NorthWestern® Energy

February 28, 2014

Ms. Kate Whitney
Administrator
Montana Public Service Commission
1701 Prospect Avenue
PO Box 202601
Helena, MT 59620-2601

RE: 2013 Annual Electric Reliability Report

Dear Ms. Whitney:

With this letter, NorthWestern Energy (NWE) submits the 2013 Reliability Report in compliance with Administrative Rules of Montana 38.5.8619 Annual Electric Reliability Report, effective on July 29, 2005. The data provided in this report includes the information requested in ARM 38.5.8619 and utilizes the *IEEE Guide for Electric Power Distribution Reliability Indices (IEEE Std. 1366-2012)* for definition of major events and the appropriate reliability indices. Similar to the previous three years, additional transmission line reliability information is attached to the report.

Please contact me to answer any questions concerning this report. My contact information is as follows:

John Carmody
Director, Asset Management
NorthWestern Energy
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Butte, Montana 59701-9394
(406) 497-2612
John.Carmody@northwestern.com

Sincerely,

JE Carmody

John Carmody, P.E.
Director, Asset Management

Enclosure: 2013 Annual Electric Reliability Report

NorthWestern® Energy

2013
-Montana-
Electric Distribution/Transmission
Annual Reliability Report

March 2014

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EXECUTIVE SUMMARY

This report provides information and insights into NorthWestern Energy's (NWE) 2013 Electric Distribution and Transmission System reliability indices for the Montana region, per the guidelines outlined by the Administrative Rules of Montana (Rule 38.5.8619). The indices included are **SAIDI** (**S**ystem **A**verage **I**nterruption **D**uration **I**ndex – in minutes), **CAIDI** (**C**ustomer **A**verage **I**nterruption **D**uration **I**ndex – in minutes), **SAIFI** (**S**ystem **A**verage **I**nterruption **F**requency **I**ndex – in frequency) and **Outage Counts**. By the IEEE standard definition, these indices are for "sustained interruptions" meaning they lasted longer than five minutes.

System indices are given for the NWE Montana operating region and are also broken down into the eight operating areas of the state: Billings, Bozeman, Butte, Great Falls, Havre, Helena, Lewistown, and Missoula. As with the previous years' annual reports, the Institute of Electrical and Electronics Engineers (IEEE) Standard 1366-2012 will again be followed. This standard is directly related to the use of a statistically based definition for classification of Major Event Days (MEDs) – also commonly referred to as the 2.5 Beta Method. Major Event Days are days in which the regional SAIDI exceeds a statistically derived threshold value and represent days in which the electric system experienced stresses beyond normal operating conditions (such as a severe weather storm) and often requiring additional crews be brought into the area for repairs.

NorthWestern Energy has an active relationship with the IEEE Power and Energy Society Reliability Working Group to ensure a consistent and accurate portrayal of our utility's ability to report and benchmark reliability indices. MEDs are identified through a monthly process for each region and can be included or excluded per the data requested. This report will provide all information, including and excluding MEDs, for all three indices to better demonstrate and analyze normal versus emergency conditions. In 2013, there were two Major Event Days, one on June 13th and the other on August first. By comparison, there were no MED's in 2009, one in 2010, none in 2011 and two in 2012. For the Montana region, it took 6.36 SAIDI minutes in 2013 to declare an MED. June 13th had a windstorm that added 6.74 Montana SAIDI minutes and August 1st had a car accident in Butte and severe weather that caused the loss of the Twin Bridges substation, which added 6.54 SAIDI minutes. In Montana, a larger MED event would add 20 SAIDI minutes or more, so the two in 2013 were just over the threshold and relatively small.

Transmission related reliability data and graphs have been added as an annex to the report again this year.

1. GENERAL

1.1 Reliability indices calculation

The calculation of SAIDI and CAIDI, (in minutes) and SAIFI (in outages per customer) are based on the following IEEE formulas:

$$SAIDI = \frac{sum\ of\ all\ customer\ outage\ durations(minutes)}{total\ number\ of\ customers\ served}$$

$$SAIFI = \frac{total\ number\ of\ customers\ experiencing\ outages}{total\ number\ of\ customers\ served}$$

$$CAIDI = \frac{sum\ of\ all\ customer\ outage\ duration(minutes)}{total\ number\ of\ customers\ experiencing\ outages} = \frac{SAIDI}{SAIFI}$$

In laymen's terms, SAIDI represents the average outage in minutes for each customer served. SAIFI is the average number of interruptions that a customer would typically experience in a year. CAIDI is the average outage duration any given customer would experience. CAIDI is also typically thought of as the average restoration time.

1.2 Additional Notable Events

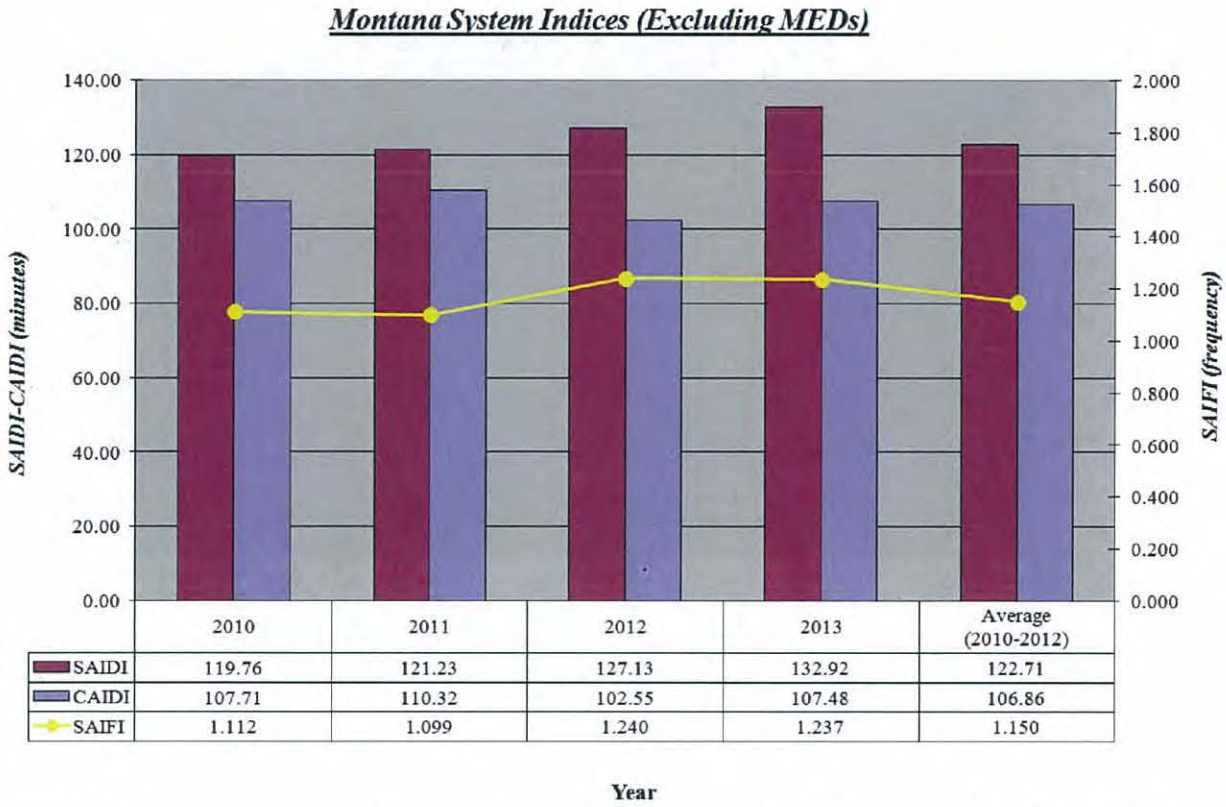
In addition to the two Major Event Days in 2013 discussed in the Executive Summary, there were nine days with a "Customer-Minutes Interrupted" (CMI) number greater than one million (an MED for 2013 required 2.22 million CMI). Please see table below listed in descending CMI. These events, while not being MEDs, added considerably to the SAIDI minutes for 2013.

Date	CMI	Divisions impacted	Majority Causes
2/8/2013	1926865	Bozeman, Butte, Havre , Lewistown	Equipment Failure(Havre)
9/7/2013	1847960	Billings ,Bozeman, Butte, Great Falls, Havre, Helena, Lewistown, Missoula	Lightning, Wind, Tree in Line
6/30/2013	1751138	Billings, Bozeman,Butte, Havre, Helena, Lewistown, Missoula	Lightning, Wind, Tree in Line
9/6/2013	1706703	Billings, Bozeman, Butte, Great Falls, Havre, Helena, Lewistown, Missoula	Lightning, Tree in Line, Equipment Failure
12/7/2013	1621974	Billings, Bozeman, Butte, Great Falls, Havre, Helena, Lewistown, Missoula	Vehicle Accident(Bozeman), Equipment Failure
8/9/2013	1544646	Billings, Bozeman,Butte, Great Falls, Havre, Lewistown, Missoula	Wind and Tree in Line (Missoula)
7/8/2013	1313432	Billings, Bozeman, Butte, Great Falls, Havre, Helena, Lewistown, Missoula	Lightning statewide
9/30/2013	1204992	Billings, Bozeman, Butte, Great Falls, Havre, Helena, Lewistown, Missoula	Wind, Tree in Line
10/3/2013	1057229	Billings, Bozeman, Butte, Great Falls, Helena, Lewistown, Missoula	Snow/Ice

Table 1: Additional Notable Events (2013)

Further Details on these events are provided in the operating area discussions below.

2. MONTANA SYSTEM RELIABILITY



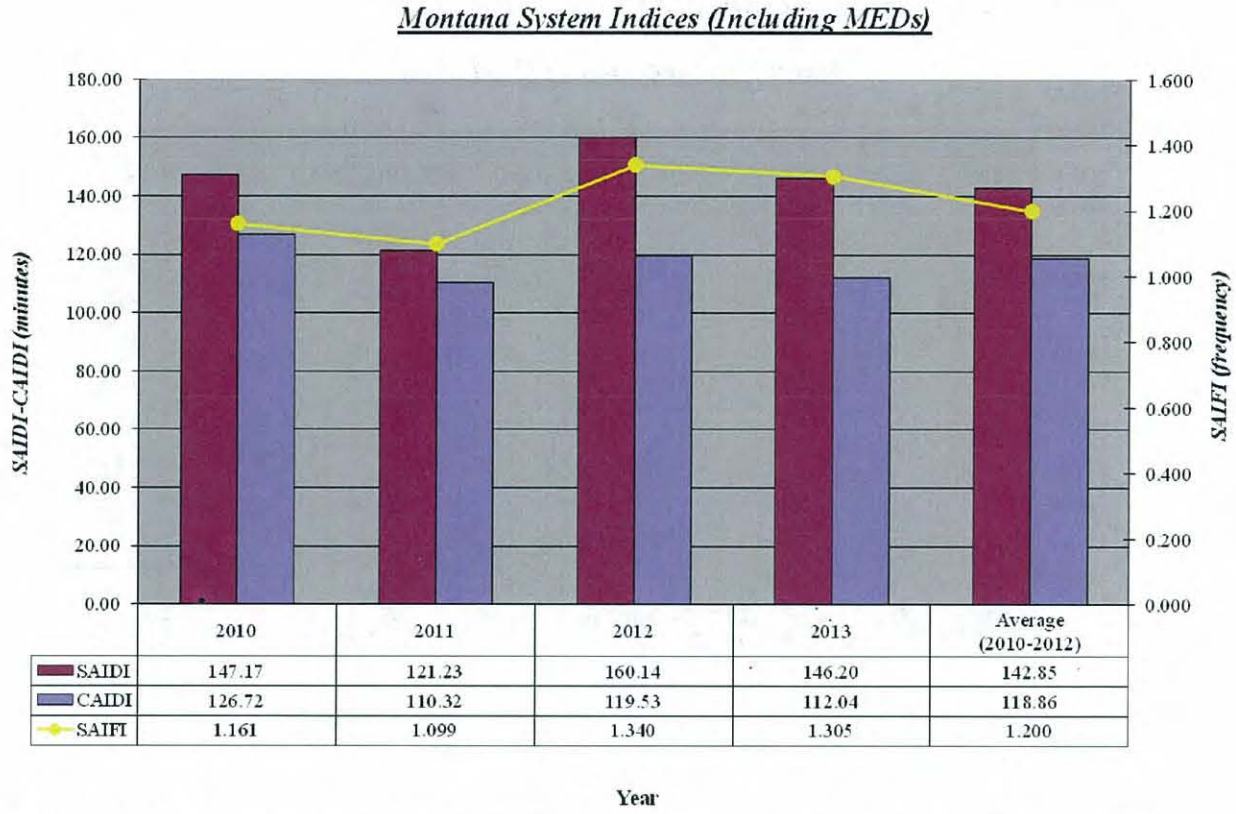
	2010	2011	2012	2013	Average (2010-2012)
SAIDI	119.76	121.23	127.13	132.92	122.71
CAIDI	107.71	110.32	102.55	107.48	106.86
SAIFI	1.112	1.099	1.240	1.237	1.150

Figure 2.1 Montana system indices excluding major event days (MEDs) as defined in IEEE Standard 1366-2012.

The figure above displays NorthWestern Energy's Montana region indices for the years 2010-2013. Region indices shown for 2010 to 2013 data (excluding MEDs) are from year-end audited data (excluding MEDs). Please note that SAIDI and CAIDI are given in minutes and SAIFI is given in the frequency of occurrence.

As can be seen by **Figure 2.1**, 2013 SAIDI and CAIDI were higher than 2012, while SAIFI remained consistent with 2012. All three indices in 2013 were higher than the previous three-year averages. In 2013, NWE saw a high number of wind storms, most dramatically an early September storm in the Billings area over a three day period, but also a high number of storms in Great Falls and Missoula.

Contributing factors to the decreased reliability will be discussed as each of the operating divisions of the Montana region are examined and in the report conclusion. Data and figures are presented that characterize the system reliability both including and excluding MEDs to demonstrate the effect MEDs had on the system reliability.

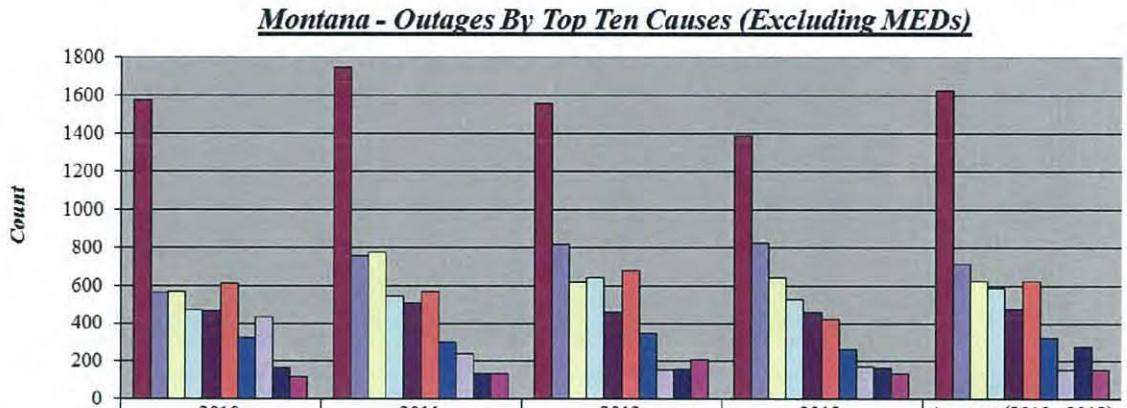


	2010	2011	2012	2013	Average (2010-2012)
SAIDI	147.17	121.23	160.14	146.20	142.85
CAIDI	126.72	110.32	119.53	112.04	118.86
SAIFI	1.161	1.099	1.340	1.305	1.200

Figure 2.2 Montana system indices including major event days (MEDs) as defined in IEEE Standard 1366-2012.

Thirteen additional SAIDI minutes are shown in 2013 when the two MEDs are included in the reliability index. Also, CAIDI and SAIFI increase noticeably.

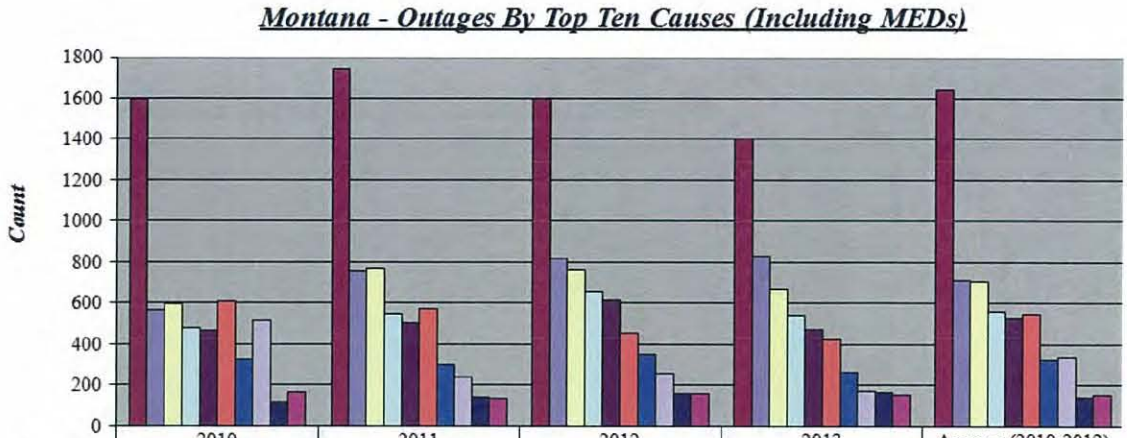
Outages by cause (excluding MEDs) are shown in **Figure 2.3**.



	2010	2011	2012	2013	Average (2010 - 2012)
Equipment Failure	1577	1744	1559	1385	1627
Unknown	560	756	816	823	711
Lightning	568	771	615	642	619
Tree In Line	472	545	641	525	585
Wind	465	507	456	457	476
Squirrel	609	570	679	422	619
Other Bird	325	302	348	261	325
Scheduled Maintenance	435	241	155	171	153
Snow/Ice	165	134	159	168	277
Limb In Line	115	138	209	136	154
MT REGION TOTAL	6325	6771	6643	5843	6580

Figure 2.3 Montana system outages by top ten causes excluding major event days (MEDs) as defined in IEEE Standard 1366-2012.

The outage causes represented in this table are the top ten major contributors for outages on the NorthWestern Energy Electric Distribution and Transmission system. Overall outages reported dropped 12% to 5,843. The top ten outage counts dropped from 6,004 in 2012 to 4,990 in 2013. Nature related outages such as wind, lightning and snow/ice went up by 37 outages. Overall Equipment Failure outages dropped 174. Equipment Failure is the most common of the outage causes due to its broad and all-inclusive category nature. Outages can be related back to Equipment Failure in many different ways and it is the responsibility of the operations personnel to correctly identify the cause. Scheduled Maintenance outages also went up largely due to the work being performed through DSIP.



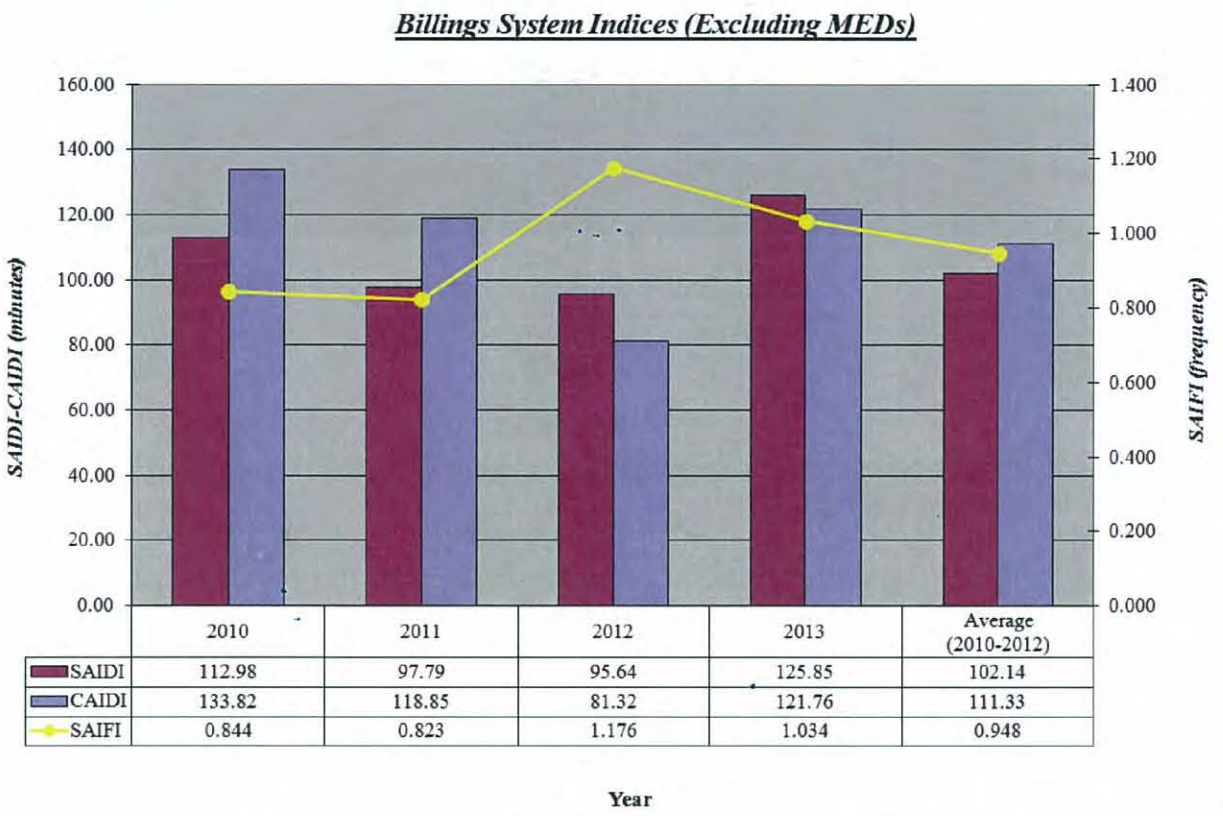
	2010	2011	2012	2013	Average (2010-2012)
Equipment Failure	1593	1744	1597	1402	1645
Unknown	563	756	821	833	713
Wind	597	771	760	670	709
Tree In Line	478	545	660	540	561
Squirrel	465	507	616	476	529
Lightning	610	570	456	425	545
Other Bird	325	302	348	263	325
Snow/Ice	515	241	255	173	337
Scheduled Maintenance	116	138	159	168	138
Limb In Line	165	134	158	154	152
MT REGION TOTAL	6462	6771	6844	5966	6692

Figure 2.4 Montana system outages by top ten causes including major event days (MEDs) as defined in IEEE Standard 1366-2012.

The graph and table above show outage causes with MEDs. As stated above, the two Major Event Days reported were due to a Vehicle Accident/storm and a windstorm which accounted for 213 outages in the wind category. Most of the outage categories in 2013 have gone down when comparing them to 2012 numbers.

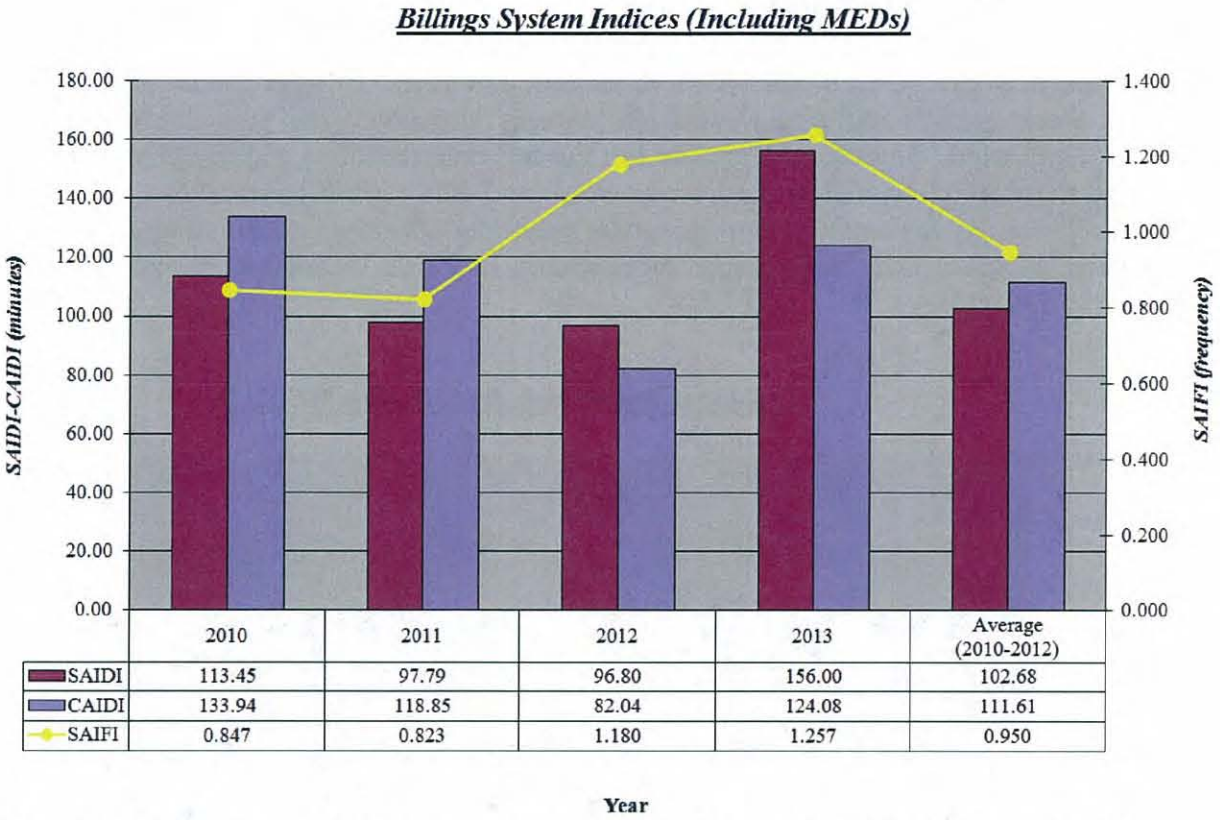
3. BILLINGS SYSTEM RELIABILITY

For Billings, SAIDI, CAIDI and SAIFI all increased in 2013. Billings had taken a hit from the Eighth Street feeders resulting in multiple outages throughout the year due to Squirrel (24 outages) and wind. Several feeders were lost during summer storms and equipment failures, but most of these were restored in short time periods and didn't result in significant SAIDI events, with the three day September storm being the exception. Weather related outages pertaining to lightning, snow/ice and wind jumped significantly in 2013. Scheduled maintenance outages were also up in 2013.



	2010	2011	2012	2013	Average (2010-2012)
SAIDI	112.98	97.79	95.64	125.85	102.14
CAIDI	133.82	118.85	81.32	121.76	111.33
SAIFI	0.844	0.823	1.176	1.034	0.948

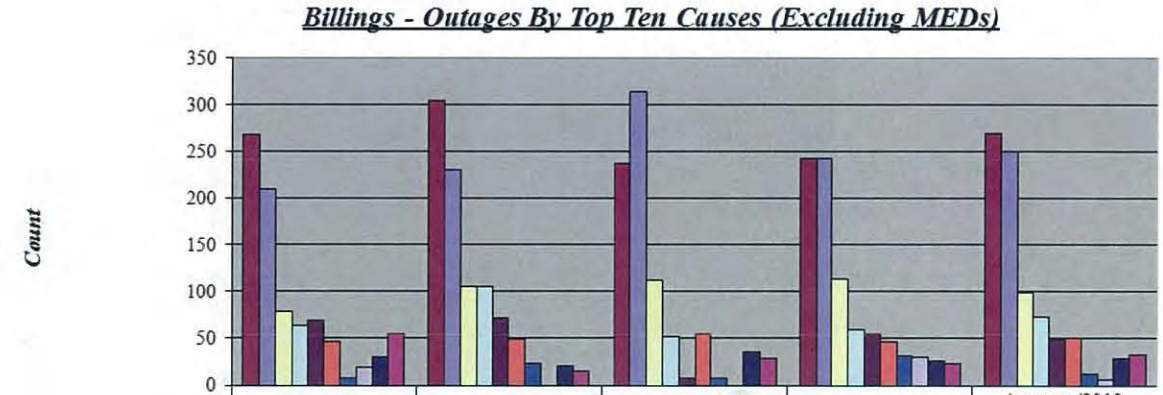
Figure 3.1 Billings system indices excluding major event days (MEDs) as defined in IEEE Standard 1366-2012.



	2010	2011	2012	2013	Average (2010-2012)
SAIDI	113.45	97.79	96.80	156.00	102.68
CAIDI	133.94	118.85	82.04	124.08	111.61
SAIFI	0.847	0.823	1.180	1.257	0.950

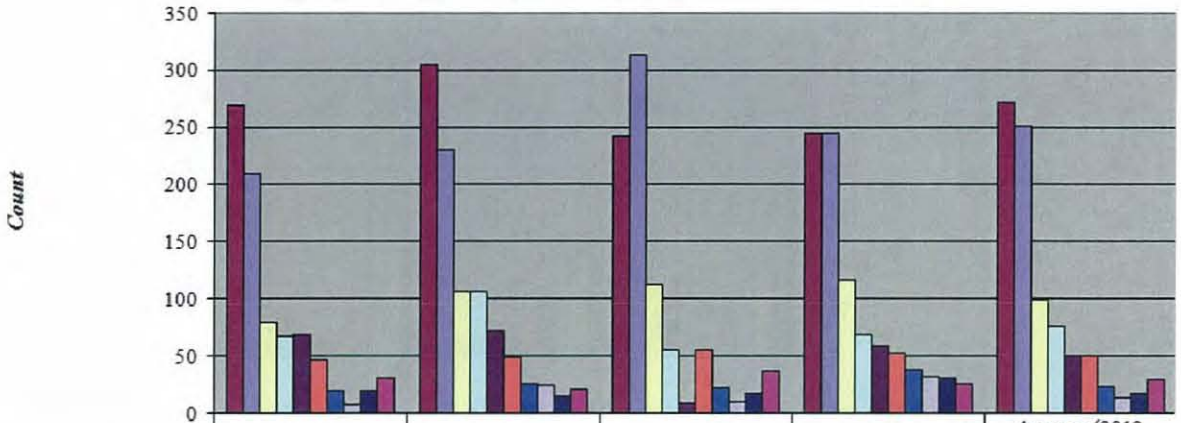
Figure 3.2 Billings system indices including major event days (MEDs) as defined in IEEE Standard 1366-2012.

The June 13th MED was primarily due to a storm that effected Billings, with about 30 additional SAIDI minutes for the division as well as two-tenths more SAIFI.



	2010	2011	2012	2013	Average (2010-2012)
System-Equipment Failure	267	304	237	242	269
Animal-Squirrel	209	230	313	242	251
Unknown	79	106	112	114	99
Nature-Wind	64	106	52	60	74
Nature-Lightning	69	72	8	55	50
Nature-Tree In Line	46	49	55	46	50
Nature-Snow/Ice	7	24	7	32	13
System-Scheduled Maintenance	20	0	0	31	7
Animal-Other Bird	31	21	36	26	29
System-Other	55	16	29	24	33
DIVISION TOTAL	999	1,100	1,027	1,024	1,042

Figure 3.3 Billings system outages by top ten causes excluding major event days (MEDs) as defined in IEEE Standard 1366-2012.

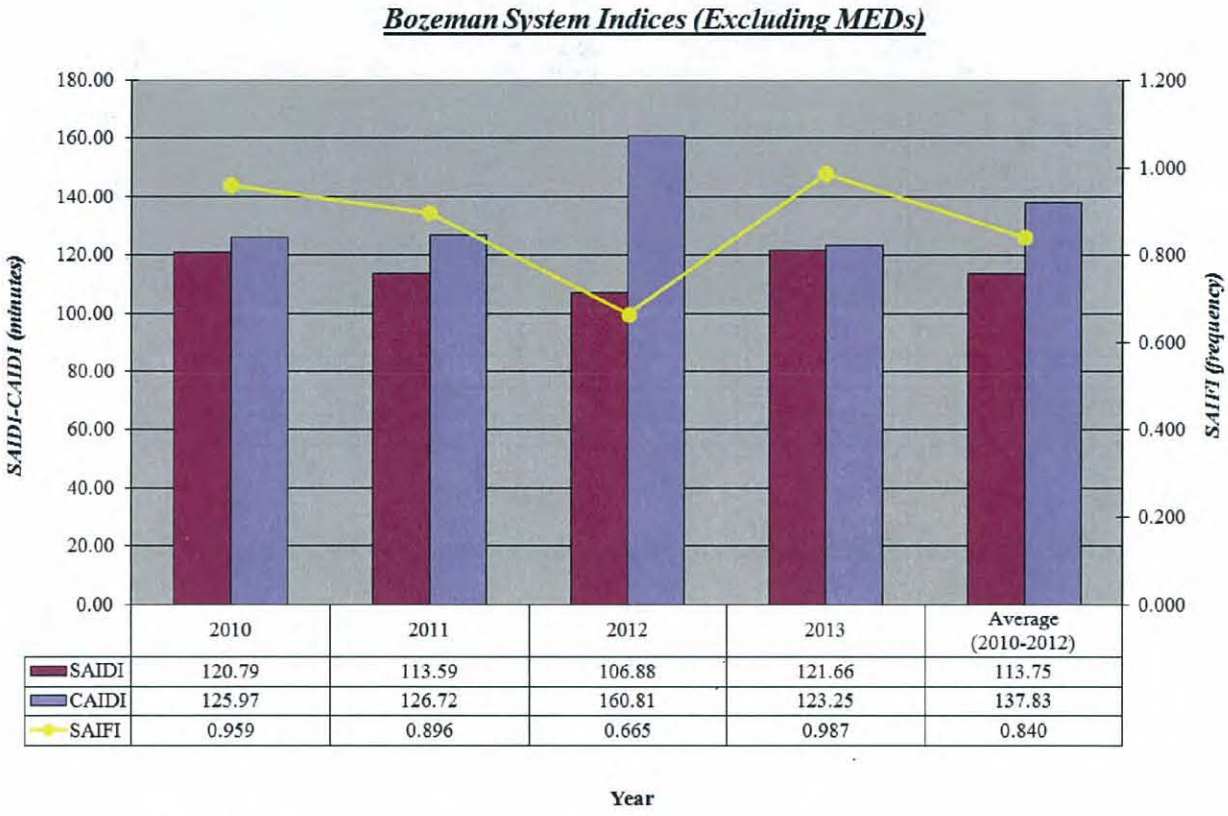


	2010	2011	2012	2013	Average (2010 - 2012)
System-Equipment Failure	269	304	242	245	272
Animal-Squirrel	209	230	313	244	251
Unknown	79	106	113	116	99
Nature-Wind	67	106	55	69	76
Nature-Lightning	69	72	8	59	50
Nature-Tree In Line	46	49	55	52	50
Nature-Limb In Line	20	26	22	38	23
Nature-Snow/Ice	7	24	10	32	14
System-Scheduled Maintenance	20	15	17	31	17
Animal-Other Bird	31	21	36	26	29
DIVISION TOTAL	1,004	1,100	1,042	1,068	1,049

Figure 3.4 Billings system outages by top ten causes including major event days (MEDs) as defined in IEEE Standard 1366-2012.

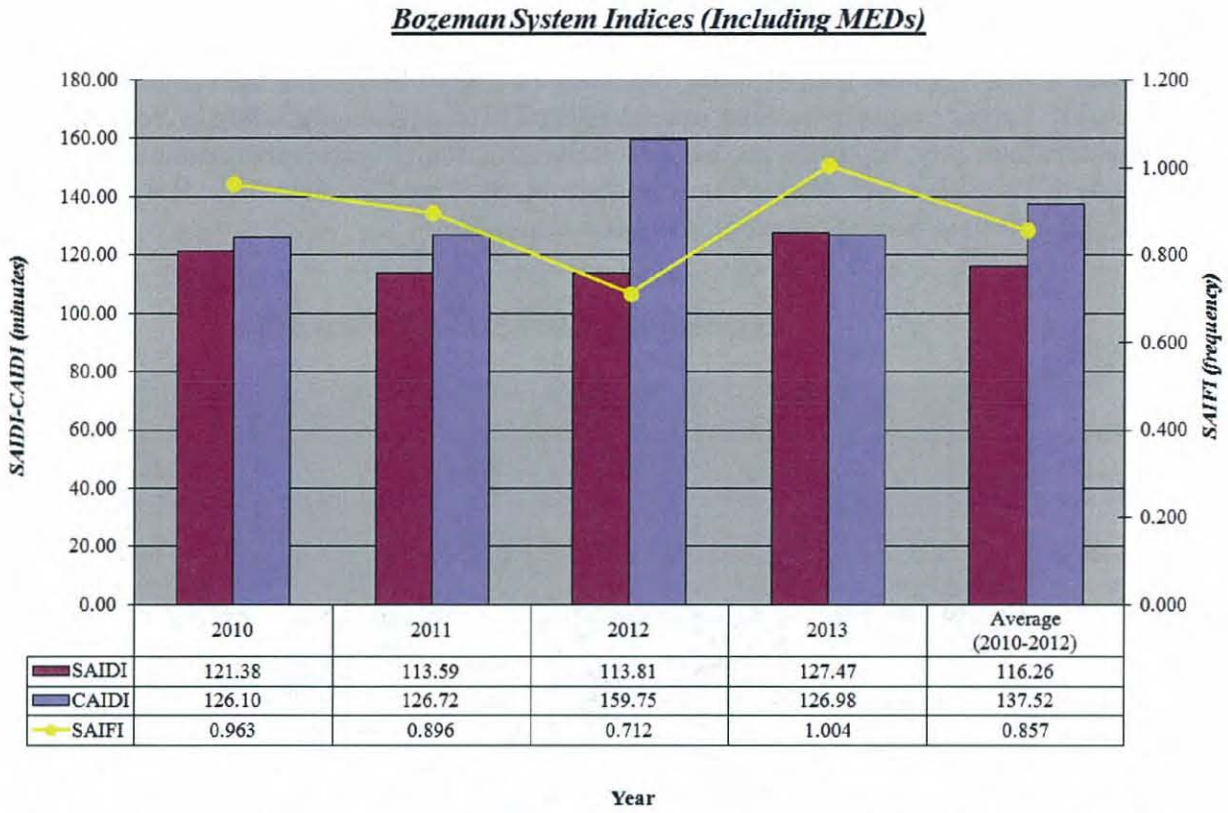
4. BOZEMAN SYSTEM RELIABILITY

Bozeman division indices for 2013 saw a decrease in CAIDI from 2012 but increases in SAIDI and SAIFI. Larger events in the area were attributed to an equipment failure in Bozeman Southside Sub in July, bad underground on a Belgrade circuit in December, vehicle accident in Belgrade in December and a raptor related outage at the Lone Mountain Sub. Rural areas within this division saw significant outages mostly due to weather.



	2010	2011	2012	2013	Average (2010-2012)
SAIDI	120.79	113.59	106.88	121.66	113.75
CAIDI	125.97	126.72	160.81	123.25	137.83
SAIFI	0.959	0.896	0.665	0.987	0.840

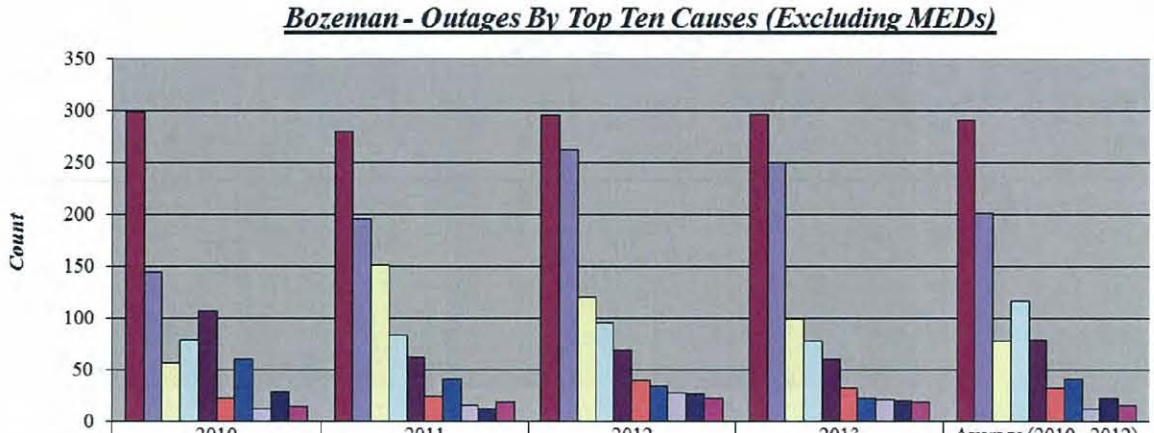
Figure 4.1 Bozeman system indices excluding major event days (MEDs) as defined in IEEE Standard 1366-2012.



	2010	2011	2012	2013	Average (2010-2012)
SAIDI	121.38	113.59	113.81	127.47	116.26
CAIDI	126.10	126.72	159.75	126.98	137.52
SAIFI	0.963	0.896	0.712	1.004	0.857

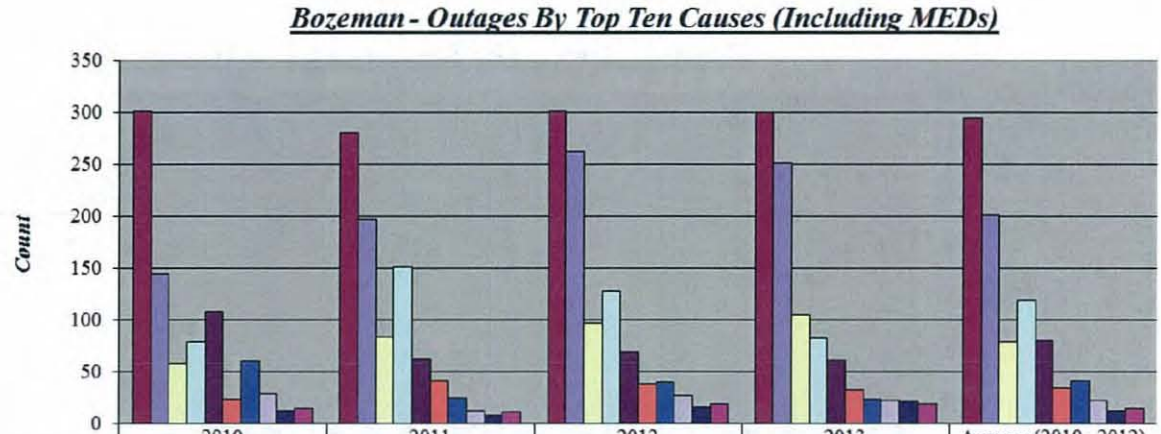
Figure 4.2 Bozeman system indices including major event days (MEDs) as defined in IEEE Standard 1366-2012.

Neither of the two MEDs affected Bozeman significantly, though the August first storm caused a number of rural outages west of Bozeman.



	2010	2011	2012	2013	Average (2010 - 2012)
Equipment Failure	299	280	296	297	292
Unknown	144	196	262	250	201
Tree In Line	56	151	120	99	78
Wind	79	83	95	77	117
Lightning	106	62	69	60	79
Snow/Ice	22	24	40	32	32
Other Bird	60	41	34	22	41
Construction	12	15	27	21	12
Limb In Line	29	12	26	20	22
Maintenance	14	18	22	19	15
DIVISION TOTAL	1,086	1,064	1,150	1,046	1,100

Figure 4.3 Bozeman system outages by top ten causes excluding major event days (MEDs) as defined in IEEE Standard 1366-2012.

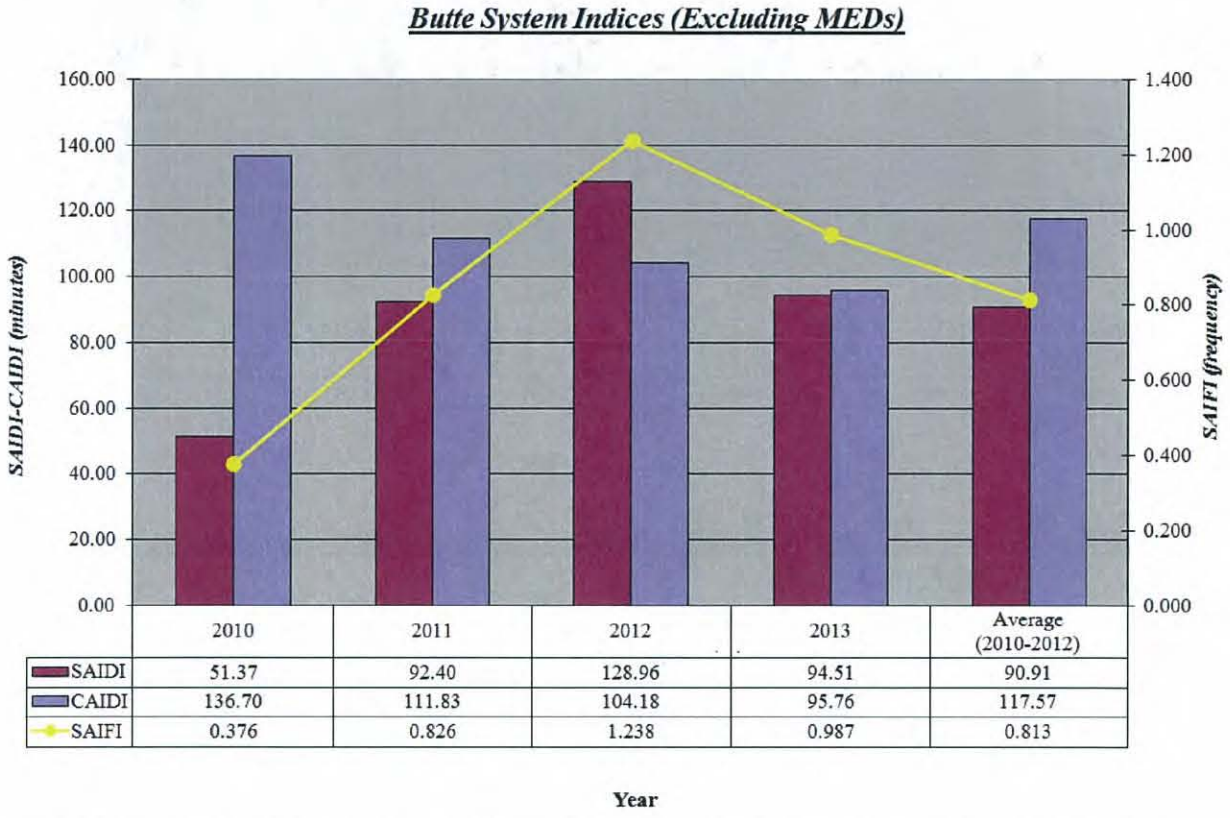


	2010	2011	2012	2013	Average (2010 - 2012)
Equipment Failure	301	280	301	300	294
Unknown	144	196	262	251	201
Tree In Line	57	83	96	104	79
Wind	79	151	127	82	119
Lightning	107	62	69	61	79
Snow/Ice	23	41	38	32	34
Other Bird	60	24	40	23	41
Limb in Line	29	12	26	22	22
Construction	12	8	15	21	12
Maintenance	14	11	19	19	15
DIVISION TOTAL	1,091	1,064	1,168	1,064	1,108

Figure 4.4 Bozeman system outages by top ten causes including major event days (MEDs) as defined in IEEE Standard 1366-2012.

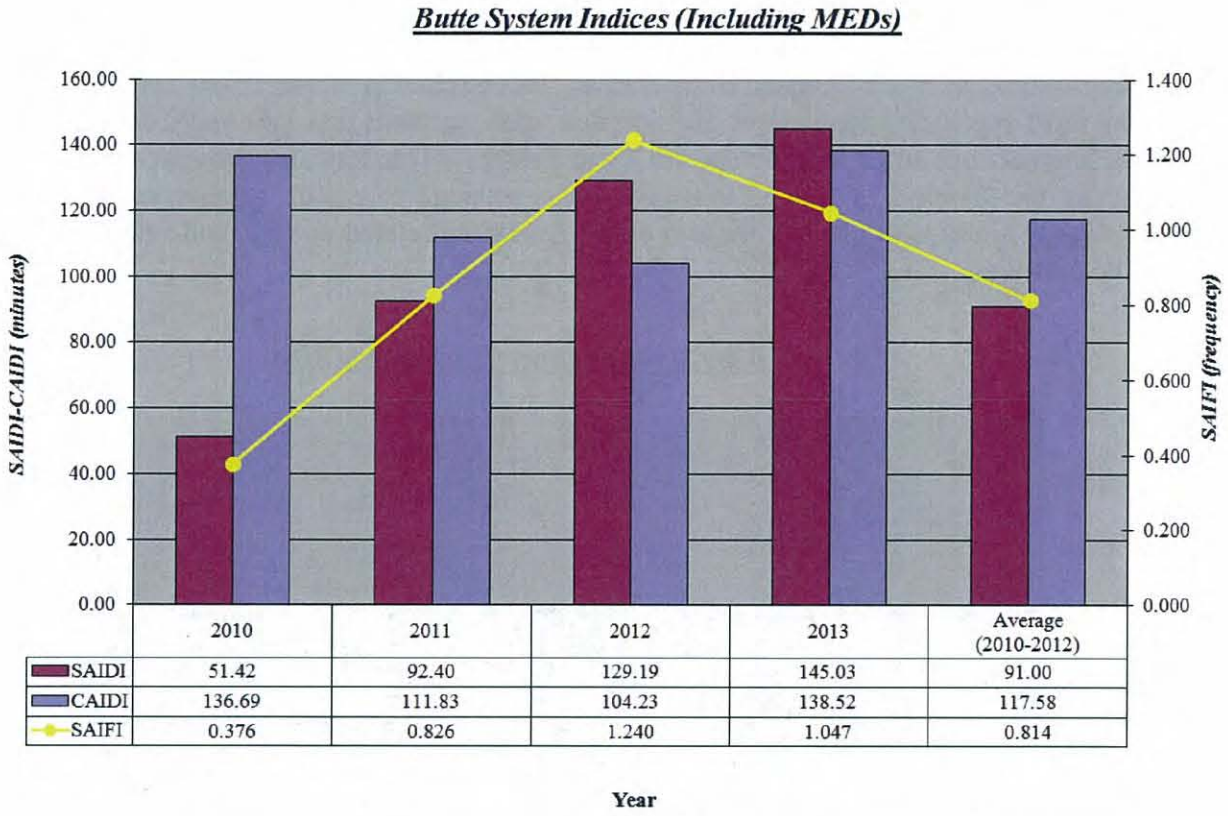
5. BUTTE SYSTEM RELIABILITY

All three indices in Butte Division decreased in 2013 excluding Major Event Days. August 1st was the most significant day in this division due to an accident that took out 2 feeders and put 2,100 customers out and a long outage for Twin Bridges. That day also brought severe weather throughout the division. For 2013, outage counts remained constant. Equipment failures went down slightly along with trees in line and wind. Lightning related outages and snow/ice doubled over the past year.



	2010	2011	2012	2013	Average (2010-2012)
SAIDI	51.37	92.40	128.96	94.51	90.91
CAIDI	136.70	111.83	104.18	95.76	117.57
SAIFI	0.376	0.826	1.238	0.987	0.813

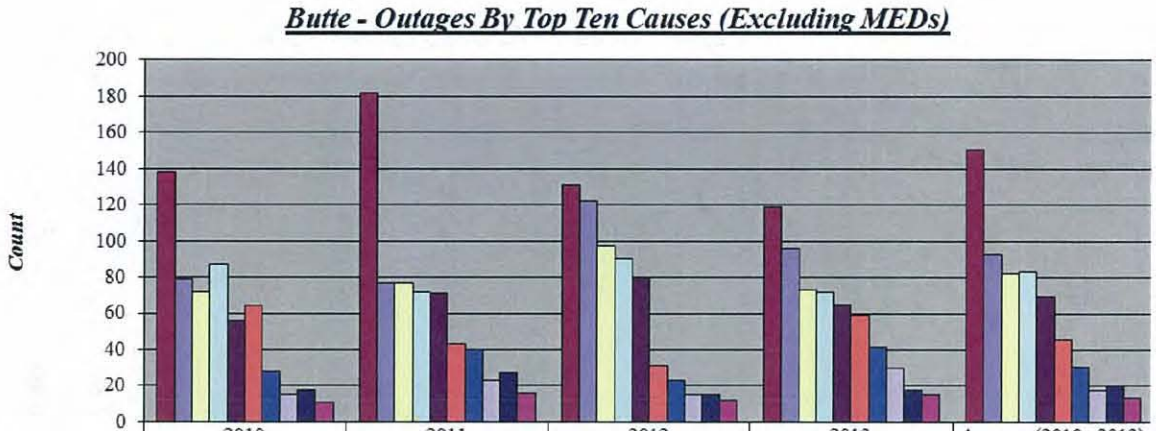
Figure 5.1 Butte system indices excluding major event days (MEDs) as defined in IEEE Standard 1366-2012.



	2010	2011	2012	2013	Average (2010-2012)
SAIDI	51.42	92.40	129.19	145.03	91.00
CAIDI	136.69	111.83	104.23	138.52	117.58
SAIFI	0.376	0.826	1.240	1.047	0.814

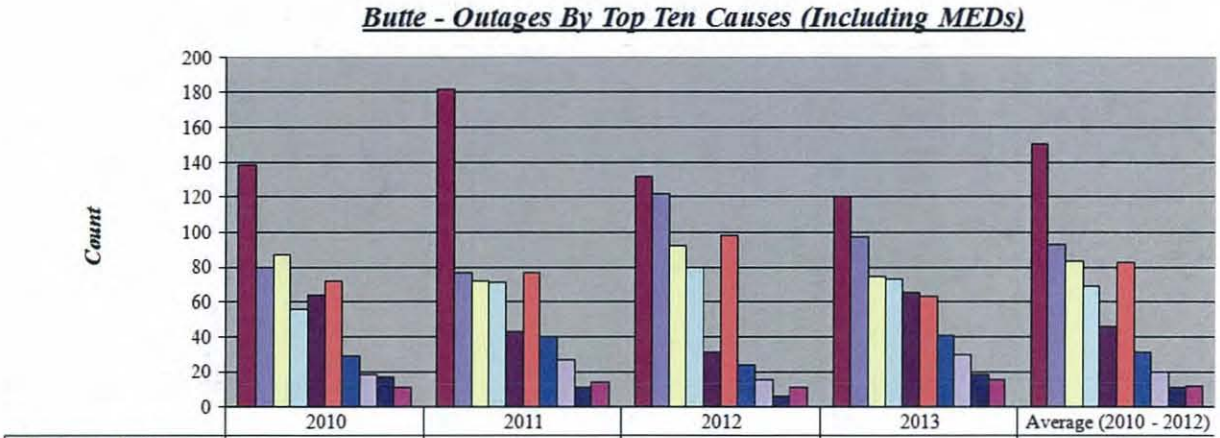
Figure 5.2 Butte system indices including major event days (MEDs) as defined in IEEE Standard 1366-2012.

Butte Division was heavily impacted by the August 1st, 2013 Major Event Day.



	2010	2011	2012	2013	Average (2010 - 2012)
Equipment Failure	138	182	131	119	150
Unknown	79	77	122	96	93
Wind	72	77	97	73	82
Tree In Line	87	72	90	72	83
Other Bird	56	71	80	65	69
Lightning	64	43	31	59	46
Snow/Ice	28	40	23	41	30
Animal-Other	15	23	15	30	18
Scheduled Maintenance	18	27	15	18	20
System-Other	11	16	12	15	13
DIVISION TOTAL	669	725	692	691	695

Figure 5.3 Butte system outages by top ten causes excluding major event days (MEDs) as defined in IEEE Standard 1366-2012.

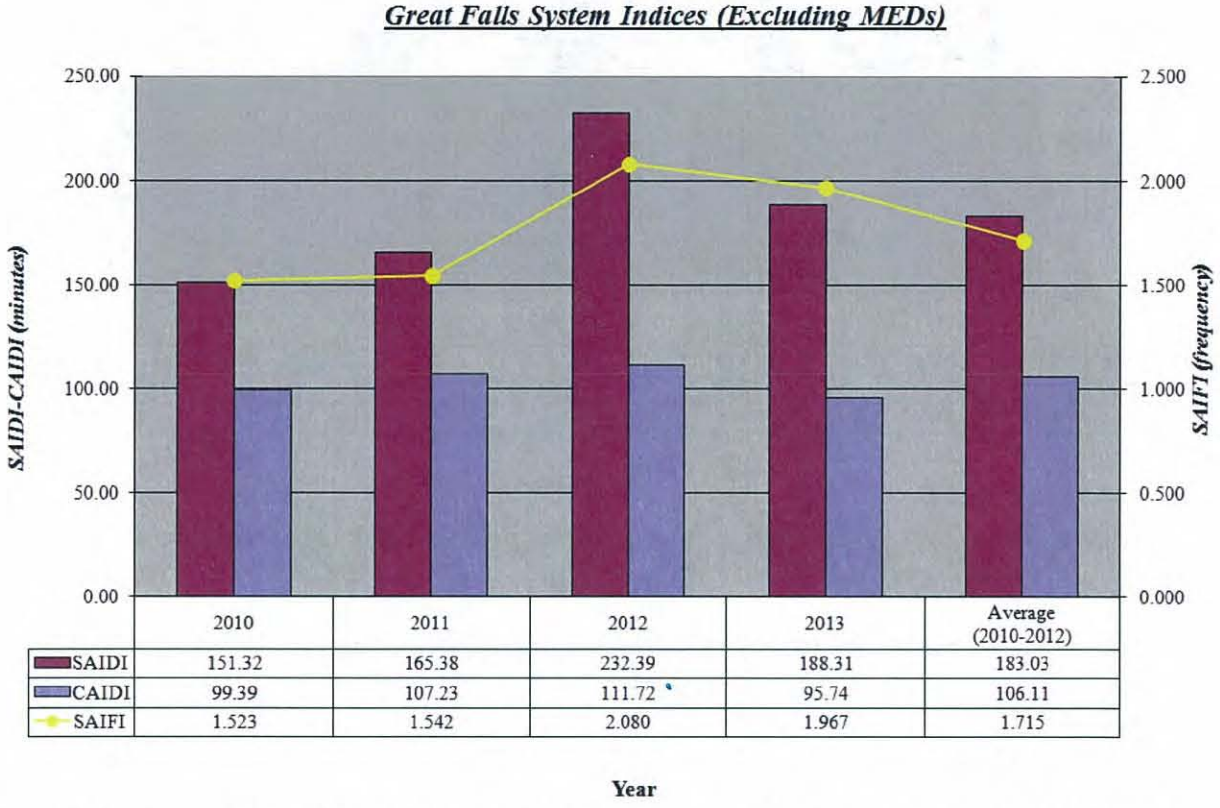


	2010	2011	2012	2013	Average (2010 - 2012)
Equipment Failure	138	182	132	120	151
Unknown	80	77	122	97	93
Tree In Line	87	72	92	75	84
Other Bird	56	71	80	73	69
Lightning	64	43	31	65	46
Wind	72	77	98	63	82
Snow/Ice	29	40	24	41	31
Scheduled Maintenance	18	27	15	30	20
Limb in Line	17	11	6	18	11
Raccoon	11	14	11	15	12
DIVISION TOTAL	671	725	698	703	698

Figure 5.4 Butte system outages by top ten causes including major event days (MEDs) as defined in IEEE Standard 1366-2012.

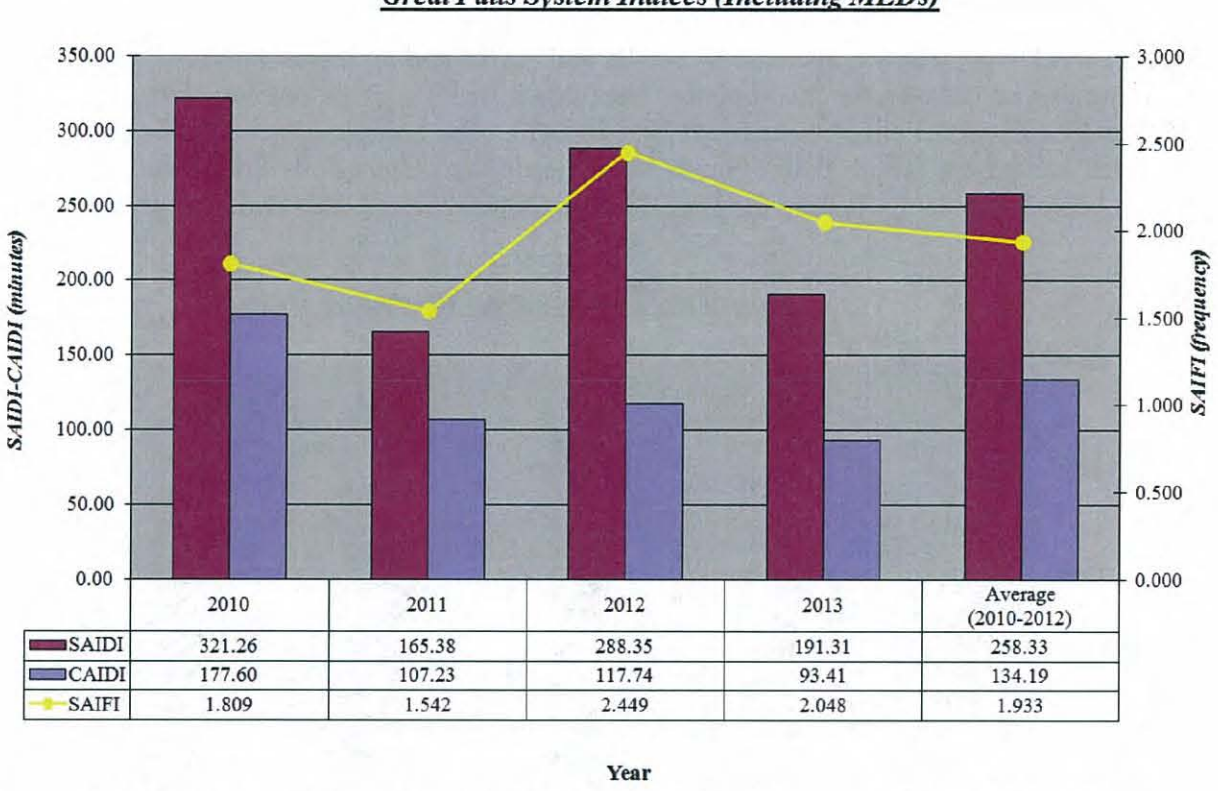
6. GREAT FALLS SYSTEM RELIABILTY

Great Falls Division saw a decrease in SAIDI and SAIFI and an increase in CAIDI in 2013. The total number of outages for this division went down by 232. Tree in Line Outages were down 35% and Equipment Failure went down 30% in 2013. The larger outages specific to outage time included equipment failure on the Smith River Feeder and Great Falls Southwest Feeders along with a vehicle accident affecting the Fort Benton, Carter, Loma, Tunis and Morony Subs.



	2010	2011	2012	2013	Average (2010-2012)
SAIDI	151.32	165.38	232.39	188.31	183.03
CAIDI	99.39	107.23	111.72	95.74	106.11
SAIFI	1.523	1.542	2.080	1.967	1.715

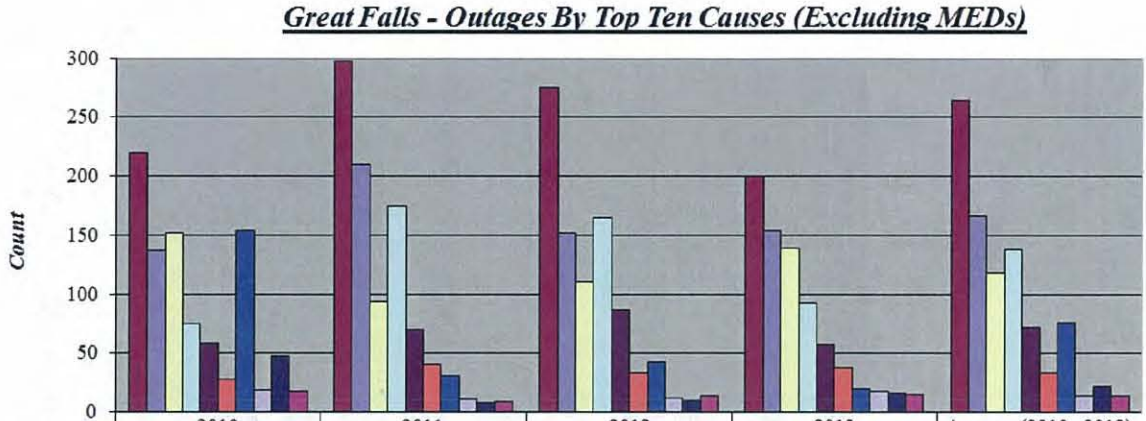
Figure 6.1 Great Falls system indices excluding major event days (MEDs) as defined in IEEE Standard 1366-2012.



	2010	2011	2012	2013	Average (2010-2012)
SAIDI	321.26	165.38	288.35	191.31	258.33
CAIDI	177.60	107.23	117.74	93.41	134.19
SAIFI	1.809	1.542	2.449	2.048	1.933

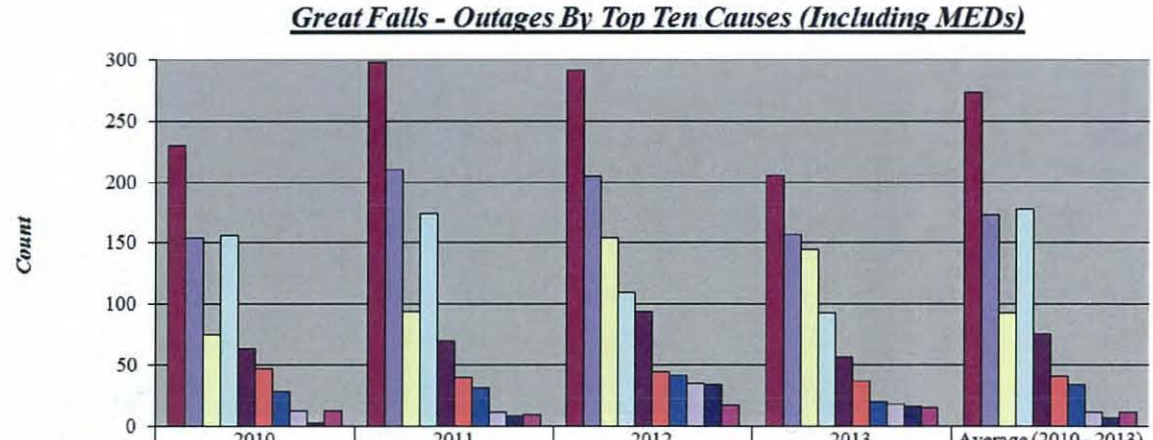
Figure 6.2 Great Falls system indices including major event days (MEDs) as defined in IEEE Standard 1366-2012.

The two Montana MEDs in 2013 caused minimal outages within the Great Falls Division.



	2010	2011	2012	2013	Average (2010 - 2012)
Equipment Failure	220	298	275	200	264
Wind	137	210	152	154	166
Unknown	152	94	110	139	119
Lightning	75	174	165	93	138
Tree In Line	58	70	87	57	72
Squirrel	28	40	34	37	34
Snow/Ice	154	31	42	20	76
System-Other	19	11	12	18	14
Other Bird	47	8	10	16	22
Limb In Line	18	9	14	15	14
DIVISION TOTAL	1,047	1,109	1,085	853	1,080

Figure 6.3 Great Falls system outages by top ten causes excluding major event days (MEDs) as defined in IEEE Standard 1366-2012.

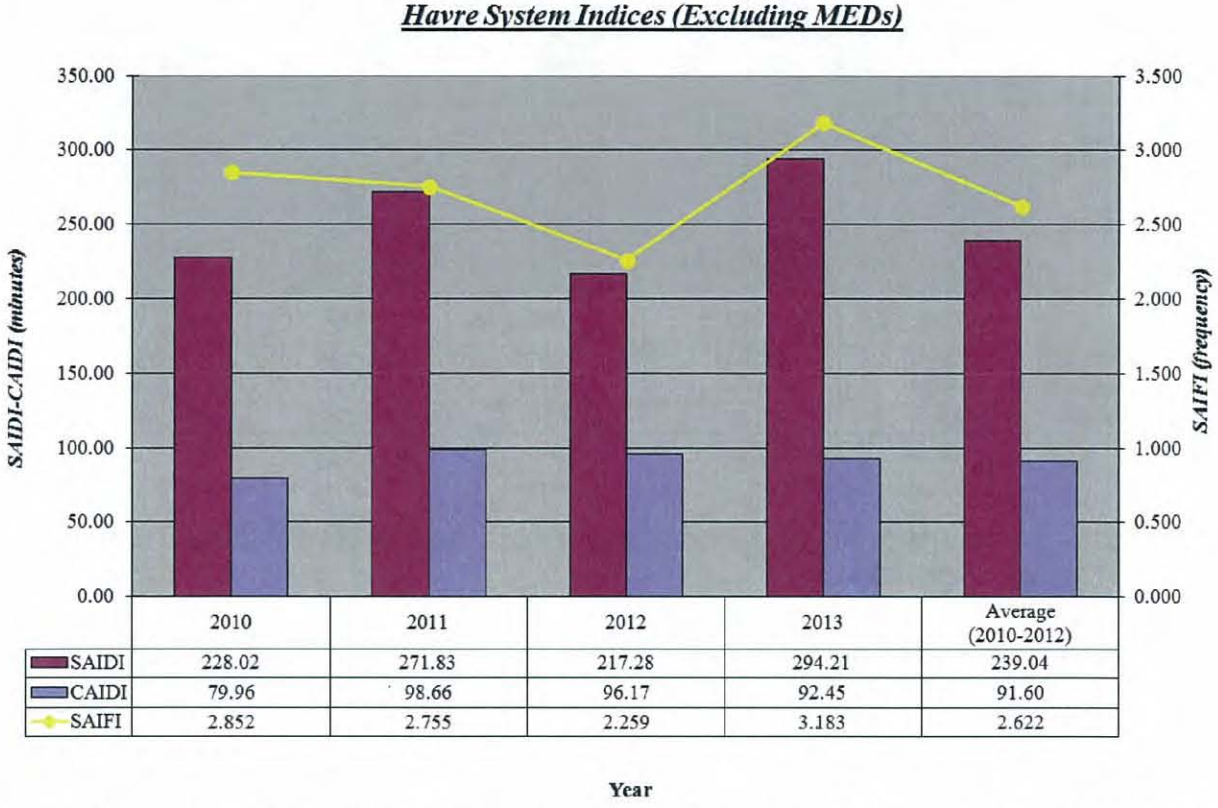


	2010	2011	2012	2013	Average (2010 - 2013)
Equipment Failure	230	298	291	205	273
Unknown	154	210	204	157	173
Lightning	75	94	154	145	93
Wind	156	174	110	93	178
Tree In Line	63	70	94	57	76
Other Bird	47	40	44	37	40
Squirrel	28	31	42	20	34
Vehicle Hit	12	11	35	18	12
Scheduled Construction	3	8	34	16	7
Waterfoul	12	9	17	15	12
DIVISION TOTAL	1,137	1,109	1,156	870	1,134

Figure 6.4 Great Falls system outages by top ten causes including major event days (MEDs) as defined in IEEE Standard 1366-2012.

7. HAVRE SYSTEM RELIABILITY

February second was a significant day for the Havre area even though it did not qualify for a Major Event Day. An equipment failure in the Havre WAPA substation took out most of the Hi-Line area. Several of the Havre City subs were out for more than six hours, while some rural subs and customers were out for up to three hours. 108.88 minutes of SAIDI and .792 of SAIFI were added to the Havre total on this day. Wind and Waterfoul outage causes increased while Tree in Line Outage causes decreased.



	2010	2011	2012	2013	Average (2010-2012)
SAIDI	228.02	271.83	217.28	294.21	239.04
CAIDI	79.96	98.66	96.17	92.45	91.60
SAIFI	2.852	2.755	2.259	3.183	2.622

Figure 7.1 Havre system indices excluding major event days (MEDs) as defined in IEEE Standard 1366-2012.

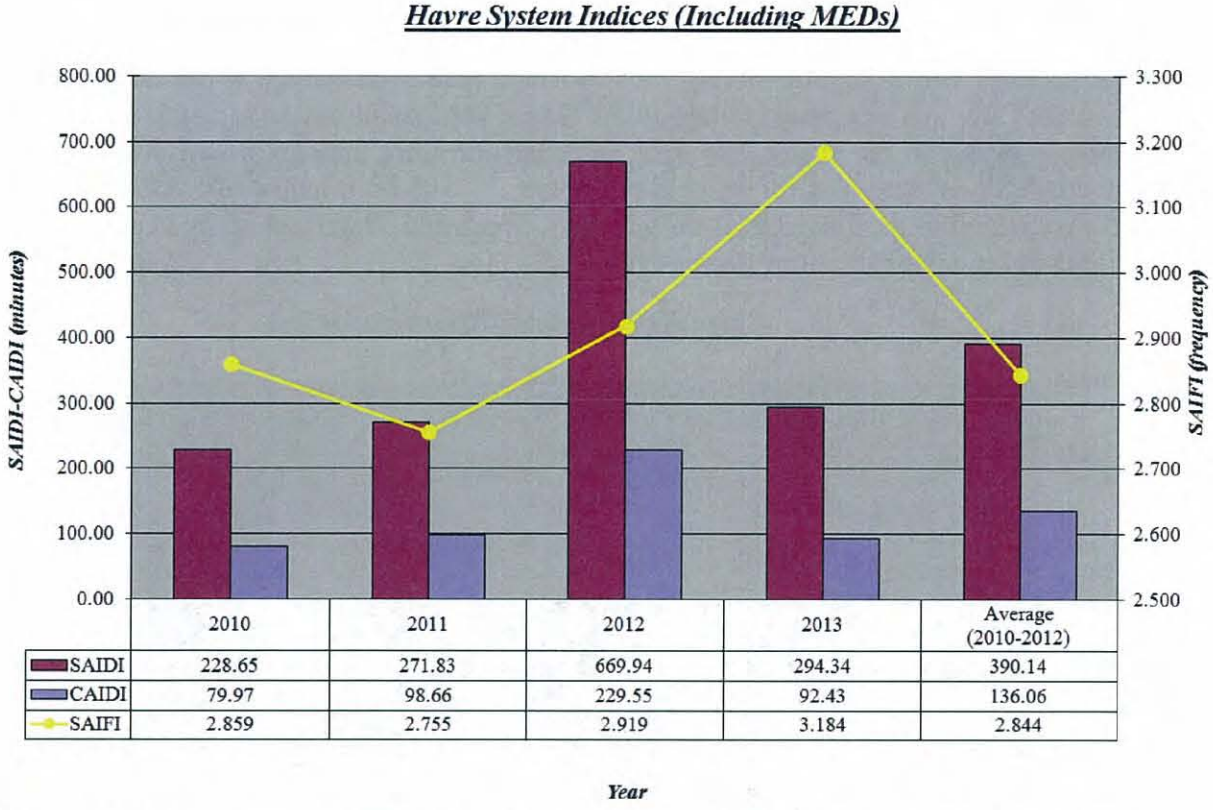
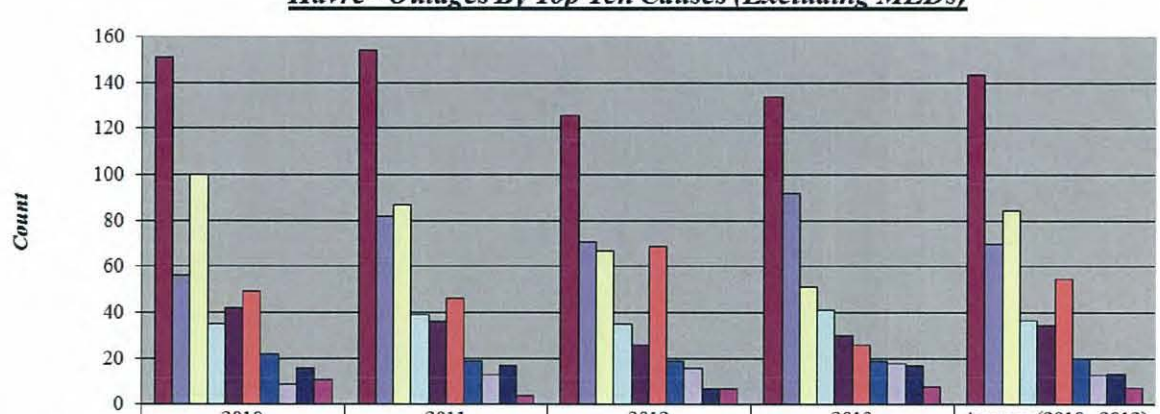


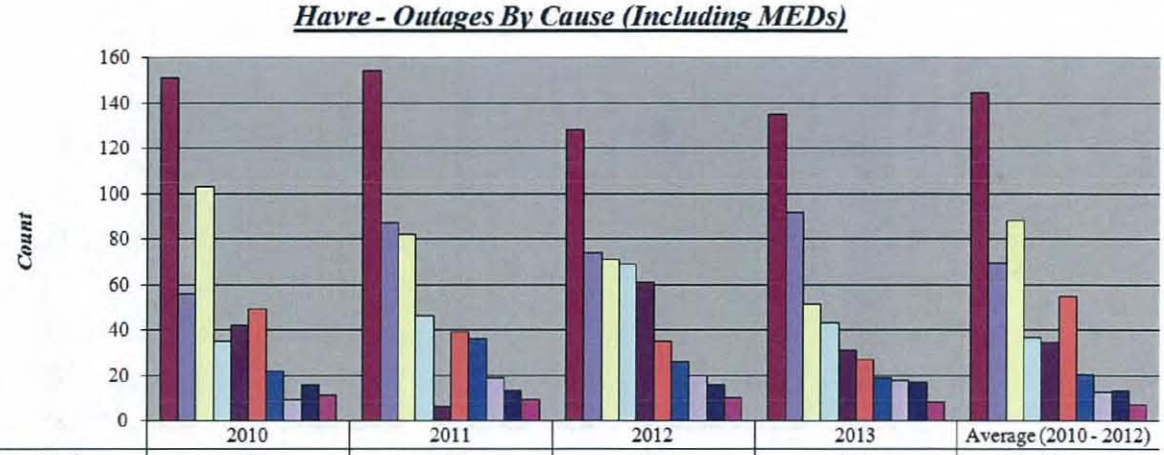
Figure 7.2 Havre system indices including major event days (MEDs) as defined in IEEE Standard 1366-2012.

The MEDs did not affect the Havre area.



	2010	2011	2012	2013	Average (2010 - 2012)
Equipment Failure	151	154	126	134	144
Lightning	56	82	71	92	70
Wind	100	87	67	51	85
Unknown	35	39	35	41	36
Other Bird	42	36	26	30	35
Tree in Line	49	46	69	26	55
Limb In Line	22	19	19	19	20
Raccoon	9	13	16	18	13
Waterfowl	16	17	7	17	13
Human Error/Accident	11	4	7	8	7
DIVISION TOTAL	672	601	545	486	606

Figure 7.3 Havre system outages by top ten causes excluding major event days (MEDs) as defined in IEEE Standard 1366-2012.

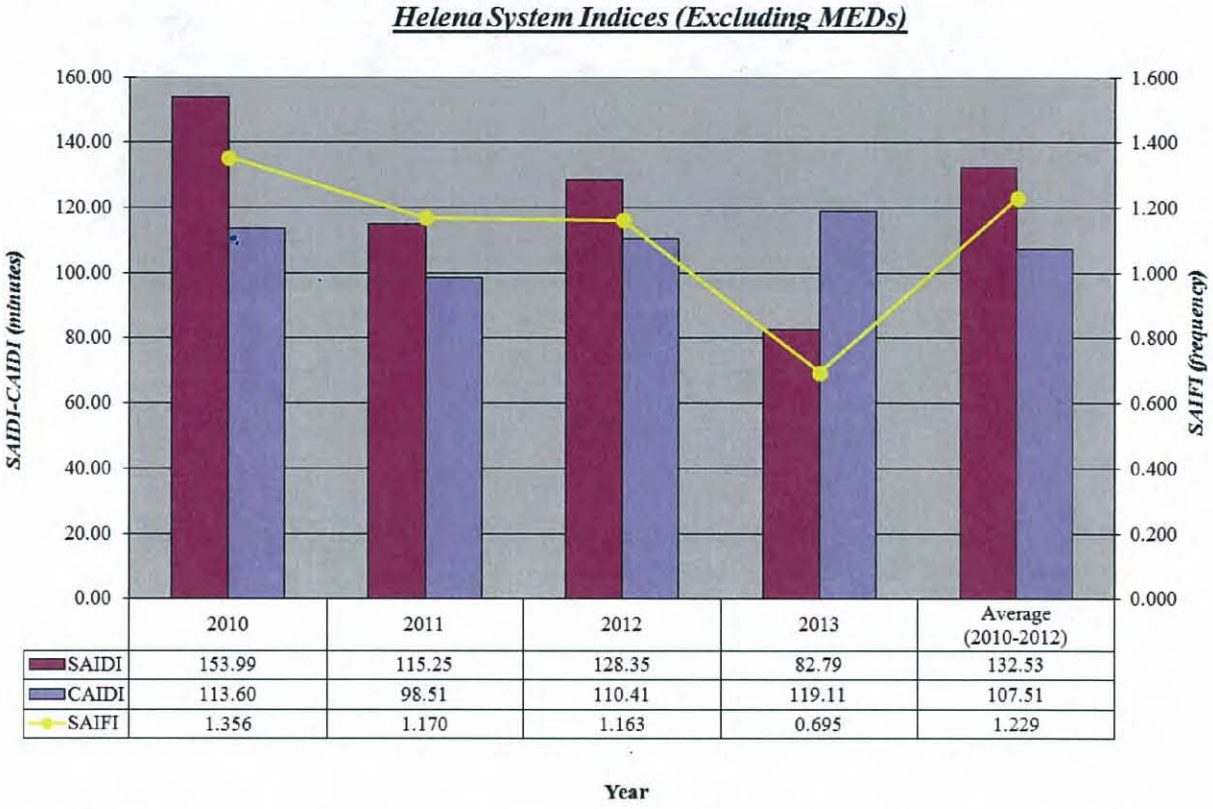


	2010	2011	2012	2013	Average (2010 - 2012)
Equipment Failure	151	154	128	135	144
Lightning	56	87	74	92	70
Wind	103	82	71	51	88
Unknown	35	46	69	43	36
Other Bird	42	6	61	31	35
Tree In Line	49	39	35	27	55
Limb In Line	22	36	26	19	20
Raccoon	9	19	20	18	13
Waterfowl	16	13	16	17	13
Human Error/Accident	11	9	10	8	7
DIVISION TOTAL	676	601	577	491	618

Figure 7.4 Havre system outages by top ten causes including major event days (MEDs) as defined in IEEE Standard 1366-2012.

8. HELENA SYSTEM RELIABILITY

Helena Division saw an increase of 8.7 CAIDI minutes compared to 2012 and a decrease of 45 minutes of SAIDI and .46 drop in SAIFI. Total outage count dropped by 182 from 2012. Large events for Helena include a tree related outage that took out the Canyon Cr-Marysville feeder taking out 348 customers. Squirrels have also caused havoc in Helena with a squirrel issue on Helena East Side-Washington feeder impacting 492 customers. Equipment failure on November 21st caused 973 customer outages; however, 85% were restored within 45 minutes.



	2010	2011	2012	2013	Average (2010-2012)
SAIDI	153.99	115.25	128.35	82.79	132.53
CAIDI	113.60	98.51	110.41	119.11	107.51
SAIFI	1.356	1.170	1.163	0.695	1.229

Figure 8.1 Helena system indices excluding major event days (MEDs) as defined in IEEE Standard 1366-2012.

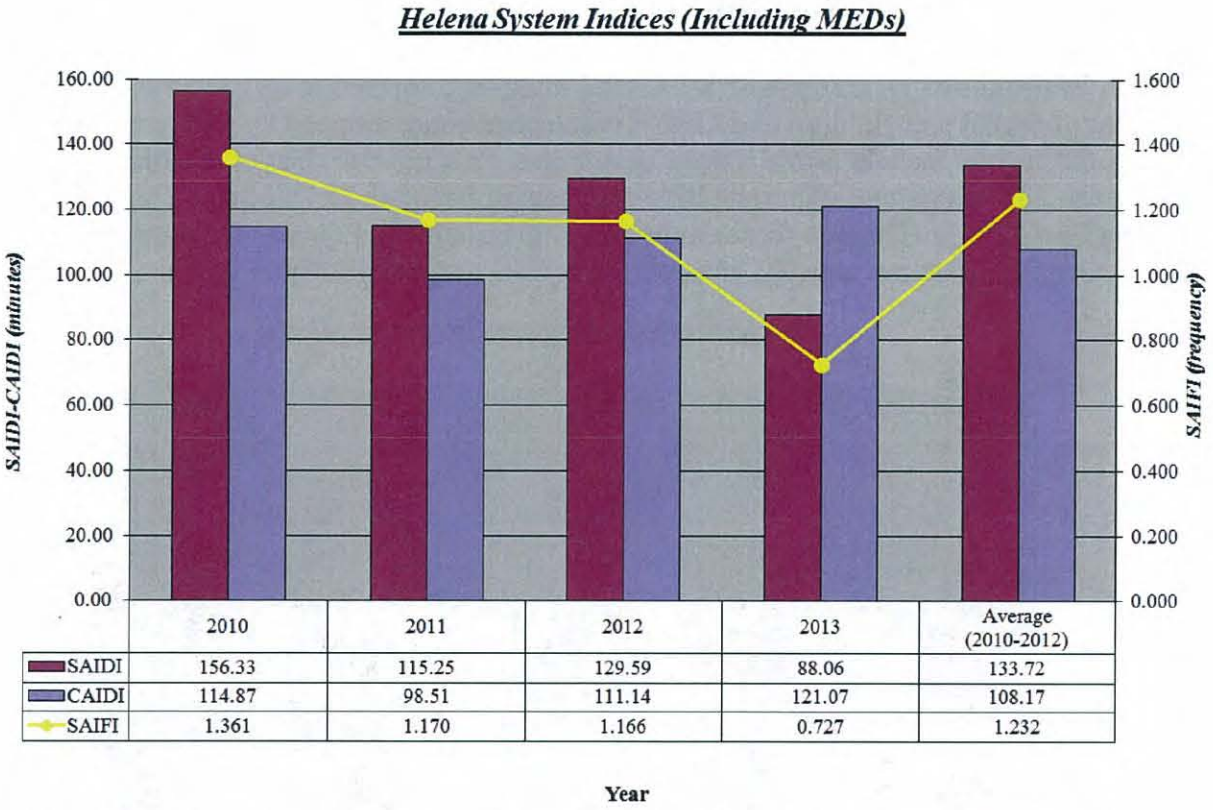
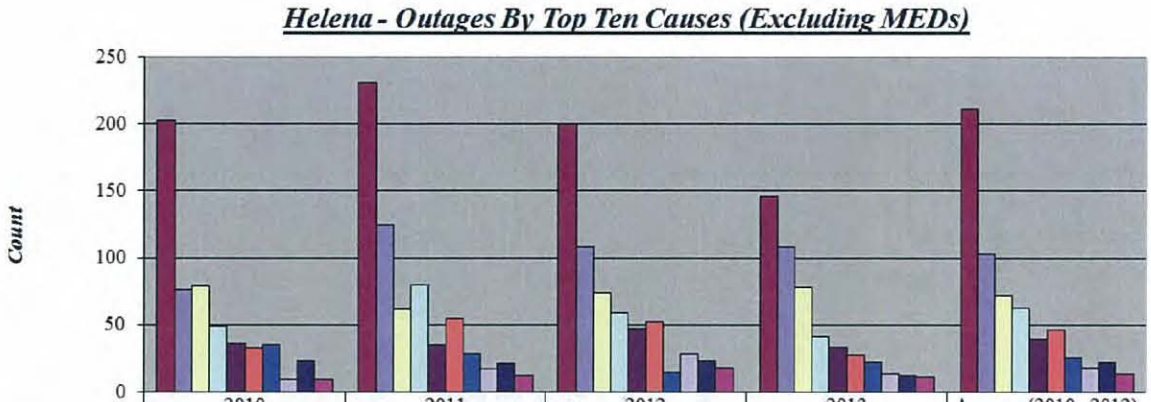
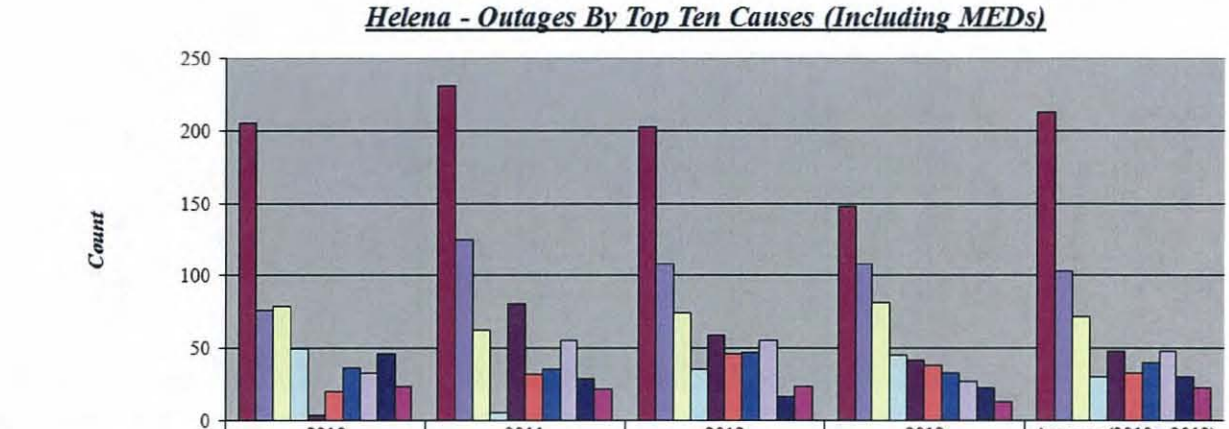


Figure 8.2 Helena system indices including major event days (MEDs) as defined in IEEE Standard 1366-2012.



	2010	2011	2012	2013	Average (2010 - 2012)
Equipment Failure	203	231	200	146	211
Tree In Line	76	125	108	108	103
Lightning	79	62	74	78	72
Squirrel	49	80	59	41	63
Other Bird	36	35	47	33	39
Wind	32	55	52	27	46
Snow/Ice	35	28	14	22	26
Scheduled Construction	9	17	28	13	18
Limb in Line	23	21	23	12	22
Equipment Overload	9	12	18	11	13
DIVISION TOTAL	653	806	811	549	757

Figure 8.3 Helena system outages by top ten causes excluding major event days (MEDs) as defined in IEEE Standard 1366-2012.

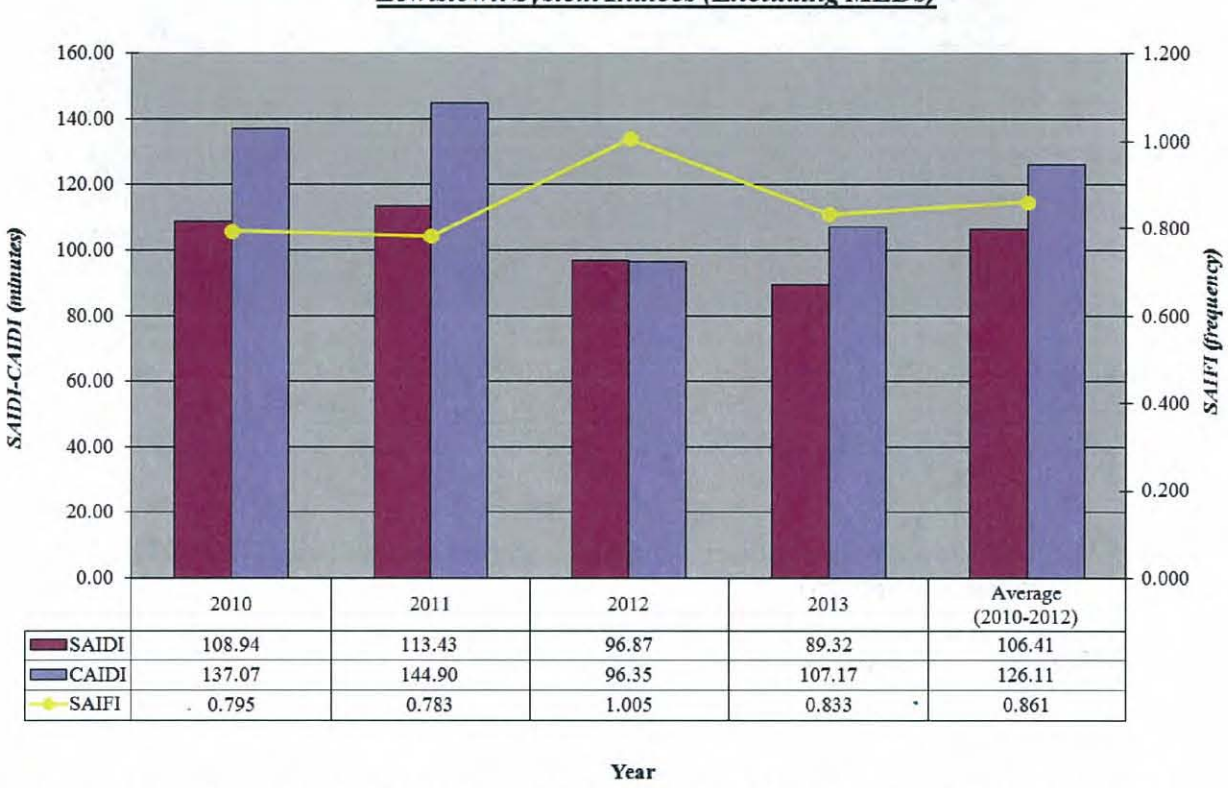


	2010	2011	2012	2013	Average (2010 - 2012)
Equipment Failure	205	231	203	148	213
Tree In Line	76	125	108	108	103
Lightning	79	62	74	81	72
Unknown	49	5	35	45	30
Squirrel	3	80	59	41	47
Scheduled Maintenance	20	32	46	38	33
Other Bird	36	35	47	33	39
Wind	33	55	55	27	48
Snow/Ice	46	28	16	22	30
Limb in Line	23	21	23	13	22
DIVISION TOTAL	668	806	820	638	765

Figure 8.4 Helena system outages by top ten causes including major event days (MEDs) as defined in IEEE Standard 1366-2012.

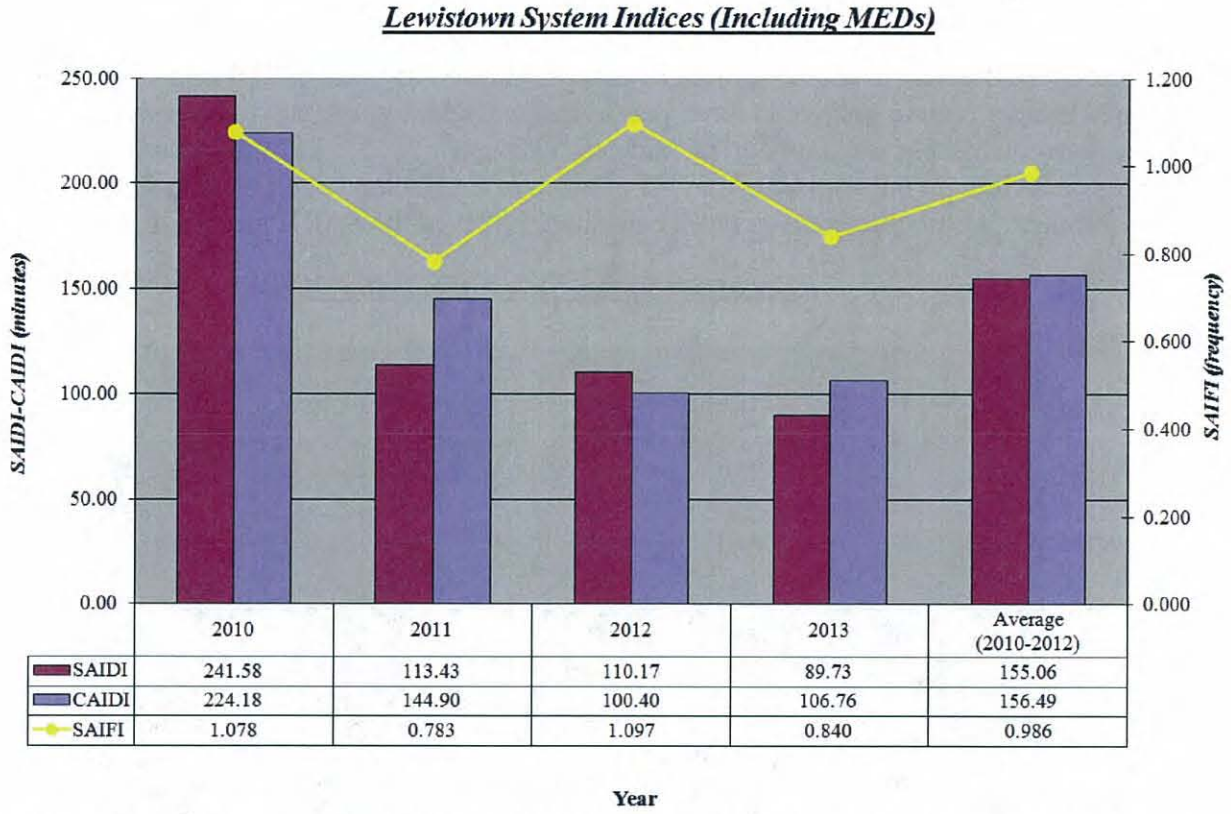
9. LEWISTOWN SYSTEM RELIABILITY

Lewistown District saw a slight increase in CAIDI while SAIFI and SAIDI improved over 2012. All three indices remain below the three year average. Lightning related outages were the biggest outage type increasing the number of outages 50% over 2012. Lightning contributed 27.91 minutes of SAIDI. Wind contributed 37.75 minutes of SAIDI, and equipment failure contributed 11.86 minutes. Those three outage types contributed 87% of the SAIDI minutes for this district.



	2010	2011	2012	2013	Average (2010-2012)
SAIDI	108.94	113.43	96.87	89.32	106.41
CAIDI	137.07	144.90	96.35	107.17	126.11
SAIFI	0.795	0.783	1.005	0.833	0.861

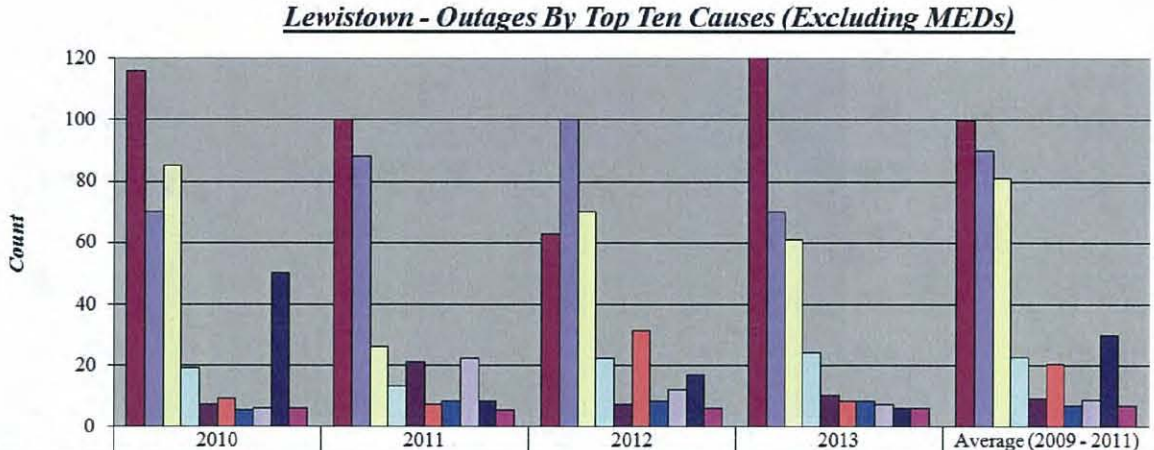
Figure 9.1 Lewistown system indices excluding major event days (MEDs) as defined in IEEE Standard 1366-2012.



	2010	2011	2012	2013	Average (2010-2012)
SAIDI	241.58	113.43	110.17	89.73	155.06
CAIDI	224.18	144.90	100.40	106.76	156.49
SAIFI	1.078	0.783	1.097	0.840	0.986

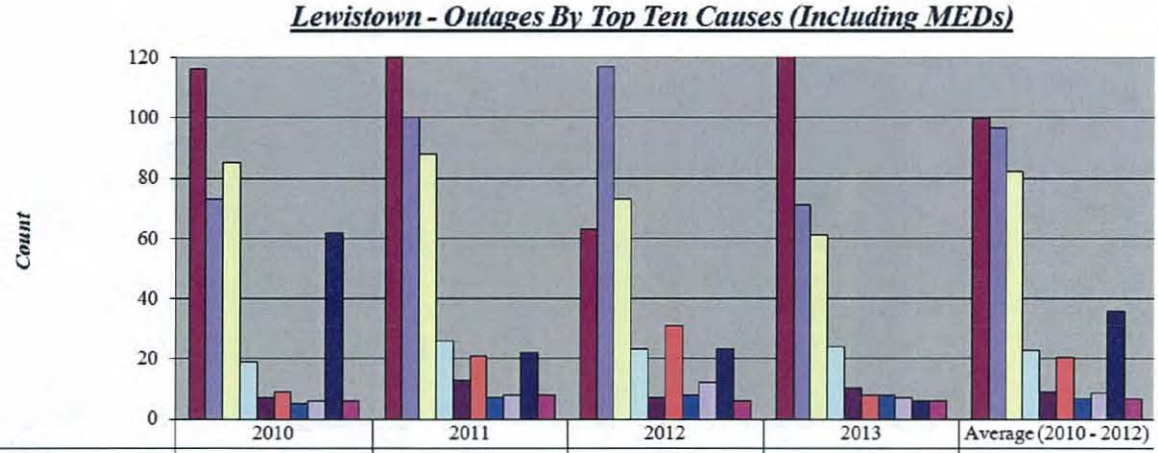
Figure 9.2 Lewistown system indices including major event days (MEDs) as defined in IEEE Standard 1366-2012.

Lewistown was not impacted by the two MEDs this year.



	2010	2011	2012	2013	Average (2009 - 2011)
Lightning	116	100	63	127	100
Wind	70	88	100	70	90
Equipment Failure	85	26	70	61	81
Unknown	19	13	22	24	22
Waterfowl	7	21	7	10	9
Other Bird	9	7	31	8	20
Tree in Line	5	8	8	8	7
Animal Other	6	22	12	7	9
Snow/Ice	50	8	17	6	30
System Other	6	5	6	6	7
DIVISION TOTAL	300	347	337	361	428

Figure 9.3 Lewistown system outages by top ten causes excluding major event days (MEDs) as defined in IEEE Standard 1366-2012.



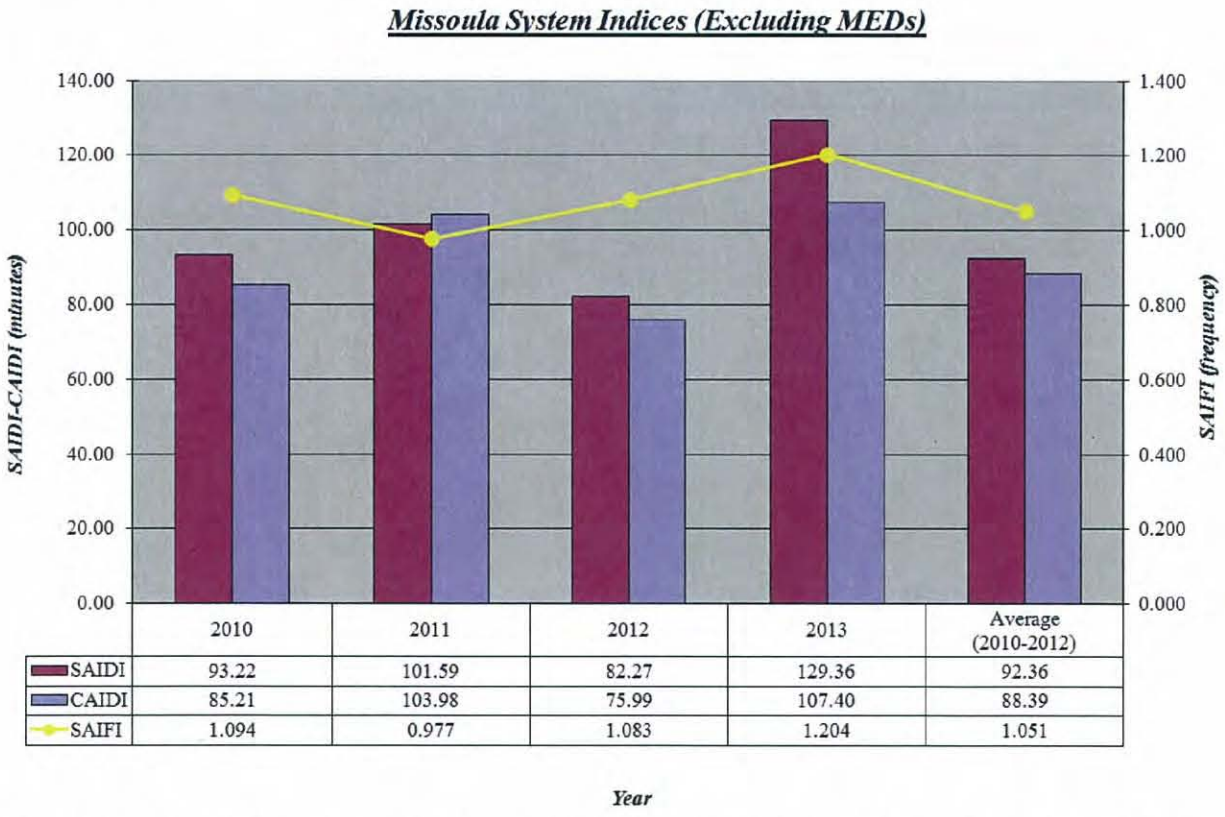
	2010	2011	2012	2013	Average (2010 - 2012)
Nature-Lightning	116	120	63	140	100
Nature-Wind	73	100	117	71	97
System-Equipment Failure	85	88	73	61	82
Unknown	19	26	23	24	23
Animal-Waterfowl	7	13	7	10	9
Animal-Other Bird	9	21	31	8	20
Nature-Tree In Line	5	7	8	8	7
Animal-Other	6	8	12	7	9
Nature-Snow/Ice	62	22	23	6	36
System-Other	6	8	6	6	7
DIVISION TOTAL	315	347	365	375	442

Figure 9.4 Lewistown system outages by top ten causes including major event days (MEDs) as defined in IEEE Standard 1366-2012.

10. MISSOULA SYSTEM RELIABILITY

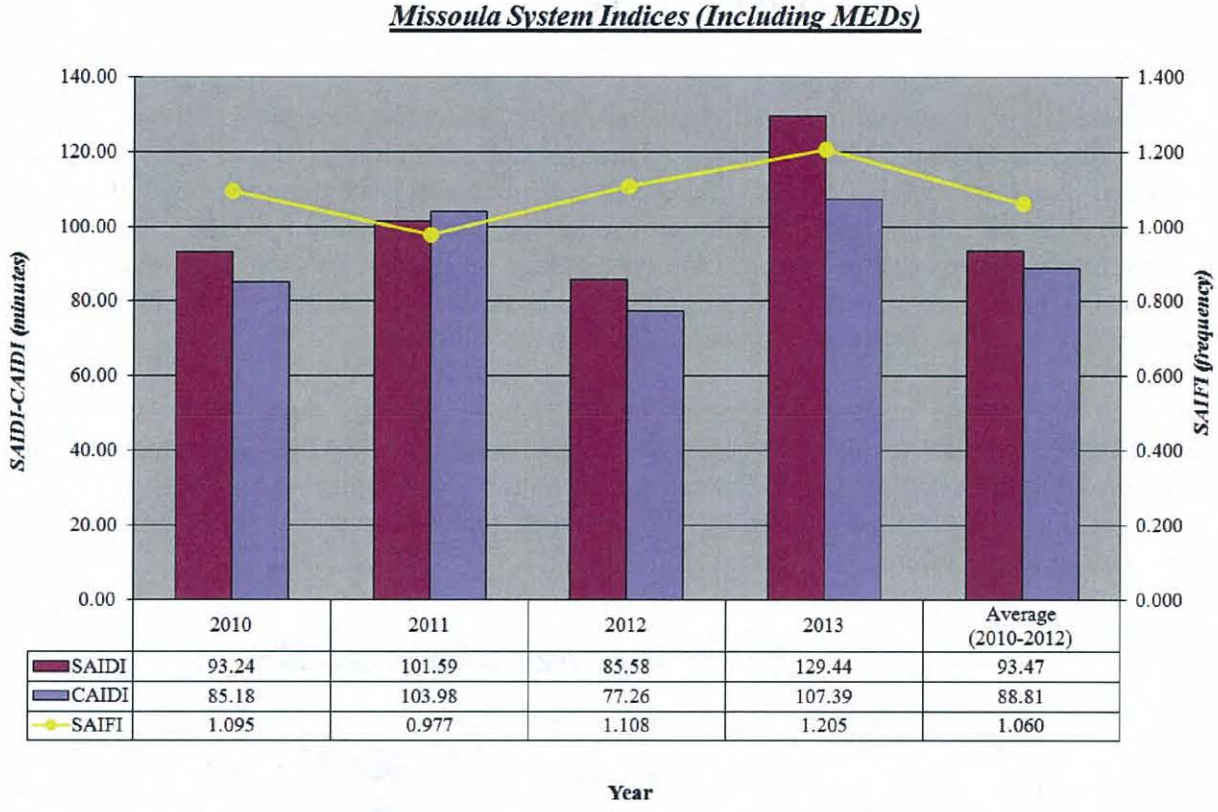
Missoula Division moved up in all three indices in 2013. On June 30th, Hillview Heights sub overloaded taking out 5146 customers. Through step restoration, 70% of the customers were restored in approximately 2 hours. Plains Sub had an animal issue that took out 2,400 customers also on June 30th. This was a lengthy outage lasting approximately 8 hours. Thompson Falls South feeder experienced a Tree in Line type outage on August 26th that took over 18 hours to repair. Of the 433 customers impacted, 400 were back in power within 1 hour. Large outages in outlying areas cause indices to increase, as seen in this division.

Tree in line outage counts went down in 2013; however, this outage type was the largest contributor of SAIDI for this division, adding 33.81 minutes of SAIDI. Equipment Failure was the second highest adding 31.02. Rounding out the top 3 was Other Animal with 16.20 minutes. Outages due to squirrels are down by 50, indicating that the several years of mitigation efforts are starting to pay off.



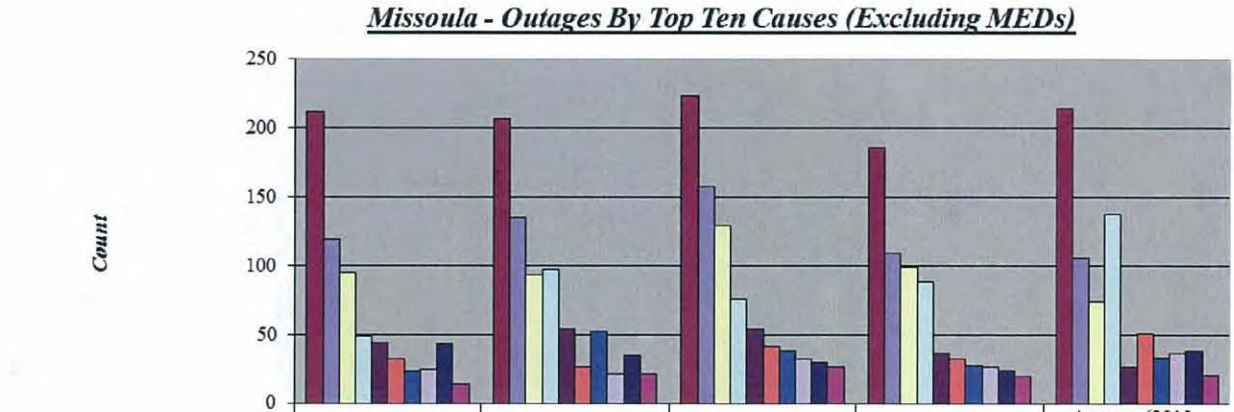
	2010	2011	2012	2013	Average (2010-2012)
SAIDI	93.22	101.59	82.27	129.36	92.36
CAIDI	85.21	103.98	75.99	107.40	88.39
SAIFI	1.094	0.977	1.083	1.204	1.051

Figure 10.1 Missoula system indices excluding major event days (MEDs) as defined in IEEE Standard 1366-2012.



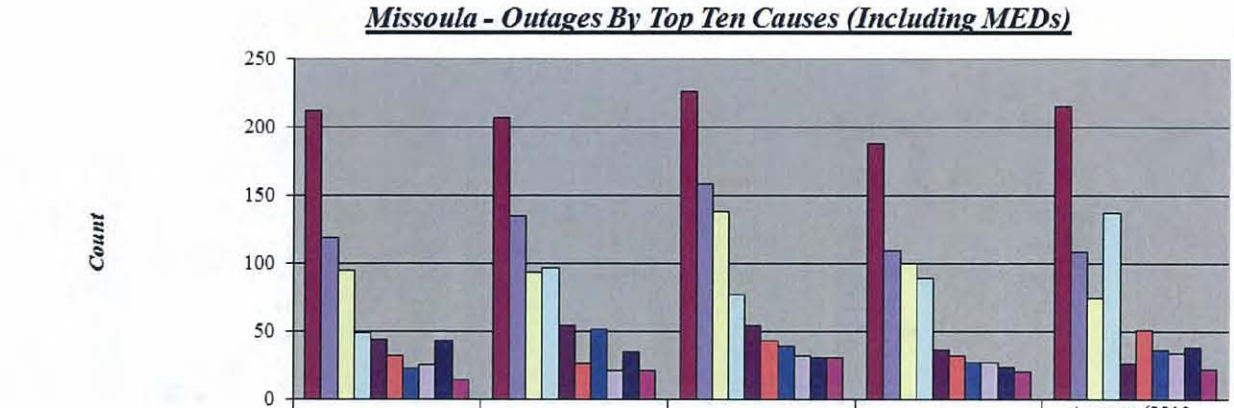
	2010	2011	2012	2013	Average (2010-2012)
SAIDI	93.24	101.59	85.58	129.44	93.47
CAIDI	85.18	103.98	77.26	107.39	88.81
SAIFI	1.095	0.977	1.108	1.205	1.060

Figure 10.2 Missoula system indices including major event days (MEDs) as defined in IEEE Standard 1366-2012.



	2010	2011	2012	2013	Average (2010 - 2012)
System-Equipment Failure	212	207	224	186	214
Nature-Tree In Line	119	135	158	109	106
Unknown	95	93	129	99	74
Animal-Squirrel	49	97	76	88	137
System-Scheduled Maintenance	44	54	54	36	26
Animal-Other Bird	32	26	41	32	51
Nature-Limb In Line	23	52	38	27	33
Nature-Lightning	25	21	32	26	36
Nature-Snow/Ice	43	35	30	24	38
Nature-Wind	14	21	26	20	20
DIVISION TOTAL	773	899	933	751	868

Figure 10.3 Missoula system outages by top ten causes excluding major event days (MEDs) as defined in IEEE Standard 1366-2012.



	2010	2011	2012	2013	Average (2010 - 2012)
System-Equipment Failure	212	207	227	188	215
Nature-Tree In Line	119	135	159	109	109
Unknown	95	93	138	100	74
Animal-Squirrel	49	97	77	89	138
System-Scheduled Maintenance	44	54	54	36	26
Animal-Other Bird	32	26	43	32	51
Nature-Lightning	23	52	39	27	36
Nature-Limb In Line	25	21	32	27	34
Nature-Snow/Ice	43	35	30	24	38
Nature-Wind	14	21	30	20	22
DIVISION TOTAL	774	899	955	757	876

Figure 10.4 Missoula system outages by top ten causes including major event days (MEDs) as defined in IEEE Standard 1366-2012.

11. CONCLUSION

Last year started off very well for reliability. Toward the end of June, Montana started seeing substantial wind and lightning storms through the state. The SAIDI numbers in Montana for the months of February, August, September and December were above the three-year average for those respective months. September added the most with 27.20 minutes brought on by storms when compared to a three-year average of 6.43. Also, bigger outages were occurring in rural areas causing CAIDI to go up slightly. It is likely that the considerable tree trimming efforts in the Billings area avoided an MED during the three days of storms in early September. Several larger outages were the result a tree outside of the right-of-way getting blown over and taking out the power line. These are difficult to address in vegetation control guidelines.

Increased efforts in line patrol and repairs as well as vegetation work should improve reliability going forward as well as reduce the impact from major storms. Additionally, with the implementation of reliability projects under the Distribution System Infrastructure Project (DSIP), stability, if not improvement in electric system reliability should be realized. Substation and other asset improvements resulted in 205 scheduled outages, but careful planning kept these outages to a minimum and this work will avoid equipment failures and help serve future loads. System equipment failure outages have seen a downward trend for the last two years. With continued upgrades and planning, diligent work, and sincere effort, NorthWestern Energy strives to provide safe, reliable electric service to our customers and a safe working environment for our employees, now and into the future.

ANNEX A: TRANSMISSION DATA AND GRAPHS

Attached below are graphs showing the electric transmission cumulative outage duration, cumulative outage frequency, ASAI and SAIFI. Each graph shows the 2010-2012 average and 2013 year end. Also included are graphs showing the outage cause duration and frequency by year from 2010 through 2012 and Unplanned PCB Trips by Date for 2013.

The 2013 outage duration is approximately **264 hours (15.3%) more** than the 2010-2012 average. The 2013 outage frequency (count) is approximately **61 outages (7.6%) less** than the 2010-2012 average.

Outage Duration - Hours

Year		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2013	Monthly	103.4	30.0	64.4	175.9	343.5	159.7	368.2	216.1	259.2	195.9	40.5	38.5
2010-2012	Monthly	67.8	101.4	191.3	211.4	126.1	180.6	261.7	168.7	72.8	114.9	96.9	137.6
2013	Cumulative	103.4	133.4	197.8	373.7	717.2	876.9	1245.1	1461.2	1720.4	1916.3	1956.8	1995.3
2010-2012	Cumulative	67.8	169.1	360.5	571.8	697.9	878.5	1140.2	1308.9	1381.7	1496.6	1593.5	1731.1

Outage Frequency - Count

Year		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2013	Monthly	26	22	43	67	94	118	131	65	98	38	15	32
2010-2012	Monthly	48	49	69	90	71	93	111	93	42	41	41	62
2013	Cumulative	26	48	91	158	252	370	501	566	664	702	717	749
2010-2012	Cumulative	48	97	166	256	327	420	531	624	666	707	748	810

ASAI (Average Service Availability Index) - % Larger is Better

Year		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2013	Monthly	99.950	99.984	99.969	99.912	99.834	99.920	99.822	99.896	99.870	99.905	99.980	99.981
2010-2012	Monthly	99.966	99.945	99.905	99.891	99.937	99.907	99.870	99.917	99.963	99.943	99.951	99.932
2013	Cumulative	99.950	99.966	99.967	99.953	99.929	99.927	99.912	99.910	99.906	99.906	99.912	99.918
2010-2012	Cumulative	99.966	99.956	99.938	99.927	99.929	99.925	99.917	99.917	99.922	99.924	99.927	99.927

SAIFI (System Average Interruption Frequency) – Smaller is Better

Year		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2013	Monthly	1.101	1.032	1.821	2.932	3.981	5.164	5.548	2.753	4.289	1.609	0.656	1.355
2010-2012	Monthly	2.084	2.343	3.030	4.064	3.103	4.185	4.820	4.048	1.880	1.776	1.836	2.686
2013	Cumulative	1.101	1.068	1.328	1.729	2.191	2.684	3.103	3.058	3.193	3.032	2.819	2.694
2010-2012	Cumulative	2.084	2.208	2.490	2.882	2.928	3.136	3.383	3.468	3.293	3.138	3.020	2.992

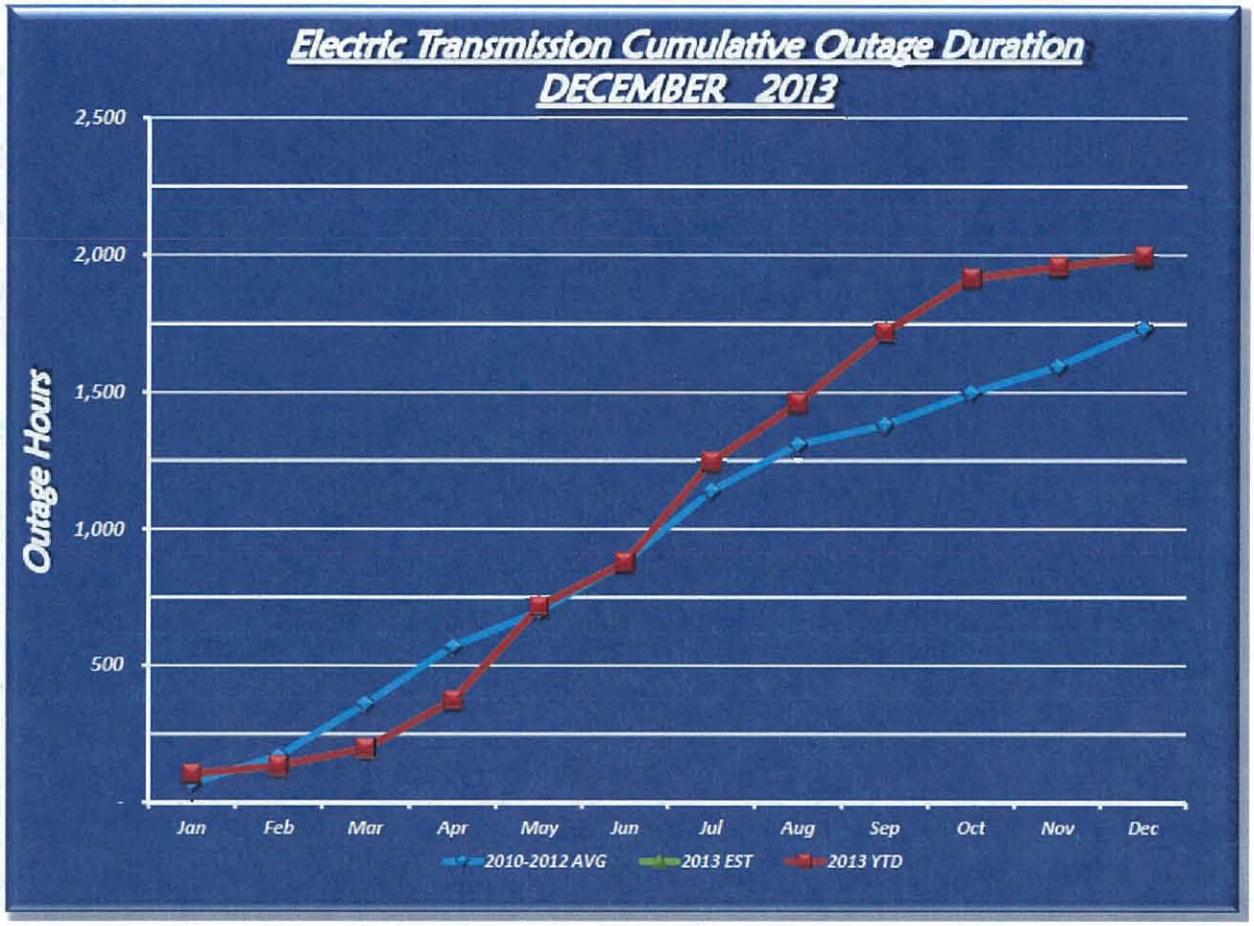


Figure A.1 Electric transmission cumulative outage duration

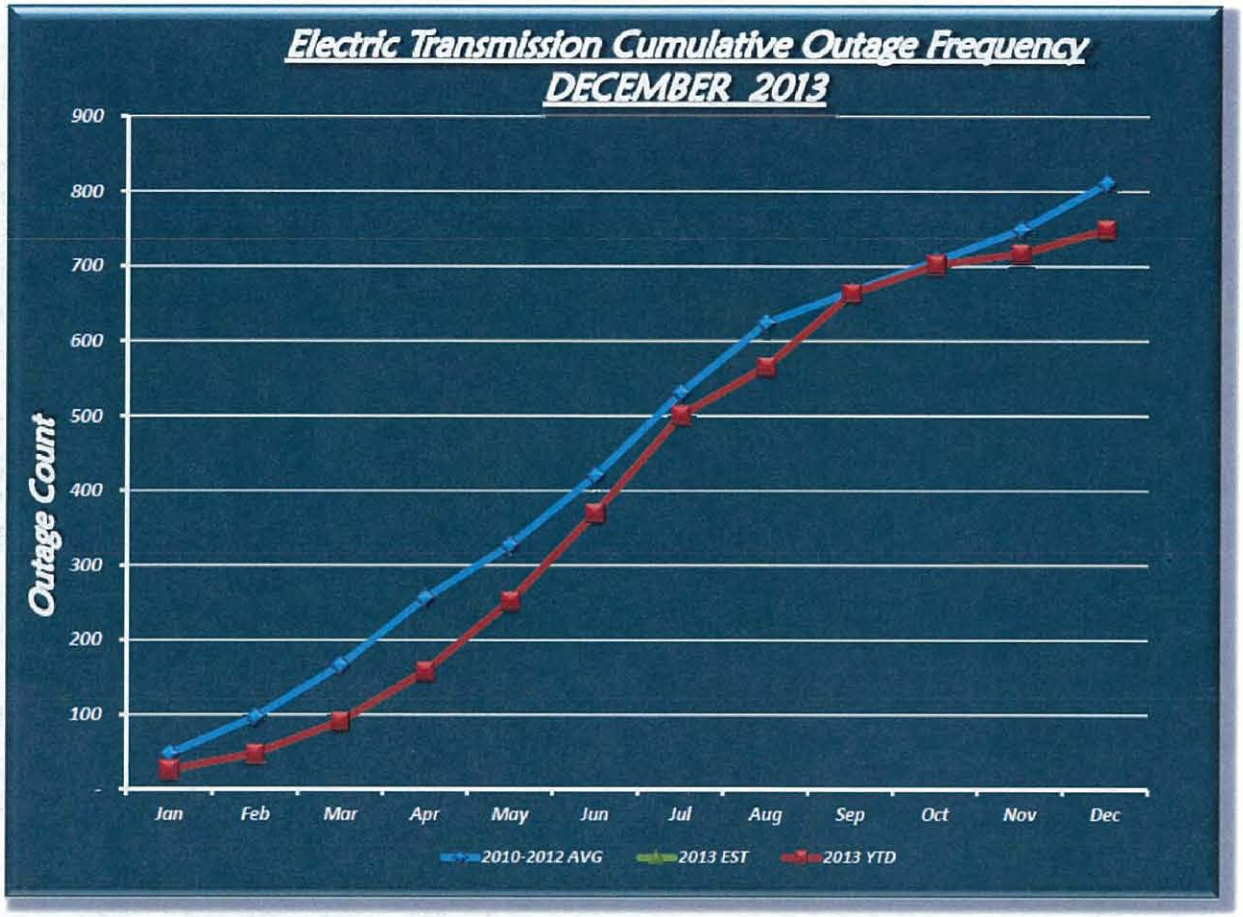


Figure A.2 Electric transmission cumulative outage frequency

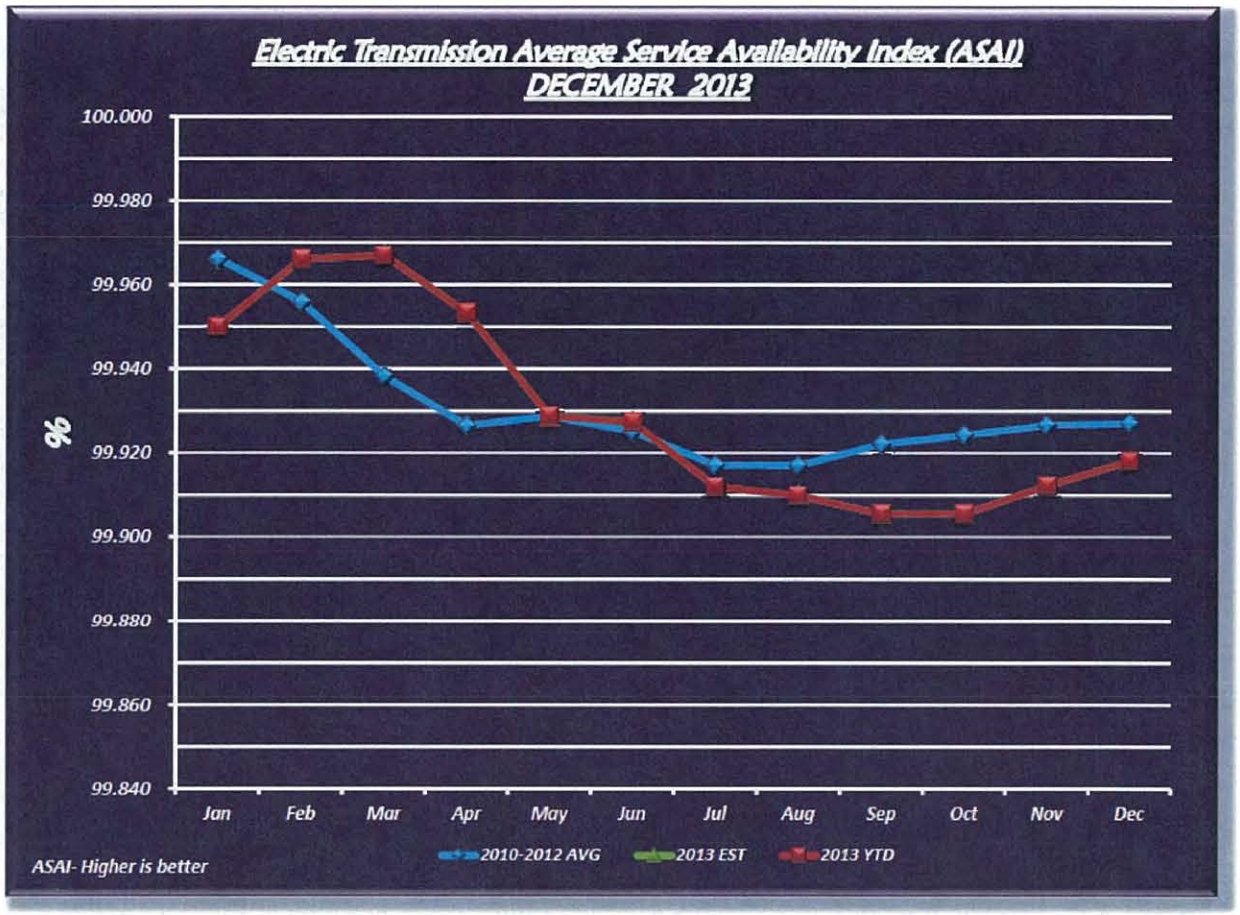


Figure A.3 Electric transmission Average Service Availability Index (ASAI)

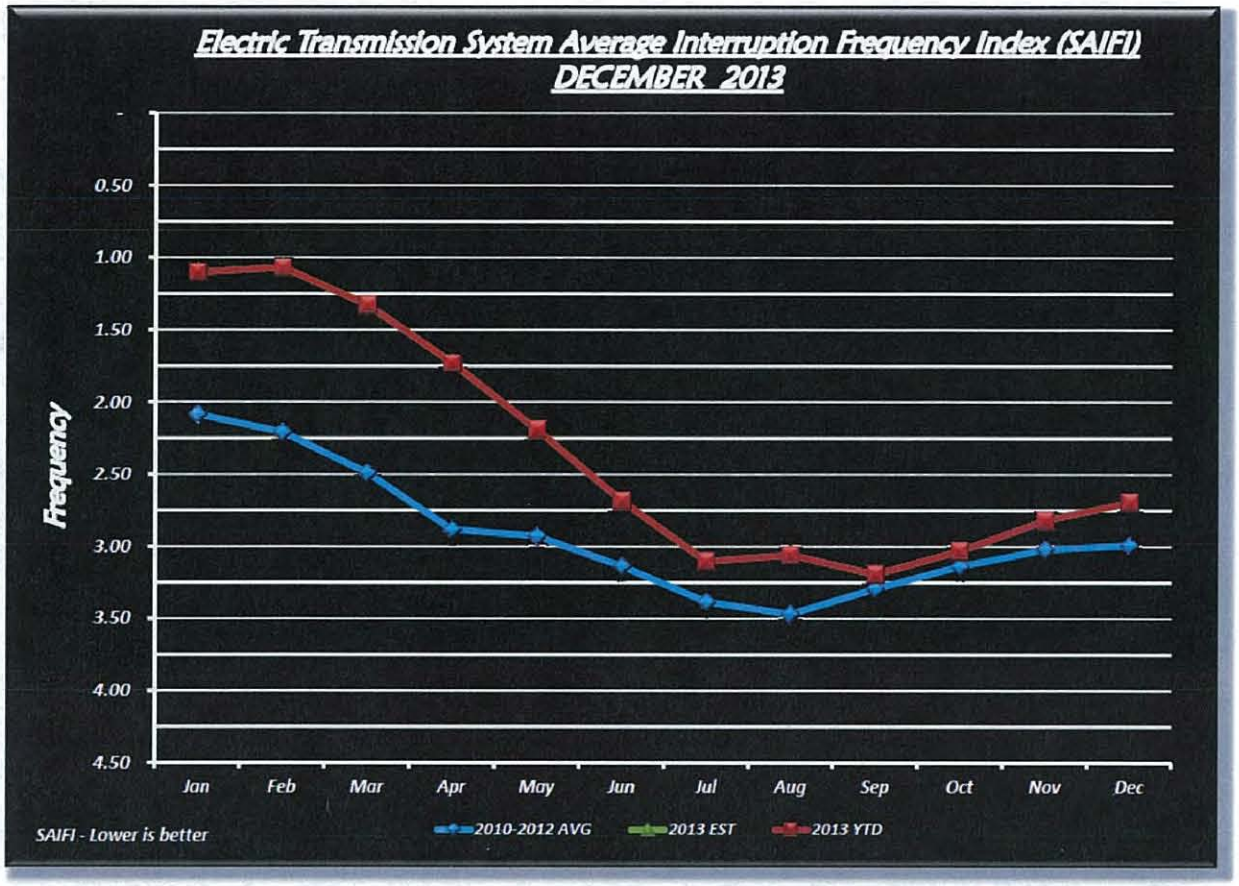


Figure A.4 Electric transmission System Average Interruption Frequency Index (SAIFI)

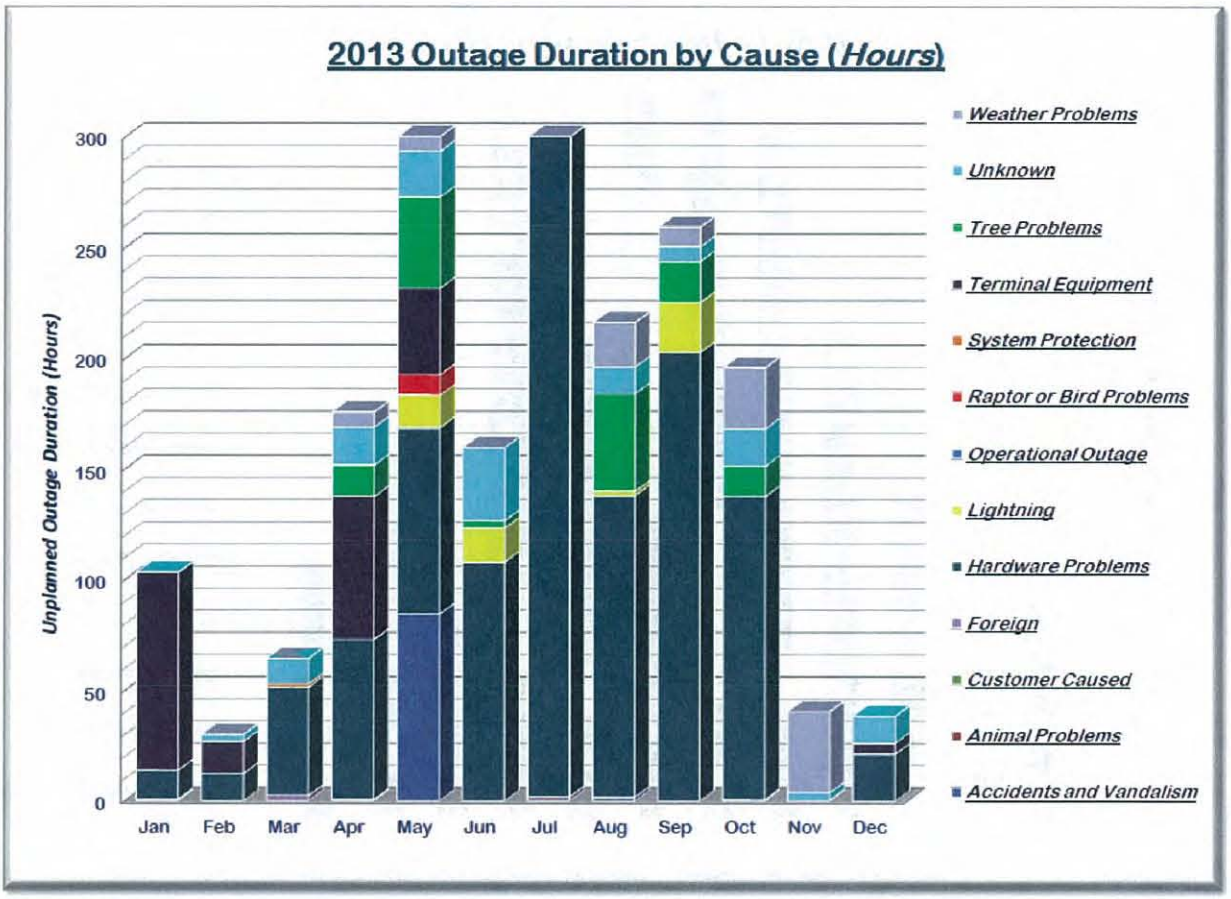


Figure A.5 Electric transmission 2013 outage duration by cause

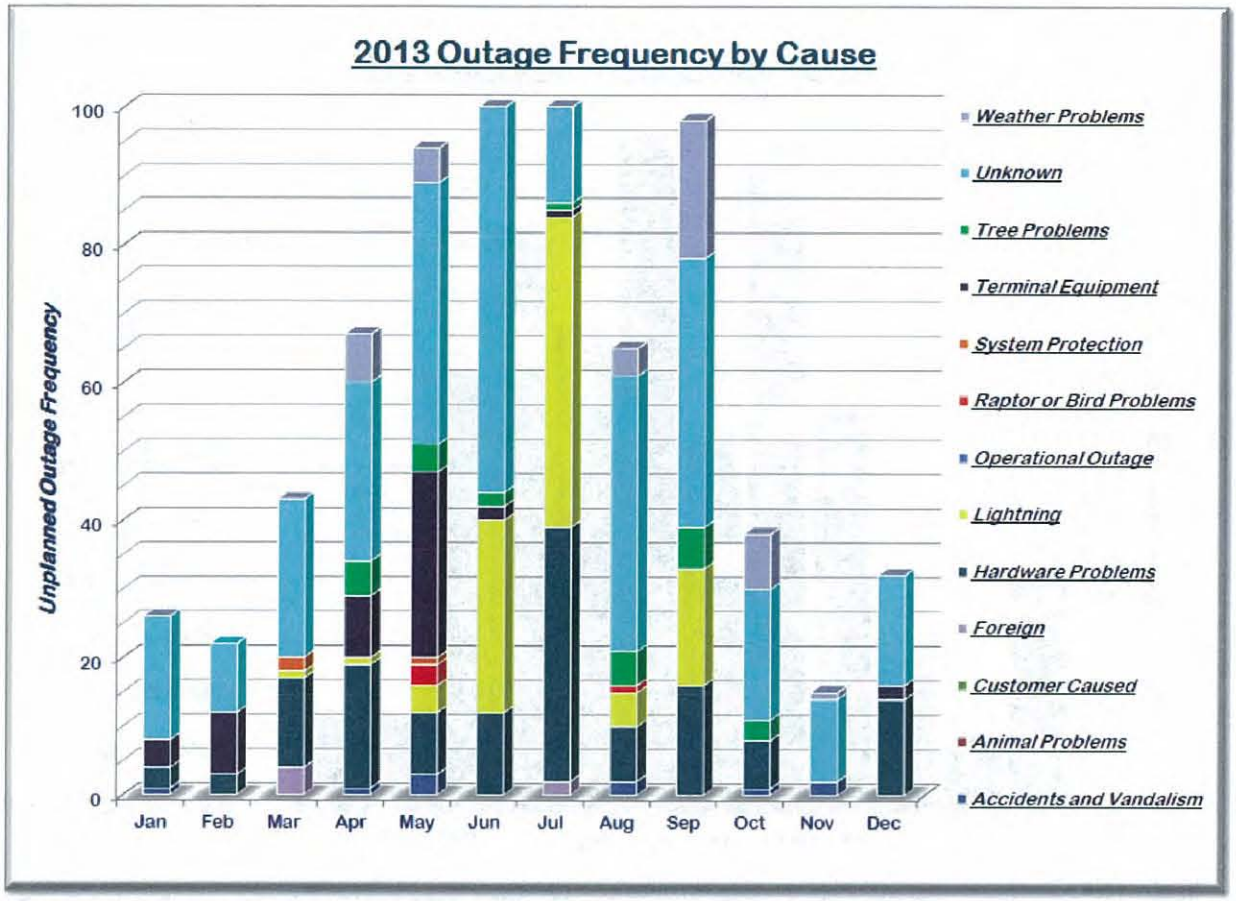


Figure A.6 Electric transmission 2013 outage frequency by cause

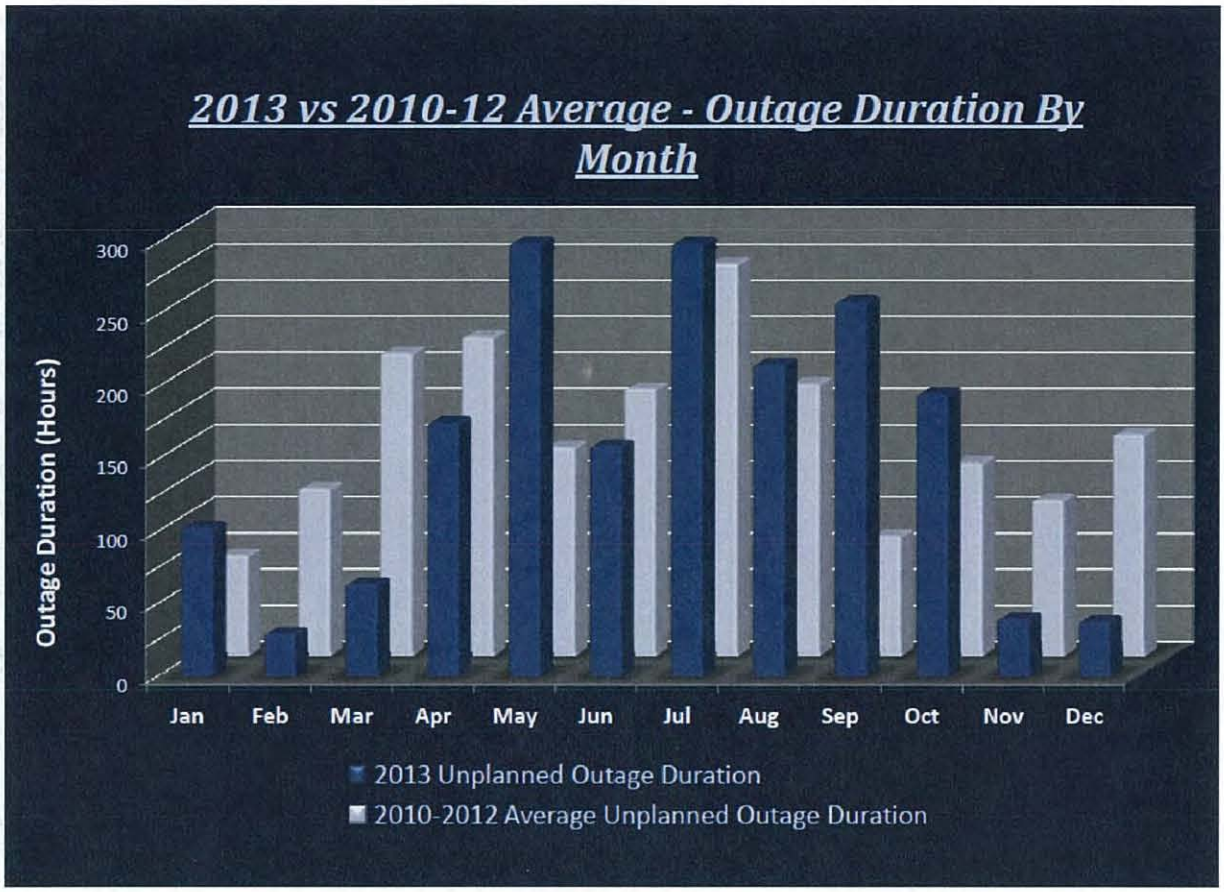


Figure A.7 Comparison of 2013 outage duration to previous three-year average

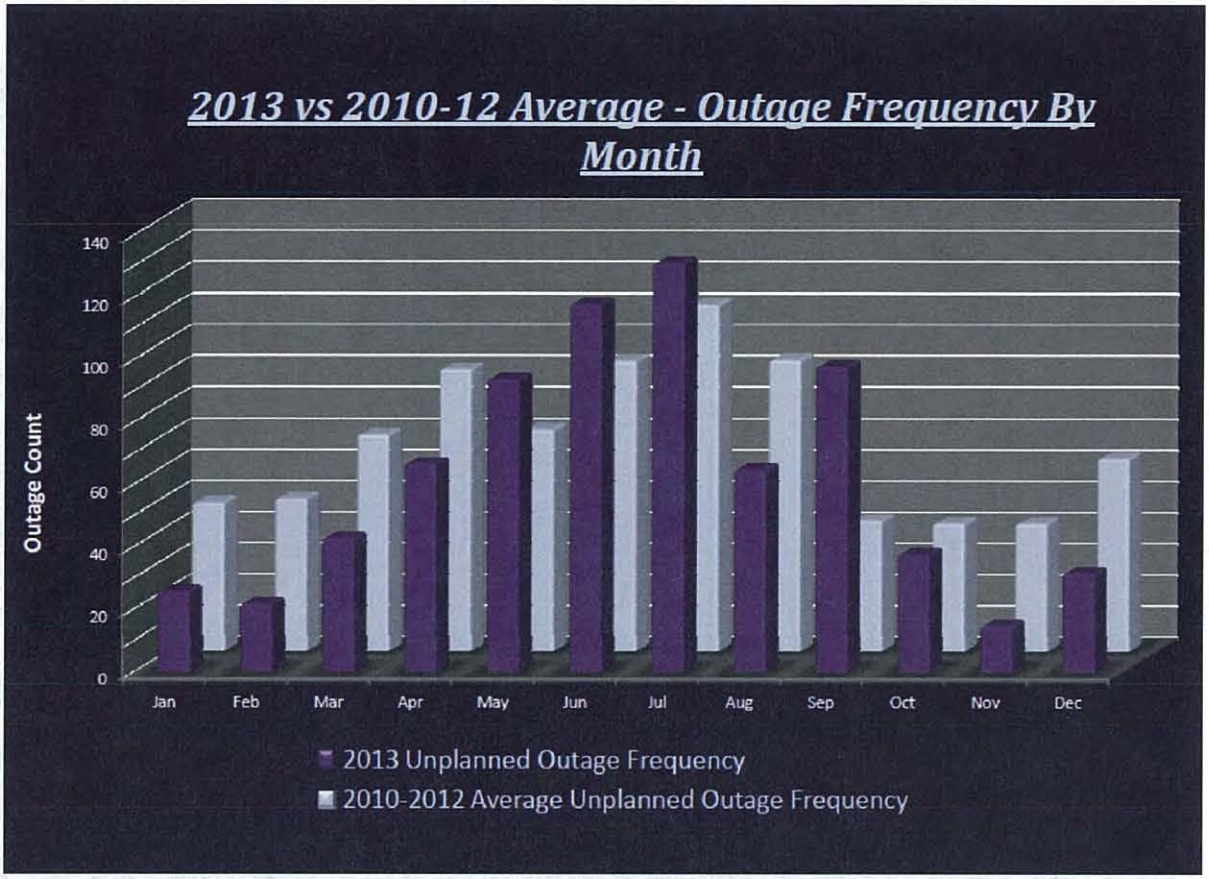


Figure A.8 Comparison of 2013 outage frequency to previous three-year average

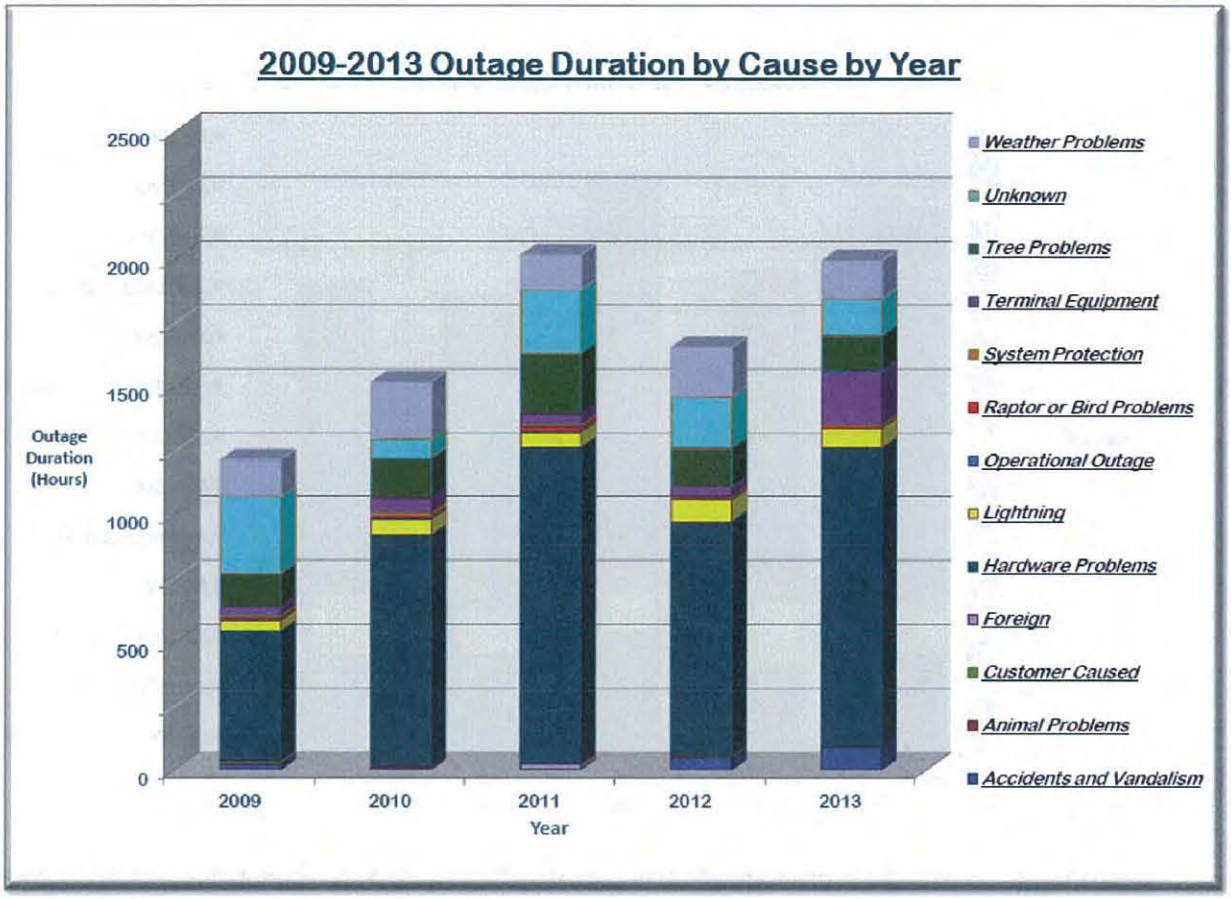


Figure A.9 Outage duration by cause by year for 2009-2013

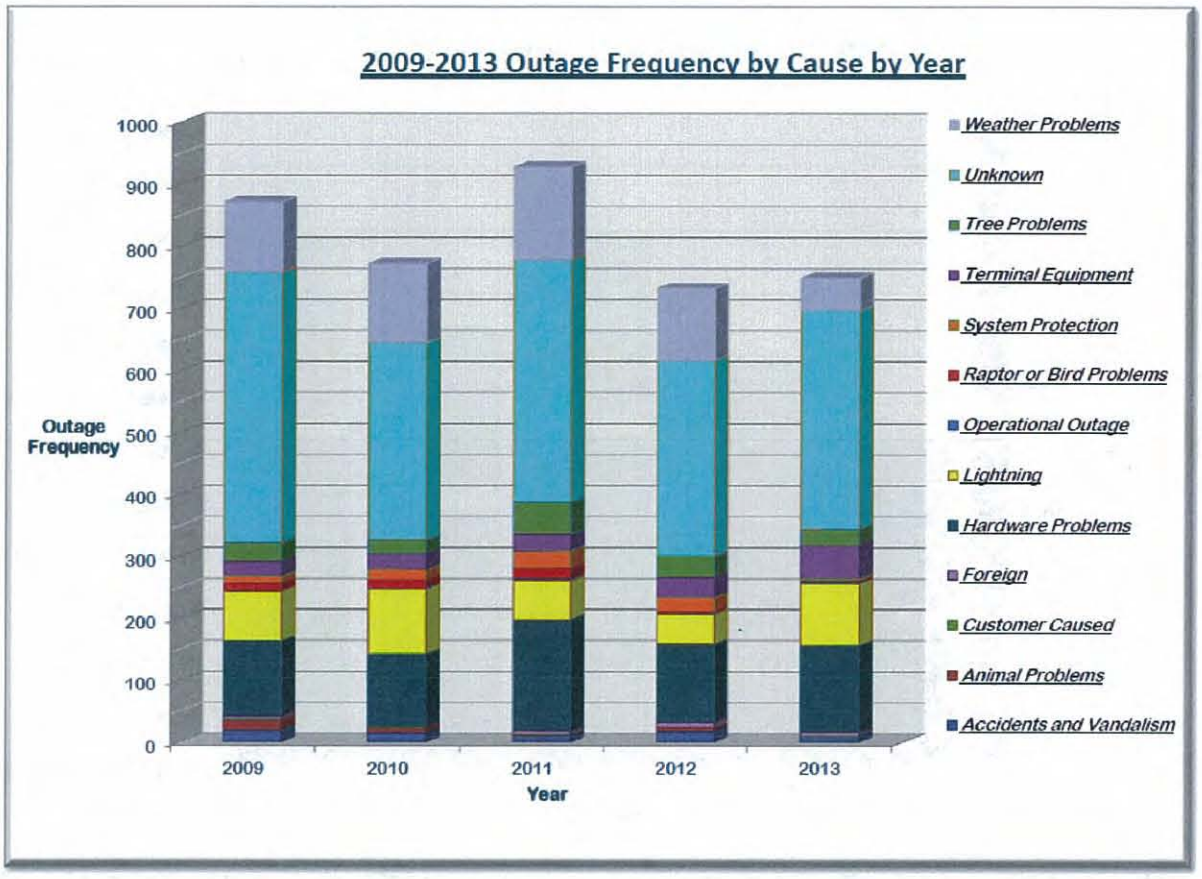


Figure A.10 Outage frequency by cause by year for 2009-2013

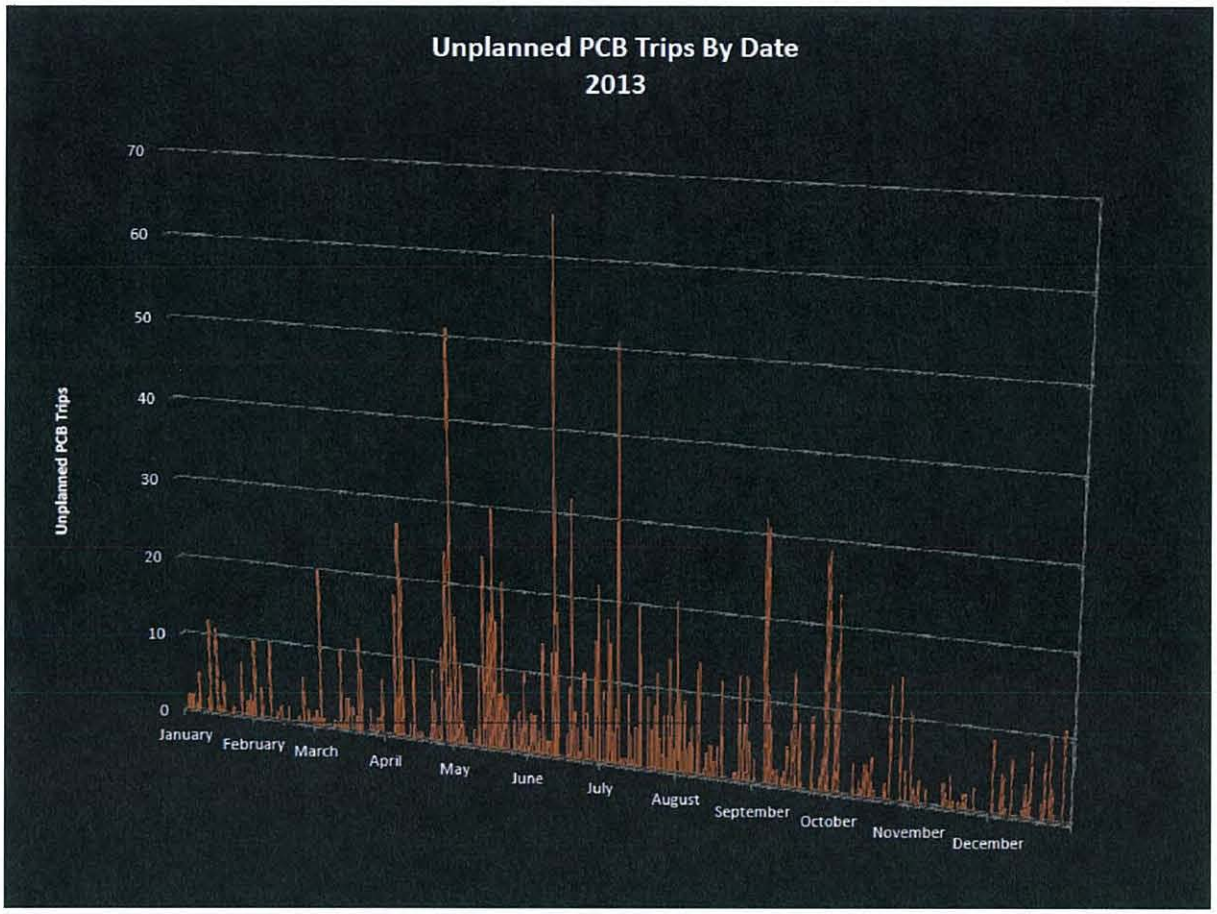


Figure A.11 Unplanned PCB Trips by Date for 2013