NorthWestern Energy

March 2, 2012

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

RE: 2011 Annual Electric Reliability Report

Dear Ms. Whitney:

With this letter, NorthWestern Energy (NWE) submits the 2011 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. 1366-2003)* for definition of major events and the appropriate reliability indices. Similar to last year, 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:

Randy Sullivan
Manager Electric System Integrity
NorthWestern Energy
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Bozeman, Montana 59715
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randy.sullivan@northwestern.com

Sincerely,

Randy Sullivan, P.E.
Manager Electric System Integrity

Enclosure: 2011 Annual Electric Reliability Report

NorthWestern™ Energy

2011
-Montana-
Electric Distribution/Transmission
Annual Reliability Report

March 2012

EXECUTIVE SUMMARY

This report provides information and insights into NorthWestern Energy's (NWE) 2011 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 more 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 1366-2003 will again be followed. This standard is directly related to the use of a statistically based definition for classification of Major Event Days (MED) – 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 that additional crews be brought into the area for repairs.

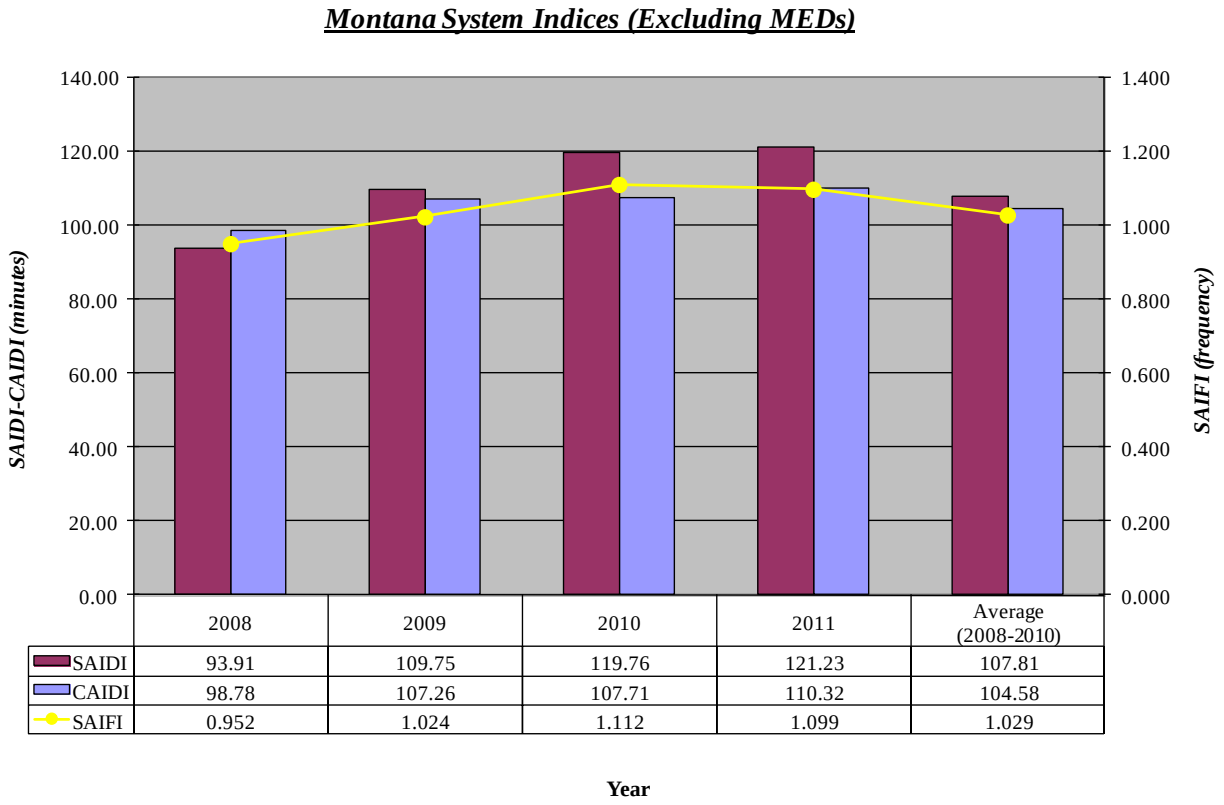
NorthWestern Energy has an active relationship with the IEEE Power and Energy Society Reliability Working Group to ensure a consistent and accurate portrayal of our utility's ability to report and benchmark reliability indices. MEDs are identified through a monthly process for each region and can be 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 2011, there were no Major Event Days, but the "Including MEDs" graphs are shown for previous years' comparisons and consistency. By comparison, there were five MED events in 2008, none in 2009, and one in 2010. For the Montana region, it took 6.73 SAIDI minutes in 2011 to declare an MED. The day closest to an MED was July 13th, with 4.92 SAIDI minutes.

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

1.0 GENERAL

Although there were no Major Event Days in 2011, there were five days with a "Customer-Minutes Interrupted" (CMI) number greater than one million (an MED would have required over 2.3 million CMI). In order of magnitude, these primary events were the loss of several Havre area substations on July 13th, a windstorm on December 29th, loss of the Big Sky area from trees in both transmission lines due to wind in June, a Great Falls/Monarch area snowstorm in April, and a failure in the Stevensville substation on March second. The events, while not being MEDs, added considerably to the SAIDI minutes for 2011.

2.0 MONTANA SYSTEM RELIABILITY



	2008	2009	2010	2011	Average (2008-2010)
SAIDI	93.91	109.75	119.76	121.23	107.81
CAIDI	98.78	107.26	107.71	110.32	104.58
SAIFI	0.952	1.024	1.112	1.099	1.029

Figure 2.1 Montana system indices excluding major event days (MEDs) as defined in IEEE Standard 1366-2003.

The figure above displays NorthWestern Energy's Montana region indices for the years 2008-2011. Region indices shown for 2008 to 2010 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**, 2011 SAIDI and CAIDI indices increased from the 2010 year-end while SAIFI decreased slightly, and all three indices were higher than the previous three-year averages. Overall, 2011 was a year with wind and snow storms and some substation failures in the Montana region, causing somewhat worse reliability indices. Contributing factors to these indices will be discussed as each of the operating divisions of the Montana region are examined and in the report conclusion. Data and figures, which include earlier year MED information, are given in this section to demonstrate the significant increase in indices if MEDs are not removed.

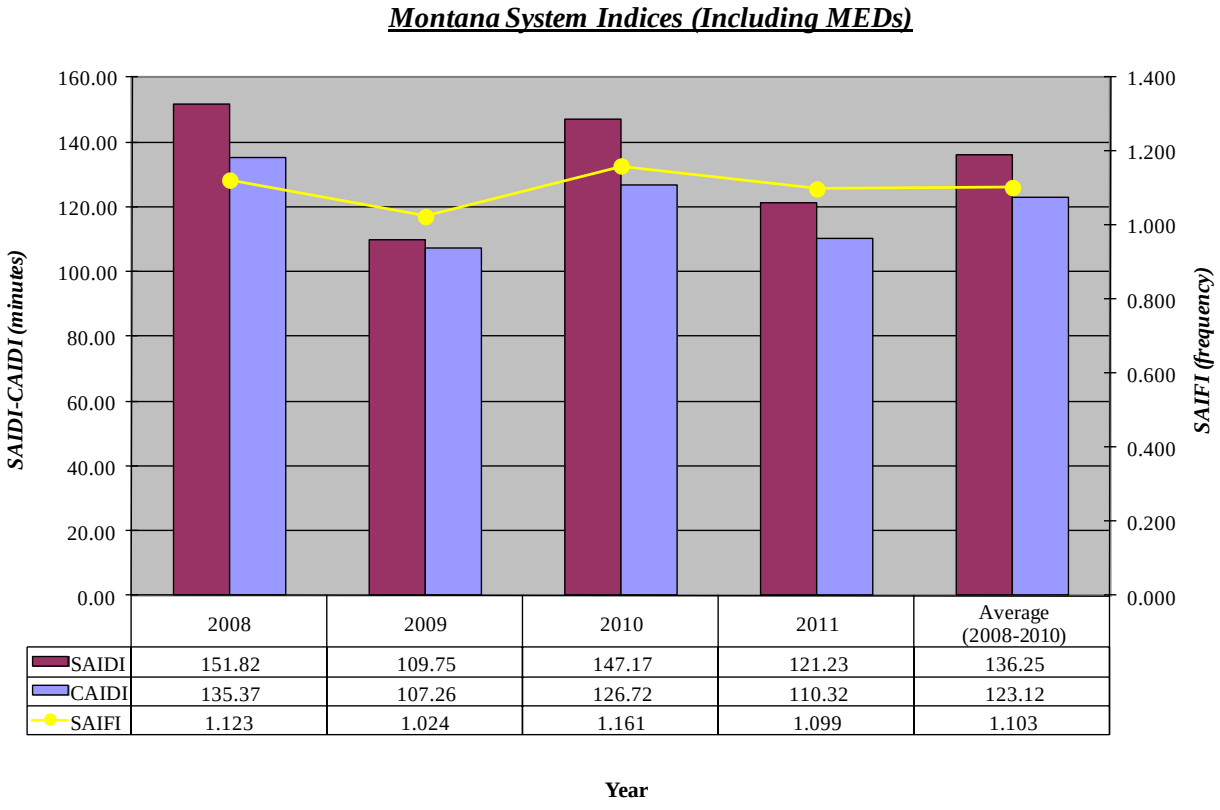
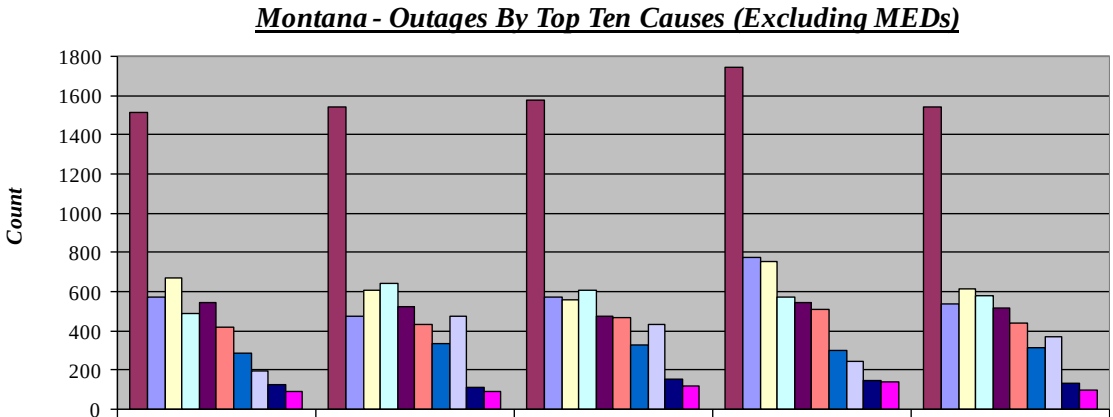


Figure 2.2 Montana system indices including major event days (MEDs) as defined in IEEE Standard 1366-2003.

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

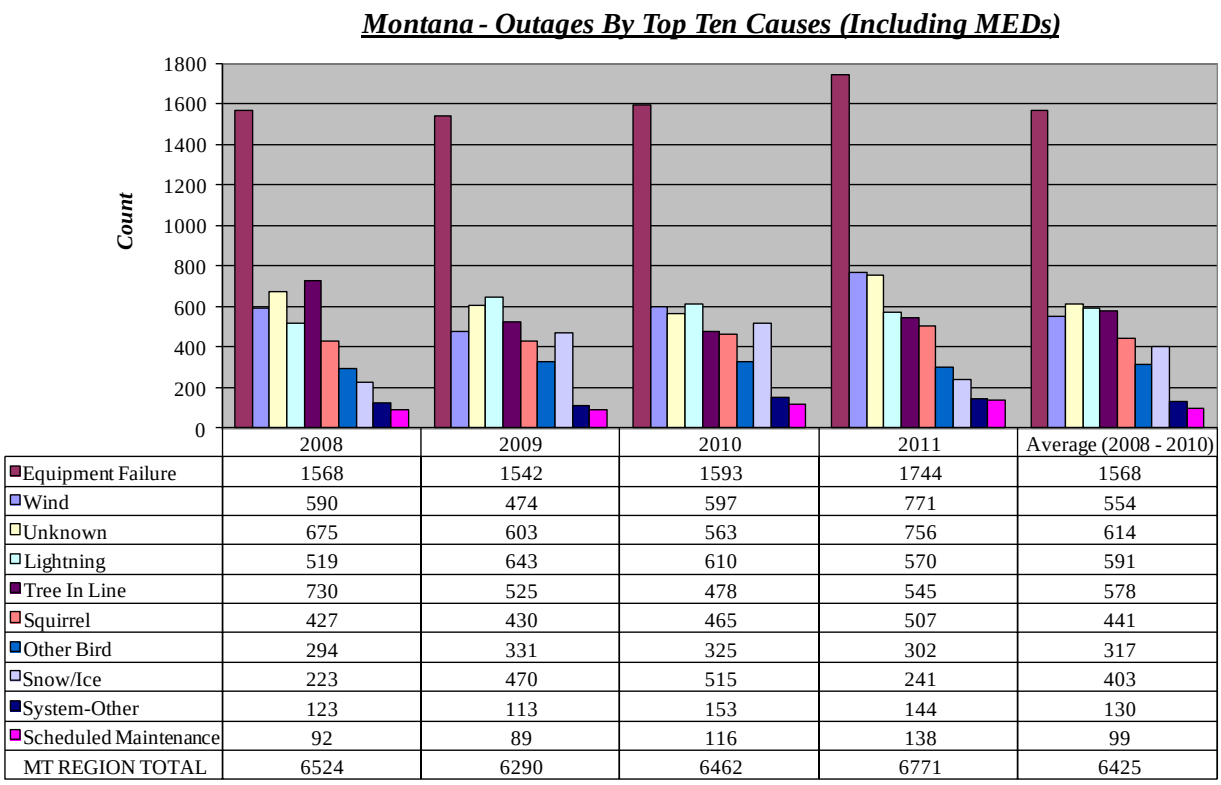


	2008	2009	2010	2011	Average (2008 - 2010)
Equipment Failure	1516	1542	1577	1744	1545
Wind	572	474	568	771	538
Unknown	667	603	560	756	610
Lightning	489	643	609	570	580
Tree In Line	540	525	472	545	512
Squirrel	418	430	465	507	438
Other Bird	285	331	325	302	314
Snow/Ice	193	470	435	241	366
System-Other	121	113	153	144	129
Scheduled Maintenance	91	89	115	138	98
MT REGION TOTAL	6052	6290	6325	6771	6222

Figure 2.3 Montana system outages by top ten causes excluding major event days (MEDs) as defined in IEEE Standard 1366-2003.

The outage causes represented in this table are the top ten major contributors for outages on the NorthWestern Energy Electric Distribution and Transmission system. Most outage cause categories in 2011 are similar to 2010 numbers with the top ten total increasing by 439 for 2011. Equipment failure and wind related outages were both up from 2010, partially from the multiple windstorms. 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.

The graph and table below show outage causes with MEDs. Most 2010 numbers are near the three-year previous average, though wind and equipment failure related outages are up. Keep in mind, there were no MEDs in 2009.

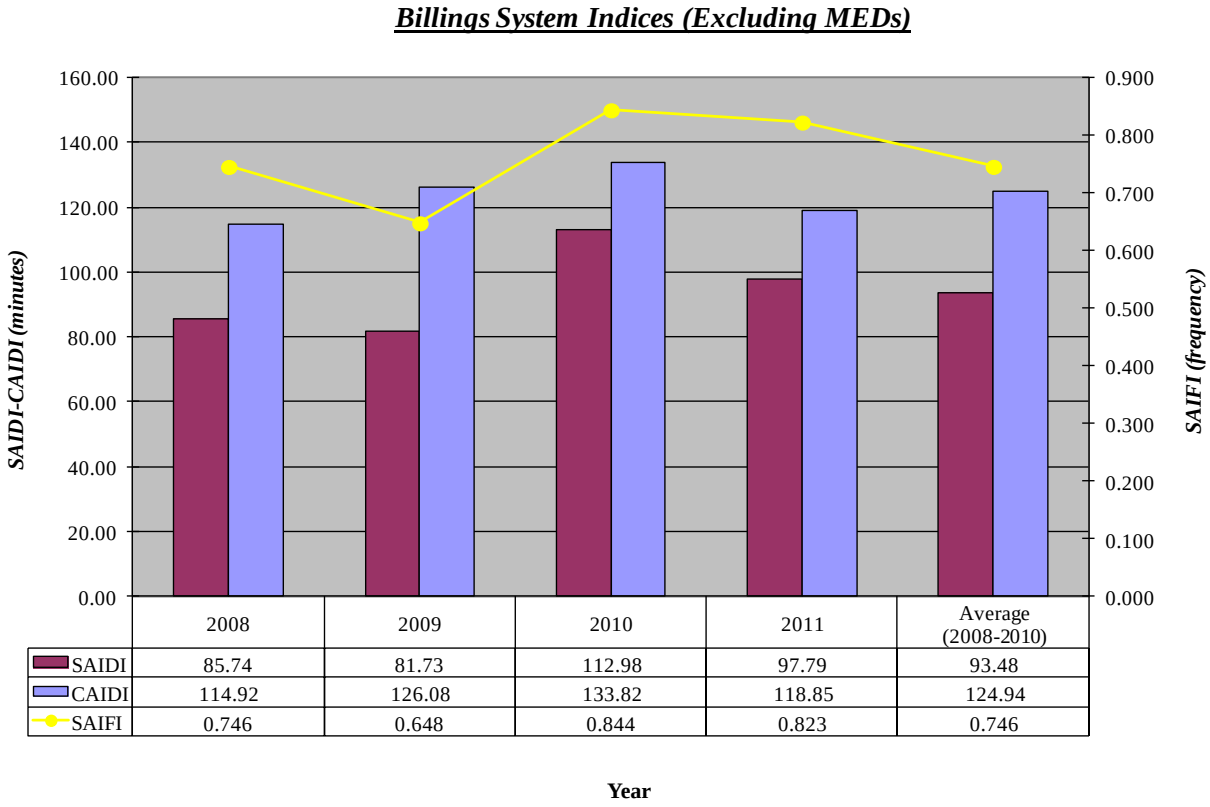


	2008	2009	2010	2011	Average (2008 - 2010)
Equipment Failure	1568	1542	1593	1744	1568
Wind	590	474	597	771	554
Unknown	675	603	563	756	614
Lightning	519	643	610	570	591
Tree In Line	730	525	478	545	578
Squirrel	427	430	465	507	441
Other Bird	294	331	325	302	317
Snow/Ice	223	470	515	241	403
System-Other	123	113	153	144	130
Scheduled Maintenance	92	89	116	138	99
MT REGION TOTAL	6524	6290	6462	6771	6425

Figure 2.4 Montana system outages by top ten causes including major event days (MEDs) as defined in IEEE Standard 1366-2003.

3.0 BILLINGS SYSTEM RELIABILITY

Billings Division saw their indices drop in 2011 from 2010 values that were inflated largely from the Father's Day tornado. Larger events for the year included an accident at the Bridger Substation that caused a long outage and a windstorm on 12/29 that resulted in the loss of a transmission pole and the Rockvale Substation. Several feeders were lost during summer storms but most of these were restored in short time periods and didn't result in significant SAIDI events. Wind related outages increased in 2011.



	2008	2009	2010	2011	Average (2008-2010)
SAIDI	85.74	81.73	112.98	97.79	93.48
CAIDI	114.92	126.08	133.82	118.85	124.94
SAIFI	0.746	0.648	0.844	0.823	0.746

Figure 3.1 Billings system indices excluding major event days (MEDs) as defined in IEEE Standard 1366-2003.

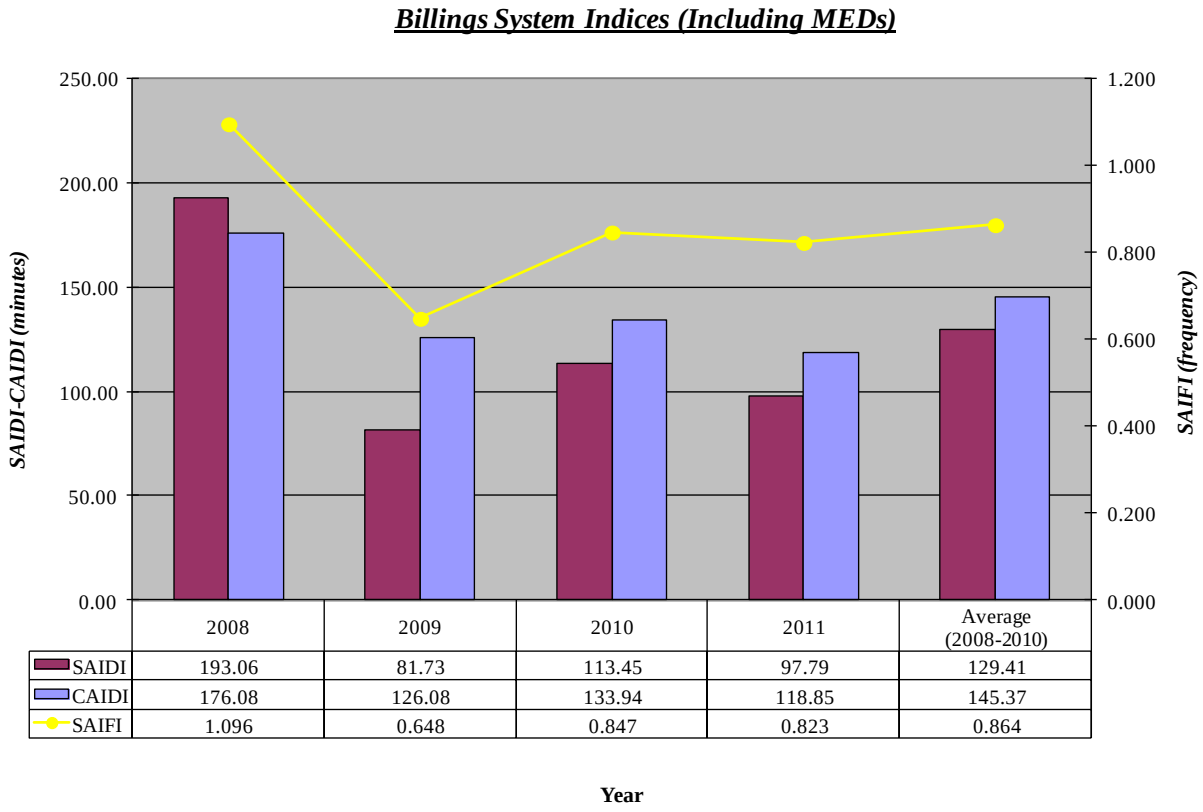
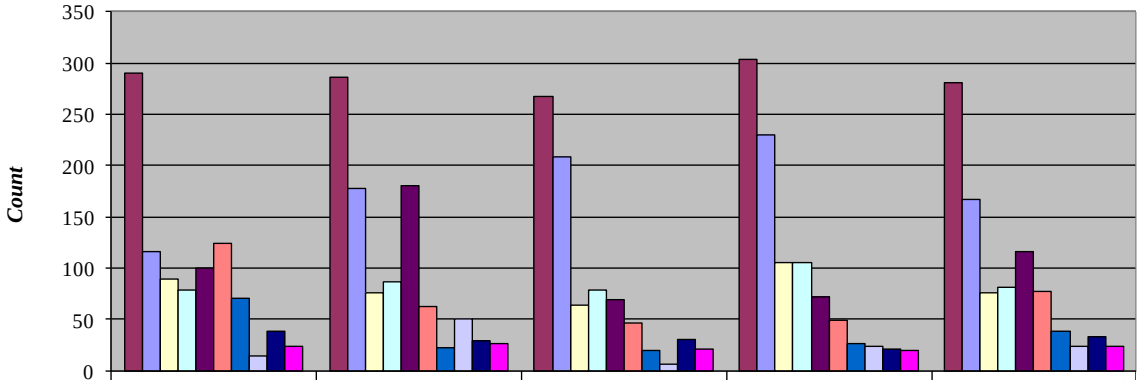


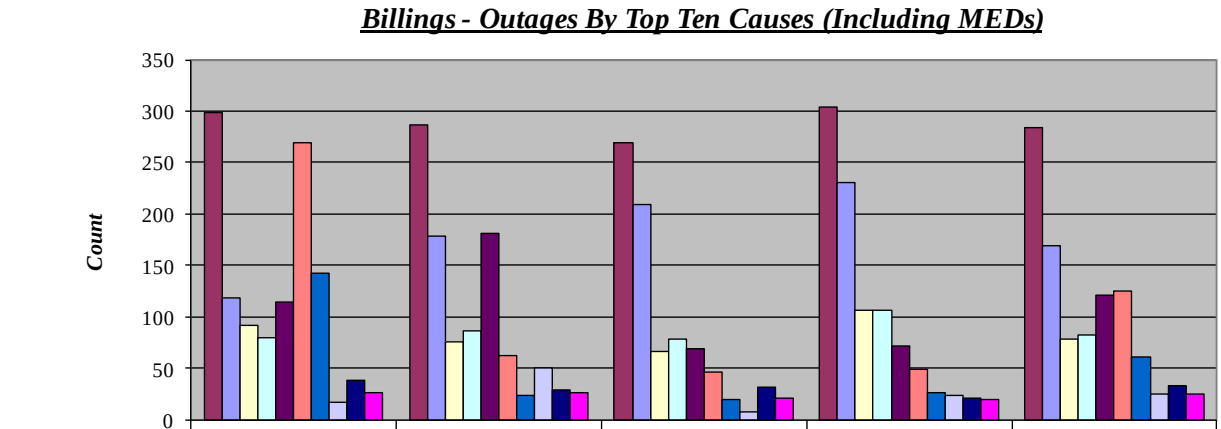
Figure 3.2 Billings system indices including major event days (MEDs) as defined in IEEE Standard 1366-2003.

Billings - Outages By Top Ten Causes (Excluding MEDs)



	2008	2009	2010	2011	Average (2008 - 2010)
Equipment Failure	290	286	267	304	281
Squirrel	116	178	209	230	168
Wind	90	76	64	106	77
Unknown	79	87	79	106	82
Lightning	100	181	69	72	117
Tree In Line	124	62	46	49	77
Limb In Line	71	23	20	26	38
Snow/Ice	14	50	7	24	24
Other Bird	38	29	31	21	33
Raccoon	24	26	21	20	24
DIVISION TOTAL	1,101	1,159	999	1,100	1,086

Figure 3.3 Billings system outages by top ten causes excluding major event days (MEDs) as defined in IEEE Standard 1366-2003.

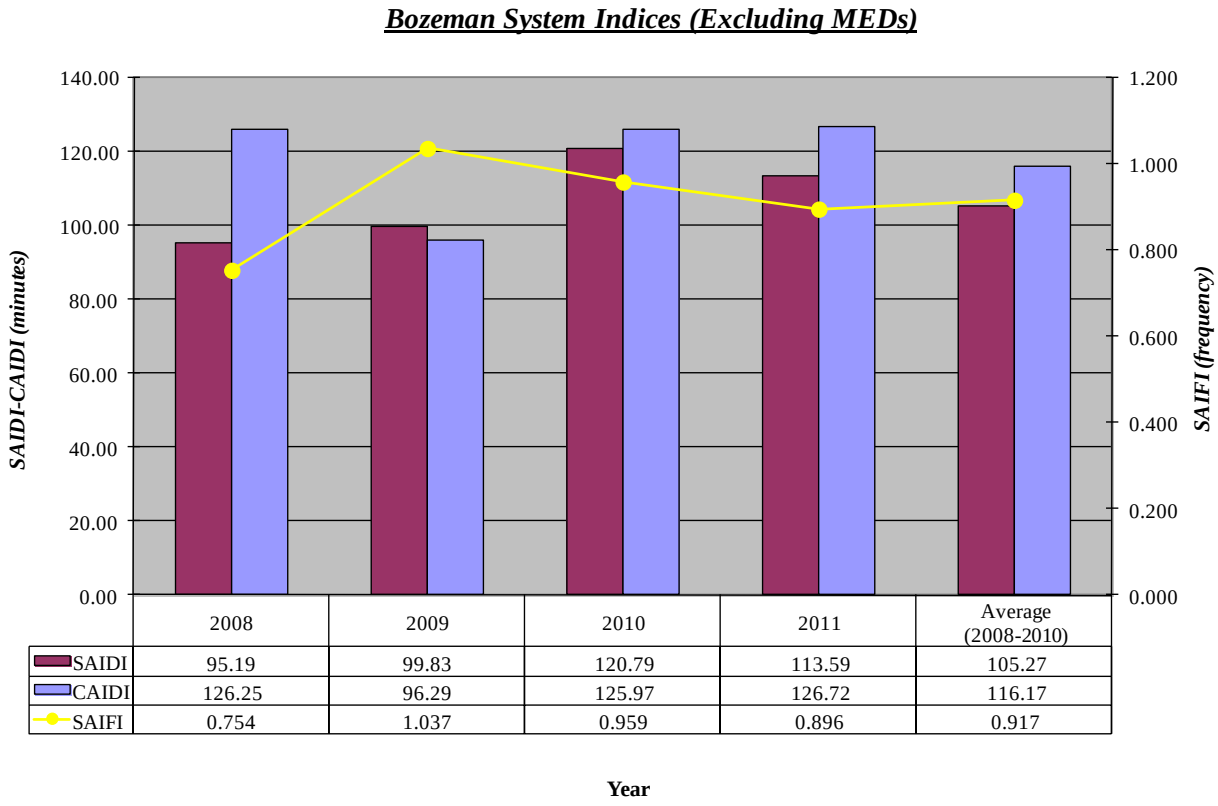


	2008	2009	2010	2011	Average (2008 - 2010)
Equipment Failure	298	286	269	304	284
Squirrel	119	178	209	230	169
Wind	92	76	67	106	78
Unknown	80	87	79	106	82
Lightning	114	181	69	72	121
Tree In Line	269	62	46	49	126
Limb In Line	142	23	20	26	62
Snow/Ice	17	50	7	24	25
Other Bird	38	29	31	21	33
Raccoon	26	26	21	20	24
DIVISION TOTAL	1,355	1,159	1,004	1,100	1,173

Figure 3.4 Billings system outages by top ten causes including major event days (MEDs) as defined in IEEE Standard 1366-2003.

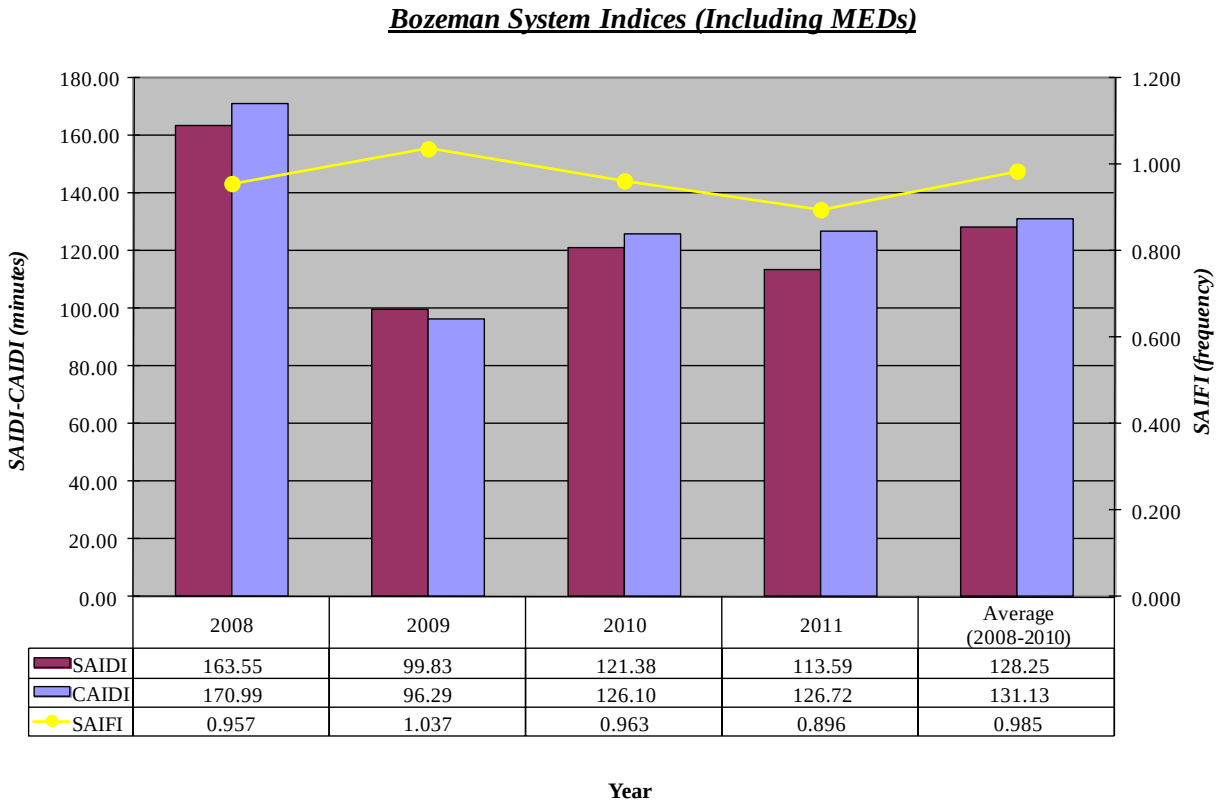
4.0 BOZEMAN SYTEM RELIABILITY

Bozeman Division indices for 2011 saw a seven minute drop in SAIDI from 2010 with the other two indices near 2010 values. The largest SAIDI contributor was the loss of the Big Sky area on June second. A very gusty wind dropped several trees into the Gallatin Canyon 69kV line and a little later, one into the line from Ennis resulting in the whole area being out for about five hours. Also, a June windstorm caused the loss of several conductor spans on a Belgrade feeder. The Madison Valley was out for several hours due to an equipment failure in late July. A few customers around Big Timber were out for days, first from the snow and a little later from flooding when the snows melted. As in Billings, wind related outages saw a significant increase from 2010.



	2008	2009	2010	2011	Average (2008-2010)
SAIDI	95.19	99.83	120.79	113.59	105.27
CAIDI	126.25	96.29	125.97	126.72	116.17
SAIFI	0.754	1.037	0.959	0.896	0.917

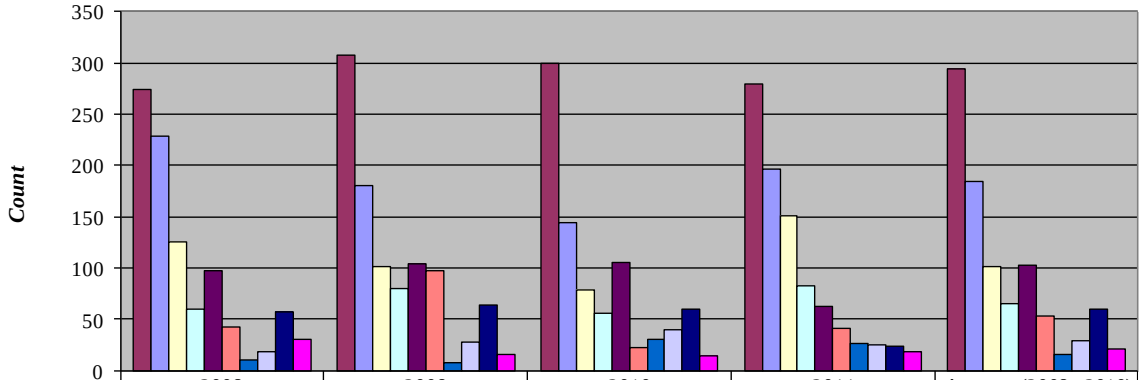
Figure 4.1 Bozeman system indices excluding major event days (MEDs) as defined in IEEE Standard 1366-2003.



	2008	2009	2010	2011	Average (2008-2010)
SAIDI	163.55	99.83	121.38	113.59	128.25
CAIDI	170.99	96.29	126.10	126.72	131.13
SAIFI	0.957	1.037	0.963	0.896	0.985

Figure 4.2 Bozeman system indices including major event days (MEDs) as defined in IEEE Standard 1366-2003.

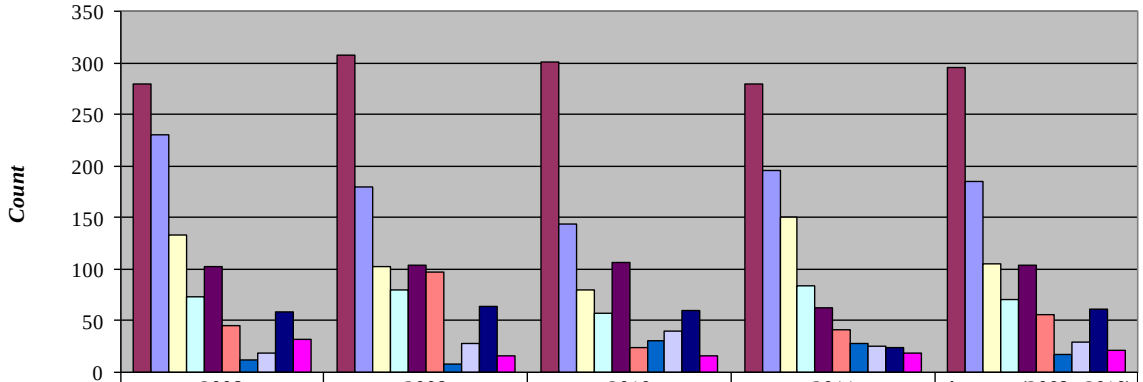
Bozeman - Outages By Top Ten Causes (Excluding MEDs)



	2008	2009	2010	2011	Average (2008 - 2010)
Equipment Failure	274	308	299	280	294
Unknown	229	180	144	196	184
Wind	125	102	79	151	102
Tree In Line	60	80	56	83	65
Lightning	97	104	106	62	102
Snow/Ice	42	97	22	41	54
Other	11	8	30	27	16
Equipment Overload	18	28	40	25	29
Other Bird	57	64	60	24	60
Vehicle Hit	31	16	15	18	21
DIVISION TOTAL	1,202	1,213	1,086	1,064	1,167

Figure 4.3 Bozeman system outages by top ten causes excluding major event days (MEDs) as defined in IEEE Standard 1366-2003.

Bozeman - Outages By Top Ten Causes (Including MEDs)

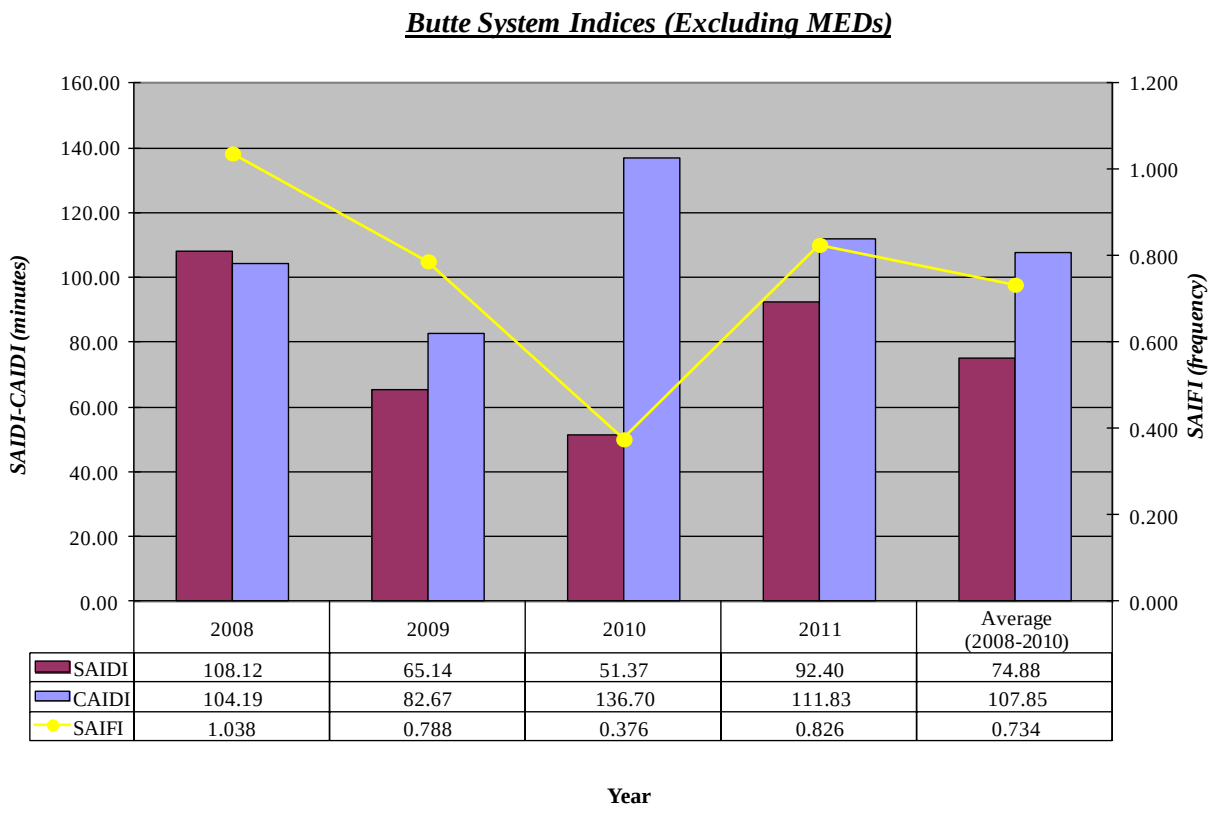


	2008	2009	2010	2011	Average (2008 - 2010)
Equipment Failure	280	308	301	280	296
Unknown	231	180	144	196	185
Wind	133	102	79	151	105
Tree In Line	73	80	57	83	70
Lightning	102	104	107	62	104
Snow/Ice	45	97	23	41	55
Other	11	8	30	27	16
Equipment Overload	18	28	40	25	29
Other Bird	58	64	60	24	61
Vehicle Hit	31	16	15	18	21
DIVISION TOTAL	1,260	1,213	1,091	1,064	1,188

Figure 4.4 Bozeman system outages by top ten causes including major event days (MEDs) as defined in IEEE Standard 1366-2003.

5.0 BUTTE SYSTEM RELIABILITY

Butte Division returned to near average indices in 2011after an exceptional year in 2010. A large part of the division's SAIDI was due to a windstorm on December 29th that affected Anaconda, Dillon, and Philipsburg as well as Butte. This storm took out one of the large feeders in Butte. Scheduled maintenance projects throughout the year also added several minutes to the SAIDI total. Overall, Butte Division's SAIDI of 92 minutes was the lowest SAIDI for the MT Region.



	2008	2009	2010	2011	Average (2008-2010)
SAIDI	108.12	65.14	51.37	92.40	74.88
CAIDI	104.19	82.67	136.70	111.83	107.85
SAIFI	1.038	0.788	0.376	0.826	0.734

Figure 5.1 Butte system indices excluding major event days (MEDs) as defined in IEEE Standard 1366-2003.

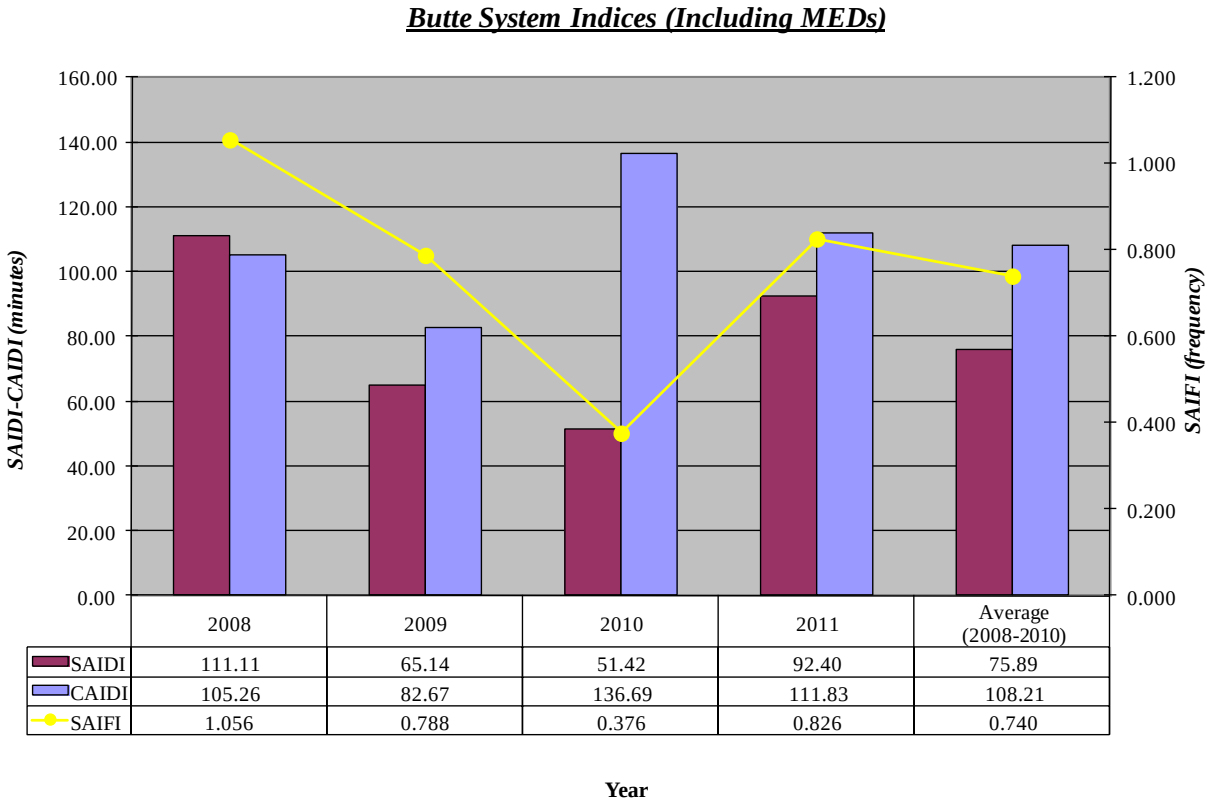
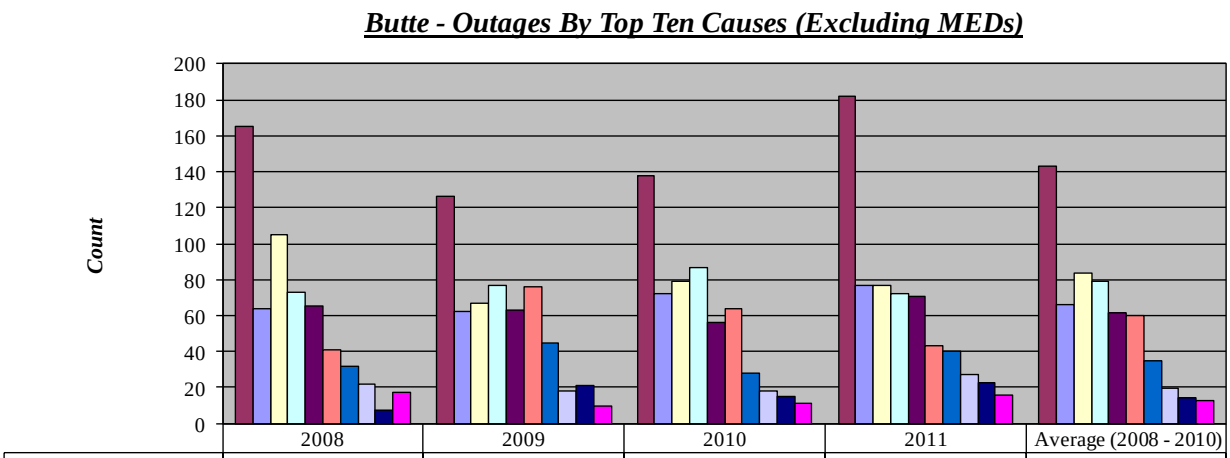
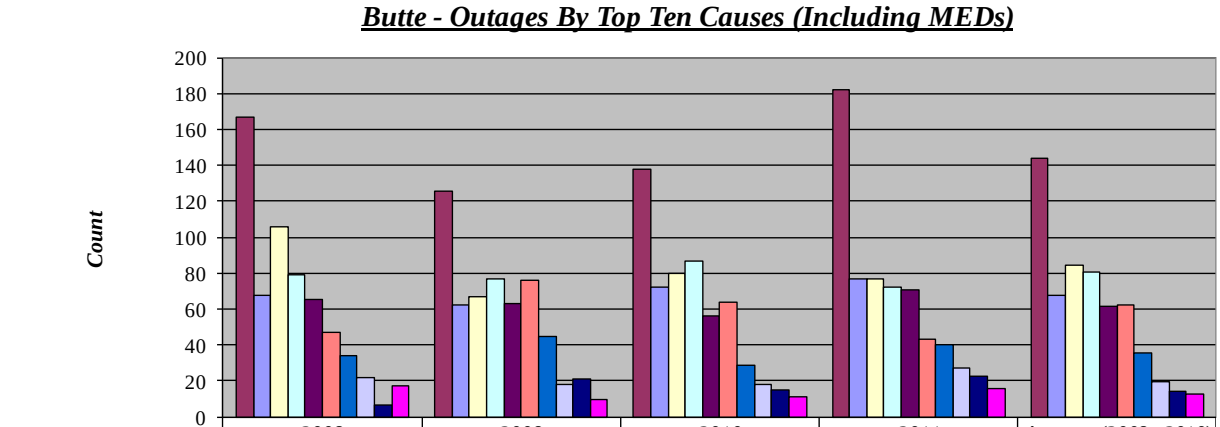


Figure 5.2 Butte system indices including major event days (MEDs) as defined in IEEE Standard 1366-2003.



	2008	2009	2010	2011	Average (2008 - 2010)
Equipment Failure	165	126	138	182	143
Wind	64	62	72	77	66
Unknown	105	67	79	77	84
Tree In Line	73	77	87	72	79
Other Bird	65	63	56	71	61
Lightning	41	76	64	43	60
Snow/Ice	32	45	28	40	35
Scheduled Maintenance	22	18	18	27	19
Animal-Other	7	21	15	23	14
System-Other	17	10	11	16	13
DIVISION TOTAL	705	698	676	725	693

Figure 5.3 Butte system outages by top ten causes excluding major event days (MEDs) as defined in IEEE Standard 1366-2003.

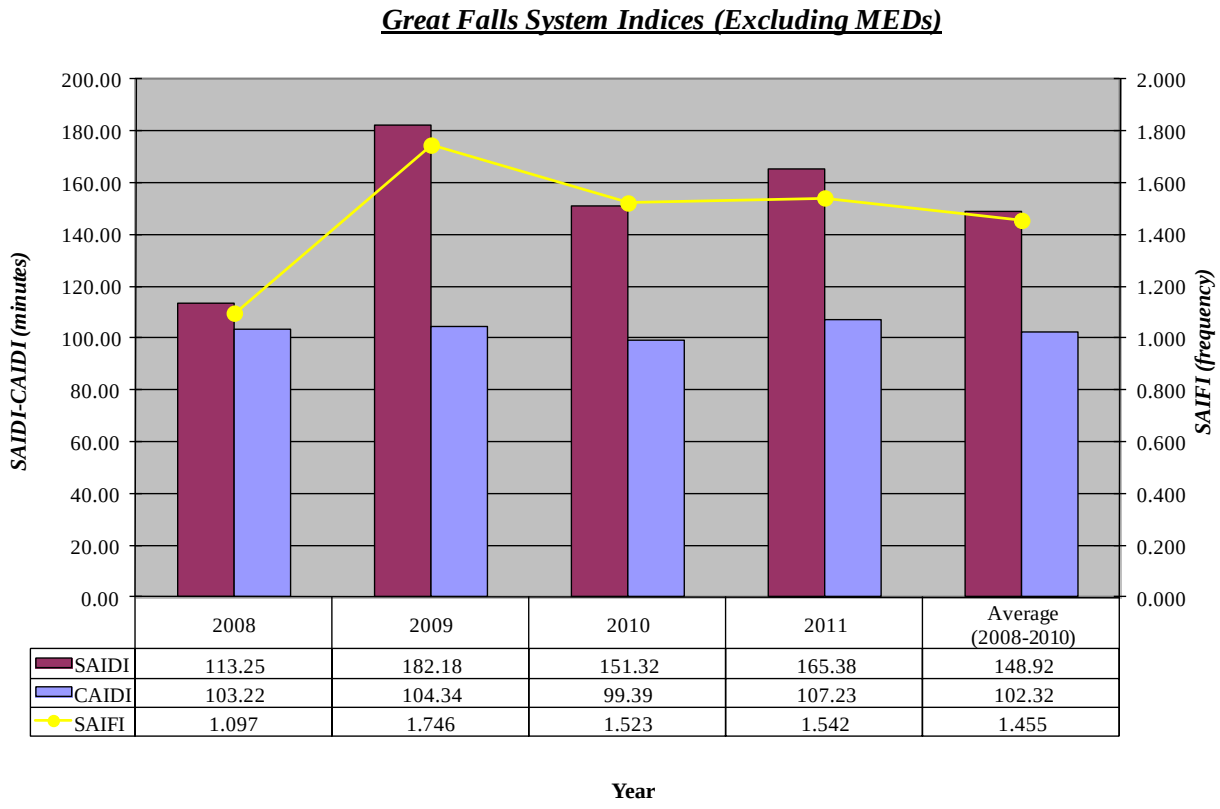


	2008	2009	2010	2011	Average (2008 - 2010)
Equipment Failure	167	126	138	182	144
Wind	68	62	72	77	67
Unknown	106	67	80	77	84
Tree In Line	79	77	87	72	81
Other Bird	65	63	56	71	61
Lightning	47	76	64	43	62
Snow/Ice	34	45	29	40	36
Scheduled Maintenance	22	18	18	27	19
Animal-Other	7	21	15	23	14
System-Other	17	10	11	16	13
DIVISION TOTAL	730	698	678	725	702

Figure 5.4 Butte system outages by top ten causes including major event days (MEDs) as defined in IEEE Standard 1366-2003.

6.0 GREAT FALLS SYSTEM RELIABILTY

Great Falls Division was hit with several major storms this year. SAIDI without MEDs was up some from the previous year, but overall SAIDI was down almost by one-half since there was a large snowstorm that resulted in an MED in 2010 in the Great Falls area. The largest events were the April snowstorm that tore trees and conductor down resulting in some outages lasting three days, a squirrel in the GF Eastside Sub that took the station down for two and a half hours, and a junction pole fire during a summer thunderstorm that took the feeder out for over four hours while temporary repairs were made. Wind related outage counts were up considerably for 2011.



	2008	2009	2010	2011	Average (2008-2010)
SAIDI	113.25	182.18	151.32	165.38	148.92
CAIDI	103.22	104.34	99.39	107.23	102.32
SAIFI	1.097	1.746	1.523	1.542	1.455

Figure 6.1 Great Falls system indices excluding major event days (MEDs) as defined in IEEE Standard 1366-2003.

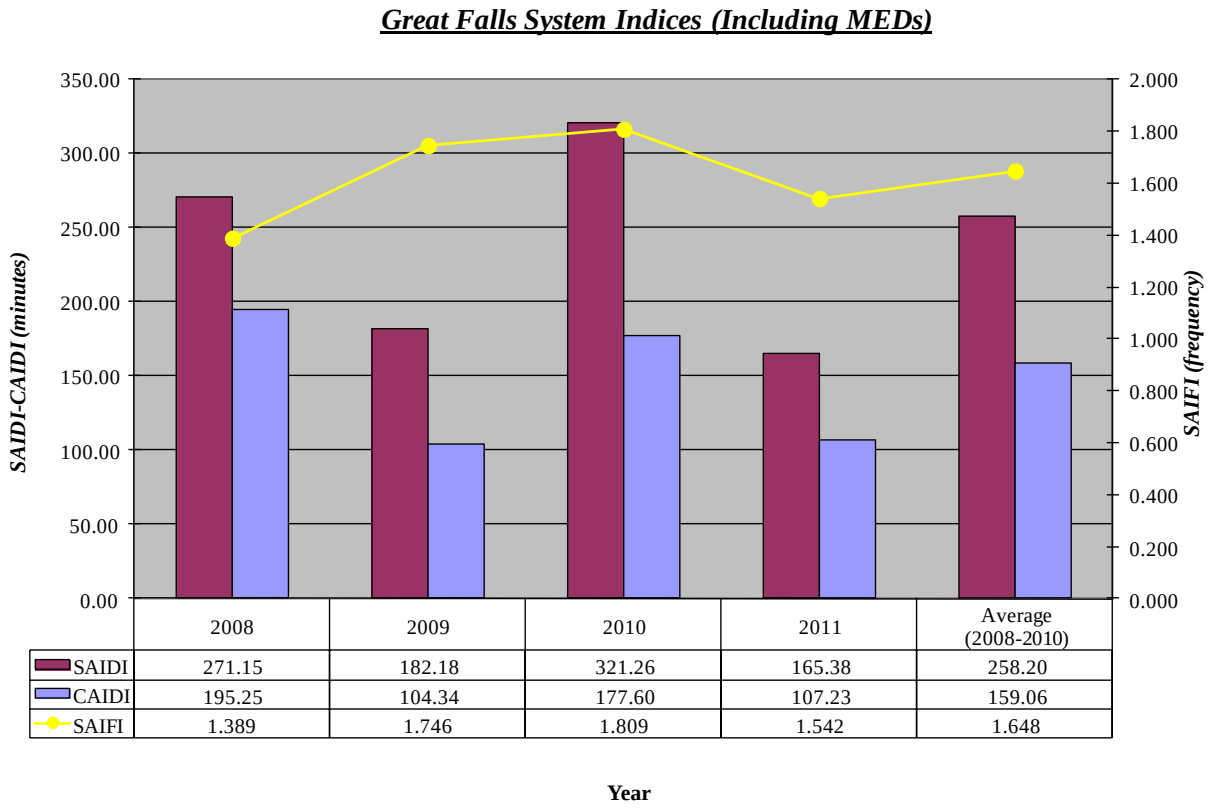
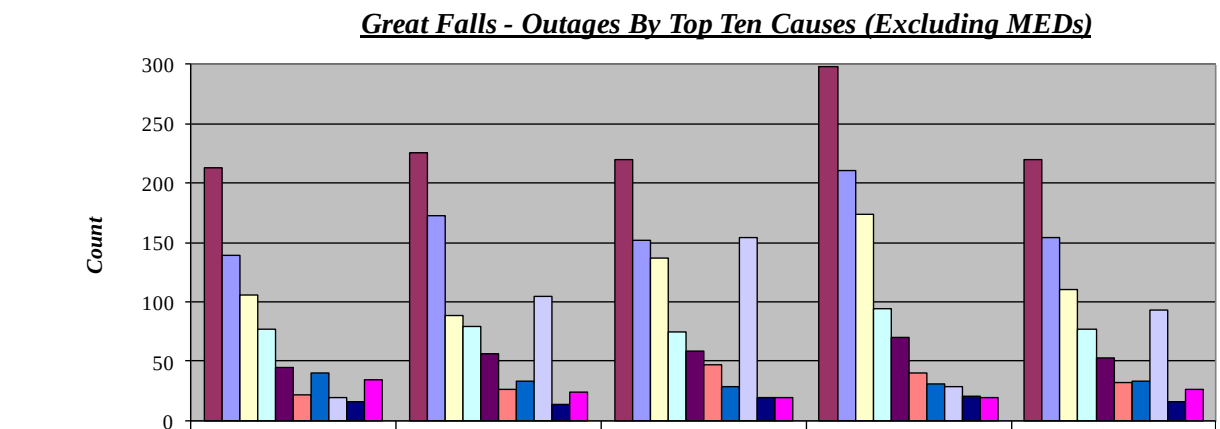
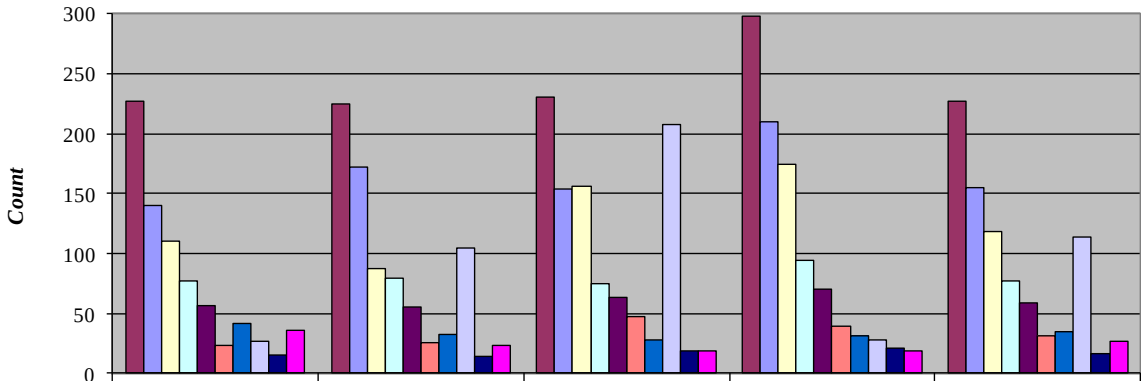


Figure 6.2 Great Falls system indices including major event days (MEDs) as defined in IEEE Standard 1366-2003.



	2008	2009	2010	2011	Average (2008 - 2010)
Equipment Failure	213	225	220	298	219
Unknown	139	172	152	210	154
Wind	106	88	137	174	110
Lightning	77	79	75	94	77
Tree In Line	45	56	58	70	53
Other Bird	22	26	47	40	32
Squirrel	40	33	28	31	34
Snow/Ice	19	105	154	28	93
Raccoon	16	14	19	21	16
System-Other	34	24	19	19	26
DIVISION TOTAL	845	948	1,047	1,109	947

Figure 6.3 Great Falls system outages by top ten causes excluding major event days (MEDs) as defined in IEEE Standard 1366-2003.

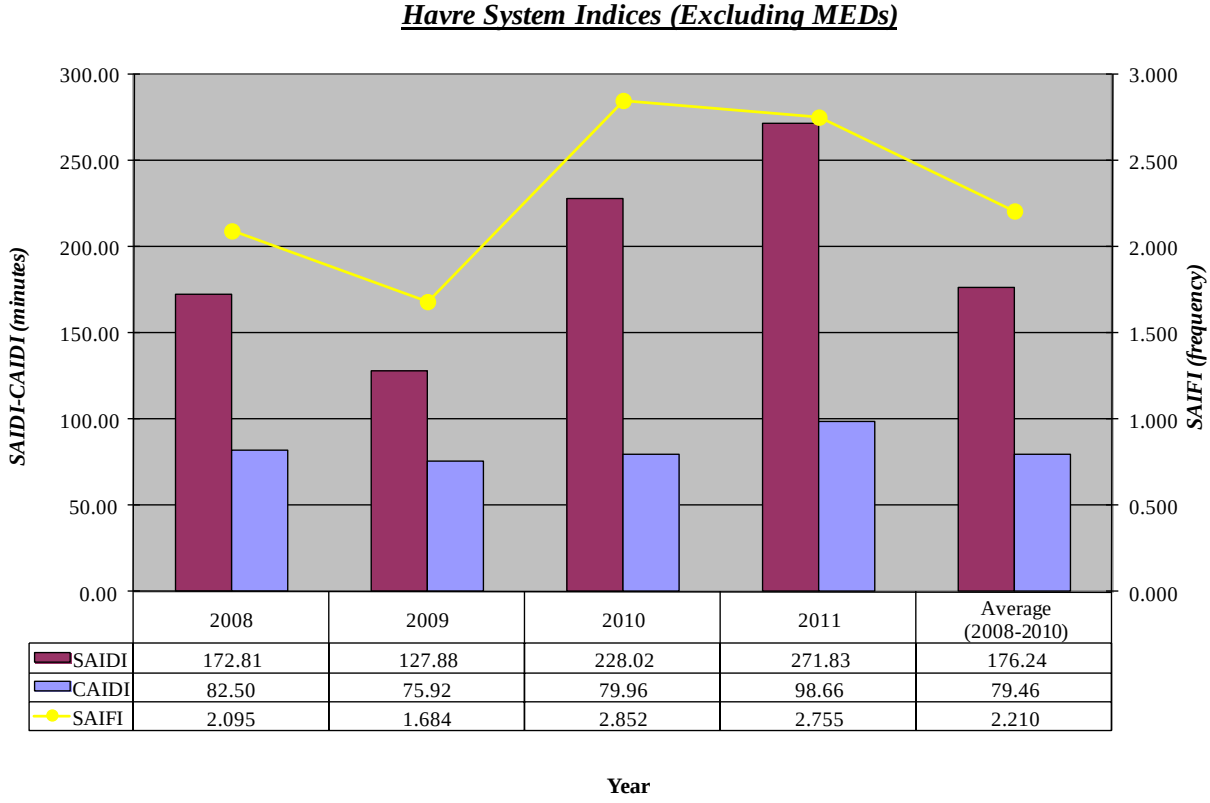


	2008	2009	2010	2011	Average (2008 - 2010)
Equipment Failure	227	225	230	298	227
Unknown	140	172	154	210	155
Wind	110	88	156	174	118
Lightning	77	79	75	94	77
Tree In Line	57	56	63	70	59
Other Bird	23	26	47	40	32
Squirrel	42	33	28	31	34
Snow/Ice	27	105	208	28	113
Raccoon	16	14	19	21	16
System-Other	36	24	19	19	26
DIVISION TOTAL	898	948	1,137	1,109	994

Figure 6.4 Great Falls system outages by top ten causes including major event days (MEDs) as defined in IEEE Standard 1366-2003.

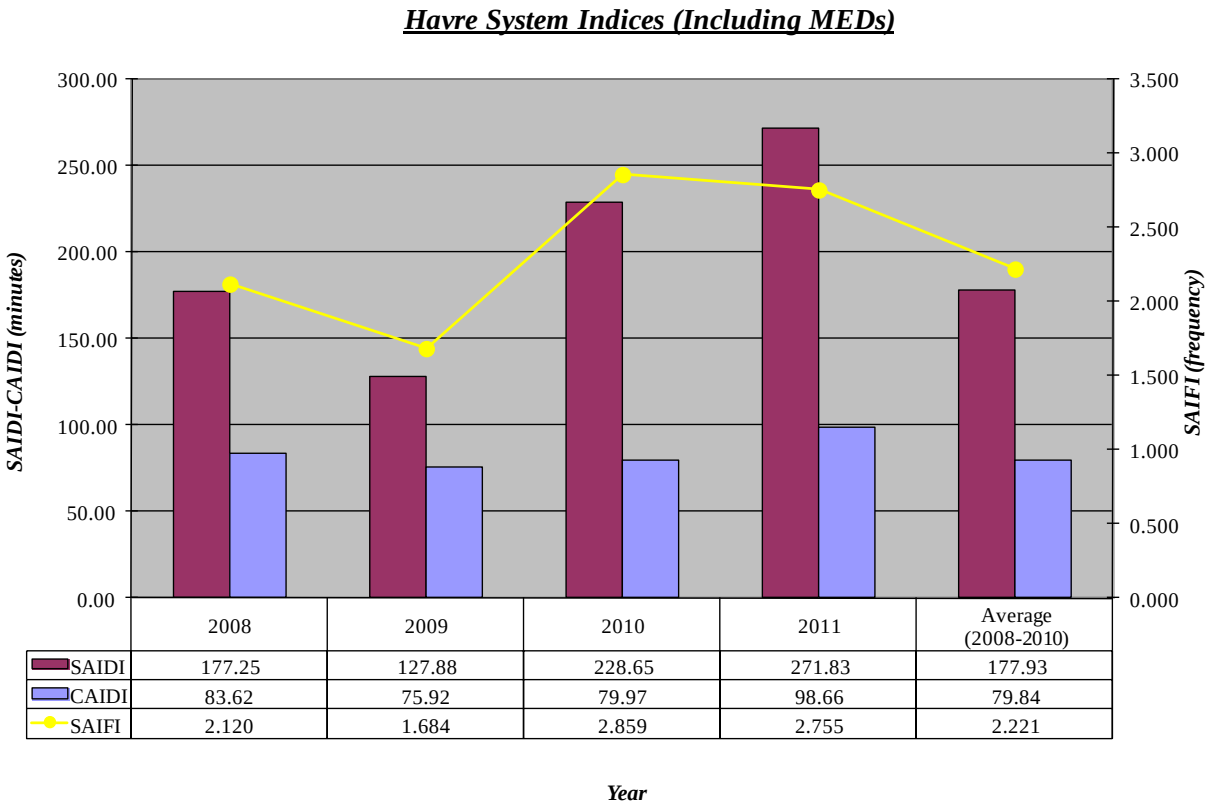
7.0 HAVRE SYSTEM RELIABILITY

The worst SAIDI event for Havre District and also the Montana region was the failure of a bushing on an autotransformer at the Assiniboine-Havre substation on July 13th during a thunderstorm. This took out much of Havre City, some of which was out for over five hours, as well as several outlying substations due to the loss of 69kV transmission lines fed from this source. This one event added 95 minutes of SAIDI to the district's 272 minute total for the year. On September 20th, a phase went down on the 69kV line causing an outage to five substations and about 7500 customers for up to two hours. Most other outages in the district were fairly normal occurrences.



	2008	2009	2010	2011	Average (2008-2010)
SAIDI	172.81	127.88	228.02	271.83	176.24
CAIDI	82.50	75.92	79.96	98.66	79.46
SAIFI	2.095	1.684	2.852	2.755	2.210

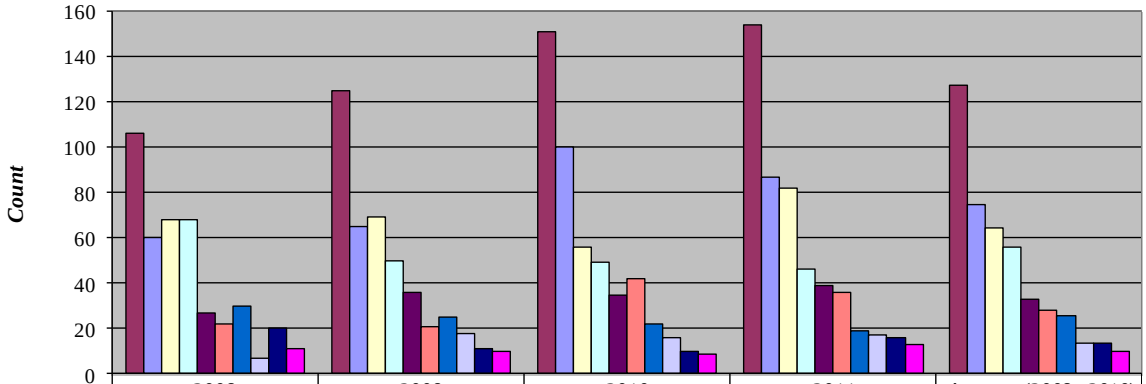
Figure 7.1 Havre system indices excluding major event days (MEDs) as defined in IEEE Standard 1366-2003.



	2008	2009	2010	2011	Average (2008-2010)
SAIDI	177.25	127.88	228.65	271.83	177.93
CAIDI	83.62	75.92	79.97	98.66	79.84
SAIFI	2.120	1.684	2.859	2.755	2.221

Figure 7.2 Havre system indices including major event days (MEDs) as defined in IEEE Standard 1366-2003.

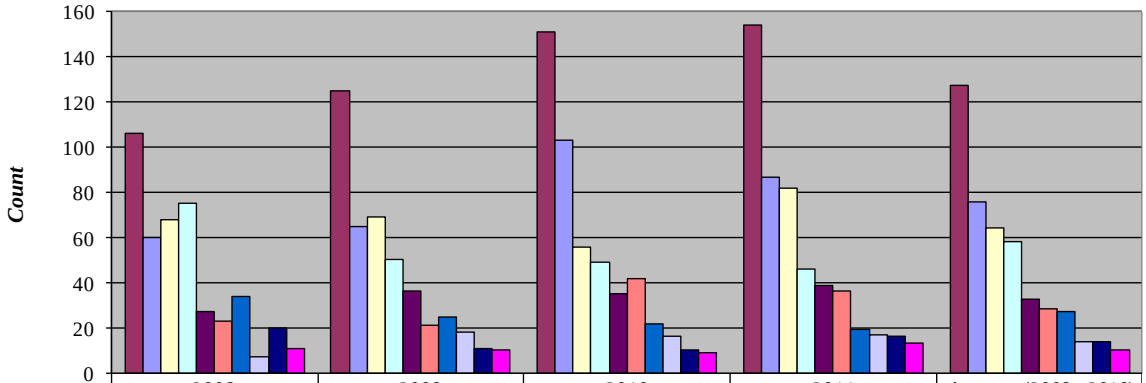
Havre - Outages By Top Ten Causes (Excluding MEDs)



	2008	2009	2010	2011	Average (2008 - 2010)
Equipment Failure	106	125	151	154	127
Wind	60	65	100	87	75
Lightning	68	69	56	82	64
Tree In Line	68	50	49	46	56
Unknown	27	36	35	39	33
Other Bird	22	21	42	36	28
Limb In Line	30	25	22	19	26
Waterfowl	7	18	16	17	14
System-Other	20	11	10	16	14
Raccoon	11	10	9	13	10
DIVISION TOTAL	481	519	672	601	557

Figure 7.3 Havre system outages by top ten causes excluding major event days (MEDs) as defined in IEEE Standard 1366-2003.

Havre - Outages By Cause (Including MEDs)

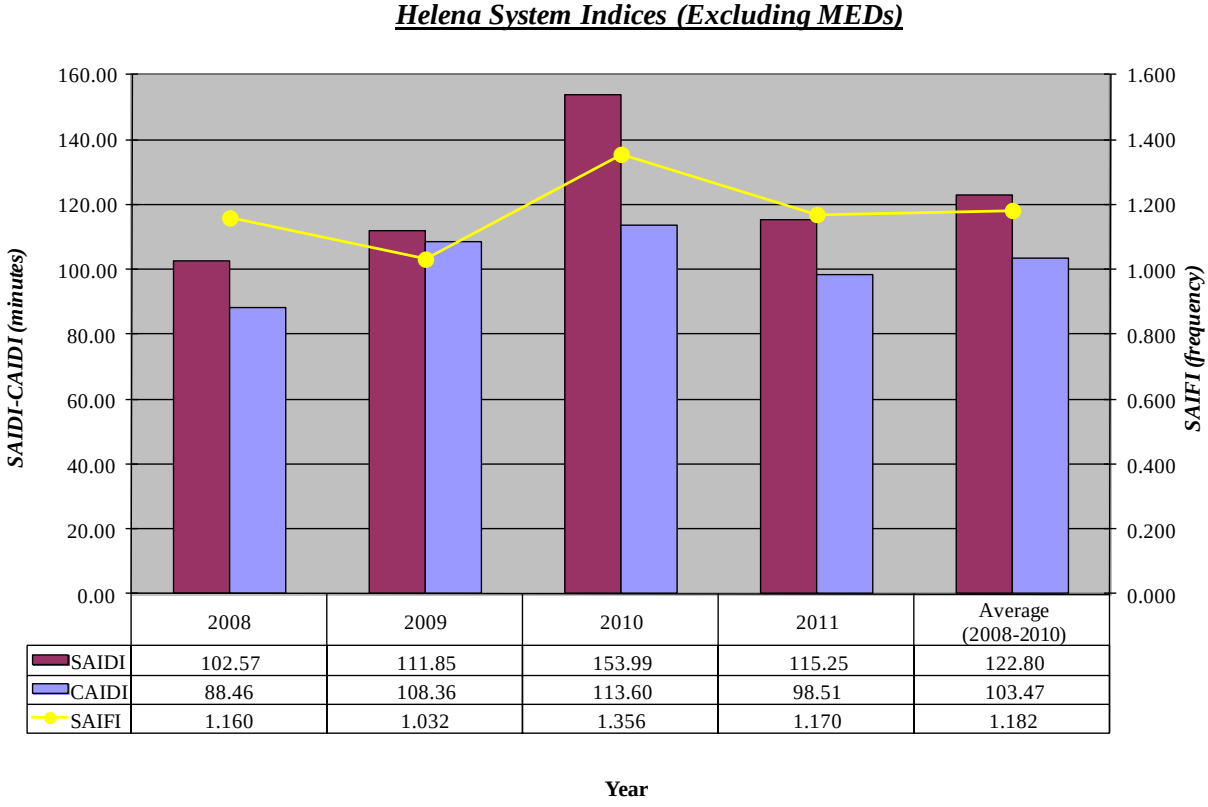


	2008	2009	2010	2011	Average (2008 - 2010)
Equipment Failure	106	125	151	154	127
Wind	60	65	103	87	76
Lightning	68	69	56	82	64
Tree In Line	75	50	49	46	58
Unknown	27	36	35	39	33
Other Bird	23	21	42	36	29
Limb In Line	34	25	22	19	27
Waterfowl	7	18	16	17	14
System-Other	20	11	10	16	14
Raccoon	11	10	9	13	10
DIVISION TOTAL	494	519	676	601	563

Figure 7.4 Havre system outages by top ten causes including major event days (MEDs) as defined in IEEE Standard 1366-2003.

8.0 HELENA SYSTEM RELIABILITY

After an above average SAIDI in 2010, Helena Division dropped back down to slightly below average values for all three indices. Unfortunately, on the last day of the year two 100kV lines were lost in a snowstorm that put four substations and nearly 6800 customers in the dark. This event added close to 10 minutes to the division's SAIDI for the year. The other significant event for the division was the scheduled outage to upgrade the Boulder Substation and addition of the Elkhorn area to this station. This was about an eight hour planned outage for around a thousand customers. The rest of the year, Helena had typical storms and related outages.



	2008	2009	2010	2011	Average (2008-2010)
SAIDI	102.57	111.85	153.99	115.25	122.80
CAIDI	88.46	108.36	113.60	98.51	103.47
SAIFI	1.160	1.032	1.356	1.170	1.182

Figure 8.1 Helena system indices excluding major event days (MEDs) as defined in IEEE Standard 1366-2003.

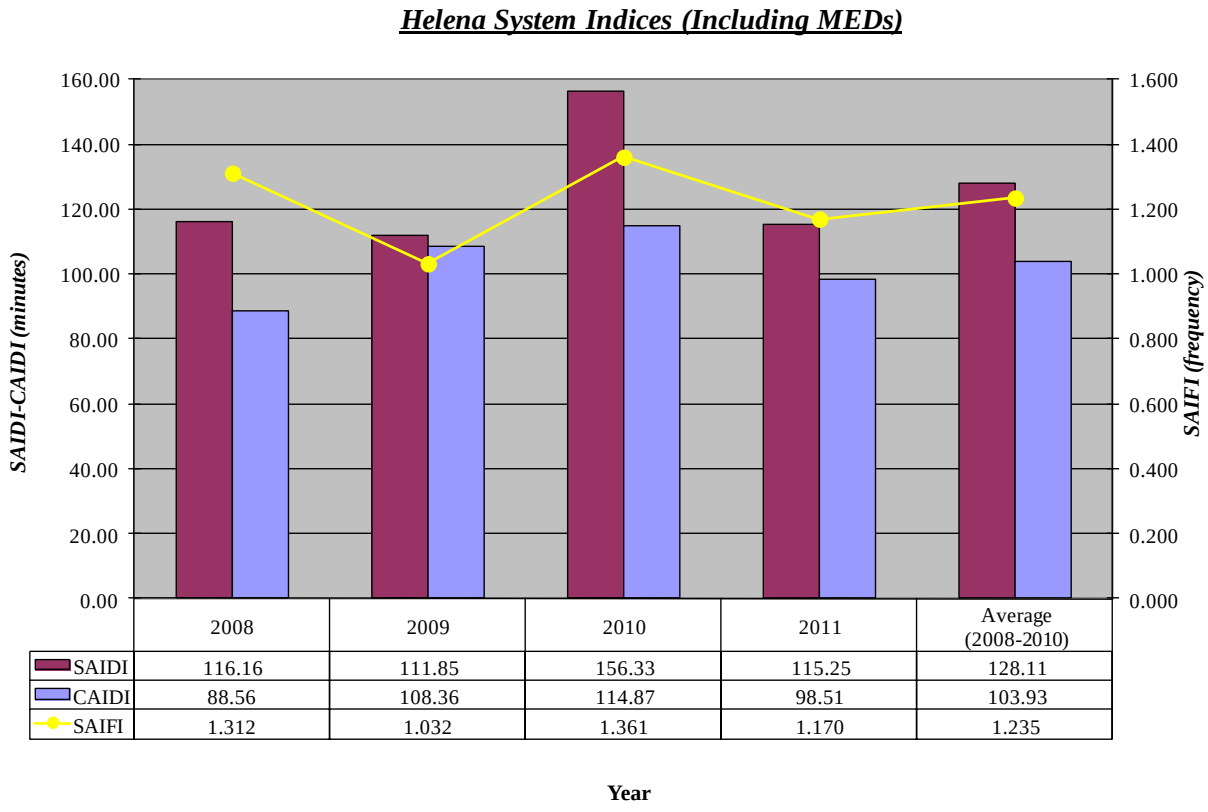
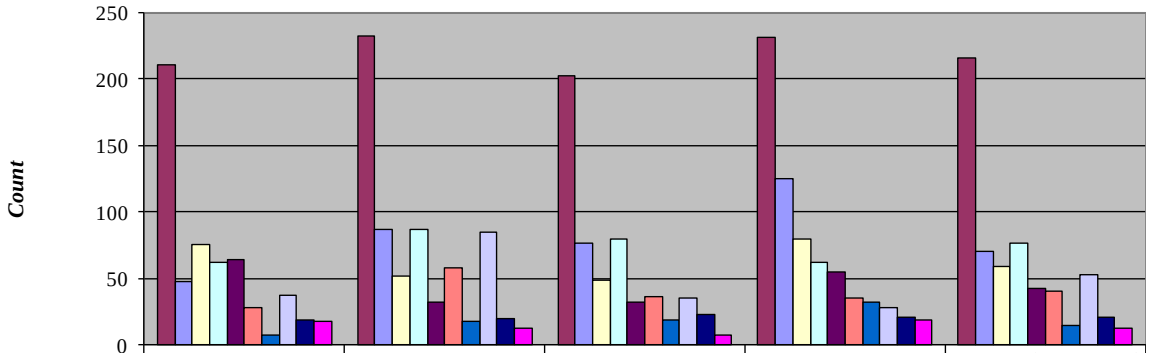
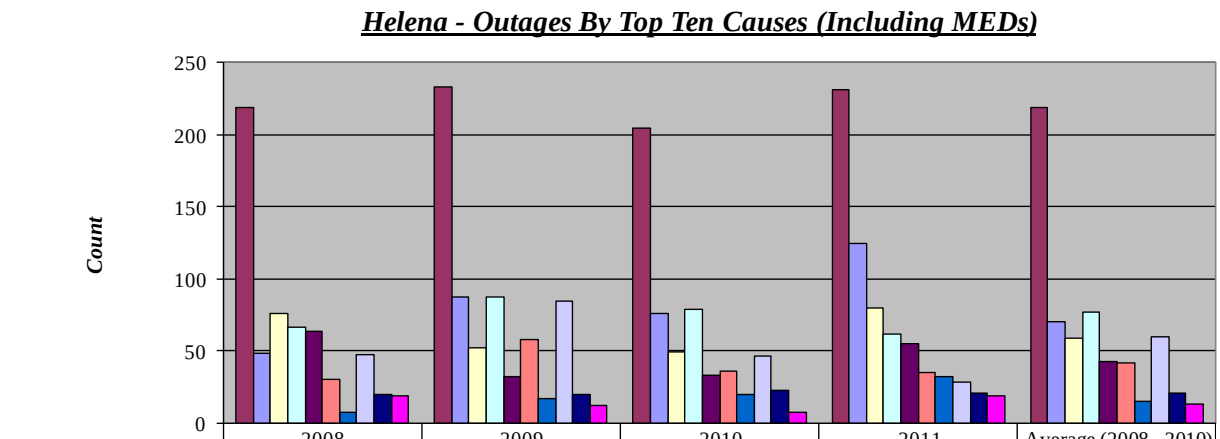


Figure 8.2 Helena system indices including major event days (MEDs) as defined in IEEE Standard 1366-2003.



	2008	2009	2010	2011	Average (2008 - 2010)
Equipment Failure	211	233	203	231	216
Tree In Line	47	87	76	125	70
Squirrel	75	52	49	80	59
Lightning	62	87	79	62	76
Wind	64	32	32	55	43
Other Bird	28	58	36	35	41
Scheduled Maintenance	7	17	19	32	14
Snow/Ice	37	85	35	28	52
Limb In Line	19	20	23	21	21
Animal-Other	17	12	7	19	12
DIVISION TOTAL	672	791	653	806	705

Figure 8.3 Helena system outages by top ten causes excluding major event days (MEDs) as defined in IEEE Standard 1366-2003.

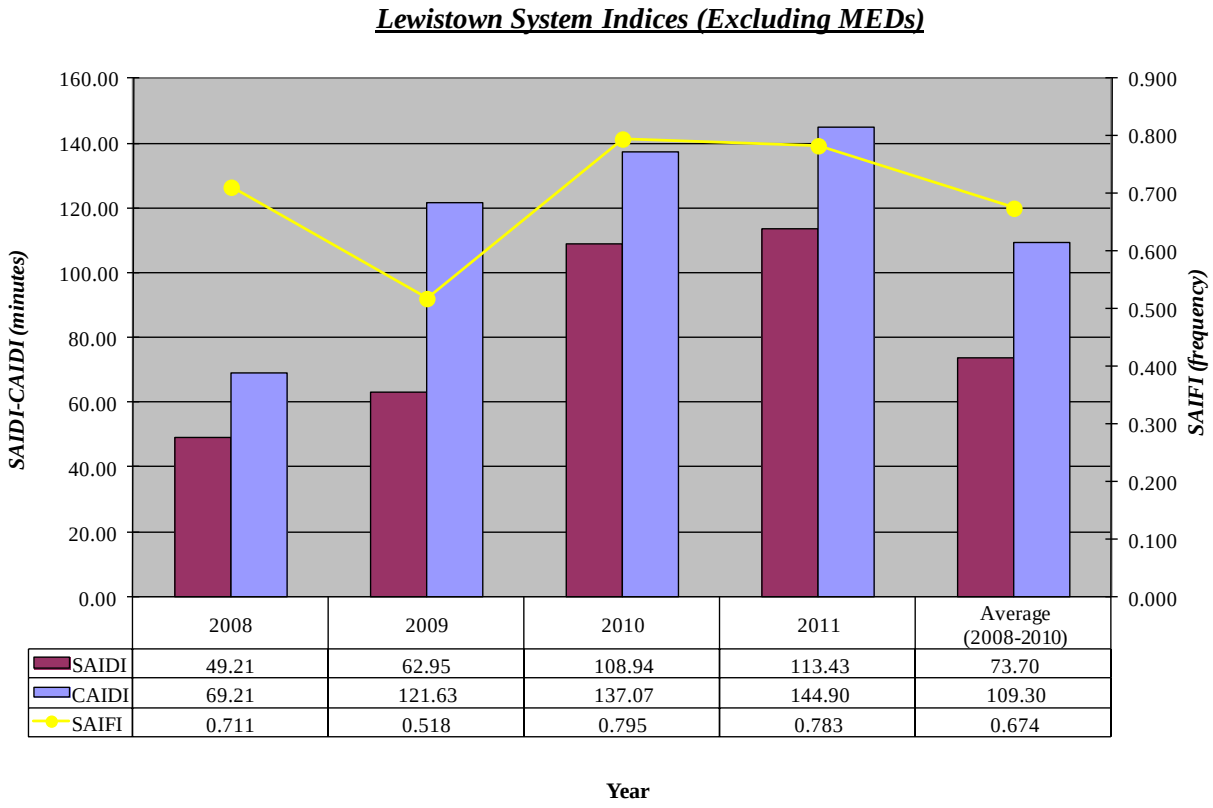


	2008	2009	2010	2011	Average (2008 - 2010)
Equipment Failure	219	233	205	231	219
Tree In Line	48	87	76	125	70
Squirrel	76	52	49	80	59
Lightning	66	87	79	62	77
Wind	64	32	33	55	43
Other Bird	30	58	36	35	41
Scheduled Maintenance	7	17	20	32	15
Snow/Ice	47	85	46	28	59
Limb In Line	20	20	23	21	21
Animal-Other	19	12	7	19	13
DIVISION TOTAL	702	791	668	806	720

Figure 8.4 Helena system outages by top ten causes including major event days (MEDs) as defined in IEEE Standard 1366-2003.

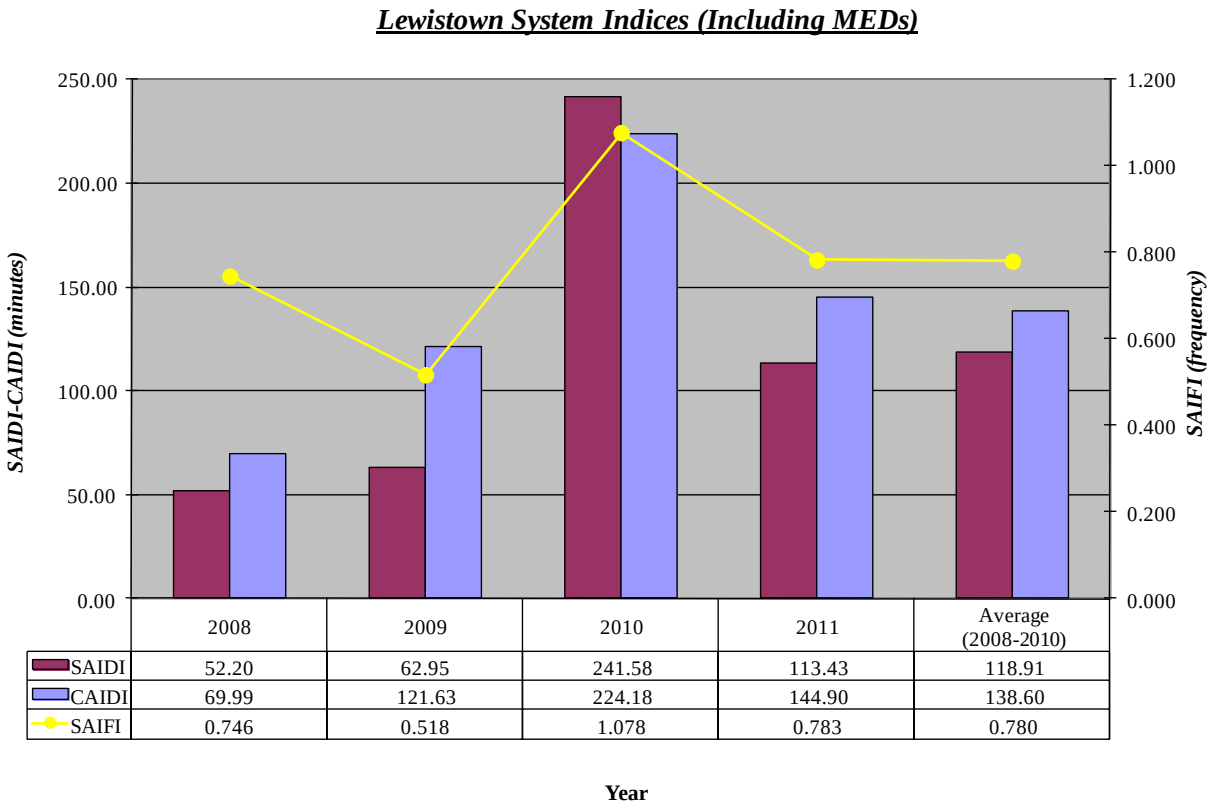
9.0 LEWISTOWN SYSTEM RELIABILITY

Lewistown District had a normal year with SAIDI up slightly from 2010, when MEDs were excluded. When considering major storms, Lewistown District's overall SAIDI is down by about half from 2010 when there was a major snowstorm. Wind and lightning outage numbers are both up, which indicates more spring and summer storm trouble than a typical year. Also, planned outages accounted for almost 20 minutes of SAIDI as needed upgrades were accomplished.



	2008	2009	2010	2011	Average (2008-2010)
SAIDI	49.21	62.95	108.94	113.43	73.70
CAIDI	69.21	121.63	137.07	144.90	109.30
SAIFI	0.711	0.518	0.795	0.783	0.674

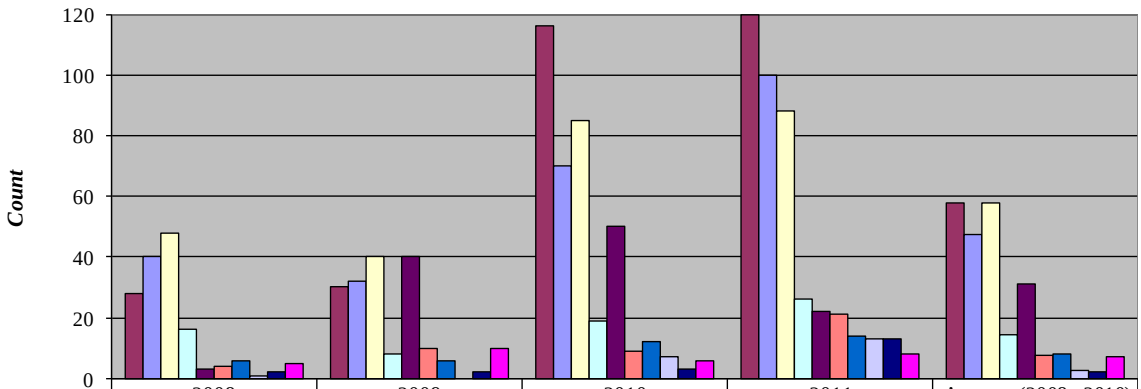
Figure 9.1 Lewistown system indices excluding major event days (MEDs) as defined in IEEE Standard 1366-2003.



	2008	2009	2010	2011	Average (2008-2010)
SAIDI	52.20	62.95	241.58	113.43	118.91
CAIDI	69.99	121.63	224.18	144.90	138.60
SAIFI	0.746	0.518	1.078	0.783	0.780

Figure 9.2 Lewistown system indices including major event days (MEDs) as defined in IEEE Standard 1366-2003.

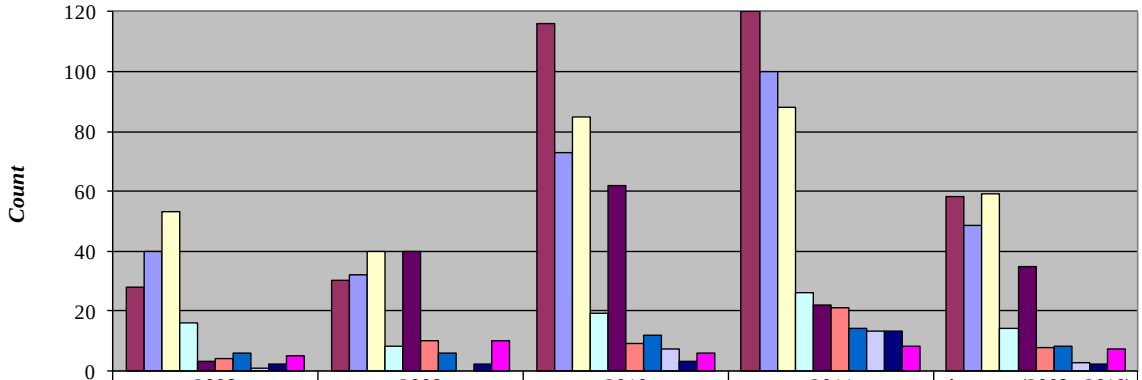
Lewistown - Outages By Top Ten Causes (Excluding MEDs)



	2008	2009	2010	2011	Average (2008 - 2010)
Lightning	28	30	116	120	58
Wind	40	32	70	100	47
Equipment Failure	48	40	85	88	58
Unknown	16	8	19	26	14
Snow/Ice	3	40	50	22	31
Other Bird	4	10	9	21	8
Raccoon	6	6	12	14	8
Waterfowl	1	0	7	13	3
Nature-Other	2	2	3	13	2
System-Other	5	10	6	8	7
DIVISION TOTAL	171	201	416	467	263

Figure 9.3 Lewistown system outages by top ten causes excluding major event days (MEDs) as defined in IEEE Standard 1366-2003.

Lewistown - Outages By Top Ten Causes (Including MEDs)

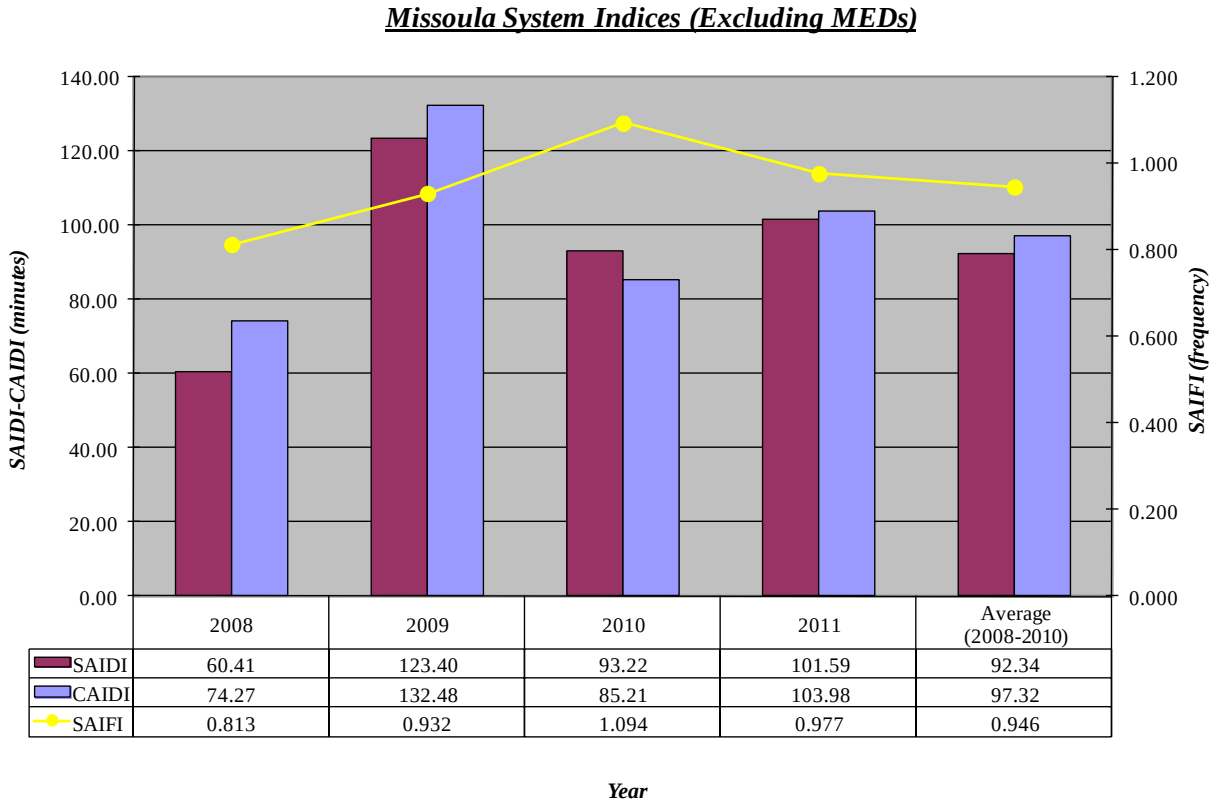


	2008	2009	2010	2011	Average (2008 - 2010)
Lightning	28	30	116	120	58
Wind	40	32	73	100	48
Equipment Failure	53	40	85	88	59
Unknown	16	8	19	26	14
Snow/Ice	3	40	62	22	35
Other Bird	4	10	9	21	8
Raccoon	6	6	12	14	8
Waterfowl	1	0	7	13	3
Nature-Other	2	2	3	13	2
System-Other	5	10	6	8	7
DIVISION TOTAL	178	201	431	467	270

Figure 9.4 Lewistown system outages by top ten causes including major event days (MEDs) as defined in IEEE Standard 1366-2003.

10.0 MISSOULA SYSTEM RELIABILITY

Last year, a regulator failure in the Stevensville substation caused a sixteen hour outage (while a replacement was delivered) and resulted in Missoula Division's most significant outage for the year. The outage event added 15.7 SAIDI minutes to the division tally and also increased the CAIDI number for the year. Necessary work at the Hamilton Southside substation in October added 11.5 minutes to the year's total. Tree problems in the Stevensville area and animals in Plains also accounted for several large outages. Squirrels also caused outages on a couple Missoula feeders, but both of these outages were restored promptly. Even though considerable animal mitigation work has been done in this area, the squirrels continue their "occupy" protest, while taking occasional casualties!



	2008	2009	2010	2011	Average (2008-2010)
SAIDI	60.41	123.40	93.22	101.59	92.34
CAIDI	74.27	132.48	85.21	103.98	97.32
SAIFI	0.813	0.932	1.094	0.977	0.946

Figure 10.1 Missoula system indices excluding major event days (MEDs) as defined in IEEE Standard 1366-2003.

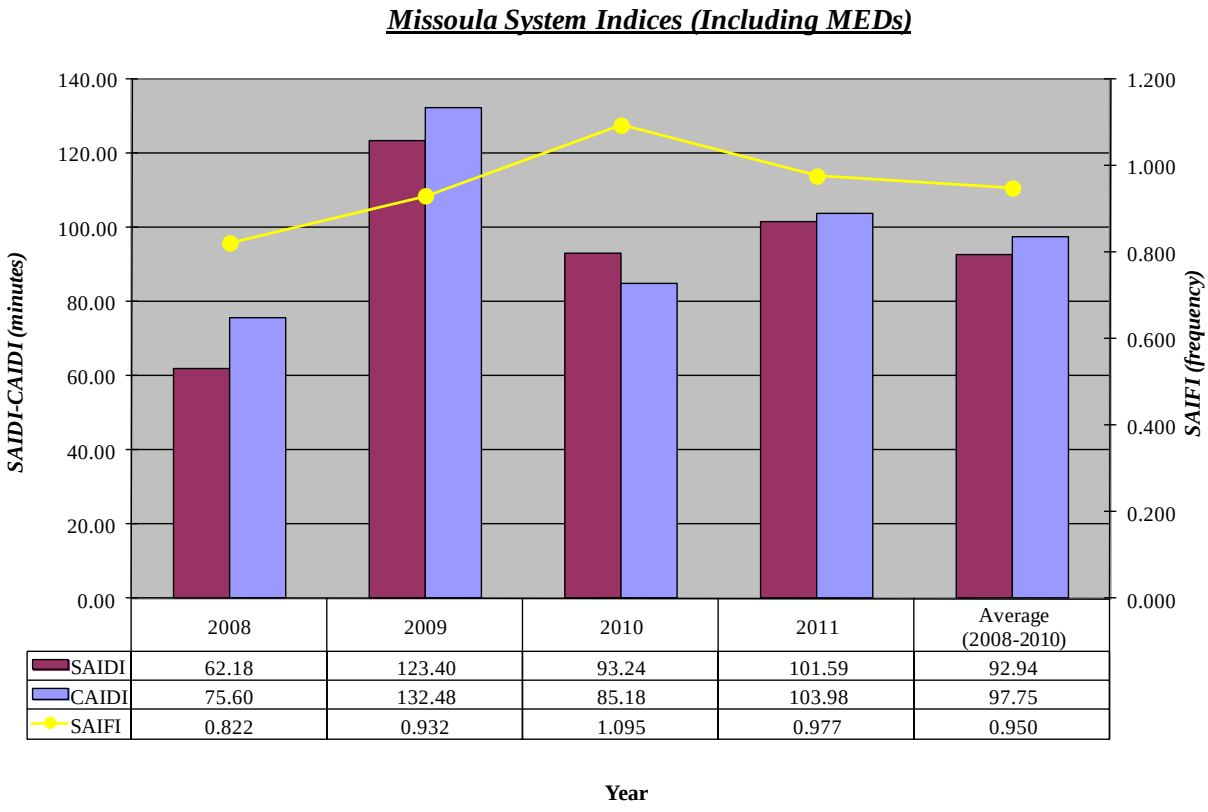
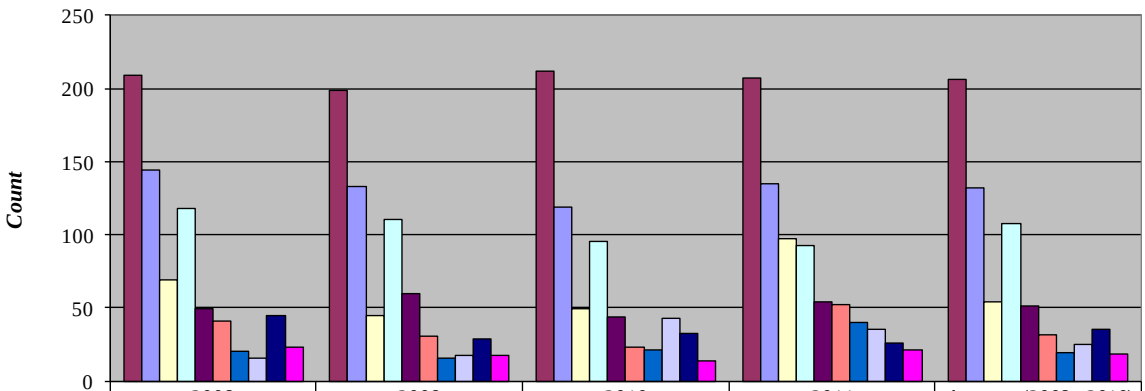
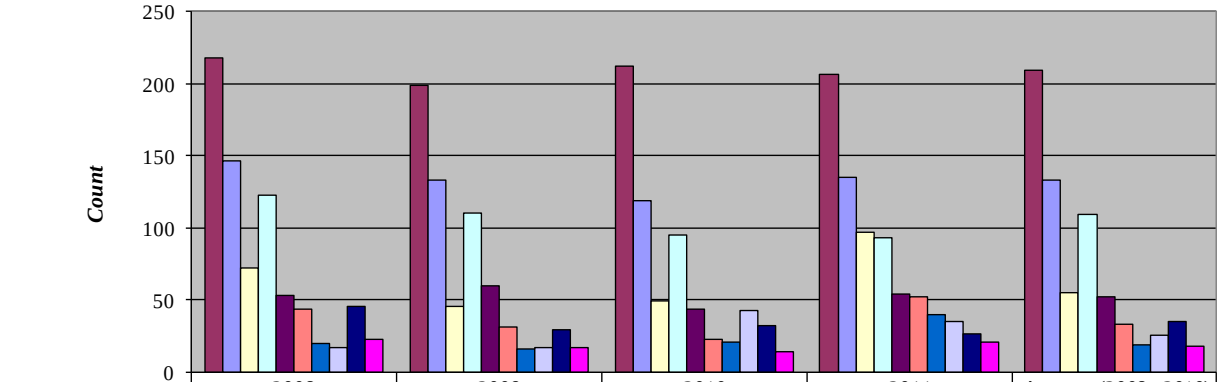


Figure 10.2 Missoula system indices including major event days (MEDs) as defined in IEEE Standard 1366-2003.



	2008	2009	2010	2011	Average (2008 - 2010)
Equipment Failure	209	199	212	207	207
Squirrel	144	133	119	135	132
Unknown	69	45	49	97	54
Tree In Line	118	110	95	93	108
Other Bird	49	60	44	54	51
Snow/Ice	41	31	23	52	32
System-Other	20	16	21	40	19
Lightning	16	17	43	35	25
Limb In Line	45	29	32	26	35
Wind	23	17	14	21	18
DIVISION TOTAL	875	761	773	899	803

Figure 10.3 Missoula system outages by top ten causes excluding major event days (MEDs) as defined in IEEE Standard 1366-2003.



	2008	2009	2010	2011	Average (2008 - 2010)
Equipment Failure	218	199	212	207	210
Squirrel	147	133	119	135	133
Unknown	72	45	49	97	55
Tree In Line	123	110	95	93	109
Other Bird	53	60	44	54	52
Snow/Ice	44	31	23	52	33
System-Other	20	16	21	40	19
Lightning	17	17	43	35	26
Limb In Line	45	29	32	26	35
Wind	23	17	14	21	18
DIVISION TOTAL	907	761	774	899	814

Figure 10.4 Missoula system outages by top ten causes including major event days (MEDs) as defined in IEEE Standard 1366-2003.

11.0 CONCLUSION

The SAIDI and CAIDI reliability indices for the Montana region in 2011 were slightly higher than 2010 when excluding statistically derived major event days. The reliability statistics for 2011 indicated system reliability was improved over 2010 until a windstorm and then snowstorm occurred in the last three days of the year, adding over seven minutes of SAIDI. Without a major event for 2011, the total SAIDI in 2011 improved 26 minutes from 2010, indicating reliability in general was better. Although the indices impacts were not large, some customers experienced extended outages due to storms and equipment failures, while crews worked long hours, often in difficult conditions to restore their power. Monarch and Big Timber areas had customers out for days from snow and subsequent flooding in the Big Timber area. Stevensville had a sixteen hour outage from equipment failure at the substation.

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 several reliability projects under the Distribution System Infrastructure Project (DSIP), stability, if not improvement in electric system reliability should be realized. With continued planning, diligent work, and sincere effort, NorthWestern Energy will be able to continue providing safe, reliable electric service to our customers.

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 2008-2010 average and 2011 year end. Also included are graphs showing the outage cause duration and frequency for December 2011 and by year from 2007 through 2011.

The 2011 outage duration was about **417 hours more** than the 2008-2010 average. The 2011 outage frequency was about **101 more** than the 2008-2010 average.

ASAI

Year		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2011	Monthly	99.957	99.904	99.848	99.880	99.912	99.905	99.840	99.904	99.960	99.943	99.958	99.960
2008-2010	Monthly	99.956	99.968	99.962	99.928	99.929	99.881	99.909	99.890	99.962	99.951	99.922	99.913
2011	YTD	99.957	99.932	99.903	99.897	99.900	99.901	99.892	99.894	99.901	99.905	99.910	99.914
2008-2010	YTD	99.956	99.962	99.962	99.954	99.949	99.937	99.933	99.928	99.932	99.933	99.932	99.931

SAIFI

Year		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2011	Monthly	0.8378	2.9782	5.6004	4.4656	3.0427	4.6881	5.0616	4.6535	2.4422	1.2032	3.2858	2.9220
2008-2010	Monthly	3.0054	1.7494	1.6137	3.1636	3.3713	4.7519	5.5268	4.4895	2.1669	2.5253	2.0296	2.8354
2011	YTD	0.8378	1.8536	3.1441	3.4745	3.3859	3.6036	3.8202	3.9285	3.7622	3.4974	3.4781	3.4303
2008-2010	YTD	3.0054	2.4056	2.1339	2.3908	2.5918	2.9494	3.3261	3.4746	3.3309	3.2487	3.1392	3.1134

Outage Duration

Year		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2011	YTD	84.64	255.5	555.7	785.5	958.4	1142.9	1465	1659	1737	1853	1935	2016
2008-2010	YTD	84.97	140.94	214.84	352.38	490.8	717.5	895.8	1113	1184	1281	1429	1600

Outage Count

Year		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2011	YTD	19.0	80.0	207.0	305.0	374.0	478.0	595.0	703.0	758.0	786.0	860.0	928.0
2008-2010	YTD	67.7	103.7	140.0	209.0	285.0	388.7	513.3	614.7	662.0	719.0	763.3	827.3

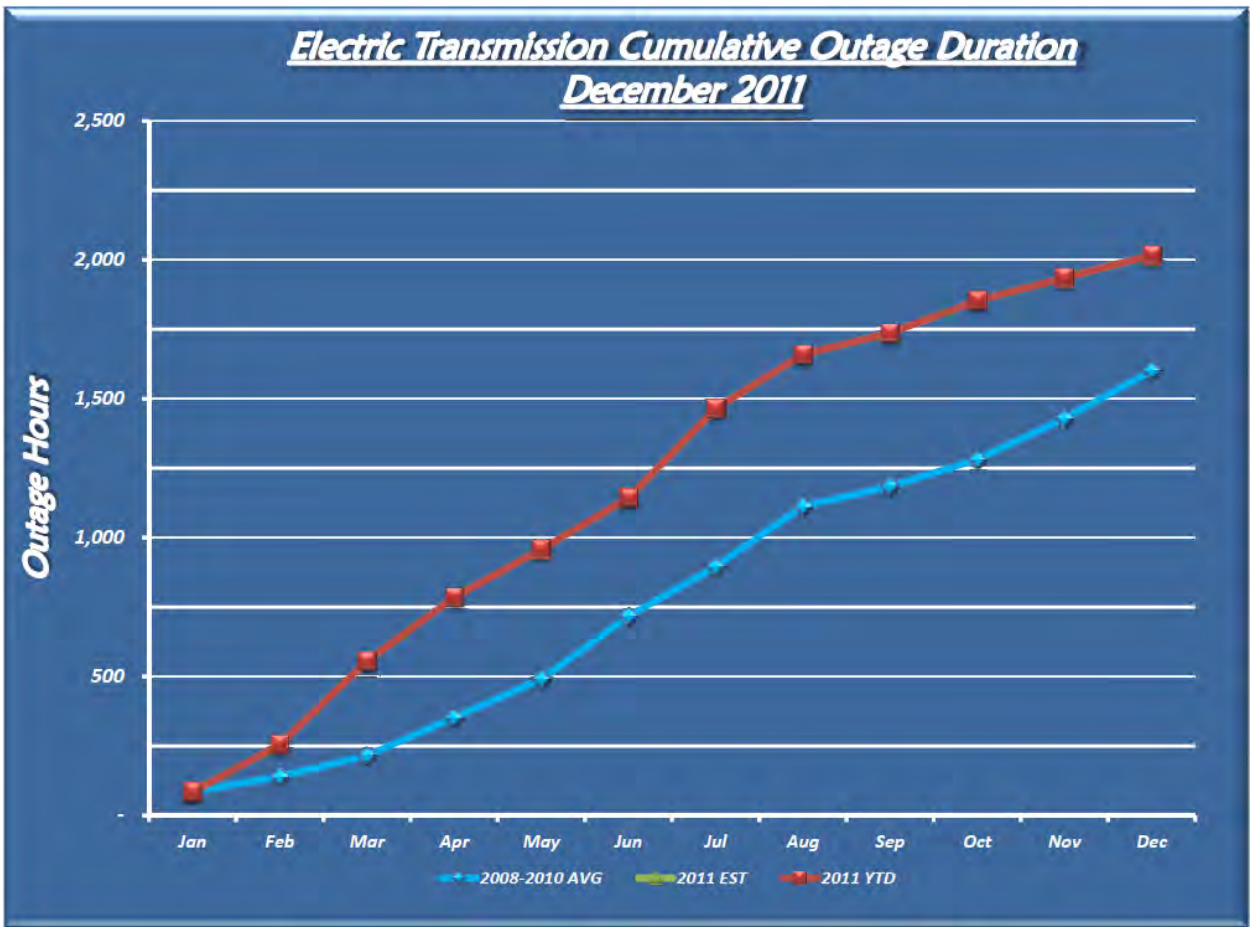


Figure A.1 Electric transmission cumulative outage duration.

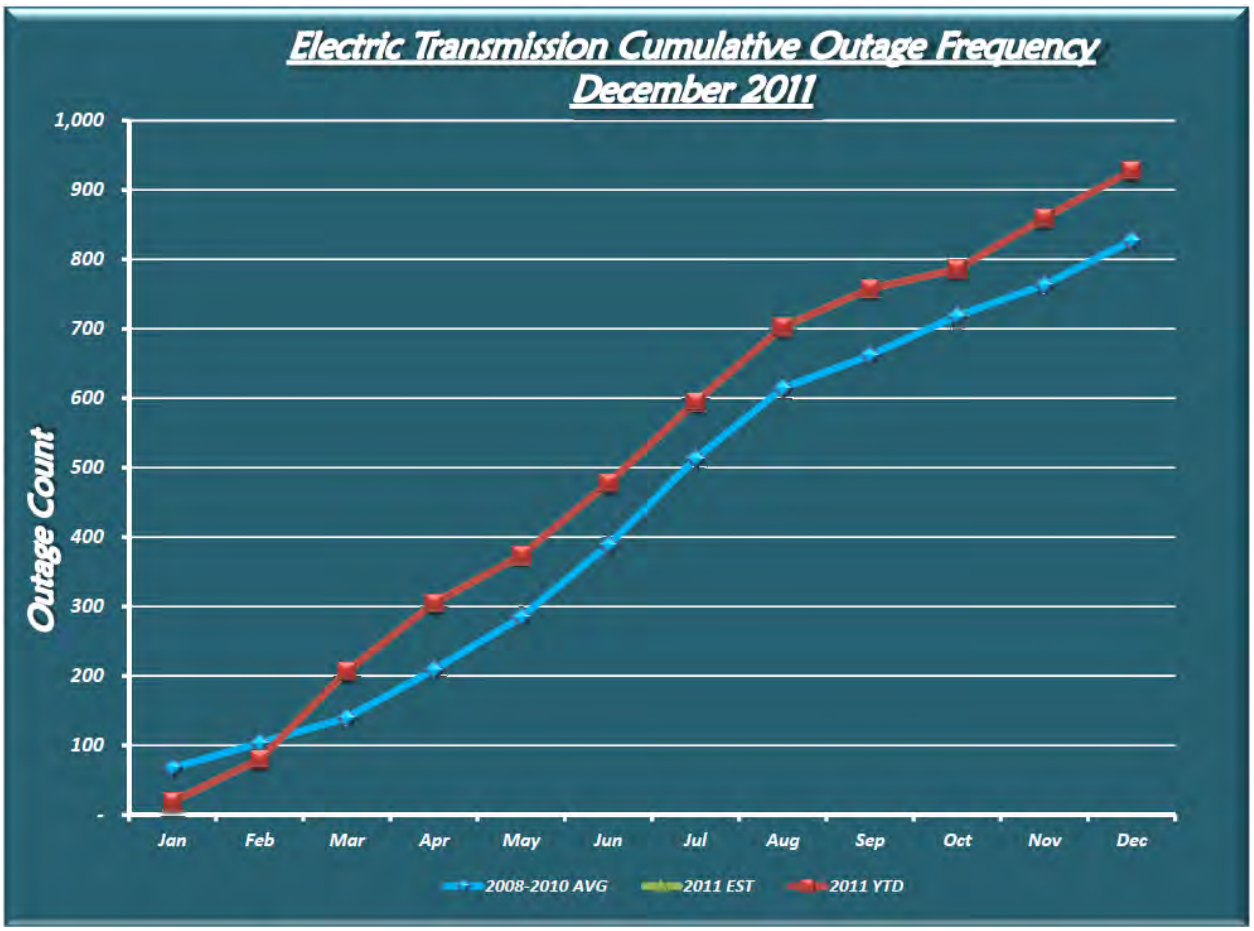


Figure A.2 Electric transmission cumulative outage frequency.

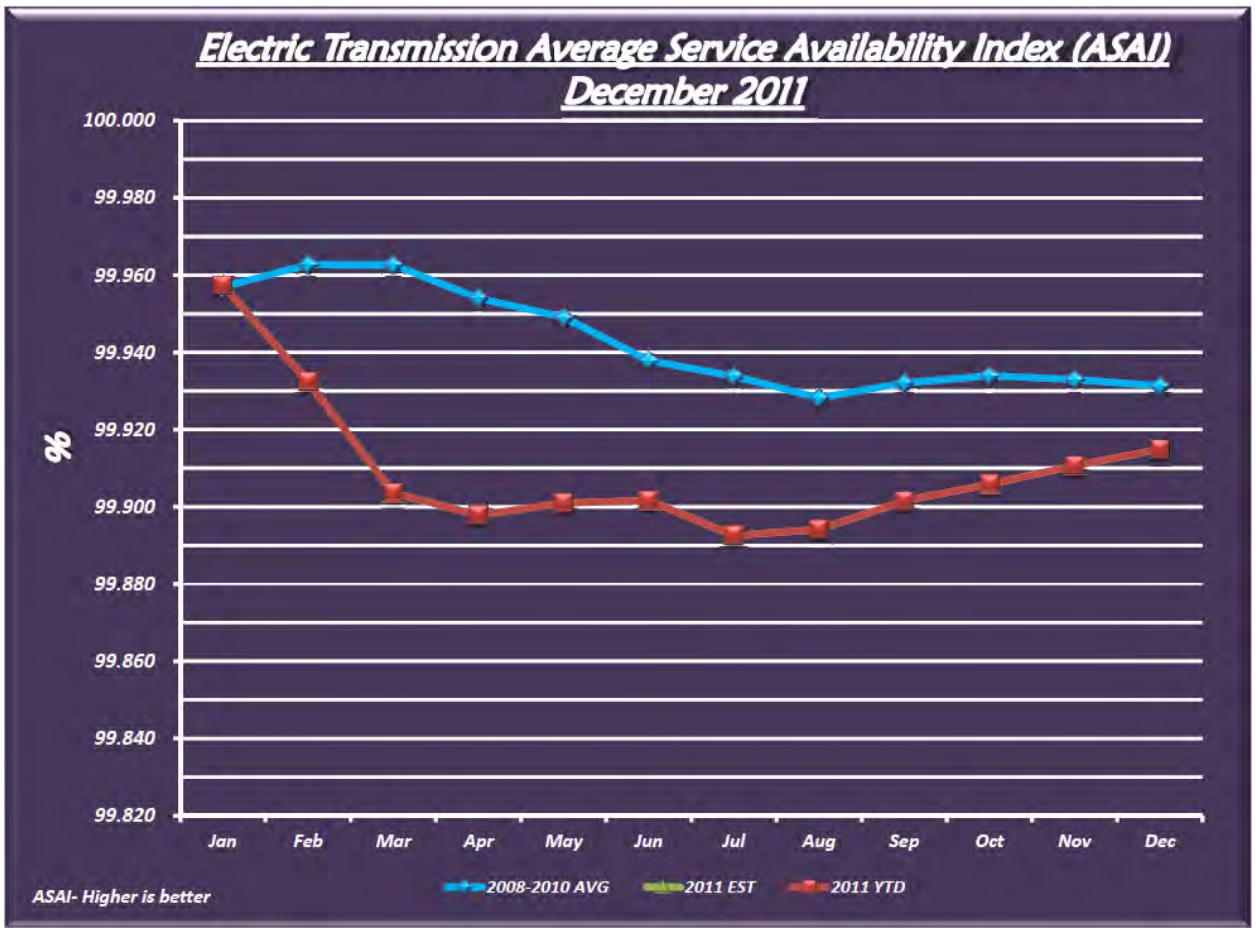


Figure A.3 Electric transmission Average Service Availability Index (ASAI).

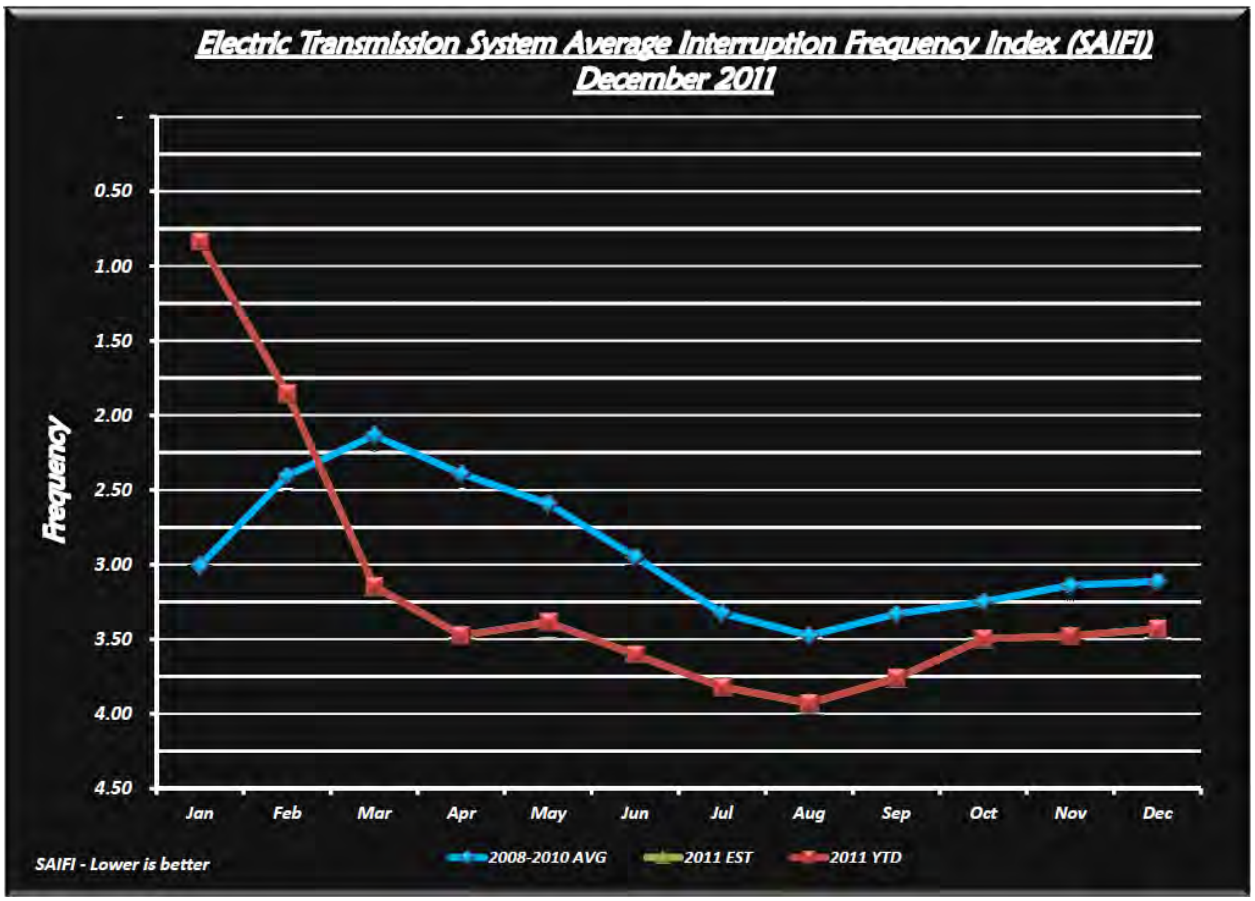


Figure A.4 Electric transmission System Average Interruption Frequency Index (SAIFI).

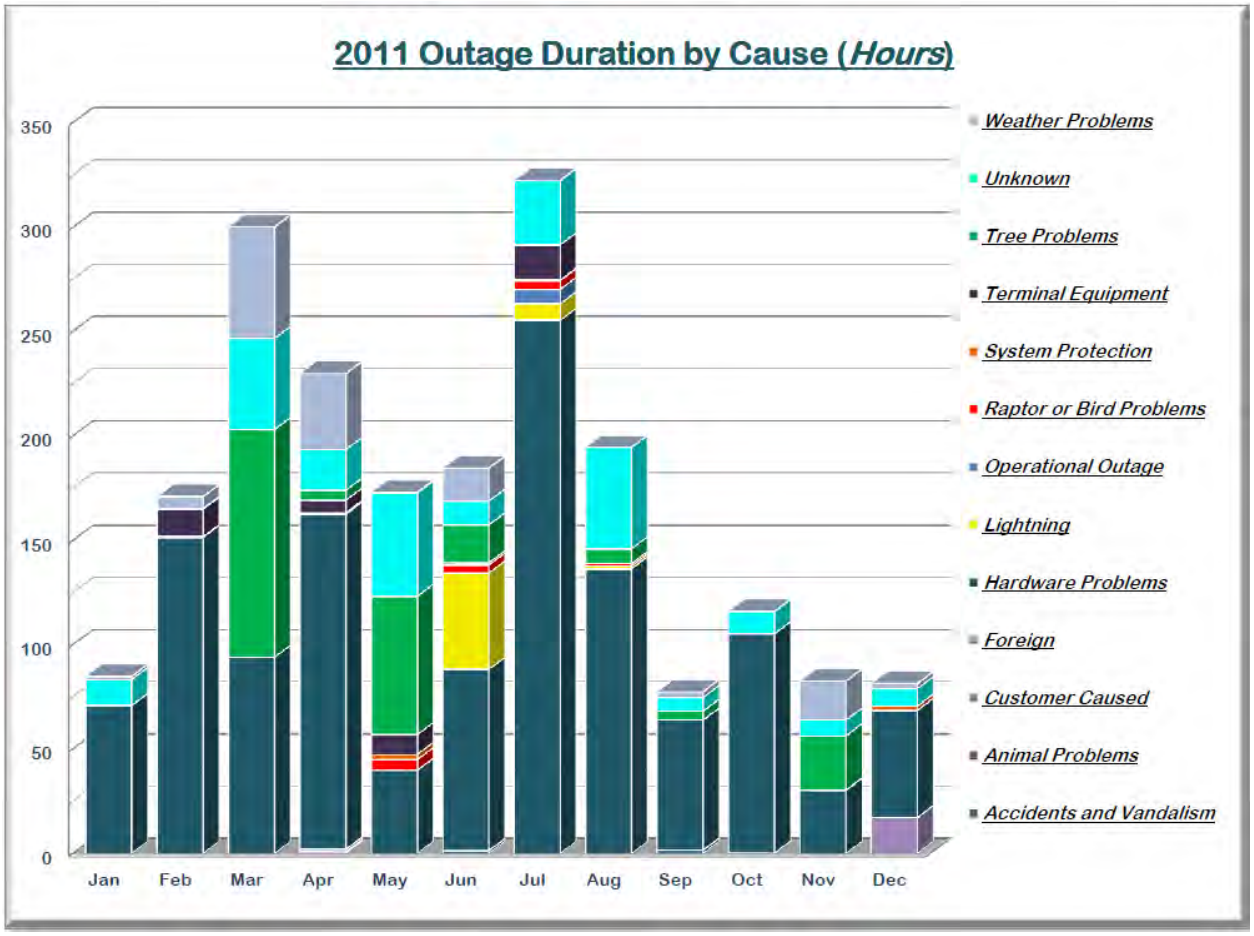


Figure A.5 Electric transmission 2011 outage duration by cause.

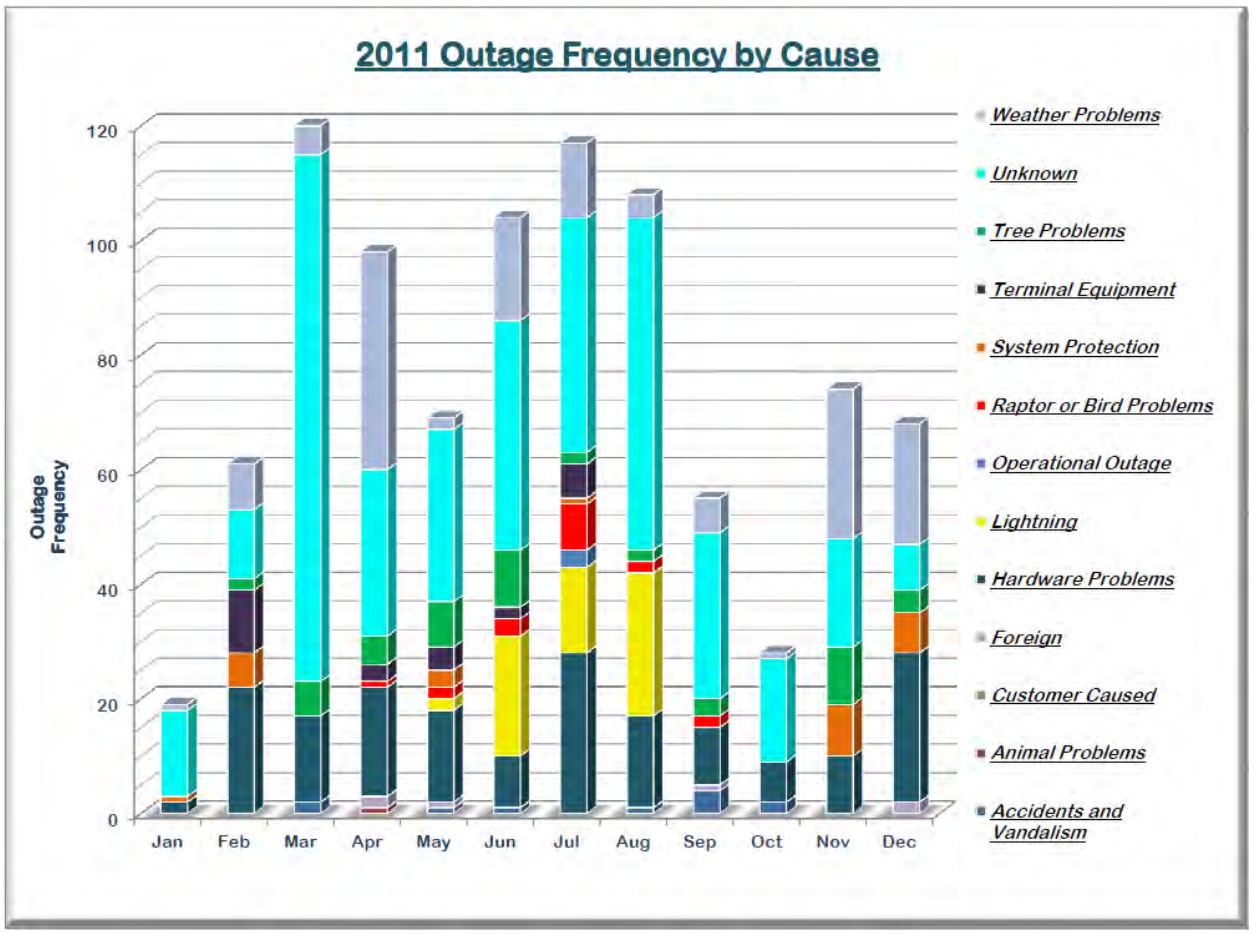


Figure A.6 Electric transmission 2011 outage frequency by cause.

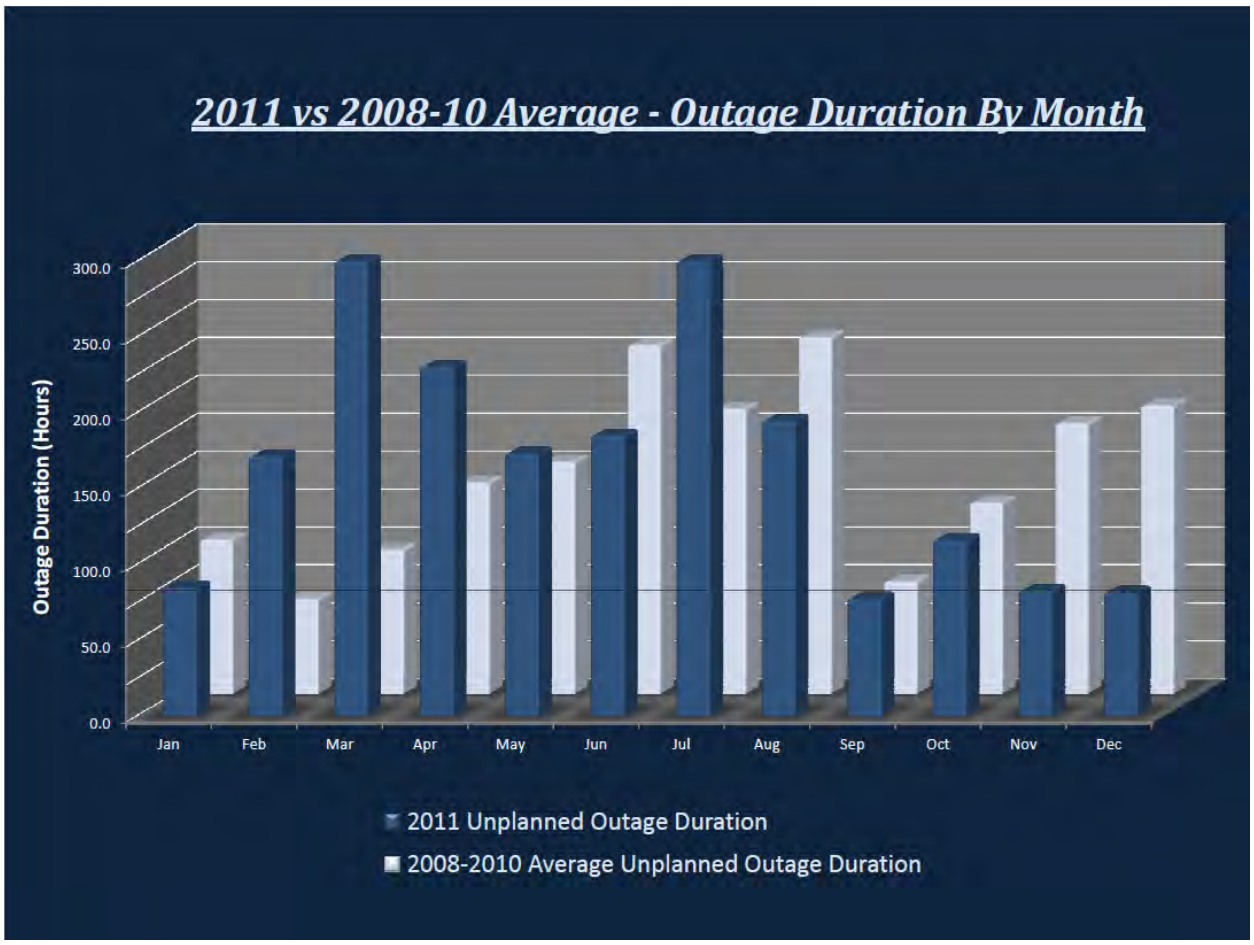


Figure A.7 Comparison of 2011 outage duration to previous three-year average.

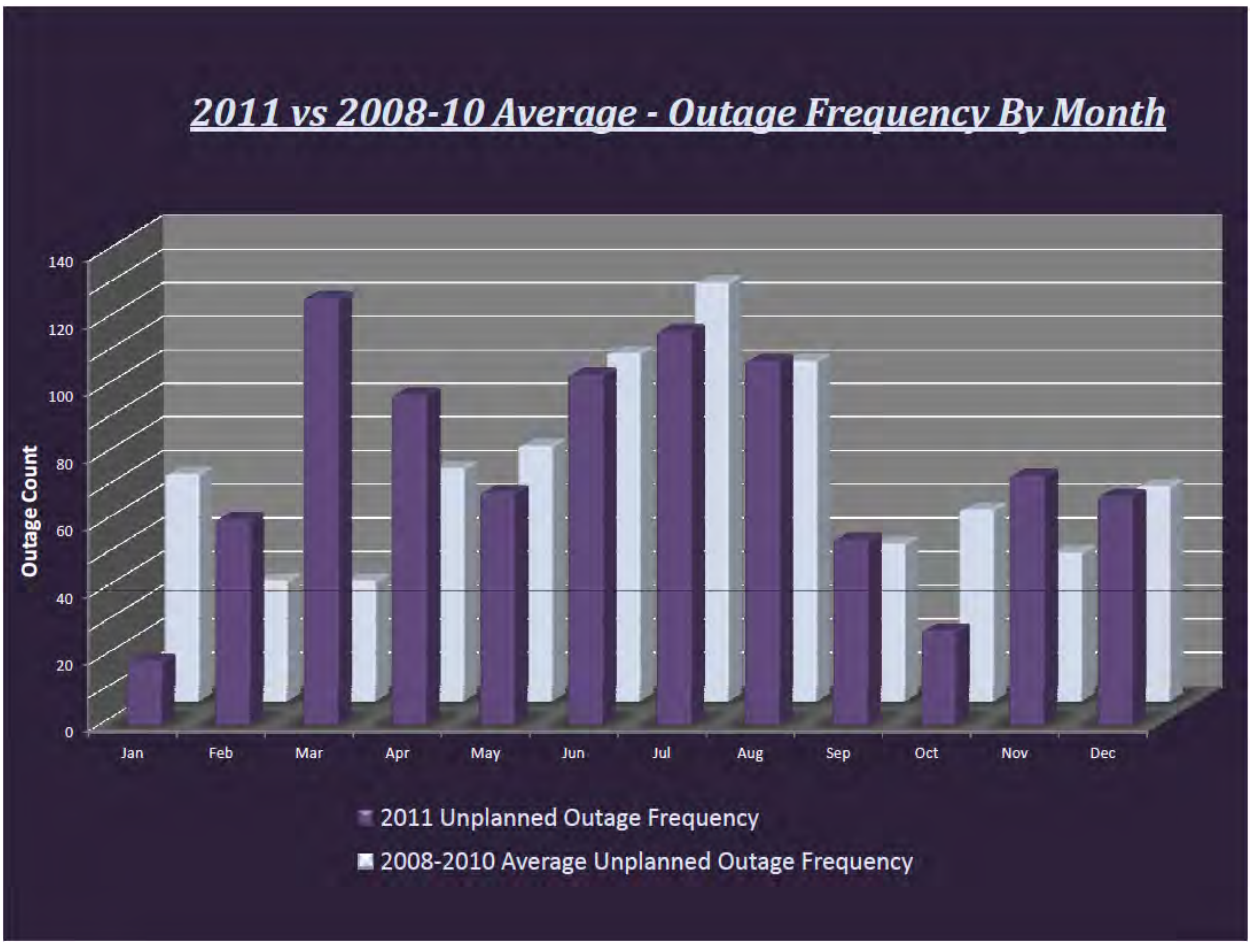


Figure A.8 Comparison of 2011 outage frequency to previous three-year average.

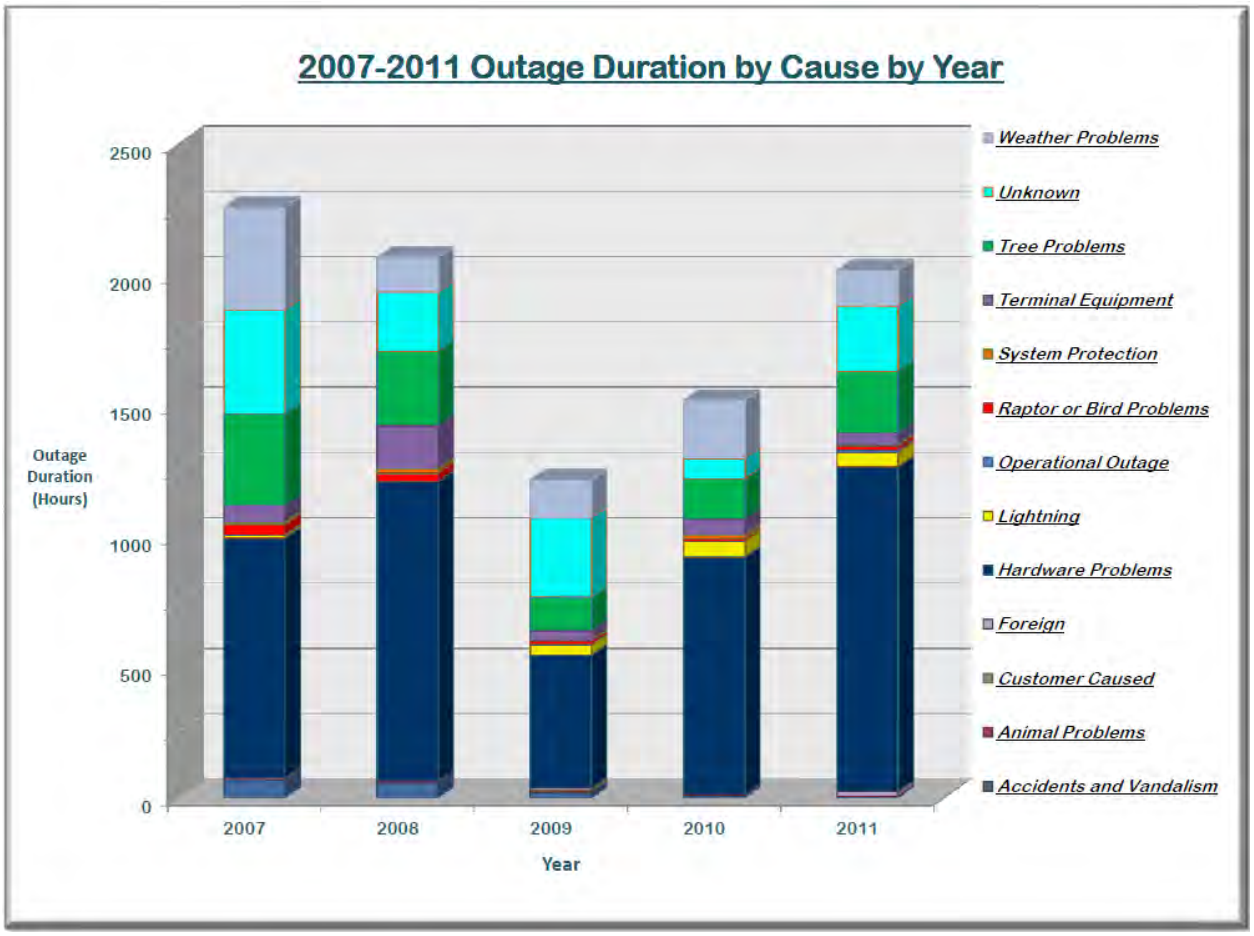


Figure A.9 Outage duration by cause by year for 2007-2011.

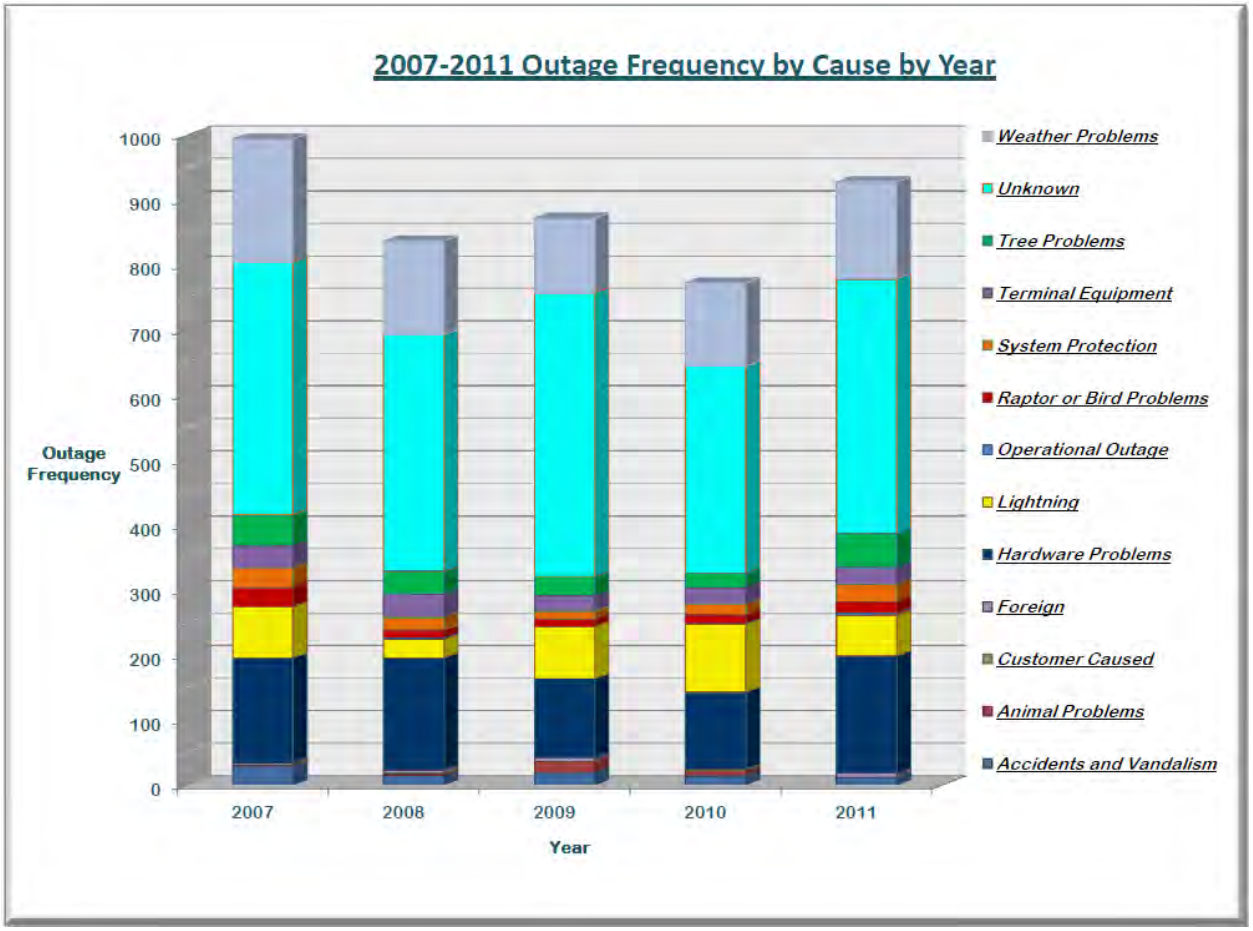


Figure A.10 Outage frequency by cause by year for 2007-2011.