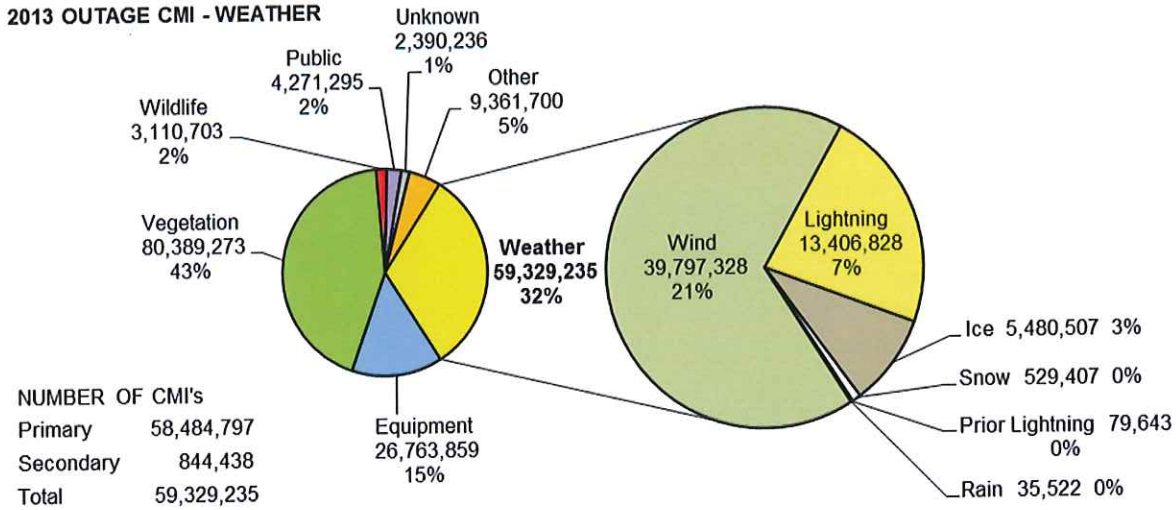
FIVE YEAR OUTAGE CAUSES - WEATHER COMPARISON (PART 1)



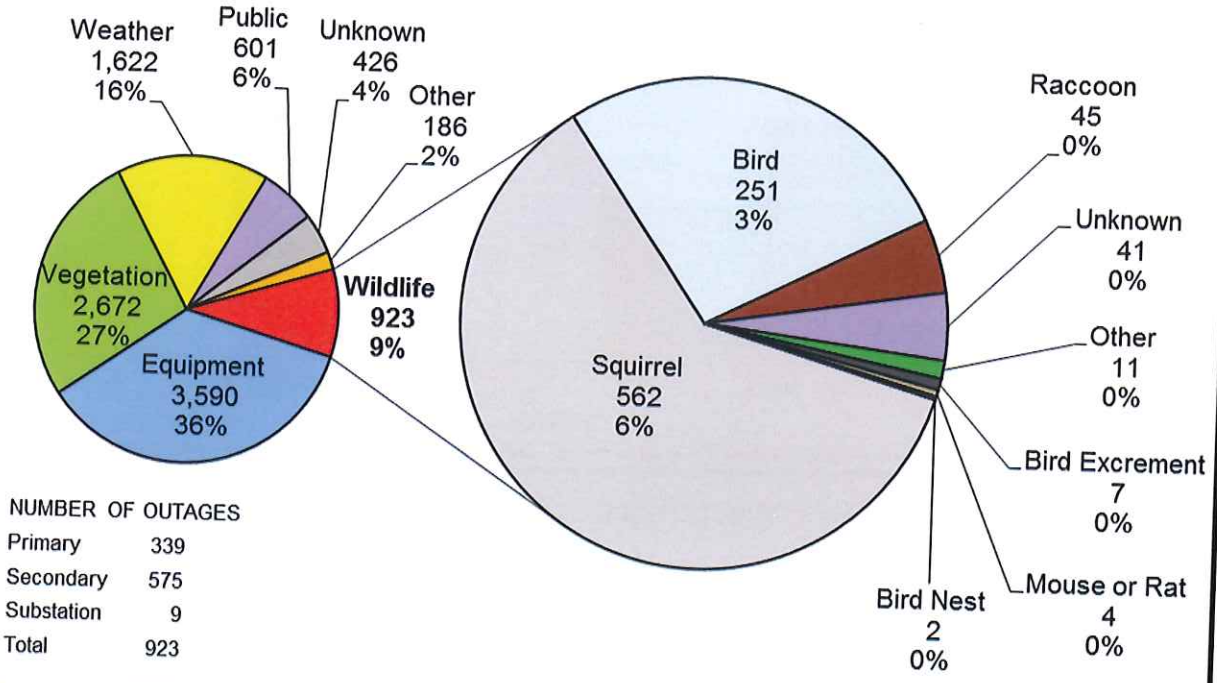
FIVE YEAR OUTAGE CAUSES - WEATHER COMPARISON (PART 2)



2013 OUTAGE CMI - WEATHER



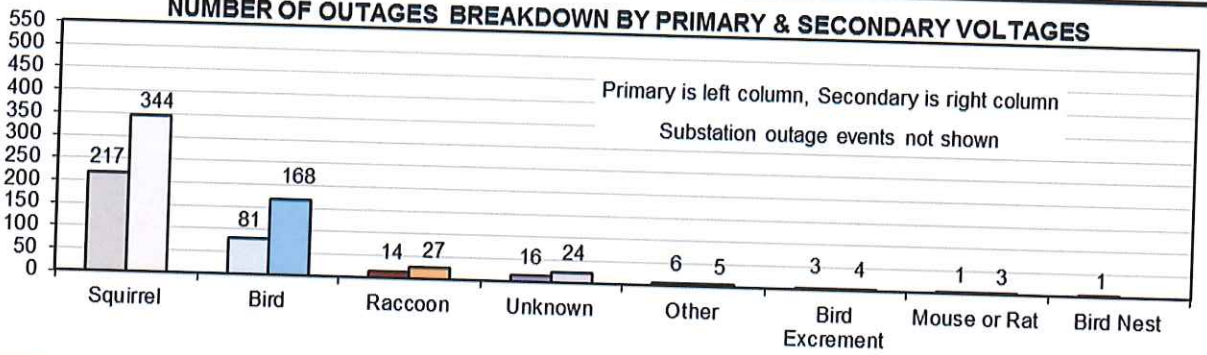
2013 OUTAGE CAUSES - WILDLIFE



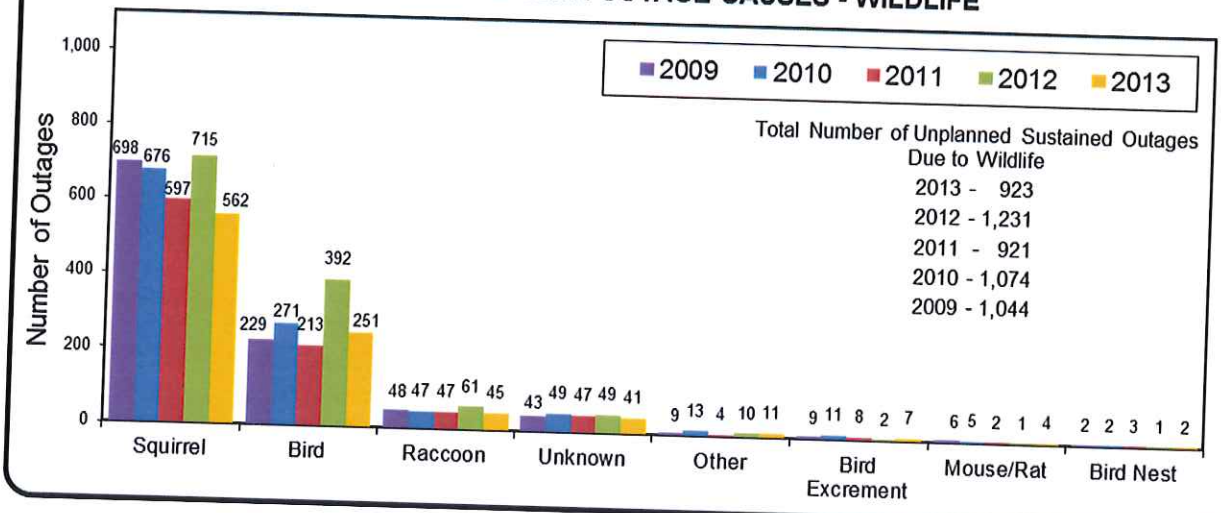
NUMBER OF OUTAGES

Primary	339
Secondary	575
Substation	9
Total	923

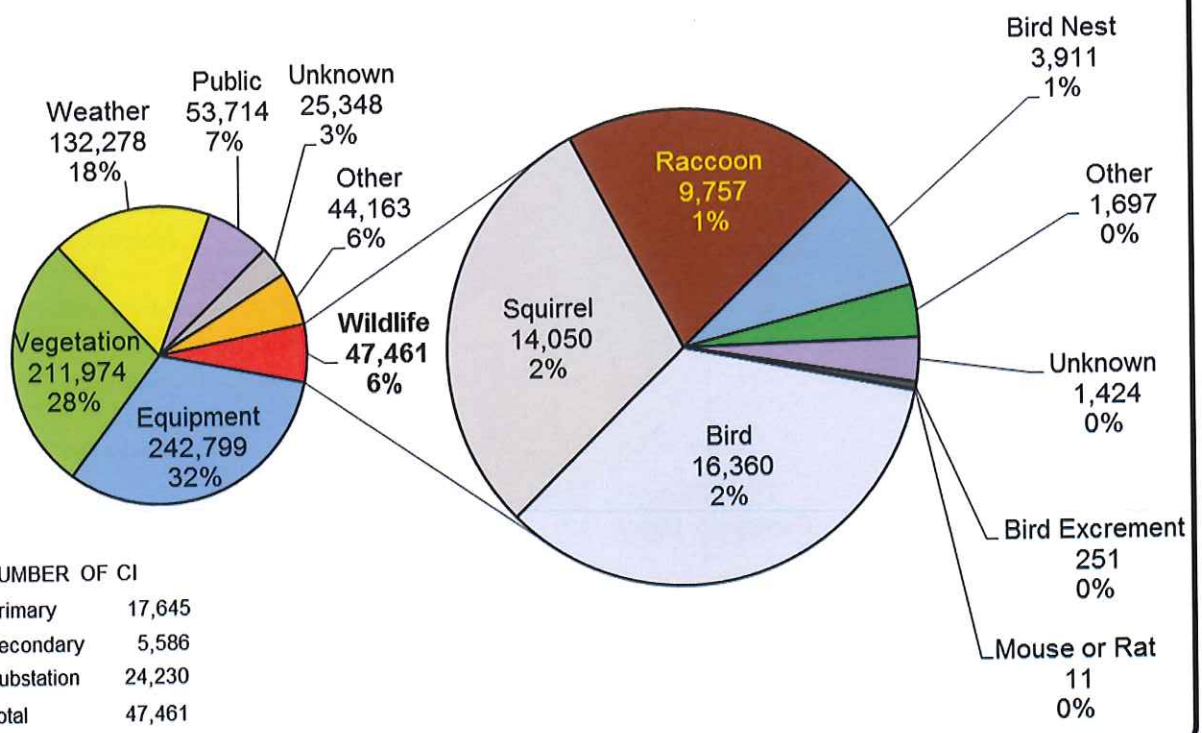
NUMBER OF OUTAGES BREAKDOWN BY PRIMARY & SECONDARY VOLTAGES



FIVE YEAR OUTAGE CAUSES - WILDLIFE



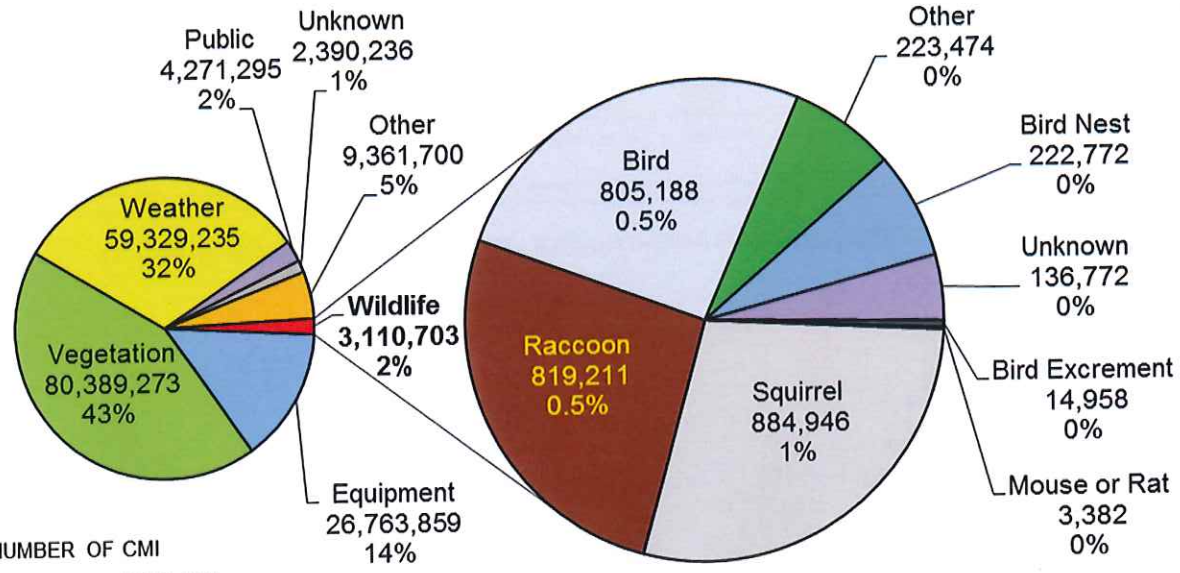
2013 OUTAGE CAUSES - WILDLIFE - CI



NUMBER OF CI

Primary	17,645
Secondary	5,586
Substation	24,230
Total	47,461

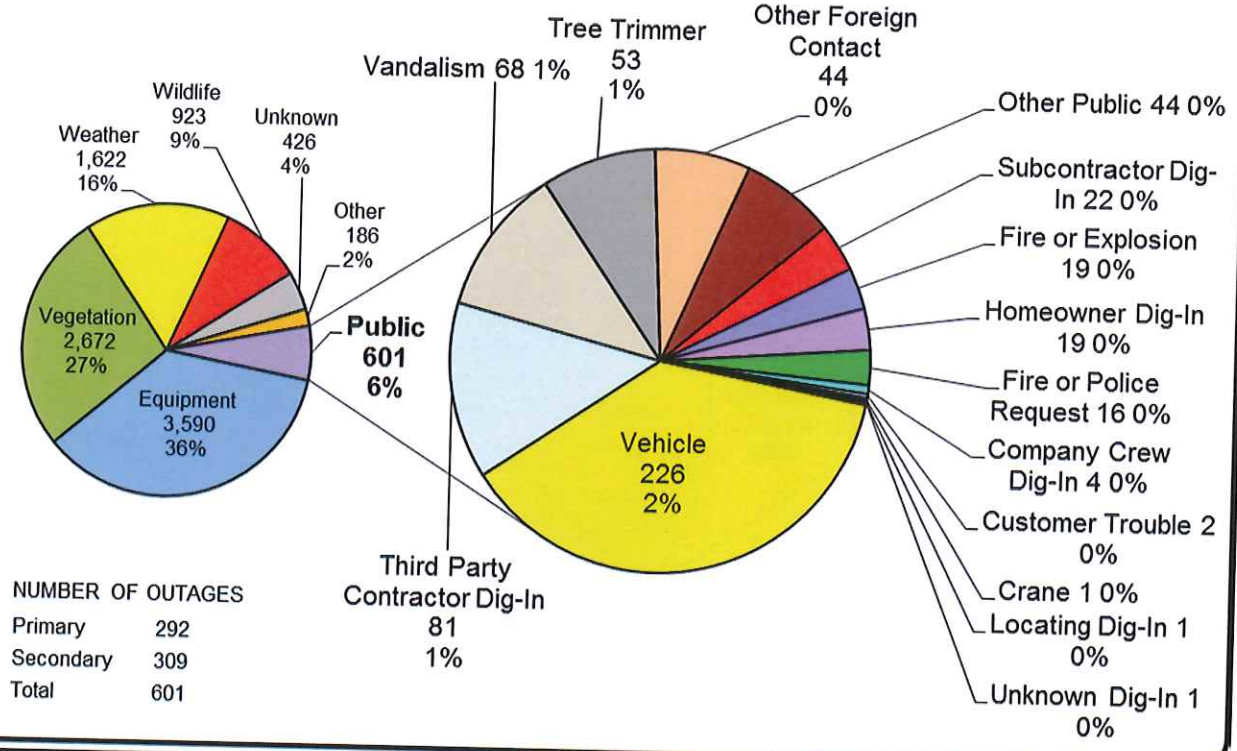
2013 OUTAGE CAUSES - WILDLIFE - CMI



NUMBER OF CMI

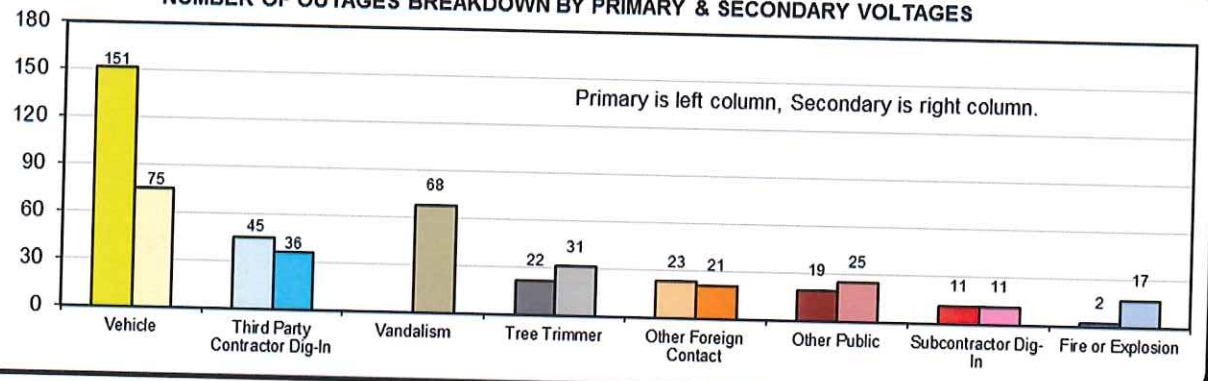
Primary	1,579,617
Secondary	295,475
Substation	1,235,611
Total	3,110,703

2013 OUTAGE CAUSES - PUBLIC

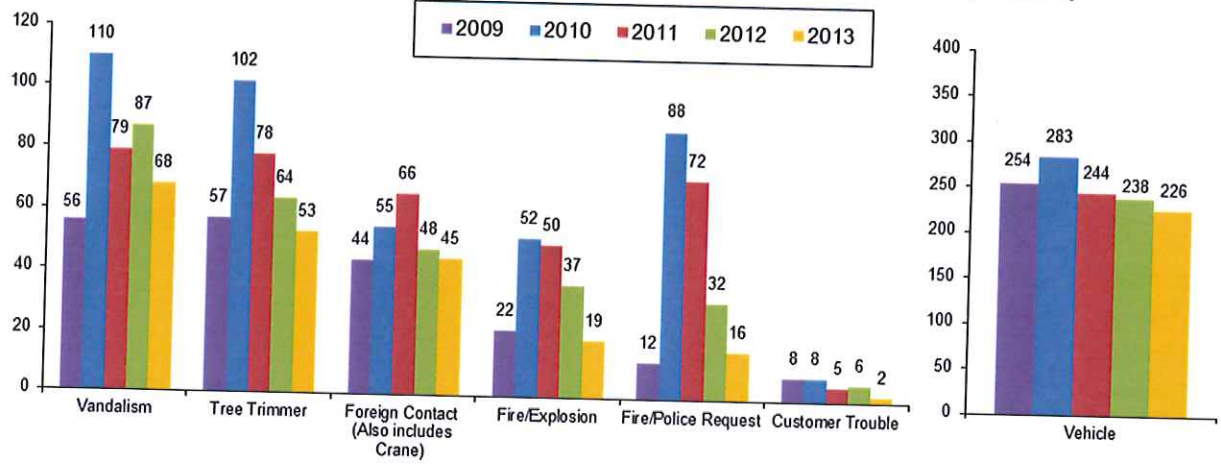


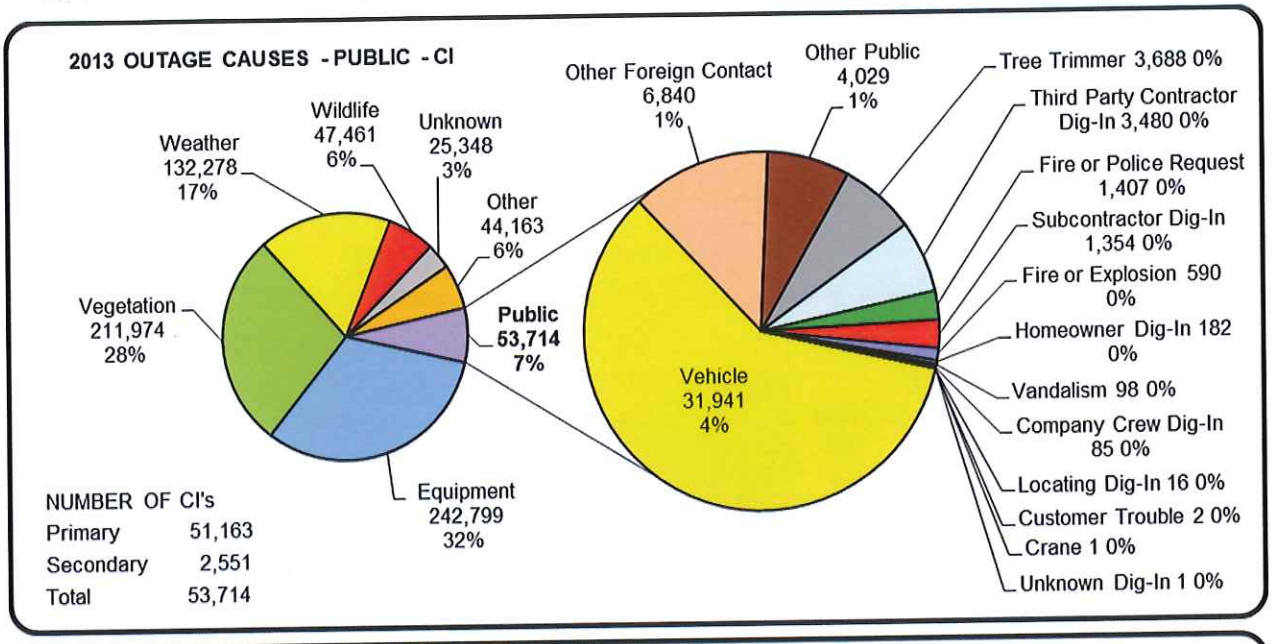
NUMBER OF OUTAGES	
Primary	292
Secondary	309
Total	601

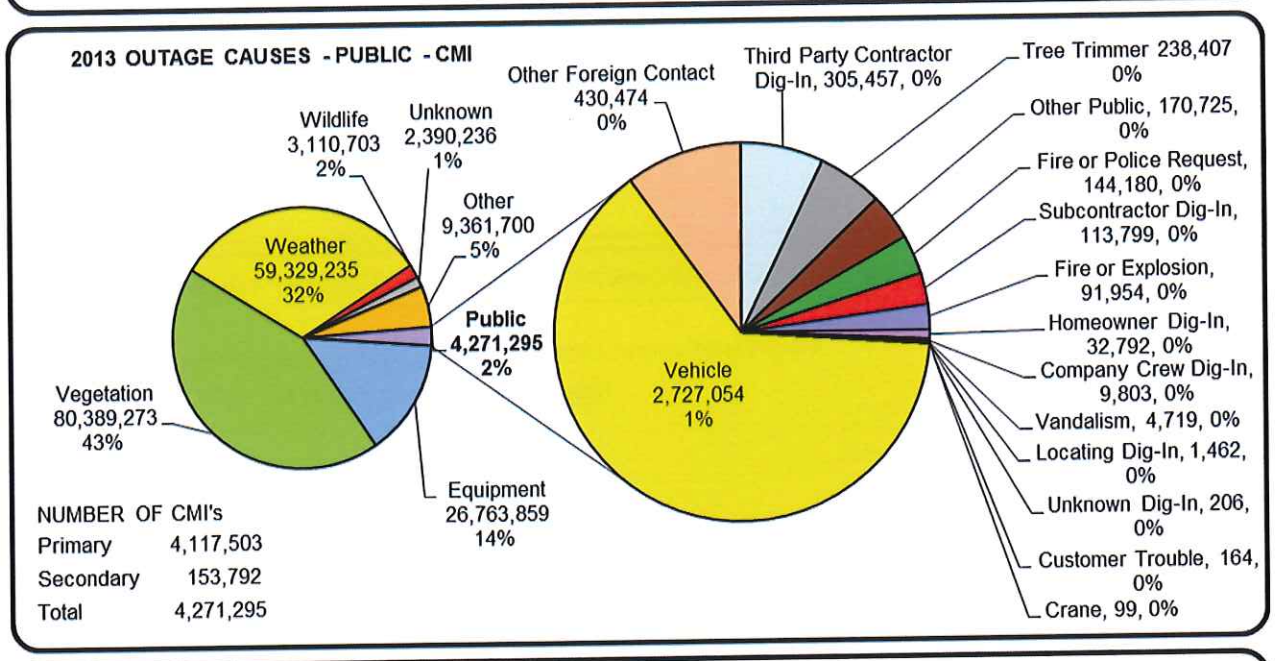
NUMBER OF OUTAGES BREAKDOWN BY PRIMARY & SECONDARY VOLTAGES

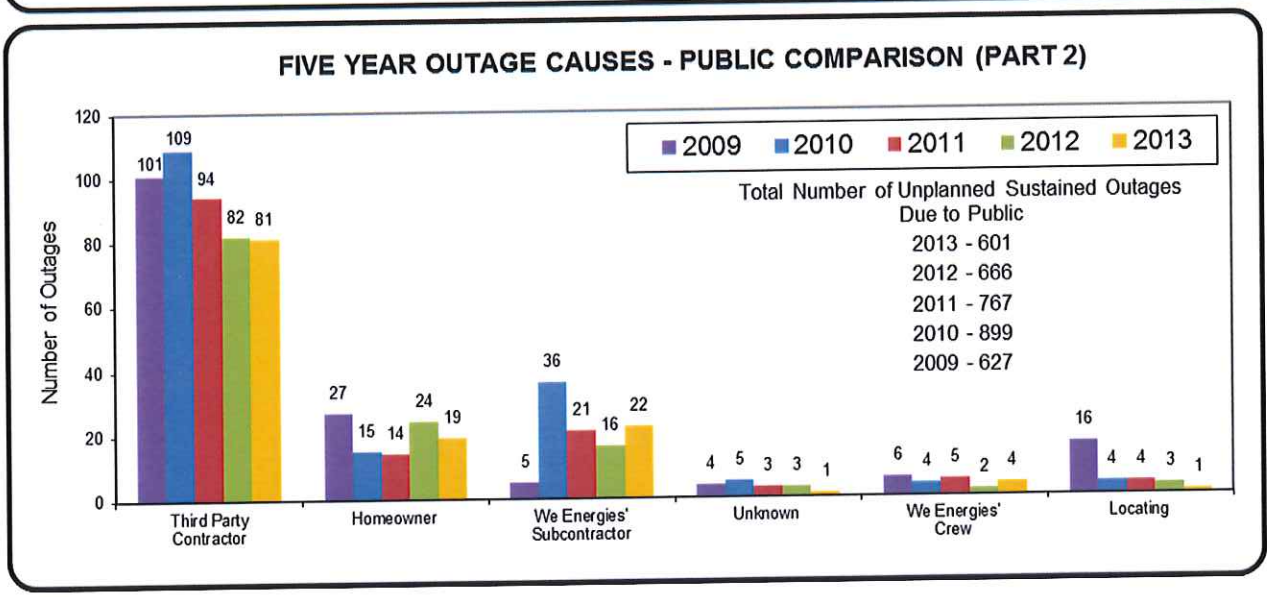


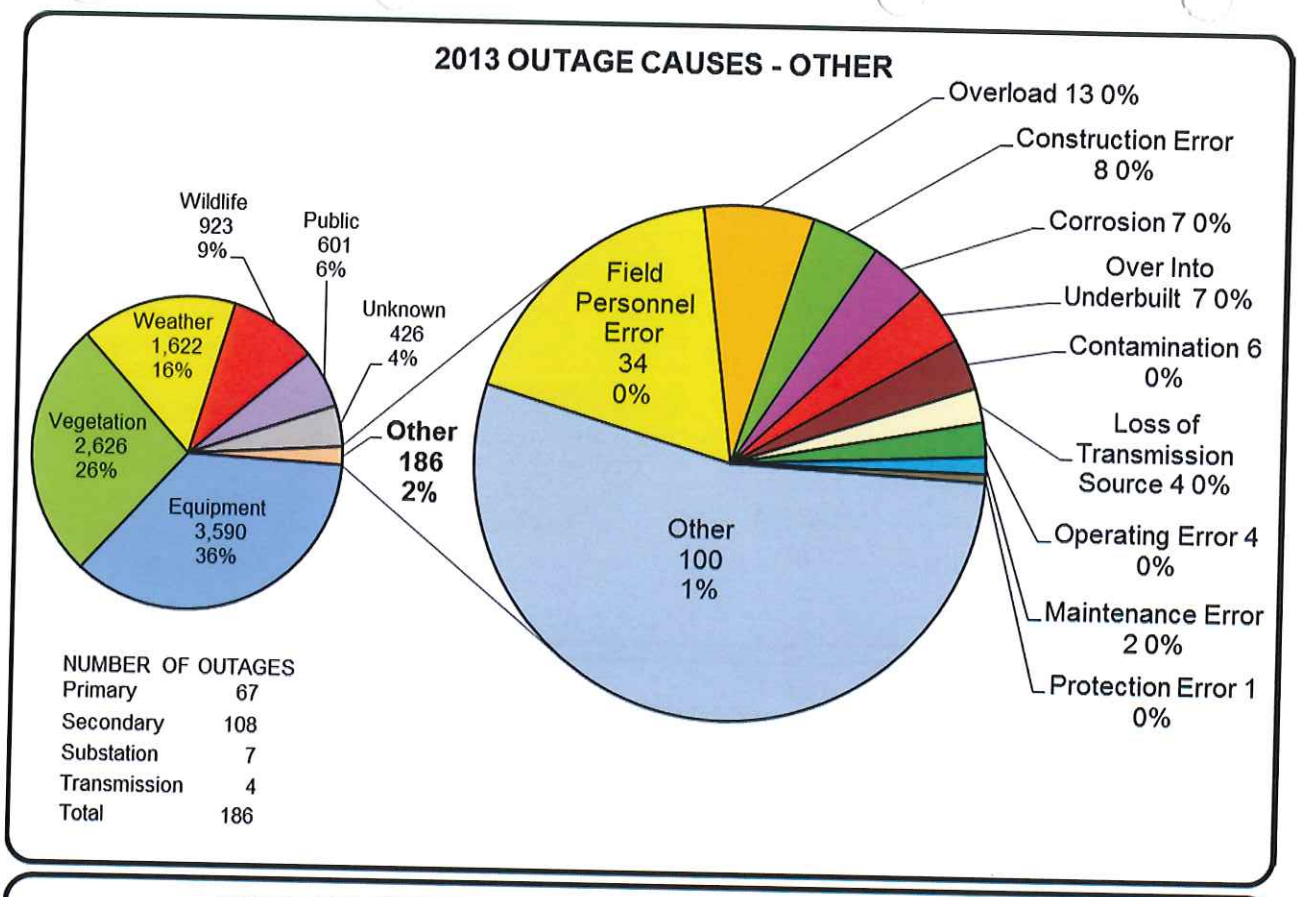
FIVE YEAR OUTAGE CAUSES - PUBLIC COMPARISON (PART 1)

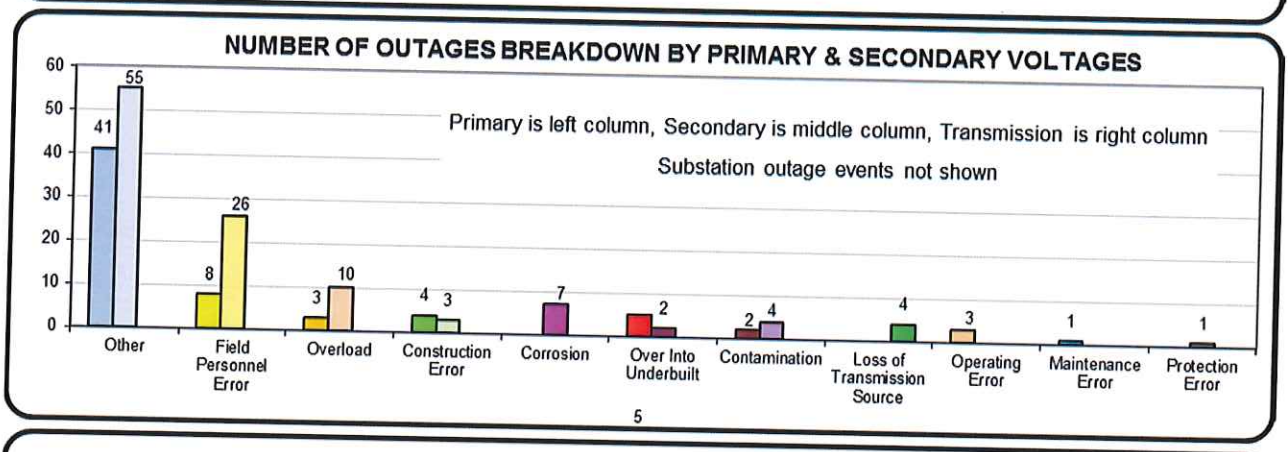


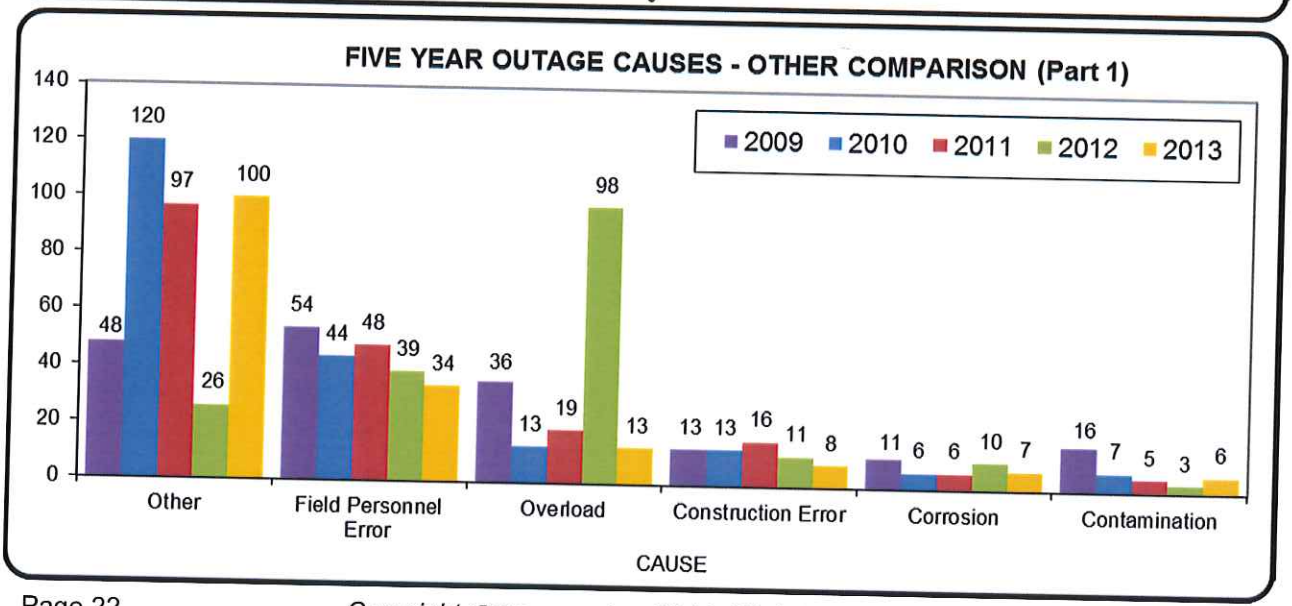


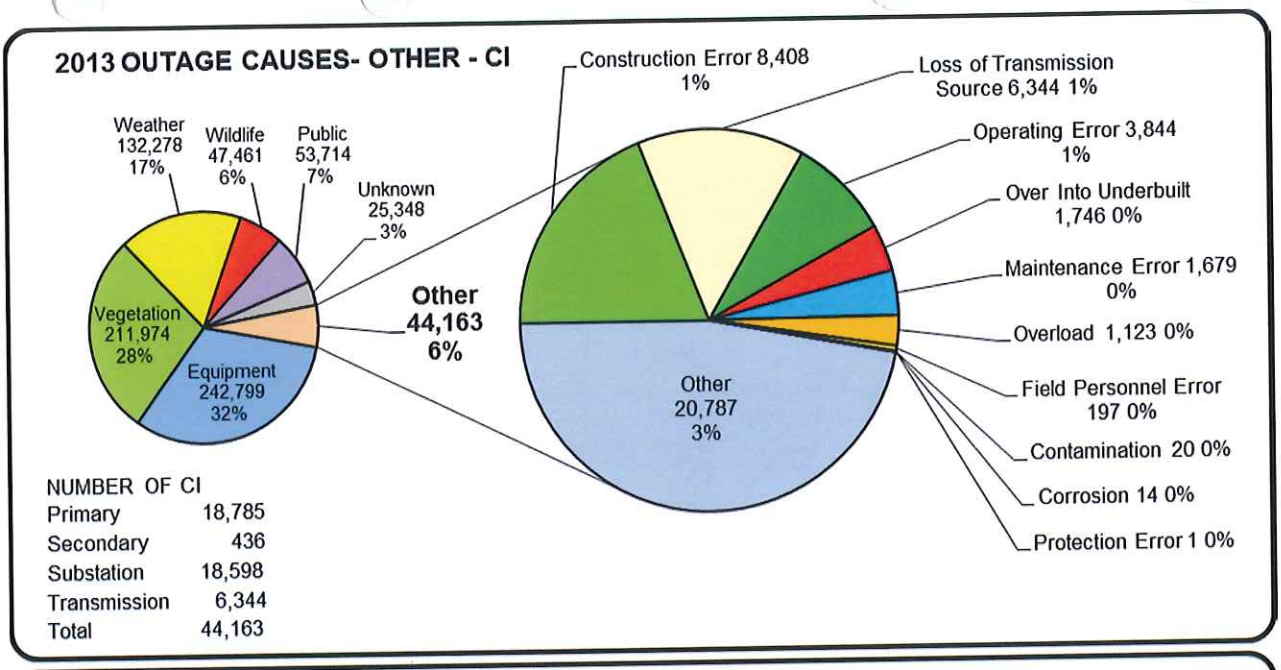


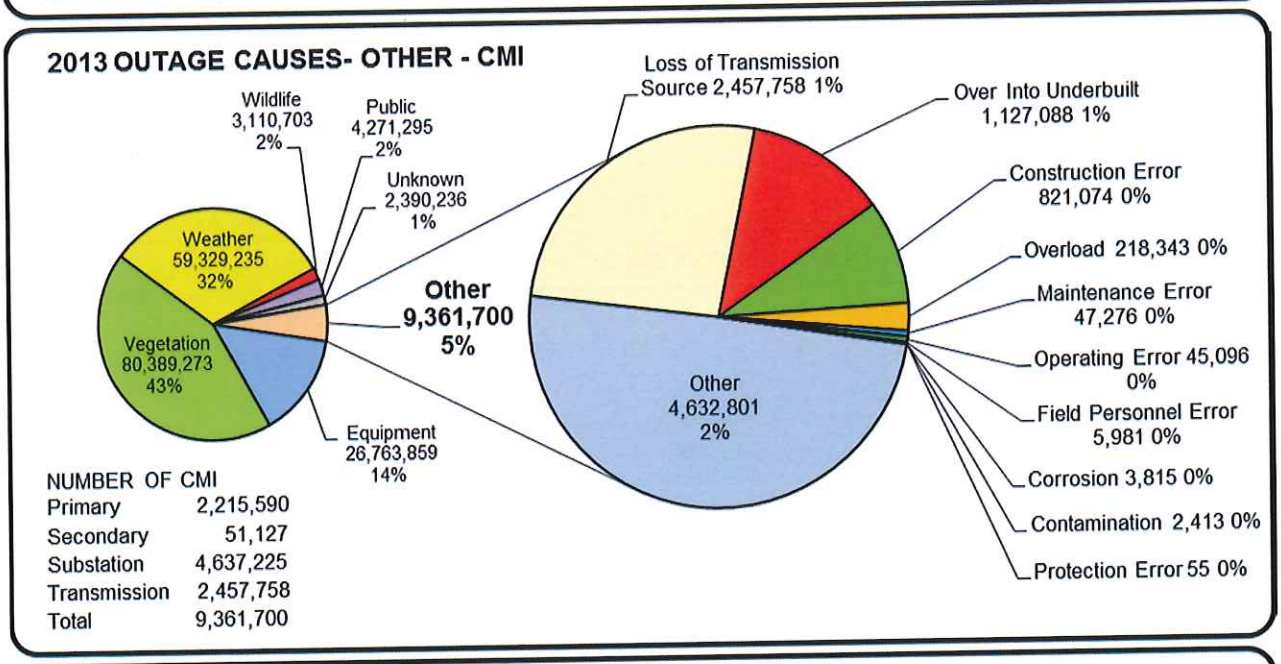


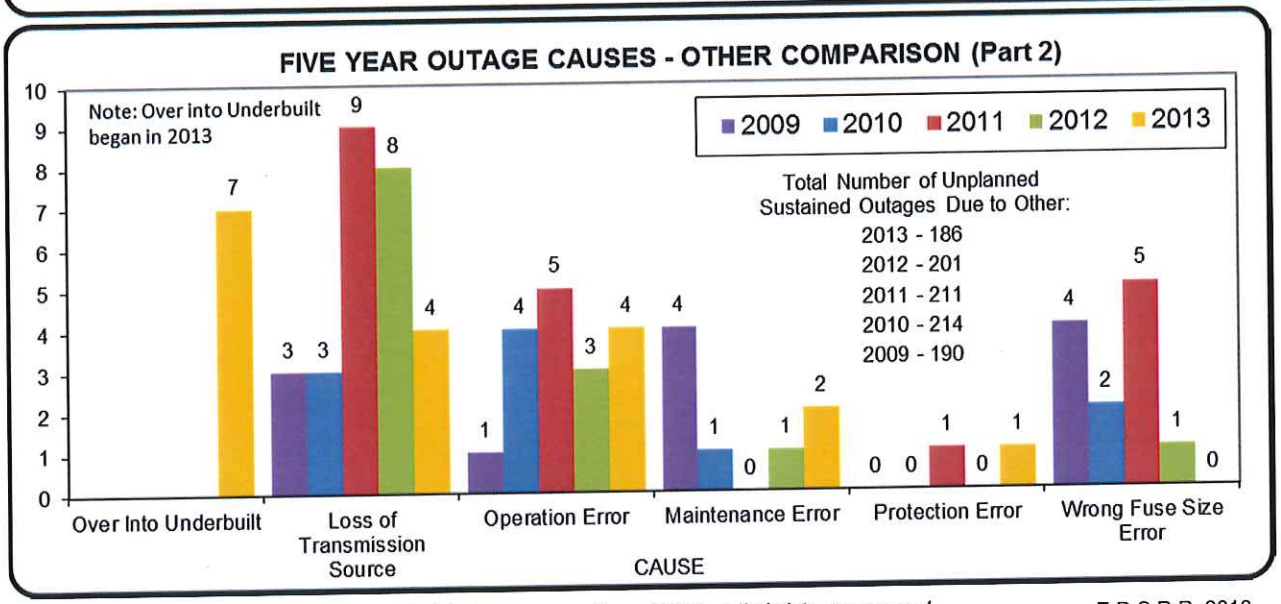




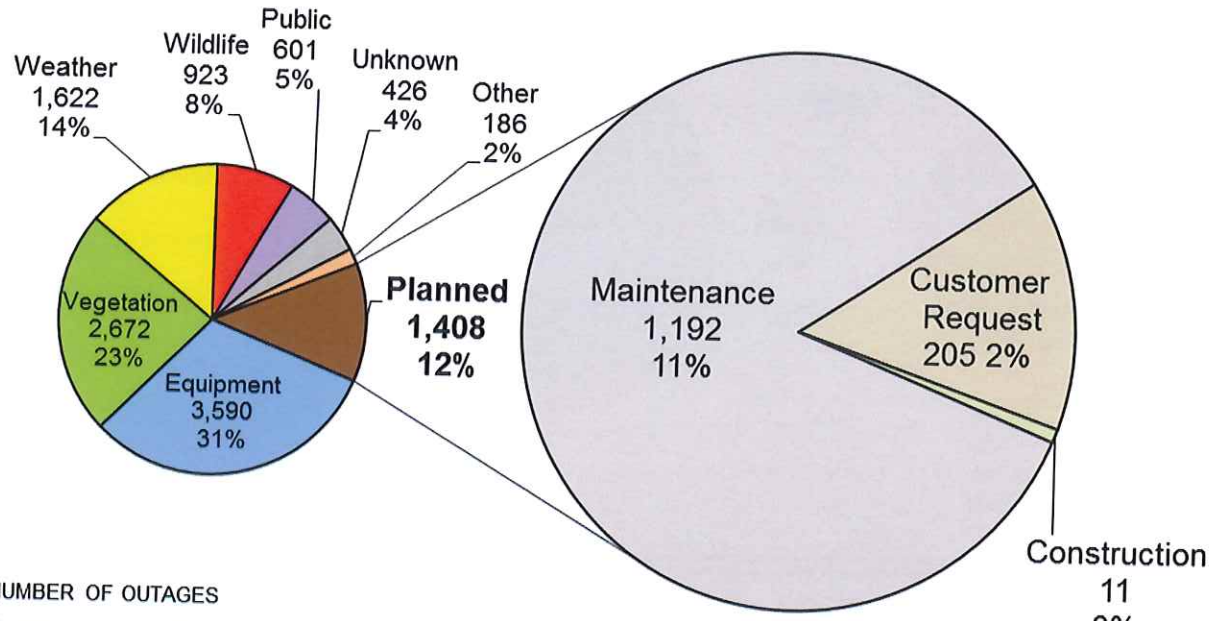






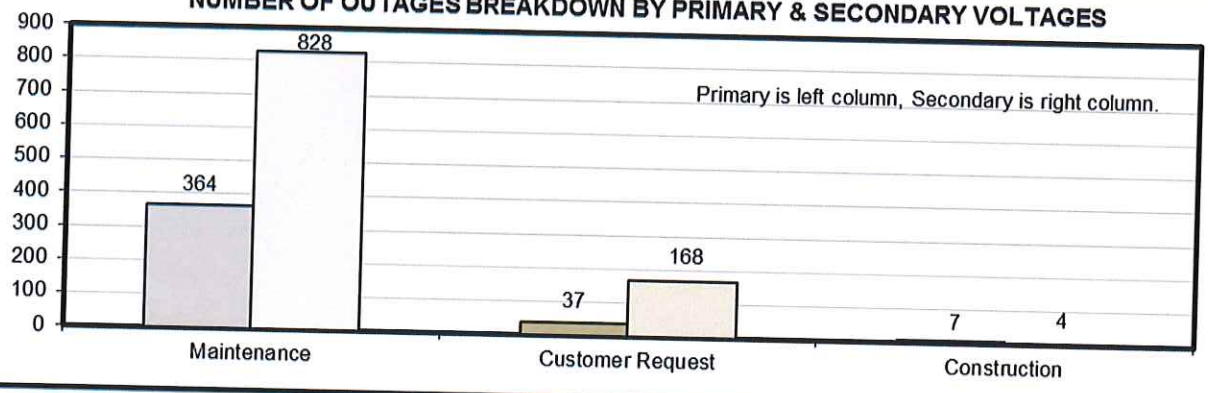


2013 OUTAGE CAUSES - PLANNED

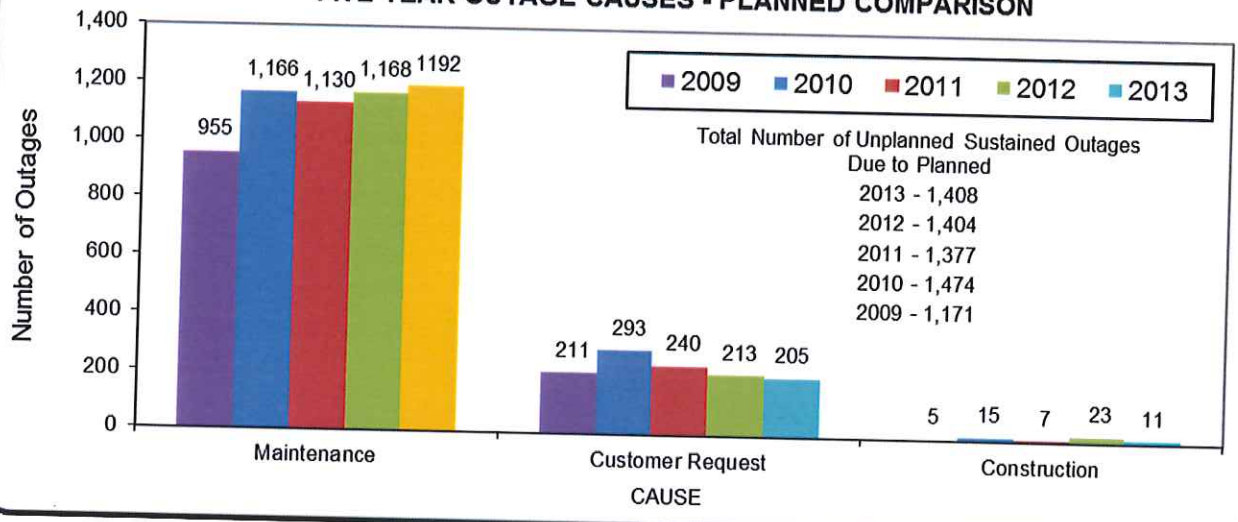


NUMBER OF OUTAGES	
Primary	408
Secondary	1,000
Total	1,408

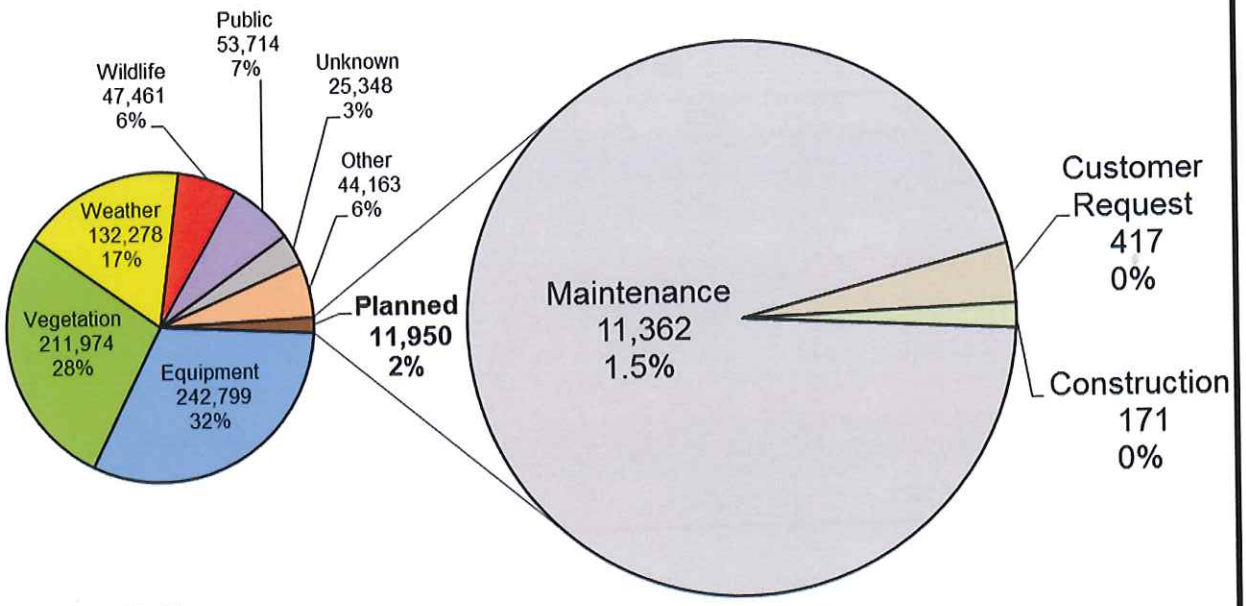
NUMBER OF OUTAGES BREAKDOWN BY PRIMARY & SECONDARY VOLTAGES



FIVE YEAR OUTAGE CAUSES - PLANNED COMPARISON

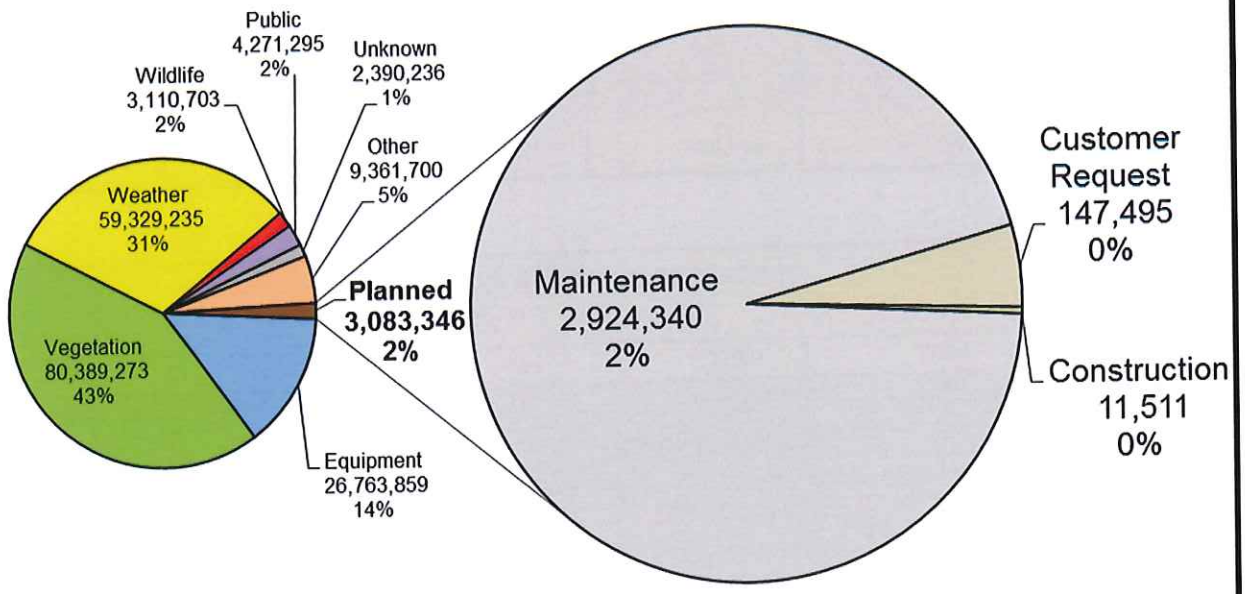


2013 OUTAGE CI - PLANNED



NUMBER OF CI's	
Primary	7,099
Secondary	4,851
Total	11,950

2013 OUTAGE CMI - PLANNED



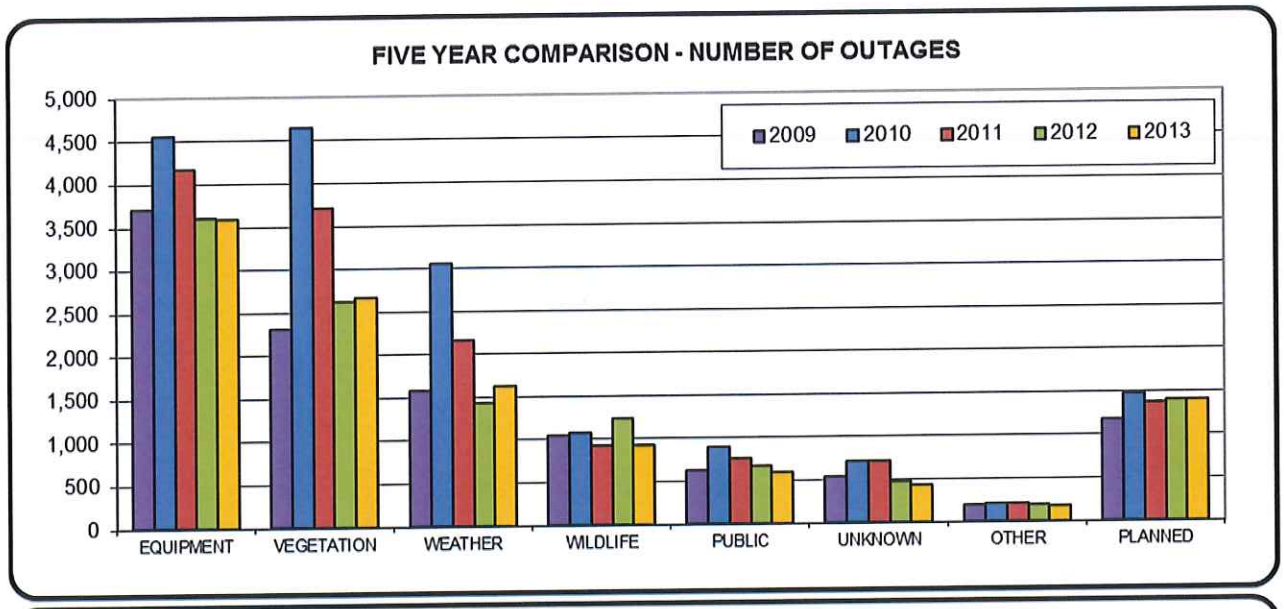
NUMBER OF CMI's	
Primary	1,864,891
Secondary	1,218,455
Total	3,083,346

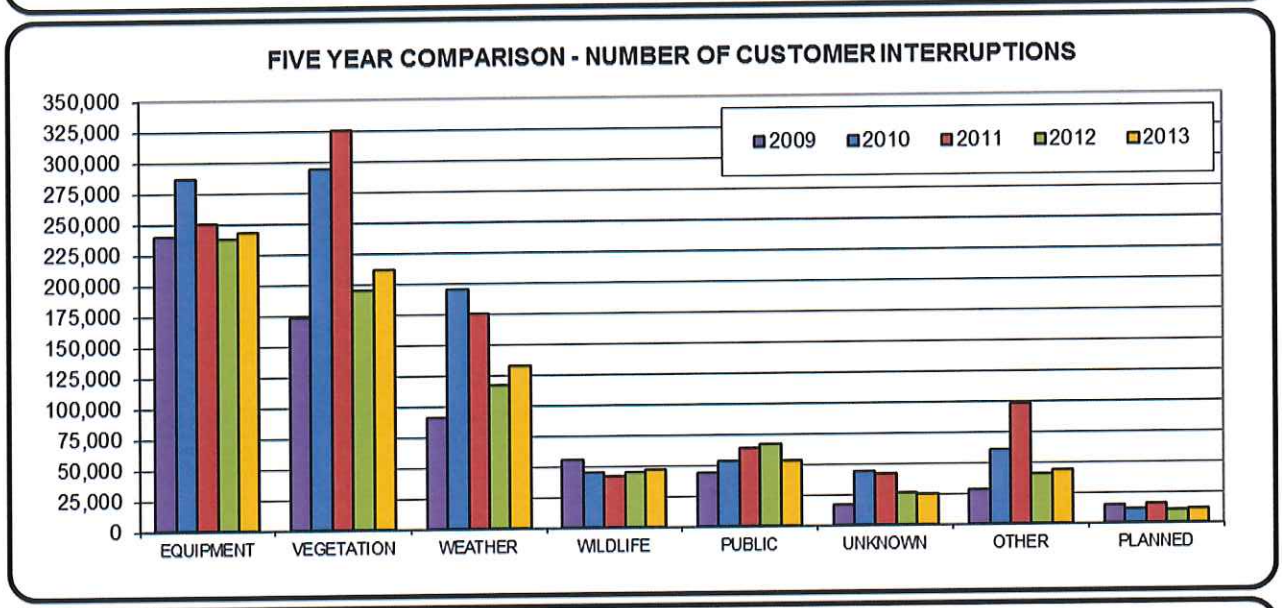
We Energies Five Year Cause Comparison

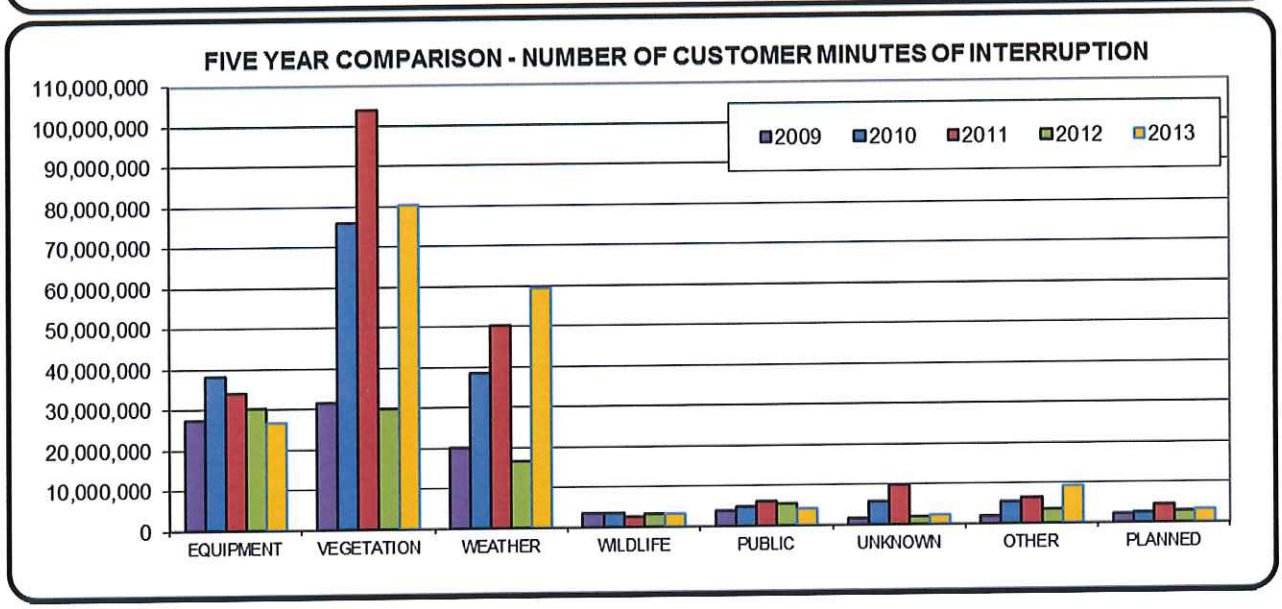
CAUSE CATEGORY	NUMBER OF OUTAGES (followed by % of Total for each year)									
	2009		2010		2011		2012		2013	
EQUIPMENT	3,711	33%	4,556	27%	4,172	30%	3,606	31%	3,590	31%
VEGETATION	2,306	21%	4,644	28%	3,710	26%	2,626	23%	2,672	23%
WEATHER	1,575	14%	3,048	18%	2,153	15%	1,425	12%	1,622	14%
WILDLIFE	1,044	9%	1,074	6%	921	7%	1,231	11%	923	8%
PUBLIC	626	6%	899	5%	767	5%	666	6%	601	5%
UNKNOWN	530	5%	708	4%	709	5%	470	4%	426	4%
OTHER	190	2%	214	1%	211	2%	201	2%	186	2%
PLANNED	1,171	10%	1,475	9%	1,377	10%	1,404	12%	1,408	12%
TOTAL	11,153		16,618		14,020		11,629		11,428	

CAUSE CATEGORY	NUMBER OF CUSTOMER INTERRUPTIONS (followed by % of Total for each year)									
	2009		2010		2011		2012		2013	
EQUIPMENT	239,381	36%	287,060	29%	250,291	25%	237,544	32%	242,799	32%
VEGETATION	173,125	26%	293,632	30%	325,448	32%	194,662	26%	211,974	28%
WEATHER	90,733	14%	194,975	20%	175,604	17%	117,231	16%	132,278	17%
WILDLIFE	55,879	8%	44,662	5%	42,234	4%	44,556	6%	47,461	6%
PUBLIC	43,483	7%	53,385	5%	64,027	6%	66,974	9%	53,714	7%
UNKNOWN	17,268	3%	43,440	4%	41,800	4%	25,926	4%	25,348	3%
OTHER	27,813	4%	60,646	6%	97,934	10%	41,202	6%	44,163	6%
PLANNED	14,481	2%	12,034	1%	16,184	2%	10,744	1%	11,950	2%
TOTAL	662,163		989,834		1,013,522		738,839		769,687	

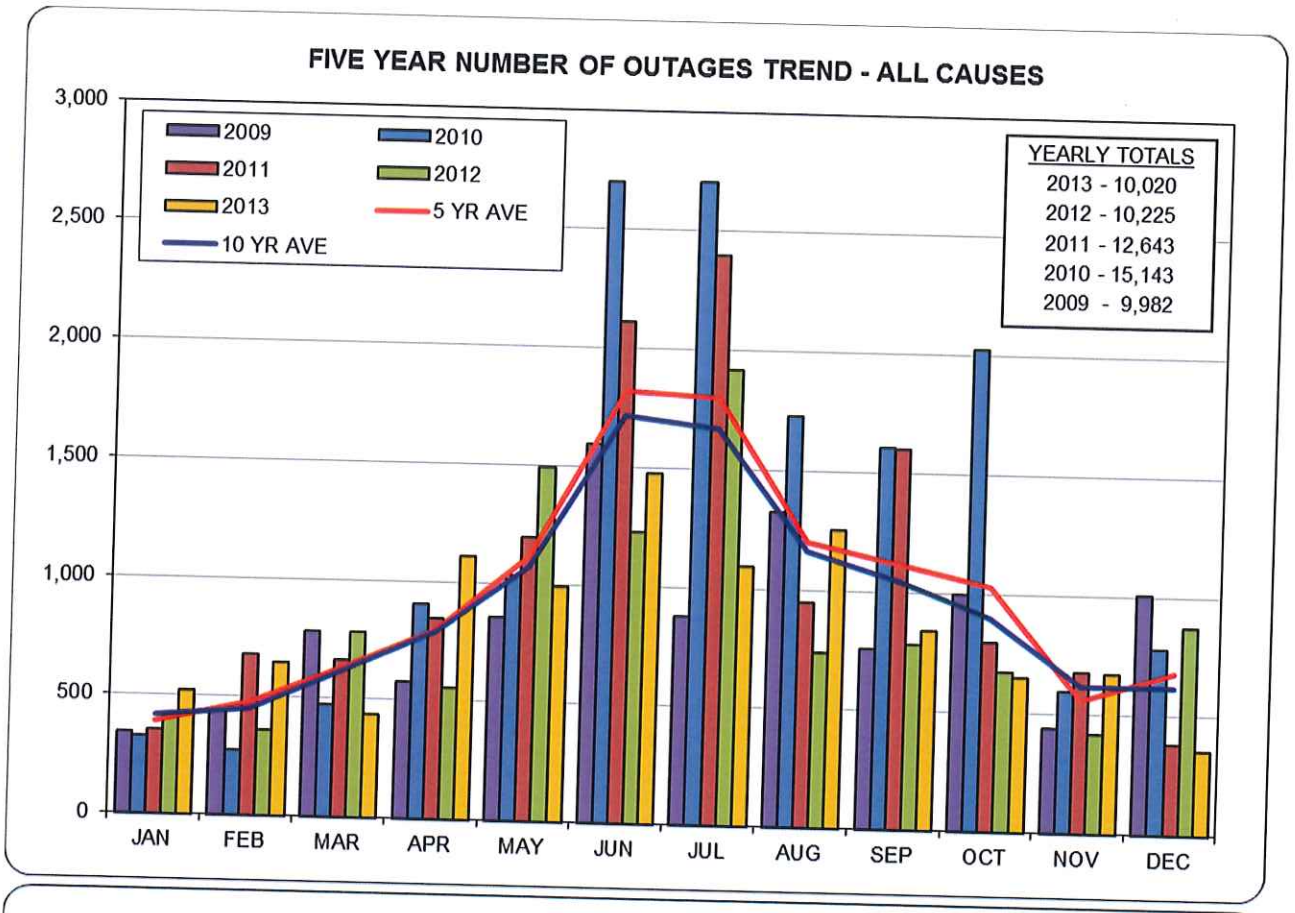
CAUSE CATEGORY	NUMBER OF CUSTOMER MINUTES OF INTERRUPTION (followed by % of Total for each year)									
	2009		2010		2011		2012		2013	
EQUIPMENT	27,526,257	30%	38,207,700	22%	34,177,410	16%	30,255,048	32%	26,763,859	14%
VEGETATION	31,544,783	34%	76,026,289	43%	103,757,103	48%	29,944,944	32%	80,389,273	43%
WEATHER	19,978,819	22%	38,486,928	22%	50,346,441	23%	16,435,039	18%	59,329,235	31%
WILDLIFE	3,617,811	4%	3,577,965	2%	2,727,028	1%	3,121,469	3%	3,110,703	2%
PUBLIC	3,836,639	4%	4,805,732	3%	5,973,798	3%	5,384,304	6%	4,271,295	2%
UNKNOWN	1,690,610	2%	5,802,219	3%	9,912,176	5%	1,879,309	2%	2,390,236	1%
OTHER	2,008,726	2%	5,380,686	3%	6,554,928	3%	3,566,036	4%	9,361,700	5%
PLANNED	2,338,413	3%	2,733,135	2%	4,402,358	2%	2,847,880	3%	3,083,346	2%
TOTAL	92,542,058		175,020,654		217,851,242		93,434,029		188,699,647	

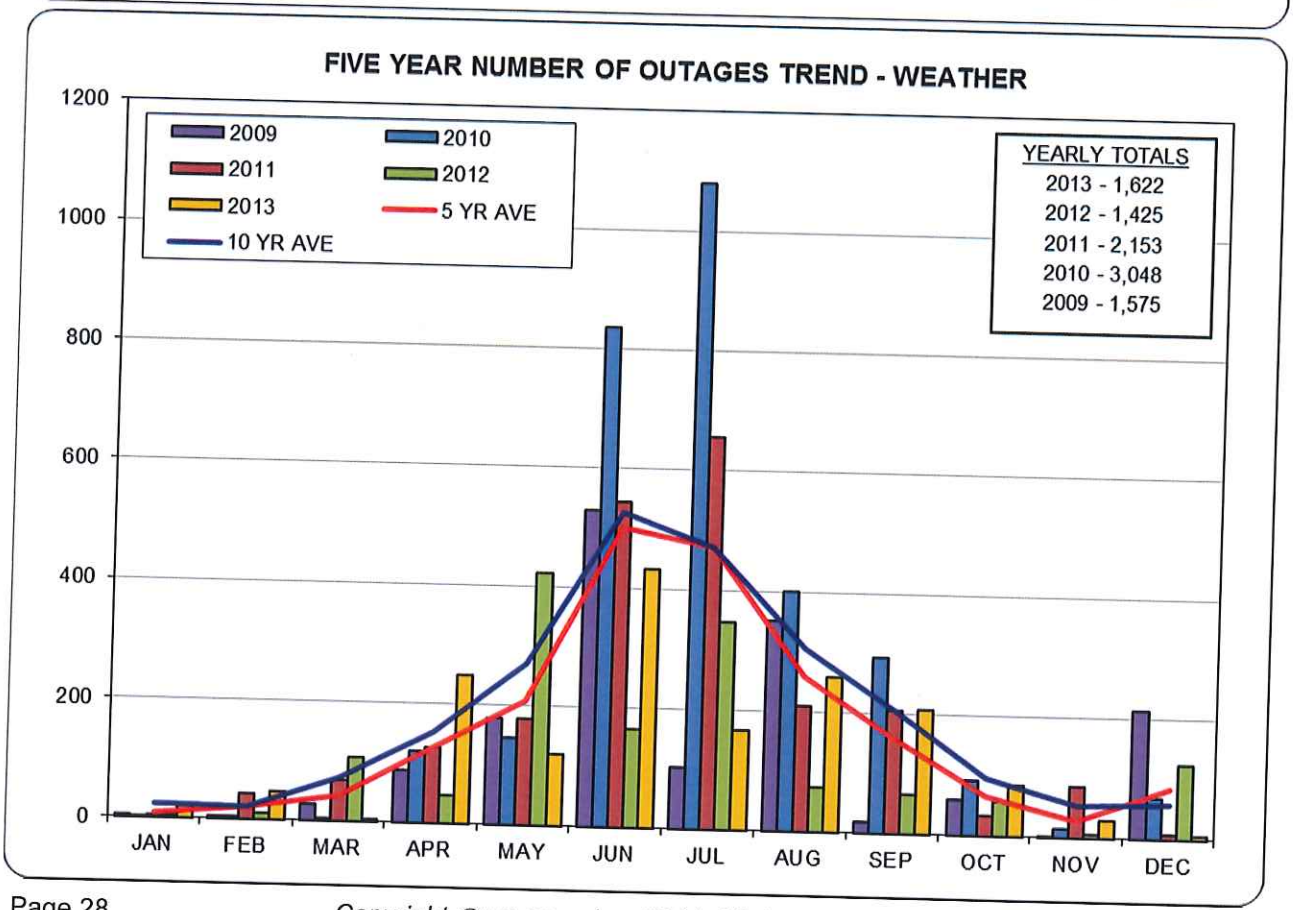




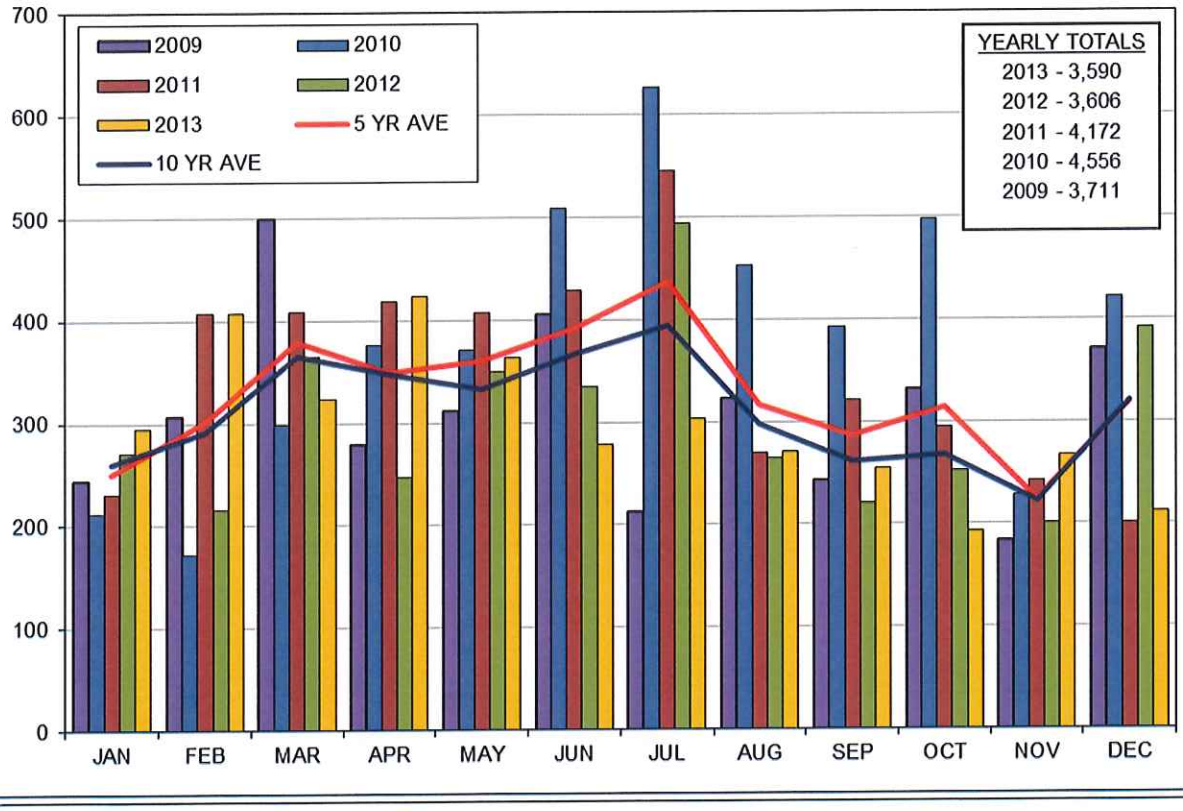


IV. MONTHLY OUTAGE TRENDS

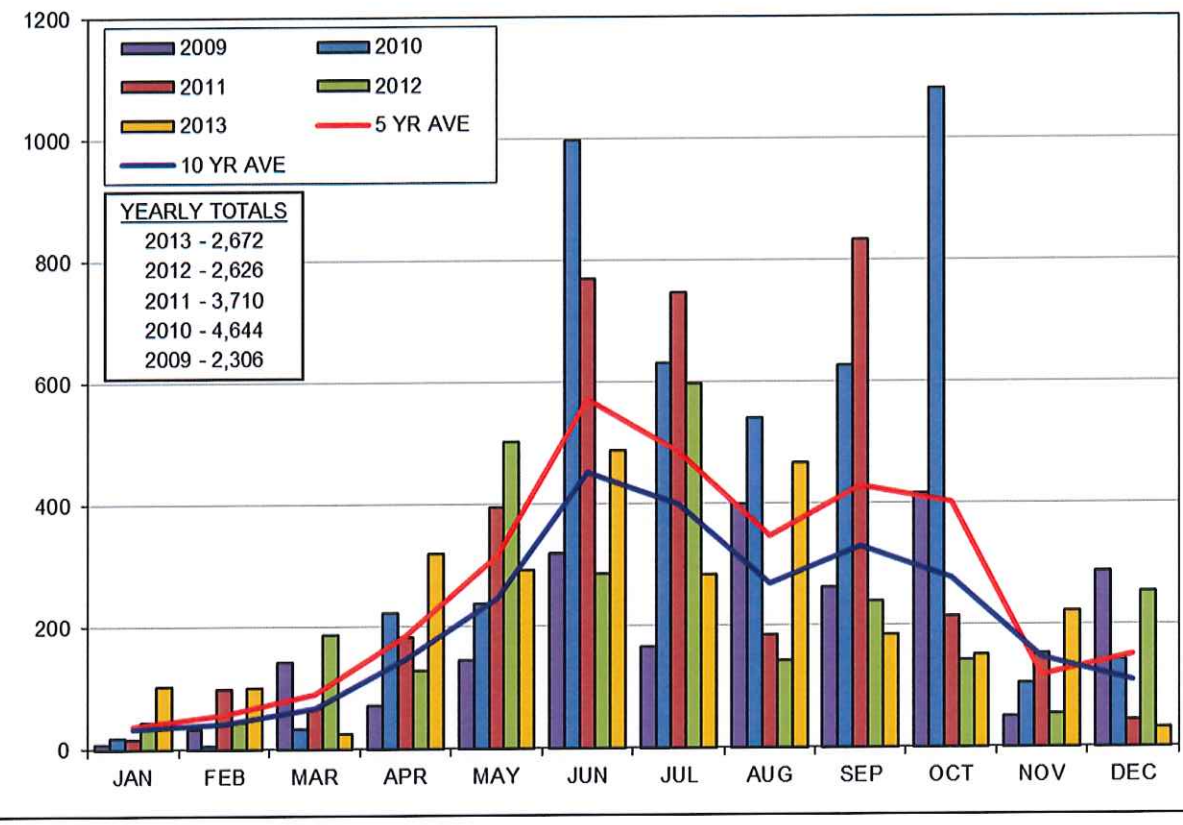


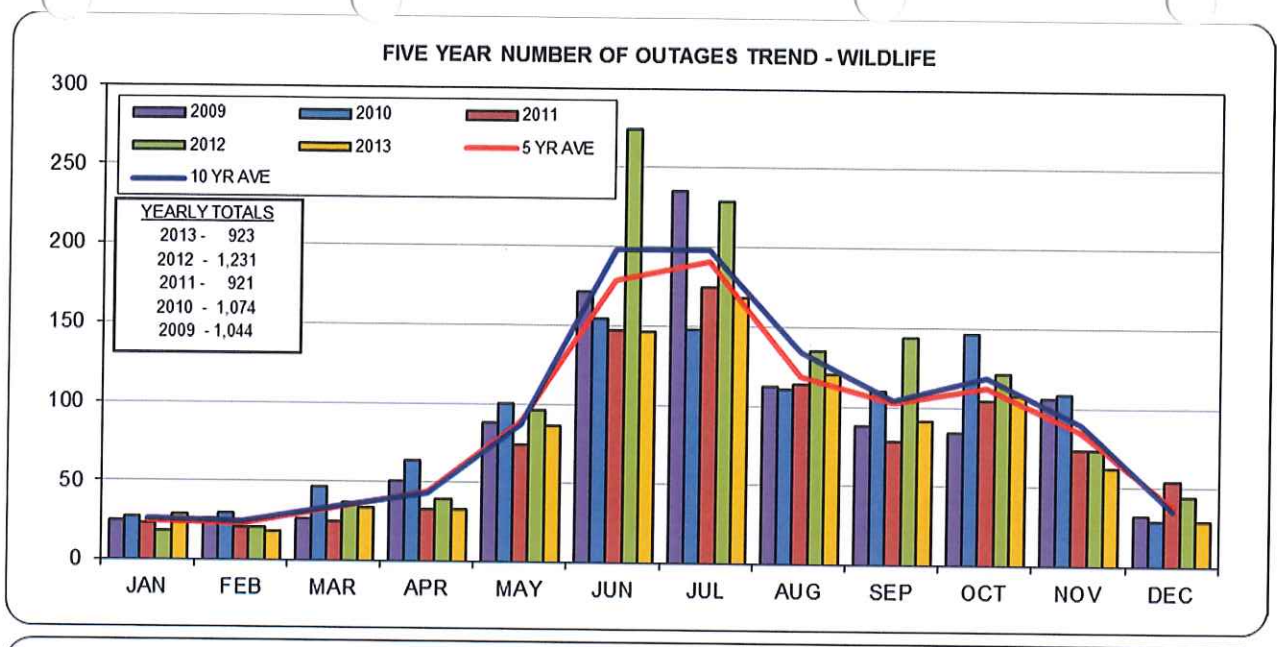


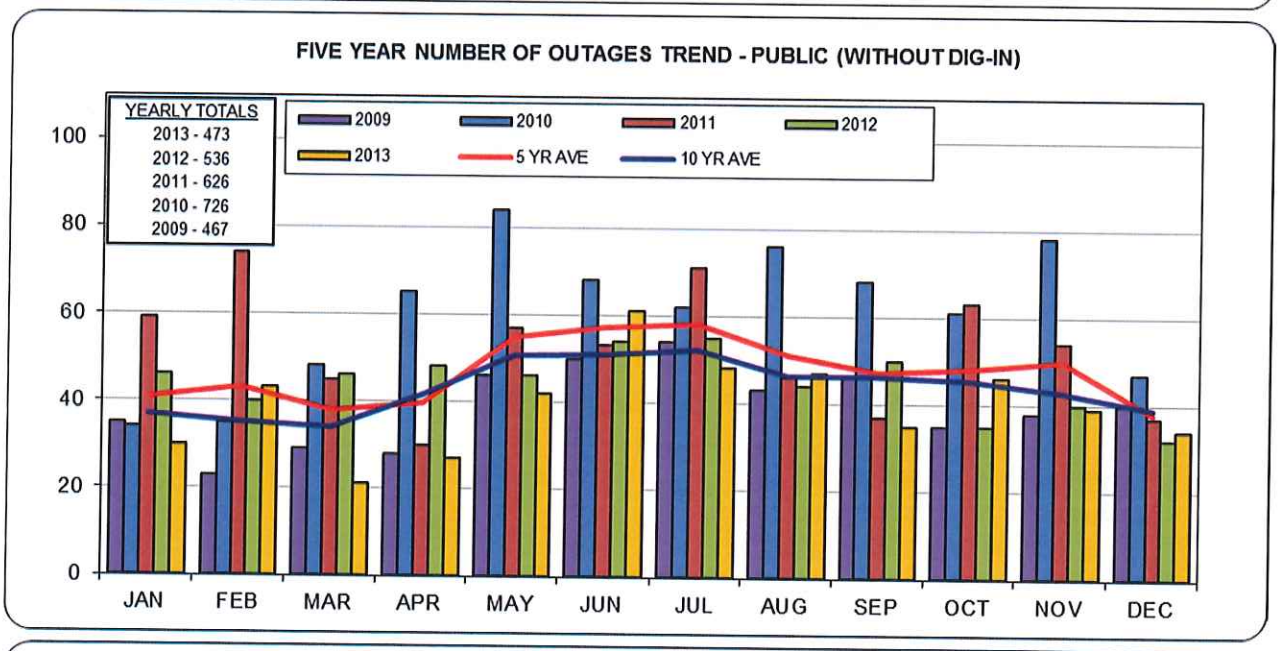
FIVE YEAR NUMBER OF OUTAGES TREND - EQUIPMENT FAILURE / DETERIORATION

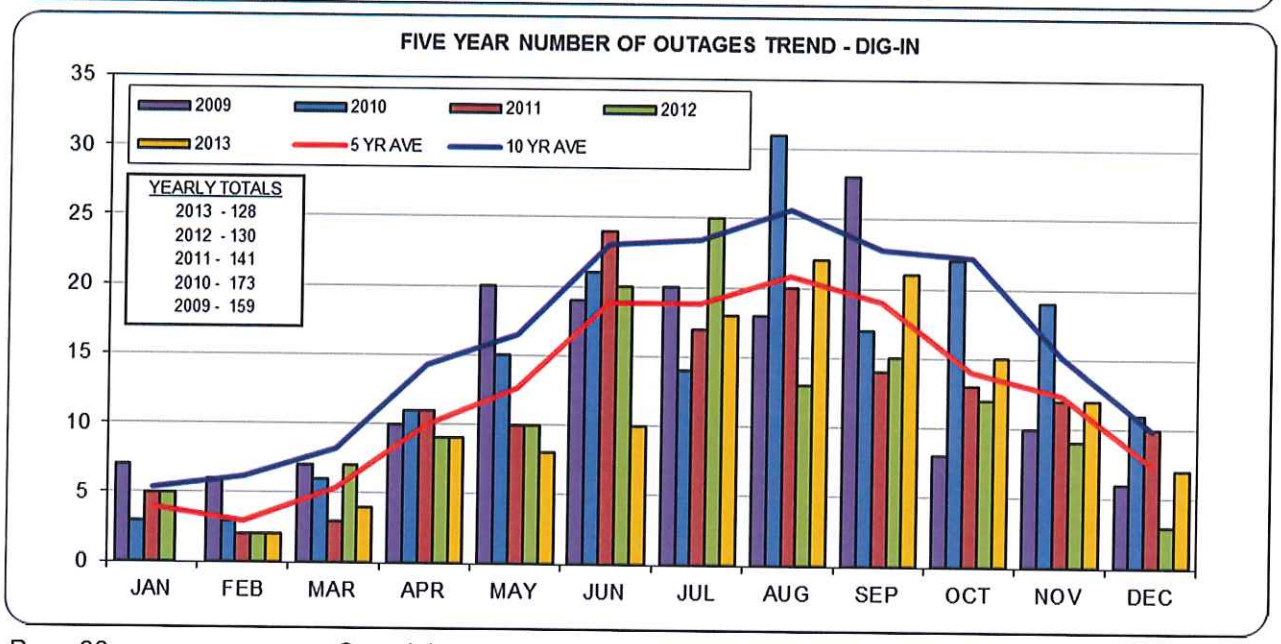


FIVE YEAR NUMBER OF OUTAGES TREND - VEGETATION









V. RELIABILITY IMPROVEMENT

This section summarizes the reliability improvement work completed in 2013, results, and future efforts. Programs to address system reliability issues have been in place since the mid-1990s, and include the Top Feeder Program and various equipment targeted initiatives. Efforts focused on improving customer satisfaction through CAIDI reduction began in 2003.

Top Feeder Program

The Top Feeder Program (TFP) has been a key reliability program since 1998, addressing approximately 100-150 circuits each year. Criteria for selecting TFP circuits have been agreed to with the Wisconsin PSC, and include SAIFI, SAIDI, and Number of Customer Complaints, along with Operating, Customer Service, and Area input. Customer Minutes of Interruption was added as a criterion in 2003 to identify feeders for Faulted Circuit Indicator application. The TFP focuses on analyzing reliability performance and outage causes, conducting field patrols to identify improvements and design issues, and completing field remediation and forestry prior to storm season.

The 2013 Top Feeder Program included 136 circuits selected based on their fourth quarter 2011 through third quarter 2012 performance. Remediation included forestry work, installation of lightning arresters and faulted circuit indicators, tap fuse additions or cutout replacements, hardware repairs and applications of wildlife protection. All of these items are associated with improving feeder reliability performance. The majority of the remediation work was completed in the field prior to the start of the 2013 storm season.

Other Reliability Efforts

In addition to the TFP program, other efforts undertaken in 2013 to improve system reliability included:

- Developed a Targeted Reliability Improvement Project that applies new distribution automation guidelines to mature areas of our system (Barton 8 kV and Calumet 8 kV). In 2013 predictive reliability studies were completed and new substation reclosers were installed. Seven SCADA line reclosers (SVRs) will be installed in 2014.
- A Downtown Milwaukee Reliability Assessment was completed and included a review of the system performance, design, condition, asset management, external factors and new technologies that could be applied.
- Continued annual recloser and breaker operations count program, completing analysis, patrols, and field remediation as appropriate to address momentary outages.
- Continued use of customer level reliability information to make field improvements for customers experiencing high numbers of outages
- Continued periodic reviews of significant outages to identify system design or equipment issues to prevent future outages, and restoration practices to reduce CAIDI.

Results and Future Efforts

Favorable weather (six major storms) and efforts to prevent outages contributed to SAIFI of 0.60, the third lowest since 1996. However outage duration as measured by CAIDI continued an upward trend. Blue Sky CAIDI of 103 minutes was highest in ten years (2013 target: 85 minutes). Major Storm CAIDI of 222 minutes was the third highest in ten years (2013 Target: 200 minutes).