



2009 ELECTRIC SERVICE RELIABILITY REPORT

ANNUAL RELIABILITY FOR 2008

Required By:

PSC CASE #90-E-1119

Prepared By:

**Asset Strategy & Policy and
Electric Distribution Planning & Engineering
MARCH 2009**

INDEX

2009 ELECTRIC SERVICE RELIABILITY REPORT

	Page
Introduction	1
A. Summary of Performance	
1. Corporate CAIDI and SAIFI.....	2
2. CAIDI and SAIFI by Region	4
3. PSC Cause Code Analysis	5
4. Major Storms	8
5. Circuit Reliability	10
6. Momentary Interruptions	11
7. Reliability Enhancement Programs	12
8. Transmission and Distribution Inspection and Maintenance Program.....	14
9. Vegetation Management Program	16
10. Electric Stations Preventative Maintenance Program.....	19
B. Reliability Programs and Work Force Composition	
1. Reliability Enhancement Programs	21
2. Capital and O&M Budgets and Actual Expenditures	25
3. Work Force Numbers.....	26
4. Contractor Crew Services	28

INDEX

2009 ELECTRIC SERVICE RELIABILITY REPORT

	Page
C. Capital Region	
1. Operating Regional Performance	
a. CAIDI and SAIFI Indices with History from 2004 to 2008	CA-1
b. Discussion of Regional Performance.....	CA-1
c. Monthly CAIDI and SAIFI Graphs	CA-2
d. PSC Cause Codes.....	CA-4
e. Interruption Review by PSC Cause Codes	CA-4
2. Operating Circuit Lists	
a. National Grid Worst Performing Circuit	CA-7
b. National Grid Worst Performing Circuits with 3 Year History for CAIDI and SAIFI Indices	CA-8
c. National Grid Worst Performing Circuits by # of Momentary Interruptions	CA-9
d. Worst Performing Circuit Analysis	CA-10
3. Action Plan Summaries	
a. Summary of Action Plans for 2008 Worst Performing Circuits.....	CA-26
b. Summary of Action Plans for 2007 Worst Performing Circuits.....	CA-27
4. Operating Region Performance Below Minimum	
a. Maintenance History and Analysis of Factors Which Caused the Below Minimum Performance.....	CA-28
b. Planned Programs or Planned Corrective Actions and Proposed Improvements to the Performance Indices	CA-28

INDEX

2009 ELECTRIC SERVICE RELIABILITY REPORT

	Page
D Central Region	
1. Operating Regional Performance	
a. CAIDI and SAIFI Indices with History from 2004 to 2008	CE-1
b. Discussion of Regional Performance.....	CE-1
c. Monthly CAIDI and SAIFI Graphs	CE-3
d. PSC Cause Codes.....	CE-4
e. Interruption Review by PSC Cause Codes	CE-4
2. Operating Circuit Lists	
a. National Grid Worst Performing Circuit List	CE-7
b. National Grid Worst Performing Circuits with 3 Year History for CAIDI and SAIFI	CE-8
c. National Grid Worst Performing Circuits by # of Momentary Interruptions.....	CE-9
d. Worst Performing Circuits Analysis.....	CE-10
3. Action Plan Summaries	
a. Summary of Action Plans for 2008 Worst Performing Circuits.....	CE-21
b. Summary of Action Plans for 2007 Worst Performing Circuits.....	CE-22

INDEX

2009 ELECTRIC SERVICE RELIABILITY REPORT

	Page
E. Frontier Region	
1. Operating Regional Performance	
a. CAIDI and SAIFI Indices with History from 2004 to 2008	F-1
b. Discussion of Regional Performance.....	F-1
c. Monthly CAIDI and SAIFI Graphs	F-2
d. PSC Cause Codes.....	F-4
e. Interruption Review by PSC Cause Codes	F-4
2. Operating Circuit Lists	
a. National Grid Worst Performing Circuit	F-7
b. National Grid Worst Performing Circuits with 3 Year History for CAIDI and SAIFI Indices	F-7
c. National Grid Worst Performing Circuits by # of Momentary Interruptions.....	F-7
d. Worst Performing Circuit Analysis	F-7
3. Action Plan Summaries	
a. Summary of Action Plans for 2008 Worst Performing Circuits.....	F-7
b. Status of Action Plans for 2007 Worst Performing Circuits.....	F-8

INDEX

2009 ELECTRIC SERVICE RELIABILITY REPORT

	Page
F. Genesee Region	
1. Operating Regional Performance	
a. CAIDI and SAIFI Indices with History from 2004 to 2008	G-1
b. Discussion of Regional Performance.....	G-1
c. Monthly CAIDI and SAIFI Graphs	G-1
d. PSC Cause Codes.....	G-3
e. Interruption Review by PSC Cause Codes	G-3
2. Operating Circuit Lists	
a. National Grid Worst Performing Circuit	G-7
b. National Grid Worst Performing Circuits with 3 Year History for CAIDI and SAIFI Indices	G-8
c. National Grid Worst Performing Circuits by # of Momentary Interruptions.....	G-9
d. Worst Performing Circuit Analysis	G-10
3. Action Plan Summaries	
a. Summary of Action Plans for 2008 Worst Performing Circuits.....	G-24
b. Status of Action Plans for 2007 Worst Performing Circuits	G-25
4. Operating Region Performance Below Minimum	
a. Maintenance History and Analysis of Factors Which Caused the Below Minimum Performance.....	G-26
b. Planned Programs or Planned Corrective Actions and Proposed Improvements to the Performance Indices	G-27

INDEX

2009 ELECTRIC SERVICE RELIABILITY REPORT

	Page
G. Mohawk Valley Region	
1. Operating Regional Performance	
a. CAIDI and SAIFI Indices with History from 2004 to 2008	MV-1
b. Discussion of Regional Performance.....	MV-1
c. Monthly CAIDI and SAIFI Graphs	MV-3
d. PSC Cause Codes.....	MV-5
e. Interruption Review by PSC Cause Codes	MV-5
2. Operating Circuit Lists	
a. National Grid Worst Performing Circuit	MV-9
b. National Grid Worst Performing Circuits with 3 Year History for CAIDI and SAIFI Indices.....	MV-11
c. National Grid Worst Performing Circuits by # of Momentary Interruptions.....	MV-12
d. Worst Performing Circuit Analysis	MV-12
3. Action Plan Summaries	
a. Summary of Action Plans for 2008 Worst Performing Circuits.....	MV-47
b. Status of Action Plans for 2007 Worst Performing Circuits	MV-51

INDEX

2009 ELECTRIC SERVICE RELIABILITY REPORT

	Page
H. Northeast Region	
1. Operating Regional Performance	
a. CAIDI and SAIFI Indices with History from 2004 to 2008	NE-1
b. Discussion of Regional Performance.....	NE-1
c. Monthly CAIDI and SAIFI Graphs	NE-2
d. PSC Cause Codes.....	NE-4
e. Interruption Review by PSC Cause Codes	NE-4
2. Operating Circuit Lists	
a. National Grid Worst Performing Circuit	NE-9
b. National Grid Worst Performing Circuits with 3 Year History for CAIDI and SAIFI Indices	NE-11
c. National Grid Worst Performing Circuits by # of Momentary Interruptions.....	NE-12
d. Worst Performing Circuit Analysis	NE-13
3. Action Plan Summaries	
a. Summary of Action Plans for 2008 Worst Performing Circuits.....	NE-46
b. Status of Action Plans for 2007 Worst Performing Circuits	NE-49

INDEX

2009 ELECTRIC SERVICE RELIABILITY REPORT

	Page
I. Northern Region	
1. Operating Regional Performance	
a. CAIDI and SAIFI Indices with History from 2004 to 2008	N-1
b. Discussion of Regional Performance.....	N-1
c. Monthly CAIDI and SAIFI Graphs	N-3
d. PSC Cause Codes.....	N-5
e. Interruption Review by PSC Cause Codes	N-5
2. Operating Circuit Lists	
a. National Grid Worst Performing Circuit	N-9
b. National Grid Worst Performing Circuits with 3 Year History for CAIDI and SAIFI Indices	N-10
c. National Grid Worst Performing Circuits by # of Momentary Interruptions.....	N-11
d. Worst Performing Circuit Analysis.....	N-11
3. Action Plan Summaries	
a. Summary of Action Plans for 2008 Worst Performing Circuits.....	N-46
b. Status of Action Plans for 2007 Worst Performing Circuits	N-49

INDEX

2009 ELECTRIC SERVICE RELIABILITY REPORT

	Page
J. Southwest Region	
1. Operating Regional Performance	
a. CAIDI and SAIFI Indices with History from 2004 to 2008	SW-1
b. Discussion of Regional Performance.....	SW-1
c. Monthly CAIDI and SAIFI Graphs	SW-2
d. PSC Cause Codes.....	SW-4
e. Interruption Review by PSC Cause Codes	SW-4
2. Operating Circuit Lists	
a. National Grid Worst Performing Circuit	SW-7
b. National Grid Worst Performing Circuits with 3 Year.....	SW-8
c. History for CAIDI and SAIFI Indices	SW-8
d. Worst Performing Circuit Analysis	SW-9
3. Action Plan Summaries	
a. Summary of Action Plans for 2008 Worst Performing Circuits.....	SW-12
b. Status of Action Plans for 2007 Worst Performing Circuits	SW-13

INDEX

2009 ELECTRIC SERVICE RELIABILITY REPORT

K.	Glossary
L.	Appendix.....

2009 ELECTRIC SERVICE RELIABILITY REPORT

Introduction

This annual report is required by the New York State Public Service Commission (“PSC”) per Case #90-E-1119 to describe the reliability of National Grid’s electric service to New York distribution customers in 2008.

The reliability of National Grid’s network improved markedly in 2008. This report reviews the reliability metrics at both the system-wide and regional levels, with analyses broken down by cause and circuits. The report includes a detailed analysis for any circuit that was among the top 5% worst performing distribution circuits in 2008. For any region where the SAIFI or CAIDI reliability metric fell short of the PSC target, we also include a detailed analysis of the factors that contributed to the below-target performance and a description of our plan to improve performance. Information on the major storms and momentary interruptions for 2008 are also included in the report.

National Grid has worked hard to improve its reliability. This report includes a description of the Company’s Reliability Enhancement, Inspection and Maintenance, and Vegetation Management Programs. We also include a summary of expenditures for these programs and information regarding the composition of our work force as requested by PSC Staff.

Preparation of the System Electric Service Reliability Report is the responsibility of Asset Strategy and Performance in conjunction with Regional Field Engineering. This joint effort also extends to other departments, such as Distribution Engineering Services, Business Services, Asset Vegetation, Customer Operations, and Stations Policy Procedure and Compliance. Comments or questions regarding this report should be directed to Catherine McDonough, Director of Regulatory Compliance in the Asset Strategy and Performance Department at (315) 428-5641.

Section A

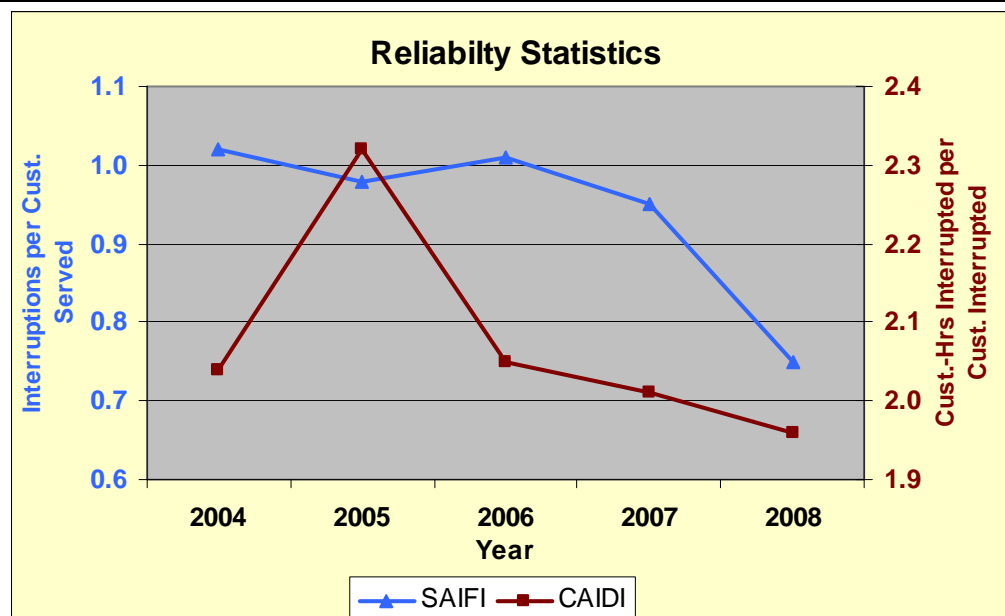
A. SUMMARY OF PERFORMANCE

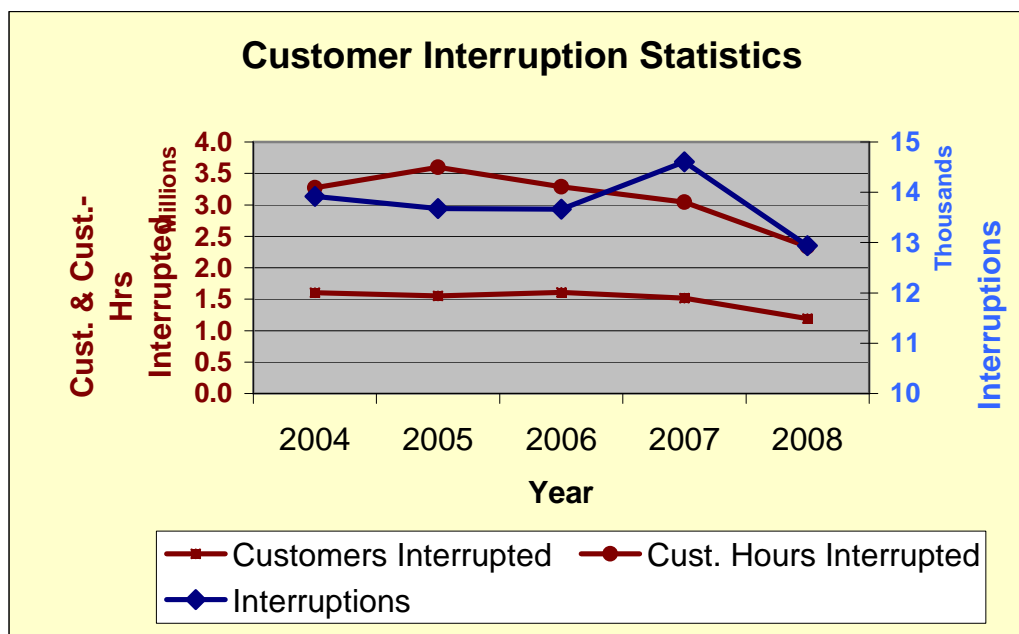
1. CORPORATE CAIDI and SAIFI

The reliability of National Grid's system improved in 2008. As shown in the following table and chart, the System Average Interruption Frequency Index (SAIFI), excluding the impact of major storm events, dropped to 0.75 in 2008. This is below the target of 0.93 established by the PSC and the second consecutive annual improvement in the SAIFI metric. The number of interruptions dropped 11%, and the number of customers interrupted was down 22% from 2007.

The Company was also successful in shortening the duration of customer interruptions that did occur. In comparison to 2007, the number of customer hours interrupted dropped 23% in 2008, and the Customer Average Interruption Duration Index (CAIDI), which measures the average time that an affected customer is out of service, ended the year at 1.96 hours. This is below the target of 2.07 hours. This was the third consecutive annual improvement in CAIDI and the third consecutive year that CAIDI was below the PSC target.

	2008	2007	2006	2005	2004
CAIDI	1.96	2.01	2.05	2.32	2.04
SAIFI	0.75	0.95	1.01	0.98	1.02
Interruptions	12,940	14,606	13,665	13,680	13,918
Customers Interrupted	1,190,293	1,518,634	1,607,461	1,549,828	1,602,711
Customer-Hours Interrupted	2,337,979	3,045,284	3,289,340	3,596,266	3,274,152
Customers Served	1,580,798	1,593,230	1,589,949	1,585,438	1,578,828
Availability Index	99.9830	99.9780	99.9760	99.9740	99.9760
Interruptions/1000 Customers	8.19	9.17	8.59	8.62	8.82





Improvement in the 2008 reliability metrics was due in part to weather conditions. The total number of excluded weather events was more than twice the five-year average, and the number of customers interrupted due to minor storm events¹ was 40% below average.

A significant part of the improvement in the metrics was also the likely result of the Company’s proactive efforts to improve the reliability of its system. The number of customers interrupted on normal weather days in 2008 was 19% below the 2003-to-2007 average. Also in 2008, the number of customers interrupted due to deteriorated equipment and lightning—a key focus of the Company’s Reliability Enhancement Program (“REP”) which began in 2006—was more than 30% below the average of the five prior years. Furthermore, the number of customers interrupted caused by tree limbs and broken branches contacting distribution or transmission conductors was 15% below average, the likely result of the Company’s vegetation management program.

¹ The Company uses a variant of the IEEE’s ‘beta method’ to identify minor storm days. The Company classifies a “bad weather day” as any day in which (i) the natural log of SAIDI is greater than 1.5 times the five-year daily mean of log (SAIDI) and (ii) the number of daily interruptions is more than three times the daily average. The Company identifies a minor storm day as any ‘bad weather day’ that did not experience a major storm based on the PSC criteria.

2. CAIDI AND SAIFI BY REGION

Aspects of reliability improved in all eight operating regions in 2008. As shown in the following table, the CAIDI metric improved in 2008 and was below the PSC target in all but the Capital Region. This was mainly due to an increase in tree-related outages and a few lengthy outages due to problems in substations. As described in Section B, the Company has begun to implement a plan to address both of these issues.

The SAIFI metric also improved and was below the PSC target in most regions. The exception was Genesee. Despite a substantial improvement in 2008, the SAIFI metric in the Genesee Region ended the year just over the PSC target for that region. This was mainly due to problems in substations that are described in more detail in Section F.

CAIDI

Region	Target	2008 Actual	2007 Actual	2006 Actual	2005 Actual	2004 Actual
Capital	2.00	2.36*	2.05*	1.82	2.59*	1.79
Central	2.00	1.48	1.72	1.88	1.98	1.91
Frontier	1.75	1.48	1.48	1.89*	1.84*	1.87*
Genesee	2.00	1.96	1.65	1.67	2.05*	1.78
Moh. Valley	2.50	2.28	2.51*	2.12	2.14	2.36
Northeast	2.50	2.22	2.44	2.66*	3.01*	2.72
Northern	2.25	1.95	2.08	2.02	2.22	1.92
Southwest	1.75	1.57	1.89*	1.79*	1.99*	1.72*

SAIFI

Region	Target	2008 Actual	2007 Actual	2006 Actual	2005 Actual	2004 Actual
Capital	0.90	0.72	0.86	0.87	0.92*	0.80*
Central	1.00	0.81	1.22*	1.16*	0.95	1.06
Frontier	0.60	0.34	0.45	0.53	0.46	0.67*
Genesee	1.00	1.05*	1.12*	0.92	1.19*	1.61*
Moh. Valley	1.20	1.13	1.28*	1.05	1.44*	1.27
Northeast	1.20	0.91	1.21*	1.41*	1.28*	1.29
Northern	1.00	0.97	0.91	1.68*	1.42*	0.86
Southwest	1.00	0.61	0.98	0.82	0.80	1.38*

Note: The numbers in these tables are based on data that excludes major storm events. An asterisk (*) indicates that the region fell short of the target for the region as specified in Attachment 1 of the Public Service Commission's Order Adopting Changes to Standards on Reliability of Electric Service [Case 02-E-1240 and 02-E-1701], issued and effective October 12, 2004.

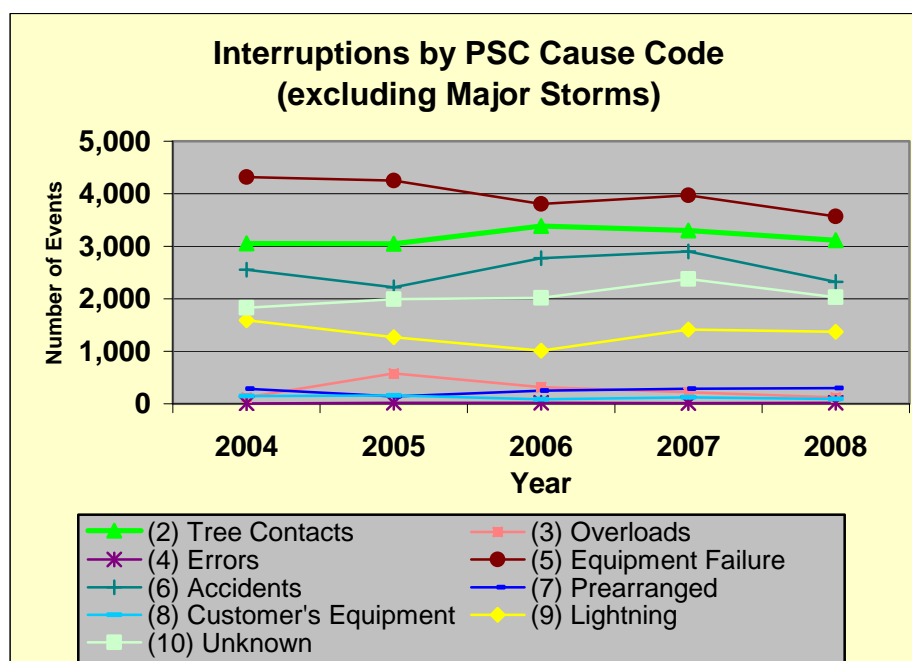
3. PSC CAUSE CODE ANALYSIS

The total number of interruptions rose by 13% in 2008 mainly due to an increase in major storms. The number of interruptions due to major storms more than doubled to 5,362, and major storms accounted for the largest share (29%) of interruptions in 2008.

Excluding the impact of major storms, the number of interruptions was down 11% in 2008. Outages due to equipment failure and tree contacts, which together account for more than half of non-storm incidents, were down 10% and 6%, respectively. Likewise, outages due to accidents and lightning (nearly 30% of non-storm incidents) were down 20% and 3%, respectively. As shown in the chart below, incidents due to equipment failure are trending lower.

NUMBER OF INTERRUPTIONS BY CAUSE CODE

Cause Code	2008	2007	2006	2005	2004
(1) Major Storms	5,362	1,616	2,614	2,531	843
(2) Tree Contacts	3,116	3,300	3,386	3,051	3,057
(3) Overloads	122	220	319	582	121
(4) Errors	19	15	16	21	8
(5) Equipment Failure	3,567	3,969	3,807	4,247	4,317
(6) Accidents	2,321	2,901	2,772	2,221	2,554
(7) Prearranged	301	285	251	138	286
(8) Cust. Equipment	91	125	83	157	149
(9) Lightning	1,372	1,414	1,010	1,268	1,594
(10) Unknown	2,031	2,377	2,021	1,995	1,831
Totals	18,302	16,222	16,279	16,211	14,760



**CUSTOMERS INTERRUPTED AND CUSTOMER-HOURS INTERRUPTED BY
CAUSE CODE**

Cause Codes	Interruptions		Customers Interrupted		Customer Hours Interrupted	
	Number	% Total	Number	% Total	Number	% Total
(1) Major Storms	5,362	29.3	988,921	45.4	7,072,579	75.2
(2) Tree Contacts	3,116	17.0	253,384	11.6	619,602	6.6
(3) Overloads	122	0.7	6,115	0.3	21,059	0.2
(4) Oper. Error	19	0.1	19,801	0.9	4,908	0.1
(5) Equip. Failure	3,567	19.5	259,691	11.9	501,023	5.3
(6) Accidents	2,321	12.7	211,243	9.7	353,055	3.8
(7) Prearranged	301	1.6	31,661	1.5	34,010	0.4
(8) Cust. Equip.	91	0.5	1,200	0.1	2,745	0.0
(9) Lightning	1,372	7.5	68,475	3.1	166,758	1.8
(10) Unknown	2,031	11.1	338,723	15.5	634,820	6.7
Total	18,302	100.0	2,179,214	100.0	9,410,558	100.0

- Tree contacts accounted for approximately 12% of customers interrupted and were the third leading cause of interruptions in 2008. Tree-related incidents caused by broken tree limbs contacting distribution or transmission conductors were down 6% in 2008, the second annual decline. The number of customers interrupted due to tree contacts was down by 5% in 2008—the first decline in tree-related customers interrupted since 2004 (See Section 9 of this Summary).
- Accidents were the fourth leading cause of interruptions and the fifth leading cause of number of customers interrupted in 2008. This category includes outages caused by events beyond the Company's control, such as customer actions, animal contacts and motor vehicle accidents. When compared to the 2007 figure, the number of accident-caused interruptions decreased by 20%.
- Interruptions with unknown causes were the fifth leading cause of incidents (11%) in 2008, but the second leading cause of the number of customers interrupted (16%). Interruptions with unknown causes decreased significantly (15%) in 2008, almost reversing the 18% jump in 2007.
- After a 40% increase in 2007, lightning-related interruptions edged down by 3% in 2008. Lightning accounted for only 3% of the customers interrupted in 2008 compared to 8% in 2007.
- Overloads accounted for only a small share of interruptions, and the number of interruptions due to overloads was down 45% in 2008, the third consecutive annual

decline.

- Prearranged interruptions increased by 6% in 2008 following a 14% jump in 2007 and an 82% increase in 2006. The rise in prearranged outages in recent years is due to the Company's program to replace potted porcelain cutouts, due to a mechanical failure mode and potential hazard. (See Section 7 of this Summary and Section B of this Report for more details)
- Few interruptions were caused by human error in 2008. This interruption category accounted for only nineteen interruptions, less than 1% of the total for the Company in 2008. This small number can be attributed to National Grid's distinguished commitment to training and safety for its employees.

4. MAJOR STORMS

The Company's electric system experienced twenty-four severe weather incidents in 2008 that qualified as major storms—more than double the number of major storms in 2007. To qualify for major storm status, an event must affect at least ten percent of the customers in a Company operating area or have at least one customer out for 24 hours or more. The Company excludes all interruptions caused by major storms from the CAIDI and SAIFI indices.

The majority of the 2008 storms involved ice, snow, and wind, or the combination thereof. The following table summarizes the major storm incidents on the Company's electric system in 2008.

MAJOR STORMS - 2008

Date	Region	Storm Conditions	CI	CMI	Events	Storm Duration
01/08/2008	Northern and Southwest	Snow	56,846	23,805,591	471	4D 13H 15M
01/09/2008	Frontier, Genesee and Northeast	Snow, Ice	37,540	10,668,602	338	3D 19H 5M
01/30/2008	Frontier, Genesee, and Southwest	Wind, Ice	66,256	17,076,475	310	3D 16H 30M
03/04/2008	Northeast	Wind, Ice	8,402	2,316,063	116	2D 19H 59M
03/07/2008	Central and Northeast	Wind, Ice	46,518	19,363,170	201	4D 21H 10M
03/08/2008	Northern	Wind, Ice	31,770	10,269,746	133	3D 13H 47M
04/01/2008	Northeast	Wind, Lightning	6,460	949,692	46	1D 20H 39M
06/05/2008	Central	Lightning	3,952	805,609	55	2D 11H 39M
06/08/2008	Capital	Lightning	17,213	2,489,323	159	4D 7H 42M
06/09/2008	Central and Northeast	Wind, Lightning	59,274	23,606,971	338	5D 0H 30M
06/10/2008	Mohawk Valley and Northern	Wind, Lightning	72,842	51,763,344	469	9D 15H 31M
06/14/2008	Capital	Wind, Lightning	4,629	663,590	102	4D 9H 7M
06/22/2008	Capital	Wind, Lightning	9,660	1,733,338	95	1D 23H 28M
06/28/2008	Mohawk Valley and Northeast	Wind, Lightning	18,497	2,227,998	85	2D 19H 16M
07/17/2008	Capital	Wind, Lightning	12,105	4,393,864	122	4D 12H 40M
07/20/2008	Northeast	Wind, Lightning	21,398	4,285,539	243	9D 0H 27M
07/26/2008	Capital and Mohawk Valley	Wind, Lightning	9,879	3,903,897	161	2D 14H 50M
09/14/2008	Central, Genesee, Mohawk Valley, Northeast, Northern and Southwest	Wind	153,044	82,639,737	950	3D 20H 51M
10/28/2008	Capital, Central, Northeast and Northern	Wind, Ice	91,242	38,906,014	491	4D 14H 52M
11/26/2008	Northern	Wind, Ice	16,001	2,444,926	97	3D 0H 11M
12/11/2008	Capital	Ice Storm	121,919	91,749,322	130	9D 18H 9M
12/12/2008	Northeast	Ice Storm	61,997	11,475,136	152	5D 1H 31M
12/24/2008	Northeast	Wind	1,715	524,392	49	1D 23H 46M
12/28/2008	Frontier, Genesee, Northern and Southwest	Wind, Ice Storm	59,039	16,148,509	418	3D 15H 40M

5. CIRCUIT RELIABILITY

In order to identify action plans to improve the reliability of its system, the Company ranks each circuit on a system-wide basis based on the following four reliability metrics and generates an overall ranking by summing the four rankings for each feeder. This method helps to ensure that we focus on the worst performing feeders from the view point of customers regardless of physical location, voltage or configuration.

- 1) Number of Interruptions
- 2) Number of Customer Hours Interrupted
- 3) SAIFI (customers interrupted/customers served)
- 4) SAIDI (customer hours/customers served)

The Company performs a detailed analysis of the reliability issues for the top 5% of circuits on this list. The location, duration of the interruptions, number of customers affected, cause(s), and physical environmental characteristics of the circuits are all analyzed to develop appropriate action plans that will address the issues.

For this report, the maximum number of feeders analyzed and evaluated in any one operating region is capped at twenty feeders. If any operating region has more than twenty feeders that rank among the top 5% worst performing, the performance for a commensurate number of next highly ranked feeders in other regions are analyzed. The following table shows the number of circuits in each operating region that were among the top 5% of feeders in terms of reliability issues. More detailed information can be found in Section L.1.

Company Operating Region	Total Number of Distribution Circuits	Company Criteria	
		Worst 5% For System	Circuits Analyzed
Capital	350	16	16
Central	311	10	10
Frontier	656	0	0
Genesee	117	14	14
Mohawk Valley	140	20	20
Northeast	189	22	20
Northern	160	18	20
Southwest	123	3	3
System Totals	2,046	103	103

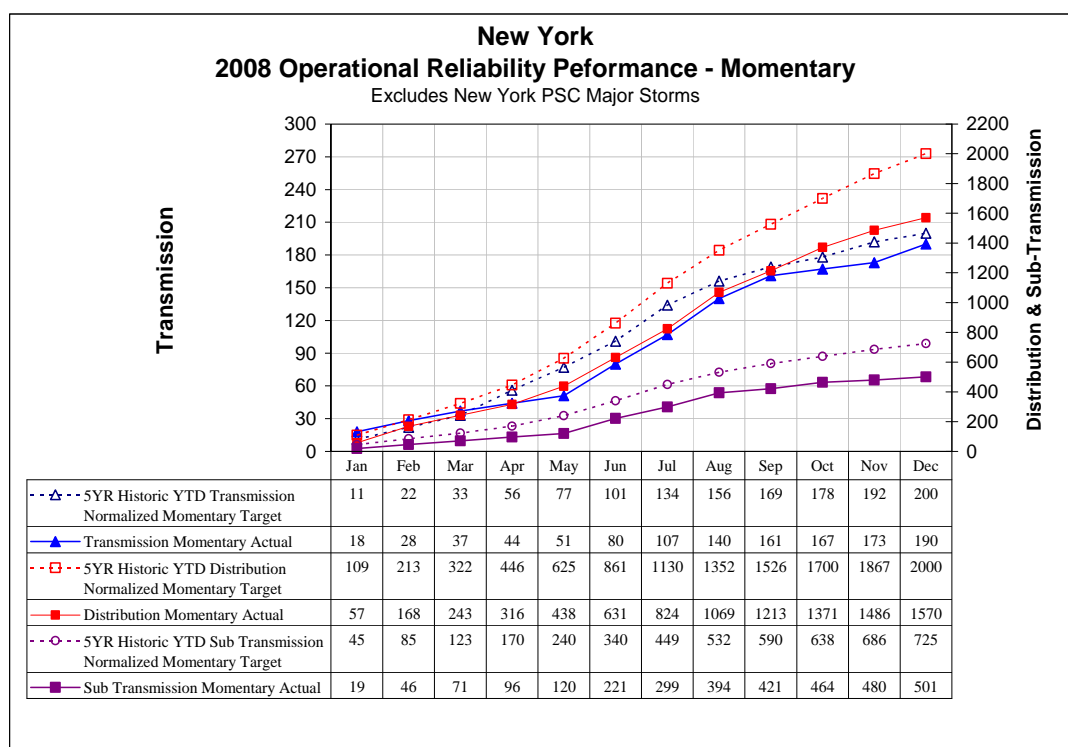
6. MOMENTARY INTERRUPTIONS

Momentary interruptions are part of the normal operation of an electric power system and are usually incurred in the process of avoiding or attempting to avoid a sustained interruption. A momentary interruption is an interruption of electrical power to at least one customer for less than five minutes at the distribution circuit breaker level. National Grid records momentary interruptions at the Distribution, Sub-Transmission (23 kV to 69 kV), and Transmission (115 kV) facility levels, and defines these interruptions, which generally last 15 to 45 seconds, as a power quality issue.

Momentary interruptions have a number of causes including tree limb contacts, animals and lightning. Normally, after approximately fifteen seconds, a breaker will automatically close, and if the cause has not cleared, the breaker may trip again several times. If the cause does not clear, then the breaker will lock out and the event is then considered a sustained interruption. If the cause does clear, this series of events would be considered a momentary interruption. A momentary interruption may also occur because of switching, equipment failure, or be pre-arranged to abet a repair.

As shown in the following table and chart, the number of momentary interruptions experienced by National Grid customers was below the target established by the PSC in 2008. Additional details about power quality issues are discussed in the Company's Power Quality Annual Report.

Classification	Actual	Target
Transmission:	190	200
Sub Transmission:	501	725
Distribution:	1570	2000



7. RELIABILITY ENHANCEMENT PROGRAMS

The Company has spent millions of dollars for capital improvements and maintenance activities in recent years to develop and implement programs that will enhance the long-term performance and health of network assets. In addition to the base level of spending, since 2006, the Company has spent more than \$140 million and almost \$25 million in associated expenses to restore reliability performance to acceptable levels.

This spending has occurred through its Reliability Enhancement Program (REP) and a portfolio of asset strategies intended to improve the reliability performance of the system. The key elements of the REP include a targeted program to enhance the performance of feeders (Feeder Hardening), asset replacement, improved inspection and maintenance, and a vegetation management program.

The feeder hardening program identifies feeders with the most potential to benefit from the replacement of fuse cutouts, crossarms, poles and transformers; lighting protection with bonding, grounding, and lightning arrester installations; and installation of animal guards. As shown in the following table, between 2006 and 2008, the Company hardened almost 4,000 miles of feeders, or 11% of its system.

Reliability Enhancement Program (REP) Summary for New York

REP Program Element	CY06	CY07	CY08	Total
Feeder Hardening (miles)	432	1,160	2,383	3,975
Dist. Cycle Trimming (miles)	~6,000	6,955	6,503	13,458
Reclosers Installed	72	126	234	432
Cutouts Replaced	15,700	11,735	18,610	46,045
OFCs Removed	N/A	23	18	41
Poles Replaced	693	1,746	3,089	5,528
Transformers Replaced	83	122	460	665

Since 2007, using an Engineering Reliability Review (“ERR”) process to identify projects that could substantially improve reliability and/or power quality, the Company has reviewed the list of the worst performing feeders filed with the PSC. This program is responsible for most of the 432 reclosers that have been installed on the system since 2006, which reduce the number of feeder lockouts and customer interruptions. The ERR process has also resulted in the installation of thousands of new side-tap fuses and has provided support to other projects that help to minimize the number of customer interruptions.

To further improve the reliability of its system, the Company has replaced many assets in recent years. The Company has replaced 5,528 poles and 665 transformers deemed to be deteriorated or overloaded. The Company has also replaced approximately 46,000 cutouts over the past three years to help minimize the potential for customer interruptions due to failed cutouts. In part, the need for these asset replacements was identified and corroborated based on the results of the Company’s inspection program.

The inspection and maintenance, vegetation management, and substation maintenance programs are discussed in the following sections of this summary. Section B of this report describes the Company's reliability enhancement programs in more detail.

8. TRANSMISSION and DISTRIBUTION INSPECTION and MAINTENANCE PROGRAM

The Company has improved its inspection and maintenance programs in recent years to ensure the safety of employees and the public, to avoid and correct problems that might hinder reliability, and to extend the useful life of its facilities. Inspection of the transmission and distribution system is performed on a comprehensive system-wide basis using three basic methods:

- 1) A comprehensive helicopter inspection is performed to determine the condition of the select lines (mainly transmission) and to help establish a repair schedule. These inspections are used to gather information to evaluate the need for maintenance or capital improvement on poorly performing circuits. The inspections provide detailed information about conductors, hardware, and structures.
- 2) Infrared testing is performed to sense heat dissipation from sub-transmission and transmission lines. Infrared testing detects faulty splices and loop sleeves so that the Company can take a short prearranged interruption to repair the problems proactively and thereby avoid a potentially lengthy emergency interruption.
- 3) Distribution and transmission lines are manually patrolled.

In 2005, the Company began to visually inspect 20% of its facilities annually. Defects that required immediate attention were addressed. Others problems were prioritized so they could be addressed in future work plans. The following tables shows the results of the inspections in 2008 and the cumulative results of the inspections to date, which are ahead of schedule.

Program	Units / Miles Goal	Units / Miles Completed	% of Goal Completed	Year 4 PSC Goal %
Distribution	7,591	7,591	100	20
Underground	16,439	16,439	100	20
Streetlights*	0	0	N/A	20
Transmission	1,633	1,633	100	20
Substation	931	931	100	20

- Distribution and Transmission are reported in miles. Underground, Streetlights, and Substations are reported in units.
- National Grid set a goal of zero Streetlight units for the 2008 cycle. The 5 year cycle program is ahead of schedule and due to budget constraints Streetlight Inspections will be completed during the 2009 cycle.

Visual Inspections Cumulative

Program	Units / Miles Completed	% of System Completed	PSC Goal %
Distribution	29,303	91	80
Underground	83,017	81	80
Streetlights*	49,525	89	80
Transmission	5,937	83	80
Substation	931	100	80

- Distribution and Transmission are reported in miles. Underground, Streetlights and Substations are reported in units.
- Streetlights include Traffic Controls and Customer Street Lights.

Effective January 1, 2008, the Company introduced a new line inspection protocol for inspections of the distribution overhead, distribution underground, and transmission systems. The new protocol better enables the Company to track and schedule required maintenance because it requires that all issues identified in the inspections are categorized as follows:

- Level 1: Items that must be completed as soon as practical but no longer than 5 business days.
- Level 2: Items that must be completed within six months.
- Level 3: Items that must be completed within two years.
- Level 4: Items that are recorded for information and planning purposes.

It should be noted that with PSC approval of the “Order Adopting Changes to Electric Safety Standard” of the Electric Safety Standards Order on December 15, 2008, the Company intends to adopt Staff’s recommendation of a one year correction time period for Level 2 items and three years for Level 3 items in an effort to optimize the use of resources.

The following table summarizes the deficiencies identified by the inspection program in 2008 for the transmission and distribution system in each category.² The specific issues that were identified for each asset grouping are described in the Company’s 2008 Annual Report in Case 04-M-0159, “Elevated Voltage Testing and Facility Inspection”, filed on January 15, 2009. All Level 1 issues and most Level 2 issues have already been addressed. The remaining issues will be addressed as set forth above.

Program	Level 1	Level 2	Level 3
Distribution	372	14,195	55,690
Underground	41	1,349	143
Transmission	10	546	3,363

² Substation inspections are more complex than other facility inspections. Please see section 10 of this Summary for a description of the Company’s preventative maintenance program for substations.

9. VEGETATION MANAGEMENT PROGRAM

The Company's Forestry operation consists of two separate programs, one for the distribution system and another for the transmission system. Both programs include a cycle-based pruning component and a hazard tree removal component to minimize tree-related interruptions from trees and limbs falling into the facilities. For its transmission system, the Company also uses an integrated vegetation management program to manage vegetation along the floors of its right-of ways. The details regarding the transmission program performance are reported annually in a separate report to the Secretary of the PSC.

The Company's distribution cycle pruning is a comprehensive program that prunes all distribution circuit miles on an average five-year cycle. An optimal cycle length is set for each area based on growing season, growth characteristics of predominant tree species in that area, and clearance to be created by pruning. The Company has increased funding in recent years to raise pruning mileage to shorten some identified circuit's cycle length so that the vegetation along those specified feeders will be pruned on a five-year cycle by fiscal year 2012. In addition to the routine pruning, hazard tree removal is performed on prioritized distribution feeders. The Company identifies feeders that will be subject to the removal of hazard trees based on field inspections, historic interruption data, number of customers served, and tree events per mile.

Spending for vegetation management has increased significantly in recent years. The Company spent almost \$10 million for transmission vegetation management in the 2008 fiscal year— an increase of more than 70% from the spending level in fiscal year 2006. Meanwhile, spending for distribution vegetation management has increased more than 30% to \$33 million in fiscal year 2008 (see Section B).

The increased spending for vegetation management seems to be having an impact. As shown in the following table, interruptions due to tree contact dropped 6% in 2008, the second annual decline. The SAIFI due to tree interruptions was also down 5% in 2008.

Tree-Related Interruptions (Excluding major storms and transmission interruptions)

Year	Tree Outages	Cust. Interrupted	Customer Hours	SAIFI
1999	3,157	235,900	532,299	0.1574
2000	3,132	220,748	472,882	0.1408
2001	3,534	221,212	451,637	0.1410
2002	3,755	230,867	581,191	0.1470
2003	3,085	187,632	399,649	0.1190
2004	3,057	186,509	520,291	0.1180
2005	3,051	216,568	586,062	0.1370
2006	3,386	256,362	606,920	0.1610
2007	3,300	267,150	632,876	0.1680
2008	3,116	253,384	619,602	0.1603

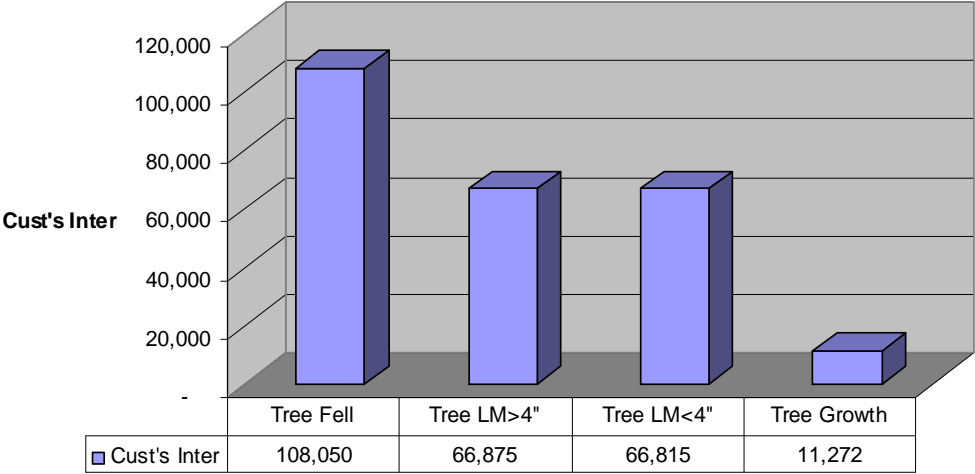
Vegetation management is essential to maintain and continue our progress in improving reliability. Most of the drop in tree-related outages in 2008 was caused by a decline in those related to fallen trees. Tree outages due to broken limbs and tree growth were actually up in 2008. Moreover, most of the improvement in the number of tree-related interruptions in 2008 occurred in the Central and Frontier regions. SAIFI for tree-related interruptions also edged lower in the Genesee Region. Tree-related SAIFI was actually up in the five other operating regions (Northern, Capital, Northeast, Mohawk Valley, and Southwest).

To continue the impact of vegetation management, the Company has proposed a budget of approximately \$34.5 million for the distribution vegetation management program for the 2010 fiscal year.

Tree Interruptions by Region (Excluding major storms and transmission interruptions)

Rank	Region	Number of Interruptions	Customers Interrupted	SAIFI
1	Capital	580	60,272	0.038
2	Northeast	660	45,498	0.029
3	Central	335	38,782	0.025
4	Mohawk Valley	375	32,242	0.020
5	Northern	456	27,693	0.018
6	Southwest	420	23,007	0.015
7	Genesee	177	14,415	0.009
8	Frontier	113	11,475	0.007
System Totals		3,116	253,384	0.160

**NY System Customers Interrupted by Tree Cause Code
01/01/08 - 12/31/08**



10. ELECTRIC STATIONS PREVENTIVE MAINTENANCE PROGRAM

National Grid USA New York substation field personnel performed and documented 11,009 discrete maintenance activities on substations across the system in 2008, similar to the number of activities performed in 2007. The total expenditure for the Substation Maintenance Program was approximately \$4,199,052 in 2008. The following table summarizes the list of substation maintenance activities performed in 2008:

Substation Maintenance Programs (Apparatus: Activity)	Number Performed
Battery and Charger: Std Insp	587
Circuit Breaker: Diagnostics	375
Circuit Breaker: Mechanism Inspection	388
Circuit Switcher: MO Mech Insp	25
Disconnects: MOD Mech Insp	353
Load Tap Changer: DGA	1,175
Load Tap Changer: Internal Insp	90
NPCC A-3 (D-8): ST-1,2,4 Battery Diagnostics	25
NPCC A-3 (D-8): ST-3 Station Service Load Tests	4
NPCC A-3 (D-8): ST-5 Emer Generator Run Test	108
NPCC A-3 (D-8): ST-6 Emer Generator Transfer	8
NPCC A-4 (D-3): Battery Monthly Insp	570
Relay Testing: NPCC	663
Relay Testing: Other	1,966
Substation: V&O Inspections	5,128
Substation: Thermographic Inspections	735
Transformer: DGA	1,256
Transformer: Diagnostics	120
Transformer: Oil Quality	336
Grand Totals	11,009

The Company uses a Priority Based Maintenance System (PBM)/Asset Information Maintenance and Management System (AIMMS) to identify, prioritize, and track the maintenance required on substations in accordance with National Grid Substation Maintenance Standards and Procedures.³ The PBM/AIMMS program uses the results from a variety of inspections and diagnostic tests to assign a Critical Number to each required

³ These documents identify intervals and maintenance activities to be performed on different types of substation equipment (transformers, circuit breakers, load tap changers, batteries and chargers, etc.). Protection Systems Engineering Documents provide the substation relay calibration and testing requirements for the bulk power, transmission, distribution, and communication-protection systems.

maintenance activity to manage work loads and balance risk. The program is also used to support decisions related to work force and budgets.

The Critical Number that triggers a maintenance notification is 400. The Critical Number rises over time at a predetermined rate depending on the type of maintenance task to create a prioritized backlog of maintenance tasks. This type of notification allows substation personnel to schedule inspections, diagnostics, or other tests as specified by published standards or procedures. If the equipment maintenance critical number is greater than 500, it is considered overdue. Variance reports are generated monthly to indicate the maintenance activities performed during the reporting period and year to date. (See sample below).

Substation Maintenance Status by Equipment Class – New York

Transmission

	<u>≥ 500 Overdue</u>	<u>400-499 Due</u>	<u>Total Units</u>	<u>Month TD COMP</u>	<u>FYTD COMP</u>
Circuit Breaker Mech Insp	0	56	693	2	86
Circuit Breaker Diagnostic	0	50	694	5	97
Transf DGA	2	27	512	56	643
Transf Oil Quality	0	3	541	4	100
Transformer Diagnostic	1	19	288	2	72
LTC: DGA	0	45	379	52	556
LTC: In-service Inspection	0	0	0	0	0
LTC: Internal Insp	0	34	343	1	37
Battery and Chgr: Std Insp	0	29	335	64	207
Disconnects: MO Mech Insp	0	68	569	1	279
Circuit Switcher: MO Mech Insp	0	9	131	0	8
Substation V&O Inspections	0	18	327	148	1755
Thermographic Inspections	0	25	311	28	254

Distribution

	<u>≥ 500 Overdue</u>	<u>400-499 Due</u>	<u>Total Units</u>	<u>Month TD COMP</u>	<u>FYTD COMP</u>
Circuit Breaker Mech Insp	2	173	3539	52	239
Circuit Breaker Diagnostic	5	196	3803	73	628
Transf DGA	0	54	538	47	476
Transf Oil Quality	0	6	557	8	137
Transformer Diagnostic	0	0	4	0	33
LTC: DGA	1	45	324	51	404
LTC: In-service Inspection	0	0	0	0	0
LTC: Internal Insp	1	41	281	1	43
Battery and Chgr: Std Insp	0	17	206	46	143
Disconnects: MO Mech Insp	0	6	63	1	22
Circuit Switcher: MO Mech Insp	0	0	3	0	0
Substation V&O Inspections	0	45	453	187	2377
Thermographic Inspections	0	87	443	74	317

Section B

B. RELIABILITY PROGRAMS AND WORK FORCE INFORMATION

1. RELIABILITY PROGRAMS

National Grid has invested in a number of programs to improve the reliability of the electric system. Descriptions of these programs and their impacts on the reliability metrics are summarized below.

Feeder Hardening

This program was developed to specifically address overhead deteriorated equipment and lightning-related interruptions on distribution feeders. These two causes are major drivers for distribution feeder reliability throughout the system.

This strategy identifies feeders with the potential for significant reliability performance improvements related to overhead deteriorated equipment and/or lightning interruptions. After identification and local review by Distribution Field Engineering, the feeders become part of the Feeder Hardening Program. Feeders in this program are surveyed for deteriorated equipment and grounding/bonding problems and brought up to current standards. The following table summarizes the amount of work accomplished in CY2008.

Feeder Hardening	CY2008	Measurement
Miles Completed	2,383	Miles
Bonding	2,721	Locations
Insulators	2,034	Units
Cutout Replacements	3,126	Units
Animal Guards	489	Locations
Grounding	818	Locations
Lightning Arrestors	1,381	Units
Crossarms	353	Units
Transformers (Defective)	83	Units
Guys	540	Units
Poles	417	Units

By March 31, 2009, the Company expects that 173 feeders will have been hardened, representing 5,376 circuit miles, or 15 percent of the system. This program has been very effective to date. As shown in Figure I, an analysis of 52 feeders hardened in FY07 indicates that 94 percent of the expected improvement in SAIFI, or a 0.012 improvement per year, had been achieved by the end of FY08.

Figure I
Feeder Hardening
FY07 Feeder Hardening Delta CI and Delta SAIFI Performance

Summarized Results of all 52 feeders

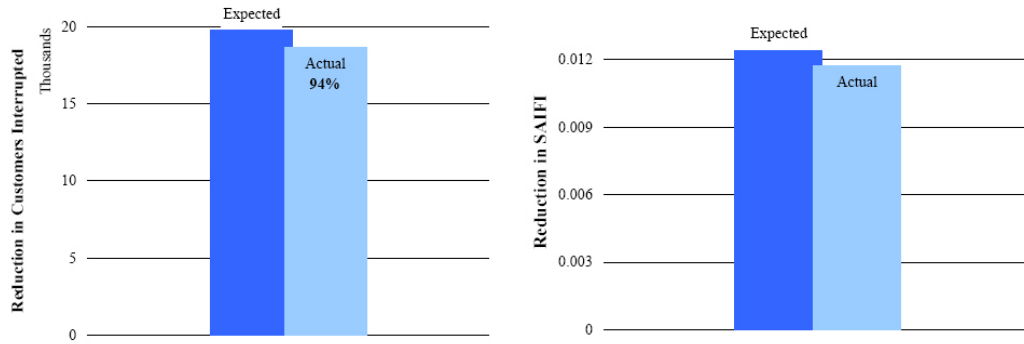
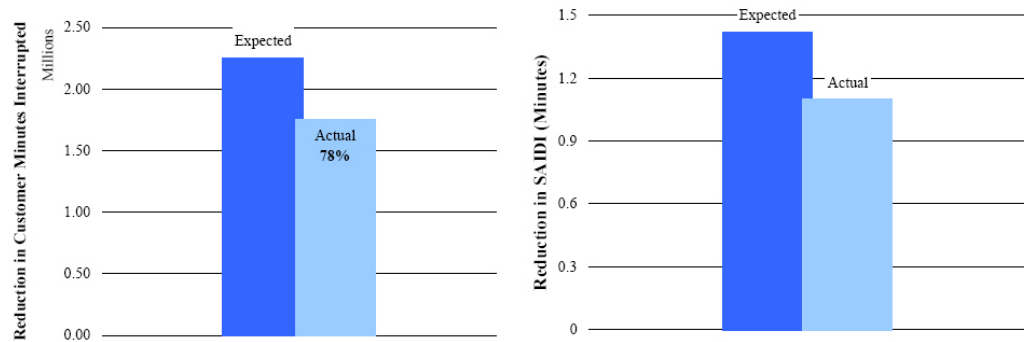


Figure II
Feeder Hardening
FY07 Feeder Hardening Delta CMI and Delta SAIDI Performance

Summarized Results of all 52 feeders



Engineering Reliability Reviews

The Network Asset Planning group is responsible for generating the list of Worst Performing Feeders that is included in the Regional Sections of this Annual Reliability Report. Sixty feeders are selected from this list for an Engineering Reliability Review (ERR). Each review includes:

- Review of historical reliability data (one year and three years for trends and current issues).
- Review of recently completed and/or future planned work which is expected to impact reliability.
- Review the need for the installation of radial and/or loop scheme reclosers.

- Review for additional line fuses to improve the sectionalization of the feeder.
- Comprehensive review of the coordination of protective devices to ensure proper operation.
- Review for equipment in poor condition (extraction and review of revised inspection program data related to ERR feeders will be incorporated into future reviews beginning with the next review cycle, CY2009).
- Review of heavily loaded equipment.
- Review for other feeder improvements such as fault indicators, feeder ties, capacitor banks, load balancing, additional switches to improve switching time, primary reconductoring (overhead and/or underground).

This review has been in place since fiscal year 2007 with 180 feeders going through the process. To date, this program is responsible for the majority of the 432 recloser installations and thousands of new side tap fuses installed associated with the Reliability Enhancement Program (REP) since April 1, 2006. A number of feeder tie and conductor replacement projects have also been initiated but are not yet completed.

Distribution Line Recloser Application

This strategy will establish the general conditions for the installation of line reclosers on overhead distribution feeders. The overall purpose of the program is to reduce the number of feeder lockouts and convert permanent faults into temporary interruptions, and thereby reduce the number of customers interrupted. Potential recloser locations are typically determined during feeder hardening and ERR reviews as discussed in prior sections. In the 2008 calendar year, the Company has installed 234 new reclosers including additional side-tap fuses identified in the analysis conducted by the Network Asset Planning group. Between April 1, 2006 and December 31, 2008, the Company has installed 432 reclosers. An analysis of feeders with recloser installations in FY07 indicates that the program has achieved approximately 200% of the expected gain in SAIFI.

Inspection Program

This program provides a general approach for addressing miscellaneous equipment in the overhead distribution asset grouping and deteriorated poles to provide for a sustainable distribution system and improve system reliability. The grouping includes: guys and anchors, crossarms, brackets, insulators, insulator pins, braces, lightning arresters, grounds, spacers, connectors, etc. These assets are to be inspected once every five years as part of the revised overhead inspection program. The new inspection priority system will identify and provide for the timely replacement of any visibly damaged or deteriorated asset based on the timelines established by the PSC in their revised safety order, dated December 15, 2008. The following table summarizes the amount of work accomplished in 2008, primarily as Level 2, based on 7,591 miles of distribution inspections.

Maintenance Program	CY2008	Measurement
Bonding	4,667	Locations
Insulators	935	Units
Cutout Replacements	305	Units
Animal Guards	152	Locations
Grounding	1,676	Locations
Lightning Arrestors	309	Units
Crossarms	532	Units
Transformers (Defective)	47	Units
Guys	800	Units
Poles	919	Units

Potted porcelain cutouts

Because National Grid has determined that these items tend to fail between eight and twelve years of service, which is much sooner than other cutouts, the Company plans to remove all potted porcelain cutouts from service by 2013. In 2008, approximately 18,600 cutouts were replaced through the feeder hardening and maintenance programs and as “opportunity cutouts”, which are those that are replaced during the normal course of business.

Poles

This program utilizes a model of the pole population to identify replacement candidates. In future years, the results of the inspection program will be the primary driver for pole replacement candidates. The Company has replaced 3,089 poles in 2008 in addition to those identified under the feeder hardening and inspection programs.

Overloaded Transformers

This program replaces overhead distribution transformers that are determined to be overloaded through an analysis of actual customer usage (kw-hrs), which is converted into peak demand (KVA). The Company has replaced 460 transformers in 2008.

2. CAPITAL AND O&M BUDGETS AND ACTUAL EXPENDITURES

The following table shows capital spending over the past five years and breaks out the portion of capital spending dedicated to maintaining and improving reliability.

The second column shows capital spending for reliability-related activities that are not part of the Reliability Enhancement Program described above. This includes base reliability spending to address asset damage/failure and to improve asset condition.

The third column shows the portion of capital spending dedicated to the Reliability Enhancement Programs describe above. The last column shows the operations and maintenance (O&M) expenditures associated with capital work under the Reliability Enhancement Program.

(\$M)	CapExp	Non-REP Reliability CapExp	REP CapExp	REP O&M
FY05	\$161	24	\$0	\$0
FY06	\$182	39	\$7	\$1
FY07	\$209	30	\$35	\$4
FY08	\$225	23	\$51	\$6
FY09 *	\$246	47	\$53	\$5.2

(*) FY09 data is a forecast

The following table summarizes the distribution tree trimming budgets and actual expenditures for each of the past five years. In order to compare actual spending versus budgeted dollars, the information provided below is in fiscal years. FY09 actual spending data is through February 2009.

Transmission	FY 2005	FY 2006	FY 2007	FY 2008	FY2009
Actual	\$3,213,324	\$5,786,813	\$7,296,002	\$9,803,811	\$9,462,547
Budgeted	\$1,366,600	\$4,526,999	\$6,804,000	\$9,177,000	\$13,101,659

Distribution	FY 2005	FY 2006	FY 2007	FY 2008	FY2009
Actual	\$24,348,000	\$24,706,000	\$29,784,000	\$33,372,000	\$32,580,000
Budgeted	\$22,240,000	\$23,354,000	\$25,082,000	\$31,221,000	\$39,797,000

3. WORK FORCE NUMBERS

The following table summarizes the work force numbers for field positions associated with underground, substation, and line crews. The Company's internal work force has grown since 2004 through a combination of hiring qualified personnel from outside the company and individuals who entered the progression series as helpers. It should also be noted that many individuals entering the progression series have been hired from outside the Company, including community college students who have completed tech programs that were developed in cooperation with National Grid. The dip in field personnel is due to a large number of retirements.

It is important to note that as part of its current labor agreement (2008 - 2010), the Company has committed to increase the overhead workforce by 30 positions per year as per the following schedule.

April 1, 2008 - 730

April 1, 2009 - 760

April 1, 2010 - 790

Upstate NY Customer Operations

Staffing Levels

Title	2004	2005	2006	2007	2008
Cable Splicer A	2	10	5	6	
Cable Splicer B	7	5	14	12	10
Cable Splicer C	22	19	14	15	19
Cable Splicer Helper	1	5	1		6
Chief Cable Splicer A	27	29	32	29	28
Chief Electrician A	13	13	12	11	11
Chief Equip Oper A	4	5	4	4	4
Chief Line Mech A Htstick	297	287	238	251	270
Chief Line Mech B Htstick	1	1			
Chief Maint Mech A	48	48	41	34	39
Electrician A	1				
Electrician B	4	4	1	1	1
Electrician C	14	14	17	10	21
Line Mechanic A	47	30	44	69	94

Line Mechanic B	64	65	83	70	78
Line Mechanic C	93	99	55	58	82
Line Mechanic Helper	7	22	23	30	26
Line Mechanic-Hot Stick	161	149	167	156	136
Maintenance Helper	1	2	2		1
Maintenance Mechanic A	3	11	9		3
Maintenance Mechanic B	14	21	22	16	11
Maintenance Mechanic C	64	59	50	54	52
Trouble Mech C Hot Stick	6	4	4	4	3
Trouble Mech D Hot Stick	11	7	5	5	5
Distribution Total	912	909	843	835	900

**Upstate NY Transmission Construction and Services
Staffing Levels**

Title	2004	2005	2006	2007	2008
Chief Electrician B				3	3
Chief Line Mechanic A Hotstick				4	5
Chief Line Mechanic B Hotstick				3	3
Electrician A				2	1
Electrician B				6	6
Electrician C				9	17
Line Mechanic B					2
Line Mechanic C				3	3
Line Mechanic Hot Stick				4	8
Live Line Bare Hand Specialist				2	
Transmission Total				36	48
Grand Total	912	909	843	871	948

4. CONTRACTOR CREW SERVICES

The following table represents the monthly average of contractor full-time equivalents (FTEs) utilized by the company to implement its capital and maintenance programs for distribution and sub-transmission projects during the past five years. It should be noted that contractor FTEs are not tracked by reliability vs. non-reliability work. In addition, contractor FTE data is not available for transmission due to the predominance of lump sum contracts for transmission work.

	2004	2005	2006	2007	2008
Contractor headcount monthly average – FTE	Note 1	114	82	107	143

Note 1 – FTE data is not available for CY2004.

Section C

C. CAPITAL REGION

1. OPERATING REGIONAL PERFORMANCE

a. CAIDI AND SAIFI INDICES WITH HISTORY FROM 2004 TO 2008

	2008	2007	2006	2005	2004
CAIDI (Target 2.00)	2.36	2.05	1.82	2.6	1.79
SAIFI (Target 0.90)	0.718	0.861	0.870	0.924	0.800
SAIDI	1.70	1.76	1.59	2.40	1.44
Interruptions	2,404	2,654	3,121	3,206	3,264
Customers Interrupted	222,390	271,476	273,252	288,443	247,805
Customers Hours Interrupted	525,182	557,117	499,210	749,893	444,443
Customers Served	309,800	314,932	313,790	312,043	309,409
Customers Per Interruption	92.51	102.28	87.55	89.97	75.92
Availability Index	99.980	99.979	99.982	99.01	99.983
Interruptions/1000 customers	7.7598	8.4272	9.9446	10.2742	10.5491

b. DISCUSSION OF REGIONAL PERFORMANCE

Reliability in the Capital Region as measured by SAIFI improved again in 2008 for the third year in a row. As shown in the table above, the average interruption frequency (SAIFI) was 0.718 in 2008, down from the 0.861 recorded for 2007 and well below the PSC's regional target of 0.9 interruptions per customer served. The number of incidents dropped 9% to 2,404 and customer interruptions were down 18% to 222,390. Most of the incidents and customer interruptions were on the distribution system (mainly primary) which accounted for 191,653 customer interruptions and 0.610 of SAIFI. Twenty (1%) of the incidents were on voltage lines above 23kV or in substations but together these incidents caused 15% of customer interruptions and account for 0.108 of SAIFI.

Thirteen incidents occurred on voltage class lines 23kV and above (mainly sub-transmission) and these incidents caused 20,103 (9%) customer interruptions. The outages were due to a variety of causes:

- One incident due to deteriorated equipment accounted for 3,239 customers interrupted and 5,397 hours of customer interruption.
- Two incidents due to animals caused 7,112 customer interruptions 12,584 customer hours of interruption.

- One ice-related interruption caused 1,213 customers interrupted and 3,699 customers hours interrupted
- Five interruptions were due to unknown causes and accounted for 7,661 customers interrupted and 11,944 customer hours of interruption.

Due to the reliability impacts associated with the interruptions on the sub-transmission system, the Company has begun a project to sectionalize / automate / remotely operate the sub-transmission system.

The Company is also in the process of completing an extensive study of load flow and system protection on the Troy network. This study is a follow up to the incident that occurred on the Troy network on April 13, 2008.¹

In contrast to SAIFI, the average duration of customer interruptions (CAIDI) increased by 15% in 2008 to 2.36 hours, above the PSC target of 2.00 hours. We discuss our plan to improve our reliability performance in section 4.0 of this document.

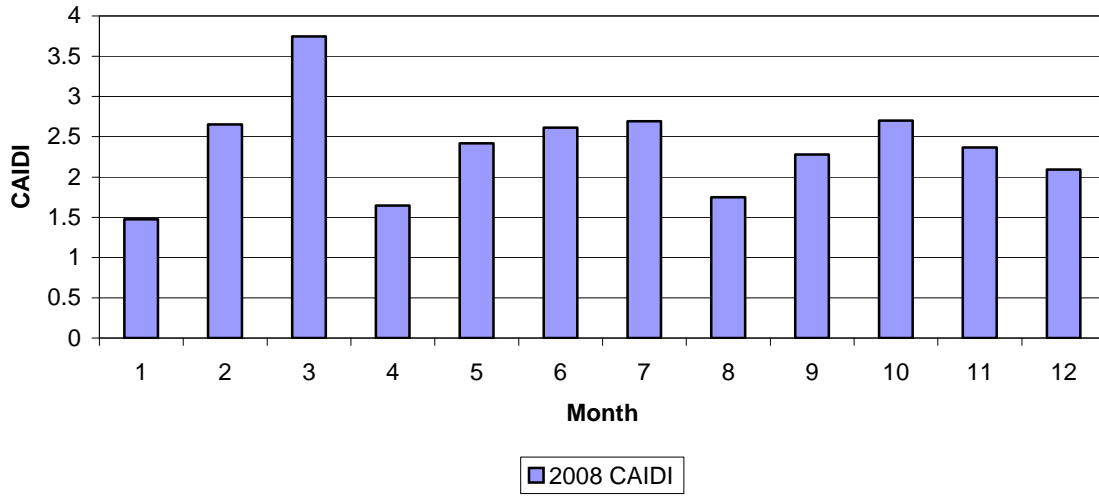
c. MONTHLY CAIDI AND SAIFI GRAPHS

As shown in the following graph, CAIDI was above the PSC target of 2.00 in eight out of twelve months. In these months there were 2,404 total interruptions which accounted for 525,182 customer hours and 222,390 customers interrupted. Most of the interruptions during these months were due to trees (27% CI, 31% CMI), deteriorated equipment (19 % CI, 20% CMI) and unknown causes (33% CI and 29% CMI).

The contribution of each month to the SAIFI metric in Capital Region was fairly uniform throughout the year. The largest increases in SAIFI were the 0.103 increase in June (even with the exclusion of three major storms for that month) and the 0.067 increase in October. In these months deteriorated equipment interruptions (175) accounted 27% of the CI and trees accounted for 30% of the CI.

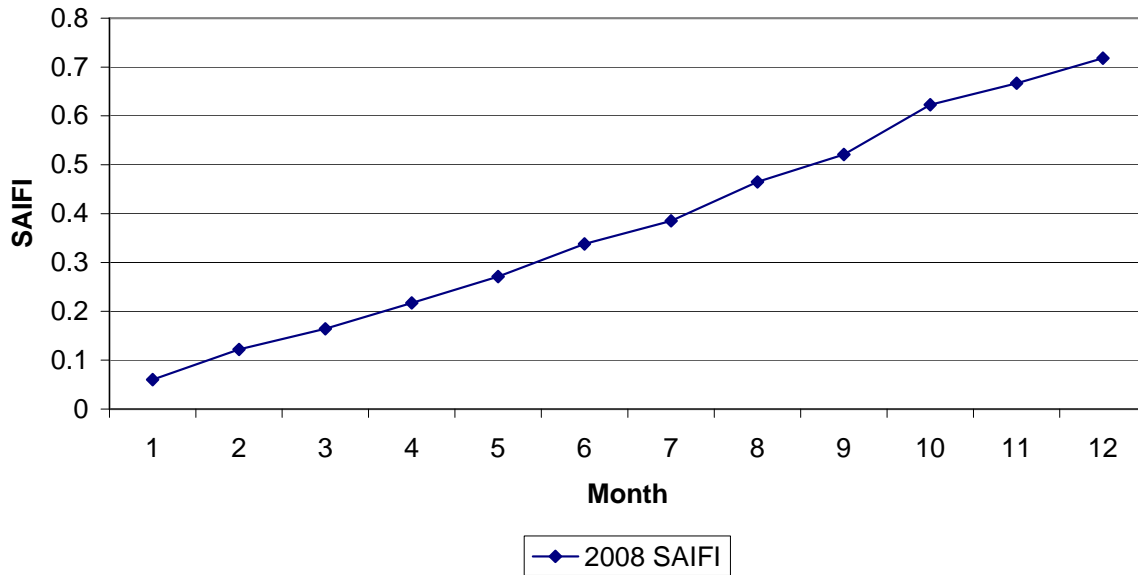
¹ National Grid's underground networks have been and are highly reliable. The Troy network in the Eastern Division had an incident in April of 2008 that interrupted customers. The Company made a concerted effort to restore power and to ensure the normal operation of the network following this incident. In reaction to this incident, National Grid began load flow studies with contingency cases to identify longer term remediation. These remediation plans will minimize the likelihood of such events on the Troy and all of the National Grid networks.

CAPITAL REGION **MONTHLY CAIDI AND SAIFI**



PSC CAIDI GOAL :	
MINIMUM	2.00
2008 ACTUAL	2.36

PSC SAIFI GOAL :	
MINIMUM	0.90
2008 ACTUAL	0.718



d. PSC CAUSE CODES

Cause Code	Interruptions		Customers		Customer Hours	
	Number	% Total	Number	% Total	Number	% Total
(1) Major Storms	712	22.8	179,064	44.6	1,745,375	76.9
(2) Tree Contacts	580	18.6	60,272	15.0	160,451	7.1
(3) Overloads	21	0.7	745	0.2	1,224	0.1
(4) Oper. Error	0	0.0	0	0.0	0.0	0.0
(5) Equipment	676	21.7	42,916	10.7	107,235	4.7
(6) Accidents	530	17.0	37,066	9.2	75,739	3.3
(7) Prearranged	7	0.2	1,437	0.4	850	0.0
(8) Cust. Equip.	29	0.9	169	0.0	515	0.0
(9) Lightning	119	3.8	7,384	1.8	25,943	1.1
(10) Unknown	442	14.2	72,401	18.0	153,226	6.7
Total	3,116	100.0	401,454	100.0	2,270,557	100.0

e. INTERRUPTION REVIEW BY PSC CAUSE CODES

Cause Code 01, “Major Storms”

The Capital Region had seven major storm events in 2008 and three of these occurred in June. The major storm dates are 6/8, 6/14, 6/22, 7/17, 7/26, 10/28 and 12/11. The June and July storms were caused by major thunderstorms and wind. The October storm was an early snow storm which resulted in many trees and limbs coming down because the leaves were still on the branches. The December storm was caused by 1 to 2 inches of ice accumulating on the trees and our infrastructure. The number of storm-related incidents for 2008 was 712, almost double the number of major storm incidents recorded in 2007 (369) and accounted for 22.8% of the total number of incidents in 2008.

Cause Code 02, “Tree Contacts”

Interruptions due to trees were the third leading cause of customer interruptions (18.6%) and the second leading cause of customer hours interrupted (7.1%). In order to reduce the number of large outages due to trees, the forestry department is now placing more emphasis on removing hazard trees along the 3-phase portions of the circuits. Removing hazard trees has also been incorporated into the schedule

for routine tree trimming to ensure that diseased and weakened trees are removed from the right-of-way at the time of trimming. The Company will also perform spot trimming based on data collected from inspections related to multiple momentary outages and other T&D inspections.

Cause Code 03, “Overloads”

Overload failures had a negligible impact on reliability performance in 2008.

Cause Code 04, “Operator Error”

There were no incidents related to Operator Error in 2008.

Cause Code 05, “Equipment Failure”

Equipment failure accounted for the second largest share of interruptions (21.7 %) and the fourth leading cause of customers interrupted (11%). It is notable that the number of customers interrupted due to equipment failure was 50% lower in 2008 than in 2007. It is notable that outages due to deteriorated equipment were down more 21% in 2008.

Cause Code 06, “Accidents”

Accidents were the fourth leading cause of interruptions (17.0%). Most of these interruptions (15%) were due to motor vehicles. Animals caused 50 (6%) incidents which is a decline from the 39 number of animal related incidents in 2007. National Grid’s standard practice of installing animal guards on all the new transformers and all equipment, also retrofitting transformers where animal related interruptions have occurred should help continue to reduce this category.

Cause Code 07, “Prearranged”

Prearranged interruptions were very limited in 2008 in the Capital District They contributed less than 1% to interruptions, customers interrupted, and CHI.

Cause Code 08, “Customer Equipment”

Customer equipment failures had very limited impact in the Region in 2008. The overall impact for the number of interruptions, number of customers interrupted and customers hours interrupted are negligible. They contributed to less than 1% of the customers, customer hours and total number of interruptions.

Cause Code 09, “Lightning”

Lightning was responsible for 119 (3.8%) of all interruptions in the Region in 2008, a 16.7% decline compared to 2007 and the fourth consecutive annual decline.

Cause Code 10, “Unknown”

Interruptions with unknown causes accounted for 14.2% of total interruptions.

2. OPERATING CIRCUIT LISTS

The next three (3) tables will provide the following information for the Capital Region.

- a. Worst Performing Circuit List
- b. Worst Performing Circuits with 3 Year History for CAIDI & SAIFI Indices
- c. Worst Performing Circuits by # of Momentary Interruptions

a. NATIONAL GRID WORST PERFORMING CIRCUIT LIST

CAPITAL REGION

FEEDER #	A 3 YR AVE CUST. SERVED	B 3 YR AVE TOTAL INTER.	C 3 YR AVE #CUST. INTER.	D 3 YR AVE CUST. HRS INTER.	3 YR AVE D/A SAIDI	3 YR AVE D/C CAIDI	3 YR AVE C/A SAIFI	NUMBER OF MOMENTARIES
Blue Stores 30353	1,373	31	5,952	15,850	11.54	2.66	4.33	3
Hemstreet 32851	2,042	36	7,117	8,530	4.17	1.19	3.48	4
Hoags Cors. 22145	941	17	3,227	17,416	18.50	5.39	3.42	0
Everett Rd. 42051	1,874	25	5,995	8,808	4.70	1.46	3.19	1
Blue Stores 30351	2,139	29	5,220	9,849	4.60	1.86	2.44	3
Front Street 36053	1,621	16	6,258	13,664	8.42	2.18	3.86	2
Altamont 28356	2,258	39	3,238	16,808	7.44	5.19	1.43	1
Altamont 28355	1,890	16	4,445	17,368	9.18	3.90	2.35	0
Stuyvesant 3351	641	20	1,150	9,804	15.29	8.52	1.79	3
Menands 10153	1,681	21	2,465	20,782	12.36	8.43	1.46	4
Swaggertown 36453	1,408	19	2,181	12,904	9.16	5.91	1.54	1
Firehouse 44953	2,387	13	7,213	9,569	4.00	1.32	3.02	2
Grooms Road 34557	2,050	16	3,930	8,309	4.05	2.11	1.91	4
Rosa Road 13757	2,950	31	4,823	7,040	2.38	1.45	1.63	4
Elnora 44257	1,393	15	3,250	4,697	3.37	1.44	2.33	2
Blue Stores 30352	1,320	17	2,290	4,993	3.78	2.18	1.73	1

b. NATIONAL GRID WORST PERFORMING CIRCUITS WITH 3 YEAR HISTORY FOR CAIDI AND SAIFI

CAPITAL REGION

FEEDER #	2008 CAIDI	2007 CAIDI	2006 CAIDI	2005 CAIDI	2008 SAIFI	2007 SAIFI	2006 SAIFI	2005 SAIFI
Blue Stores 30353	2.66	12.78	2.03	3.71	4.33	0.29	1.54	0.40
Hemstreet 32851	1.19	2.00	1.90	3.70	3.48	1.91	1.40	0.41
Hoags Cors. 22145	5.39	3.94	4.11	3.72	3.42	1.48	2.65	2.56
Everett Rd. 42051	1.46	1.28	1.24	3.02	3.19	2.41	1.25	0.28
Blue Stores 30351	1.86	2.39	4.11	5.04	2.44	1.12	2.00	0.25
Front Street 36053	2.18	0.62	2.21	3.16	3.86	0.07	1.06	0.01
Altamont 28356	5.19	3.23	1.83	5.23	1.43	1.29	1.40	0.29
Altamont 28355	3.90	2.33	2.10	4.70	2.35	1.10	3.51	0.55
Stuyvesant 3551	8.52	5.26	2.19	1.49	1.79	0.25	1.22	4.36
Menands 10153	8.43	0.89	3.53	3.77	1.46	2.34	0.28	0.15
Swaggertown 36453	5.91	2.36	1.90	2.39	1.54	0.57	1.56	0.43
Firehouse 44953	1.32	2.12	0.67	2.60	3.02	0.05	2.03	0.04
Grooms Road 34557	2.11	3.96	1.42	1.33	1.91	0.20	1.85	1.05
Rosa Road 13757	1.45	1.63	1.08	1.19	1.63	0.96	1.08	2.24
Elnora 44257	1.44	2.95	2.48	2.65	2.33	1.04	0.87	0.20
Blue Stores 30352	2.18	2.75	1.45	2.73	1.73	4.67	2.28	1.92

Regional Goals:
CAIDI Min. 2.00 Obj. 1.75
SAIFI Min. 0.90 Obj. 0.48

c. NATIONAL GRID WORST PERFORMING CIRCUITS BY # OF MOMENTARY INTERRUPTIONS

CAPITAL REGION

Feeders			Customer Momentaries				Ranks		
Volts (kV)	Substation Name	Circuit Number	Substation	Transmission	Distribution	Total	Within Region	Within System	Reliability Ranking
13.2	Wolf Road	34453	0	0	10	10	1	5	500

This list consists of circuits that have 10 or more momentaries.

d. WORST PERFORMING CIRCUIT ANALYSIS

This year, the Capital Region's list of Worst Feeders consists of twelve 13.2 kV feeders.

For the Capital Region the PSC minimum CAIDI is 2.00 and PSC minimum SAIFI is 0.90.

1. BLUE STORES 30353 13.2kV

Profile: 1,373 Customers, 98.0 Circuit Miles
Indices: CAIDI = 2.66, SAIFI = 4.33

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	9	28.1%	1,548	26.0%	3,706	23.4%
3	OVERLOADS	0	0.0%	0	0.0%	0	0.0%
4	OPERATOR ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	10	31.3%	316	5.3%	366	2.3%
6	ACCIDENTS	2	6.3%	1,365	22.9%	2,076	13.1%
7	PREARRANGED	1	3.1%	1	0.0%	4	0.0%
8	CUST EQUIP	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	7	21.9%	1,332	22.4%	5,492	34.7%
10	UNKNOWN	3	9.4%	1,390	23.4%	4,203	26.5%
	Totals	32	100.0%	5,952	100.0%	15,846	100.0%

Problem Analysis:

- In 2008, trees caused 26% of the customers and 23% of the customer hours interrupted
- Excluding major storms, lightning was the major contributor to customer interruptions. Without major storms lightning still was the leading cause of customer hours interrupted at 35%.
- Although equipment was the major contributor to the number of interruptions it was not significant for the numbers of customers and the customer hours of interruption.

Action Plan:

- In 2009 tree trimming will be completed on this feeder.
- An engineering lightning mitigation review of this feeder will be completed in 2009.

2. HEMSTREET 32851 13.2kV

Profile: 2,042 Customers, 46.9 Circuit Miles

Indices: CAIDI = 1.19, SAIFI = 3.48

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	9	23.1%	1,430	20.1%	2,869	33.7%
3	OVERLOADS	0	0.0%	0	0.0%	0	0.0%
4	OPERATOR ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	12	30.8%	1,386	19.5%	1,967	23.1%
6	ACCIDENTS	3	7.7%	35	0.5%	182	2.1%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
8	CUST EQUIP	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	7	17.9%	29	0.4%	144	1.7%
10	UNKNOWN	8	20.5%	4,237	59.5%	3,356	39.4%
	Totals	39	100.0%	7,117	100.0%	8,518	100.0%

Problem Analysis:

- Two Sub Transmission (34.5kV) interruptions classified as unknown in 2008 caused 57% of the customers and 33% of the customer hours interrupted for the unknown category.
- Tree caused interruptions were the second leading cause of Customers and Customer Hours Interrupted. Last tree trimming was in 2005.

Action Plan:

- A lightning mitigation review of this feeder will be completed in 2009.
- Spot trimming will be investigated for this feeder.

3. HOAGS CORNER 22145 13.2kV

Profile: 941 Customers, 12.7 Circuit Miles

Indices: CAIDI = 5.39, SAIFI = 3.42

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	7	35.0%	285	8.8%	1,501	8.6%
3	OVERLOADS	0	0.0%	0	0.0%	0	0.0%
4	OPERATOR ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	5	25.0%	96	3.0%	451	2.6%
6	ACCIDENTS	2	10.0%	2	0.1%	10	0.1%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
8	CUST. EQUIP.	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	0	0.0%	0	0.0%	0	0.0%
10	UNKNOWN	6	30.0%	2,844	88.1%	15,449	88.7%
	Totals	20	100.0%	3,227	100.0%	17,411	100.0%

Problem Analysis:

- Trees caused 35% of the Interruptions and only 8% of the customer and customer hours interrupted. Unknown causes were responsible for 30 % of the interruptions and 88% of the customers interrupted. In a feeder like this trees and animals would most likely be the cause of the Unknown interruptions. The last tree trim for this feeder was 2003.
- Three incidents classified unknown caused interruptions from the NYSEG 34.5 kV feed to this substation were responsible for 98% of the interruptions and 87% of the total Customers Interrupted and 88% of the Customer Hours of the unknown category.

Action Plan:

- Tree Trimming and Hazard Tree work is scheduled for Calendar year 2009.
- Engineering is currently developing a plan to retire Hoag's substation and build a new 115kV/13.2kV substation at a location near Alps Road to eliminate many of the interruptions.

4. EVERETT ROAD 42051 13.2kV

Profile: 1,874 Customers, 20.3 Circuit Miles

Indices: CAIDI = 1.46, SAIFI = 3.19

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	5	20.0%	1,920	32.0%	5,904	67.2%
3	OVERLOADS	1	4.0%	9	0.2%	20	0.2%
4	OPERATOR ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	5	20.0%	231	3.9%	557	6.3%
6	ACCIDENTS	7	28.0%	57	1.0%	221	2.5%
7	PREARRANGED	1	4.0%	10	0.2%	20	0.2%
8	CUST. EQUIP.	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	1	4.0%	35	0.6%	61	0.7%
10	UNKNOWN	5	20.0%	3,733	62.3%	2,008	22.8%
	Totals	25	100.0%	5,995	100.0%	8,791	100.0%

Problem Analysis:

- Two interruptions on the same day categorized as Unknown. These previously classified as unknowns should be equipment classified. With the two interruptions mentioned above included, Equipment is the major factor with this feeder for calendar year 2008 with 61% of the customers and 23% of the customer hours interrupted.
- One tree outage caused 62% of the customer hours interrupted.
- This feeder was trimmed in 2007 and although the tree caused interruptions seems to be a leading cause of interruptions; one interruption was responsible for 94% of the customers and 92% of the customer hours interrupted of the tree category. Therefore, no early tree trimming is needed.

Action Plan:

- In 2008 an Engineering Review was completed on this feeder:
 - A recloser was installed
 - 11 unfused taps were fused under the feeder hardening program

5. BLUE STORES 30351 13.2kV

Profile: 2,139 Customers, 70.7 Circuit Miles

Indices: CAIDI = 1.86, SAIFI = 2.44

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	2	6.9%	659	12.6%	336	3.4%
3	OVERLOADS	0	0.0%	0	0.0%	0	0.0%
4	OPERATOR ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	12	41.4%	133	2.5%	226	2.3%
6	ACCIDENTS	7	24.1%	2,155	41.3%	2,501	25.4%
7	PREARRANGED	1	3.4%	10	0.2%	25	0.3%
8	CUST. EQUIP.	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	2	6.9%	121	2.3%	253	2.6%
10	UNKNOWN	5	17.2%	2,142	41.0%	6,501	66.1%
	Totals	29	100.0%	5,220	100.0%	9,842	100.0%

Problem Analysis:

- In 2008 one Substation equipment malfunction interruption was responsible for 41% of the customers interrupted and 66% of the customer hours interrupted of the unknown category.
- In 2008 one Accident interruption accounted for 41% of the Customers Interrupted and 25% Customer Hours Interrupted of the accident category.
- The last tree trim on this line was in 2006.

Action Plan:

- The auto throw over function was corrected in 2008.

6. FRONT ST 36053 13.2kV

Profile: 1,621 Customers, 12.5 Circuit Miles

Indices: CAIDI = 2.18, SAIFI = 3.86

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	3	17.6%	7	0.1%	41	0.3%
3	OVERLOADS	0	0.0%	0	0.0%	0	0.0%
4	OPERATOR ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	6	35.3%	1,598	25.5%	2,116	15.5%
6	ACCIDENTS	4	23.5%	1,598	25.5%	1,960	14.3%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
8	CUST. EQUIP.	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	1	5.9%	1,500	24.0%	5,250	38.4%
10	UNKNOWN	3	17.6%	1,555	24.8%	4,316	31.5%
	Totals	17	100.0%	6,258	100.0%	13,682	100.0%

Problem Analysis:

- In 2008 one lightning incident and an apparent associated lockout caused 38% of the customers and 68% of the customer hours interrupted.
- A bad getaway cable caused 39% of the customers and 27% of the customer hours interrupted in 2008.

Action Plan:

- Last Circuit pruning was in 2006.
- Getaway cable was replaced
- Lightning mitigation assessment by engineering will take place in 2009.

7. ALTAMONT 28356 13.2kV

Profile: 2,258 Customers, 118.5 Circuit Miles

Indices: CAIDI = 5.19, SAIFI = 1.43

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	9	22.5%	51	1.6%	301	1.8%
3	OVERLOADS	0	0.0%	0	0.0%	0	0.0%
4	OPERATOR ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	11	27.5%	193	6.0%	791	4.7%
6	ACCIDENTS	9	22.5%	462	14.3%	3,087	18.4%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
8	CUST. EQUIP.	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	1	2.5%	146	4.5%	302	1.8%
10	UNKNOWN	10	25.0%	2,386	73.7%	12,321	73.3%
	Totals	40	100.0%	3,238	100.0%	16,803	100.0%

Problem Analysis:

- In 2008, one bus fault caused by varmint was responsible for 69% of Customers Interrupted and 70% of the Customer Hours Interrupted of the unknown category. At the time of the fault, the cause was unknown.
- One motor vehicle accident caused 12% of the customer hours interrupted.
- Equipment (28%) caused the most interruptions followed by Unknowns (25%) and Trees (23%).

Action Plan:

- Tree trimming will be completed on this feeder in calendar year 2009.
- The substation metal clad was cleaned up and sealed to help prevent varmint infiltration. Also Pest Control services are used at a monthly to bimonthly schedule to prevent rodents getting into the metal clads.

8. ALTAMONT 28355 13.2kV

Profile: 1,890 Customers 58.1 Circuit Miles

Indices: CAIDI = 3.90 SAIFI = 2.35

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	2	12.5%	51	1.1%	208	1.2%
3	OVERLOADS	0	0.0%	0	0.0%	0	0.0%
4	OPERATOR ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	5	31.3%	1,927	43.4%	10,044	57.9%
6	ACCIDENTS	4	25.0%	528	11.9%	1,184	6.8%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
8	CUST. EQUIP.	1	6.3%	1	0.0%	5	0.0%
9	LIGHTNING	0	0.0%	0	0.0%	0	0.0%
10	UNKNOWN	4	25.0%	1,938	43.6%	5,915	34.1%
	Totals	16	100.0%	4,445	100.0%	17,357	100.0%

Problem Analysis:

- In 2008, two bus faults, in the same day, caused by one varmint were responsible for 84% of Customers Interrupted and 88% of the Customer Hours Interrupted. At the time of the fault it was unknown what caused the fault an associated outage was classified as equipment.

Action Plan:

- Last tree pruning was in 2006.
- An Engineering Reliability Review was preformed on this feeder:
 - Two reclosers were suggested and will be installed in 2009
 - 55 additional fuse locations were identified for installation to help segment the feeder.
 - Lightning arrestors at certain locations were also suggested to help minimize the lightning damage.

9. STUYVESANT 03551 13.2kV

Profile: 641 Customers, 21.2 Circuit Miles

Indices: CAIDI = 8.52, SAIFI = 1.79

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	4	20.0%	232	20.2%	2,438	24.9%
3	OVERLOADS	1	5.0%	10	0.9%	30	0.3%
4	OPERATOR ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	3	15.0%	45	3.9%	72	0.7%
6	ACCIDENTS	7	35.0%	156	13.6%	524	5.3%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
8	CUST. EQUIP.	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	0	0.0%	0	0.0%	0	0.0%
10	UNKNOWN	5	25.0%	707	61.5%	6,740	68.8%
	Totals	20	100.0%	1,150	100.0%	9,804	100.0%

Problem Analysis:

- In 2008 one of the unknowns should be associated with trees. Both a tree and the unknown happened on the same day and very close to the same spot.
- Because of the above information, Trees were the biggest contributor to the Customers Interrupted and Customer Hours Interrupted (80% and 87% respectively)
- One motor vehicle accident was responsible for the majority of the accident category of Customers and Customer Hours Interrupted.
- One incident from a backhoe digging up our infrastructure was responsible for most of the rest of the accident category numbers.

Action Plan:

- Tree Trimming was completed in CY 2008/ FY 2009, this will help reduce the interruptions associated with trees.

10. MENANDS 10153 13.2kV

Profile: 1,681 Customers, 18.0 Circuit Miles

Indices: CAIDI = 8.43, SAIFI = 1.46

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	8	38.1%	2,087	84.7%	19,156	92.2%
3	OVERLOADS	0	0.0%	0	0.0%	0	0.0%
4	OPERATOR ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	2	9.5%	6	0.2%	11	0.1%
6	ACCIDENTS	9	42.9%	368	14.9%	1,605	7.7%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
8	CUST. EQUIP.	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	0	0.0%	0	0.0%	0	0.0%
10	UNKNOWN	2	9.5%	4	0.2%	10	0.0%
	Totals	21	100.0%	2,465	100.0%	20,782	100.0%

Problem Analysis:

- In 2008 accidents were the leading cause of the number of interruptions (43%). Of these two were motor vehicle accidents and one was from a contractor backhoe digging up an underground line.
- Trees were the next leading cause of the number of interruptions (38%) and the leading cause of customers (85%) and customer hours interrupted (92%). Of these outages one tree cause feeder lock out caused 80% of the customers and 95% of the customer hours interrupted caused by trees.

Action Plan:

- Tree Pruning and Hazard Tree Removal was completed in 2008.

11. SWAGGERTOWN 36453 13.2kV

Profile: 1,408 Customers, 88.632.7 Circuit Miles

Indices: CAIDI = 5.91, SAIFI = 1.54

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	4	21.1%	1,444	66.2%	10,870	84.3%
3	OVERLOADS	0	0.0%	0	0.0%	0	0.0%
4	OPERATOR ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	7	36.8%	464	21.3%	1,515	11.7%
6	ACCIDENTS	2	10.5%	21	1.0%	82	0.6%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
8	CUST. EQUIP.	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	1	5.3%	12	0.6%	38	0.3%
10	UNKNOWN	5	26.3%	240	11.0%	394	3.1%
	Totals	19	100.0%	2,181	100.0%	12,899	100.0%

Problem Analysis:

- In 2008 equipment related interruptions were the leading cause (37%) of the number of interruptions. Equipment was the second leading cause for customers (21%) and customer hours (12%) interrupted.
- Trees were the leading cause of customers (66%) and customer hours (84%) interrupted. One tree incident caused a lock out and more than 90% of the tree related customers and customer hours interrupted.

Action Plan:

- Tree trimming was completed in calendar year 2006 with some carry over into calendar year 2007.
- An Engineering Reliability Review was completed on this feeder in 2008.
 - Approximately 140 fusing changes and additions were suggested.
 - One additional recloser will be installed in early 2009.

12. FIREHOUSE 44953 13.2kV

Profile: 2,387 Customers, 16.0 Circuit Miles

Indices: CAIDI = 1.32, SAIFI = 3.02

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	4	30.8%	4,792	66.4%	7,945	82.9%
3	OVERLOADS	0	0.0%	0	0.0%	0	0.0%
4	OPERATOR ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	4	30.8%	2,411	33.4%	1,600	16.7%
6	ACCIDENTS	0	0.0%	0	0.0%	0	0.0%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
8	CUSTOMER EQ.	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	0	0.0%	0	0.0%	0	0.0%
10	UNKNOWN	5	38.5%	10	0.1%	34	0.4%
	Totals	13	100.0%	7,213	100.0%	9,579	100.0%

Problem Analysis:

- In 2008 there were three categories that impacted customers. Interruptions from unknown causes had the most interruptions (39%) but had very little impact to the number of customers and customer hours interrupted.
- The leading cause to customers interrupted and total customer hours was trees. (66% and 83% respectively)
- Equipment was the second leading cause to total customers (33%) and customer hours (17%) interrupted.

Action Plan:

- Tree pruning is scheduled for 2009.

13. GROOMS 34557 13.2kV

Profile: 2,050 Customers, 30.9 Circuit Miles

Indices: CAIDI = 2.11, SAIFI = 1.91

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	3	18.8%	1,602	40.8%	3,603	43.4%
3	OVERLOADS	0	0.0%	0	0.0%	0	0.0%
4	OPERATOR ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	6	37.5%	123	3.1%	255	3.1%
6	ACCIDENTS	3	18.8%	2,188	55.7%	4,309	51.9%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
8	CUSTOMER EQ.	1	6.3%	1	0.0%	3	0.0%
9	LIGHTNING	1	6.3%	4	0.1%	18	0.2%
10	UNKNOWN	2	12.5%	12	0.3%	121	1.5%
	Totals	16	100.0%	3,930	100.0%	8,309	100.0%

Problem Analysis:

- In 2008 Equipment interruptions caused 38% of the number of interruptions but accounted for only 3% of the customers and customer hours interrupted.
- In 2008 there were two accidents; one motor vehicle accident and a back hoe dig up that were responsible for 56% of the customers and 52% of the customer hours interrupted.
- One tree outage from heavy icing in February caused 41% of the customers and 43% of the customer hours interrupted.

Action Plan:

- This feeder was trimmed in calendar year 2006 with 10 miles carried over and completed in 2007.
- A recloser and fuses for sectionalizing faults were added to this feeder in 2008. This additional sectionalizing should reduce the impact of most interruptions.

14. ROSA ROAD 13757 13.2kV

Profile: 2,950 Customers, 20.0 Circuit Miles

Indices: CAIDI = 1.45, SAIFI = 1.63

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	13	41.9%	372	7.7%	1,338	19.0%
3	OVERLOADS	0	0.0%	0	0.0%	0	0.0%
4	OPERATOR ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	7	22.6%	1,214	25.2%	4,605	65.3%
6	ACCIDENTS	8	25.8%	3,021	62.6%	479	6.8%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
8	CUSTOMER EQ.	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	0	0.0%	0	0.0%	0	0.0%
10	UNKNOWN	3	9.7%	216	4.5%	634	9.0%
	Totals	31	100.0%	4,823	100.0%	7,056	100.0%

Problem Analysis:

- In 2008 Trees caused the most interruptions on this feeder (42%).
- Equipment interruptions caused 25% (second most) of the Customers and 65% (the most) Customer Hours Interrupted.
 - One UG cable failure caused the majority (74%) of the customers and (85%) of the customer hours interrupted.
- Accidents were the leading cause (63%) for the customers interrupted but accounted for only 7% of the customer hours interrupted.
 - One emergency opening because of a burning switch accounted for 92% of the customers interrupted.

Action Plan:

- Tree pruning was completed in 2008.
- A Feeder evaluation will be completed on the feeder in 2009 by Engineering.

15. ELNORA 44257 13.2kV

Profile: 1,393 Customers, 12.8 Circuit Miles

Indices: CAIDI = 1.44, SAIFI = 2.33

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	2	13.3%	2	0.1%	5	0.1%
3	OVERLOADS	0	0.0%	0	0.0%	0	0.0%
4	OPERATOR ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	9	60.0%	1,849	56.9%	2,993	63.7%
6	ACCIDENTS	0	0.0%	0	0.0%	0	0.0%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
8	CUSTOMER EQ.	1	6.7%	2	0.1%	11	0.2%
9	LIGHTNING	1	6.7%	1	0.0%	9	0.2%
10	UNKNOWN	2	13.3%	1,396	43.0%	1,680	35.8%
	Totals	15	100.0%	3,250	100.0%	4,697	100.0%

Problem Analysis:

- In 2008 Equipment was the leading cause of interruptions (60%), customers interrupted (57%) and customer hours interrupted (64%).

Action Plan:

- Tree pruning was completed in 2007.
- An Engineering Reliability Review will be performed on the circuit in 2009.

16. BLUE STORES 30352 13.2kV

Profile: 1,320 Customers, 83.2 Circuit Miles

Indices: CAIDI = 2.18, SAIFI = 1.73

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	3	16.7%	902	39.4%	1,098	22.0%
3	OVERLOADS	1	5.6%	2	0.1%	9	0.2%
4	OPERATOR ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	3	16.7%	5	0.2%	18	0.4%
6	ACCIDENTS	4	22.2%	28	1.2%	67	1.3%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
8	CUSTOMER EQ.	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	0	0.0%	0	0.0%	0	0.0%
10	UNKNOWN	7	38.9%	1,353	59.1%	3,793	76.1%
	Totals	18	100.0%	2,290	100.0%	4,986	100.0%

Problem Analysis:

- In 2008 Unknown classified interruptions was the leading cause of interruptions (39%), customers interrupted (59%), and customer hours interrupted (76%).
- One of the unknown categorized interruptions has been linked to a transmission auto throw over scheme that did not function. That interruption was responsible for 57% of the total customers and 73% of the total customer hours interrupted of the unknown category.

Action Plan:

- Tree pruning was preformed in 2005.
- Absent the transmission auto throw over malfunction (that has been repaired); this circuit was a good performer.
- Lightning during major storms is a concern – an Engineering Lightning protection evaluation will take place in 2009.

3. ACTION PLAN SUMMARIES

a. SUMMARY OF ACTION ITEM PLANS FOR 2008 WORST PERFORMING FEEDERS

Station	Feeder	Report Year	Action Plan	Projected Compl. Date	Estimated Cost	Comments
Blue Stores	30353	2009	Tree Trimming	December 2009	\$210,000	50% completed 3/1/09
Blue Stores	30353	2009	Engineering Lightning Mitigation Review	December 2009	\$7,000	
Hemstreet	32851	2009	Engineering Lightning Mitigation Review	December 2009	\$7,000	
Hemstreet	32851	2009	Spot tree trimming investigation	December 2009	\$4,000	
Hoags Corner	22145	2009	Tree Trimming	December 2009	\$95,000	
Hoags Corner	22145	2009	Retire Hoags Corner plan	December 2009	\$25,000	
Everett Road	42051	2009	Recloser Installation	December 2009	\$45,000	Completed
Everett Road	42051	2009	Fusing from Engineering Reliability Review	December 2009	\$30,000	Completed
Blue Stores	30351	2009	Auto Throw Over function corrected	December 2009	\$15,000	Completed
Front Street	36053	2009	Getaway Cable Replaced	December 2009	\$45,000	Completed
Front Street	36053	2009	Engineering Lightning Mitigation Review	December 2009	\$7,000	
Altamont	28356	2009	Metal Clad Pest Control	December 2009	\$15,000	Completed/Pest Control on going
Altamont	28356	2009	Tree Trimming	December 2009		
Altamont	28355	2009	Reclosers from Engineering Reliability Review	December 2009	\$90,000	Completed
Altamont	28355	2009	Fusing and Lightning arrestors from ERR	December 2009	\$45,000	Design completed
Stuyvesant	03551	2009	Tree Trimming	December 2009		
Menands	10153	2009	Tree Trimming	December 2009	\$80,000	Completed
Swaggertown	36453	2009	Recloser from Engineering Reliability Review	December 2009	\$45,000	Design completed
Swaggertown	36453	2009	Fusing from ERR	December 2009	\$120,000	Design completed
Firehouse	44953	2009	Tree Trimming	December 2009	\$80,000	
Grooms	34557	2009	Reclosers and Fusing from ERR	December 2009	\$120,000	Completed
Rosa Road	13757	2009	Engineering Feeder Evaluation	December 2009	\$5,000	
Elnora	44257	2009	Engineering Reliability Review	December 2009	\$8,000	
Blue Stores	30352	2009	Auto Throw Over repair	December 2009	\$18,000	Completed
Blue Stores	30352	2009	Engineering Lightning Mitigation Review	December 2009	\$7,000	

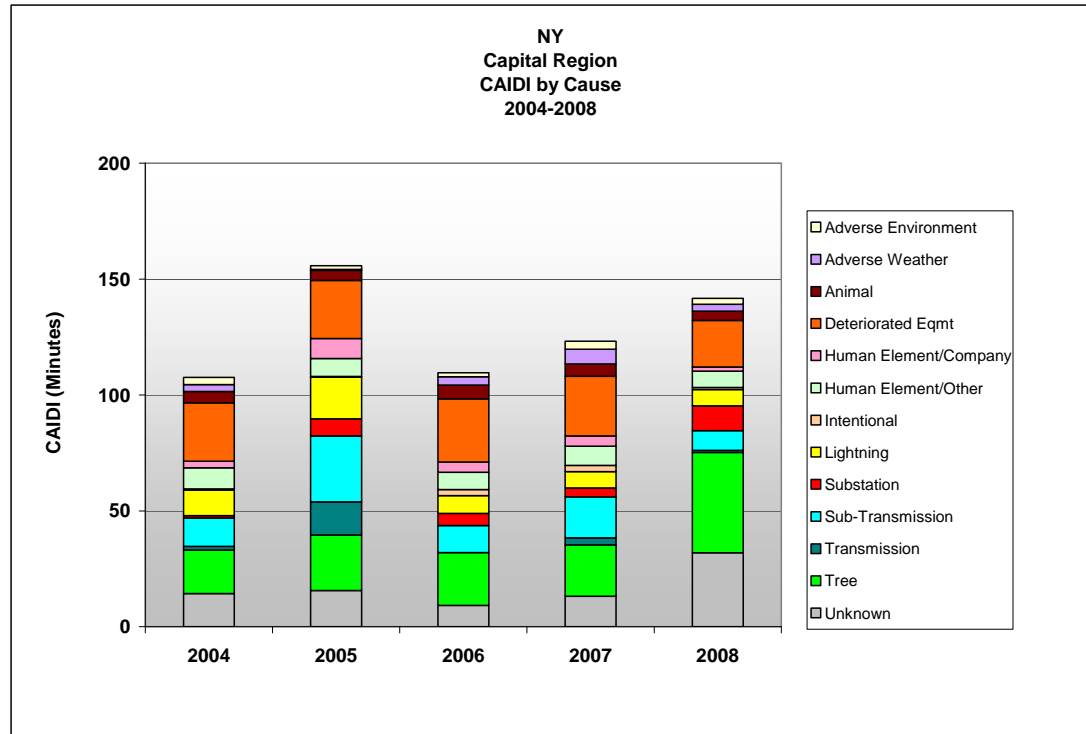
b. SUMMARY OF ACTION ITEM PLANS FOR 2007 WORST PERFORMING FEEDERS

Station	Feeder	Report Year	Action Plan	Projected Compl. Date	Estimated Cost	Comments
Blue Stores	30352	2008	Two Recloser Installations	May 2008	\$90,000	Planning has issued design
Blue Stores	30352	2008	Fusing from Engineering Reliability Review	May 2008	\$5,000	Planning has issued design
Selkirk	14951	2008	Recloser	December 2008	\$45,000	Design started
Selkirk	14951	2008	Fusing from Engineering Reliability Review	December 2008	\$15,000	Design started
Swaggertown	36452	2008	Tree Trimming	December 2006	\$281,373	Completed
Swaggertown	36452	2008	Engineering Reliability Review Recommendations	March 2008	\$517,000	Completed
Brunswick	26452	2008	Remove a large portion of backlot and bring to street.	December 2008	\$250,000	Design started
Brunswick	26452	2008	Recloser from Engineering Reliability Review	December 2008	\$45,000	Design Completed
Brunswick	26452	2008	Hazard Tree and Tree Trimming	December 2004	\$306,640	Completed
Unionville	27652	2008	Two Reclosers	November 2007	\$90,000	Completed
Unionville	27652	2008	Fusing from Multiple Momentary Investigation	November 2007	\$20,000	Completed
Unionville	27652	2008	Tree Trimming	November 2007	\$132,900	Completed
Voorheesville	17851	2008	Tree Trimming	December 2006	\$524,104	Completed in CY 2007
Voorheesville	17851	2008	Two recloser installations	December 2008	\$90,000	Design Completed
Selkirk	14952	2008	Feeder tie and new Getaway to be built	December 2007	\$150,000	Completed
Selkirk	14952	2008	Tree Trimming	December 2008	\$150,000	Calendar Year 2008
Selkirk	14952	2008	Feeder tie and new Getaway to be built	December 2007	\$150,000	Completed
Boytonville	33351	2008	Feeder Tie	March 2006	\$200,000	Completed
Boytonville	33351	2008	Tree trimming	December 2008	\$122,000	Completed
Stuyvesant	03552	2008	Tree Trimming	December 2008	\$140,000	Completed
Stuyvesant	03552	2008	Engineering Reliability Review	December 2008	\$3,000	Completed
Altamont	28355	2008	Tree Trimming	December 2006	\$176,000	Completed
Altamont	28355	2008	Engineering Reliability Review	December 2008	\$3,000	
Inman Road	37058	2008	Tree Trimming	December 2008	\$78,000	Completed
Inman Road	37058	2008	Recloser and fusing	March 2009	\$145,000	Completed
Inman Road	37056	2008	Tree Trimming	December 2008	\$81,000	Completed
Inman Road	37056	2008	Engineering Reliability Review	December 2008	\$3,000	Completed

4. OPERATING REGION PERFORMANCE BELOW MINIMUM

a. MAINTENANCE HISTORY AND ANALYSIS OF FACTORS WHICH CAUSED THE BELOW MINIMUM PERFORMANCE

The average duration of customer interruptions (CAIDI) increased by 14% in 2008 to 2.35 hours and was above the PSC target of 2.00 hours for the Capital Region. As shown in the chart, tree contacts, substation problems and outages with unknown causes pushed CAIDI higher in 2008



Six substation-related interruptions accounted for 14,264 customers interrupted (6%) and 40,872 customer hours interrupted (8%). One incident due to animals accounted for 3,077 customers interrupted and 9,080 customer hours of interruption. A short circuit caused another interruption that resulted in 3,028 customers interrupted and 8,836 customer hours of interruption. The causes of the remaining outages due to problems in sub-stations were unknown.

b. PLANNED PROGRAMS OR PLANNED CORRECTIVE ACTIONS AND PROPOSED IMPROVEMENTS TO THE PERFORMANCE INDICES.

The Company's principle strategy to improve its CAIDI performance is to avoid the long duration outages that are driving CAIDI higher.

During Fiscal Year 2008, National Grid spent over \$3,000,000 for cycle tree trimming and \$700,000 for hazard tree removal on the distribution system in the Capital Region. In addition, the Company spent \$351,000 to prune vegetation along transmission lines and \$522,200 to trim along the sub-transmission system.

Moreover, an additional \$1.5 million dollars was spent for vegetation management in the Capital Region as a result of the December Ice Storm (\$750,000 – distribution, \$750,000 – Sub-transmission). The Company will increase its budgeted spending for tree trimming by 10% in FY2010. The Company believes that this increased spending for tree trimming and miles trimmed will reduce both the incidence and duration of tree related outages.

The Company's ongoing maintenance program for substations should help reduce the potential for substation problems that drove CAIDI higher in 2008. In 2008, the Substation Maintenance Group in the East performed 181 circuit breaker diagnostic tests, 68 circuit breaker mechanism checks and 31 load tap changer internal inspections. Dissolved gas analysis was performed on 372 Load tap changer units and 398 transformers. The group also performed 1538 Security inspections. Calibration/Inspections were completed on 593 relay positions and 145 communication packages. Functional testing on 444 relays was also completed. Lastly, the group performed battery maintenance on 161 installations and inspected 172 critical installations.

Capital Region T &D personnel have also initiated some added preventive actions designed to improve reliability. The group performed special distribution patrols and associated maintenance work on 981 circuit miles of distribution lines. Capital Region engineers' also patrolled 320 circuit miles to investigate locations that experienced multiple momentary interruptions in an attempt identify issues before they cause a sustained customer interruption. The Region intends to continue with these preventive actions in the year ahead.

In addition to these preventative maintenance measures, the Capital Region will also.

- 1) Perform Engineering Reviews on 5 of the feeders in this report and finalize the recommendations from the completed Engineering Reliability Reviews on 3 other feeders in this report. These reviews may identify some opportunities to improve tie capability, fuse and recloser placement. Such improvements will help to avoid outages, and reduce customer interruptions and the duration of outages.
- 2) Complete Feeder Hardening on ten feeders (one mentioned in this report) to avoid equipment failures that interrupt customers.
- 3) Add remote controlled switches to the Subtransmission line as a first step in multiple year projects to sectionalize the 34.5kV system.
- 4) Install Hendrix type (tree wire) cable in sections of certain feeders where vegetation is considered to be an issue.

As a follow up to Engineering Reliability Reviews, the Region is also likely to sectionalize more feeders. This will help contain the number of customers that are impacted by incidents that cannot be avoided.

To help minimize outages caused by animal contact, the region will continue to install animal guards on all new transformer installations and retrofit animal guards on existing transformers in areas plagued with animal related interruptions.

Taken together, the Company believes that these preventative actions that help to minimize the potential for unplanned interruptions will improve the Region's CAIDI performance. The Region has also added an additional shift to its work schedule (late afternoon through mid-night) to reduce the crew response times to interruptions that do occur.

D. CENTRAL REGION

1. OPERATING REGIONAL PERFORMANCE

a. CAIDI AND SAIFI INDICES WITH HISTORY FROM 2004 TO 2008

	2008	2007	2006	2005	2004
CAIDI (Target 2.00)	1.48	1.72	1.88	1.98	1.91
SAIFI (Target 1.00)	0.81	1.22	1.17	0.95	1.06
SAIDI	1.19	2.11	2.19	1.89	2.02
Interruptions	1,764	2,020	1,962	1,878	1,742
Customers Interrupted	222,887	339,096	321,928	262,330	289,900
Customers Hours Interrupted	330,475	583,942	605,266	520,123	553,259
Customers Served	275,628	276,625	275,860	274,982	274,111
Customers Per Interruption	126.35	167.86	164.08	139.68	166.42
Availability Index	99.986	99.97	99.97	99.97	99.98
Interruptions/1000 customers	6.40	7.30	7.11	6.82	6.36

b. DISCUSSION OF REGIONAL PERFORMANCE

Reliability performance in the Central Region as measured by CAIDI improved markedly in 2008. The 2008 year-end restoration index (CAIDI) was 1.48 hours of interruption per customer served, below the New York State Public Service Commissioner (PSC) target of 2.00, and down 0.24 hours from 2007. The Central Region has met the minimum PSC goal for CAIDI in each of the last seven years. The CAIDI result for 2008 was the lowest level in five years and well below the 1.79 average from 2004 to 2008.

Reliability performance as measured by SAIFI was also notably good in the Central Region. The 2008 year-end frequency index (SAIFI) was 0.81 customers interrupted per customer served, down 0.41 from the level recorded in 2007. This was a five-year low for SAIFI, well below the PSC target of 1.00 and the five-year average of 1.04.

In 2008, the Central Region experienced several severe weather events that resulted in extended customer interruptions. Five of these events qualified as major storms based on the PSC criteria and were therefore excluded from the results reported above.

The number of customers interrupted on the Distribution system was down 19% in 2008. However, the number of customers interrupted on the transmission system was up 4%.

Thirteen transmission-related interruptions occurred in the Central Region in 2008; five on the 115 kV system (27,920 customers interrupted) and eight on the 34.5 kV system (7,381 customers interrupted).

The leading causes of interruptions on the transmission system were: Wind (15,890 customers interrupted), Unknown (8,065 customers interrupted), Accident (5,817 customers interrupted) and Deterioration (5,333 customers interrupted).

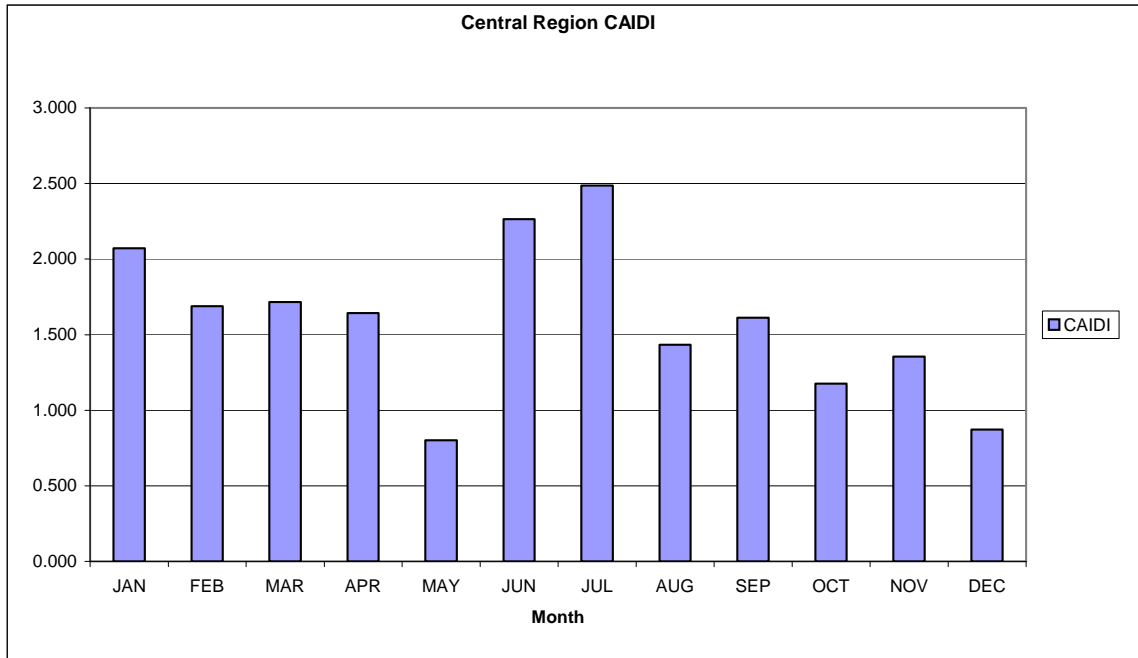
The following transmission line experienced interruptions in 2008: Lighthouse Hill-Clay #7 (2), OCCRA-Tilden #15, Cortland-ETNA #1 and Indeck-Lighthouse Hill #2 at 115 kV and Ash Street #25 (2), Ash Street #29, Harris Tilden #21, Harris-Tilden #33, Rathburn-Labrador #39, Oswego-Varick #207 and Solvay #22 at 34.5 kV.

The number of customer interruptions due to substation problems dropped significantly in 2008. Five substation-related interruptions occurred in the Central Region in 2008 (Brighton, Cortland, Phoenix, Rock Cut and Temple) which resulted in 14,511 customers interruptions. Almost two thirds of the customers interrupted due to problems at substations were tied to animal activity. Wind was responsible for close to 3,000 customer interruptions and was also the likely cause of customer interruptions in which the cause could not be determined.

c. MONTHLY CAIDI AND SAIFI GRAPHS

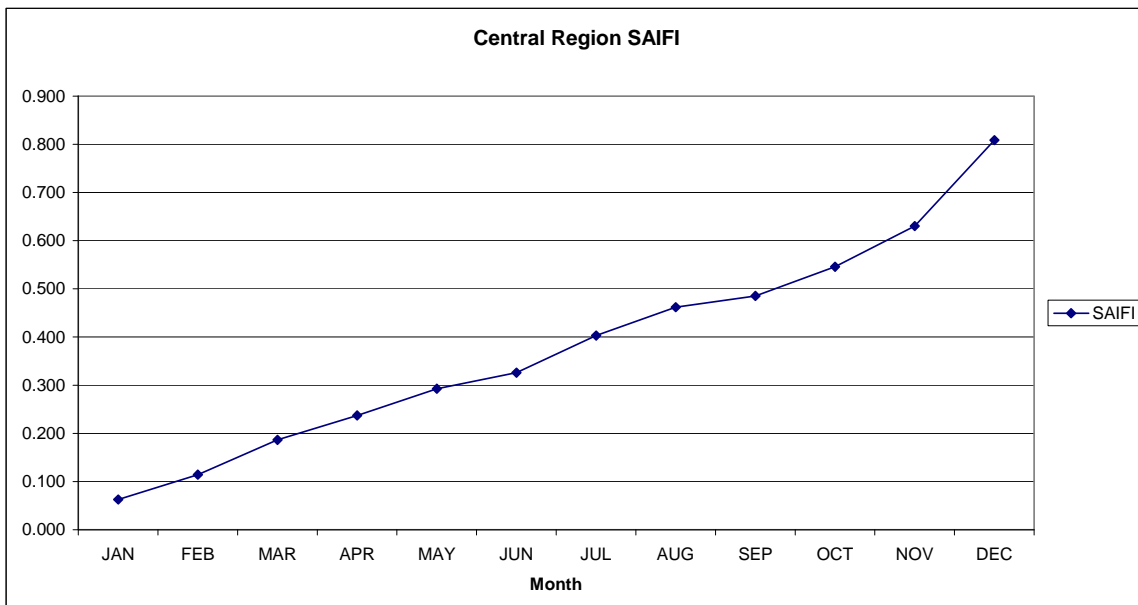
The following graphs show the monthly CAIDI and SAIFI for the Central Region for 2008. Regional CAIDI exceeded the PSC minimum goal of 2.00 in January (2.07), June (2.27), and July (2.49) mainly due to bad weather.

GRAPH OF MONTHLY CAIDI AND SAIFI FOR CENTRAL REGION



PSC CAIDI Goal:	
Minimum	2.00
2008 Actual	1.48

PSC SAIFI Goal:	
Minimum	1.00
2008 Actual	0.81



d. PSC CAUSE CODES

Cause Code	Interruptions		Customers		Customer Hours	
	Number	% Total	Number	% Total	Number	% Total
(1) Major Storms	315	15.2	116,035	34.2	619,616	65.2
(2) Tree Contacts	335	16.1	38,782	11.4	78,671	8.3
(3) Overload	27	1.3	381	0.1	1,137	0.1
(4) Errors	1	0.0	50	0.0	175	0.0
(5) Equip. Fail.	452	21.8	61,490	18.1	82,049	8.6
(6) Accidents	386	18.6	51,109	15.1	61,601	6.5
(7) Prearranged	67	3.2	6,543	1.9	6,628	0.7
(8) Cust.Equip.	4	0.2	20	0.0	40	0.0
(9) Lightning	172	8.3	12,821	3.8	30,044	3.2
(10) Unknown	320	15.4	51,691	15.3	70,130	7.4
Total	2,079	100.0	338,922	100.0	950,091	100.0

e. INTERRUPTION REVIEW BY PSC CAUSE CODES

Cause Code 01, “Major Storms”

There were five PSC Major Storm that affected Central Region in 2008. The PSC Storm dates were: March 7 (wind), June 5 (thunderstorm), June 9 (micro burst), September 14 (wind) and October 28 (wind). These major storm events resulted in 315 incidents that that interrupted 116,035 customers for a total of 619,616 Customer Hours, the greatest number of customers interrupted and the customer hours interrupted since 2003.

Cause Code 02, “Tree Contacts”

Interruptions due to trees were the fifth leading cause of customers interrupted in 2008 within Central Region. Forty-one percent of the tree interruptions were due to “tree fell” which accounted for 52% of the customers interrupted. Forty-six percent of the tree interruptions were due to tree limbs which accounted for 45% of the customers interrupted. All of the tree interruptions occurred on the Distribution system. Compared to 2007, tree interruptions were down 16%, customers interrupted and customer hours interrupted due to trees were down about 45%.

Cause Code 03, "Overload"

The number of interruptions due to overloads was down by 39% from 2007. The number of customers interrupted due to overloads was down 87% from 2007 and the Customer Hours interrupted were down 96% from 2007.

Cause Code 04, "Errors"

There was 1 error that accounted for 50 customers interrupted and 175 Customer Hours interrupted. This was lower than 2007.

Cause Code 05, "Equipment Failure"

In 2008, "Equipment Failure" was the largest cause code for interruptions in the Central Region. Equipment failure resulted in 452 interruptions, 21.7% of the total interruptions for the region. These interruptions accounted for 61,490 customers (18.1%) being interrupted and 82,049 customer hours (8.6%) for the region.

It is notable, however, that the number of interruptions due to failed equipment was down 11% in 2008 compared to the level in 2007. The number of customers interrupted was down by 50% and the Customer Hours was down by 60% in 2008 as compared to 2007.

There was one substation interruption (2,800 customers interrupted, 10,487 Customer Hours) and eight transmission interruptions (21,259 customers interrupted, 21,503 Customer Hours) due to equipment problems. The remaining interruptions due to equipment problems were on the Distribution system.

Cause Code 06, "Accidents"

The second largest cause of interruptions in 2008 was "Accidents". Accidents accounted for 386 interruptions (18.6%), 51,109 customers interrupted (15.1%) and 61,601 Customer-Hours Interrupted (6.5%) for the region. These numbers were all lower compared to 2007.

Animal-related accidents account for 214 interruptions (55%), 18,206 customers interrupted (36%) and 19,134 customer hours interrupted (31%) The Company installs animal guards on transformers involved in animal interruptions during maintenance work and all new transformers are purchased with animal guards installed.

Motor vehicle accidents accounted for 131 interruptions (34%), 20,858 customers interrupted (41%) and 26,858 Customer Hours Interrupted (44%). The Company investigates all poles that are involved in vehicle accidents to identify hazardous locations and will relocate the pole if deemed necessary.

Cause Code 07, “Prearranged”

There were 67 prearranged interruptions in 2008. These accounted for 6,543 customers interrupted and 6,628 Customer Hours. When compared to 2007, there was a 60% increase in the number of prearranged interruptions, a 14% increase in the number of customers interrupted but a 34% decrease in the Customer Hours.

Cause Code 08, “Customer Equipment”

There were 4 interruptions in 2008 due to customer equipment. These accounted for 20 customers interrupted and 40 Customer-Hours. When compared to 2007, there was a 33% decrease in the number of interruptions, a 43% decrease in the number of customers interrupted and an 80% decrease in the Customer Hours due to this cause.

Cause Code 09, “Lightning”

Lightning caused 172 (8.3%) interruptions, 12,821 customers interrupted (3.8%) and 30,044 Customer Hours Interrupted (3.2%). The number of customers interrupted due to lightning was down 64% in 2008.

Cause Code 10, “Unknown”

Interruptions due to unknown causes accounted for the fourth largest share (15%) of interruptions in the Central Region in 2008. When compared to 2007, the number of interruptions was down by 8%, but there was a 34% increase in the number of customers interrupted and a 33% increase in the Customer Hours.

2. OPERATING CIRCUIT LISTS

The next three (3) tables will provide the following information for the Central Region.

- a. Worst Performing Circuit List
- b. Worst Performing Circuits with 3 Year History for CAIDI & SAIFI Indices
- c. Worst Performing Circuits by # of Momentary Interruptions

a. NATIONAL GRID WORST PERFORMING CIRCUIT LIST

CENTRAL REGION

FEEDER #	A CUST. SERVED	B # INTER	C # CUST. INTER.	D CUST. HRS INTER.	D/A SAIDI	D/C CAIDI	C/A SAIFI	NUMBER OF MOMENTARIES
Niles 29451	1,257	39	5,354	17,790	14.15	3.32	4.25	1
Sandy Creek 6652	1,591	35	7,812	15,109	9.49	1.93	4.91	3
West Monroe 27451	1,900	26	8,529	9,990	5.25	1.17	4.48	1
Cleveland 1166	1,091	26	2,757	6,590	6.04	2.39	2.52	0
Colosse 32151	2,040	28	7,654	7,787	3.80	1.01	3.74	0
Rock Cut 28651	1,869	18	7,987	6,302	3.37	0.78	4.27	3
Sandy Creek 6651	1,692	45	3,365	5,536	3.27	1.64	1.98	5
Lighthouse Hill 6144	1,945	48	2,236	6,541	3.36	2.92	1.14	0
Duguid 26551	1,616	13	3,439	6,374	3.94	1.85	2.12	4
East Pulaski 32451	1,846	25	3,194	5,210	2.82	1.63	1.73	3

NOTE: This table excludes circuits with fewer than 2 interruptions or serving less than 100 customers.

b. NATIONAL GRID WORST PERFORMING CIRCUITS WITH 3 YEAR HISTORY FOR CAIDI AND SAIFI

CENTRAL REGION

FEEDER #	2008 CAIDI	2007 CAIDI	2006 CAIDI	2005 CAIDI	2008 SAIFI	2007 SAIFI	2006 SAIFI	2005 SAIFI
Niles 29451	3.32	3.18	2.56	2.09	4.25	1.53	0.83	3.73
Sandy Creek 6652	1.93	1.99	1.69	2.80	4.91	3.19	1.71	4.50
West Monroe 27451	1.17	2.32	2.36	1.54	4.48	3.20	2.24	0.93
Cleveland 1166	2.39	3.07	3.89	3.88	2.52	2.03	0.84	0.78
Colosse 32151	1.01	1.41	1.92	2.51	3.74	2.11	2.34	2.99
Rock Cut 28651	0.78	1.34	1.21	2.49	4.27	2.12	0.28	0.10
Sandy Creek 6651	1.64	1.58	2.11	3.30	1.98	1.52	3.22	3.18
Lighthouse Hill 6144	2.92	2.78	1.89	1.78	1.14	4.64	5.05	2.65
Duguid 26551	1.85	1.08	2.29	4.29	2.12	0.99	4.34	0.06
East Pulaski 32451	1.63	1.57	2.14	1.76	1.73	3.11	5.15	2.45

Regional Goal: CAIDI Min. 2.00 Obj. 1.59
SAIFI Min. 1.00 Obj. 0.87

c. NATIONAL GRID WORST PERFORMING CIRCUITS BY # OF MOMENTARY INTERRUPTIONS

CENTRAL REGION

Feeders			Customer Momentaries				Ranks		
Volts (kV)	Substation Name	Circuit Number	Substation	Transmission	Distribution	Total	Within Region	Within System	Reliability Ranking
13.2	Labrador	23051	0	12	2	14	1	2	811
13.2	Ballina	22151	0	9	2	11	2	4	233
4.16	Cuyler	2425	0	9	1	10	3	5	480

This list consists of circuits that have 10 or more momentaries.

d. WORST PERFORMING CIRCUIT ANALYSIS

This year, 2008, the Central Region is required to analyze and report on ten of the worst performing circuits. The list consists of eight 13.2kV, one 12kV and one 4.8kV circuits.

The PSC Minimum goals for the Central Region are 2.00 for CAIDI and 1.00 for SAIFI.

1. NILES 29451 13.2kV

Profile: 1,257 Customers, 99.5 Circuit Miles

Indices: CAIDI = 3.32, SAIFI = 4.25

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	14	35.9	932	17.4	5,919	33.3
5	EQUIP. FAILURE	9	23.1	364	6.8	1,559	8.8
6	ACCIDENTS	2	5.1	1,231	23.0	2,941	16.5
7	PREARRANGED	2	5.1	53	1.0	573	3.2
9	LIGHTNING	4	10.3	102	1.9	315	1.8
10	UNKNOWN	8	20.5	2,672	49.9	6,485	36.4
	Totals	39	100.0	5,354	100.0	17,791	100.0

Problem Analysis:

- There were no transmission or substation interruptions in 2008.
- There were two interruptions due to interruptions on Jewett Road 29154, which was feeding Niles while the 34.5 kV Niles tap was being re-built. One of these interruptions was due to a motor vehicle accident and the other was unknown. This accounted for 2,193 (41%) of the customers interrupted and 6,502 (37%) of the Customer-Hours.
- Overall, the number of interruptions, the customers interrupted and the Customer-Hours were greater in 2008 as compared to 2007, even taking into account the two interruptions due to Jewett Road.
- The number of tree interruptions was roughly the same in 2008 as compared to 2007. The number of customers interrupted due to trees was greater in 2008 and the Customer-Hours were significantly greater in 2008. Trees were the second leading cause in terms of the Customers Hours.
- The number of equipment failures was greater in 2008 as compared to 2007. But, the number of customers interrupted and the Customer Hours were lower in 2008.
- The number of interruptions due to accidents was lower in 2008 as compared to 2007. But, the number of customers interrupted and the Customer Hours were

both greater in 2008. This was the second leading cause in terms on the number of customers interrupted and the third leading cause in terms of Customer Hours.

- The number of unknown outages was greater in 2008 as compared to 2007. The number of customers interrupted and the Customer Hours were both significantly greater in 2008. In terms of customers interrupted and Customer Hours, unknown was the leading cause code.
- 34.5kV tap to Niles was re-built in 2008 at a cost of \$3,450,000.
- Subtransmission ROW was widened in 2008 at a cost \$70,000.

Action Plan:

- Distribution Forestry will cycle trim the feeder in 2009.
- Feeder Hardening is scheduled for FY10.
- Approximately 6,000 feet of conductor is scheduled to be replaced.
- Install surge arresters at dead ends and normal opens.
- Install additional fusing and update existing fusing on circuit.

2. SANDY CREEK 6652 13.2kV

Profile: 1,591 Customers, 50.6 Circuit Miles.

Indices: CAIDI = 1.93, SAIFI = 4.91

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	16	45.7	440	5.6	803	5.3
3	OVERLOADS	1	2.9	6	0.1	8	0.1
5	EQUIPMENT	4	11.4	1,652	21.1	1,257	8.3
6	ACCIDENTS	2	5.7	171	2.2	141	0.9
9	LIGHTNING	5	14.3	3,471	44.4	7,758	51.3
10	UNKNOWN	7	20.0	2,072	26.5	5,151	34.1
	Totals	35	100.0	7,812	100.0	15,118	100.0

Problem Analysis:

- There were no transmission or substation interruptions 2008.
- The number of tree interruptions was greater in 2008 versus 2007. But the number of customers interrupted and the Customer-Hours were both significantly lower in 2008.
- The number of interruptions due to equipment failure was less in 2008 versus 2007. The number of customers interrupted and the Customer-Hours were greater in 2008 though.
- The number of interruptions due to lightning was greater in 2008 versus 2007. Both the number of customers interrupted and the Customer-Hours were significantly greater in 2008.
- The number of unknown interruptions was about the same. The number of customers interrupted and the Customer-Hours were significantly greater in 2008.
- Fusing changes were completed in 2008.
- Danger Tree removals were completed on the subtransmission line in 2008 at a cost of \$24,000.
- Distribution Forestry completed Danger Tree removals in 2006.
- Distribution Automation was placed in-service on Lighthouse Hill-Mallory #22 line (the line that feeds Sandy Creek) in January, 2009.

Action Plan

- Feeder Hardening is planned for FY10.
- Cycle trimming is planned for 2009.
- Evaluate the feeder for possible surge arrester installations.

3. WEST MONROE 27451 13.2kV

Profile: 1,900 Customers, 89.2 Circuit Miles.

Indices: CAIDI = 1.17, SAIFI = 4.48

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	9	32.1	2,553	29.9	5,204	52.1
5	EQUIPMENT	8	28.6	3,815	44.7	3,172	31.7
6	ACCIDENTS	3	10.7	28	0.3	49	0.5
7	PREARRANGED	1	3.6	3	0.0	4	0.0
10	UNKNOWN	7	25.0	2,130	25.0	1,569	15.7
	Totals	28	100.0	8,529	100.0	9,998	100.0

Problem Analysis:

- There were two transmission outages that affect West Monroe. They were both on the Lighthouse Hill-Clay #7 115kV line. These two interruptions were due to wind and accounted for 3,798 (44%) of the customers interrupted and 3,172 (31%) of the Customer Hours.
- There were no substation interruptions in 2008.
- The number of tree interruptions was lower in 2008. The number of customers interrupted and the Customer-Hours were also lower in 2008.
- The number of unknown interruptions was the same in 2008 as 2007. The number of customers interrupted and the Customer-Hours were significantly greater in 2008 over 2007.
- Two reclosers were installed in March, 2008.
- Distribution Forestry completed Danger Tree removals in July of 2008 at a cost of \$57,862.
- Distribution Forestry completed cycle trimming in 2008 at a cost of \$251,014.
- Two reclosers were installed in March, 2008.
- Danger Tree removal took place on the Subtransmission line in 2007.
- Engineering Reliability Review was performed in 2008.
- Feeder Hardening was completed in 2008 at an approximate cost of \$265,000.

Action Plan:

- Additional fusing, from ERR, is being installed in 2009.
- Surge Arresters are being installed at open points in 2009.
- Investigate expanding Distribution Automation to include the subtransmission that feeds West Monroe (this would also include Cleveland, another Worst Performing Circuit)

4. CLEVELAND 1166 4.8kV

Profile: 1,092 Customers, 40.5 Circuit Miles.

Indices: CAIDI = 2.39 SAIFI = 2.52

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	15	55.6	631	22.9	1,890	28.7
5	EQUIPMENT	8	29.6	2,023	73.4	4,251	64.5
6	ACCIDENTS	4	14.8	103	3.7	449	6.8
	Totals	27	100.0	2,757	100.0	6,590	100.0

Problem Analysis:

- There was one transmission interruption recorded for 2008. This was on Lighthouse Hill-Clay #7 115kV line. This interruption affected 1,091 (40%) of the customers interrupted and 927 (14%) of the Customer Hours. The cause of this interruption was wind (05).
- The number of tree interruptions was greater in 2008 than that in 2007. The number of customers interrupted by trees and the Customer-Hours due to trees were up in 2008.
- The number of equipment failures was greater in 2008 than that in 2007. The number of customers interrupted and the Customer-Hours were greater in 2008.
- Danger Tree removal took place on the Subtransmission line in 2007.

Action Plan:

- Cycle trimming is planned for 2009.
- Investigate expanding Distribution Automation to include the subtransmission that feeds Cleveland (this would also include West Monroe, another Worst Performing Circuit).

5. COLOSSE 32151 13.2kV

Profile: 2,040 Customers, 109.4 Circuit Miles.

Indices: CAIDI = 1.01, SAIFI = 3.74

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	11	35.5	1,296	16.9	4,969	63.9
3	OVERLOADS	1	3.2	2	0.0	3	0.0
5	EQUIPMENT	8	25.8	6,190	80.9	2,450	31.5
6	ACCIDENTS	2	6.5	6	0.1	11	0.1
9	LIGHTNING	5	16.1	62	0.8	242	3.1
10	UNKNOWN	4	12.9	98	1.3	107	1.4
	Totals	31	100.0	7,654	100.0	7,781	100.0

Problem Analysis:

- There were three transmission interruptions recorded in 2008. These were due to events on the Lighthouse Hill-Clay #7 115kV line. These events accounted for 6,132 (80%) of the customers interrupted and 2,412 (31%) of the Customer Hours.
- The number of tree interruptions was constant in 2008, the number of customers interrupted and the Customer-Hours were both up slightly in 2008 on the distribution.
- Distribution Automation was placed in service on January 26, 2009 on the subtransmission line that feeds Colosse.
- Distribution Forestry completed Danger Tree removal in 2006.
- Distribution Forestry completed cycle trimming in 2006.
- Feeder Inspection was completed in 2006.
- Distribution Forestry completed Danger Tree removals on the Subtransmission line that feeds Colosse in 2008 at a cost of \$24,000.
- Distribution Automation was placed in-service on Lighthouse Hill-Mallory #22 line (the line that feeds Colosse) in January, 2009.

Action Plan:

- Fusing changes are planned for in 2009.
- Surge arresters to be installed at 8 locations in 2009.
- Distribution Automation will be monitored to determine the effectiveness.

6. ROCK CUT 28651 13.2kV

Profile: 1,869 Customers, 18.3 Circuit Miles.

Indices: CAIDI = 0.78, SAIFI = 4.27

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	4	20.0	156	2.0	1,048	16.6
5	EQUIPMENT	4	20.0	1,898	23.8	1,452	23.0
6	ACCIDENTS	11	55.0	5,873	73.5	3,658	58.0
10	UNKNOWN	1	5.0	60	0.8	146	2.3
	Totals	20	100.0	7,987	100.0	6,304	100.0

Problem Analysis:

- There was one transmission interruption in 2008. This interruption affected 1,864 (23%) of the customers interrupted and 969 (15%) of the Customer Hours. This was due to an Accident by a contractor, which bumped a relay panel at OCCRA on the OCCR-Tilden #15 115kV line.
- There were two substation interruptions 2008. Both events were due to the 13.2kV bus clearing at Rock Cut due to faults on another circuit on the bus. The bus cleared due to the fact that the instantaneous trip was not active on that feeder and lead to a coordination issue. These interruptions affected 3,744 (47%) of the customers interrupted and 2,209 (35%) of the Customer Hours.
- On the Distribution system, there was one circuit lockout due to wind. This interruption account for 1,871 customers interrupted and 1,403 Customer Hours.
- The instantaneous trip was placed in service on the two Rock Cut feeders in December, 2008.
- Distribution Forestry cycle trimmed the feeder in 2007.

Action Plan:

- A maintenance patrol is scheduled for 2009.

7. SANDY CREEK 6651 13.2kV

Profile: 1,692 Customers, 102.6 Circuit Miles

Indices: CAIDI = 1.64, SAIFI = 1.98

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	12	26.7	2,078	61.8	2,990	54.0
5	EQUIP. FAILURE	11	24.4	280	8.3	955	17.2
9	LIGHTNING	10	22.2	65	1.9	119	2.1
10	UNKNOWN	12	23.5	942	17.2	1,475	26.6
	Totals	45	100.0	3,365	100.0	5,539	100.0

Problem Analysis:

- There were no transmission or substation interruptions in 2008.
- The number of interruptions due to trees increased in 2008. The number of customers interrupted increase in 2008, but the Customer-Hours were the same as 2007.
- The number of interruptions due to equipment failure was slightly higher in 2008. The number of customers interrupted and the Customer-Hours were greater in 2008.
- The number of unknown interruptions remained constant. The number of customers interrupted and the Customer-Hours were greater in 2008.
- Regional Forestry completed Danger Tree removals in 2006.
- Danger Tree removals were completed on the subtransmission line in 2008 at a cost of \$24,000.
- A failed sectionalizer was replaced with a recloser in 2007.
- Fusing changes were completed in 2008.
- Distribution Automation was placed in-service on Lighthouse Hill-Mallory #22 line (the line that feeds Sandy Creek) in January, 2009.

Action Plan:

- Cycle trimming is planned for 2009.

8. LIGHTHOUSE HILL 6144 12kV

Profile: 1,945 Customers, 155.0 Circuit Miles.

Indices: CAIDI = 2.92, SAIFI = 1.14

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	16	33.3	585	26.2	2,717	41.5
5	EQUIPMENT	12	25.0	250	11.2	1,062	16.2
6	ACCIDENTS	2	4.2	21	0.9	103	1.6
9	LIGHTNING	8	16.7	174	7.8	358	5.5
10	UNKNOWN	10	20.8	1,206	53.9	2,304	35.2
	Totals	48	100.0	2,236	100.0	6,543	100.0

Problem Analysis:

- There were no transmission or substation interruptions in 2008.
- The number of tree interruptions lower in 2008. The number of customers interrupted and Customer-Hours were down significantly in 2008.
- The number of interruptions, the customers interrupted and the Customer Hours due to equipment failure were all lower in 2008.
- The number of interruptions due to accidents was down in 2008. The number of customers interrupted and Customer-Hours were down significantly in 2008.
- The number of interruptions, the customers interrupted and the Customer Hours due to lightning were all lower in 2008.
- The number of interruptions, the customers interrupted and the Customer Hours due to unknown were all lower in 2008.
- Regional Forestry completed cycle trimming 2008 at a cost of \$545,261.
- Regional Forestry completed Danger Tree removals in 2008 at a cost of \$4,527.
- Feeder Hardening was completed in 2008 for as estimated cost of \$265,000.

Action Plan:

- Asset Planning to evaluate replacing small conductor under the Open Wire Replacement Strategy.

9. DUGUID 26551 13.2kV

Profile: 1,616 Customers, 29.0 Circuit Miles.

Indices: CAIDI = 1.85, SAIFI = 2.12

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	3	23.1	80	2.3	340	5.3
5	EQUIPMENT	2	15.4	5	0.1	9	0.1
6	ACCIDENTS	2	15.4	65	1.9	183	2.9
9	LIGHTNING	2	15.4	1,674	48.7	3,464	54.3
10	UNKNOWN	4	30.8	1,615	47.0	2,383	37.4
	Totals	13	100.0	3,439	100.0	6,379	100.0

Problem Analysis:

- There were no transmission or substation interruptions in 2008.
- The number of tree interruptions was lower in 2008. The number of customers interrupted and the Customer-Hours were both lower in 2008.
- The number of lightning interruptions was greater in 2008. The number of customers interrupted and the Customer-Hours were both greater in 2008. A vast majority of the customers interrupted and the Customer Hours were due to a circuit lock-out.
- The number of interruptions due to unknowns was greater in 2008. The number of customers interrupted and Customer-Hours were both greater in 2008. A vast majority of the customers interrupted and the Customer Hours were due to a circuit lock-out.
- Distribution Forestry completed Danger Tree removals in July, 2008.
- An additional recloser was installed in 2008.

Action Plan:

- Place Distribution Automation in service (this circuit is part of the distribution portion of the pilot).

10. EAST PULASKI 32451 13.2kV

Profile: 1,846 Customers, 92.7 Circuit Miles.

Indices: CAIDI = 1.63, SAIFI = 1.73

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	7	26.9	195	6.1	522	10.0
5	EQUIPMENT	7	26.9	1,028	32.2	4,193	80.5
6	ACCIDENTS	4	15.4	64	2.0	97	1.9
9	LIGHTNING	2	7.7	2	0.1	6	0.1
10	UNKNOWN	6	23.1	1,905	59.6	391	7.5
	Totals	26	100.0	3,194	100.0	5,208	100.0

Problem Analysis:

- There was one transmission interruption in 2008, which was an unknown cause. This interruption accounted for 1,888 (59%) of the customers interrupted and 340 (6%) of the Customer Hours.
- There were no substation interruptions in 2008.
- The number of tree interruptions was the same in 2008. The number of customers interrupted was lower in 2008 and the Customer Hours were significantly lower in 2008.
- The number of equipment failures was the same in 2008. The number of customers interrupted was greater in 2008 and the Customer-Hours were significantly greater in 2008.
- The number of interruptions due to accidents was the same in 2008. The number of customers interrupted was lower in 2008 and the Customer Hours were significantly lower in 2008.
- Danger Tree removals were completed in 2008 at a cost of \$13,198.

Action Plan:

- Distribution Forestry is scheduled to trim the circuit in 2010.
- Additional fuses are scheduled to be installed in 2009.
- Surge arresters are scheduled to be installed in 2009.
- Maintenance patrol is scheduled for 2009.

3. ACTION PLAN SUMMARIES

a. SUMMARY OF ACTION PLANS FOR 2008 WORST PERFORMING CIRCUITS

Station	Feeder	Year	Action plan	Compl. Date	Est. Cost	Comments
Niles	29451	2009	Feeder Hardening	03/2010	?	Cost dependant on patrol results
		2009	Forestry to cycle trim feeder	03/2010	\$400,000	
		2009	Reconductor	09/2009	\$225,000	
		2009	Install arresters	12/2009	\$15,000	
		2009	Fusing changes	12/2009	\$150,000	
Sandy Creek	6652	2009	Feeder Hardening	03/2010	?	Cost dependant on patrol results
		2009	Forestry to cycle trim feeder	03/2010	\$205,000	
		2009	Evaluate for arresters	12/2009	\$500	
West Monroe	27451	2009	Install additional fusing	12/2009	\$10,000	
		2009	Install arresters	12/2009	\$7,500	
		2009	Investigate installing DA on Sub-T	12/2009	\$1,000	
Cleveland	1166	2009	Forestry to cycle trim feeder	03/2010	\$200,000	
		2009	Investigate installing DA on Sub-T	12/2009	\$1,000	
Colosse	32151	2009	Monitor DA effectiveness on Sub-T	12/2009	\$1,000	
		2009	Install arresters	03/2009	\$15,000	
		2009	Fusing changes	03/2009	\$105,000	
Rock Cut	28651	2009	Maintenance Patrol	12/2009	?	Cost dependant on patrol results
Sandy Creek	6651	2009	Forestry to cycle trim feeder	03/2010	\$400,000	
		2009	Monitor DA effectiveness on Sub-T	12/2009	\$1,000	
Lighthouse Hill	6144	2009	Evaluate replacing small conductor	12/2009	\$1,000	
Duguid	26551	2009	Place Distribution Automation in service	04/2009	\$5,000	Does not include the installation cost
E Pulaski	32451	2009	Forestry to cycle trim feeder	03/2010	\$400,000	
		2009	Install arresters	03/2009	\$10,000	
		2009	Fusing changes	03/2009	\$110,000	
		2009	Maintenance Patrol	12/2009	?	Cost dependant on patrol results

b. STATUS OF PREVIOUSLY PROPOSED ACTION PLANS FOR 2007WORST PERFORMING CIRCUITS

Station	Feeder	Report Year	Action plan	Compl. Date	Est. Cost	Comments
Lighthouse	6144	2008	Build tie to E. Pulaski 32452 & transfer	09/2008	\$534,000	
		2008	Forestry to cycle trim feeder	12/2008	\$545,261	
		2008	Monitor Danger Tree Results	In Progress	\$4,527	37 trees removed
		2007	Engineering Patrol	9/11/08	\$500	
East Pulaski	32451	2008	Install fuses and arresters	In Progress	\$120,000	Expected completion 08/2009
		2008	Monitor Danger Tree Results	In Progress	\$13,198	94 trees removed
Sandy Creek	6652	2008	Install Tree Wire	12/2008	\$37,500	
		2008	Fusing changes	12/2008	\$2,500	
		2008	Danger Tree removal on Sub-T	12/2008	\$24,000	
Sandy Creek	6651	2008	Danger Tree removal on Sub-T	12/2008	-	See Sandy Creek 6652 for cost
		2008	Fusing changes	12/2008	\$1,500	
Colosse	32151	2008	Danger Tree removal on Sub-T	12/2008	-	See Sandy Creek 6652 for cost
		2008	Fusing Changes	In Progress	\$105,000	Expected completion 03/2009
		2008	Install arresters	In Progress	\$15,000	Expected completion 03/2009
Gilbert Mills	27453	2008	Install arresters	In Progress	\$32,000	Expected completion 07/2009
		2008	Install 2 reclosers	04/04/08	\$78,000	
		2008	Review for Danger Tree removals	12/2008	23,765	43 trees removed
Niles	29451	2008	Install Tree Wire	Canceled	-	Did not make budget hurdles
		2008	Reconductor	In Progress	\$225,000	Expected completion 09/2009
		2008	Install arresters	In Progress	\$15,000	Expected completion 12/2009
		2008	Fusing changes	In Progress	\$150,000	Expected completion 12/2009
Ballina	22151	2008	Monitor Danger Tree removals	In Progress	\$500	On Going
		2008	Fusing changes	06/01/08	\$2,500	
		2008	Engineering Patrol	12/29/08	\$500	
Southwood	24454	2008	Install second Recloser	In Progress	\$38,000	Expected completion 06/2009
		2008	Install arresters	12/2008	\$50,000	
		2008	Fusing changes	12/31/07	\$9,000	

Station	Feeder	Report Year	Action plan	Compl. Date	Est. Cost	Comments
West Monroe	27451	2008	Engineering Patrol	07/18/08	\$500	
		2008	Install 2 reclosers	03/14/08	\$76,000	
		2008	Install fusing	03/14/08	\$15,000	
		2008	Forestry to cycle trim feeder	12/2008	\$308,876	
Gilbert Mills	24751	2008	Monitor for Danger Tree removals	12/2008	\$42,110	261 trees removed
		2008	Engineer Reliability Review	06/20/08	\$500	
		2008	Engineering Patrol	06/20/08	\$500	
Tully Center	27852	2008	Install 2 reclosers	06/30/08	\$76,000	
		2008	Fusing changes	06/30/08	\$40,000	
		2008	Monitor Danger Tree removals	In Progress	\$500	On Going
Constantia	1923	2008	Engineering Patrol	08/11/08	\$500	
		2008	Review for Danger Tree removals	12/2008	\$29,750	170 trees removed
		2008	Install recloser	03/11/08	\$38,000	
		2008	Fusing changes	03/11/08	\$10,000	
New Haven	25652	2008	Relay changes at Lighthouse Hill	03/01/08	\$15,000	
		2008	Engineering Patrol	08/14/08	\$500	
		2008	Engineering Reliability Review	08/18/08	\$1,000	
		2008	Forestry to cycle trim feeder	In Progress	\$205,440	To be completed by March 31, 2008
West Cleveland	32651	2008	Engineering Patrol	08/01/08	\$500	
		2008	Engineering Reliability Review	08/04/08	\$1,000	
Lorings	27651	2008	Engineering Patrol	10/20/08	\$1,000	
		2008	Engineering Reliability Review	10/20/08	\$1,000	
Paloma	25455	2008	Engineering Patrol	08/14/08	\$500	
		2008	Relay changes at Lighthouse Hill	03/01/08	-	See New Haven 25652 for cost
Bartell Road	32555	2008	Engineering Reliability Review	9/2/08	\$1,000	
		2008	Install 2 reclosers	06/25/08	\$76,000	
Jewitt Road	29155	2008	Engineering Patrol	In Progress	-	
		2008	Install Recloser	06/06/08	\$38,000	
McBride	12364	2008	Convert and transfer to Temple St.	06/01/08	\$25,000	Completed

E. FRONTIER REGION

1. OPERATING REGIONAL PERFORMANCE

a. CAIDI AND SAIFI INDICES WITH HISTORY FROM 2004 TO 2008

	2008	2007	2006	2005	2004
CAIDI (Target 1.75)	1.48	1.48	1.89	1.84	1.87
SAIFI (Target 0.60)	0.34	0.45	0.54	0.47	0.66
SAIDI	0.50	0.67	1.01	0.86	1.25
Interruptions	754	1,146	849	1000	760
Customers Interrupted	106,426	143,847	171,139	149,086	213,529
Customer Hours Interrupted	157,817	213,077	328,853	274,899	399,725
Customers Per Interruption	141.15	125.52	201.58	149.09	281
Availability Index	99.994	99.992	99.988	99.990	99.985
Interruptions/1000 Customers	2.40	3.61	2.67	3.13	2.37

b. DISCUSSION OF REGIONAL PERFORMANCE

It was another good year for reliability performance in the Frontier Region in 2008. The CAIDI metric was 1.48 in 2008, below the PSC minimum goal of 1.75 by more than 16 minutes. The number of customer hours interrupted (157,817) was almost 50% below (better than) the average recorded for the previous four years. Meanwhile, the SAIFI metric came in at 0.34 for 2008, below the PSC minimum goal of 0.60 and 36% below the average for the previous four years, and SAIDI was 47% below average for the previous four years.

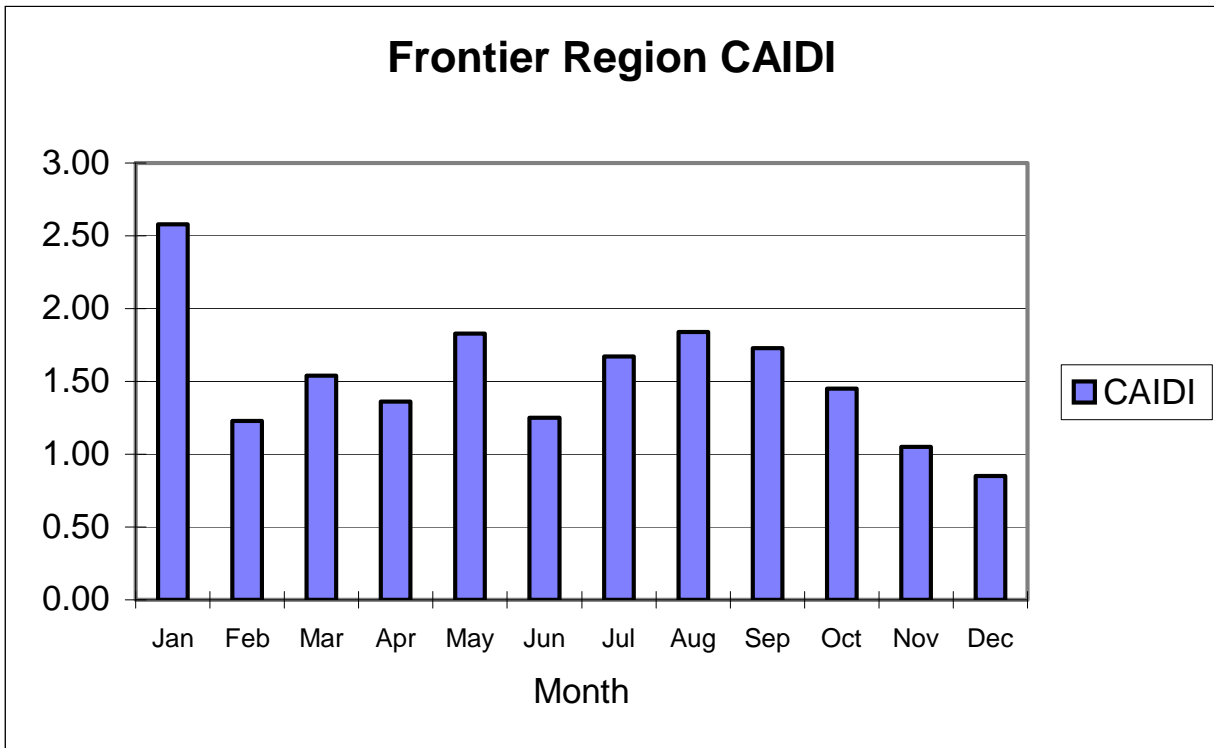
It is also notable that the Frontier region experienced much fewer customer interruptions per incident in 2008. The number of incidents (754) was almost 20% below average, but the number of customers interrupted (106,426) was down 37%. So, the number of customers per interruption (141.15) was 25% below average.

c. MONTHLY CAIDI AND SAIFI GRAPH

The graphs on the following page show the monthly CAIDI and SAIFI for the Frontier Region for 2008. SAIFI showed the greatest increase during the months of March, April and September; 39% of the Frontier Region's SAIFI occurred during these three months. The best three months for SAIFI were January, May, and November. The interruptions that occurred during these three months contributed 8.5% of the Frontier Region's SAIFI.

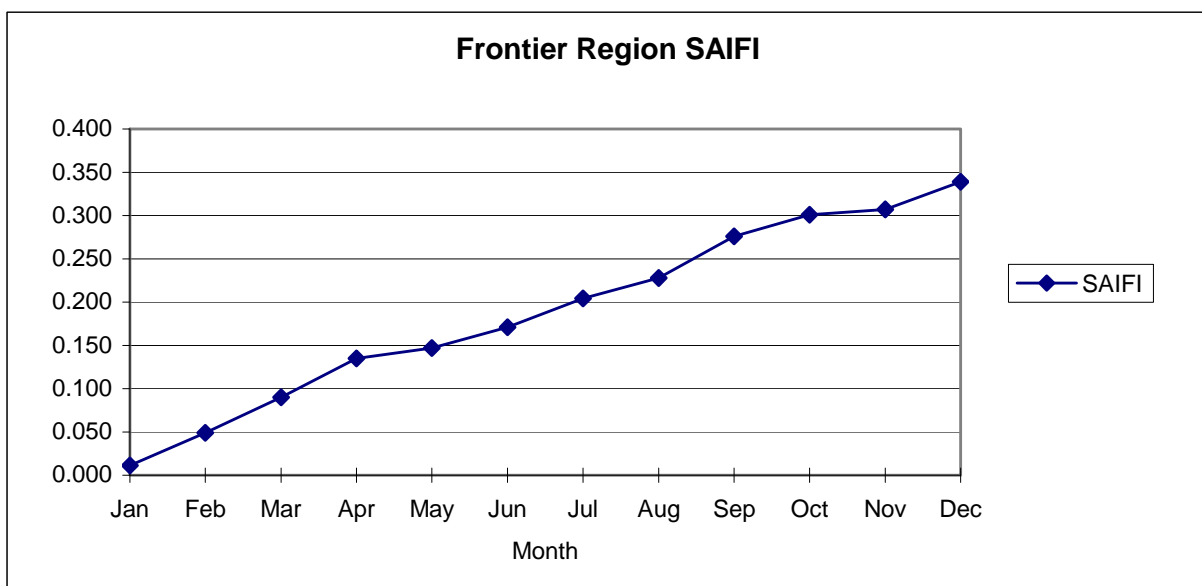
During nine months, CAIDI was below the 2008 PSC minimum goal of 1.75, with the best two months being November (1.05) and December (0.85). The three months that exceeded the goal were January (2.58), May (1.83), and August (1.84).

GRAPH OF MONTHLY CAIDI AND SAIFI FOR FRONTIER REGION



PSC CAIDI Goal:	
Minimum	1.75
2008 Actual	1.48

PSC SAIFI Goal:	
Minimum	0.60
2008 Actual	0.34



d. PSC CAUSE CODES

Cause Codes	Interruptions		Customers		Customer Hours	
	Number	% Total	Number	% Total	Number	% Total
(1) Major Storms	276	26.8	63,789	37.5	274,479	63.5
(2) Tree Contacts	113	11.0	11,475	6.7	25,797	6.0
(3) Overloads	13	1.3	392	0.2	425	0.1
(4) Oper. Error	3	0.3	3,803	2.2	1,178	0.3
(5) Equip. Failure	319	31.0	26,370	15.5	33,830	7.8
(6) Accidents	124	12.0	20,170	11.8	22,099	5.1
(7) Prearranged	10	1.0	2,028	1.1	1,436	0.3
(8) Cust. Equip.	8	0.7	677	0.4	797	0.2
(9) Lightning	61	5.9	4,438	2.6	10,896	2.5
(10) Unknown	103	10.0	37,073	21.8	61,359	14.2
Total	1,030	100.0	170,215	100.0	432,296	100.0

e. INTERRUPTION REVIEW BY PSC CAUSE CODES

Cause Code 01, “Major Storm”

There were three Major Storms in the Frontier Region during 2008. They were responsible for 26.8% of all interruptions, resulting in 37.5% of customers interrupted and 63.5% of customer hours interrupted. These were primarily high wind events which occurred January 9th, January 30th, and December 28th, with hurricane force gusts occurring on two of these events.

Cause Code 02, “Tree Contacts”

Tree Contacts were the fourth leading cause of interruptions in the Frontier Region during 2008. Tree contacts were responsible for 11% of all interruptions, 6.7% of all customers interrupted, and 6.0% of all customer hours interrupted (CHI) during the year. The number of interruptions attributed to tree contacts for 2008 (113) is 37.2% below the previous four-year average. The number of customers interrupted was 40.6% below average and customer-hours interrupted due to tree contacts was down 19.8%.

The Forestry Department is placing greater emphasis on hazard tree removal along the three-phase portions of the circuits in an attempt to reduce the number of large outages.

Hazard trees and limbs are now removed as part of the routine cycle pruning program to ensure that diseased and weakened trees off the right-of-way are removed at the time of pruning.

Cause Code 03, “Overloads”

There were 13 interruptions caused by Overloads in 2008. This is 74% below the four year average. Overloads account for only 0.2% of total interruptions and 0.1% of customers interrupted. When compared to the previous four-year averages the number of customers interrupted and customer hours interrupted due to overloads are down more than 95%.

Cause Code 04, “Operating Errors”

Three operating errors occurred in 2008 which accounted for 0.3% of incidents and caused 2% of customers interrupted.

Cause Code 05, “Equipment Failures”

The number of interruptions due to equipment failure was down 12% compared to the previous four-year average, and the customers interrupted and the customer hours interrupted (“CHI”) were down 65% and 48%, respectively. But equipment failures were still the leading cause of interruptions in the Frontier Region. Equipment failures were responsible for about one third of the total number of incidents and 16% of customers interrupted and 8% of customer hours interrupted. An incident on 8/20/08 caused 10% of the customer interruptions due to equipment failure in 2008. The incident occurred when a cable failure on F2164 caused a low side bus breaker to open interrupting F2167 and F2171. This resulted in an interruption to 2,568 customers for approximately one to one-and-one-half hours until the problem area was isolated and other feeders restored. The problem was due to temporary conditions during full station reconstruction. Permanent relay settings were established to prevent reoccurrence.

Cause Code 06, “Accidents”

The number of interruptions due to accidents was down 23.9% from the four year average, and number of customers interrupted and CHI were down 25% and 46%. But accidents were the third leading cause of interruptions during the year. Accidents were responsible for 12% of the incidents that occurred and 12% of the customer interruptions.

One notable accident occurred on 4/7/08 when a truck accident on Shawnee Road near the station broke a pole and caused the low side bank breaker to operate, locking out F7651, 7652, 7653 and F7654. This resulted in 4,074 customer interruptions and 4,399 CHI. Another noteworthy accident occurred on 10/16/08 when a motor vehicle accident on Electric Avenue caused a pole fire, locking out F5562 and interrupting 768 customers and causing another 1,536 CHI. These two events accounted for 24% of customers interrupted and 27% of CHI due to accidents in 2008.

Cause Code 07, “Prearranged”

There were 10 prearranged interruptions during 2008. These outages were responsible for only 1.0% of the total number of interruptions and had less than a 1.5% impact on both the total number of customers interrupted and the total CHI for the Region.

Cause Code 08, “Customer Equipment”

Customer equipment failures once again had a limited impact in the Region during 2008. There were 8 interruptions due to this cause which had less than a 1.0% impact on both the total number of customers interrupted and the total CHI for the Region.

Cause Code 09, “Lightning”

Lightning caused 61 interruptions in 2008, 16% less than the previous four-year average. The number of customer interruptions and CHI due to lightning were about 75% below average. August (25), June (14), and July (13) had the most interruptions due to lightning. The largest event in this category occurred on 8/19/08 on Ferry Avenue where lightning severely damaged the pole top on F8068, interrupting 824 customers and causing 3,667 CHI. This single event accounted for 19% of customer interruptions and 34% of CHI due to lightning in 2008.

Cause Code 10, “Unknown”

In 2008, 103 interruptions were attributed to “Unknown” causes. These interruptions were responsible for 10% of the total number of interruptions in the Frontier Region. The number of interruptions due to unknown causes was 28% above the previous four-year average. The number of customers interrupted was 37,073, and the number of CHI was 61,359, 270% above average.

The large increase in CI and CHI due to unknown causes could be due to an incorrect coding of some events caused by equipment failures. The Company is making a strong

effort through its Divisional Reliability Committee to ensure that all events are classified by cause code where possible to minimize use of the Unknown code. The Region will be especially vigilant in ensuring that the causes of large incidents are determined where possible.

2. OPERATING CIRCUIT LISTS

a. NATIONAL GRID WORST PERFORMING CIRCUIT LIST

This year the Frontier Region had no feeders on the 5% Worst Performing Feeder List.

b. NATIONAL GRID WORST PERFORMING CIRCUITS WITH 3 YEAR CAIDI AND SAIFI HISTORY

None for Frontier Region in 2008.

c. NATIONAL GRID WORST PERFORMING CIRCUITS BY # OF MOMENTARIES

No Circuit in the Frontier Region experienced more than 10 momentary interruptions in 2008.

d. WORST PERFORMING CIRCUIT ANALYSIS

None required.

3. ACTION PLAN SUMMARIES

a. SUMMARY OF ACTION PLANS FOR 2008 WORST PERFORMING CIRCUITS

None required.

b. SUMMARY OF ACTION PLANS FOR 2007 WORST PERFORMING CIRCUITS

Station	Feeder	Report Year	Action Plan	Projected Compl. Date	Cost	Comments
Swann Rd #105	10558	2008	Install new Recloser	2008	\$41,000	Completed 2/08
Swann Rd #105	10558	2008	Revise fusing per ERR	2008	\$22,000	Complete 10/08
Swann Rd #105	10552	2008	Full Cycle tree trimming of circuit & Hazard Tree removals	2008	\$67,000	Complete 12/08
Swann Rd #105	10552	2008	Revise fusing per ERR	2008	\$7,000	Design Complete, Schedule in FY10
Swann Rd#105	All	2008	Preliminary Engineering Study to upgrade 2 nd station Transformer Bank	2008	\$10,000	In Progress

Section F

F. GENESEE REGION

1. OPERATING REGIONAL PERFORMANCE

a. CAIDI AND SAIFI INDICES WITH HISTORY FROM 2004 TO 2008

	2008	2007	2006	2005	2004
CAIDI (Target 2.00)	1.96	1.65	1.67	2.06	1.78
SAIFI (Target 1.00)	1.05	1.12	0.92	1.19	1.61
SAIDI	2.05	1.85	1.54	2.45	2.87
Interruptions	1,121	1,225	995	1,182	1,047
Customers Interrupted	101,653	108,338	89,673	115,530	155,341
Customer Hours Interrupted	199,382	178,902	149,811	237,447	276,642
Customers Per Interruption	90.68	88.44	90.12	97.74	148.37
Availability Index	99.9760	99.9780	99.9820	99.9710	99.9670
Interruptions/1000 Customers	11.53	12.66	10.26	12.22	10.86

b. DISCUSSION OF REGIONAL PERFORMANCE

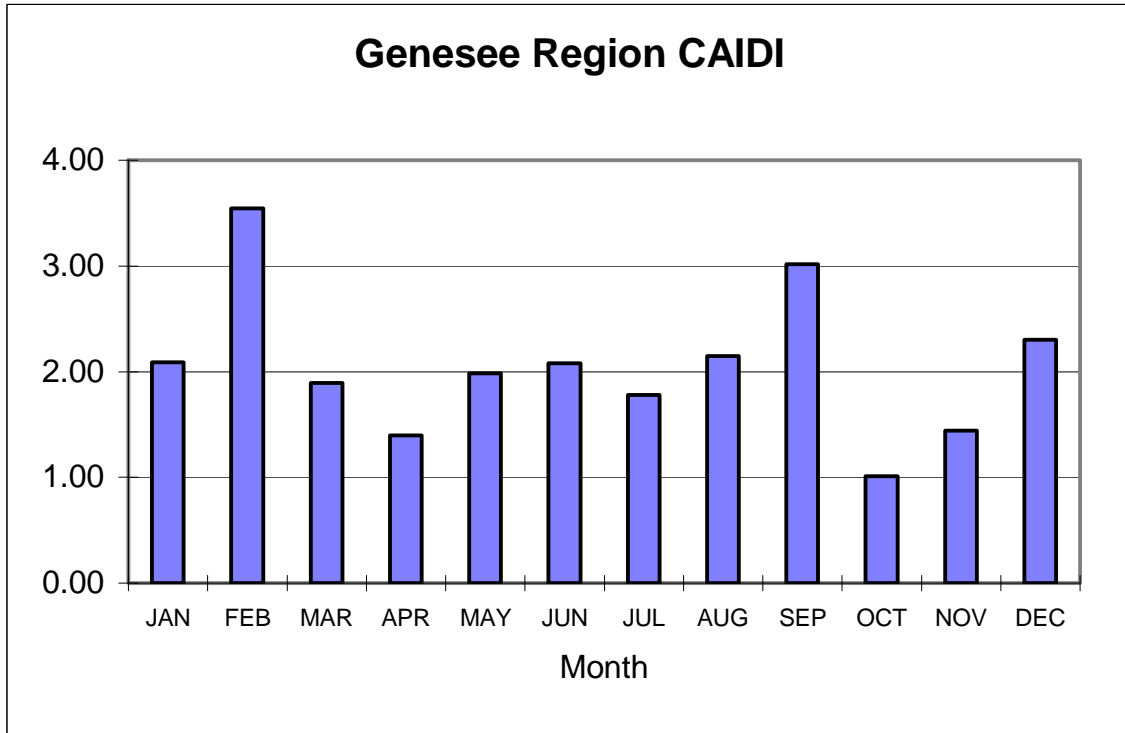
Reliability performance in the Genesee Region was mixed in 2008. The year-end restoration index (CAIDI) was 1.96 hours, below the PSC target of 2.00 for the third consecutive year but up 31 minutes from 2007. In contrast, SAIFI dropped 6% compared to 2007 and was 13% lower than the four-year average, but at 1.05, SAIFI was still above the PSC minimum target of 1.00.

c. MONTHLY CAIDI AND SAIFI GRAPHS

The graphs on the following page show the monthly CAIDI and SAIFI for the Genesee Region for 2008. Although CAIDI varied considerably from month to month and was especially high during the months of February and September, the annual CAIDI metric was below the PSC annual target of 1.96.

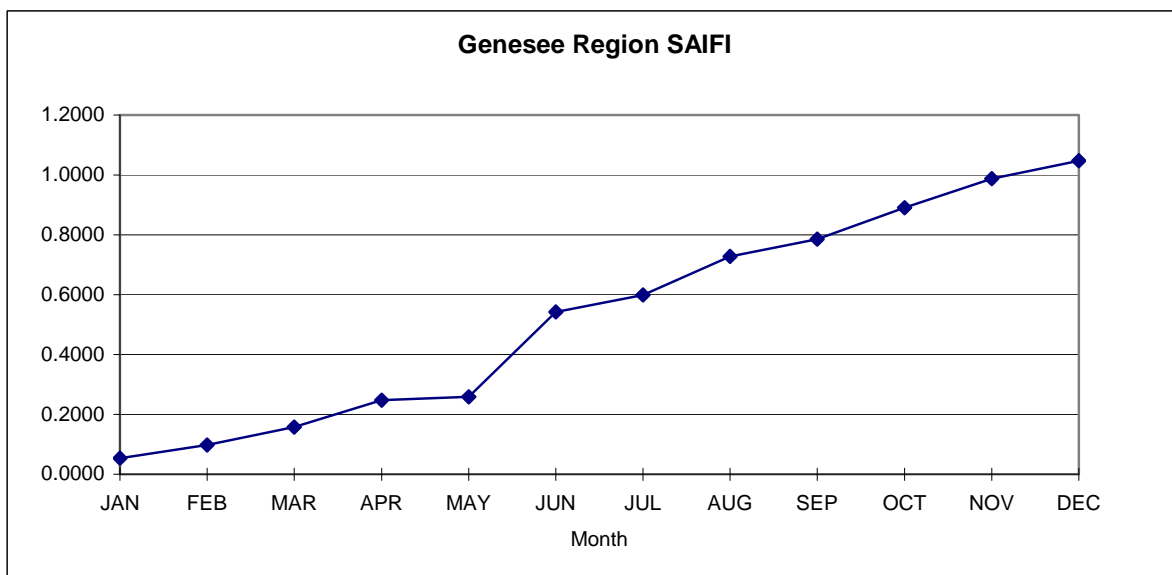
SAIFI showed the greatest increase during the months of June, August, and October, and these months accounted for almost half of the annual SAIFI metric in 2008. In contrast, the months of January, February, and May contributed only 11% to the Region's SAIFI in 2008.

GRAPH OF MONTHLY CAIDI AND SAIFI FOR GENESEE REGION



PSC CAIDI Goal:	
Minimum	2.00
2008 Actual	1.96

PSC SAIFI Goal:	
Minimum	1.00
2008 Actual	1.05



d. PSC CAUSE CODES

Cause Codes	Interruptions		Customers		Customer Hours	
	Number	% Total	Number	% Total	Number	% Total
(1) Major Storms	439	28.1	43,767	30.1	299,093	60.0
(2) Tree Contacts	177	11.3	14,415	9.9	36,738	7.4
(3) Overloads	3	0.2	24	0.0	17	0.0
(4) Oper. Error	1	0.1	303	0.2	328	0.1
(5) Equip. Failure	307	19.7	17,602	12.1	41,365	8.3
(6) Accidents	229	14.7	20,478	14.1	36,576	7.3
(7) Prearranged	10	0.6	2,515	1.7	2,344	0.5
(8) Cust. Equip.	1	0.1	2	0.0	4	0.0
(9) Lightning	267	17.1	12,505	8.6	29,006	5.8
(10) Unknown	126	8.1	33,809	23.2	53,005	10.6
Total	1,560	100	145,420	100	498,475	100

e. INTERRUPTION REVIEW BY PSC CAUSE CODES

Cause Code 01, “Major Storms”

In 2008, there were four (4) major storms in the Genesee Region that resulted in 439 interruptions. These major storms were responsible for 28% of all interruptions, 30% of customers interrupted (CI), and 60% of customers-hours interrupted (CHI) during the year. There was a 74.3% increase in the number of interruptions from the previous four years, and an 8.5% increase in customer hours interrupted over the previous four-year average.

These storms were primarily high wind events that occurred on January 9th, January 30th, September 14th, and December 28th. Hurricane force gusts were experienced during two of these events.

Cause Code 02, “Tree Contacts”

Tree contacts were the fifth greatest cause of interruptions in the Genesee Region during 2008, with 177 interruptions. They were responsible for 11% of all interruptions, 10% of all customers interrupted, and 7% of customer-hours interrupted during the year. The number of interruptions was 6% below the previous four-year average, the number of customers interrupted was 26% below the previous four-year average, and the CHI was 15% below the previous four-year average.

Cause Code 03, “Overloads”

Overloads accounted for three (3) interruptions during the year. Compared to 2007, the number of interruptions decreased by 50%. Overloads continue to represent less than 1% of customers interrupted and customer-hours interrupted for the region. The total number of interruptions in this category was 80% below the previous four-year average.

Cause Code 04, “Operator Error”

There was only one (1) operator error reported in 2008 which accounted for a negligible number of customers interrupted for the region. The number of interruptions in this category was 33% below the previous four-year average.

Cause Code 05, “Equipment Failures”

Equipment failures were the second largest cause of interruptions (307 interruptions) and were responsible for 20% of all interruptions, 12% of customers interrupted, and 8% of customer-hours interrupted. However, the number of interruptions was 12% less than in 2007 and 14% below the previous four-year average. The number of customers interrupted due to equipment failure was 36% lower than in 2007 and 54% below the previous four-year average.

On August 3rd, a clamp failed on Subtransmission Line #209 which de-energized two (2) substations: Station #19 Weathersfield and Station #23 Orangeville. This interrupted three (3) feeders with 1,226 customers resulting in 4,144 CHI, which accounts for 10% of the CHI due to equipment failure. This was the largest single failure when measured by CHI. The largest failure measured by customer count was on November 13th when a defective capacitor bank locked out Batavia feeder 0155. The 1,952 customers impacted by this event represent 11% of the CI for equipment failures.

Cause Code 06, “Accidents or Events Not Under the Utility’s Control”

Accidents or events not under utility’s control were the fourth largest interruption cause (229 interruptions) and were responsible for 15% of all interruptions, 14% of customers interrupted, and 7% of customer-hours interrupted. The number of interruptions due to accidents was 19% less than 2007 but comparable to the average of the previous four-years. The number of customers interrupted was 3% less than 2007 and is on a par with the previous four-year average. .

Most of the accidents or events beyond utility’s control are due to animals or motor vehicles. The largest event in this category occurred on September 22nd when a piece of mowing equipment caught and broke a guy wire, which caused an outage on Subtransmission Line #209. This de-energized two (2) substations: Station #19 Weathersfield and Station #23 Orangeville. This interrupted three (3) feeders, impacting

1,226 customers, and resulted in 10,081 CHI, which is 28% of CHI associated with accidents. The largest animal event was on August 3rd when a raccoon caused a station transformer fuse to blow at Sheppard Road Station 29 causing an interruption to 1,268 customers and resulting in 2,340 CHI.

Cause Code 07, “Prearranged”

There were ten (10) prearranged outages in 2008. These outages were responsible for only 0.6% of the total number of interruptions, 1.7% of the total number of customers interrupted, and 0.5% of the total customer-hours interrupted in the Genesee Region. Notably, the number of interruptions in this category was 29.8% below the previous four-year average.

Cause Code 08, “Customer Equipment”

Customer equipment failures caused only one interruption in the region in 2008. The overall impact for the number of interruptions, number of customers interrupted, and customers hours interrupted were each less than 1%. This resulted in a 84.0% decrease in CI and CHI from the previous four-year average.

Cause Code 09, “Lightning”

Lightning was the third largest cause of interruptions with 267 interruptions in 2008. Lightning strikes were responsible for 17% of all interruptions, 9% of all customers interrupted, and 6% of customer-hours interrupted during the year. The number of interruptions due to lightning was 37.5% above the previous four-year average. However, the number of customers interrupted was 43% below the previous four-year average. As one would expect, the months of June (80), July (75), and August (85) had the most interruptions due to lightning.

The largest event in this category occurred on August 5th, when a lightning strike locked out a portion of a transmission line supplying two (2) stations: Richmond Station 32 (three feeders) and Livonia Station 37 (three feeders). This accounted for approximately 5,041 customers being without power for periods ranging from one to two hours. This incident alone contributed 40% of customers interrupted to this category for the entire year.

Cause Code 10, “Unknown”

Unknown causes accounted for 126 interruptions in 2008. This category was responsible for 8% of all interruptions, 23% of all customers interrupted, and 11% of customer-hours interrupted during the year. The number of interruptions was 14% above the previous four-year average but the total number of customers interrupted was almost twice the

previous four-year average, and the total CHI was more than three times the previous four-year average.

This increase can be primarily attributed to an event on June 17th, when a high-side 115KV breaker operated for unknown reason, de-energizing all eight feeders at Batavia Station 01. This accounted for approximately 6,959 customers being without power for periods ranging from two to four hours until the station could be tested and restored to normal status. This incident caused approximately 20% of CI and 35% of CHI attributed to unknown causes for the Genesee Region in 2008.

2. OPERATING CIRCUIT LISTS

The next three (3) tables will provide the following information for the Genesee Region.

- a. Worst Performing Circuit List
- b. Worst Performing Circuits with 3 Year History for CAIDI & SAIFI Indices
- c. Worst Performing Circuits by # of Momentary Interruptions

a. NATIONAL GRID WORST PERFORMING CIRCUITS

GENESEE REGION

CIRCUIT #	A CUST. SERVED	B TOTAL INTER.	C # CUST. INTER.	D CUST. HRS. INTER.	D/A SAIDI	D/C CAIDI	C/A SAIFI	NUMBER OF MOMENT- ARIES
Richmond 3253	1,468	26	4,712	9,928	6.76	2.10	3.20	4
Weathersfield 2362	175	19	1,046	4,690	26.8	4.48	5.97	2
Orangeville 1961	654	17	2,109	12,810	19.58	6.07	3.22	2
Batavia 155	1,957	20	4,396	11,686	5.97	2.65	2.24	5
Richmond 3251	826	21	2,209	4,170	5.04	1.88	2.67	4
E. Golah 5152	1,259	22	2,754	5,761	4.57	2.09	2.18	4
Basom 1562	417	18	1,377	3,142	7.53	2.28	3.30	0
Shelby 7656	1,607	26	3,510	5,184	3.22	1.47	2.18	13
Royalton 9861	521	12	1,874	4,118	7.90	2.19	3.59	0
Royalton 9863	681	10	2,513	6,872	10.09	2.73	3.69	0
W. Hamlin 8254	2,230	28	3,625	7,194	3.22	1.98	1.62	1
Leroy 455	1,498	15	3,066	6,245	4.16	2.03	2.04	2
E. Batavia 2855	2,198	29	4,418	5,062	2.30	1.14	2.01	2
Weathersfield 2361	394	7	1,464	6,954	17.64	4.74	3.71	2

CAIDI Min. 2.00
SAIFI Min. 1.00

b. NATIONAL GRID WORST PERFORMING CIRCUITS WITH A 3 YEAR HISTORY FOR CAIDI AND SAIFI

GENESEE REGION

CIRCUIT #	2008 CAIDI	2007 CAIDI	2006 CAIDI	2005 CAIDI	2008 SAIFI	2007 SAIFI	2006 SAIFI	2005 SAIFI
Richmond 3253	2.10	0.59	2.36	2.55	3.20	2.43	0.63	1.20
Weathersfield 2362	4.48	3.07	7.62	5.36	5.97	2.43	0.53	1.66
Orangeville 1961	6.07	3.19	2.02	2.82	3.22	0.54	0.90	2.12
Batavia 155	2.65	0.85	1.43	1.04	2.24	1.27	1.13	1.87
Richmond 3251	1.88	1.79	2.60	2.15	2.67	2.79	0.01	2.22
E. Golah 5152	2.09	1.73	1.70	5.30	2.18	1.56	3.37	1.81
Basom 1562	2.28	2.13	4.64	2.05	3.30	1.32	0.61	1.05
Shelby 7656	1.47	1.91	3.15	4.67	2.18	0.40	1.32	0.23
Royalton 9861	2.19	0.98	2.47	N/A	3.59	0.09	0.04	N/A
Royalton 9863	2.73	5.17	2.59	2.81	3.69	0	0.75	0.78
W. Hamlin 8254	1.98	1.90	2.58	2.33	1.62	0.17	0.22	0.97
Leroy 455	2.03	1.54	0.21	0.59	2.04	1.14	1.07	1.18
E. Batavia 2855	1.14	0.90	0.88	2.51	2.01	3.00	2.48	1.00
Weathersfield 2361	4.74	2.52	4.55	2.33	3.71	4.00	0.52	0.67

NOTE: This table excludes feeders with fewer than two interruptions or serving less than 100 customers.

CAIDI Min. 2.00
SAIFI Min. 1.00

c. NATIONAL GRID WORST PERFORMING CIRCUITS BY # OF MOMENTARY INTERRUPTIONS

GENESEE REGION

Feeders			Customer Momentaries				Ranks		
Volts (kV)	Substation Name	Circuit Number	Substation	Transmission	Distribution	Total	Within Region	Within System	Reliability Ranking
4.8	Lima Sta. 36	3661	0	19	0	19	1	1	201
4.8	Lima Sta. 36	3662	0	19	0	19	1	1	381
13.2	Shelby	7656	0	2	11	13	3	2	61
13.2	Knapp Road	22652	0	3	7	10	5	3	567

This list consists of circuits that have 10 or more momentary outages.

d. WORST PERFORMING CIRCUIT ANALYSIS

This year the Genesee Region is reporting on fourteen (14) Worst Feeders. The list consists of Eight 13.2 kV feeders and Six 4.8 kV feeders.

For the Genesee Region, the PSC minimum CAIDI is 2.00 and the PSC minimum SAIFI is 1.00. The Genesee Region met the PSC minimum CAIDI with a 1.96 and barely exceeded the PSC minimum SAIFI with a 1.05.

1. RICHMOND 3253 13.2kV

Profile: 1,468 Customers, 60.1 Circuit Miles

Indices: CAIDI = 2.10, SAIFI = 3.20

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	10	37.0%	837	17.8%	3,163	31.8%
3	OVERLOADS	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	11	40.7%	802	17.0%	2,996	30.2%
6	ACCIDENTS	1	3.7%	30	0.6%	35	0.4%
9	LIGHTNING	3	11.2%	1,575	33.4%	3,004	30.2%
10	UNKNOWN	2	7.4%	1,468	31.2%	736	7.4%
	Totals	27	100%	4,712	100%	9,933	100%

Problem Analysis:

- In 2008 this feeder was The Company's 20th, worst feeder and the Genesee Region's worst feeder. This is the first time this feeder has appeared on the Genesee Region's worst feeder list in the past 5 years.
- On June 10, a fallen tree found on the circuit blew a primary fuse causing an outage to 730 customers for 4 hours.
- On August 5, lightning caused the Transmission Line to lockout a section; the resulting station outage impacted 1468 customers on this feeder for 2.32 hours.
- On September 12, an unknown event caused a feeder lockout leading to 1467 customer outages for 0.50 hours.

Action Plans:

- Full Distribution cycle tree trimming planned for 2009.
- An Engineering Reliability Review to be completed in FY10.
- Sub-T Line Inspection completed in 2008.
- Hazard tree removal was completed in 2007, removed 9 trees.

2. WEATHERSFIELD 2362 4.8kV

Profile: 175 Customers, 24.6 Circuit Miles

Indices: CAIDI = 4.48, SAIFI = 5.97

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	2	9.1%	40	3.8%	209	4.5%
3	OVERLOADS	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	12	54.6%	547	52.3%	2,723	58.0%
6	ACCIDENTS	3	13.6%	210	20.1%	1,616	34.4%
9	LIGHTNING	2	9.1%	9	0.9%	18	0.4%
10	UNKNOWN	3	13.6%	240	22.9%	125	2.7%
	Totals	22	100%	1046	100%	4690	100%

Problem Analysis:

- In 2008 this feeder was The Company's 24th, worst feeder and the Genesee Region's 2nd worst feeder. This is the first time this feeder has appeared on the Genesee Region's worst feeder list in the past 5 years.
- On February 3, a defective regulator caused the station feeder breaker to be opened for emergency repair, which resulted in an outage to 170 customers for approximately 6 minutes.
- On August 3, a clamp failed on Sub-T Line 209 causing station outage impacting 175 customers for 3.38 hours.
- On September 22, a mower (vehicle) caught a guy wire and tripped Sub-T Line 209 causing station outage resulting in 175 customers being out on this feeder for 8.22 hours.

Action Plans:

- Full Distribution cycle tree trimming planned for 2009.
- Hazard tree removal was completed in 2008, 4 trees removed.
- Sub-T Cycle tree trimming completed in 2007.

3. ORANGEVILLE 1961 4.8kV

Profile: 654 Customers, 63.5 Circuit Miles

Indices: CAIDI = 6.07, SAIFI = 3.22

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	4	21.1%	74	3.5%	215	1.7%
3	OVERLOADS	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	5	26.3%	1,259	59.7%	6,839	53.4%
6	ACCIDENTS	1	5.3%	654	31.0%	5,376	42.0%
9	LIGHTNING	7	36.8%	43	2.0%	174	1.3%
10	UNKNOWN	2	10.5%	79	3.8%	205	1.6%
	Totals	19	100%	2,109	100%	12,809	100%

Problem Analysis:

- In 2008 this feeder was The Company's 25th, worst feeder and the Genesee Region's 3rd worst feeder. This is the second time this feeder has appeared on the Genesee Region's worst feeder list in the past 5 years.
- On February 2, a Sub-T connector failed on Line 209 causing the station to be de-energized which resulted in an outage to 655 customers for 8.08 hours.
- On August 3, a clamp failed on Sub-T Line 209 causing station outage resulting in an outage to 655 customers on this feeder for 3.38 hours.
- On September 22, a mower (vehicle) caught a guy wire and tripped Sub-T Line 209 causing station outage resulting in 654 customers being out on this feeder for 8.22 hours.

Action Plans:

- Full Distribution cycle tree trimming expected in 2010.
- Feeder Hardening program FY08, additional fusing recommended & installed.
- Sub-T Cycle tree trimming completed in 2007.

4. BATAVIA 0155 13.2kV

Profile: 1,957 Customers, 48.4 Circuit Miles

Indices: CAIDI = 2.65, SAIFI = 2.24

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	1	4.8%	25	0.6%	3	0.0%
3	OVERLOADS	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	7	33.3%	2,031	46.2%	2,874	24.6%
6	ACCIDENTS	2	9.5%	105	2.4%	43	0.4%
9	LIGHTNING	10	47.6%	290	6.6%	1,116	9.6%
10	UNKNOWN	1	4.8%	1,945	44.2%	7,644	65.4%
	Totals	21	100%	4,396	100%	11,680	100%

Problem Analysis:

- In 2008 this feeder was The Company's 35th worst feeder and the Genesee Region's fourth worst feeder. This is the first time this feeder has appeared on the Genesee Region's worst feeder list in the past 5 years.
- On June 17, an unknown event caused 115kV breaker to open, de-energizing Batavia Sta. 01, this resulted in an outage to 1945 customers on this feeder for 4.33 hours while equipment was tested and re-energized.
- On November 13, a defective capacitor bank on Pearl Street caused a station lockout, resulted in an outage to 1952 customer for 1.30 hours.

Action Plans:

- Feeder Hardening was completed on this feeder in FY09, additional fusing recommended & installed.
- Distribution Line Inspection was completed in 2008.

5. RICHMOND 3251 13.2kV

Profile: 826 Customers, 63.5 Circuit Miles

Indices: CAIDI = 1.88, SAIFI = 2.67

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	8	36.4%	126	5.7%	460	11.0%
3	OVERLOADS	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	6	27.2%	1,025	46.4%	1,609	38.6%
6	ACCIDENTS	2	9.1%	41	1.8%	43	1.0%
9	LIGHTNING	4	18.2%	832	37.7%	1,608	38.5%
10	UNKNOWN	2	9.1%	185	8.4%	453	10.9%
	Totals	22	100%	2,209	100%	4,172	100%

Problem Analysis:

- In 2008 this feeder was The Company's 46th, worst feeder and the Genesee Region's fifth worst feeder. This is the first time this feeder has appeared on the Genesee Region's worst feeder list in the past 5 years.
- On August 5, lightning caused the Transmission Line to lockout a section; the resulting station outage impacted 826 customers on this feeder for 2.32 hours.
- On November 25, a potted porcelain insulator failure at a transformer on Country Rd locked out the circuit causing an outage to 826 customers for 1.18 hours.

Action Plans:

- An Engineering Reliability Review to be completed in FY10.
- Sub-T Line Inspection completed in 2008.
- Full Distribution cycle tree trimming was completed in 2006.

6. EAST GOLAH 05152 13.2kV

Profile: 1,259 Customers, 50.3 Circuit Miles

Indices: CAIDI = 2.09, SAIFI = 2.18

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	1	6.7%	20	0.9%	74	3.0%
5	EQUIPMENT	2	13.3%	4	0.2%	18	0.7%
6	ACCIDENTS	4	26.7%	44	2.0%	44	1.8%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	5	33.3%	826	37.9%	1,365	54.5%
10	UNKNOWN	3	20.0%	1,287	59.0%	1,003	40.0%
	Totals	15	100%	2,181	100%	2,504	100%

Problem Analysis:

- In 2008 this feeder was The Company's 48th worst feeder and the Genesee Region's sixth worst feeder. This is the fourth time this feeder has appeared on the Genesee Region's worst feeder list in the past 5 years.
- On June 10, an unknown event forced an emergency repair work on downed wires. This event interrupted 1260 customers for 0.77 hours.
- On July 17, a lightning strike burned down a primary conductor resulting in an outage to 300 customers for 1.08 hours.

Action Plans:

- Feeder Hardening to be complete in FY10 & additional sub-tap fusing to be installed
- Feeder rebuild, conversion, and reconfiguration were completed in 2006 on several of the East Golah feeders, which included this feeder 5152, for load relief and reliability improvements.
- A recloser was installed on the feeder in 2006 (FY07).
- In 2006, an Engineering Reliability Review was conducted for the feeder which resulted in additional mainline protective fusing of laterals completed in FY08.
- There are no significant tree issues.
- Distribution Line inspection scheduled for 2010.

7. BASOM 1562 4.8kV

Profile: 417 Customers, 32.1 Circuit Miles

Indices: CAIDI = 2.28, SAIFI = 3.30

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	2	10.5%	46	3.3%	77	2.5%
3	OVERLOADS	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	4	21.1%	97	7.0%	234	7.4%
6	ACCIDENTS	2	10.5%	491	35.7%	1,627	51.8%
9	LIGHTNING	9	47.4%	325	23.6%	648	20.6%
10	UNKNOWN	2	10.5%	418	30.4%	558	17.7%
	Totals	19	100%	1,377	100%	3,143	100%

Problem Analysis:

- In 2008 this feeder was The Company's 53rd, worst feeder and the Genesee Region's seventh worst feeder. This is the first time this feeder has appeared on the Genesee Region's worst feeder list in the past 5 years.
- On August 11, a Sub-T line 227 N. Akron-Oakfield tripped open causing a station outage impacting 415 customers on this feeder for 1.30 hours.
- On September 13, a vehicle accident tripped the station breaker resulted in an outage to 416 customers for 3.17 hours.

Action Plans:

- Full Distribution cycle tree trimming was completed in 2007.
- Distribution Line inspection scheduled for 2009.
- Sub-T Line inspection scheduled for 2009

8. SHELBY 7656 13.2kV

Profile: 1,607 Customers, 63.9 Circuit Miles

Indices: CAIDI = 1.47, SAIFI = 2.18

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	4	15.4%	60	1.7%	110	2.1%
3	OVERLOADS	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	5	19.2%	301	8.6%	819	15.8%
6	ACCIDENTS	7	26.9%	2,034	57.9%	2,621	50.6%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	7	26.9%	807	23.0%	1,265	24.4%
10	UNKNOWN	2	7.7%	5	0.1%	41	0.8%
	Totals	26	100%	3,510	100%	5,183	100%

Problem Analysis:

- In 2008 this feeder was The Company's 61st worst feeder and the Genesee Region's 8th worst feeder. This is the second time this feeder has appeared on the Genesee Region's worst feeder list in the past 5 years.
- On July 7, a lightening strike burned off a single tap at a switch on Bates Rd, resulting in an outage to 723 customers for 1.42 hours.
- On October 31, a vehicle accident damaged a pole causing a feeder lockout, resulting in an outage to 1599 customers for 1.28 hours.

Action Plans:

- A new recloser is planned for installation in 2009.
- An Engineering Reliability Review to be completed in FY10.
- Hazard tree removal was completed in 2006, 26 trees removed.
- Full Distribution cycle tree trimming was last completed in 2006

9. ROYALTON 9861 4.8kV

Profile: 521 Customers, 28.7 Circuit Miles

Indices: CAIDI = 2.19, SAIFI = 3.59

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	2	14.3%	522	27.8%	2,337	56.7%
3	OVERLOADS	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	3	21.4%	303	16.2%	741	18.0%
6	ACCIDENTS	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	6	42.9%	9	0.5%	19	0.5%
10	UNKNOWN	3	21.4%	1,040	55.5%	1,021	24.8%
	Totals	14	100%	1,874	100%	4,118	100%

Problem Analysis:

- In 2008 this feeder was The Company's 69th, worst feeder and the Genesee Region's 9th worst feeder. This is the first time this feeder has appeared on the Genesee Region's worst feeder list in the past 5 years.
- On November 16, an unknown event led to a Sub-T sectionalizer lock out on line 312 causing a station outage to 518 customers on this feeder for 1.12 hours.
- On November 16, Sub-T sectionalizer on line 312 locked out a 2nd time and it was determined to be a failure in control equipment, caused another station causing outage impacting 518 customers on this feeder for 1.2 hours.
- On December 27, a fallen tree found on a Sub-T Line 312 caused a sectionalizer lock out, resulted in outage to 521 customers on this feeder for 4.5 hours.

Action Plans:

- Full Distribution cycle tree trimming is expected in 2010.
- Sub-T tree trimming is expected in 2010.

10. ROYALTON 9863 4.8kV

Profile: 681 Customers, 43.1 Circuit Miles
Indices: CAIDI = 2.73, SAIFI = 3.69

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	4	30.8%	716	28.6%	3,196	46.5%
3	OVERLOADS	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	5	38.5%	976	38.8%	2,514	36.6%
6	ACCIDENTS	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	1	7.7%	1	0.0%	1	0.0%
10	UNKNOWN	3	23.0%	820	32.6%	1,159	16.9%
	Totals	13	100%	2,513	100%	6,870	100%

Problem Analysis:

- In 2008 this feeder was The Company's 72nd, worst feeder and the Genesee Region's 10th worst feeder. This is the first time this feeder has appeared on the Genesee Region's worst feeder list in the past 5 years.
- On November 16, an unknown event led to a Sub-T sectionalizer lock out on line 312 causing a station outage impacting 680 customers on this feeder for 1.12 hours.
- On November 16, Sub-T sectionalizer on line 312 locked out a 2nd time and it was determined to be a failure in control equipment, caused another station causing outage impacting 680 customers on this feeder for 3.8 hours.
- On December 27, a fallen on a Sub-T line 312 locked out sectionalizer causing outage at station impacting 681 customers on this feeder for 4.5 hours.

Action Plans:

- Full Distribution cycle tree trimming was completed in 2006
- Sub-T tree cycle trimming is expected in 2010.

11. W. HAMLIN 8254 13.2kV

Profile: 2,230 Customers, 105.4 Circuit Miles

Indices: CAIDI = 1.98, SAIFI = 1.62

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	5	17.2%	465	12.8%	1,822	25.3%
3	OVERLOADS	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	8	27.6%	214	5.9%	537	7.5%
6	ACCIDENTS	8	27.6%	51	1.4%	240	3.3%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	7	24.2%	675	18.6%	2,487	34.6%
10	UNKNOWN	1	3.4%	2,220	61.3%	2,109	29.3%
	Totals	29	100%	3,625	100%	7,195	100%

Problem Analysis:

- In 2008 this feeder was The Company's 73rd worst feeder and the Genesee Region's 11th worst feeder. This is the second time this feeder has appeared on the Genesee Region's worst feeder list in the past 5 years.
- On June 14, an unknown event occurred on a T- line #113 locking out a section and de-energizing the station, causing outage to 2220 customers on this feeder for 1.35 hours.

Action Plans:

- Distribution Line inspection completed in 2008.
- An Engineering Reliability Review was completed in 2007, which recommended additional fusing to be installed which was completed in 2008.
- Distribution Line Inspection was completed in 2008.
- Hazard tree removal was completed in 2008, 11 trees removed.
- Full Distribution cycle tree trimming was completed in 2006

12. LEROY 0455 13.2kV

Profile: 1,498 Customers, 35.4 Circuit Miles

Indices: CAIDI = 2.03, SAIFI = 2.04

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	3	20.0%	1,526	49.8%	3,794	60.7%
3	OVERLOADS	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	3	20.0%	91	3.0%	101	1.6%
6	ACCIDENTS	5	33.3%	1,288	42.0%	1,674	26.8%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	3	20.0%	160	5.2%	676	10.8%
10	UNKNOWN	1	6.7%	1	0.0%	4	0.1%
	Totals	15	100%	3,066	100%	6,249	100%

Problem Analysis:

- In 2007 this feeder was The Company's 80th worst feeder and the Genesee Region's 12th worst feeder. This is the first time this feeder has appeared on the Genesee Region's worst feeder list in the past 5 years.
- On March 19, a fallen tree knocked down two primary conductors causing a station lockout, resulted in outage to 1493 customers for 2.47 hours.

Action Plans:

- Full Distribution cycle tree trimming scheduled for 2009.
- Sub-T tree cycle trimming was completed in 2008.
- One new recloser was installed in 2008.
- Hazard tree removal was completed in 2008, 12 trees removed.

13. EAST BATAVIA 02855 13.2kV

Profile: 2,198 Customers, 85.3 Circuit Miles

Indices: CAIDI = 1.14, SAIFI = 2.01

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	5	17.2%	64	1.4%	128	2.5%
3	OVERLOADS	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	9	31.0%	893	20.2%	1,579	31.3%
6	ACCIDENTS	7	24.2%	2,936	66.5%	2,707	53.5%
9	LIGHTNING	6	20.7%	57	1.3%	98	1.9%
10	UNKNOWN	2	6.9%	468	10.6%	546	10.8%
	Totals	29	100%	4,418	100%	5,058	100%

Problem Analysis:

- In 2008 this feeder was The Company's 83rd worst feeder and the Genesee Region's 13th worst feeder. This is the second time this feeder has appeared on the Genesee Region's worst feeder list in the past 5 years.
- On March 5, a pole fire caused crew to de-energize line for emergency repair work causing outage to 2204 customers for 0.7 hours.

Action Plans:

- In 2006, an Engineering Reliability Review was conducted, which resulted in the installation of a recloser and additional mainline protective fusing of laterals in FY08 to increase reliability.
- Feeder Hardening was completed on this feeder in FY08, which included additional fusing.
- Full cycle tree trimming is expected in 2010.
- Hazard tree removal was completed in 2007, 13 trees removed.

14. WEATHERSFIELD 2361 4.8kV

Profile: 394 Customers, 46.3 Circuit Miles

Indices: CAIDI = 4.74, SAIFI = 3.71

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	0	0.0%	0	0.0%	0	0.0%
3	OVERLOADS	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	6	66.7%	666	45.5%	2,358	33.9%
6	ACCIDENTS	1	11.1%	397	27.1%	3,263	46.9%
9	LIGHTNING	0	0.0%	0	0.0%	0	0.0%
10	UNKNOWN	1	11.1%	10	0.7%	9	0.1%
	Totals	9	100%	1,464	100%	6,953	100%

Problem Analysis:

- In 2008 this feeder was The Company's 95th, worst feeder and the Genesee Region's last of worst feeders. This is the first time this feeder has appeared on the Genesee Region's worst feeder list in the past 5 years.
- On August 3, a clamp failed on Sub-T Line 209 causing station outage impacting 396 customers for 3.38 hours.
- On September 22, a mower (vehicle) caught a guy wire and tripped Sub-T Line 209 causing station outage resulting in 397 customers being out on this feeder for 8.22 hours.

Action Plans:

- Full cycle tree trimming was completed in 2006.
- Sub-T Cycle tree trimming completed in 2007.

3. ACTION PLAN SUMMARIES

a. SUMMARY OF ACTION PLANS FOR 2008 WORST PERFORMING CIRCUITS

Station	Feeder	Report Year	Action Plan	Projected Compl. Date	Estimated Cost	Comments
Richmond	3253	2009	Distribution Cycle Tree Trimming	2009	\$150,000	To be completed in FY10
Richmond	3253	2009	Perform Engineering Reliability Review	2009	\$1,000	To be completed in FY10
Weathersfield	2362	2009	Distribution Cycle Tree Trimming	2009	\$75,000	To be completed in FY10
Batavia	155	2009	FY09 Feeder Hardening, additional fusing	2008	\$17,000	Completed 4/08
Batavia	155	2009	Distribution Line Inspection	2008	\$5,000	Completed 4/08
Richmond	3251	2009	Perform Engineering Reliability Review	2009	\$1,000	To be completed in FY10
East Golah	5152	2009	Feeder Hardening in FY10 & added fusing	2009	\$10,000	To be completed in FY10
Basom	1562	2009	Distribution Line Inspection	2009	\$4,500	To be completed in FY10
Shelby	7656	2009	Install New Recloser	2009	\$41,000	To be completed in FY10
Shelby	7656	2009	Perform Engineering Reliability Review	2009	\$1,000	To be completed in FY10
Leroy	0455	2009	Cycle Tree Trimming	2009	\$100,000	To be completed in FY10

b. STATUS OF PREVIOUSLY PROPOSED ACTION PLANS FOR 2007 WORST PERFORMING CIRCUITS

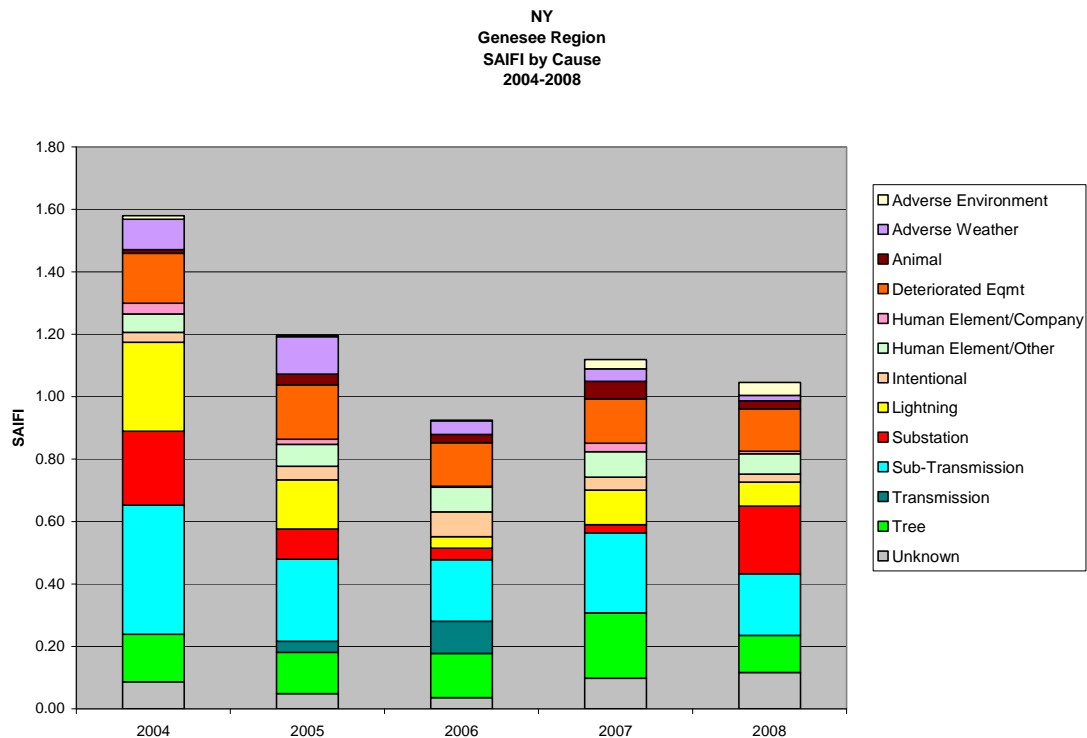
Station	Feeder	Report Year	Action Plan	Projected Compl. Date	Estimated Cost	Comments
East Golah	5156	2008	Install 4 new Reclosers, per ERR	2008	\$164,000	Completed 2/08
East Golah	5156	2008	Install Revised Fusing, per ERR	2009	\$71,300	Design Pending, To be completed in FY10
East Golah	5156	2008	Hazard Tree Review	2008	\$81,100	Completed in 2008 – 128 trees removed
Mumford	5053	2008	Install new Reclosers, per ERR	2008	\$41,000	Completed 12/07
Mumford	5053	2008	Install Revised Fusing, per ERR	2008	\$13,800	Completed in 4/08
Mumford	5053	2008	Cycle Tree Trimming & Hazard Tree Removal	2009	\$269,760	Cycle Trim In-progress, Haz Trees identified for completion in FY10
East Batavia	2855	2008	Hazard Tree Review	2008	\$34,300	Completed in 2008 – 36 trees removed
Brockport	7452	2008	Install 2 new Reclosers, per Feeder Hardening	2008	\$82,000	Completed 12/07
Brockport	7452	2008	Install sub-lateral fusing, per Feeder Hardening	2008	\$44,900	Completed 5/08
Knapp Road	22652	2008	Perform Engineering Reliability Review	2008	\$1,000	Completed 9/08
Geneseo	5552	2008	Hazard Tree Review	2008	\$10,400	Completed in 2008 – 15 trees removed
Geneseo	5552	2008	Install new Reclosers, per ERR	2008	\$41,000	Completed 1/08
Geneseo	5552	2008	Install Revised Fusing, per ERR	2008	\$39,200	Completed 1/08

4. OPERATING REGION PERFORMANCE BELOW MINIMUM

a. MAINTENANCE HISTORY AND ANALYSIS OF FACTORS WHICH CAUSED THE BELOW MINIMUM PERFORMANCE

The Genesee Region's SAIFI of 1.05 was 6% lower than the metric in 2007 and 13% below the average of the previous four years. The number of customers interrupted (101,653) was below the previous four years average by 13%, but the SAIFI metric was higher than the PSC target of 1.00.

The Company fell short of its SAIFI objective mainly due to two interruptions in substations that seem to be much more the exception than the rule. As shown in the following chart, most of the factors that drove SAIFI higher in 2007, tree-contacts, deteriorated equipment, lightning, and sub-transmission problems, were all more subdued in 2008. But the reverse holds true for substations. Substation problems were a much larger SAIFI driver in 2008 than in recent years. Indeed, in the absence of two large substation interruptions in 2008, the Company would have met the PSC target for SAIFI in the Genesee Region. .



The largest event occurred on June 17th, when a high-side 115KV breaker operated for unknown reason, de-energizing all eight feeders at Batavia Station 01. This accounted for approximately 6,959 customers being without power for periods ranging from two to four

hours until the station could be tested and restored to normal status. This incident alone contributed 0.072 to the SAIFI for 2008, or 6.8% for the entire year.

The local operations personnel later reported that the substation outage that occurred at the Batavia #01 Substation was due to an internal failure in the No. 1 Transformer Bank (TB1) while the No. 5 Transformer Bank (TB5) was out of service for scheduled maintenance. The resulting outage due to this equipment failure affected all eight (8) connected feeders. The station crews were called out and quickly restored the station with TB5 and re-energized the feeders.

The other major substation event occurred August 5th, when a lightning strike locked out a portion of a transmission line supplying two stations: Richmond Station 32 (three feeders) and Livonia Station 37 (three feeders). This accounted for approximately 5,041 customers being without power for periods ranging from one to two hours. This incident alone contributed 0.052 to the SAIFI for 2008 or 4.9% for the entire year.

b. PLANNED PROGRAMS OR PLANNED CORRECTIVE ACTIONS AND PROPOSED IMPROVEMENTS TO THE PERFORMANCE INDICES

The ongoing rigor of the Company's substation inspection and maintenance program minimizes the likelihood that the Company will experience similar events in 2009.

In 2008, the substation maintenance team in NY West performed 412 circuit breaker diagnostic tests, 211 circuit breaker mechanism checks, and 37 load tap changer internal inspections. Dissolved gas analysis was performed on 423 load tap changer units and 538 transformers. Transformer oil quality testing was performed on 119 units and transformer diagnostic tests were performed on 51 units. Disconnect mechanism inspections were performed on 97 devices and circuit switcher mechanism inspections were performed on three devices. Thermographic inspections were performed at 295 stations. There were 1,677 security inspections performed. Battery and charger diagnostic tests were performed on 195 installations. The Relay Groups in NY West completed calibration/inspections on 394 relay packages and 49 communication packages. Functional testing on 226 relay packages was also completed. Any problems that were identified were then repaired as soon as possible, resulting in an immediate improvement in reliability performance.

A similar number of maintenance activities will be performed in 2009. This work will be identified, prioritized and tracked in the Company's PBM/AIMMS system discussed in the summary to this report. These ongoing maintenance activities on substations will help to minimize the likelihood for further problems in substations

Meanwhile the Company expects that its ongoing Reliability Enhancement Program will also help the Company achieve its SAIFI target in 2009. Key components of this plan are the feeder hardening and engineering reliability reviews. Feeder hardening involves

targeted asset replacements (e.g. cross arms, cutout switches, and poles), increased animal protection, additional grounding and surge protection to enhance lightning performance, and increased switching flexibility. For the 2010 fiscal year, there are four feeders in the Genesee Region that will be addressed in this effort: East Golah 5152, Geneseo 5551, Mumford 5051, and Richmond 3252.

Unlike the feeder hardening programs, the engineering reliability reviews involve more comprehensive feeder studies that will identify the following opportunities for reliability improvements: protective device coordination, additional circuit branching, balancing activities, installation of additional feeder ties and/or feeder rearrangements, system upgrades, and replacement of equipment in poor/obsolete condition. For the 2010 fiscal year, there are five feeders in the Genesee Region that will be addressed in this effort: East Golah 5155, Knapp Road 22652, York Center 5351, Brockport 7451, and West Hamlin 8251.

Lastly, the Genesee Region T & D Department conducted distribution patrols on seventy-eight (78) distribution circuits to identify lines and poles that were in need of immediate maintenance. The completion of this preventative maintenance should further help the Company to achieve its SAIFI objective for the Genesee Region in 2009.

Section G

G. MOHAWK VALLEY REGION

1. OPERATING REGIONAL PERFORMANCE

a. CAIDI AND SAIFI INDICES WITH HISTORY FROM 2004 TO 2008

	2008	2007	2006	2005	2004
CAIDI (Target 2.50)	2.28	2.51	2.13	2.50	2.36
SAIFI (Target 1.20)	1.13	1.27	1.06	1.85	1.26
SAIDI	2.57	3.21	2.25	4.63	2.98
Interruptions	1,674	1,901	1,498	1,647	1,598
Customers Interrupted	151,760	172,654	142,895	249,882	170,119
Customers Hours Interrupted	346,610	433,503	303,821	625,067	401,301
Customers Served	134,890	135,003	135,161	135,098	134,532
Customers Per Interruption	90.66	90.82	95.39	151.72	106.46
Availability Index	99.9707	99.9630	99.9740	99.9821	99.9650
Interruptions/1000 customers	12.41	14.08	11.08	12.19	11.88

b. DISCUSSION OF REGIONAL PERFORMANCE

The Mohawk Valley regional statistics for 2008 show an improvement when compared to the 2007 statistics for all measures. The 2008 year-end restoration index (CAIDI) was 2.28 hours of interruption per customer affected. This was below the PSC minimum goal of 2.50 by 8.8%. The CAIDI for 2008 was the second lowest for the five-year period ranging from 2004 through 2008. Additionally, during this same five-year period, CAIDI averaged 2.36, which was also below the regional PSC goal for CAIDI.

The region also met the target for SAIFI set forth by the PSC for 2008. The year-end frequency index (SAIFI) was 1.13 customers interrupted per customer served. This was below the PSC target for SAIFI of 1.20. The SAIFI for 2008 was also lower than the five-year average value of 1.31 (2004-2008).

The year-end SAIDI index shows an improvement in results for the regional average interruption duration index for 2008. The SAIDI for 2008 of 2.57 indicates a 20% improvement in reliability when compared to the 2007 results, and an 18% improvement when compared to the five-year average for SAIDI of 3.13.

The total number of Customers Interrupted of 151,760 for the Mohawk Valley Region for 2008 was the second lowest for the five-year period ranging from 2004 to 2008. It was also less than the five-year average of 177,462 by 15%, and less than 2007 by 12%.

The total number of Customer Hours Interrupted for the Mohawk Valley Region for 2008 of 346,610 was also the second lowest for the five-year period from 2004 to 2008. The number of Customer Hours Interrupted was less than the five-year averaged of 422,060 by 18%, and less than 2007 by 20%.

In 2008, the Mohawk Valley Region experienced several severe weather conditions that resulted in extended customer outages. Four of these incidents qualified as major storms under the PSC criteria-- comparable to the annual number of storms in the previous four-year period. The region experienced three major storms in 2004 and 2007 and four major storms in 2005 and 2006. .

The region experienced a total of 1,674 outages in 2008, fifteen of which occurred on the transmission facilities (compared to eleven during 2007). The transmission-related outages alone resulted in 34,043 (vs. 43,807 in 2007) customers interrupted and 70,999 (vs. 124,164 in 2007) customer hours interrupted. These transmission-related interruptions accounted for over 22% of the total customers interrupted and 20% of the total customer hours interrupted for the Mohawk Valley Region for 2008. These figures represent a CAIDI of 0.47 and SAIFI of 0.25 for the region in 2008.

Transmission interruptions on the Boonville-Raquette Lake, 46kV radial transmission line, serving five distribution substations in the Adirondack Park Area, contributed to the region's transmission-related interruptions. This line is located in a remote area, where any type of tree trimming or tree removal is strictly enforced by the Adirondack Park Authority (APA). National Grid continues to work with the authority to maximize the value of tree trimming on the line. Typical causes of interruptions on the Boonville-Raquette Lake transmission line include tree contact, deterioration of the conductors or insulators, prearranged outages for NYSDOT road work, and vehicles hitting and knocking down transmission poles.

The Boonville-Raquette Lake, 46kV radial transmission line accounted for eleven (out of fifteen), or 73% of the total number of transmission-related outages that occurred in 2008. These outages accounted for 23,480 (69%) of the total customers interrupted and 60,889 (86%) of the total customer hours interrupted due to transmission-related outages in the Mohawk Valley Region for 2008. This radial transmission line contributed 0.17 to the region's SAIFI for 2008 and 0.40 to CAIDI. There were also four interruptions of unknown origin on the Old Forge-Raquette Lake #22 (46kV) transmission line in 2008; however, two occurred during weather events.

The Trenton-Middleville #24, 46kV transmission line accounted for one (out of fifteen) transmission-related outage in 2008. This outage accounted for 3,578

customers interrupted and 1,288 customer hours interrupted for 2008, which is down considerably from the previous year.

There were four (4) substation interruptions in 2008. These interruptions accounted for 14,824 (10%) customers interrupted and 64,691 (19%) customer hours interrupted. Overall, the figures for substation-related outages alone represented 0.43 of the total CAIDI and 0.11 of the total SAIFI for the region for 2008.

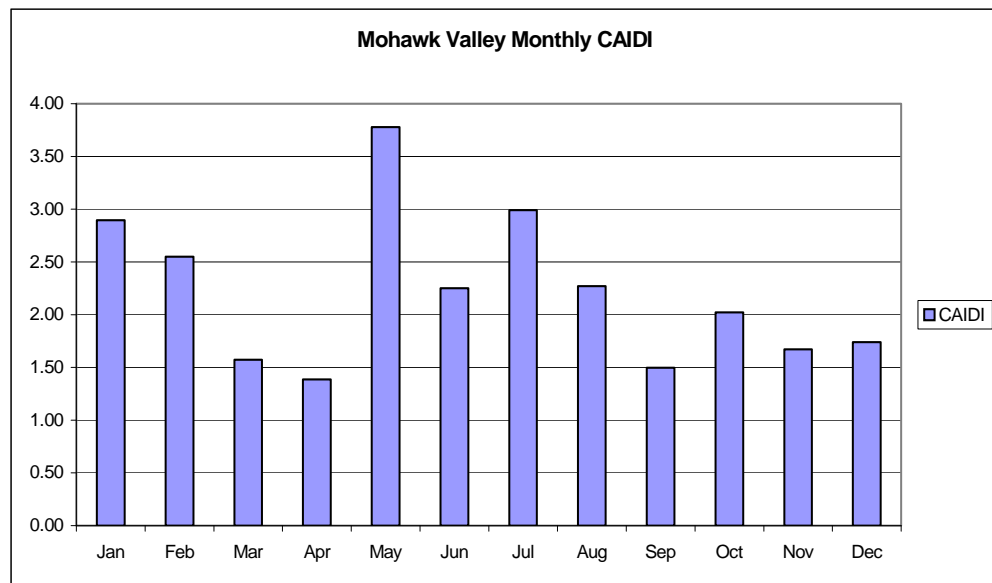
Two substation-related interruptions occurred at Lehigh Substation on the same day in 2008. They accounted for 7,103 customers interrupted, or 48%, of the total substation-related interruptions, and 50,752 customer hours interrupted, or 78% of the total for substation-related interruptions for 2008. The first interruption was the result of a loss of one phase of the transformer. The second interruption occurred as a result of restoration efforts following the original interruption event.

One of the substation-related interruptions was due to downed conductors on the transmission line to Raquette Lake, and one interruption was due to a stuck relay at Deerfield Substation following a fault on the line serving the substation.

c. GRAPH OF MONTHLY CAIDI AND SAIFI INDICES

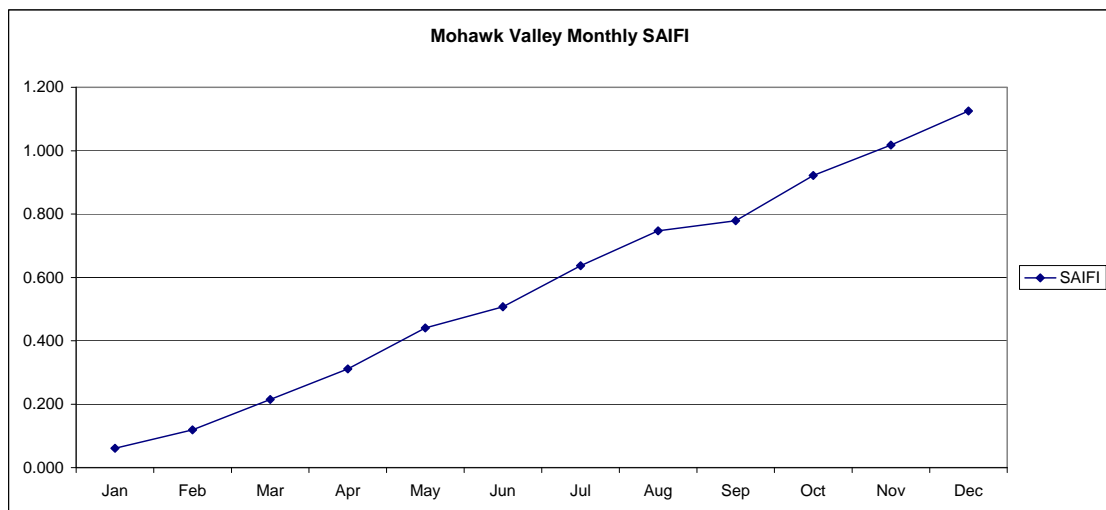
The following graphs show the monthly CAIDI and SAIFI for the Mohawk Valley Region for 2008. Although the annual CAIDI metric met the PSC target, the monthly CAIDI metric exceeded the annual PSC target of 2.50 in January (2.9), February (2.5), May (3.7), and July (3.0). The SAIFI is a cumulative figure that met the PSC target of 1.20.

GRAPH OF MONTHLY CAIDI AND SAIFI INDICES FOR THE MOHAWK VALLEY



PSC CAIDI GOAL	
Goal	2.50
Actual	2.28

PSC SAIFI GOAL	
Goal	1.20
Actual	1.13



d. PSC CAUSE CODES

Cause Codes	Interruptions		Customers		Customer Hours	
	Number	% Total	Number	% Total	Number	% Total
(1) Major Storms	329	16.4	54,325	26.4	628,445	64.4
(2) Tree Contacts	375	18.7	32,242	15.6	88,937	9.1
(3) Overloads	17	0.9	460	0.2	786	0.1
(4) Operator Error	2	0.1	272	0.1	557	0.1
(5) Equip. Failure	523	26.1	36,705	17.8	68,240	7.0
(6) Accidents	258	12.9	21,743	10.6	35,338	3.6
(7) Prearranged	84	4.2	4,113	2.0	7,525	0.8
(8) Cust. Equip.	4	0.2	150	0.1	568	0.1
(9) Lightning	171	8.5	8,932	4.3	16,850	1.7
(10) Unknown	240	12.0	47,143	22.9	127,809	13.1
Total	2,003	100.0	206,085	100.0	975,055	100.0

e. INTERRUPTION REVIEW BY PSC CAUSE CODES

Cause Code 01, “Major Storms”

During 2008, the Mohawk Valley region experienced four major storms. Three of the storms were lightning/wind storms that occurred during the summer months, and the fourth was a wind storm in September. The major storms accounted for 329 interruptions that resulted in 54,325 customers interrupted for 628,445 customer hours. The impact of major storms in the Mohawk Valley region was more significant during 2008 when compared to 2007. During 2007, major storms accounted for 197 interruptions that resulted in 22,468 customers interrupted for 134,518 customer hours

Cause Code 02, “Tree Contacts”

Excluding major storms, the region experienced a total of 375 tree-related interruptions in 2008, which represents 18.7% of the total number of interruptions in 2008. These interruptions accounted for 32,242 customers interrupted and 88,937 customer hours interrupted for the region. As compared to 2007, there was a 2% decrease in the number of tree-related interruptions, a 3% decrease in the number of customers interrupted, and a 27% decreased in the number of customer hours interrupted. The interruptions caused by trees in 2008 accounted for a regional CAIDI of 0.59 and SAIFI of 0.24.

The Forestry Department has placed greater emphasis on danger tree removal along the 3-phase portions of the circuits in the Mohawk Valley Region to reduce the number of large outages, and is extending this program to single phase portions of some circuits as well. Hazard tree emphasis is also being placed on those feeders scheduled for routine trimming, to ensure that diseased and weakened trees off the right-of-way are removed at the time of trimming. In addition, beginning in 2008, the Forestry Department has reduced its pruning cycle from six (6) to five (5) years on identified circuits.

Cause Code 03, “Overloads”

In 2008, the region experienced 17 outages due to overloads, or 0.9% of the total number of interruptions for the region for 2008. These outages accounted for 460 customers interrupted and 786 customer hours interrupted for 2008, which is minimal for both categories. The interruptions caused by overloads in 2008 had a negligible impact on regional CAIDI and SAIFI.

Cause Code 04, “Operator Error”

Operator errors had a negligible impact on reliability in 2008.

Cause Code 05, “Apparatus or Equipment Failures”

In 2008, the region experienced 523 outages due to equipment failures, or 26% of the total number of interruptions for the region, making it the largest cause of interruptions. These outages accounted for 36,705 customers interrupted (18%) and 68,240 customer hours interrupted (7.0%). The total number of interruptions caused by equipment failures decreased from 2007 by 4%, while customers interrupted decreased by 32% and customer hours interrupted decreased by 47%. The interruptions caused by equipment-related failures in 2008 accounted for a regional CAIDI of 0.44 and a SAIFI of 0.27.

In 2008, the Mohawk Valley Region continued its distribution patrol and maintenance program that involved patrolling and performing maintenance on 742 circuit miles. Efforts are continually being made to help reduce the total number of interruptions caused by equipment failure and improve regional performance through the use of efficient maintenance practices.

Cause Code 06, “Accidents or Events Not Under the Utility Control”

The region experienced 258 interruptions due to accidents, or 12.9% of the total for the region in 2008. This interruption category accounted for a total of 21,743 customers interrupted (10.6%) and a total of 35,338 customer hours interrupted (3.6%) for the region. From 2007 to 2008, the total number of outages caused by accidents decreased by 13.4%, while the total number of customers interrupted decreased by 3.3% and the total customer hours interrupted decreased by 5.5%. Overall, the figures for 2008 resulted in a CAIDI of 0.23 and a SAIFI of 0.16.

Cause Code 07, “Prearranged”

In 2008, the region had 84 prearranged interruptions that accounted for 4,113 (2%) of the total customers interrupted and 7,525 customer hours interrupted (0.8%). The number of prearranged interruptions increased from 2007 by 2.4%, while the total customers interrupted increased by 22% and the total customer hours interrupted increased by 9.9%. Overall, the figures for prearranged interruptions resulted in a CAIDI of 0.05 and a SAIFI of 0.03 for 2008.

Cause Code 08, “Customer Equipment”

In 2008, the region had four outages due to Customer Equipment. There is not enough data to evaluate the impact of this PSC cause code category on overall reliability.

Cause Code 09, “Lightning”

The region experienced 171 interruptions due to lightning in 2008, or 8.5% of the total number of interruptions for the region. These interruptions accounted for 8,932 customers interrupted (4.3%) and 16,850 customer hours interrupted (1.7%). The number of lightning-related interruptions for 2008 compared to 2007 was 31.9% less. The total customers interrupted were down from the 2007 number by 73.9% and the total number of customer hours interrupted was down by 81.5%. Overall, the figures for lightning interruptions resulted in a CAIDI of 0.11 and a SAIFI of 0.07.

Cause Code 10, “Unknown or Unclassified”

The region experienced 240 unknown or unclassified interruptions in 2008, or 12% of the total number of interruptions for the region. These interruptions accounted for 47,143 customers interrupted (22.9%) and 127,809 customer hours interrupted (13.1%). The number of unknown or unclassified interruptions for 2008 was 16.7% less than 2007, while the total customers interrupted increased 94% and the total

number of customer hours interrupted increased 200%. Overall, the figures for unknown interruptions in 2008 resulted in a CAIDI of 0.84 and a SAIFI of 0.35. National Grid continually attempts to reduce the number of unknown causes by investigating the possible causes more thoroughly.

2. OPERATING CIRCUIT LIST

The next three (3) tables will provide the following information for the Mohawk Valley Region.

- a. Worst Performing Circuit List
- b. Worst Performing Circuits with 3 Year History for CAIDI & SAIFI Indices
- c. Worst Performing Circuits by # of Momentary Interruptions

a. NATIONAL GRID WORST PERFORMING CIRCUIT LIST

MOHAWK VALLEY REGION

CIRCUIT #	A CUST. SERVED	B INTER.	C # CUST. INTER.	D CUST. HRS. INTER.	D/A SAIDI	D/C CAIDI	C/A SAIFI	NUMBER OF MOMENTARIES
Eagle Bay 38272	1,034	33	6,860	15,352	14.84	2.23	6.63	1
Poland 62258	1,508	56	8,615	14,895	9.87	1.72	5.71	1
Lehigh 66954	2,099	64	5,455	21,183	10.09	3.88	2.59	2
Lehigh 66952	1,976	38	4,317	36,718	18.58	8.50	2.18	2
Lehigh 66953	613	27	2,195	11,048	18.02	5.03	3.58	1
Old Forge 38362	715	30	3,090	8,082	11.30	2.61	4.32	3
Lehigh 66951	1,193	27	4,442	12,531	10.50	2.82	3.72	1
Poland 62257	1,389	24	6,369	11,830	8.51	1.85	4.58	0
White Lake 39963	922	25	3,104	7,553	8.19	2.43	3.36	3
Eagle Bay 38271	882	14	6,454	16,537	18.74	2.56	7.31	1
Alder Creek 70152	975	46	2,391	4,795	4.91	2.00	2.45	1
Alder Creek 70161	889	25	2,410	4,311	4.84	1.78	2.71	1
Old Forge 38364	781	11	4,900	12,062	15.44	2.46	6.27	3
Raquette Lake 39861	485	10	6,657	25,178	51.91	3.78	13.72	2
Sherman 33352	1,493	26	2,710	6,691	4.48	2.47	1.80	1
Rock City 62370	613	16	2,374	3,473	5.66	1.46	3.87	4
Old Forge 38361	598	10	2,022	6,591	11.02	3.25	3.38	3
Chadwicks 66852	2,420	37	3,048	7,560	3.12	2.48	1.25	0
Turin Road 65356	1,288	36	1,545	4,584	3.55	2.96	1.19	0

Sherman 33351	1,132	20	2,168	3,812	3.36	1.75	1.91	3
---------------	-------	----	-------	-------	------	------	------	---

NOTE: This table excludes circuits with fewer than 2 interruptions or serving less than 100 customers.

b. NATIONAL GRID WORST PERFORMING CIRCUITS WITH 3 YEAR HISTORY FOR CAIDI AND SAIFI INDICES

MOHAWK VALLEY REGION

CIRCUIT #	2008 CAIDI	2007 CAIDI	2006 CAIDI	2005 CAIDI	2008 SAIFI	2007 SAIFI	2006 SAIFI	2005 SAIFI
Eagle Bay 38272	2.23	3.46	4.30	2.79	6.63	4.28	3.48	13.14
Poland 62258	1.72	4.79	2.09	8.90	5.71	3.89	5.24	1.77
Lehigh 66954	3.88	2.72	2.66	1.55	2.59	3.16	1.02	2.43
Lehigh 66952	8.50	1.86	2.44	2.21	2.18	2.44	2.39	2.26
Lehigh 66953	5.03	1.65	3.91	1.74	3.58	1.81	1.05	2.63
Old Forge 38362	2.61	2.59	5.57	2.68	4.32	2.39	2.47	8.25
Lehigh 66951	2.82	1.77	1.75	1.32	3.72	1.28	1.65	2.43
Poland 62257	1.85	6.12	1.64	5.88	4.58	1.58	5.96	2.48
White Lake 39963	2.43	2.49	5.87	2.33	3.36	2.22	2.23	4.47
Eagle Bay 38271	2.56	3.47	4.49	2.67	7.31	3.33	3.15	12.38
Alder Creek 70152	2.00	2.34	4.56	1.74	2.45	3.76	1.90	6.34
Alder Creek 70161	1.78	2.45	5.04	1.95	2.71	2.38	1.21	5.54
Old Forge 38364	2.46	2.51	5.84	2.74	6.27	2.09	2.25	7.30
Raquette Lake 39861	3.78	3.43	4.58	3.58	13.72	3.19	3.26	11.08
Sherman 33352	2.47	3.81	1.20	1.06	1.80	1.39	1.82	1.56
Rock City 62370	1.46	2.53	1.52	3.30	3.87	4.65	0.39	5.20
Old Forge 38361	3.25	2.54	5.21	2.68	3.38	3.14	2.69	8.69
Chadwicks 66852	2.48	1.53	1.17	0.99	1.25	1.41	0.25	2.11
Turin Road 65356	2.96	3.08	2.38	3.14	1.19	1.64	2.00	0.21
Sherman 33351	1.75	4.20	1.23	1.27	1.91	2.58	1.38	0.48

Regional Goal: CAIDI 2.50 SAIFI 1.20

c. NATIONAL GRID WORST PERFORMING CIRCUITS BY # OF MOMENTARY INTERRUPTIONS

No circuit in the Mohawk Valley Region experienced more than 10 momentaries in 2008.

d. WORST PERFORMING CIRCUIT ANALYSIS

For 2008, the Mohawk Valley Region is required to analyze and report on twenty of the worst performing circuits. The list consists of twelve 13.2kV, seven 4.8kV, and one 4.16kV circuits.

The PSC minimum goals for the Mohawk Valley Region are 2.50 for CAIDI and 1.20 for SAIFI.

1. EAGLE BAY 38272 4.8kV

Profile: 1,034 Customers, 49.3 Circuit Miles

Indices: CAIDI = 2.23, SAIFI = 6.63

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	21	53.8%	1,437	20.9%	4,332	28.2%
5	EQUIPMENT	7	17.9%	1,103	16.1%	2,336	15.2%
6	ACCIDENTS	1	2.6%	1,064	15.5%	2,320	15.1%
7	PREARRANGED	1	2.6%	12	0.2%	115	0.7%
9	LIGHTNING	2	5.1%	35	0.5%	194	1.3%
10	UNKNOWN	7	17.9%	3,209	46.8%	6,055	39.4%
	Totals	39	100.0%	6,860	100.0%	15,351	100.0%

Problem Analysis:

- Five interruptions occurred on the 46kV transmission system between the Boonville and Eagle Bay substations in 2008. These accounted for 5,278 customers interrupted or 77% of the total customers interrupted and 10,827 customer hours interrupted or 70% of the total customer hours interrupted for the feeder. The causes of these transmission-related outages were unknown (3), accident (1) and tree (1).
- The distribution facilities had 34 interruptions in 2008. They accounted for 1,582 customers interrupted or approximately 23% of the total and 4,524 customer hours or approximately 30% of the total customer hours for the feeder. Five of the tree-related interruptions occurred in the area of Rondaxe Lake, while four occurred in the area of Twitchell Lake.

- Tree-related interruptions accounted for twenty (20) distribution-related interruptions or 58% of the total number of distribution-related interruptions in 2008. They accounted for 395 customers interrupted or approximately 25% of the total and 1,696 customer hours or approximately 37% of the total customer hours for the feeder in 2008.
- Equipment-related interruptions accounted for seven (7) distribution-related interruptions or 21% of the total number of distribution-related interruptions in 2008. They accounted for 1,103 customers interrupted or approximately 70% of the total and 2,336 customer hours or approximately 52% of the total customer hours for the feeder in 2008.
- Routine tree trimming was completed on 41.1 miles of the feeder and danger tree removal was completed in 2005.
- Hazard tree removals were performed in 2006.
- Routine T&D maintenance was performed on 40.8 miles of the feeder in 2008.
- An Engineering Reliability Review was performed on this circuit in 2008.
- A new recloser was installed on the distribution feeder in 2008.
- The 46kv line recloser at Eagle Bay has been replaced with a new breaker with automatic reporting capability.
- This circuit was reviewed for potted porcelain cutout replacements in 2008.

Action Plan:

- Install automatic reporting capability on the breakers located on the Boonville - Raquette Lake 46kV transmission line in 2008/2009.
- Additional insulator replacements are scheduled to be performed on the 46kV in 2009.
- Monitor past hazard tree removal results

2. POLAND 62258 13.2kV

Profile: 1,508 Customers, 123.4 Circuit Miles.

Indices: CAIDI = 1.72, SAIFI = 5.71.

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	29	50.0%	1,894	22.0%	7,385	49.5%
3	OVERLOADS	0	0.0%	0	0.0%	0	0.0%
4	OPER. ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	10	17.2%	2,674	31.0%	2,264	15.2%
6	ACCIDENTS	4	6.9%	724	8.4%	1,266	8.5%
7	PREARRANGED	2	3.4%	101	1.2%	33	0.2%
8	CUST. EQUIP.	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	2	3.4%	7	0.1%	13	0.1%
10	UNKNOWN	11	19.0%	3,215	37.3%	3,943	26.5%
	Totals	58	100.0%	8,615	100.0%	14,904	100.0%

Problem Analysis:

- There was one (1) transmission-related interruption on the Trenton-Middleville #24 transmission line that resulted in 1,502 customers interrupted and 556 customer hours interrupted. These interruptions accounted for 17% of the customers interrupted and 4% of the customer hours interrupted for this facility category in 2008.
- There were twenty-nine tree-related interruptions on the distribution facilities in 2008, down from thirty-six (36) in 2007. These interruptions resulted in 1,894 customers interrupted and 7,385 customer hours interrupted for distribution. These interruptions accounted for 34% of the total number of customers interrupted and 65% of the customer hours interrupted in 2008 on the distribution system for this cause category. Ten of these interruptions occurred on NYS Route 8 beyond Nellis Rd and on Gray-Wilmurt Road.
- Routine tree trimming was completed on 118 miles of the feeder in 2004.
- Hazard tree removals were completed on the feeder in 2007.
- Widening of the 46kV transmission right-of-way was performed in 2005.
- Routine maintenance was performed on 88 miles of the feeder in 2007.
- T&D patrol and immediate maintenance was performed on 109 miles of the feeder in 2008.
- An Engineering Reliability Review was performed on this circuit in 2007.
- This circuit was reviewed for potted porcelain cutout replacements in 2008.
- A project to upgrade facilities on Bull Hill Road was completed in 2008.

Action Plan:

- Perform routine tree trimming on 125.4 miles of the feeder in 2009/10.
- Monitor hazard tree removal results.
- Perform hazard tree review on select Route 8 and Gray Wilmurt Road in 2009.
- Implement the recommendations of PPFP 15749 on Hurricane Rd. [FY 2011]

3. LEHIGH 66954 13.2kV

Profile: 2,099 Customers, 115.7 Circuit Miles

Indices: CAIDI = 3.88, SAIFI =2.59

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	18	26.9%	2,038	37.4%	11,519	54.4%
3	OVERLOADS	0	0.0%	0	0.0%	0	0.0%
4	OPER. ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	23	34.3%	319	5.8%	1,450	6.8%
6	ACCIDENTS	6	9.0%	26	0.5%	49	0.2%
7	PREARRANGED	2	3.0%	35	0.6%	29	0.1%
8	CUST. EQUIP.	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	8	11.9%	188	3.4%	414	2.0%
10	UNKNOWN	10	14.9%	2,849	52.2%	7,721	36.4%
	Totals	67	100.0%	5,455	100.0%	21,181	100.0%

Problem Analysis:

- There were two (2) substation-related interruptions at Lehigh Substation in 2008. They accounted for 2,656 customers interrupted or 49% of the total customers interrupted and 7,383 customer hours interrupted or 35% of the total customer hours interrupted for the feeder. The root cause of these substation-related outages is unknown.
- There were 18 tree-related interruptions on the distribution facilities in 2008. They accounted for 2,038 customers interrupted, or 73% of the total number of customers interrupted, and 11,519 customer hours interrupted, or 83% of the total number of customer hours interrupted, on the distribution facilities in 2008.
- There were 23 equipment-related interruptions on the distribution facilities in 2008. They accounted for 319 customers interrupted, or 11% of the total number of customers interrupted, and 1,450 customer hours interrupted, or 10% of the total number of customer hours interrupted, on the distribution facilities in 2008. Eighteen (18) of the equipment-related interruptions occurred in the Town of Vienna.
- Routine tree trimming was performed on 111 miles of the feeder in 2007.
- Hazard tree removals were performed on the three phase portions of the circuit in 2006.
- Hazard tree review was performed on the single phase portions of the circuit in 2006.
- Fuse review was performed on the feeder in 2006.
- An Engineering Reliability Review was performed on the feeder in 2006.

- This circuit was reviewed for potted porcelain cutout replacements in 2007.
- Two new reclosers were installed on the feeder in 2006/07.

Action Plan:

- Firm up the distribution field tie between Lehigh 66954 & Rome 76252 for future switching.
- Monitor results of hazard tree removals.
- Perform T&D patrol and immediate maintenance on 111 miles of the feeder in 2009 [esp. the 3-phase and 1-phase portions of the circuit in the Town of Vienna beyond Recloser R6685 [P1] on NYS Rt 13].

4. LEHIGH 66952 13.2kV

Profile: 1,976 Customers, 84.6 Circuit Miles

Indices: CAIDI = 8.5, SAIFI = 2.18

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	8	20.0%	274	6.3%	1,023	2.8%
3	OVERLOADS	1	2.5%	1	0.0%	4	0.0%
4	OPER. ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	10	25.0%	277	6.4%	510	1.4%
6	ACCIDENTS	3	7.5%	28	0.6%	210	0.6%
7	PREARRANGED	5	12.5%	435	10.1%	299	0.8%
8	CUST. EQUIP.	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	3	7.5%	8	0.2%	15	0.0%
10	UNKNOWN	10	25.0%	3,294	76.3%	34,656	94.4%
	Totals	40	100.0%	4,317	100.0%	36,716	100.0%

Problem Analysis:

- There were two (2) substation-related interruptions at Lehigh Substation in 2008. They accounted for 2,612 customers interrupted or 60% of the total customers interrupted and 33,437 customer hours interrupted or 91% of the total customer hours interrupted for the feeder. The cause of these substation-related outages is unknown.
- There were eight (8) tree-related interruptions on the distribution facilities in 2008. They accounted for 274 customers interrupted or 16% of the total number of customers interrupted and 1,023 customer hours interrupted or 31% of the total number of customer hours interrupted.
- There were 10 equipment-related interruptions on the distribution facilities in 2008. They accounted for 277 customers interrupted, or 16% of the total number of customers interrupted, and 510 customer hours interrupted, or 16% of the total number of customer hours interrupted, on the distribution facilities in 2008.
- Hazard tree removals were performed on the distribution portions in 2008.
- Routine tree trimming was performed on 78.9 miles of the feeder in 2006.
- An Engineering Reliability Review was performed on this circuit in 2006.
- Two new reclosers were installed on the feeder in 2006.
- Routine T&D maintenance was performed on 19.4 miles of the feeder in 2007.

Action Plan:

- Rebuild distribution facilities to create a field tie between Lehigh 66952 & Colosse 32151.
- Review 3-phase portions of the circuit for hazard tree removals in 2009.
- Routine tree trimming is scheduled for 79.7 miles in 2009.

5. LEHIGH 66953 13.2kV

Profile: 613 Customers, 60.9 Circuit Miles

Indices: CAIDI = 5.03, SAIFI = 3.58

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	7	24.1%	362	16.5%	1,191	10.8%
3	OVERLOADS	0	0.0%	0	0.0%	0	0.0%
4	OPER. ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	11	37.9%	159	7.2%	478	4.3%
6	ACCIDENTS	2	6.9%	101	4.6%	1,065	9.6%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
8	CUST. EQUIP.	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	5	17.2%	153	7.0%	721	6.5%
10	UNKNOWN	4	13.8%	1,420	64.7%	7,591	68.7%
	Totals	29	100.0%	2,195	100.0%	11,046	100.0%

Problem Analysis:

- There were two (2) substation-related interruptions at Lehigh Substation in 2008. They accounted for 1,246 customers interrupted or 57% of the total customers interrupted and 6,557 customer hours interrupted or 59% of the total customer hours interrupted for the feeder. The root cause of these substation-related outages is unknown.
- There were seven (7) tree-related interruptions on the distribution facilities in 2008. They accounted for 362 customers interrupted or 16% of the total number of customers interrupted and 1,191 customer hours interrupted or 11% of the total number of customer hours interrupted.
- There were eleven (11) equipment-related interruptions on the distribution facilities in 2008. They accounted for 159 customers interrupted, or 16% of the total number of customers interrupted, and 478 customer hours interrupted, or 11% of the total number of customer hours interrupted, on the distribution facilities in 2008.
- Routine tree trimming was performed on 60.9 miles of the feeder in 2008.
- An Engineering Reliability Review was performed on this feeder in 2007.
- Additional fusing was added in 2008.
- A recloser was installed on the feeder in 2008.

Action Plan:

- Perform T&D patrol and immediate maintenance on 60 miles of the feeder in 2009.
- A project to create a tie between Lehigh 66953 and Lighthouse Hill 6144 is scheduled to be completed in 2010.
- Perform a Feeder Hardening Review for additional recloser installations in 2009.

6. OLD FORGE 38362 4.8kV

Profile: 715 Customers, 38.3 Circuit Miles

Indices: CAIDI = 2.61, SAIFI = 4.32

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	18	54.5%	846	27.4%	2,789	34.5%
3	OVERLOADS	0	0.0%	0	0.0%	0	0.0%
4	OPER. ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	8	24.2%	757	24.5%	1,839	22.7%
6	ACCIDENTS	1	3.0%	1	0.0%	1	0.0%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
8	CUST. EQUIP.	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	2	6.1%	55	1.8%	157	1.9%
10	UNKNOWN	4	12.1%	1,431	46.3%	3,297	40.8%
	Totals	33	100.0%	3,090	100.0%	8,083	100.0%

Problem Analysis:

- Three interruptions occurred on the 46kV transmission system between the Boonville and Old Forge substations in 2008. These accounted for 2,158 customers interrupted or 70% of the total customers interrupted and 4,891 customer hours interrupted or 60% of the total customer hours interrupted for the feeder. The causes of these transmission-related outages were tree contacts (2) and unknown.
- There were 30 interruptions on the distribution facilities during 2008. These accounted for 932 customers interrupted or 30% of the total customers interrupted and 3,192 customer hours interrupted or 40% of the total customer hours interrupted for the feeder.
- There were seventeen (17) tree-related interruptions on the distribution facilities in 2008; however, none were a significant impact to overall reliability of this feeder. Six (6) of the 17 tree-related interruptions occurred on South Shore Rd.
- There were seven (7) equipment-related interruptions on the distribution facilities in 2008; however, none were a significant impact to overall reliability of this feeder. Three (3) of the 7 equipment-related interruptions occurred on South Shore Rd.
- Routine tree trimming was completed on 27.6 miles of the feeder and danger tree removal was completed in 2005.
- Hazard tree removals were performed on the 46kV transmission line in 2006 and 2007.

- The 46kV recloser at Old Forge was replaced with a circuit breaker with automatic reporting capability in 2008.
- This circuit was reviewed for potted porcelain cutout replacements in 2007.

Action Plan:

- Install automatic reporting capability on the breakers located on the Boonville - Raquette Lake 46kV transmission line in 2009/2010.
- Additional insulator replacements are scheduled to be performed on the 46kV in 2009.
- Perform a detailed patrol on South Shore Road for tree and equipment-related problems.
- Evaluate the feeder for recloser additions.

7. LEHIGH 66951 13.2kV

Profile: 1,193 Customers, 66.5 Circuit Miles

Indices: CAIDI = 2.82, SAIFI = 3.72

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	15	51.7%	1,496	33.7%	5,565	44.4%
3	OVERLOADS	0	0.0%	0	0.0%	0	0.0%
4	OPER. ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	6	20.7%	1,215	27.4%	3,007	24.0%
6	ACCIDENTS	1	3.4%	1	0.0%	1	0.0%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
8	CUST. EQUIP.	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	1	3.4%	1	0.0%	1	0.0%
10	UNKNOWN	6	20.7%	1,729	38.9%	3,961	31.6%
	Totals	29	100.0%	4,442	100.0%	12,534	100.0%

Problem Analysis:

- There were two (2) substation-related interruptions at Lehigh Substation in 2008. They accounted for 1,587 customers interrupted or 36% of the total customers interrupted and 3,346 customer hours interrupted or 27% of the total customer hours interrupted for the feeder. The root cause of these substation-related outages is unknown.
- There were fifteen (15) tree-related interruptions on the distribution facilities in 2008. They accounted for 1,496 customers interrupted or 33% of the total number of customers interrupted and 5,565 customer hours interrupted or 44% of the total number of customer hours interrupted. Four (4) of the 15 tree-related interruptions on the distribution facilities were on the three-phase portions of the circuit. They accounted for 992 customers interrupted, or 35% of the total number of customers interrupted, and 4,117 customer hours interrupted, or 45% of the total number of customer hours interrupted, on the distribution facilities in 2008.
- There were six (6) equipment-related interruptions on the distribution facilities in 2008. They accounted for 1,215 customers interrupted, or 43% of the total number of customers interrupted, and 3,007 customer hours interrupted, or 33% of the total number of customer hours interrupted, on the distribution facilities in 2008. One (1) interruption resulted in a lockout of the entire circuit resulting in 2,877 customer hours interrupted.
- Routine tree trimming was performed on 66.5 miles of the feeder in 2007.
- Hazard tree removals were performed on the circuit in 2006.
- An Engineering Reliability Review was performed on this feeder in 2006.

- Additional fusing was added in 2007.
- A new recloser was installed on the feeder in 2007.

Action Plan:

- Evaluate the feeder for recloser additions.
- Perform a hazard tree review on Coal Hill Road and Glenmore Road.
- Firm up the feeder tie between Lehigh 66951 and Turin Rd 65355 for future switching.

8. POLAND 62257 13.2kV

Profile: 1,389 Customers, 90.8 Circuit Miles.

Indices: CAIDI = 2.41, SAIFI = 4.58.

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	10	38.5%	297	4.7%	1,704	14.4%
3	OVERLOADS	0	0.0%	0	0.0%	0	0.0%
4	OPER. ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	4	15.4%	261	4.1%	228	1.9%
6	ACCIDENTS	1	3.8%	1	0.0%	6	0.1%
7	PREARRANGED	1	3.8%	200	3.1%	186	1.6%
8	CUST. EQUIP.	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	3	11.5%	31	0.5%	59	0.5%
10	UNKNOWN	7	26.9%	5,579	87.6%	9,658	81.6%
	Totals	26	100.0%	6,369	100.0%	11,841	100.0%

Problem Analysis:

- There was one (1) transmission-related interruption of unknown cause on the Trenton-Middleville #24 transmission line that resulted in 1,386 customers interrupted and 513 customer hours interrupted. This interruption accounted for 21% of the customers interrupted and 4% of the customer hours interrupted for this facility category in 2008.
- There were ten (10) tree-related interruptions on the distribution facilities in 2008. These interruptions resulted in 297 customers interrupted and 1,704 customer hours interrupted for distribution. These interruptions accounted for 8% of the total number of customers interrupted and 20% of the customer hours interrupted in 2008 on the distribution system for this cause category.
- There were five (5) interruptions of unknown origin on the distribution facilities in 2008. These interruptions resulted in 2,802 customers interrupted and 6,475 customer hours interrupted for distribution. These interruptions accounted for 78% of the total number of customers interrupted and 75% of the customer hours interrupted in 2008 on the distribution system for this cause category.
- Hazard tree removals were completed on the feeder in 2006.
- Widening of the 46kV transmission right-of-way was performed in 2005.
- An Engineering Reliability Review was performed on the circuit in 2007.
- This circuit was reviewed for potted porcelain cutout replacements in 2007.
- A new recloser was installed on the circuit in 2008.

Action Plan:

- Routine tree trimming is scheduled for 84.7 miles of the feeder in 2009.
- Monitor hazard tree removal results.
- Install recloser on Old Newport Road.
- Rebuild overhead distribution facilities on Old Newport Road.

9. WHITE LAKE 39963 4.8kV

Profile: 922 Customers, 35.9 Circuit Miles.

Indices: CAIDI = 2.43 SAIFI = 3.36.

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	12	42.9%	1,050	33.8%	2,914	38.6%
3	OVERLOADS	0	0.0%	0	0.0%	0	0.0%
4	OPER. ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	8	28.6%	1,016	32.7%	2,185	28.9%
6	ACCIDENTS	0	0.0%	0	0.0%	0	0.0%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
8	CUST. EQUIP.	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	5	17.9%	91	2.9%	373	4.9%
10	UNKNOWN	3	10.7%	947	30.5%	2,082	27.6%
	Totals	28	100.0%	3,104	100.0%	7,554	100.0%

Problem Analysis:

- Two interruptions occurred on the 46kV transmission system between the Boonville and White Lake substations in 2008. They accounted for 1,870 customers interrupted or 60% of the total customers interrupted and 4,420 customer hours interrupted or 58% of the total customer hours interrupted for the feeder. The causes of these transmission-related outages were tree contact and unknown.
- There were twenty-six (26) interruptions that occurred on the distribution circuit in 2008. They resulted in 1,234 customers interrupted or 40% of the total customers interrupted and 3,134 customer hours interrupted or 42% of the total customer hours interrupted.
- There were eleven (11) tree-related interruptions on the distribution circuit in 2008. They resulted in only 124 customers interrupted (10%) and 571 customer hours interrupted (18%).
- Routine tree trimming on the feeder was performed on 33.4 miles in 2004.
- Danger-tree removal was completed on the 46kV transmission line in 2006 and 2007.
- Routine T&D maintenance was performed on 32.9 miles of the feeder in 2007.
- The recloser at Old Forge was replaced with a breaker in 2008.
- A new recloser was installed on the distribution feeder in August 2008.

Action Plan:

- Perform hazard tree removals on the 46kV transmission line.
- Perform hazard tree review on the feeder on Long Lake Road.
- Install automatic reporting capability on the breakers located on the Boonville - Raquette Lake 46kV transmission line in 2009/2010.
- Replace the recloser at White Lake in CY09/10 with a circuit breaker.
- Additional insulator replacements are scheduled to be performed on the 46kV in 2009.

10. EAGLE BAY 38271 4.8kV

Profile: 882 Customers, 27.8 Circuit Miles.

Indices: CAIDI = 2.56, SAIFI = 7.31

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	4	21.1%	902	14.0%	2,347	14.2%
3	OVERLOADS	2	10.5%	4	0.1%	112	0.7%
4	OPER. ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	6	31.6%	1,852	28.7%	5,899	35.7%
6	ACCIDENTS	2	10.5%	932	14.4%	2,031	12.3%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
8	CUST. EQUIP.	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	0	0.0%	0	0.0%	0	0.0%
10	UNKNOWN	5	26.3%	2,764	42.8%	6,147	37.2%
	Totals	19	100.0%	6,454	100.0%	16,536	100.0%

Problem Analysis:

- Six (6) interruptions occurred on the 46kV transmission system between the Boonville and Eagle Bay substations in 2008. These accounted for 5,466 customers interrupted or 85% of the total customers interrupted and 14,342 customer hours interrupted or 87% of the total customer hours interrupted for the feeder. The causes of these transmission-related outages were tree (1), accident (1) and unknown (3).
- The distribution facilities had 13 interruptions in 2008. They accounted for 988 customers interrupted or approximately 15% of the total and 2,194 customer hours or approximately 13% of the total customer hours for the feeder.
- Routine tree trimming on 22.5 miles of the feeder was completed in 2005.
- Routine T&D maintenance was performed on 22.5 miles of the feeder in 2007.
- The recloser at Old Forge was replaced with a breaker in 2008.

Action Plan:

- Install automatic reporting capability on the breakers located on the Boonville - Raquette Lake 46kV transmission line in 2008/2009.
- Perform hazard tree removals on the 46kV transmission line.
- Additional insulator replacements are scheduled to be performed on the 46kV in 2009.

11. ALDER CREEK 70152 13.2kV

Profile: 973 Customers, 83.4 Circuit Miles.

Indices: CAIDI = 2.00, SAIFI = 2.45.

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	12	25.5%	164	6.9%	374	7.8%
3	OVERLOADS	0	0.0%	0	0.0%	0	0.0%
4	OPER. ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	16	34.0%	315	13.2%	492	10.3%
6	ACCIDENTS	1	2.1%	1	0.0%	3	0.1%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
8	CUST. EQUIP.	1	2.1%	1	0.0%	2	0.0%
9	LIGHTNING	6	12.8%	796	33.3%	1,387	28.9%
10	UNKNOWN	11	23.4%	1,114	46.6%	2,541	53.0%
	Totals	47	100.0%	2,391	100.0%	4,799	100.0%

Problem Analysis:

- One interruption occurred on the 46kV transmission system between the Boonville and Alder Creek substations in 2008. It accounted for 975 customers interrupted or 41% of the total customers interrupted and 2,145 customer hours interrupted or 45% of the total customer hours interrupted for the feeder. The cause of this transmission-related outage was unknown.
- There were 46 interruptions that occurred on the distribution facilities in 2008. These interruptions resulted in 1,416 customers interrupted or 59% of the total customers interrupted and 2,654 customer hours interrupted or 55% of the total customer hours interrupted for 2008.
- There were six (6) lightning-related interruptions that occurred on the distribution facilities in 2008. They accounted for 796 customers interrupted or 56% of the total customers interrupted and 1,387 customer hours interrupted or 52% of the total customer hours interrupted for the distribution feeder. One (1) lightning interruption accounted for 780 customers interrupted and 1,341 customer hours.
- A fuse coordination review was conducted on the circuit in 2005.
- An Engineering Reliability Review was completed in 2006.
- Danger tree removals were completed on the feeder in 2005.
- Hazard tree removals were performed on the 46kV transmission line in 2006 and 2007.
- Routine tree trimming was completed on the feeder for 76.4 miles in 2005.

- ERR recommendations for additional side tap fusing were completed in 2007.
- The recloser at Old Forge was replaced with a breaker in 2008.

Action Plan:

- Perform T&D patrol and immediate maintenance on 75 miles of the feeder in 2009.
- Monitor hazard tree removal results.
- Perform hazard tree review on the feeder on Echo Lake Road and North Pond Rd.
- Install automatic reporting capability on the breakers located on the Boonville - Raquette Lake 46kV transmission line in 2009/2010.
- Replace the reclosers at White Lake in CY2010 with breakers.
- Additional insulator replacements are scheduled to be performed on the 46kV in 2009.

12. ALDER CREEK 70161 13.2kV

Profile: 887 Customers, 29.9 Circuit Miles.

Indices: CAIDI = 2.71, SAIFI = 1.78.

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	9	34.6%	180	7.5%	699	16.2%
3	OVERLOADS	0	0.0%	0	0.0%	0	0.0%
4	OPER. ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	6	23.1%	856	35.5%	873	20.2%
6	ACCIDENTS	1	3.8%	20	0.8%	86	2.0%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
8	CUST. EQUIP.	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	1	3.8%	30	1.2%	47	1.1%
10	UNKNOWN	9	34.6%	1,324	54.9%	2,607	60.5%
	Totals	26	100.0%	2,410	100.0%	4,311	100.0%

Problem Analysis:

- One interruption occurred on the 46kV transmission system between the Boonville and Alder Creek substations in 2008. It accounted for 914 customers interrupted or 38% of the total customers interrupted and 2,011 customer hours interrupted or 47% of the total customer hours interrupted for the feeder. The cause of this transmission-related outage was unknown.
- There were 25 interruptions that occurred on the distribution facilities in 2008. These interruptions resulted in 1,496 customers interrupted or 62% of the total and 2,300 customer hours interrupted or 53% of the total for this cause code for 2008.
- There were six (6) equipment-related interruptions on the distribution facilities in 2008. They accounted for 856 customers interrupted or 57% of the number of customers interrupted and 873 customer hours interrupted or 38% of the number of customers hours interrupted on the distribution facilities. One interruption resulted in 843 customers interrupted for one hour.
- Hazard tree removals were performed on the circuit in 2005.
- Routine tree trimming was completed for 47.9 miles of the feeder in 2006.
- Hazard tree removals were performed on the 46kV transmission line in 2006 and 2007.
- The recloser at Old Forge was replaced with a breaker in 2008.

Action Plan:

- Perform T&D patrol and immediate maintenance on 47 miles of the feeder in 2009.
- Install automatic reporting capability on the breakers located on the Boonville - Raquette Lake 46kV transmission line in 2009/2010.
- Replace the recloser at White Lake in CY2010 with breakers.
- Additional insulator replacements are scheduled to be performed on the 46kV in 2009.
- Spot hazard tree review is recommended for the single phase on Lake Julia Rd.

13. OLD FORGE 38364 4.8kV

Profile: 761 Customers, 20.1 Circuit Miles

Indices: CAIDI = 2.46, SAIFI = 6.27

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	5	35.7%	1,582	32.3%	3,483	28.9%
3	OVERLOADS	0	0.0%	0	0.0%	0	0.0%
4	OPER. ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	3	21.4%	811	16.6%	1,772	14.7%
6	ACCIDENTS	0	0.0%	0	0.0%	0	0.0%
7	PREARRANGED	4	28.6%	1,694	34.6%	4,996	41.4%
8	CUST. EQUIP.	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	0	0.0%	0	0.0%	0	0.0%
10	UNKNOWN	2	14.3%	813	16.6%	1,807	15.0%
	Totals	14	100.0%	4,900	100.0%	12,058	100.0%

Problem Analysis:

- Three interruptions occurred on the 46kV transmission system between the Boonville and Old Forge substations in 2008. These accounted for 2,368 customers interrupted or 48% of the total customers interrupted and 5,181 customer hours interrupted or 43% of the total customer hours interrupted for the feeder. The causes of these transmission-related outages were tree contacts (2) and unknown.
- There were eleven (11) interruptions on the distribution facilities during 2008. These accounted for 2,532 customers interrupted or 52% of the total and 6,877 customer hours interrupted or 57% of the total customer hours interrupted for the feeder.
- There were four (4) prearranged interruptions on the distribution facilities in 2008. They accounted for 1,694 customers interrupted or 66% of the number of customers interrupted and 4,996 customer hours interrupted or 73% of the number of customer hours interrupted on the distribution. These interruptions were for making planned repairs to the facilities.
- Danger tree removals were performed on the feeder in 2004.
- Routine tree trimming was completed for 19.6 miles on the feeder in 2005.
- T&D patrol and immediate maintenance was performed on 12 miles of the feeder in 2008.
- Hazard tree removals were performed on the 46kV in 2006 and 2007.
- Routine maintenance was performed on 8.53 miles of the feeder in 2007.

Action Plan:

- Install automatic reporting capability on the breakers located on the Boonville - Raquette Lake 46kV transmission line in 2009/2010.
- Additional insulator replacements are scheduled to be performed on the 46kV in 2009.

14. RAQUETTE LAKE 39861 4.8kV

Profile: 483 Customers, 38.6 Circuit Miles

Indices: CAIDI = 3.74, SAIFI = 5.72

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	3	13.6%	977	14.7%	3,047	12.1%
3	OVERLOADS	0	0.0%	0	0.0%	0	0.0%
4	OPER. ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	5	22.7%	1,237	18.6%	4,970	19.7%
6	ACCIDENTS	3	13.6%	527	7.9%	1,162	4.6%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
8	CUST. EQUIP.	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	0	0.0%	0	0.0%	0	0.0%
10	UNKNOWN	11	50.0%	3,916	58.8%	16,001	63.5%
	Totals	22	100.0%	6,657	100.0%	25,180	100.0%

Problem Analysis:

- Eleven (11) interruptions occurred on the 46kV transmission system between the Boonville and Raquette Lake substations in 2008. These accounted for 5,365 customers interrupted or 80% of the total customers interrupted and 20,328 customer hours interrupted or 80% of the total customer hours interrupted for the feeder. The PSC cause code categories for the 2008 transmission-related outages were tree (1), equipment failures (2), accidents (1), and unknown (7). The causes of the unknown interruptions were wires down (3), problems with automatic reclosing equipment (2), and weather (2).
- There were eleven interruptions that occurred on the distribution facilities in 2008 that resulted in 1,292 customers interrupted or 20% of the total customers interrupted and 4,852 customer hours interrupted or 20% of the total customer hours interrupted.
- Routine tree trimming was completed for 12.8 miles of the feeder in 2005.
- Hazard tree removals were performed on the circuit in 2007.
- This circuit was reviewed for potted porcelain cutout replacements in 2007.

Action Plan:

- Additional insulator replacements are scheduled to be performed on the 46kV in 2009.
- Install automatic reporting capability on the breakers located on the Boonville - Raquette Lake 46kV transmission line in 2008/2009.

15. SHERMAN 33352 13.2kV

Profile: 1,493 Customers, 89.4 Circuit Miles

Indices: CAIDI = 1.80, SAIFI = 2.47

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	13	48.1%	983	36.4%	3,020	45.1%
3	OVERLOADS	0	0.0%	0	0.0%	0	0.0%
4	OPER. ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	7	25.9%	207	7.7%	797	11.9%
6	ACCIDENTS	0	0.0%	0	0.0%	0	0.0%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
8	CUST. EQUIP.	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	3	11.1%	10	0.4%	14	0.2%
10	UNKNOWN	4	14.8%	1,501	55.6%	2,862	42.8%
	Totals	27	100.0%	2,701	100.0%	6,694	100.0%

Problem Analysis:

- There was one (1) substation-related interruption at Trenton Station that resulted in 1,497 customers interrupted and 2,844 customer hours interrupted at Sherman Station. This interruption accounted for 55% of the customers interrupted and 42% of the customer hours interrupted for this facility category in 2008. The cause of this interruption was unknown.
- There were twenty-six (26) interruptions that occurred on the distribution facilities in 2008. They resulted in 1,204 customers interrupted or 45% of the total customers interrupted and 3,850 customer hours interrupted or 58% of the total customer hours interrupted.
- There were thirteen (13) tree-related interruptions on the distribution facilities in 2008. They resulted in 983 customers interrupted or 81% of the total distribution-related customer interruptions and 3,020 customer hours interrupted or 78% of the total for distribution.
- Routine tree trimming was performed on 89.4 miles of the circuit in 2006.
- Danger tree removals were performed in 2005.
- A Reliability Review was performed on the feeder in 2004.
- Two reclosers were installed on the feeder in 2004.

Action Plan:

- Hazard tree review is recommended for the three-phase portions of the feeder along NY Route 365 in 2009.
- Lightning protection review is recommended for the three-phase portions of the feeder along NY Route 365.

16. ROCK CITY 62370 4.16kV

Profile: 612 Customers, 50.7 Circuit Miles

Indices: CAIDI = 1.46, SAIFI = 3.87

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	7	41.2%	949	40.0%	1,182	34.1%
3	OVERLOADS	0	0.0%	0	0.0%	0	0.0%
4	OPER. ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	5	29.4%	736	31.0%	818	23.6%
6	ACCIDENTS	0	0.0%	0	0.0%	0	0.0%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
8	CUST. EQUIP.	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	2	11.8%	616	25.9%	1,406	40.5%
10	UNKNOWN	3	17.6%	73	3.1%	62	1.8%
	Totals	17	100.0%	2,374	100.0%	3,468	100.0%

Problem Analysis:

- There were two (2) interruptions on the Valley – Inghams #27 46kV transmission line in 2008. These interruptions accounted for 1,226 customers interrupted or 51% of the total customers interrupted and 846 customer hours interrupted or 24% of the total customer hours interrupted for the feeder. The causes of these interruptions were tree and equipment.
- There were fifteen (15) interruptions that occurred on the distribution facilities in 2008. They resulted in 1,148 customers interrupted or 49% of the total customers interrupted and 2,622 customer hours interrupted or 76% of the total customer hours interrupted for 2008.
- There were two (2) lightning-related interruptions in 2008, down from eleven (11) in 2007. They accounted for 616 customers interrupted (54%) of the total customers interrupted for distribution and 1,406 customer hours interrupted or 54% of the total number of customer hours interrupted for distribution. One of the lightning-related interruptions resulted in 615 customers interrupted and 1,402 customer hours interrupted.
- An Engineering Reliability Review was performed on the circuit in 2007.
- Routine tree trimming was completed for 50.7 miles of the feeder in 2006.
- The 46kV isolation switches were replaced at Valley Substation in 2006.

Action Plan

- Monitor 46kV for insulator replacements in 2008.
- Implement the recommendations of the Engineering Reliability Review in 2009/10.

17. OLD FORGE 38361 4.8kV

Profile: 598 Customers, 31.2 Circuit Miles

Indices: CAIDI = 3.26, SAIFI = 3.38

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	8	61.5%	783	38.7%	3,731	56.6%
3	OVERLOADS	0	0.0%	0	0.0%	0	0.0%
4	OPER. ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	2	15.4%	599	29.6%	1,239	18.8%
6	ACCIDENTS	0	0.0%	0	0.0%	0	0.0%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
8	CUST. EQUIP.	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	0	0.0%	0	0.0%	0	0.0%
10	UNKNOWN	3	23.1%	640	31.7%	1,622	24.6%
	Totals	13	100.0%	2,022	100.0%	6,591	100.0%

Problem Analysis:

- Three interruptions occurred on the 46kV transmission system between the Boonville and Old Forge substations in 2008. These accounted for 1,800 customers interrupted or 89% of the total customers interrupted and 4,080 customer hours interrupted or 62% of the total customer hours interrupted for the feeder. The causes of these transmission-related outages were tree contacts (2) and unknown.
- There were ten (10) interruptions on the distribution facilities during 2008. These accounted for 222 customers interrupted or 11% of the total customers interrupted and 2,511 customer hours interrupted or 38% of the total customer hours interrupted for the feeder.
- Hazard tree removal was completed on the 46kV lines in 2006 and 2007.
- Routine tree trimming on 27.9 miles of the feeder was completed in 2005.
- The recloser at Old Forge in was replaced with a circuit breaker in 2008.

Action Plan:

- Perform hazard tree removals on the 46kV transmission line.
- Hazard tree review is recommended for the feeder on Bisby Rd in 2009.
- Install automatic reporting capability on the breakers located on the Boonville - Raquette Lake 46kV transmission line in 2008/2009.
- Additional insulator replacements are scheduled to be performed on the 46kV in 2009.

18. CHADWICKS 66852 13.2kV

Profile: 2,420 Customers

Indices: CAIDI = 2.48, SAIFI = 1.26

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	4	10.8%	91	3.0%	161	2.1%
3	OVERLOADS	1	2.7%	16	0.5%	52	0.7%
4	OPER. ERROR	1	2.7%	50	1.6%	21	0.3%
5	EQUIPMENT	5	13.5%	51	1.7%	55	0.7%
6	ACCIDENTS	10	27.0%	2,621	86.0%	7,036	93.1%
7	PREARRANGED	5	13.5%	64	2.1%	25	0.3%
8	CUST. EQUIP.	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	7	18.9%	70	2.3%	139	1.8%
10	UNKNOWN	4	10.8%	85	2.8%	72	0.9%
	Totals	37	100.0%	3,048	100.0%	7,560	100.0%

Problem Analysis:

- There were no interruptions on the transmission or substation facilities in 2008.
- One of the 10 accident-related interruptions on the distribution facilities in 2008 resulted in 2,412 customers interrupted or 79% of the total number of customers interrupted and 6,633 customer hours interrupted or 88% of the total number of customer hours interrupted in 2008. The cause of this interruption was fire. Five (5) of the accident-related interruptions were due to customer activities; however, none of the activities resulted in a significant number of customers interrupted or customer hours interrupted.
- Routine tree trimming was performed on 54.6 miles of the feeder in 2006.
- An Engineering Reliability Review was performed on this feeder in 2006.
- Two reclosers were installed on the feeder; one in 2006 and one in 2007.

Action Plan:

- Monitor the results of the recloser installations in 2009.

19. TURIN ROAD 65356 13.2kV

Profile: 1,288 Customers, 89.2 Circuit Miles

Indices: CAIDI = 2.96, SAIFI = 1.20

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	16	44.4%	923	59.7%	3,086	67.3%
3	OVERLOADS	0	0.0%	0	0.0%	0	0.0%
4	OPER. ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	16	44.4%	607	39.3%	1,468	32.0%
6	ACCIDENTS	2	5.6%	2	0.1%	7	0.2%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
8	CUST. EQUIP.	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	1	2.8%	1	0.1%	7	0.2%
10	UNKNOWN	1	2.8%	12	0.8%	15	0.3%
	Totals	36	100.0%	1,545	100.0%	4,583	100.0%

Problem Analysis:

- There were no interruptions on the transmission or substation facilities in 2008.
- There were sixteen (16) tree-related interruptions on the distribution facilities in 2008. They resulted in 923 customers interrupted or 60% of the total number of customers interrupted and 3,086 customer hours interrupted or 67% of the total number of customer hours interrupted for 2008. There were two major storms that impacted the feeder in 2008. If the tree-related events of those two storms were added to the tree cause code category, the number of tree-related events in 2008 would increase to thirty-three (33), the number of customers interrupted would be 1,837, and the number of customer hours interrupted would be 21,914.
- There were sixteen (16) equipment-related interruptions in 2008. They resulted in 607 customers interrupted or 39% of the total number of customers interrupted and 1,468 customer hours interrupted or 32% of the total number of customer hours interrupted.
- Routine tree trimming on 89.2 miles of the feeder was completed in 2006.
- Danger tree removals were performed on the three-phase portions of the feeder in 2004.
- Two reclosers were installed on the feeder in 2007.

Action Plan:

- Monitor past hazard tree removals on the circuit in 2009.
- Perform a fuse coordination review on the feeder in 2009.
- Perform a hazard tree review on the single-phase portions of Statzer, Witzigman, Creek and Boyd Roads in 2009.
- Perform T&D patrol and immediate maintenance on 89 miles in 2009 [especially Point Rock Road].

20. SHERMAN 33351 13.2kV

Profile: 1,132 Customers, 90 Circuit Miles.

Indices: CAIDI = 1.75, SAIFI = 1.91.

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	4	19.0%	326	15.0%	590	15.5%
3	OVERLOADS	0	0.0%	0	0.0%	0	0.0%
4	OPER. ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	10	47.6%	419	19.3%	375	9.8%
6	ACCIDENTS	1	4.8%	25	1.2%	21	0.5%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
8	CUST. EQUIP.	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	2	9.5%	250	11.5%	641	16.8%
10	UNKNOWN	4	19.0%	1,148	53.0%	2,185	57.3%
	Totals	21	100.0%	2,168	100.0%	3,812	100.0%

Problem Analysis:

- There was one (1) substation-related interruption at Trenton Station that resulted in 1,136 customers interrupted and 2,158 customer hours interrupted at Sherman Station. This interruption accounted for 52% of the customers interrupted and 57% of the customer hours interrupted for this facility category in 2008. The cause of this interruption is unknown.
- There were twenty (20) interruptions that occurred on the distribution facilities in 2008. They resulted in 1,032 customers interrupted or 48% of the total customers interrupted and 1,654 customer hours interrupted or 43% of the total customer hours interrupted.
- There were ten (10) equipment-related interruptions (47.6% of total number of interruptions) that occurred on the distribution facilities in 2008.
- There were two (2) lightning-related interruptions (9.5% of total number of interruptions) that occurred on the distribution facilities in 2008. One of these lightning-related interruptions resulted in 200 customers interrupted or 80% of the total number of customers interrupted for this cause code category and 420 customer hours interrupted or 65% of the total number of customer hours interrupted for this cause code category.
- Hazard tree removals were performed on the feeder in 2008.
- Routine tree trimming is scheduled for 89.9 miles of the feeder in FY2009.
- Two new reclosers were installed on the feeder; one in 2005 and one in 2008.

- Routine T&D maintenance was performed on 8.3 miles of the feeder in 2008.

Action Plan:

- Perform T&D patrol and immediate maintenance on Partridge Hill Road in 2009.
- Engineering Reliability Review Fusing is scheduled to be completed in 2010.

3. ACTION PLAN SUMMARIES

a. ACTION PLANS FOR 2008 WORST PERFORMING CIRCUITS

Station	Feeder	Report Year	Action Plan	Projected Compl. Date	Cost	Comments
Eagle Bay	38272	2009	Monitor results of hazard tree removals	Mar-2010	--	
			Install Automatic Reporting on the 46kV	Note 1	Note 1	
			Review 46kV for further insulator replacement	Dec-2009	Note 2	
Poland	62258	2009	Monitor results of hazard tree removals	Mar-2010	--	
			Perform routine tree trimming an 125.4 miles	Mar-2010		
			Perform hazard tree review	Mar-2010		
			Rebuild a portion of Hurricane Rd.	Mar-2011		Funding project C15749
Lehigh	66954	2009	Create feeder tie with Rome 76252	Mar-2010	--	Funding Project C28617
			Monitor results of hazard tree removals	Mar-2010	--	
			Perform T&D Patrol on 111 miles of the feeder	Mar-2010	-	Town of Vienna past R6685
Lehigh	66952	2009	Create feeder tie with Colosse 32151	Mar-2010	--	Funding Project C28607
			Monitor results of hazard tree removals	Mar-2010	--	
			Routine tree trimming is scheduled for 79.7 miles	Mar-2010		
Lehigh	66953	2009	Create tie with Lighthouse Hill 6144	Mar-2010	--	
			Perform additional recloser review	Mar-2010	--	
			Perform T&D Patrol on 60 miles of the feeder	Mar-2010	-	
Old Forge	38362	2009	Install Automatic Reporting on the 46kV	Note 1	Note 1	
			Review 46kV for further insulator replacement	Dec-2009	Note 2	
			Perform T&D Patrol on South Shore Road	Dec-2009	--	
			Perform additional recloser review	Mar-2010	--	

Station	Feeder	Report Year	Action Plan	Projected Compl. Date	Cost	Comments
Lehigh	66951	2009	Create feeder tie with Turin Road 65355			Funding Project C28609
			Perform additional recloser review	Mar-2010	--	
			Perform hazard tree review	Mar-2010		Coal Hill Rd and Glenmore Rd
Poland	62257	2009	Monitor results of hazard tree removals	Mar-2010	--	
			Rebuild facilities on Old Newport Road	Mar-2011	--	Funding Project C28622
			Install recloser on Old Newport Road	Mar-2011		
			Perform routine tree trimming an 84.7 miles	Mar-2010		
White Lake	39963	2009	Perform hazard tree removals on the 46kV	Mar-2010	--	
			Install Automatic Reporting on the 46kV	Note 1	Note 1	
			Replace 46kV recloser with a new breaker			
			Review 46kV for additional insulator replacement	Dec-2009	Note 2	
Eagle Bay	38271	2009	Monitor results of hazard tree removals	Mar-2010	-	
			Install Automatic Reporting on the 46kV	Note 1	Note 1	
			Review 46kV for additional insulator replacement	Dec-2009	Note 2	
Alder Creek	70152	2009	Perform T&D Patrol on 75 miles of the feeder	Mar-2010	--	
			Monitor results of hazard tree removals	Mar-2010		Esp. Echo Lk and N. Pond Rds
			Install Automatic Reporting on the 46kV	Note 1	Note 1	
			Review 46kV for further insulator replacement	Dec-2009	Note 2	
			Add 46kV breaker at White Lake	TBD	--	Pending outage on the 46kV transmission line

Station	Feeder	Report Year	Action Plan	Projected Compl. Date	Cost	Comments
Alder Creek	70161	2009	Monitor results of hazard tree removals	Mar-2010	--	Lake Julia Road
			Install Automatic Reporting on the 46kV	Note 1	Note 1	
			Review 46kV for additional insulator replacement	Dec-2009	Note 2	
			Add 46kV breaker at White Lake	TBD	--	Pending outage on the 46kV transmission line
			Perform T&D Patrol on 47 miles of the feeder	Mar-2010		Esp. Dayton and Brown Tract Roads
Old Forge	38364	2009	Install Automatic Reporting on the 46kV	Note 1	Note 1	
			Review 46kV for additional insulator replacement	Dec-2009	Note 2	
Raquette Lake	39861	2009	Monitor results of hazard tree removals	Mar-2010	--	
			Install Automatic Reporting on the 46kV	Note 1	Note 1	
			Review 46kV for additional insulator replacement	Dec-2009	Note 2	
Sherman	33352	2009	Monitor results of hazard tree removals	Mar-2010	--	
			Perform a lightning protection review	Mar-2010		Three phase portions of NYS Route 365
Rock City	62370	2009	Replace 46kV insulators	Dec-2009	Note 2	
			Implement recommendations of ERR	2010/2011	--	
Old Forge	38361	2009	Install Automatic Reporting on the 46kV	Note 1	Note 1	
			Review 46kV for additional insulator replacement	Dec-2009	Note 2	
			Monitor results of hazard tree removals	Mar-2010		
Chadwicks	66852	2009	Monitor results of recloser additions		--	

Station	Feeder	Report Year	Action Plan	Projected Compl. Date	Cost	Comments
Turin Road	65356	2009	Monitor results of hazard tree removals	Mar-2010	--	
			Perform T&D Patrol on 89 miles of the feeder	Mar-2010		Point Rock road
			Perform hazard tree review	Mar-2010		Statzer, Wizigman, Creek and Boyd Roads
			Perform fuse coordination review	Mar-2010		
Sherman	33351	2009	Perform T&D Patrol	Mar-2010	--	
			Install additional fuses per ERR recommendation	Mar-2010	--	PDS NC-P00235-09-01

Notes:

1. New automatic reporting capability control units have been installed on the Boonville – Raquette Lake 46kV transmission line at Old Forge and Eagle Bay substations and White Lake is pending. The estimated cost for this work is \$140,000 per site. The old reclosers at Eagle Bay and Old Forge have been replaced with breakers. The old recloser at White Lake is scheduled to be replaced with breakers in 2009/10. The estimated cost for the breakers and associated site work at each substation is \$350,000. These projects will help the reliability of all five substations connected to this line by isolating problems on the 46kV more efficiently and by providing real time interruption reporting.
2. 46kV insulator replacements were performed on various segments of the Boonville - Raquette Lake 46kV transmission line from Boonville to Raquette Lake. The approximate cost of the replacements was \$364,000. Additional insulators are scheduled to be replaced in 2009 as poles are being replaced as part of a DOT Highway Relocation Project and pole replacement program.

b. STATUS OF ACTION PLANS FOR 2007 WORST PERFORMING CIRCUITS

Station	Feeder	Report Year	Action Plan	Projected Compl. Date	Cost	Comments
Eagle Bay	38272	2008	Monitor results of tree removals	Dec-08	--	
			Install Automatic Controls on the 46kV	Note 1	Note 1	
			Install new recloser on NYS 28	Mar-09	\$38,000	
			Replace 46kV insulators at angle structures	Dec-08	Note 2	
Poland	62258	2008	Monitor results of tree removals	Dec-08	\$1,312	
			Implement recommendations from ERR	Mar-09	\$3,000	Additional mainline fusing
			Upgrade facilities on Hurricane and Bull Hill Rds	Dec-08	\$386,300	Bull Hill Rd – Complete; Hurricane Rd 2009
Poland	62257	2008	Monitor results of tree removals	Dec-08	--	
			Implement recommendations from ERR	Mar-09	\$76,000	Two new reclosers were installed in 2008
			Rebuild distribution facilities on Newport Rd.	TBD	--	Deferred to future year
Alder Creek	70152	2008	Monitor results of tree removals	Dec-08	--	
			Install Automatic Controls on the 46kV	Note 1	Note 1	
			Planned 46kV hazard tree removals	Dec-08	\$50,000	
			Replace 46kV insulators at angle structures	Dec-08	Note 2	
Eagle Bay	38271	2008	Monitor results of tree removals	Dec-08	--	
			Install Automatic Controls on the 46kV	Note 1	Note 1	
			Planned 46kV hazard tree removals	Dec-08	--	
			Replace 46kV insulators at angle structures	Dec-08	Note 2	

Station	Feeder	Report Year	Action Plan	Projected Compl. Date	Cost	Comments
Old Forge	38362	2008	Monitor results of tree removals	Dec-08	--	
			Install Automatic Controls on the 46kV	Note 1	Note 1	
			Planned 46kV hazard tree removals	Dec-08	--	See Alder Creek 70152
			Replace 46kV insulators at angle structures	Dec-08	Note 2	
White Lake	39963	2008	Install Automatic Controls on the 46kV	Note 1	Note 1	
			Planned 46kV hazard tree removals	Dec-08	--	See Alder Creek 70152
			Replace 46kV insulators at angle structures	Dec-08	Note 2	
			Evaluate distribution for recloser addition(s)	Mar-09	\$38,000	A new recloser was installed in August 2008
Old Forge	38361	2008	Monitor results of tree removals	Dec-08	--	
			Planned 46kV hazard tree removals	Dec-08	--	See Alder Creek 70152
			Install Automatic Controls on the 46kV	Note 1	Note 1	
			Replace 46kV insulators at angle structures	Dec-08	Note 2	
Lehigh	66954	2008	Monitor results of tree removals	Dec-08	--	
			Implement recommendations from ERR	Mar-09	TBD	Proposed for FY2010 budget
Lehigh	66952	2008	Monitor results of recloser installations	Dec-08	--	
			Review for 3-phase hazard tree removals	Dec-08	\$20,891	
			Patrol and immediate maintenance on 52 miles	Dec-08	\$326,323	Level 2 and level 3 maintenance
Middleville	66671	2008	Monitor results of tree removals	Dec-08	--	
			Evaluate distribution for recloser addition(s)	Mar-09	\$38,000	A new recloser is scheduled for 2009
Rock City	62370	2008	Implement recommendations from ERR	Mar-09	defer	Improve circuit tie with S. Washington St.
			Monitor 46kV insulators for replacement	Dec-08	--	

Station	Feeder	Report Year	Action Plan	Projected Compl. Date	Cost	Comments
Raquette Lake	39861	2008	Monitor results of tree removals	Dec-08	--	
			Install Automatic Controls on the 46kV	Note 1	Note 1	
			Replace 46kV insulators at angle structures	Dec-08	Note 2	
			Planned 46kV hazard tree removals	Dec-08	--	See Eagle Bay 38271
Alder Creek	70161	2008	Install Automatic Controls on the 46kV	Note 1	Note 1	
			Replace 46kV insulators at angle structures	Dec-08	Note 2	
			Planned 46kV hazard tree removals	Dec-08	--	See Alder Creek 70152
Oneida	50153	2008	Implement recommendations from ERR	Mar-09	--	
			Evaluate distribution for recloser addition	Mar-09	--	No new locations identified
Old Forge	38364	2008	Monitor results of tree removals	Dec-08	--	
			Planned 46kV hazard tree removals	Dec-08	--	See Alder Creek 70152
			Install Automatic Controls on the 46kV	Note 1	Note 1	
			Replace 46kV insulators at angle structures	Dec-08	Note 2	
Peterboro	51453	2008	Monitor results of recloser addition	Mar-09	--	
			Implement recommendations from patrols	Mar-09		
Turin Road	65358	2008	Monitor results of recloser additions	Dec-08	--	
			Monitor results of past hazard tree removals	Dec-08	--	
Sherman	33351	2008	Routine tree trimming is scheduled for 90 miles	Dec-08	\$287,680	
			Patrol and immediate maintenance on 51 mi.	Dec-08	\$119,000	
Oneida	50157	2008	Monitor results of recloser additions	Dec-08	--	
			Routine tree trimming is scheduled for 81.9 miles	Dec-08	\$262,000	
			Evaluate distribution for recloser addition	Mar-09	\$38,000	A new recloser is scheduled for 2009

Notes:

1. New automatic reporting capability control units have been installed on the Boonville – Raquette Lake 46kV transmission line at Old Forge and Eagle Bay substations and White Lake is pending. The estimated cost for this work is \$140,000 per site. The old reclosers at Eagle Bay and Old Forge have been replaced with breakers. The old recloser at White Lake is scheduled to be replaced with breakers in 2009/10. The estimated cost for the breakers and associated site work at each substation is \$350,000. These projects will help the reliability of all five substations connected to this line by isolating problems on the 46kV more efficiently and by providing real time interruption reporting.
2. 46kV insulator replacements were performed on various segments of the Boonville - Raquette Lake 46kV transmission line from Boonville to Raquette Lake. The approximate cost of the replacements was \$364,000. Additional insulators are scheduled to be replaced in 2009 as poles are being replaced as part of a DOT Highway Relocation Project and pole replacement program.

Section H

H. NORTHEAST REGION

1. OPERATING REGIONAL PERFORMANCE

a. CAIDI AND SAIFI INDICES FROM 2004 TO 2008

	2008	2007	2006	2005	2004
CAIDI (Target 2.50)	2.22	2.43	2.67	3.01	2.72
SAIFI (Target 1.20)	0.91	1.21	1.41	1.28	1.29
SAIDI	2.01	2.96	3.77	3.86	3.51
Interruptions	2,331	2,886	2,670	2,595	2,935
Customers Interrupted	192,906	260,696	302,247	272,435	271,789
Customers Hours Interrupted	428,160	635,723	806,428	820,730	738,712
Customers Served	212,710	214,642	213,571	212,447	210,491
Customers Per Interruption	82.76	90.33	113.20	104.98	92.60
Availability Index	99.9770	99.9660	99.9568	99.9559	99.9590
Interruptions/1000 customers	10.96	13.44	12.50	12.21	13.94

b. DISCUSSION OF REGIONAL PERFORMANCE

The Northeast regional statistics for 2008 show an improvement when compared to the 2007 statistics for all measures, and the region met the PSC minimum requirements for CAIDI and SAIFI.

Excluding the impact of major storms, the frequency statistics were at the lowest levels since 2000, and were down significantly from 2007. SAIFI was down 25%, the number of interruptions was down 19, and the number of customers interrupted was down 26%.

The duration statistics showed considerable improvement from 2007 as well. SAIDI and customer hours of interruption were both down to levels not seen since 2000, while CAIDI was at its lowest level since 2001.

The improvements in all these indices were partially due to the high number of major storms experienced in 2008, which were excluded from the results. But most of the gain can be attributed to the various reliability improvement programs being implemented by National Grid.

A significant portion of the subtransmission and some of the transmission in the Northeast region is radial, located in relatively remote areas with dense vegetation and difficult access. These characteristics make the circuits served from these transmission lines more susceptible to outages with potentially longer interruptions. Despite this fact, the impact of interruptions on the transmission and/or subtransmission systems in the Northeast region decreased significantly for the second year in a row. The number of transmission-related outages decreased from 26 in 2007 to 15 in 2008, a decrease of 42%, while the number of customers interrupted decreased by 20,169 (31%) and the customer hours of interruption decreased by 83,999 (47%). This improvement in performance on the transmission system can be attributed to the number of transmission rebuild projects which have been completed in the last couple of years and increased attention to tree trimming along the transmission corridors.

The impact of substation-related interruptions remained mixed in 2008. The number of substation-related outages decreased from 12 in 2007 to 10 in 2008; however, the number of customers interrupted increased 2,685 customers (12%), while the number of customer hours of interruption decreased 773 (2%).

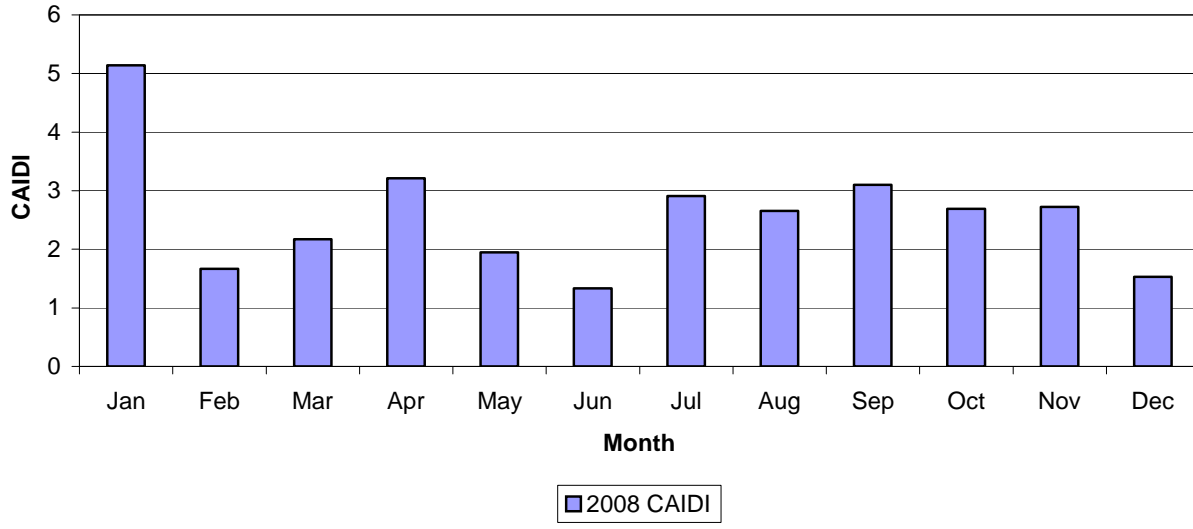
The impact of distribution-related interruptions improved significantly in 2008. The number of distribution-related interruptions decreased 542 (19%) when compared to 2007, while the number of customers interrupted decreased 50,306 (30%) and the customer hours of interruption decreased 122,823 (30%).

The improvement in the performance of the transmission and distribution systems combined accounts for the decrease in CAIDI, SAIFI and SAIDI observed in 2008.

c. MONTHLY CAIDI AND SAIFI GRAPHS

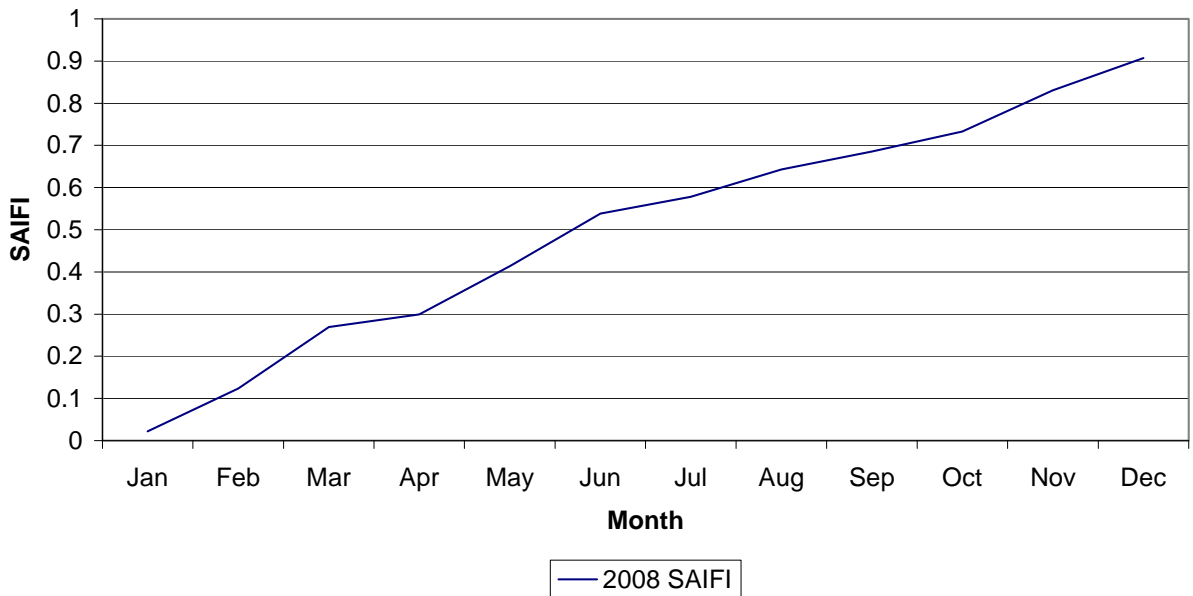
The graphs on the following page show the monthly CAIDI and SAIFI for the Northeast Region for 2008. The CAIDI index in the Northeast Region started out the year very high, with a CAIDI of 5.14 hours in January. In addition, the months of April and September both had CAIDI in excess of 3 hours. However, these three months also happened to be the months with the lowest number of interruptions and thus had the smallest impact on the annual CAIDI. These months were balanced by some very good months, topped by the month of June which had the second highest number of interruptions but a CAIDI of 1.33 hours. The Northeast Region remained considerably below the SAIFI target for the year with a SAIFI of 0.91.

GRAPH OF MONTHLY CAIDI AND SAIFI FOR NORTHEAST REGION



PSC CAIDI Goal :	
Minimum	2.50
2008 Actual	2.22

PSC SAIFI Goal:	
Minimum	1.20
2008 Actual	0.91



d. PSC CAUSE CODES

Cause Code	Interruptions		Customers		Customer Hours	
	Number	% Total	Number	% Total	Number	% Total
(1) Major Storms	1,402	37.5%	184,480	48.9%	856,508	66.7%
(2) Tree Contacts	660	17.7%	45,498	12.1%	109,426	8.5%
(3) Overload	22	0.6%	4,018	1.1%	17,310	1.3%
(4) Errors	4	0.1%	29	0.0%	85	0.0%
(5) Equipment	582	15.6%	43,510	11.5%	118,042	9.2%
(6) Accidents	402	10.8%	36,560	9.7%	84,296	6.5%
(7) Prearranged	60	1.6%	5,508	1.5%	2,522	0.2%
(8) Cust. Equip.	25	0.7%	142	0.0%	725	0.1%
(9) Lightning	183	4.9%	9,204	2.4%	21,556	1.7%
(10) Unknown	393	10.5%	48,437	12.8%	74,197	5.8%
Total	3,733	100.0%	377,386	100.0%	1,284,667	100.0%

e. INTERRUPTION REVIEW BY PSC CAUSE CODES

The Northeast Region experienced eleven (11) severe weather conditions in 2008 that qualified as major storms. The PSC criteria allow each region to exclude major storm interruptions from the CAIDI and SAIFI indices. Therefore, except for the above table and all calculations within this section (Section e), all data and percentages throughout this report are calculated with major storms excluded. Including major storm-related interruptions, the number of interruptions increased by 146 interruptions (4.1%) in 2008 when compared to 2007, while the number of customers interrupted decreased 213,360 (36%), and the customer hours of interruption decreased 788,463 (-38%).

Cause Code 01 “Major Storms”

The Northeast Region experienced eleven major storms in 2008 which caused 1,402 interruptions (37.5%), interrupted 184,480 customers (48.9%), and accounted for 856,508 customer hours of interruption (66.7%). This was exactly double the number of major storm-related interruptions experienced in the Northeast Region in 2007; however, the number of customers interrupted decreased 145,570 (-44.1%), and the customer hours of interruption decreased 580,886 (-40.4%).

The increase in the number of interruptions in 2008 can be attributed to the increase in the number of major storms from 7 in 2007 to 11 in 2008. In addition, the decrease in the number of customers interrupted and the decrease in the customer hours of interruption from 2007 to 2008 can be attributed to the various reliability improvements programs being implemented by National Grid which are helping to reduce the impact of the outages.

Cause Code 02 “Tree Contacts”

The Northeast Region experienced 660 (18%) tree-related interruptions in 2008, which resulted in 45,498 (12%) customers interrupted and 109,426 (9%) customer hours of interruption. Excluding the impact of major storms, the cause code table indicates that trees were the single largest contributor to the number of interruptions and the second largest contributor to customers interrupted and customer hours of interruption. Tree-related outages in 2008, when compared to 2007, decreased significantly. The number of tree-related interruptions was down by 105 (14%), while the number of customers interrupted decreased 11,418 (20%), and the customer hours of interruption were down 34,326 (24%).

Tree-related outages on the transmission and subtransmission systems decreased in 2008, and their contribution to overall reliability metric decreased significantly. The number of tree-related outages on the transmission system decreased from 5 in 2007 to 1 in 2008, a decrease of 80%. This interruption affected 1,092 customers (2% of tree-related customers interrupted) and accounted for 5,750 customer hours of interruption (5% of tree-related customer hours), which is a decrease of 13,060 customer hours of interruption (-92%) and 22,500 customer hours of interruption (-80%) from 2007.

The reduction in tree-related improvements are due to the increase in number of major storms, better tree trimming practices, and an increase in the number of side tap fuses which better isolate tree problems, thus reducing the number of customers impacted and helping to speed of repairs

Cause Code 03 “Overloads”

The Northeast Region experienced only 22 (0.6%) interruptions related to overloads in 2008, which resulted in 4,018 (1.1%) customers interrupted and 17,310 (1.3%) customer hours of interruption.

Cause Code 04 “Errors”

There were only 4 interruptions due to errors in the Northeast Region in 2008.

Cause Code 05 “Equipment Failures”

In 2008, the Northeast Region experienced 582 interruptions (15.6%) due to equipment failures. These interruptions affected 43,510 customers (12%) and accounted for 118,042 customer hours of interruption (9%). When compared to 2007, the number of interruptions due to equipment failures decreased by 60 (9%), while the customers interrupted decreased by 35,895 customers (45%), and the customer hours of interruption decreased 106,053 (47%). Equipment failures were the second largest contributor to the number of interruptions, the third largest contributor to customers interrupted, and the largest contributor to customer hours of interruption in 2008 (excluding major storms).

Equipment failures on the transmission and subtransmission systems increased from 9 interruptions in 2007 to 11 interruptions in 2008. However, the impact of these 11 interruptions was considerably less in 2008 than it was in 2007. These 11 interruptions affected 14,510 customers (33%) and accounted for 45,274 customer hours of interruption (38%), which is a decrease of 8,935 customers interrupted (-38%) and 31,320 customer hours of interruption (-41%) from 2007.

A comparison of the 2007 and 2008 interruptions attributable to equipment failures shows that the aforementioned decrease in customers interrupted and customer hours of interruption can be attributed to the increase in performance of the transmission and subtransmission systems, as well as a decrease in the number of equipment-related outages on the distribution system as older equipment is replaced in the feeder hardening and maintenance programs.

Cause Code 06 “Accidents”

Accidents were once again the third largest contributor (excluding major storms) to the number of interruptions at 402 (11%) and customer hours of interruption at 84,296 (7%), and the fourth largest contributor to customers interrupted at 36,560 (10%). When compared to 2007, the number of interruptions due to accidents decreased by 171 (-30%), the number of customers interrupted decreased by 14,810 (29%), and the customer hours of interruption decreased 16,443 hours (-16%).

Animals were by far the largest contributor to the number of accident-related interruptions at 225 (60%), but only the second largest contributor to customers interrupted at 7,460 (20%) and the third largest contributor to customer hours of interruption at 10,860 (13%). Motor vehicle accidents were the second largest contributor to the number of accident-related interruptions at 82 (20%), the third largest contributor to customers interrupted at 6,710 (18%), and the largest contributor to customer hours of interruption at 35,116 (42%).

Cause Code 07 “Prearranged”

The Northeast Region scheduled 60 interruptions (2%) in 2008, and these interruptions affected 5,508 customers (2%) and accounted for 2,522 customer hours of interruption (0.2%). When compared to 2007, the scheduled interruptions increased by 10 (20%), while the number of customers interrupted decreased by 7,120 customers (-56%) and the customer hours of interruption decreased by 16,473 hours (-87%). These decreases can be attributed to the avoidance of any large planned interruptions and the use of alternatives where available to avoid interruptions whenever possible.

Cause Code 08 “Customer Equipment”

The Northeast Region experienced only 25 (0.7%) interruptions related to customer equipment problems in 2008, which resulted in 142 (0.0%) customers interrupted and 725 (0.1%) customer hours of interruption.

Cause Code 09 “Lightning”

The Northeast Region experienced 183 interruptions (4.9%) caused by lightning in 2008, a decrease of 66 interruptions (-27%) from 2007. Customers interrupted by lightning in 2008 numbered 9,204 (2%), a decrease of 62% from 2007. In addition, there were 21,556 customer hours of interruption (2%) in 2008, a decrease of 69% from 2007.

Cause Code 10 “Unknown”

The Northeast Region experienced 393 interruptions (11%) due to unknown causes in 2008, accounting for 48,437 customers interrupted (13%) and 74,197 customer hours of interruption (6%). When compared to 2007, the number of interruptions due to unknown causes decreased by 158 outages (29%), while the number of customers interrupted increased by 14,954 customers (45%) and the customer hours of interruption increased by 2,360 hours (3%).

2. OPERATING CIRCUIT LISTS

This section includes the following three (3) tables and worst performing feeder analysis for the Northeast Region.

- a. Worst Performing Circuit List
- b. Worst Performing Circuits with 3 Year History for CAIDI & SAIFI Indices
- c. Worst Performing Circuits by # of Momentary Interruptions

a. NATIONAL GRID WORST PERFORMING CIRCUIT LIST

NORTHEAST REGION

FEEDER #	A CUST. SERVED	B TOTAL INTER.	C # CUST. INTER.	D CUST. HRS. INTER.	D/A SAIDI	D/C CAIDI	C/A SAIFI	NUMBER OF MOMENTARIES
Ashley 33151	1,087	37	3,894	9,499	8.73	2.43	3.58	6
Caroga Lake 21932	2,148	20	7,027	28,474	13.25	4.05	3.27	0
Clinton Street 36653	2,697	19	10,607	33,993	12.60	3.20	3.93	3
Gilmantown 15451	1,973	41	4,321	13,000	6.58	3.00	2.19	3
Worcester 18924	1,156	15	3,776	18,618	16.10	4.93	3.26	2
Grand Street 43351	1,564	20	4,267	9,902	6.33	2.32	2.72	7
Brook Road 36955	3,105	43	4,469	21,010	6.76	4.70	1.43	2
Sharon 36352	1,779	21	3,738	9,863	5.54	2.63	2.10	0
Delanson 26951	1,969	28	5,746	5,416	2.75	0.94	2.91	7
Schroon Lake 42951	2,206	39	4,700	5,701	2.58	1.21	2.13	3
Schenevus 26127	1,028	10	4,373	12,502	12.16	2.85	4.25	3
Cedar 45351	1,725	28	3,080	6,582	3.81	2.13	1.78	5
North Creek 12251	1,881	56	2,819	6,384	3.39	2.26	1.49	4
Middleburg 39052	2,153	30	4,156	6,462	3.00	1.55	1.93	3
Corinth 28552	1,722	15	3,068	11,538	6.70	3.76	1.78	2

FEEDER #	A CUST. SERVED	B TOTAL INTER.	C # CUST. INTER.	D CUST. HRS. INTER.	D/A SAIDI	D/C CAIDI	C/A SAIFI	NUMBER OF MOMENTARIES
Northville 33252	2,289	29	2,648	9,858	4.30	3.72	1.15	0
Fort Gage 31954	2,172	37	5,837	4,146	1.90	0.71	2.68	3
Wilton 32952	1,386	20	2,972	3,980	2.87	1.33	2.14	4
East Worcester 6021	679	9	2,102	6,359	9.36	3.02	3.09	1
Vail Mills 39253	3,042	45	3,194	9,939	3.26	3.11	1.05	1

NOTE: This table excludes circuits with fewer than 2 interruptions or serving less than 100 customers.

b. NATIONAL GRID WORST PERFORMING CIRCUITS WITH 3 YEAR HISTORY FOR CAIDI AND SAIFI

NORTHEAST REGION

FEEDER #	2008 CAIDI	2007 CAIDI	2006 CAIDI	2005 CAIDI	2008 SAIFI	2007 SAIFI	2006 SAIFI	2005 SAIFI
Ashley 33151	2.43	2.85	3.10	3.71	3.58	1.31	0.66	2.31
Caroga Lake 21932	4.05	2.27	3.50	6.08	3.27	0.61	0.83	3.43
Clinton Street 36653	3.20	1.29	2.55	4.69	3.93	0.66	4.02	1.38
Gilmantown 15451	3.00	1.86	3.99	2.98	2.19	2.48	5.87	3.60
Worcester 18924	4.93	3.08	4.00	3.90	3.26	3.51	0.17	2.04
Grand Street 43351	2.32	2.33	4.75	1.69	2.72	0.20	1.22	1.59
Brook Road 36955	4.70	2.59	1.36	2.11	1.43	0.81	2.98	1.56
Sharon 36352	2.63	2.52	5.93	1.48	2.10	2.58	0.25	1.35
Delanson 26951	0.94	0.88	2.09	1.58	2.91	1.74	1.19	2.97
Schroon Lake 42951	1.21	2.19	3.20	7.59	2.13	7.24	2.66	4.15
Schenevus 26127	2.85	3.17	5.21	2.65	4.25	3.40	0.30	6.70
Cedar 45351	2.13	3.86	1.11	2.26	1.78	0.52	0.15	1.52
North Creek 12251	2.26	4.62	2.68	4.01	1.49	2.10	1.78	0.76
Middleburg 39052	1.55	2.61	2.34	2.64	1.93	0.35	0.28	3.03
Corinth 28552	3.76	1.64	2.46	1.12	1.78	1.72	1.34	1.27
Northville 33252	3.72	1.44	5.03	2.97	1.15	0.74	2.57	0.37

FEEDER #	2008 CAIDI	2007 CAIDI	2006 CAIDI	2005 CAIDI	2008 SAIFI	2007 SAIFI	2006 SAIFI	2005 SAIFI
Fort Gage 31954	0.71	2.89	1.86	2.99	2.68	2.82	7.51	2.06
Wilton 32952	1.33	1.15	0.94	1.69	2.14	4.28	4.04	1.46
East Worcester 6021	3.02	2.15	2.97	3.77	3.09	3.12	0.17	2.13
Vail Mills 39253	3.11	6.08	4.86	3.71	1.05	0.87	0.96	4.79

Regional Goal: CAIDI Min. 2.50
SAIFI Min. 1.20

c. NATIONAL GRID WORST PERFORMING CIRCUITS BY # OF MOMENTARY INTERRUPTIONS

No circuits in the Northeast Region experienced more than 10 momentaries in 2008.

d. WORST PERFORMING CIRCUIT ANALYSIS

The Northeast region has 20 Worst Performing Feeders to analyze for 2008. This year, the Northeast region's list of Worst Feeders consists of sixteen (16) 13.2 kV and four (4) 4.8 kV feeders.

For the Northeast region, the PSC minimum CAIDI is 2.50 and the PSC minimum SAIFI is 1.20.

1. ASHLEY 33151 13.2kV

Profile: 1,087 Customers, 85.1 Circuit Miles.

Indices: CAIDI = 2.43, SAIFI = 3.58

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	10	25.6%	1,230	31.6%	6,073	63.9%
5	EQUIPMENT	8	20.5%	1,128	29.0%	1,367	14.4%
6	ACCIDENTS	8	20.5%	1,477	37.9%	1,910	20.1%
9	LIGHTNING	3	7.7%	12	0.3%	76	0.8%
10	UNKNOWN	10	25.6%	47	1.2%	78	0.8%
	Totals	39	100.0%	3,894	100.0%	9,505	100.0%

Problem Analysis:

- Three of the 39 outages in 2008 (7.7%) were the result of problems (1 - tree, 1 - equipment, 1 - accident) on the radial Ashley-Glens Falls #5, 34.5 kV transmission line. These three outages interrupted 3,270 customers (84.0%) and accounted for 8,201 customer hours of interruption (86.3%).
- While nine of the 39 total interruptions in 2008 were the result of trees on the distribution system (23.1%), trees accounted for only 139 of the customers interrupted (3.6%) and 323 customer hours interrupted (3.4%).
- There were ten outages of unknown origin in 2008 (25.6%), which accounted for only 47 of the customers interrupted (1.2%) and 78 customer hours interrupted (0.8%). Of those ten outages, seven affected only one customer each, and one outage affected only two customers.
- There are three single-phase reclosers on the Ashley 33151, two of which were installed in 2005 and the third was installed in 2007. There are no 3-phase reclosers at this time.
- A maintenance foot patrol was performed on the Ashley 33151 in 2007.
- A capital construction project was completed in 2008 to construct a feeder tie from the Ashley 33151 to the Burgoyne 33753.

- A maintenance foot patrol was performed on the Ashley-Glens Falls #5, 34.5 kV transmission line in 2008 and all level 1 and level 2 maintenance has been completed.

Action Plan:

- An Engineering Reliability Review (ERR) is scheduled for the Ashley 33151 in FY2010.
- Loop scheme reclosers are scheduled to be installed between the Ashley 33151 and the Burgoyne 33753 in 2009 which will automatically restore service to 679 of the 1,087 customers (62.5%) in the event of a future transmission outage.
- Complete all identified level 3 maintenance on the Ashley-Glens Falls #5, 34.5 kV line.
- An infrared feeder patrol of the Ashley-Glens Falls #5, 34.5 kV transmission line is scheduled for 2009.

2. CAROGA LAKE 21932 4.8kV

Profile: 2,148 Customers, 73.0 Circuit Miles.

Indices: CAIDI = 4.05, SAIFI = 3.27

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	11	47.8%	192	2.7%	905	3.2%
5	EQUIPMENT	6	26.1%	2,215	31.5%	8,147	28.6%
6	ACCIDENTS	2	8.7%	66	0.9%	99	0.3%
9	LIGHTNING	2	8.7%	2,352	33.5%	5,886	20.7%
10	UNKNOWN	2	8.7%	2,202	31.3%	13,425	47.2%
	Totals	23	100.0%	7,027	100.0%	28,461	100.0%

Problem Analysis:

- Two of the 23 outages in 2008 (8.7%) were the result of problems within the Ephratah Substation (1 - equipment, 1 - lightning), which supplies the radial Ephratah-Caroga #2, 23 kV transmission line. These two outages interrupted 4,438 customers (63.2%) and accounted for 13,827 customer hours of interruption (48.6%).
- One of the two outages in 2008 which were of unknown origin occurred on the radial Ephratah-Caroga #2, 23 kV transmission line. This interruption affected 2,200 customers (31.3%) and accounted for 13,420 customer hours of interruption (47.2%).
- The two substation interruptions combined with the transmission interruption each impacted the entire feeder. Combined they accounted for only 13.0% of the outages in 2008, but they interrupted 6,638 customers (94.5%) and accounted for 27,247 customer hours of interruption (95.7%).
- Trees were the number one distribution problem on the Caroga Lake 21932 in 2008, accounting for 11 of the 23 interruptions (47.8%), but they affected only 192 customers (2.7%) and accounted for only 905 customer hours of interruption (3.2%). Of those 11 tree-related outages, five affected only one customer each, one affected only two customers, and no single outage affected more than 40 customers.
- There are six 3-phase reclosers on the Caroga Lake 21932. Two were new installations in 2008, two had new controllers installed in 2008, and the remaining two have been in service since the mid 1990's.
- An Engineering Reliability Review (ERR) was performed on the Caroga Lake 21932 in 2007.
- The Caroga Lake 21932 was tree trimmed in 2008 and hazard trees were removed in 2008.
- A maintenance foot patrol was completed on the Ephratah-Caroga #2, 23 kV transmission line in 2007 and an infrared scan was completed in 2008.

Action Plan:

- The installation of additional fuses and sectionalizing switches as recommended within the Engineering Reliability Review (ERR) has been designed and is scheduled to be constructed in 2009.
- A maintenance foot patrol of the Caroga Lake 21932 is scheduled for 2010.
- A major capital project was designed in 2007 and has been funded for construction in FY2010 to construct a three-phase, 13.2 kV tie from the Caroga Lake 21932 to the Gloversville 07253. This will include the installation of loop scheme reclosers which will automatically restore a portion of the Caroga Lake feeder from the Gloversville 07253 should there be a future outage of the radial Ephratah-Caroga #2, 23 kV transmission line or the substations on either end of this line. This project was previously scheduled for construction in 2008, but the necessary permit from the Adirondack Park Agency (APA) was not received until January 2009.

3. CLINTON 36653 13.2 kV

Profile: 2,697 Customers, 115.3 Circuit Miles.

Indices: CAIDI = 3.20, SAIFI = 3.93

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	3	13.6%	32	0.3%	50	0.1%
3	OVERLOADS	2	9.1%	2,694	25.4%	14,275	42.0%
5	EQUIPMENT	11	50.0%	1,489	14.0%	866	2.5%
6	ACCIDENTS	2	9.1%	3,699	34.9%	11,590	34.1%
9	LIGHTNING	3	13.6%	18	0.2%	88	0.3%
10	UNKNOWN	1	4.5%	2,675	25.2%	7,142	21.0%
	Totals	22	100.0%	10,607	100.0%	34,012	100.0%

Problem Analysis:

- One of the two outages in 2008 due to accidents was an emergency repair due to a failed lightning arrester on the 115 kV transmission system in the Clinton substation. This problem occurred while the second 115 kV line into the Clinton substation was out for maintenance, therefore causing the 115 kV bus at the Clinton station to go dead. This interruption affected 2,699 customers (25.4%) and accounted for 10,040 customer hours of interruption (29.5%). In an attempt to switch the customers on the Clinton 53 over to a Canajoharie feeder to restore service more quickly, the Canajoharie feeder was overloaded causing a conductor failure and a second outage affecting 2,693 customers (25.4%) and accounting for another 14,273 customer hours of interruption (42.0%). In total, this event accounted for two outages (9.1%), 5,392 customers interrupted (50.1%) and 24,313 customer hours of interruption (71.5%).
- The outage in 2008 which was of unknown origin occurred within the Clinton substation. This interruption affected 2,675 customers (25.2%) and accounted for 7,142 customer hours of interruption (21.0%).
- The above two events combined accounted for only 13.6% of the outages in 2008, but they interrupted 8,067 customers (76.1%) and accounted for 31,455 customer hours of interruption (92.5%).
- Equipment was the number one distribution problem on the Clinton 36653 in 2008, accounting for 11 of the 22 interruptions (50.0%), but they affected only 1,489 customers (14.0%) and accounted for only 866 customer hours of interruption (2.5%). The largest equipment-related outage affected 1,111 customers, but it only lasted 5 minutes and therefore accounted for only 89 customer hours of interruption.
- There are four 3-phase reclosers and one single-phase recloser on the Clinton 36653. Three of the 3-phase reclosers and the single-phase recloser were installed in 2008. The remaining 3-phase recloser was installed in 2000.

- An Engineering Reliability Review (ERR) was performed on the Clinton 36653 in 2008.
- Fusing was installed in 2008 as recommended in the Engineering Reliability Review (ERR).
- Feeder Hardening was performed on the Clinton 36653 in 2008.
- The Clinton 36653 was tree trimmed and hazard trees were removed in 2008.
- A maintenance foot patrol and infrared scan of the Clinton 36653 was completed in 2007.

Action Plan:

- A project recommended in the ERR is being designed and has been budgeted for construction in FY2010 to close distribution gaps on State Route 163 to allow the removal of rear lot distribution facilities.

4. GILMANTOWN ROAD 15451 13.2kV

Profile: 1,973 Customers, 77.6 Circuit Miles.

Indices: CAIDI = 3.00, SAIFI = 2.19

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	20	47.6%	2,177	50.4%	7,502	57.7%
5	EQUIPMENT	16	38.1%	2,122	49.1%	5,399	41.5%
6	ACCIDENTS	1	2.4%	3	0.1%	21	0.2%
9	LIGHTNING	3	7.1%	12	0.3%	40	0.3%
10	UNKNOWN	2	4.8%	7	0.2%	33	0.3%
	Totals	42	100.0%	4,321	100.0%	12,995	100.0%

Problem Analysis:

- One of the 16 equipment-related outages in 2008 was the result of a failed insulator on the 23 kV transmission system, affecting 1,964 customers (45.5%) and accounting for 4,773 customer hours of interruption (36.7%).
- Two of the 20 tree-related outages in 2008 impacted more than 100 customers. These two outages interrupted 1,923 customers (44.5%) and accounted for 5,776 customer hours of interruption (44.4%).
- The two major tree-related interruptions combined with the transmission interruption accounted for only 7.1% of the outages in 2008, but they interrupted 3,887 customers (90.0%) and accounted for 10,549 customer hours of interruption (81.2%).
- 32 of the 42 interruptions (76.2%) experienced in 2008 affected ten or fewer customers, and 14 of those affected only a single customer.
- There are six 3-phase reclosers and one single-phase recloser on the Gilmantown Road 15451. One of the 3-phase reclosers and the single-phase recloser were installed in 2008. Two of the remaining five 3-phase reclosers have recently had new controllers installed, one in 2008 and one in 2009. The remaining 3-phase reclosers have been in service since the mid 1990's.
- An Engineering Reliability Review (ERR) was performed on the Gilmantown Road 15451 in 2008.
- The Gilmantown Road 15451 was tree trimmed in its entirety in 2008.
- Preventative maintenance was performed on the Gilmantown Road 15451 in 2008.
- A maintenance foot patrol was performed on the radial Northville-Mayfield #8, 69 kV transmission line in 2008.
- An infrared scan of the radial Wells-Gilmantown #2, 23 kV transmission lines was completed in 2008.
- Tree trimming and widening of the Northville-Mayfield #8, Northville-Wells #1, and Wells-Gilmantown #2 transmission corridors was completed in 2008.

Action Plan:

- Feeder Hardening is scheduled to be performed on the Gilmantown Road 15451 in FY2010.
- Install fusing and sectionalizing switches as recommended in the ERR.
- Complete all identified maintenance on the Northville-Mayfield #8, 69 kV transmission line.
- A maintenance foot patrol of the Gilmantown Road 15451 is scheduled for 2009.
- A maintenance foot patrol of the Wells–Gilmantown #2, 23 kV transmission line is scheduled for 2009, while a foot patrol of the Northville-Wells #1, 23 kV line is scheduled for 2010.

5. WORCESTER 18924 4.8 kV

Profile: 1,156 Customers, 94.0 Circuit Miles.

Indices: CAIDI = 4.93, SAIFI = 3.26

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	1	5.9%	200	5.3%	946	5.1%
5	EQUIPMENT	3	17.6%	2,303	61.0%	17,211	92.4%
6	ACCIDENTS	4	23.5%	1,170	31.0%	201	1.1%
8	CUST. EQUIP.	2	11.8%	2	0.1%	4	0.0%
9	LIGHTNING	7	41.2%	101	2.7%	261	1.4%
	Totals	17	100.0%	3,776	100.0%	18,623	100.0%

Problem Analysis:

- Three of the 17 outages in 2008 (17.6%) were the result of problems (2 - equipment, 1 - accident) on the radial Cobleskill-Summit #5, 69 kV or Schenevus-Summit #3, 23 kV transmission lines. These three outages interrupted 3,459 customers (91.6%) and accounted for 17,346 customer hours of interruption (93.1%).
- Lightning was the number one distribution problem on the Worcester 18924 in 2008, accounting for seven of the 17 interruptions (41.2%), but they affected only 101 customers (2.7%) and accounted for only 261 customer hours of interruption (1.4%). Of those seven lightning-related outages, three affected only one customer each, and no single outage affected more than 50 customers.
- Eleven of the 17 interruptions in 2008 (64.7%) affected 10 customers or less.
- There are no reclosers on the Worcester 18924.
- Preventative maintenance was performed on the Worcester 18924 in 2008.
- A maintenance foot patrol was performed on the Schenevus-Summit #3, 23 kV line in 2008 and all level 1 and level 2 maintenance has been completed.
- An infrared scan of the Cobleskill-Summit #5, 69 kV and Schenevus-Summit #3, 23 kV transmission lines was completed in 2008.

Action Plan:

- An Engineering Reliability Review (ERR) is scheduled for the Worcester 18924 in FY2010.
- Tree trimming of the Worcester 18924 is scheduled for FY2010.
- A maintenance foot patrol of the Worcester 18924 is scheduled for 2010.
- Complete all identified level 3 maintenance on the Schenevus-Summit #3, 23 kV line.
- A maintenance foot patrol of the Cobleskill-Summit #5, 69 kV transmission line is scheduled for 2010.

6. GRAND STREET 43351 13.2kV

Profile: 1,564 Customers, 95.0 Circuit Miles.

Indices: CAIDI = 2.32, SAIFI = 2.72

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	1	4.5%	1	0.0%	1	0.0%
5	EQUIPMENT	7	31.8%	2,583	60.5%	9,463	95.6%
6	ACCIDENTS	4	18.2%	1,568	36.7%	194	2.0%
7	PREARRANGED	1	4.5%	1	0.0%	0	0.0%
9	LIGHTNING	2	9.1%	21	0.5%	15	0.2%
10	UNKNOWN	7	31.8%	93	2.2%	230	2.3%
	Totals	22	100.0%	4,267	100.0%	9,903	100.0%

Problem Analysis:

- Two of the 22 outages in 2008 (9.1%) were the result of problems (1 - equipment, 1 - accident) on the radial Cobleskill-Summit #5, 69 kV transmission system. These two outages interrupted 3,105 customers (72.8%) and accounted for 8,334 customer hours of interruption (84.2%).
- The single largest distribution outage was the result of a failed cutout which interrupted service to 817 customers (19.1%) for 1.33 hours, accounting for 1,087 customer hours of interruption (11.0%).
- The two transmission-related interruptions combined with the interruption caused by the failed cutout accounted for only 13.6% of the outages in 2008, but they interrupted 3,922 customers (91.9%) and accounted for 9,421 customer hours of interruption (95.1%).
- Fourteen of the 22 interruptions (63.6%) experienced in 2008 affected ten or fewer customers, and seven of those affected only a single customer.
- There are five 3-phase reclosers and two single-phase reclosers on the Grand Street 43351. One of the 3-phase reclosers was installed in 2008, while a second 3-phase recloser and both single-phase reclosers were installed in January of 2009. One of the remaining 3-phase reclosers had a new controller installed in 2009. The remaining two 3-phase reclosers have been in service since the mid 1990's, but recently were reprogrammed with new settings.
- Feeder Hardening was performed on the Grand Street 43351 in FY2009.
- A maintenance foot patrol was performed on the Grand Street 43351 in 2008 and all level 1 and level 2 maintenance has been completed.
- The Grand Street 43351 was tree trimmed in its entirety in 2007.
- An infrared scan of the Cobleskill-Summit #5, 69 kV transmission line was completed in 2008.

Action Plan:

- Complete all identified level 3 maintenance on the Grand Street 43351.
- An Engineering Reliability Review (ERR) is scheduled for the Grand Street 43351 in FY2010.
- A maintenance foot patrol of the Cobleskill-Summit #5, 69 kV transmission line is scheduled for 2010.

7. BROOK ROAD 36955 13.2kV

Profile: 3,105 Customers, 142.4 Circuit Miles.

Indices: CAIDI = 4.70, SAIFI = 1.43

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	6	14.0%	1,393	31.2%	8,745	41.6%
3	OVERLOADS	1	2.3%	20	0.4%	154	0.7%
5	EQUIPMENT	17	39.5%	2,621	58.6%	11,259	53.6%
6	ACCIDENTS	12	27.9%	239	5.3%	478	2.3%
9	LIGHTNING	1	2.3%	3	0.1%	8	0.0%
10	UNKNOWN	6	14.0%	193	4.3%	355	1.7%
	Totals	43	100.0%	4,469	100.0%	20,999	100.0%

Problem Analysis:

- There was a heavy, wet snow storm on December 30th, 2008 which was concentrated in the area and which is served by the Brook Road 36955. As a result, there were four outages affecting different areas of what is a very large distribution feeder. These four outages combined represented only 9.3% of the total interruptions in 2008, but they affected 2,717 customers (60.8%) and accounted for 13,383 customer hours of interruption (63.7%).
- One of the six tree-related interruptions resulted in three spans of wire down and destroyed a transformer, affecting 600 customers (13.4%) for over eight hours and accounting for 5,178 customer hours of interruption (24.7%).
- Of the 12 accident-related interruptions in 2008, six were the result of animals, five were the result of motor vehicle accidents, and one was the result of customer actions.
- Eighteen of the 43 interruptions in 2008 (41.9%) affected 10 customers or less.
- Three capital projects aimed at improving reliability in the Greene Road, Hyspot Road, and Plank Road areas of the Brook Road 36955 were completed in 2008 at a total cost in excess of \$710,000.
- There are four 3-phase reclosers and one single-phase recloser on the Brook Road 36955. Two of the 3-phase reclosers were installed and the controllers of the other two 3-phase reclosers were replaced in 2008. The single-phase recloser was installed in 2008 in conjunction with the aforementioned Greene Road reliability improvement project.
- An Engineering Reliability Review (ERR) was performed on the Brook Road 36955 in 2008 and the fuse additions and changes recommended therein were completed in 2008.
- A maintenance foot patrol was performed on the Brook Road 36955 in 2008.

Action Plan:

- No additional work is recommended at this time.

8. SHARON 36352 13.2kV

Profile: 1,779 Customers, 176.5 Circuit Miles.

Indices: CAIDI = 2.63, SAIFI = 2.10

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	3	13.6%	712	19.0%	1,676	17.0%
5	EQUIPMENT	9	40.9%	2,967	79.4%	8,044	81.5%
6	ACCIDENTS	2	9.1%	26	0.7%	46	0.5%
8	CUST. EQUIP.	2	9.1%	2	0.1%	22	0.2%
9	LIGHTNING	3	13.6%	21	0.6%	38	0.4%
10	UNKNOWN	3	13.6%	10	0.3%	39	0.4%
	Totals	22	100.0%	3,738	100.0%	9,864	100.0%

Problem Analysis:

- One of the equipment-related outages in 2008 was caused by a failed insulator on the Cobleskill-Summit #5, 69 kV transmission line. This event normally should not affect the Sharon substation. However, when this event occurred there was one transmission line out of service for maintenance and a breaker miscoordination occurred causing the fault to not be properly isolated. This interruption affected 1,777 customers (47.5%) and accounted for 1,066 customer hours of interruption (10.8%). The transmission line has subsequently been returned to service and the miscoordination corrected.
- Equipment was the number one distribution problem on the Sharon 36352 in 2008, accounting for eight of the 22 interruptions (36.4%). The largest equipment-related outage affected 743 customers, accounting for 5,944 customer hours of interruption (60.2%).
- There were only three tree-related outages in 2008; however, one of those outages impacted 669 customers (17.9%) and accounted for 1,572 customer hours of interruption (15.9%).
- Thirteen of the 22 interruptions (59.1%) experienced in 2008 affected ten or fewer customers, and seven of those affected only a single customer.
- There are two 3-phase reclosers on the Sharon 36352 which were installed in the late 1990's.
- A maintenance foot patrol was performed on the Sharon 36352 in 2008 and all level 1 and most level 2 maintenance has been completed.

Action Plan:

- Complete all identified level 2 and 3 maintenance on the Sharon 36352.
- An Engineering Reliability Review (ERR) is scheduled for the Sharon 36352 in FY2010.

- A project is currently being designed to close distribution gaps on US Route 20, State Route 145, and Argusville Road to allow the removal of rear lot, 3-phase main line distribution facilities close to the substation.
- Install a 3-phase recloser on Hoyt Road near the intersection of White Road.
- Tree trimming of a portion of the Sharon 36352 is scheduled for FY2010.

9. DELANSON 26951 13.2kV

Profile: 1,969 Customers, 136.8 Circuit Miles.

Indices: CAIDI = 0.94, SAIFI = 2.91

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	3	10.3%	101	1.8%	790	14.6%
4	OPER. ERROR	1	3.4%	15	0.3%	46	0.9%
5	EQUIPMENT	6	20.7%	3,904	67.9%	1,716	31.7%
6	ACCIDENTS	6	20.7%	287	5.0%	570	10.5%
7	PREARRANGED	1	3.4%	1	0.0%	3	0.1%
8	CUST. EQUIP.	1	3.4%	1	0.0%	2	0.0%
9	LIGHTNING	5	17.2%	1,146	19.9%	1,732	32.0%
10	UNKNOWN	6	20.7%	291	5.1%	560	10.3%
	Totals	29	100.0%	5,746	100.0%	5,417	100.0%

Problem Analysis:

- One of the equipment-related outages in 2008 was caused by a failed insulator on the Cobleskill-Summit #5, 69 kV transmission line. This event normally should not affect the Delanson substation. However, when this event occurred there was one transmission line out of service for maintenance and a breaker miscoordination occurred causing the fault to not be properly isolated. This interruption affected 1,960 customers (34.1%) and accounted for 1,176 customer hours of interruption (21.7%). The transmission line has subsequently been returned to service and the miscoordination corrected.
- The largest distribution interruption in 2008 was caused by lightning damaging a sectionalizer outside the Delanson substation. It affected 1,050 customers (18.3%) and accounted for 1,659 customer hours of interruption (30.6%). This sectionalizer has subsequently been replaced with a recloser.
- Seven of the 29 interruptions (24.1%) experienced in 2008 affected only a single customer.
- There are two 3-phase reclosers and one single-phase recloser on the Delanson 26951. The 3-phase reclosers were both installed in 2008, while the single-phase recloser was placed in service in 2007.
- A maintenance foot patrol was completed on the Delanson 26951 in 2007.
- The Delanson 26951 was tree trimmed and had hazard trees removed in 2008.

Action Plan:

- An Engineering Reliability Review (ERR) is scheduled for the Delanson 26951 in FY2010.
- One of the existing 3-phase reclosers will be relocated and three additional 3-phase reclosers will be added in 2009.

10. SCHROON LAKE 42951 13.2kV

Profile: 2,206 Customers, 122.9 Circuit Miles.

Indices: CAIDI = 1.21, SAIFI = 2.13

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	16	40.0%	984	20.9%	2,971	52.1%
3	OVERLOAD	1	2.5%	40	0.9%	39	0.7%
5	EQUIPMENT	5	12.5%	8	0.2%	31	0.5%
6	ACCIDENTS	8	20.0%	160	3.4%	607	10.7%
7	PREARRANGED	1	2.5%	2,264	48.2%	226	4.0%
8	CUST. EQUIP.	1	2.5%	1	0.0%	2	0.0%
9	LIGHTNING	4	10.0%	1,020	21.7%	1,537	27.0%
10	UNKNOWN	4	10.0%	223	4.7%	288	5.0%
	Totals	40	100.0%	4,700	100.0%	5,700	100.0%

Problem Analysis:

- The performance of the Schroon Lake 42951 improved significantly in 2008. While the number of interruptions decreased only slightly from 41 to 40, there was a decrease in the number of customers interrupted from 10,312 to 4,700 customers (-54.4%) and a significant decrease in the customer hours of interruption from 40,868 to 5,700 (-86.1%).
- The prearranged outage in 2008 was for maintenance on the Chestertown–Schroon #3, 34.5 kV transmission line which lasted only six minutes, just barely becoming a recordable event. This outage interrupted 2,264 customers (48.2%), but accounted for only 226 customer hours of interruption (4.0%).
- Trees were the number one distribution problem on the Schroon Lake 42951 in 2008, accounting for 16 of the 40 interruptions (40.0%). The largest tree-related outage affected 180 customers, accounting for 1,786 customer hours of interruption (31.3%).
- Twenty-three of the 40 interruptions (57.5%) experienced in 2008 affected ten or fewer customers, and 13 of those affected only a single customer.
- There are three 3-phase reclosers and five single-phase reclosers on the Schroon Lake 42951. The 3-phase reclosers have been in service since the mid 1990's, but recently were reprogrammed with new settings. All the single-phase reclosers were installed in FY 2007 in conjunction with the addition of fuses on the single-phase taps they protect.
- The Schroon Lake 42951 had hazard trees removed in 2008.
- A multi-year project to rebuild and convert to 13.2 kV the distribution along US Route 9 between Pottersville and Schroon Lake was completed in 2008.

- Tree trimming and widening of the Chestertown-Schroon #3, 34.5 kV transmission corridor was completed in 2008.
- A multi-year project to rebuild the Chestertown-Schroon #3, 34.5 kV transmission line was completed in 2008.

Action Plan:

- Loop scheme reclosers are scheduled to be installed between the Schroon Lake 42951 and the Pottersville 42451 in 2009 which will automatically restore service to 957 of the 2,528 customers (37.9%) in the event of a future transmission outage.
- An Engineering Reliability Review is scheduled for the Schroon Lake 42951 in FY2009.
- Feeder Hardening is scheduled to be performed on the Schroon Lake 42951 in FY2010.
- A maintenance foot patrol of the Schroon Lake 42951 is scheduled for 2009.
- Tree trimming of the entire circuit is scheduled for FY2010.
- A maintenance foot patrol of the Chestertown-Schroon #3, 34.5 kV transmission line is scheduled for 2010 with an infrared scan in 2009.

11. SCHENEVUS 26127 4.8 kV

Profile: 1,028 Customers, 79.3 Circuit Miles.

Indices: CAIDI = 2.85, SAIFI = 4.25

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	5	38.5%	144	3.3%	654	5.2%
5	EQUIPMENT	5	38.5%	2,159	49.4%	10,130	81.0%
6	ACCIDENTS	2	15.4%	2,055	47.0%	1,687	13.5%
10	UNKNOWN	1	7.7%	15	0.3%	35	0.3%
	Totals	13	100.0%	4,373	100.0%	12,506	100.0%

Problem Analysis:

- Three of the 13 outages in 2008 (23.1%) were the result of problems (1 - equipment, 2 - accident) on the radial Cobleskill-Summit #5, 69 kV or Schenevus-Summit #3, 23 kV transmission lines. These three outages interrupted 3,081 customers (70.5%) and accounted for 7,156 customer hours of interruption (57.2%).
- The largest distribution interruption in 2008 was caused by failed cutouts on a capacitor outside the Schenevus substation. It affected 1,125 customers (25.7%) and accounted for 4,643 customer hours of interruption (37.1%).
- The three transmission interruptions combined with the largest distribution interruption accounted for only 30.8% of the outages in 2008, but they interrupted 4,206 customers (96.2%) and accounted for 11,799 customer hours of interruption (94.3%).
- Seven of the 13 interruptions in 2008 (53.8%) affected ten customers or less and four of those affected only a single customer.
- There are no reclosers on the Schenevus 26127.
- A maintenance foot patrol was performed on the Schenevus-Summit #3, 23 kV line in 2008 and all level 1 and level 2 maintenance has been completed.
- An infrared scan of the Cobleskill-Summit #5, 69 kV and Schenevus-Summit #3, 23 kV transmission lines was completed in 2008.

Action Plan:

- An Engineering Reliability Review (ERR) is scheduled for the Schenevus 26127 in FY2010.
- Install a 3-phase recloser on Route 7 between Elk Creek and Tannery Roads.
- A maintenance foot patrol of the Schenevus 26127 is scheduled for 2009.
- Complete all identified level 3 maintenance on the Schenevus-Summit #3, 23 kV line.
- A maintenance foot patrol of the Cobleskill-Summit #5, 69 kV transmission line is scheduled for 2010.

12. CEDAR 45351 13.2kV

Profile: 1,725 Customers, 78.3 Circuit Miles.

Indices: CAIDI = 2.13 SAIFI = 1.78

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	10	35.7%	682	22.1%	1,395	21.2%
5	EQUIPMENT	7	25.0%	1,734	56.3%	2,716	41.2%
6	ACCIDENTS	5	17.9%	213	6.9%	1,556	23.6%
7	PREARRANGED	1	3.6%	130	4.2%	234	3.6%
10	UNKNOWN	5	17.9%	321	10.4%	690	10.5%
	Totals	28	100.0%	3,080	100.0%	6,590	100.0%

Problem Analysis:

- Trees were the number one distribution problem on the Cedar 45351 in 2008, accounting for ten of the 28 interruptions (35.7%). The largest tree-related outage affected 354 customers, accounting for 586 customer hours of interruption (8.9%).
- The largest distribution interruption in 2008 was caused by a failed cutout near the Cedar substation which locked out the station breaker. It affected 1,720 customers (55.8%) and accounted for 2,700 customer hours of interruption (41.0%).
- The largest accident-related interruption in 2008 was a motor vehicle accident which affected 200 customers (6.5%) and accounted for 1,546 customer hours of interruption (23.5%).
- Nineteen of the 28 interruptions in 2008 (67.9%) affected ten customers or less, and eleven of those affected only a single customer.
- There are two 3-phase reclosers on the Cedar 45351 which have been in service since the late 1990's.
- A maintenance foot patrol was performed on the Cedar 45351 in 2008 and all level 1 and level 2 maintenance has been completed.

Action Plan:

- Complete all identified level 3 maintenance on the Cedar 45351.
- An Engineering Reliability Review (ERR) is scheduled for the Cedar 45351 in 2008.
- One of the existing 3-phase reclosers will be relocated and two additional 3-phase reclosers will be added in 2009.

13. NORTH CREEK 12251 13.2 kV

Profile: 1,881 Customers, 136.3 Circuit Miles.

Indices: CAIDI = 2.26, SAIFI = 1.49

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	36	64.3%	443	15.7%	1,714	26.9%
5	EQUIPMENT	5	8.9%	335	11.9%	122	1.9%
6	ACCIDENTS	6	10.7%	1,958	69.5%	4,318	67.6%
8	CUST. EQUIP.	1	1.8%	1	0.0%	4	0.1%
9	LIGHTNING	3	5.4%	71	2.5%	179	2.8%
10	UNKNOWN	5	8.9%	11	0.4%	48	0.8%
	Totals	56	100.0%	2,819	100.0%	6,384	100.0%

Problem Analysis:

- Trees were the number one distribution problem on the North Creek 12251 in 2008, accounting for 36 of the 56 interruptions (64.3%). However, no single tree-related outage affected more than 51 customers (1.8%) or accounted for more than 212 customer hours of interruption (3.3%).
- The largest distribution interruption in 2008 was for an emergency repair of a fallen conductor which locked out the station breaker. It affected 1,884 customers (66.8%) and accounted for 3,956 customer hours of interruption (62.0%).
- 35 of the 56 interruptions in 2008 (62.5%) affected ten customers or less and 23 of those affected only a single customer.
- There are two 3-phase reclosers on the North Creek 12251 which have been in service since the mid 1990's.
- A multi-year project to rebuild the Chestertown-North Creek #2, 34.5 kV transmission line was completed in 2008.
- An infrared scan of the Warrensburg-North Creek #5, 115 kV transmission line was completed in 2008.

Action Plan:

- An Engineering Reliability Review is scheduled for the North Creek 12251 in FY2010.
- A maintenance foot patrol of the North Creek 12251 is scheduled for 2009.
- Perform a hazard tree review of the North Creek 12251 in 2009.
- A maintenance foot patrol of the Warrensburg-North Creek #5, 115 kV transmission line is scheduled for 2010.
- Install two new 3-phase reclosers, one on County Highway 29 and a second on Route 28N.

14. MIDDLEBURG 39052 13.2kV

Profile: 2,153 Customers, 161.0 Circuit Miles.

Indices: CAIDI = 1.55, SAIFI = 1.93

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	6	19.4%	104	2.5%	254	3.9%
5	EQUIPMENT	9	29.0%	3,803	91.5%	5,802	89.8%
6	ACCIDENTS	2	6.5%	2	0.0%	8	0.1%
9	LIGHTNING	5	16.1%	65	1.6%	73	1.1%
10	UNKNOWN	9	29.0%	182	4.4%	324	5.0%
	Totals	31	100.0%	4,156	100.0%	6,462	100.0%

Problem Analysis:

- One of the equipment-related outages in 2008 was caused by a failed insulator on the Cobleskill-Summit #5, 69 kV transmission line. This event normally should not affect the Middleburg substation. However, when this event occurred there was one transmission line out of service for maintenance and a breaker miscoordination occurred causing the fault to not be properly isolated. This interruption affected 2,160 customers (52.0%) and accounted for 1,296 customer hours of interruption (20.1%). The transmission line has subsequently been returned to service and the miscoordination corrected.
- The largest distribution interruption in 2008 was the result of a broken cross arm which affected 1,500 customers (36.1%) and accounted for 4,350 customer hours of interruption (67.3%).
- These two equipment-related interruptions combined accounted for only 6.5% of the outages in 2008, but they interrupted 3,660 customers (88.1%) and accounted for 5,646 customer hours of interruption (87.4%).
- Eighteen of the 31 interruptions (58.1%) experienced in 2008 affected ten or fewer customers and twelve of those affected only a single customer.
- There are two 3-phase reclosers and two single-phase reclosers on the Middleburg 39052. The 3-phase reclosers have been in service since the mid 1990's, while the single-phase reclosers were installed in 2003.
- An Engineering Reliability Review (ERR) was performed on the Middleburg 39052 in 2007 and the fuse additions and changes recommended therein were completed in 2008.

Action Plan:

- A maintenance foot patrol of the Middleburg 39052 is scheduled for 2009.

15. CORINTH 28552 13.2kV

Profile: 1,722 Customers, 44.6 Circuit Miles.

Indices: CAIDI = 3.76, SAIFI = 1.78

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	5	31.3%	99	3.2%	219	1.9%
5	EQUIPMENT	5	31.3%	76	2.5%	620	5.4%
6	ACCIDENTS	4	25.0%	2,887	94.1%	10,684	92.6%
10	UNKNOWN	2	12.5%	6	0.2%	9	0.1%
	Totals	16	100.0%	3,068	100.0%	11,533	100.0%

Problem Analysis:

- One of the accident-related outages in 2008 was caused by an animal in the Corinth substation which blew the high side station transformer fuses. This interruption affected 1,829 customers (59.6%) and accounted for 2,222 customer hours of interruption (19.3%).
- The largest distribution interruption in 2008 was the result of a motor vehicle accident which affected 1,000 customers (32.6%) and accounted for 8,389 customer hours of interruption (72.7%).
- These two accident-related interruptions combined accounted for only 12.5% of the outages in 2008, but they interrupted 2,829 customers (92.2%) and accounted for 10,611 customer hours of interruption (92.0%).
- Eight of the 16 interruptions (50.0%) experienced in 2008 affected ten or fewer customers and four of those affected only a single customer.
- There are two 3-phase reclosers on the Corinth 28552. These reclosers were installed in 2008 as part of a loop scheme with the Scofield Road 45052.
- A maintenance foot patrol and infrared scan of the Spier-Corinth #6, 34.5 kV radial transmission line was completed in 2008 and all level 1 and level 2 maintenance has been completed.

Action Plan:

- Tree trimming of the entire circuit is scheduled for FY2010.
- A maintenance foot patrol of the Corinth 28552 is scheduled for 2009.
- Install three new 3-phase reclosers: one on Main Street, one on Palmer Avenue, and one on Third Avenue.
- Complete all identified level 3 maintenance on the Spier-Corinth #6, 34.5 kV transmission line.

16. NORTHVILLE 33252 13.2kV

Profile: 2,289 Customers, 89.8 Circuit Miles.

Indices: CAIDI = 3.72, SAIFI = 1.15

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	17	56.7%	780	29.5%	7,279	73.9%
5	EQUIPMENT	8	26.7%	1,316	49.7%	2,105	21.4%
6	ACCIDENTS	2	6.7%	536	20.2%	419	4.3%
9	LIGHTNING	1	3.3%	5	0.2%	20	0.2%
10	UNKNOWN	2	6.7%	11	0.4%	28	0.3%
	Totals	30	100.0%	2,648	100.0%	9,851	100.0%

Problem Analysis:

- The largest tree-related interruption in 2008 affected 222 customers (8.4%) and accounted for 4,329 customer hours of interruption (43.9%).
- The largest equipment-related interruption in 2008 affected 1,290 customers (48.7%) and accounted for 2,038 customer hours of interruption (20.7%).
- One of the accident-related outages in 2008 was caused by a motor vehicle interrupting 530 customers (20.0%) and accounted for 413 customer hours of interruption (4.2%).
- These three large interruptions combined accounted for only 10.0% of the outages in 2008, but they interrupted 2,042 customers (77.1%) and accounted for 6,780 customer hours of interruption (68.8%).
- Eighteen of the 30 interruptions (60.0%) experienced in 2008 affected ten or fewer customers and seven of those affected only a single customer.
- An Engineering Reliability Review (ERR) was performed on the Northville 33252 in 2008.
- There are three 3-phase reclosers and one single-phase recloser on the Northville 33252. Two of the 3-phase reclosers and the single-phase recloser were installed in 2008, as recommended in the ERR. The remaining 3-phase recloser has been in service since the mid 1990's but was reprogrammed with new settings in 2008.
- A maintenance foot patrol was performed on the Northville-Mayfield #8, 69 kV line in 2008.
- Tree trimming and widening of the Northville-Mayfield #8, 69 kV transmission corridor was completed in 2008.

Action Plan:

- Install fuses and sectionalizing switches as recommended within the ERR.
- Close a distribution gap on Military Road as recommended within the ERR.

- A project to rebuild and convert a significant portion of the feeder to 13.2 kV has been designed and all necessary easements should be obtained to allow construction in FY2010.
- Complete all identified maintenance on the Northville-Mayfield #8, 69 kV transmission line.
- Perform a hazard tree review of the Northville 33252 in 2009.

17. FORT GAGE 31954 13.2 kV

Profile: 2,172 Customers, 60.5 Circuit Miles.

Indices: CAIDI = 0.71, SAIFI = 2.68

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	17	45.9%	4,272	73.2%	3,114	75.3%
3	OVERLOADS	1	2.7%	5	0.1%	16	0.4%
5	EQUIPMENT	7	18.9%	1,429	24.5%	778	18.8%
6	ACCIDENTS	8	21.6%	123	2.1%	211	5.1%
9	LIGHTNING	2	5.4%	2	0.0%	3	0.1%
10	UNKNOWN	2	5.4%	6	0.1%	14	0.3%
	Totals	37	100.0%	5,837	100.0%	4,136	100.0%

Problem Analysis:

- Three tree-related outages accounted for the majority of the customers interrupted and customer hours of interruption. These three events interrupted 4,176 customers (71.5%) and accounted for 2,727 customer hours of interruption (65.9%).
- The largest equipment-related interruption in 2008 was the result of a failed cutout. It affected 1,362 customers (23.3%) and accounted for 749 customer hours of interruption (18.1%).
- The four interruptions listed above accounted for only 10.8% of the outages in 2008, but interrupted 5,538 customers (94.9%) and accounted for 3,476 customer hours of interruption (84.0%).
- 26 of the 37 interruptions (70.3%) experienced in 2008 affected ten or fewer customers and 15 of those affected only a single customer.
- There are seven 3-phase reclosers and two single-phase reclosers on the Fort Gage 31954. Two of the 3-phase reclosers were installed in each of 2009, 2008 and 2007, while the remaining 3-phase recloser was reprogrammed in 2008. The single-phase reclosers were installed in 2007 and 2003.
- Feeder Hardening was performed on the Fort Gage 31954 in FY2009.
- The Fort Gage 31954 was tree trimmed in its entirety and hazard trees were removed in 2007.
- A foot patrol was performed on the Warrensburg-Fort Gage #8, 34.5 kV line in 2008.
- Tree trimming and widening of the Warrensburg-Fort Gage #8, 34.5 kV transmission corridor was completed in 2008.
- Tree trimming and widening of the Fort Gage-Queensbury #2, 34.5 kV transmission corridor was completed in 2008.

Action Plan:

- An infrared scan of the Warrensburg-Fort Gage #8 and Fort Gage-Queensbury #2, 34.5 kV transmission lines is scheduled for 2009.

18. WILTON 32952 13.2 kV

Profile: 1,386 Customers, 66.6 Circuit Miles.

Indices: CAIDI = 1.33, SAIFI = 2.14

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	8	40.0%	2,800	94.2%	3,873	97.2%
5	EQUIPMENT	3	15.0%	41	1.4%	14	0.3%
6	ACCIDENTS	3	15.0%	27	0.9%	51	1.3%
7	PREARRANGED	4	20.0%	87	2.9%	32	0.8%
10	UNKNOWN	2	10.0%	17	0.6%	17	0.4%
	Totals	20	100.0%	2,972	100.0%	3,986	100.0%

Problem Analysis:

- Two tree-related outages caused feeder lockouts and accounted for the majority of the customers interrupted and customer hours of interruption. These two events interrupted 2,766 customers (93.1%) and accounted for 3,784 customer hours of interruption (94.9%).
- Nine of the 20 interruptions (45.0%) experienced in 2008 affected ten or fewer customers and five of those affected only a single customer.
- The four prearranged outages were necessary to perform Feeder Hardening.
- There are two 3-phase reclosers on the Wilton 32952, both of which were installed in 2008.
- An Engineering Reliability Review (ERR) was performed on the Wilton 32952 in 2007 and the fuse additions and changes recommended therein were completed in FY2008.
- Feeder Hardening was performed on the Wilton 32952 in FY2009.
- A maintenance foot patrol was performed on the Wilton 32952 in 2008 and all level 1 and level 2 maintenance has been completed.

Action Plan:

- Complete all identified level 3 maintenance on the Wilton 32952.
- Tree trimming and a hazard tree review of the Wilton 32952 is scheduled for FY2010.

19. EAST WORCESTER 06021 4.8kV

Profile: 679 Customers, 56.9 Circuit Miles

Indices: CAIDI = 3.02, SAIFI = 3.09

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	2	16.7%	3	0.1%	8	0.1%
5	EQUIPMENT	5	41.7%	733	21.7%	5,213	81.9%
6	ACCIDENTS	2	16.7%	1,362	64.8%	1,121	17.6%
7	PREARRANGED	1	8.3%	2	0.1%	2	0.0%
8	CUST. EQUIP	1	8.3%	1	0.0%	15	0.2%
10	UNKNOWN	1	8.3%	1	0.0%	4	0.1%
	Totals	12	100.0%	2,102	100.0%	6,362	100.0%

Problem Analysis:

- Three of the 12 outages in 2008 (17.6%) were the result of problems (1 - equipment, 2 - accident) on the radial Cobleskill-Summit #5, 69 kV or Schenevus-Summit #3, 23 kV transmission lines. These three outages interrupted 2,048 customers (97.4%) and accounted for 6,081 customer hours of interruption (95.6%).
- Equipment was the number one distribution problem on the East Worcester 06021 in 2008, accounting for four of the twelve interruptions (33.3%), but they affected only 47 customers (2.2%) and accounted for only 253 customer hours of interruption (4.0%).
- Eight of the twelve interruptions in 2008 (66.6%) affected ten customers or less and four of those affected only a single customer.
- There are no reclosers on the East Worcester 06021.
- A maintenance foot patrol was performed on the Schenevus-Summit #3, 23 kV line in 2008 and all level 1 and level 2 maintenance has been completed.
- An infrared scan of the Cobleskill-Summit #5, 69 kV and Schenevus-Summit #3, 23 kV transmission lines was completed in 2008.

Action Plan:

- An Engineering Reliability Review is scheduled for the East Worcester 06021 in FY2010.
- Install a 3-phase recloser on South Hill Road east of State Route 7.
- A maintenance foot patrol of the East Worcester 06021 is scheduled for 2010.
- Tree trimming of the East Worcester 06021 is scheduled for FY2010.
- Complete all identified level 3 maintenance on the Schenevus-Summit #3, 23 kV line.

- A maintenance foot patrol of the Cobleskill-Summit #5, 69 kV transmission line is scheduled for 2010.

20. VAIL MILLS 39253 13.2kV

Profile: 3,042 Customers, 85.8 Circuit Miles.

Indices: CAIDI = 3.11 SAIFI = 1.05

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	13	28.3%	225	7.0%	1,264	12.7%
3	OVERLOADS	2	4.3%	6	0.2%	115	1.2%
5	EQUIPMENT	10	21.7%	71	2.2%	219	2.2%
6	ACCIDENTS	11	23.9%	2,838	88.9%	8,172	82.2%
9	LIGHTNING	6	13.0%	29	0.9%	126	1.3%
10	UNKNOWN	4	8.7%	25	0.8%	43	0.4%
	Totals	46	100.0%	3,194	100.0%	9,939	100.0%

Problem Analysis:

- The largest distribution interruption in 2008 was the result of a line contractor installing a set of cutouts in the main line instead of on a side tap. The fuses initially held and then blew later the same day as the load increased in the evening. This event affected 2,715 customers (85.0%) and accounted for 7,874 customer hours of interruption (79.2%). The next largest outage on the Vail Mills 39253 affected only 64 customers (2.0%).
- While trees were the largest single contributor to outages with 13, no single tree-related outage interrupted more than 64 customers (2.0%) or accounted for more than 339 customer hours of interruption (3.4%).
- 32 of the 46 interruptions in 2008 (69.6%) affected ten customers or less and nine of those affected only one customer.
- There are four 3-phase reclosers on the Vail Mills 39253 which were originally installed in 1993. In 2009, two of the four reclosers were replaced in their entirety and the controllers of the remaining two reclosers were replaced.
- An Engineering Reliability Review (ERR) was performed on the Vail Mills 39253 in 2007 and the fuse additions and changes recommended therein were completed in 2008.
- Feeder Hardening was performed on the Vail Mills 39253 in FY2009.
- The Vail Mills 39253 was tree trimmed in its entirety and hazard trees were removed in 2008.
- A maintenance foot patrol was performed on the Vail Mills 39253 in 2008 and all level 1 and level 2 maintenance has been completed.
- A capital project was completed in 2008 creating a feeder tie between the Vail Mills 39253 and the Mayfield 35651.

Action Plan:

- Complete all identified level 3 maintenance on the Vail Mills 39253.
- Convert the south shore of the EJ West 03851 to 13.2 kV and transfer 12 miles of single-phase and 393 customers from the Vail Mills 39253 to the EJ West 03851.

3. ACTION PLAN SUMMARIES

a. SUMMARY OF PROPOSED ACTION PLANS FOR 2008 WORST PERFORMING CIRCUITS

Station	Feeder	Report Year	Action Plan	Est. Completion Date	Approx. Cost	Comments
Ashley	33151	2009	Engineering reliability review.	Dec-09		
Ashley	33151	2009	Install Loop Scheme reclosers.	Aug-09	\$100k	In design.
Ashley	33151	2009	Ashley-Glens Falls #5 maintenance.	Jul-10		
Ashley	33151	2009	Infrared patrol of Ashley-Glens Falls #5.	Dec-09		
Caroga Lake	21932	2009	Add fuses and switches per 2007 ERR.	Jun-09	\$220k	Under construction.
Caroga Lake	21932	2009	Maintenance foot patrol.	Apr-09		
Caroga Lake	21932	2009	Construct automatic feeder tie with Gloversville 07253.	Dec-09	\$1.26M	Permits received. In final design.
Clinton	36653	2009	Close distribution gap on Route 163.	Apr-10	\$60k	In design.
Gilmantown	15451	2009	Feeder hardening.	Apr-10	\$363k	
Gilmantown	15451	2009	Add fuses and switches per 2008 ERR.	Apr-10	\$96k	In design.
Gilmantown	15451	2009	Northville-Mayfield #8 maintenance.	May-10		
Gilmantown	15451	2009	Maintenance foot patrol.	Dec-09		
Gilmantown	15451	2009	Wells – Gilmantown #2 foot patrol.	Dec-09		In process.
Gilmantown	15451	2009	Northville-Wells #1 foot patrol.	Dec-10		
Worcester	18924	2009	Engineering reliability review.	Dec-09		
Worcester	18924	2009	Tree trimming.	Apr-10	\$364k	
Worcester	18924	2009	Maintenance foot patrol.	Dec-10		
Worcester	18924	2009	Schenevus-Summit #3 maintenance.	Jun-10		
Worcester	18924	2009	Cobleskill-Summit #5 foot patrol.	Dec-10		
Grand Street	43351	2009	Complete level 3 maintenance.	Sep-10		
Grand Street	43351	2009	Engineering reliability review.	Dec-09		
Grand Street	43351	2009	Cobleskill-Summit #5 foot patrol.	Dec-10		
Sharon	36352	2009	Complete level 2 & 3 maintenance.	Mar-10		

Station	Feeder	Report Year	Action Plan	Est. Completion Date	Approx. Cost	Comments
Sharon	36352	2009	Engineering reliability review.	Dec-09		
Sharon	36352	2009	Rebuild Route 20 & Argusville Rd.	Mar-10		
Sharon	36352	2009	Install Hoyt Road recloser.	Dec-09	\$40k	
Sharon	36352	2009	Tree trimming.	Apr-10	\$210k	
Delanson	26951	2009	Engineering reliability review.	Dec-09		
Delanson	26951	2009	Add & relocate reclosers.	Dec-09	\$130k	
Schroon Lake	42951	2009	Install Loop Scheme reclosers.	Aug-09	\$80k	In design.
Schroon Lake	42951	2009	Engineering reliability review.	Mar-09		In process.
Schroon Lake	42951	2009	Feeder hardening.	Apr-10	\$443k	
Schroon Lake	42951	2009	Maintenance foot patrol.	Dec-09		
Schroon Lake	42951	2009	Tree trimming.	Apr-10	\$445k	
Schroon Lake	42951	2009	Chestertown-Schroon #3 foot patrol.	Dec-10		
Schroon Lake	42951	2009	Chestertown-Schroon #3 infrared scan.	Dec-09		
Schenevus	26127	2009	Engineering reliability review.	Dec-09		
Schenevus	26127	2009	Install Route 7 recloser.	Dec-09	\$40k	
Schenevus	26127	2009	Maintenance foot patrol.	Dec-09		
Schenevus	26127	2009	Schenevus-Summit #3 maintenance.	Jun-10		
Schenevus	26127	2009	Cobleskill-Summit #5 foot patrol.	Dec-10		
Cedar	45351	2009	Complete level 3 maintenance.	Apr-10		
Cedar	45351	2009	Engineering reliability review.	Dec-09		
Cedar	45351	2009	Add & relocate reclosers.	Dec-09	\$90k	

Station	Feeder	Report Year	Action Plan	Est. Completion Date	Approx. Cost	Comments
North Creek	12251	2009	Engineering reliability review.	Dec-09		
North Creek	12251	2009	Maintenance foot patrol.	Dec-09		
North Creek	12251	2009	Hazard tree review.	Dec-09		
North Creek	12251	2009	Warrensburg-North Creek #5 foot patrol.	Dec-10		
North Creek	12251	2009	Install 2 reclosers.	Dec-09	\$80k	
Middleburg	39052	2009	Maintenance foot patrol.	Dec-09		
Corinth	28552	2009	Tree trimming.	Apr-10	\$145k	
Corinth	28552	2009	Maintenance foot patrol.	Dec-09		
Corinth	28552	2009	Install 3 reclosers.	Apr-09	\$120k	Under construction.
Corinth	28552	2009	Spier-Corinth #6 maintenance.	Jun-10		
Northville	33252	2009	Add fuses and switches per 2008 ERR.	Sep-09	\$68k	Design complete.
Northville	33252	2009	Close gap on Military Road.	Apr-10	\$30k	In design.
Northville	33252	2009	Rebuild/convert North Shore Road.	Apr-10	\$340k	Design complete.
Northville	33252	2009	Northville-Mayfield #8 maintenance.	May-10		
Northville	33252	2009	Hazard tree review.	Dec-09		
Wilton	32952	2009	Complete level 3 maintenance.	Feb-10		
Wilton	32952	2009	Tree trimming & hazard tree review.	Apr-10	\$206k	
E. Worcester	06021	2009	Engineering reliability review.	Dec-09		
E. Worcester	06021	2009	Install recloser on South Hill Road.	Dec-09	\$40k	
E. Worcester	06021	2009	Maintenance foot patrol.	Dec-10		
E. Worcester	06021	2009	Tree trimming.	Apr-10	\$222k	
E. Worcester	06021	2009	Schenevus-Summit #3 maintenance.	Jun-10		
E. Worcester	06021	2009	Cobleskill-Summit #5 foot patrol.	Dec-10		
Vail Mills	39253	2009	Complete level 3 maintenance.	Apr-10		
Vail Mills	39253	2009	Transfer load to EJ West.	Apr-10	\$1.1M	Conversion delayed.

b. STATUS OF PROPOSED ACTION PLANS FOR 2007 WORST PERFORMING CIRCUITS

Station	Feeder	Report Year	Action Plan	Est. Completion Date	Approx. Cost	Comments
Schroon Lake	42951	2008	Engineering reliability review.	Mar-09		In process.
Gilmantown	15451	2008	Tree trimming.	Dec-08	\$288k	Complete.
Gilmantown	15451	2008	Complete widening 69kV and 23 kV transmission corridors.	Dec-08	\$83k	Complete.
Gilmantown	15451	2008	Add reclosers per 2008 ERR.	May-08	\$7k	Complete.
Gilmantown	15451	2008	Add fuses per 2008 ERR.	Apr-10	\$96k	In design.
Gilmantown	15451	2008	Northville-Mayfield #8 foot patrol.	May-08		Complete.
Gilmantown	15451	2008	Wells – Gilmantown #2 foot patrol.	Dec-09		In process.
Gilmantown	15451	2008	Maintenance foot patrol.	Apr-10		On schedule.
Fort Gage	31954	2008	Feeder hardening.	Apr-09	\$975k	In process.
Fort Gage	31954	2008	Complete widening the Queensbury - Warrensburg transmission corridor.	Dec-08	\$45k	Complete.
Fort Gage	31954	2008	Warrensburg-Queensbury #9 foot patrol.	Jun-08		Complete.
Bolton	28451	2008	Engineering reliability review.	Mar-09		In process.
Bolton	28451	2008	Complete widening the Queensbury - Warrensburg transmission corridor.	Dec-08	\$45k	Complete.
Vail Mills	39253	2008	Feeder hardening.	Apr-09	\$634k	Complete.
Vail Mills	39253	2008	Maintenance foot patrol.	Apr-08		Complete.
Vail Mills	39253	2008	Replace recloser controls per 2007 ERR.	Feb-09	\$82k	Complete.
Vail Mills	39253	2008	Add fuses and switches per 2007 ERR.	Aug-08	\$329k	Complete.
Vail Mills	39253	2008	Transfer load to EJ West.	Apr-10	\$1.1M	Conversion delayed.
Vail Mills	39253	2008	Construct 3-phase tie to Mayfield 35651.	Jul-08	\$303k	Complete.
Union Street	37653	2008	Engineering reliability review.	Dec-08		Complete.
Union Street	37653	2008	Widen Cambridge-Hoosick #3 corridor.	Apr-09	\$205k	In process.
St. Johnsville	33551	2008	Add reclosers per 2008 ERR.	Aug-08	\$50k	Complete.
St. Johnsville	33551	2008	Add fuses per 2008 ERR.	Jun-09	\$121k	Under construction.

Station	Feeder	Report Year	Action Plan	Est. Completion Date	Approx. Cost	Comments
St. Johnsville	33551	2008	Close distribution gaps on Paris Road.	Apr-10	\$40k	In design.
St. Johnsville	33551	2008	Close gaps on Casler & Philips Roads.	Apr-09	\$50k	In design.
St. Johnsville	33551	2008	Complete multi-year project to rebuild Wagner Hill & Wiltsie Hill Roads.	Apr-10	\$1.5M	Conversion delayed.
St. Johnsville	33551	2008	Maintenance foot patrol.	Dec-09		On schedule.
Bolton	28452	2008	Engineering reliability review.	Dec-08		In process.
Bolton	28452	2008	Complete widening the Queensbury - Warrensburg transmission corridor.	Dec-08	\$45k	Complete.
Port Henry	38551	2008	Ticonderoga-Whitehall #3 foot patrol.	Dec-10		On schedule.
Union Street	37652	2008	Engineering reliability review.	Dec-08		Complete.
Union Street	37652	2008	Widen Cambridge-Hoosick #3 corridor.	Apr-09	\$205k	In process.
Birch Ave.	32252	2008	Add reclosers per 2008 ERR.	Jan-08	\$50k	Complete.
Birch Ave.	32252	2008	Add fuses per 2008 ERR.	Sep-08	\$58k	Complete.
Birch Ave.	32252	2008	Convert Middle Road to 7.62 kV.	Sep-08	\$18k	Complete.
Birch Ave.	32252	2008	Maintenance foot patrol.	Jul-08		Complete.
Birch Ave.	32252	2008	Complete widening the Queensbury - Warrensburg transmission corridor.	Dec-08	\$45k	Complete.
Birch Ave.	32252	2008	Warrensburg-Queensbury #9 foot patrol.	Jun-08		Complete.
Union Street	37654	2008	Engineering reliability review.	Dec-08		Complete.
Union Street	37654	2008	Widen Cambridge-Hoosick #3 corridor.	Apr-09	\$205k	In process.
Pottersville	42451	2008	Engineering reliability review.	Dec-08		In process.
Clinton	36653	2008	Feeder hardening.	May-08	\$1.2M	Complete.
Clinton	36653	2008	Add feeder hardening reclosers.	Mar-08	\$185k	Complete.
Clinton	36653	2008	Add fuses per 2008 ERR.	Oct-08	\$1k	Complete.
Clinton	36653	2008	Close distribution gap on Route 163.	Apr-10	\$60k	In design.
Caroga Lake	21932	2008	Tree trimming.	Dec-08	\$285k	Complete.
Caroga Lake	21932	2008	Add reclosers per 2007 ERR.	Mar-08	\$107k	Complete.
Caroga Lake	21932	2008	Add fuses per 2007 ERR.	Jun-09	\$220k	Under construction.

Station	Feeder	Report Year	Action Plan	Est. Completion Date	Approx. Cost	Comments
Caroga Lake	21932	2008	Maintenance foot patrol.	Dec-10		Delayed to 2010.
Caroga Lake	21932	2008	Multi-year project to construct automatic feeder tie with Gloversville 07253.	Dec-09	\$1.26M	Delayed by APA permitting.
Whitehall	18751	2008	Engineering reliability review.	Dec-08		In process.
Mayfield	35651	2008	Construct 3-phase tie to Vail Mills 39253.	Jul-08	\$303k	Complete.
Scofield Road	45053	2008	Add fuses per 2008 ERR.	Dec-09	\$262k	Design complete.
Scofield Road	45053	2008	Rebuild Hadley/Harrisburg Roads.	Apr-10	\$550k	In design.
Scofield Road	45053	2008	Relocate distribution along Harrisburg Road.	Apr-10	\$190k	In design.
Scofield Road	45053	2008	Close distribution gap on States Road.	Sep-09	\$40k	In design.
Scofield Road	45053	2008	Close distribution gap on Murray Road.	Sep-09	\$30k	In design.
Scofield Road	45053	2008	Transfer load to EJ West.	Apr-10	\$1.1M	Conversion delayed.
Indian Lake	31075	2008	Engineering reliability review.	Dec-08		Complete.
Indian Lake	31075	2008	Indian Lake-North Creek #1 foot patrol.	Jun-08		Complete.
North Creek	12252	2008	Engineering reliability review.	Dec-08		In process.
North Creek	12252	2008	Maintenance foot patrol.	Dec-09		On schedule.

I. NORTHERN REGION

1. OPERATING REGIONAL PERFORMANCE

a. CAIDI AND SAIFI INDICES WITH HISTORY FROM 2004 TO 2008

	2008	2007	2006	2005	2004
CAIDI (Target 2.25)	1.95	2.12	2.03	2.22	1.92
SAIFI (Target 1.00)	0.97	0.91	1.68	1.42	0.86
SAIDI	1.90	1.94	3.41	3.16	1.644
Interruptions	1,640	1,664	1,435	1,518	1,352
Customers Interrupted	127,858	120,567	219,870	184,863	110,530
Customers Hours Interrupted	249,516	256,240	445,679	410,581	212,310
Customers Served	131,582	131,786	130,816	130,063	129,172
Customers Per Interruption	77.96	72.46	153.22	121.78	81.75
Availability Index	99.98	99.98	99.96	99.96	99.98
Interruptions/1000 Customers	12.46	12.63	10.97	11.67	10.47

b. DISCUSSION OF REGIONAL PERFORMANCE

In 2008, the Northern region again met its reliability targets on all measures. The region passed both the CAIDI and SAIFI goals set forth by the New York Public Service Commission (PSC) for 2008. The final Customer Average Interruption Duration Index (CAIDI) result was 1.95 hours, 13.3% below the PSC goal of 2.25 hours. The final System Average Interruption Frequency Index (SAIFI) also came in 3% below the 1.00 target.

The Northern regional statistics continue to show a marked improvement over the previous four years. The CAIDI target was reached for the sixth year in a row and has hit a four year low. It's also down 8% from 2007 and down 5.9% from the previous four-year average. Although SAIFI is up 6.6% from 2007, it is still 20% below the previous four-year average. This year was now the second year in a row that the SAIFI target was attained. This is an indication that National Grid's programs to improve circuit reliability and efforts to respond more quickly to outages when they do occur are improving significantly.

In 2008, excluding major storms, the Northern Region experienced twenty (20) transmission interruptions. These outages accounted for 1.2% of the region's total interruptions, 23% (29,517) of the region's total customers interrupted, and about 14.0% (36,114) of the region's total customer hours of interruption.

Three (3) of these interruptions occurred on the 115kV transmission, and accounted for 15.0% of the transmission interruptions, 35.6% of the customers interrupted, and 10.7% of the customer-hours of interruption. The three interruptions were due to operator error, lightning, and an unknown cause, respectively. Overall, the 115kV system was responsible for a CAIDI of 0.36 hours and SAIFI of 0.08.

Nine (9) interruptions on the 46kV subtransmission system were the largest contributor to the total number of transmission events. Interruptions on the 46kV system accounted for 45.0% of the transmission interruptions, 19.9% of the customers interrupted, and 24.7% of the customer-hours of interruption. The majority of these events, five (5) interruptions, were caused by trees, accounting for 38% of the customer-hours interrupted within the combined transmission system. The remaining interruptions were due to equipment failure, lightning, and unknown causes. Of the total, the 46kV system was responsible for a CAIDI of 1.50 hours and SAIFI of 0.05.

Although interruptions on the 34.5kV subtransmission system only accounted for eight (8), or 40%, of the total transmission interruptions, these interruptions accounted for a disproportionately higher number of customer-hours interrupted (64.7%). One interruption was due to a tree contact, three interruptions were due to equipment failures, two interruptions were prearranged, and two interruptions were due to unknown causes. On the whole, the 34.5kV system was responsible for a CAIDI of 1.75 hours and SAIFI of 0.18.

There were no interruptions on the 23kV subtransmission system in 2008.

There were eight (8) substation interruptions in the Northern Region during 2008. Although the station interruptions accounted for only 0.5% of the region's total interruptions, they accounted for 10% (13,217) of the region's total customers interrupted, and 2% (5,285) of the region's total customer-hours of interruption. One animal-related outage at the Coffeen Substation alone accounted for 64% of the total substation customer-hours interrupted. Two of the remaining interruptions were due to trees, two were due to operator error, one was due to equipment failure, one was prearranged, and one was due to unknown causes. Of the total, substations were responsible for a CAIDI of 0.40 and SAIFI of 0.10.

c. MONTHLY CAIDI AND SAIFI GRAPHS

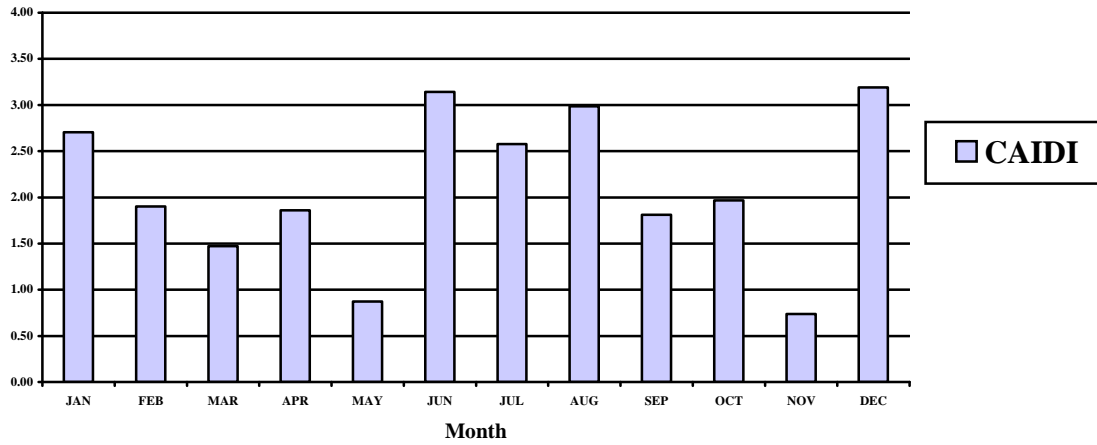
The graphs on the following page show the monthly CAIDI and SAIFI for the Northern Region for 2008.

The CAIDI graph shows the individual CAIDI by month. The Northern Region remained below the PSC minimum CAIDI of 2.25 hours for seven months of the year, with December being the worst month with a CAIDI of 3.19 hours.

The SAIFI graph shows the cumulative SAIFI by month. The Northern Region remained below the minimum SAIFI Goal of 1.00 for the year and it ended the year at 0.97.

GRAPH OF MONTHLY CAIDI AND SAIFI FOR NORTHERN REGION

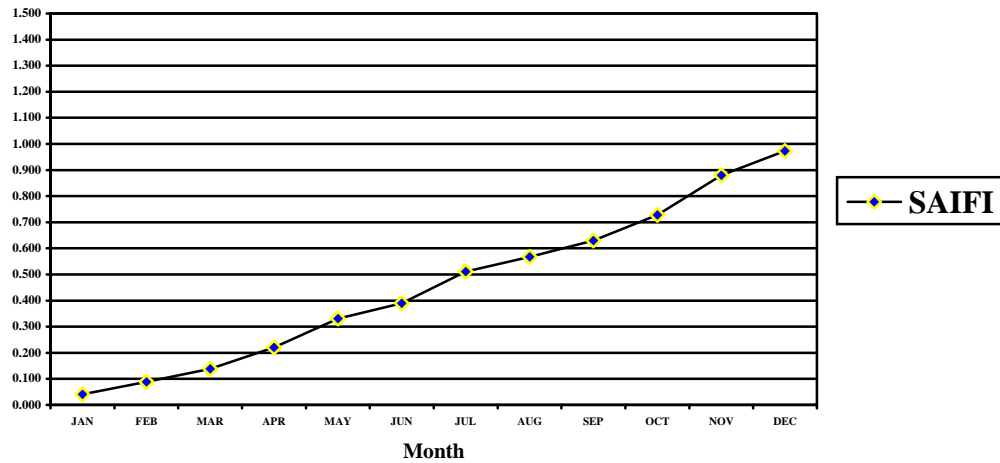
Northern Region CAIDI



PSC CAIDI Goal:	2.25
2008 Actual:	1.95

PSC SAIFI Goal:	1.00
2008 Actual:	0.97

Northern Region SAIFI



d. PSC CAUSE CODES

Cause Codes	Interruptions		Customers		Customer-Hours	
	Number	% Total	Number	%Total	Number	%Total
(1) Major Storms	1,570	48.9	269,229	67.8	2,343,147	90.4
(2) Tree Contacts	456	14.2	27,693	7.0	77,489	3
(3) Overloads	13	0.4	73	0.0	131	0.0
(4) Operator Error	7	0.2	15,304	3.9	2,240	0.1
(5) Equipment Failure	453	14.1	36,019	9.1	86,068	3.3
(6) Accidents	239	7.4	14,742	3.7	25,801	1.0
(7) Prearranged	12	0.4	7,551	1.9	10,588	0.4
(8) Customer Equipment	15	0.5	26	0.0	83	0.0
(9) Lightning	205	6.4	8,267	2.1	24,954	1.0
(10) Unknown	240	7.5	18,183	4.6	22,162	0.9
Total	3,210	100.0	397,087	100.0	2,592,663	100.0

e. INTERRUPTION REVIEW BY PSC CAUSE CODES

Cause Code 01, “Major Storms”

The Northern Region experienced seven (7) severe weather conditions that qualified as Major Storms:

Date	Weather
01/08/2008	Wind
03/08/2008	Wind and Ice
06/10/2008	Wind and Lightning
09/14/2008	Wind
10/28/2008	Wind and Ice
11/26/2008	Wind and Ice
12/28/2008	Wind

Of the 1,570 total major storm interruptions, thirty-four (34) occurred on the transmission system, twenty-one (21) occurred within substations, and 1,515 occurred on the distribution system. These major storms are excluded when discussing the impact of other interruption causes on the system.

Cause Code 02, “Tree Contacts”

Excluding major storms, interruptions classified as “Tree Contacts” accounted for the largest number of interruptions (28%), the second largest number of customers interrupted (22%), and the second largest customer-hours of interruption (31%) in the region. While the number of interruptions caused by tree contacts only increased by a small margin since 2007, the number of customers interrupted increased by 29%, and the customer-hours of interruption increased by 23%. The vast majority of tree-related interruptions occurred on the distribution system.

Cause Code 03, “Overloads”

The reliability impact of interruptions classified as “Overloads” decreased substantially since 2007. While the number of these interruptions only decreased by 7.1% from 2007, the number of customer interruptions and customer-hours of interruption decreased by 36% and 38%, respectively.

In 2008, overloads accounted for only 0.8% of the total outages, 0.1% of the total customers interrupted, and 0.1% of the total customer-hour interruptions of the region. Overloads represent the third fewest number of interruptions, the second fewest number of customers interrupted, and the second fewest customer-hours of interruption in the region.

Cause Code 04, “Operator Error”

Although interruptions classified as “Operator Errors” accounted for the fewest number of interruptions in the region, errors are responsible for the fourth largest (12%) number of customers interrupted. In general, this discrepancy is due to the fact that operator errors, especially within the substation and on the transmission system, usually result in the loss of supply to a large number of customers. However, because these outages are usually restored very quickly, they only account for 0.9% of the total customer-hour interruptions, the third fewest in the region.

Cause Code 05, “Equipment Failures”

Interruptions classified as “Equipment Failures” accounted for the second largest number of interruptions (28%) in the region. Furthermore, of the total outages, equipment failures interrupted the most customers (28% CI) for the most amount of time (35% CHI).

While the number of interruptions increased by 13% since 2007, the number of customers interrupted is down 22%. However, because it usually takes a specific amount of time to repair a failed device, the customer-hours of interruption has only decreased by 2%.

Most of the interruptions in this category were due to equipment failures on the distribution system. About 50% of these interruptions were due to deteriorated equipment, 22% were associated with wind, and 8% were associated with ice.

Cause Code 06, “Accidents or Events Not Under the Utility’s Control”

In 2008, there was a notable decrease in interruptions classified as “Accidents” or events beyond the utility’s control. The number of events was down 21% from 2007, and the number of customer interrupted and customer-hours of interruption were down about 48%. However, despite the marked improvement, excluding storms, accidental outages accounted for the fourth largest share of interruptions (15%), the fifth largest number of customers interrupted (12%), and the third largest customer-hours of interruption (10%) in the region.

With the exception of one animal-related substation interruption, all 239 interruptions occurred on the distribution system. Of the 238 accidental distribution interruptions, 40% were associated with animals, 32% were associated with vehicles, and 8% were associated with customer activities.

On average, animal outages tended to be repaired the fastest and were restored within 1.37 hours. Interruptions due to motor vehicle accidents tended to impact the most customers, but, on average, were restored within 2.34 hours. By far, interruptions due to customer activities accounted for the fewest number of customers interrupted (3%), but, at 2.96 hours, they tended to take the longest to repair.

Cause Code 07, “Prearranged”

Interruptions classified as “Prearranged” accounted for a negligible share of interruptions. and were required to perform necessary maintenance to improve reliability

Cause Code 08, “Customer Equipment”

Although interruptions classified as “Customer Equipment” only made up less than 1% of the total interruptions in the Northern region, there has been significant improvement in this category since 2007. The number of interruptions decreased by 21%, the number of customers interrupted decreased by 73%, and the customer-hours interrupted decreased by 58%. Customer equipment failures accounted for the fourth fewest number of interruptions, the fewest number of customers interrupted, and the fewest customer-hours of interruption in the region. All of these outages occurred exclusively on the distribution system.

Cause Code 09, “Lightning”

Compared to 2007, the number of interruptions classified as “Lightning Strikes” remained relatively steady in 2008. However, the system showed a 20% improvement in the number of customers and customer hours interrupted when lightning strikes did occur.

Not surprisingly, 86% of the lightning strikes occurred within the summer months.

Cause Code 10, “Unknown”

In 2008, although there was a 7% decrease from 2007 in the number of interruptions classified as “Unknown Causes”, there was a disproportionate increase of 39.6% in the number of customers interrupted. However, the average restoration time in 2008 was on a par with 2007. Overall, unknown causes accounted for the third largest number of interruptions (15%), the third largest number of customers interrupted (14%), and the fifth largest customer-hours of interruption (9%) in the region.

Although 2% of unknown interruptions were on the transmission system, these two (2) outages affected 29% of the total customers and accounted for 23% of the customer-hours of interruption. On average, however, customers who were interrupted during these transmission outages were restored 47% faster than those who were interrupted during distribution events.

2. OPERATING CIRCUIT LISTS

This section includes the following three (3) tables and worst performing circuit analysis for the Northern Region.

- a. Worst Performing Circuit List
- b. Worst Performing Circuits with 3 Year History for CAIDI & SAIFI Indices
- c. Worst Performing Circuits by # of Momentary Interruptions

a. NATIONAL GRID WORST PERFORMING CIRCUIT LIST

NORTHERN REGION

CIRCUIT #	A CUST. SERVED	B INTER.	C # CUST. INTER.	D CUST. HRS. INTER.	D/A SAIDI	D/C CAIDI	C/A SAIFI	NUMBER OF MOMENTARIES
Chasm Falls 85251	1,061	38	2,815	11,696	11.02	4.15	2.65	0
North Carthage 81652	2,179	64	5,738	12,456	5.71	2.17	2.63	2
North Carthage 81654	1,485	18	5,472	14,249	9.59	2.60	3.68	7
Paul Smiths 83462	303	15	2,491	4,961	16.37	1.99	8.22	1
Brady 95757	711	20	1,670	5,639	7.23	3.37	2.34	5
Gilpin Bay 95661	826	28	1,712	4,197	5.08	2.45	2.07	2
Thousand Isl. 81458	2,213	32	3,219	11,572	5.22	3.59	1.45	5
Lowville 77351	892	17	1,819	6,628	7.43	3.64	2.03	1
Star Lake 72762	621	12	1,896	5,990	9.64	3.15	3.05	0
Thousand Isl. 81452	2,004	34	2,656	7,086	3.53	2.66	1.32	0
Bremen 81557	649	14	2,060	3,263	5.02	1.58	3.17	2
Nicholville 86062	1,093	16	4,778	3,458	3.16	0.72	4.37	0
Lake Colby 92758	1,880	14	4,077	6,656	3.54	1.63	2.16	2
Port Leyden 75563	856	32	967	4,038	4.71	4.17	1.12	0
Star Lake 72761	814	10	2,262	5,593	6.87	2.47	2.77	0
Bremen 81556	1,752	33	2,907	4,170	2.37	1.43	1.65	2
Sunday Creek 87651	255	15	492	2,843	11.14	5.77	1.92	2
Ogdensburg 93852	1,142	9	3,143	6,777	5.93	2.15	2.75	2
Higley 92451	1,011	24	2,243	2,518	2.49	1.12	2.21	0
Fort Covington 89642	886	11	2,631	3,969	4.47	1.50	2.96	0

NOTE: This table excludes circuits with fewer than 2 interruptions or serving less than 100 customers.

b. NATIONAL GRID WORST PERFORMING CIRCUITS WITH 3 YEAR HISTORY FOR CAIDI AND SAIFI

NORTHERN REGION

CIRCUIT #	2008 CAIDI	2007 CAIDI	2006 CAIDI	2005 CAIDI	2008 SAIFI	2007 SAIFI	2006 SAIFI	2005 SAIFI
Chasm Falls 85251	4.15	4.13	3.56	2.84	2.65	0.78	1.77	1.71
North Carthage 81652	2.17	2.66	0.61	1.94	2.63	0.32	0.99	0.06
North Carthage 81654	2.60	1.62	0.84	2.33	3.68	0.00	1.03	1.03
Paul Smiths 83462	1.99	2.91	1.80	1.88	8.22	3.27	8.53	1.67
Brady 95757	3.37	0.56	1.88	1.13	2.34	3.32	2.31	2.30
Gilpin Bay 95661	2.45	3.68	2.58	4.04	2.07	4.25	8.23	2.00
Thousand Isl. 81458	3.59	4.08	1.93	1.93	1.45	0.26	1.56	2.00
Lowville 77351	3.64	1.67	0.86	0.31	2.03	0.04	2.98	2.03
Star Lake 72762	3.15	1.17	2.60	0.13	3.05	4.30	2.04	2.00
Thousand Isl. 81452	2.66	4.33	1.84	1.57	1.32	0.17	2.17	1.49
Bremen 81557	1.58	2.26	2.66	1.00	3.17	0.07	1.99	1.02
Nicholville 86062	0.72	3.05	3.81	2.37	4.37	1.14	3.16	0.11
Lake Colby 92758	1.63	1.90	2.79	0.39	2.16	2.29	1.22	1.19
Port Leyden 75563	4.17	2.51	0.00	5.91	1.12	0.46	0.00	0.00
Star Lake 72761	2.47	2.00	2.60	2.27	2.77	5.11	2.02	3.99
Bremen 81556	1.43	2.54	1.77	2.10	1.65	1.70	2.01	2.02
Sunday Creek 87651	5.77	3.52	2.46	2.85	1.92	4.24	2.02	3.04
Ogdensburg 93852	2.15	2.79	3.28	0.64	2.75	0.67	0.05	2.56
Higley 92451	1.12	1.84	1.84	2.78	2.21	1.04	3.64	0.65
Fort Covington 89642	1.50	1.94	1.94	3.12	2.96	2.28	3.19	2.20

CAIDI Goal 2.25 SAIFI Goal 1.00

c. NATIONAL GRID WORST PERFORMING CIRCUITS BY # OF MOMENTARY INTERRUPTIONS

No circuit in the Northern Region experienced 10 or more momentary interruptions.

d. WORST PERFORMING CIRCUIT ANALYSIS

This year, the Northern Region is required to report on twenty (20) worst performing circuits. The list consists of fourteen (14) 13.2kV circuits and six (6) 4.8kV circuits. The Northern Region's PSC goal is 2.25 for CAIDI and 1.00 for SAIFI.

1. CHASM FALLS 85251 13.2 kV

Profile: Customers = 1,061 Circuit Miles = 78.0
Indices: CAIDI = 4.16 SAIFI = 2.65

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer-Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	21	53.8%	1,540	54.7%	7,308	62.5%
3	OVERLOAD	1	2.6%	33	1.2%	26	0.2%
4	ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	10	25.6%	765	27.2%	1,996	17.1%
6	ACCIDENT	0	0.0%	0	0.0%	0	0.0%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
8	CUSTOMER	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	4	10.3%	446	15.8%	2,233	19.1%
10	UNKNOWN	3	7.7%	31	1.1%	137	1.2%
	Totals	39	100.0%	2,815	100.0%	11,700	100.0%

Problem Analysis:

- There was one transmission interruption in 2008 due to a “Tree” on the Malone-Chasm Falls 34.5kV #23 circuit that accounted for 38.1% of the Customers Interrupted (1,072 of 2,815) and accounted for 47.8% of the Customer-Hours (5,596 of 11,700).
- There were zero station interruptions in 2008.
- There were 38 distribution interruptions in 2008 that accounted for 61.9% of the Customers Interrupted (1,743 of 2,815), and accounted for 52.2% of the Customer-Hours (6,105 of 11,700):
 - The distribution circuit had zero circuit breaker operations.
 - The distribution circuit had zero recloser operations.
 - The distribution circuit had zero sectionalizer operations.
 - The distribution circuit had zero 3-phase mainline fuse operations.
 - 33 of the 38 distribution interruptions occurred on the 1-phase spurs mainly due to trees and equipment failures.
- In 2008, Regional Forestry Department completed 3-phase distribution for hazard tree removals.
- In 2008, Regional Forestry Department completed scheduled distribution cycle tree pruning.
- In 2008, an Engineering Reliability Review was completed.

Action Plan:

- Regional Forestry Department will monitor results of past work.
- Based upon the FY09 Engineering Reliability Review, the following list of corrective measures has been assembled:
 - Install 3 new reclosers.
 - Install new fuses on un-fused side taps, re-fuse existing fuses as required, & install fuses on main-line CSP transformers.
 - Review the feasibility to rework the Indian Lake/Mountain View Lake Area to provide 1-phase 4.8kV feeder ties.
 - Review the feasibility to create the Low Road 13.2kV feeder tie from Malone substation.

2. NORTH CARTHAGE 81652 13.2 kV

Profile: Customers = 2,179 Circuit Miles = 151.1

Indices: CAIDI = 2.17 SAIFI = 2.63

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer-Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	30	46.2%	1,235	21.5%	5,170	41.5%
3	OVERLOAD	1	1.5%	2	0.0%	17	0.1%
4	ERROR	2	3.1%	2,189	38.1%	299	2.4%
5	EQUIPMENT	22	33.8%	452	7.9%	1,106	8.9%
6	ACCIDENT	3	4.6%	27	0.5%	41	0.3%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
8	CUSTOMER	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	5	7.7%	1,787	31.1%	5,711	45.9%
10	UNKNOWN	2	3.1%	46	0.8%	106	0.9%
	Totals	65	100.0%	5,738	100.0%	12,450	100.0%

Problem Analysis:

- There were zero transmission interruptions in 2008.
- There was one station interruption in 2008 due to an “Operator Error” that accounted for 38.1% of the Customers Interrupted (2,188 of 5,738) and accounted for 2.3% of the Customer-Hours (284 of 12,450).
- There were 64 distribution interruptions in 2008 that accounted for 61.9% of the Customers Interrupted (3,550 of 5,738), and accounted for 97.7% of the Customer-Hours (12,165 of 12,450):
 - The distribution circuit had one circuit breaker operation due to lightning that accounted for 47.9% of the Customers Interrupted (1,700 of 3,550), and accounted for 46.1% of the Customer-Hours (5,610 of 12,165).
 - The distribution circuit had zero recloser operations.
 - The distribution circuit had three 3-phase mainline fuse operations all on the Selos Road ratio bank, two due to lightning and one due to deterioration, that accounted for 3.9% of the Customers Interrupted (140 of 3,550), and accounted for 1.6% of the Customer-Hours (190 of 12,165).
 - 44 of the 64 distribution interruptions occurred on the 1-phase spurs mainly due to equipment failures, lightning, & trees.

Action Plan:

- In 2009, Regional Forestry Department begin scheduled distribution cycle tree pruning.
- Perform an Engineering Reliability Review of this feeder to determine further improvements to the reliability of this circuit.

3. NORTH CARTHAGE 81654 13.2 kV

Profile: Customers = 1,483 Circuit Miles = 52.7
Indices: CAIDI = 2.60 SAIFI = 3.69

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer-Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	2	10.5%	2	0.0%	5	0.0%
3	OVERLOAD	0	0.0%	0	0.0%	0	0.0%
4	ERROR	1	5.3%	1,444	26.4%	188	1.3%
5	EQUIPMENT	7	36.8%	2,497	45.6%	12,878	90.4%
6	ACCIDENT	3	15.8%	27	0.5%	69	0.5%
7	PREARRANGED	2	10.5%	41	0.7%	87	0.6%
8	CUSTOMER	1	5.3%	1	0.0%	1	0.0%
9	LIGHTNING	2	10.5%	19	0.3%	32	0.2%
10	UNKNOWN	1	5.3%	1,441	26.3%	980	6.9%
	Totals	19	100.0%	5,472	100.0%	14,241	100.0%

Problem Analysis:

- There were zero transmission interruptions in 2008.
- There was one station interruption in 2008, due to an “Operator Error”, that accounted for 26.4% of the Customers Interrupted (1,444 of 5,472) and accounted for 1.3% of the Customer-Hours (188 of 14,241).
- There were 18 distribution interruptions in 2008 that accounted for 73.6% of the Customers Interrupted (4,028 of 5,472) and accounted for 98.7% of the Customer-Hours (14,053 of 14,241):
 - The distribution circuit had two circuit breaker operations; one due to an “Unknown” cause and the second due to “Wind”. The two circuit breaker operations accounted for 72.7% of the Customers Interrupted (2,927 of 4,028), and accounted for 67.8% of the Customer-Hours (9,524 of 14,053)
 - The distribution circuit had zero recloser operations.
 - The distribution circuit had zero 3-phase mainline fuse operations.
 - 6 of the 18 distribution interruptions occurred on the 3-phase backbone mainly due to equipment failures and unknowns.
 - 6 of the 18 distribution interruptions occurred on the service conductors (<600V) mainly due to equipment failure.
- In 2007, Regional Forestry Department completed scheduled distribution cycle tree pruning.
- Regional Forestry Department found no significant tree problems.

Action Plan:

- Perform an Engineering Reliability Review of this feeder to determine further improvements to the reliability of this circuit.

4. PAUL SMITH'S 83462 4.8 kV

Profile: Customers = 301 Circuit Miles = 54.8
Indices: CAIDI = 1.92 SAIFI = 8.22

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer-Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	13	61.9%	1,246	50.0%	3,655	73.6%
3	OVERLOAD	0	0.0%	0	0.0%	0	0.0%
4	ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	5	23.8%	623	25.0%	587	11.8%
6	ACCIDENT	1	4.8%	313	12.6%	329	6.6%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
8	CUSTOMER	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	0	0.0%	0	0.0%	0	0.0%
10	UNKNOWN	2	9.5%	309	12.4%	392	7.9%
	Totals	21	100.0%	2,491	100.0%	4,963	100.0%

Problem Analysis:

- There were 6 transmission interruptions in 2008 that accounted for 74.0% of the Customers Interrupted (1,843 of 2,491) and accounted for 48.2% of the Customer-Hours (2,394 of 4,963):
 - All 6 transmission interruptions occurred on the Lake Colby 46kV system supplying the substation-two due to trees, two due to equipment failure, one due to an accident (brush fire around Paul Smiths substation), and one due to an unknown cause.
- There were zero station interruptions in 2008.
- There were 15 distribution interruptions in 2008 that accounted for 26.0% of the Customers Interrupted (648 of 2,491), and accounted for 51.8% of the Customer-Hours (2,568 of 4,963):
 - The distribution circuit had zero circuit breaker operations.
 - The distribution circuit had one 3-phase mainline fuse operation, due a "Tree", to that accounted for 12.5% of the Customers Interrupted (311 of 2,491), and accounted for 38.3% of the Customer-Hours (1,903 of 4,963).
 - 11 of the 15 distribution interruptions occurred on the 1-phase spurs mainly due to trees.
- In 2008, Regional Forestry Department completed 3-phase distribution for hazard tree removals.
- In 2008, Regional Forestry Department completed the scheduled distribution cycle tree pruning.

- In 2008, Regional Forestry Department continued hazard tree removals of the 46kV supply line.
- In 2006, an Engineering Reliability Review was completed.

Action Plan:

- In 2009, Regional Forestry Department will continue with hazard tree removals of the 46kV supply line.
- Regional Forestry Department will monitor results of past work.
- Review the feasibility of upgrading the existing feeder-tie with Lake Colby 13.2kV feeder #92758.
- Review the feasibility of upgrading the existing feeder-tie with Gabriels 4.8kV feeder #83561.

5. BRADY 95757 13.2 kV

Profile: Customers = 711 Circuit Miles = 71.0
Indices: CAIDI = 3.37 SAIFI = 2.35

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer-Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	7	35.0%	816	48.9%	2,170	38.5%
3	OVERLOAD	0	0.0%	0	0.0%	0	0.0%
4	ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	4	20.0%	703	42.1%	3,169	56.2%
6	ACCIDENT	2	10.0%	8	0.5%	22	0.4%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
8	CUSTOMER	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	3	15.0%	18	1.1%	89	1.6%
10	UNKNOWN	4	20.0%	125	7.5%	184	3.3%
	Totals	20	100.0%	1,670	100.0%	5,635	100.0%

Problem Analysis:

- There were zero transmission interruptions in 2008.
- There were zero station interruptions in 2008.
- There were 20 distribution interruptions in 2008 that accounted for 100.0% of the Customers Interrupted (1,670 of 1,670), and accounted for 100.0% of the Customer-Hours (5,635 of 5,635):
 - The distribution circuit had two circuit breaker operations; one due to an “Equipment Failure” and the second due to a “Tree” that accounted for 83.8% of the Customers Interrupted (1,399 of 1,670), and accounted for 91.6% of the Customer-Hours (5,162 of 5,635).
 - The distribution circuit had two 3-phase mainline fuse operations; one due to an “Tree” and the second due to an “Unknown” cause, that accounted for 2.4% of the Customers Interrupted (40 of 1,670), and accounted for 0.6% of the Customer-Hours (43 of 5,635).
 - 12 of the 20 distribution interruptions occurred on the 1-phase spurs mainly due to equipment failures, lightning and trees.
- In 2008, a coordination review was completed.
- In 2008, Regional Forestry Department began the scheduled distribution cycle tree pruning.

Action Plan:

- In 2009, Regional Forestry Department to complete the scheduled distribution cycle tree pruning.
- Perform an Engineering Reliability Review of this feeder to determine further improvements to the reliability of this circuit.

6. GILPIN BAY 95661 4.8 kV

Profile: Customers = 825 Circuit Miles = 38.9
Indices: CAIDI = 2.45 SAIFI = 2.08

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer-Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	15	51.7%	496	29.0%	3,182	75.8%
3	OVERLOAD	0	0.0%	0	0.0%	0	0.0%
4	ERROR	1	3.4%	829	48.4%	66	1.6%
5	EQUIPMENT	6	20.7%	289	16.9%	563	13.4%
6	ACCIDENT	2	6.9%	8	0.5%	22	0.5%
7	PREARRANGED	1	3.4%	1	0.1%	2	0.0%
8	CUSTOMER	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	3	10.3%	69	4.0%	282	6.7%
10	UNKNOWN	1	3.4%	20	1.2%	79	1.9%
	Totals	29	100.0%	1,712	100.0%	4,196	100.0%

Problem Analysis:

- There was 1 transmission interruption in 2008, caused by “Operator Error”, that accounted for 48.4% of the Customers Interrupted (829 of 1,712), and accounted for 1.6% of the Customer-Hours (66 of 4,196).
 - The transmission interruption occurred at the Malone 115kV station that supplies the Lake Colby 46kV system which then supplies the Gilpin Bay substation.
- There were zero station interruptions in 2008.
- There were 28 distribution interruptions in 2008 that accounted for 51.6% of the Customers Interrupted (883 of 1,712), and accounted for 98.4% of the Customer-Hours (4,130 of 4,196).
 - The distribution circuit had zero circuit breaker operations.
 - The distribution circuit had zero sectionalizer operations.
 - The distribution circuit had three 3-phase mainline fuse operations; two due to “Trees” and one due to an “Equipment Failure”, that accounted for 17.6% of the Customers Interrupted (301 of 1,712), and accounted for 39.2% of the Customer-Hours (1,644 of 4,196).
 - 24 of the 28 distribution interruptions occurred on the 1-phase spurs mainly due to trees and equipment failures.
- In 2008, Regional Forestry Department completed 3-phase distribution for hazard tree removals.
- In 2007, an Engineering Reliability Review was completed.

Action Plan:

- In 2009, Regional Forestry Department will continue with hazard tree removals of the 46kV supply line.
- Regional Forestry Department will begin the scheduled distribution cycle tree pruning.
- Review the feasibility of upgrading the existing feeder-tie with Lake Colby 13.2kV feeder #92758.
- Review the feasibility of upgrading the new 46kV line from Stark to supply Gilpin Bay substation.

7. THOUSAND ISLAND 81458 13.2 kV

Profile: Customers = 2,211 Circuit Miles = 130.4
Indices: CAIDI = 3.59 SAIFI = 1.46

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer-Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	3	9.4%	70	2.2%	371	3.2%
3	OVERLOAD	0	0.0%	0	0.0%	0	0.0%
4	ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	13	40.6%	2,974	92.4%	10,774	93.2%
6	ACCIDENT	3	9.4%	103	3.2%	147	1.3%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
8	CUSTOMER	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	2	6.3%	38	1.2%	67	0.6%
10	UNKNOWN	11	34.4%	34	1.1%	206	1.8%
	Totals	32	100.0%	3,219	100.0%	11,565	100.0%

Problem Analysis:

- There were zero transmission interruptions in 2008.
- There were zero station interruptions in 2008.
- There were 32 distribution interruptions in 2008 that accounted for 100.0% of the Customers Interrupted (3,219 of 3,219), and accounted for 100.0% of the Customer-Hours (11,565 of 11,565):
 - The distribution circuit had zero circuit breaker operations.
 - The distribution circuit had two recloser operations; one due to an “Accident” by a customer’s backhoe and the second due to an “Equipment Failure”, that accounted for 65.3% of the Customers Interrupted (2,101 of 3,219), and accounted for 57.7% of the Customer-Hours (6,678 of 11,565).
 - The distribution circuit had three 3-phase mainline fuse operations; one due to a “Tree” and two due to “Equipment Failures”, that accounted for 19.3% of the Customers Interrupted (621 of 3,219), and accounted for 27.3% of the Customer-Hours (3,153 of 11,565).
 - 12 of the 32 distribution interruptions occurred on the 3-phase backbone mainly due to equipment failures, trees, & unknowns.
- In 2007, an Engineering Reliability Review was completed.
- In 2008, installed three reclosers and associated fusing.
- In 2008, a Feeder Hardening Review was completed.
- In 2005, completed scheduled distribution cycle tree pruning.
- There are no significant tree issues.

Action Plan:

- Based upon the FY2008 Engineering Reliability Review, the following list of corrective measures has been assembled -
 - Review the feasibility of creating an internal feeder along County Route 1.

8. LOWVILLE**77351****13.2 kV****Profile:** Customers = 893 Circuit Miles = 52.4**Indices:** CAIDI = 3.65 SAIFI = 2.04**CAUSE CODE PERFORMANCE TABLE**

Code	Category	Interruptions		Customers Interrupted		Customer-Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	3	17.6%	822	45.2%	3,054	46.0%
3	OVERLOAD	0	0.0%	0	0.0%	0	0.0%
4	ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	5	29.4%	902	49.6%	2,929	44.1%
6	ACCIDENT	7	41.2%	93	5.1%	635	9.6%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
8	CUSTOMER	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	1	5.9%	1	0.1%	4	0.1%
10	UNKNOWN	1	5.9%	1	0.1%	13	0.2%
	Totals	17	100.0%	1,819	100.0%	6,635	100.0%

Problem Analysis:

- There were zero transmission interruptions in 2008.
- There were zero station interruptions in 2008.
- There were 17 distribution interruptions in 2008 that accounted for 100.0% of the Customers Interrupted (1,819 of 1,819), and accounted for 100.0% of the Customer-Hours (6,635 of 6,635):
 - The distribution circuit had two circuit breaker operations, one due to a tree and one due to wind, that accounted for 93.3% of the Customers Interrupted (1,697 of 1,819), and accounted for 89.0% of the Customer-Hours (5,904 of 6,635).
 - The distribution circuit had one 3-phase mainline fuse operation due to a motor vehicle accident that accounted for 3.3% of the Customers Interrupted (60), and accounted for 7.0% of the Customer-Hours (462).
 - 6 of the 17 distribution interruptions occurred on the 1-phase spurs mainly due to accidents.
- In 2007, completed scheduled distribution cycle tree pruning

Action Plan:

- In 2009, Regional Forestry Department will review circuit for hazard trees.
- Perform an Engineering Reliability Review of this feeder to determine further improvements to the reliability of this circuit.

9. STAR LAKE 72762 4.8 kV

Profile: Customers = 620 Circuit Miles = 33.0
Indices: CAIDI = 3.16 SAIFI = 3.06

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer-Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	5	35.7%	130	6.9%	1,246	20.8%
3	OVERLOAD	0	0.0%	0	0.0%	0	0.0%
4	ERROR	1	7.1%	652	34.4%	280	4.7%
5	EQUIPMENT	5	35.7%	357	18.8%	1,377	23.0%
6	ACCIDENT	1	7.1%	3	0.2%	9	0.2%
7	PREARRANGED	1	7.1%	714	37.7%	3,020	50.4%
8	CUSTOMER	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	0	0.0%	0	0.0%	0	0.0%
10	UNKNOWN	1	7.1%	40	2.1%	55	0.9%
	Totals	14	100.0%	1,896	100.0%	5,988	100.0%

Problem Analysis:

- There was 1 transmission interruption in 2008, due to a “Prearranged” interruption to replace failing poles, that accounted for 37.7% of the Customers Interrupted (714 of 1,896), and accounted for 50.4% of the Customer-Hours (3,020 of 5,988):
- There was one station interruption in 2008 that accounted for 34.4% of the Customers Interrupted (652 of 1,896), and accounted for 4.7% of the Customer-Hours (280 of 5,988):
 - The station interruption occurred during testing of the 34.5kV breakers at Browns Falls station.
- There were 12 distribution interruptions in 2008 that accounted for 28.0% of the Customers Interrupted (530 of 1,896) and accounted for 44.9% of the Customer-Hours (2,687 of 5,988):
 - The distribution circuit had zero circuit breaker operations.
 - The distribution circuit had one 3-phase mainline fuse operation due to wind that accounted for 2.6% of the Customers Interrupted (50 of 1,896) and accounted for 2.9% of the Customer-Hours (171 of 5,988).
 - 6 of the 12 distribution interruptions occurred on the 1-phase spurs mainly due to trees.
 - 5 of the 12 distribution interruptions occurred on service conductors (<600V) mainly due to equipment failures and trees.

- In 2008, Regional Forestry Department completed the scheduled distribution cycle tree pruning.

Action Plan:

- Regional Forestry Department will monitor results of past work.
- Perform an Engineering Reliability Review of this feeder to determine further improvements to the reliability of this circuit.

10. THOUSAND ISLAND 81452 13.2 kV

Profile: Customers = 2,004 Circuit Miles = 57.1
Indices: CAIDI = 2.67 SAIFI = 1.33

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer-Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	13	38.2%	271	10.2%	1,107	15.6%
3	OVERLOAD	0	0.0%	0	0.0%	0	0.0%
4	ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	12	35.3%	301	11.3%	1,253	17.7%
6	ACCIDENT	2	5.9%	68	2.6%	337	4.8%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
8	CUSTOMER	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	3	8.8%	150	5.6%	884	12.5%
10	UNKNOWN	4	11.8%	1,866	70.3%	3,505	49.5%
	Totals	34	100.0%	2,656	100.0%	7,085	100.0%

Problem Analysis:

- There were zero transmission interruptions in 2008.
- There were zero station interruptions in 2008.
- There were 34 distribution interruptions in 2008 that accounted for 100.0% of the Customers Interrupted (2,656 of 2,656), and accounted for 100.0% of the Customer-Hours (7,085 of 7,085):
 - The distribution circuit had zero circuit breaker operations.
 - The distribution circuit had one recloser operation, due to lightning, that accounted for 3.8% of the Customers Interrupted (100 of 2,656), and accounted for 9.9% of the Customer-Hours (698 of 7,085).
 - The distribution circuit had seven 3-phase mainline fuse operations that accounted for 79.6% of the Customers Interrupted (2,113 of 2,656), and accounted for 57.4% of the Customer-Hours (4,066 of 7,085). There was one 3-phase mainline fuse operation due to an “Unknown” cause that accounted for 67.8% of the Customers Interrupted (1,800 of 2,656), and accounted for 45.7% of the Customer-Hours (3,240 of 7,085).
 - The 20 of the 34 distribution interruptions occurred on the 1-phase spurs mainly due to equipment & trees.

Action Plan:

- In 2009, the Regional Forestry Department to begin scheduled distribution cycle tree pruning.
- Perform an Engineering Reliability Review of this feeder to determine further improvements to the reliability of this circuit.

11. BREMEN 81557 13.2 kV

Profile: Customers = 650 Circuit Miles = 34.4
Indices: CAIDI = 1.58 SAIFI = 3.17

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer-Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	4	28.6%	1,295	62.9%	2,766	84.8%
3	OVERLOAD	0	0.0%	0	0.0%	0	0.0%
4	ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	2	14.3%	54	2.6%	70	2.1%
6	ACCIDENT	4	28.6%	667	32.4%	347	10.6%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
8	CUSTOMER	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	1	7.1%	3	0.1%	2	0.1%
10	UNKNOWN	3	21.4%	41	2.0%	77	2.3%
	Totals	14	100.0%	2,060	100.0%	3,261	100.0%

Problem Analysis:

- There were zero transmission interruptions in 2008.
- There were zero station interruptions in 2008.
- There were 14 distribution interruptions in 2008 that accounted for 100.0% of the Customers Interrupted and accounted for 100.0% of the Customer-Hours:
 - The distribution circuit had three circuit breaker operations; two due to trees and the third due to farm truck pulling down the primary, that accounted for 94.1% of the Customers Interrupted (1,938 of 2,060) and accounted for 94.4% of the Customer-Hours (3,078 of 3,261).
 - The distribution circuit had zero sectionalizer operations.
 - The distribution circuit had zero 3-phase mainline fuse operations.
 - The 7 of the 14 distribution interruptions occurred on the 1-phase due to various reasons.
- In 2005, the Regional Forestry Department completed scheduled cycle tree pruning.

Action Plan:

- In 2009, review circuit for hazard trees.
- Perform an Engineering Reliability Review of this feeder to determine further improvements to the reliability of this circuit.
- Review the viability of installing a recloser to split the feeder.

12. NICHOLVILLE 86062 4.8 kV

Profile: Customers = 1,092 Circuit Miles = 75.9
Indices: CAIDI = 0.72 SAIFI = 4.38

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer-Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	9	50.0%	316	6.6%	1,051	30.4%
3	OVERLOAD	0	0.0%	0	0.0%	0	0.0%
4	ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	4	22.2%	2,198	46.0%	1,861	53.9%
6	ACCIDENT	1	5.6%	50	1.0%	92	2.7%
7	PREARRANGED	1	5.6%	1,097	23.0%	110	3.2%
8	CUSTOMER	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	2	11.1%	5	0.1%	27	0.8%
10	UNKNOWN	1	5.6%	1,112	23.3%	311	9.0%
	Totals	18	100.0%	4,778	100.0%	3,450	100.0%

Problem Analysis:

- There were two transmission interruptions in 2008, both due to “Equipment” failures, that accounted for 45.9% of the Customers Interrupted (2,194 of 4,778) accounted for 53.4% of the Customer-Hours (1,841 of 3,450).
- There was one station interruption in 2008, due to a “Prearranged” interruption for testing, that accounted for 23.0% of the Customers Interrupted (1,097 of 4,778) accounted for 3.2% of the Customer-Hours (110 of 3,450).
- There were 15 distribution interruptions in 2008 that accounted for 31.1% of the Customers Interrupted (1,487 of 4,778) accounted for 43.5% of the Customer-Hours (1,499 of 3,450):
 - The distribution circuit had one circuit breaker operation, due to an “Unknown” cause, that accounted for 74.8% of the Customers Interrupted (1,112 of 1,487) accounted for 20.7% of the Customer-Hours (311 of 1,499).
 - The distribution circuit had zero recloser operations.
 - The distribution circuit had zero 3-phase mainline fuse operations.
 - The 11 of the 15 distribution interruptions occurred on the 1-phase spurs mainly due to trees.
- In 2005, Regional Forestry Department completed scheduled cycle tree pruning.
- In 2008, Regional Forestry Department completed review and found no significant tree problems have been observed.
- In 2008, completed review the coordination of the circuit.

Action Plan:

- In 2009, review circuit for hazard trees.
- Perform an Engineering Reliability Review of this feeder to determine further improvements to the reliability of this circuit.

13. LAKE COLBY 92758 13.2 kV

Profile: Customers = 1,882 Circuit Miles = 43.9
Indices: CAIDI = 1.63 SAIFI = 2.17

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer-Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	5	33.3%	780	19.1%	795	12.0%
3	OVERLOAD	0	0.0%	0	0.0%	0	0.0%
4	ERROR	1	6.7%	1,883	46.2%	151	2.3%
5	EQUIPMENT	1	6.7%	514	12.6%	4,410	66.4%
6	ACCIDENT	5	33.3%	804	19.7%	903	13.6%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
8	CUSTOMER	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	1	6.7%	12	0.3%	10	0.2%
10	UNKNOWN	2	13.3%	84	2.1%	377	5.7%
	Totals	15	100.0%	4,077	100.0%	6,646	100.0%

Problem Analysis:

- There was one transmission interruption in 2008 that accounted for 46.2% of the Customers Interrupted (1,883 of 4,077), and accounted for 2.3% of the Customer-Hours (151 of 6,646).
- There were zero station interruptions in 2008.
- There were 14 distribution interruptions in 2008 that accounted for 53.8% of the Customers Interrupted (2,194 of 4,077), and accounted for 97.7% of the Customer-Hours (6,496 of 6,646):
 - The distribution circuit had zero circuit breaker operations.
 - The distribution circuit had one recloser operation, due to a failed “I-7’s” accounted for 12.6% of the Customers Interrupted (514 of 4,077) and accounted for 66.4% of the Customer-Hours (4,410 of 6,646).
 - The distribution circuit had zero 3-phase mainline fuse operations.
 - The 2 of the 14 distribution interruptions occurred on the 3-phase mainline; one due to a pole fire caused by failed “I-7’s” and one due to a “Tree”, that accounted for 31.8% of the Customers Interrupted (1,297 of 4,077) and accounted for 16.8% of the Customer-Hours (1,119 of 6,646).
- In 2007, the Regional Forestry Department completed scheduled distribution cycle tree pruning.
- In 2008, reviewed coordination of the circuit.

Action Plan:

- Regional Forestry Department will monitor results of past work.
- Perform an Engineering Reliability Review of this feeder to determine further improvements to the reliability of this circuit.

14. PORT LEYDEN 75563 4.8 kV

Profile: Customers = 856 Circuit Miles = 53.7
Indices: CAIDI = 4.18 SAIFI = 1.13

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer-Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	9	28.1%	286	29.6%	1,578	39.1%
3	OVERLOAD	1	3.1%	2	0.2%	3	0.1%
4	ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	14	43.8%	381	39.4%	1,446	35.8%
6	ACCIDENT	1	3.1%	31	3.2%	218	5.4%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
8	CUSTOMER	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	3	9.4%	60	6.2%	102	2.5%
10	UNKNOWN	4	12.5%	207	21.4%	691	17.1%
	Totals	32	100.0%	967	100.0%	4,038	100.0%

Problem Analysis:

- There were zero transmission interruptions in 2008.
- There were zero station interruptions in 2008.
- There were 32 distribution interruptions in 2008 that accounted for 100.0% of the Customers Interrupted (967 of 967), and accounted for 100.00% of the Customer-Hours (4,038 of 4,038):
 - The distribution circuit had zero circuit breaker operations.
 - The distribution circuit had one 3-phase mainline fuse operation, due to an “Unknown” cause, that accounted for 4.3% of the Customers Interrupted (42 of 967), and accounted for 1.8% of the Customer-Hours (71 of 4,038).
 - The 25 of the 32 distribution interruptions occurred on the 1-phase spurs mainly due to equipment failures & trees.
- In 2006, the Regional Forestry Department completed scheduled distribution cycle tree pruning.
- Found no significant tree issues.

Action Plan:

- Review the coordination of the feeder.
- Perform an Engineering Reliability Review of this feeder to determine further improvements to the reliability of this circuit.

15. STAR LAKE 72761 4.8 kV

Profile: Customers = 814 Circuit Miles = 44.1
Indices: CAIDI = 2.47 SAIFI = 2.78

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer-Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	5	41.7%	359	15.9%	884	15.8%
3	OVERLOAD	0	0.0%	0	0.0%	0	0.0%
4	ERROR	1	8.3%	833	36.8%	358	6.4%
5	EQUIPMENT	0	0.0%	0	0.0%	0	0.0%
6	ACCIDENT	1	8.3%	1	0.0%	2	0.0%
7	PREARRANGED	1	8.3%	963	42.6%	4,073	72.9%
8	CUSTOMER	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	2	16.7%	101	4.5%	257	4.6%
10	UNKNOWN	2	16.7%	5	0.2%	13	0.2%
	Totals	12	100.0%	2,262	100.0%	5,588	100.0%

Problem Analysis:

- There was one transmission interruptions in 2008, due to a “Prearranged” interruption to replace failing poles, that accounted for 42.6% of the Customers Interrupted (963 of 2,262), and accounted for 72.9% of the Customer-Hours (4,073 of 5,588).
- There was one station interruptions in 2008 that accounted for 36.8% of the Customers Interrupted (833 of 2,262), and accounted for 6.4% of the Customer-Hours (358 of 5,588).
 - The station interruption occurred during testing of the 34.5kV breakers at Browns Falls station.
- There were 10 distribution interruptions in 2008 that accounted for 20.6% of the Customers Interrupted (466 of 2,262), and accounted for 20.7% of the Customer-Hours (1,156 of 5,588):
 - The distribution circuit had zero circuit breaker operations.
 - The distribution circuit had three 3-phase mainline fuse operations; two due to “Trees” and one due to “Lightning”, that accounted for 96.6% of the Customers Interrupted (450 of 466), and accounted for 93.9% of the Customer-Hours (1,085 of 1,156).
 - The 5 of the 10 distribution interruptions occurred on the 1-phase spurs mainly due to trees, lightning, & unknown causes.

- In 2008, Regional Forestry Department completed the scheduled distribution cycle tree pruning.

Action Plan:

- Regional Forestry Department will monitor results of past work.
- Perform an Engineering Reliability Review of this feeder to determine further improvements to the reliability of this circuit.

16. BREMEN 81556 13.2 kV

Profile: Customers = 1,751 Circuit Miles = 122.2
Indices: CAIDI = 1.44 SAIFI = 1.66

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer-Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	17	51.5%	2,505	86.2%	3,246	77.7%
3	OVERLOAD	0	0.0%	0	0.0%	0	0.0%
4	ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	8	24.2%	86	3.0%	236	5.7%
6	ACCIDENT	3	9.1%	36	1.2%	89	2.1%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
8	CUSTOMER	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	4	12.1%	18	0.6%	37	0.9%
10	UNKNOWN	1	3.0%	262	9.0%	569	13.6%
	Totals	33	100.0%	2,907	100.0%	4,178	100.0%

Problem Analysis:

- There were zero transmission interruptions in 2008.
- There were zero station interruptions in 2008.
- There were 33 distribution interruptions in 2008 that accounted for 100.0% of the Customers Interrupted (2,907 of 2,907) and accounted for 100.0% of the Customer-Hours (4,178 of 4,178):
 - The distribution circuit had one circuit breaker operation, due to a “Tree”, that accounted for 60.0% of the Customers Interrupted (1,745 of 2,907) and accounted for 53.0% of the Customer-Hours (2,216 of 4,178).
 - The distribution circuit had zero recloser operations.
 - The distribution circuit had zero 3-phase mainline fuse operations.
 - The 19 of the 33 distribution interruptions occurred on the 1-phase spurs mainly due to equipment failures and trees.
- In 2005, the Regional Forestry Department completed scheduled distribution cycle tree pruning.

Action Plan:

- Regional Forestry Department will review circuit for hazard trees.
- Perform an Engineering Reliability Review of this feeder to determine further improvements to the reliability of this circuit.

17. SUNDAY CREEK 87651**13.2 kV**

Profile: Customers = 255 Circuit Miles = 25.3
Indices: CAIDI = 5.78 SAIFI = 1.93

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer-Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	10	62.5%	169	34.3%	404	14.2%
3	OVERLOAD	0	0.0%	0	0.0%	0	0.0%
4	ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	3	18.8%	53	10.8%	203	7.1%
6	ACCIDENT	1	6.3%	3	0.6%	16	0.6%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
8	CUSTOMER	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	2	12.5%	267	54.3%	2,221	78.1%
10	UNKNOWN	0	0.0%	0	0.0%	0	0.0%
	Totals	16	100.0%	492	100.0%	2,843	100.0%

Problem Analysis:

- There was one transmission interruption in 2008, due to “Lightning” that broke the static wire which fell into the phases, that accounted for 52.2% of the Customers Interrupted (257 of 492) and accounted for 76.4% of the Customer-Hours (2,172 of 2,843).
- There were zero station interruptions in 2008.
- There were 15 distribution interruptions in 2008 that accounted for 47.8% of the Customers Interrupted (235 of 492), and accounted for 23.6% of the Customer-Hours (671 of 2,843):
 - The distribution circuit had zero circuit breaker operations.
 - The distribution circuit had three recloser operations, all due to “Trees”, that accounted for 34.9% of the Customers Interrupted (82 of 235), and accounted for 34.9% of the Customer-Hours (234 of 671).
 - The 9 of the 15 distribution interruptions occurred on the 1-phase spurs of the 4.8kV portion of the circuit mainly due to trees.
- In 2008, Regional Forestry Department completed the scheduled distribution cycle tree pruning.

Action Plan:

- Regional Forestry Department will review the circuit for hazard trees.
- Perform an Engineering Reliability Review of this feeder to determine further improvements to the reliability of this circuit.

18. OGDENSBURG 93852 13.2 kV

Profile: Customers = 1,143 Circuit Miles = 50.3
Indices: CAIDI = 2.16 SAIFI = 2.75

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer-Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	5	55.6%	1,741	55.4%	5,291	78.1%
3	OVERLOAD	0	0.0%	0	0.0%	0	0.0%
4	ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	1	11.1%	50	1.6%	117	1.7%
6	ACCIDENT	1	11.1%	1,187	37.8%	890	13.1%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
8	CUSTOMER	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	0	0.0%	0	0.0%	0	0.0%
10	UNKNOWN	2	22.2%	165	5.2%	479	7.1%
	Totals	9	100.0%	3,143	100.0%	6,777	100.0%

Problem Analysis:

- There were zero transmission interruptions in 2008.
- There were zero station interruptions in 2008.
- There were 9 distribution interruptions in 2008 that accounted for 100.0% of the Customers Interrupted (3,143 of 3,143), and accounted for 100.0% of the Customer-Hours (6,777 of 6,777):
 - The distribution circuit had two circuit breaker operations, both due to “Trees”, that accounted for 74.5% of the Customers Interrupted (2,343 of 3,143), and accounted for 64.3% of the Customer-Hours (4,355 of 6,777).
 - The distribution circuit had one recloser operation, due to a “Tree”, that accounted for 18.0% of the Customers Interrupted (565 of 3,143), and accounted for 25.9% of the Customer-Hours (1,752 of 6,777).
 - The distribution circuit had zero 3-phase mainline fuse operations.
 - The 4 of the 9 distribution interruptions occurred on the 1-phase spurs mainly due to trees, animals, & unknown.
- In 2008, Regional Forestry Department completed the scheduled distribution cycle tree pruning.

Action Plan:

- Regional Forestry Department will monitor results of past work.
- Perform an Engineering Reliability Review of this feeder to determine further improvements to the reliability of this circuit.

19. HIGLEY 92451 13.2 kV

Profile: Customers = 1,011 Circuit Miles = 87.7
Indices: CAIDI = 1.13 SAIFI = 2.22

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer-Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	14	56.0%	92	4.1%	733	29.1%
3	OVERLOAD	0	0.0%	0	0.0%	0	0.0%
4	ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	4	16.0%	940	41.9%	966	38.3%
6	ACCIDENT	1	4.0%	7	0.3%	9	0.4%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
8	CUSTOMER	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	0	0.0%	0	0.0%	0	0.0%
10	UNKNOWN	6	24.0%	1,204	53.7%	814	32.3%
	Totals	25	100.0%	2,243	100.0%	2,523	100.0%

Problem Analysis:

- There was one transmission interruption in 2008, due to an “Unknown” cause, that accounted for 46.3% of the Customers Interrupted (1,038 of 2,243), and accounted for 17.3% of the Customer-Hours (436 of 2,523).
- There were zero station interruptions in 2008.
- There were 24 distribution interruptions in 2008 that accounted for 53.7% of the Customers Interrupted (1,205 of 2,243), and accounted for 82.7% of the Customer-Hours (2,087 of 2,523):
 - The distribution circuit had zero circuit breaker operations.
 - The distribution circuit had zero recloser operations.
 - The distribution circuit had one mainline interruption, which required a switch to be opened, due to an “Equipment” failure that accounted for 74.7% of the Customers Interrupted (900 of 1,205), and accounted for 43.1% of the Customer-Hours (900 of 2,087)
 - The 13 of the 24 distribution interruptions occurred on the 1-phase spurs mainly due to trees, equipment failures, & unknown.
- In 2006, Regional Forestry Department completed distribution danger tree removal.
- In 2007, Regional Forestry Department completed scheduled distribution cycle tree pruning.
- In 2008, Regional Forestry Department monitored hazard tree removals.

Action Plan:

- Regional Forestry Department will review circuit for hazard trees.
- Perform an Engineering Reliability Review of this feeder to determine further improvements to the reliability of this circuit.

20. FORT COVINGTON 89642 13.2 kV

Profile: Customers = 886 Circuit Miles = 51.6
Indices: CAIDI = 1.51 SAIFI = 2.97

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer-Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	2	16.7%	51	1.9%	80	2.0%
3	OVERLOAD	0	0.0%	0	0.0%	0	0.0%
4	ERROR	0	0.0%	0	0.0%	0	0.0%
5	EQUIPMENT	4	33.3%	1,148	43.6%	1,266	31.9%
6	ACCIDENT	2	16.7%	927	35.2%	1,942	48.9%
7	PREARRANGED	0	0.0%	0	0.0%	0	0.0%
8	CUSTOMER	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	4	33.3%	505	19.2%	684	17.2%
10	UNKNOWN	0	0.0%	0	0.0%	0	0.0%
	Totals	12	100.0%	2,631	100.0%	3,972	100.0%

Problem Analysis:

- There were zero transmission interruptions in 2008, due to an “Equipment” failure, that accounted for 33.8% of the Customers Interrupted (889 of 2,631) and accounted for 12.3% of the Customer-Hours (489 of 3,972).
- There were zero station interruptions in 2008.
- There were 11 distribution interruptions in 2008 that accounted for 66.2% of the Customers Interrupted (1,742 of 2,631), and accounted for 87.7% of the Customer-Hours (3,483 of 3,972):
 - The distribution circuit had one circuit breaker operation, due to a truck hitting the telephone wire causing it to break wrapping itself into the primaries, that accounted for 50.9% of the Customers Interrupted (887 of 1,742), and accounted for 54.0% of the Customer-Hours (1,880 of 3,483).
 - The distribution circuit had two 3-phase mainline fuse operations, both due to “Lightning”, that accounted for 26.9% of the Customers Interrupted (469 of 1,742), and accounted for 18.0% of the Customer-Hours (628 of 3,483).
 - The 3 of the 12 distribution interruptions occurred on the 1-phase spurs due to animals, trees, & lightning.
- In 2008, Regional Forestry Department completed scheduled distribution cycle tree pruning.
- No significant distribution tree problems have been observed.
- In 2008, a coordination review of the circuit was completed.

Action Plan:

- Perform an Engineering Reliability Review of this feeder to determine further improvements to the reliability of this circuit.

3. ACTION PLAN SUMMARIES

a. SUMMARY OF ACTION PLANS FOR 2008 WORST PERFORMING CIRCUITS

Station	Circuit	Report Year	Action Plan	Projected Completion Date	Estimated Cost	Comments
Chasm Falls	85251	2009	Install 3 new Reclosers	03/31/2009	\$150,000	
		2009	Install fuses	03/31/2009	\$59,000	
		2009	Indian Lake/Mountain View Lake feeder ties	12/01/2009	--	Review feasibility
		2009	Low Road feeder tie	12/01/2009	--	Review feasibility
North Carthage	81652	2009	Begin scheduled distribution cycle tree pruning	12/01/2009	--	
		2009	Perform Engineering Reliability Review	12/01/2009	--	
North Carthage	81654	2009	Perform Engineering Reliability Review	12/01/2009	--	
Paul Smiths	83462	2009	Continue hazard tree removals on 46kV supply line	12/01/2009	--	
		2009	Upgrade Lake Colby 13.2kv feeder tie	12/01/2009	--	Review feasibility
		2009	Upgrade Gabriels 4.8kV feeder tie	12/01/2009	--	Review feasibility
Brady	95757	2009	Complete scheduled distribution cycle tree pruning	12/01/2009	--	
		2009	Perform Engineering Reliability Review	12/01/2009	--	

Station	Circuit	Report Year	Action Plan	Projected Completion Date	Estimated Cost	Comments
Gilpin Bay	95661	2009	Continue hazard tree removals on 46kV supply line	12/01/2009	--	
		2009	Begin scheduled distribution cycle tree pruning	12/01/2009	--	
		2009	Upgrade Lake Colby 13.2kv feeder tie	12/01/2009	--	Review feasibility
		2009	Upgrade new 46kV from Stark	12/01/2009	--	Review feasibility
Thousand Island	81458	2009	Create internal feeder tie along County Route 1	12/01/2009	--	Review feasibility
Lowville	77351	2009	Perform hazard tree review	12/01/2009	--	
	77351	2009	Perform Engineering Reliability Review	12/01/2009	--	
Star Lake	72762	2009	Perform Engineering Reliability Review	12/01/2009	--	
Thousand Island	81452	2009	Begin scheduled distribution cycle tree pruning	12/01/2009	--	
		2009	Perform Engineering Reliability Review	12/01/2009	--	
Bremen	81557	2009	Perform hazard tree review	12/01/2009	--	
		2009	Perform Engineering Reliability Review	12/01/2009	--	
		2009	Install new recloser to split circuit	12/01/2009	--	Review feasibility
Nicholville	86062	2009	Perform hazard tree review	12/01/2009	--	
		2009	Perform Engineering Reliability Review	12/01/2009	--	
Lake Colby	92758	2009	Perform Engineering Reliability Review	12/01/2009	--	

Station	Circuit	Report Year	Action Plan	Projected Completion Date	Estimated Cost	Comments
Port Leyden	75563	2009	Perform Engineering Reliability Review	12/01/2009	--	
		2009	Review coordination of the feeder	12/01/2009	--	
Star Lake	72761	2009	Complete scheduled distribution cycle tree pruning	12/01/2009	--	
		2009	Perform Engineering Reliability Review	12/01/2009	--	
Bremen	81556	2009	Perform hazard tree review	12/01/2009	--	
		2009	Perform Engineering Reliability Review	12/01/2009	--	
Sunday Creek	87651	2009	Perform hazard tree review	12/01/2009	--	
		2009	Perform Engineering Reliability Review	12/01/2009	--	
Ogdensburg	93852	2009	Perform Engineering Reliability Review	12/01/2009	--	
Higley	92451	2009	Perform hazard tree review	12/01/2009	--	
		2009	Perform Engineering Reliability Review	12/01/2009	--	
Fort Covington	89642	2009	Perform Engineering Reliability Review	12/01/2009	--	

b. STATUS OF PREVIOUSLY PROPOSED ACTION PLANS FOR 2007 WORST PERFORMING CIRCUITS

Station	Circuit	Report Year	Action Plan	Projected Completion Date	Estimated Cost	Comments
Bremen	81556	1999	Rebuild Part of Kirshnerville Rd.	12/01/2009	\$150,000+	Re-scheduled, review project scope
	ES 815	2007	Automate 115kV switching	--	\$880,000	Completed, Cost estimates created
	81556	2008	Distribution hazard tree removals	12/01/2008	--	Completed, Perform the monitoring
Chasm Falls	85251	2008	3-phase distribution for hazard tree removals	12/01/2008	--	Completed, Perform the review
	85251	2008	Distribution cycle tree pruning	12/01/2008	\$249,600	Completed, Perform the pruning
Coffeen	76053	2008	Place underground or install tree wire for Haney Street	12/01/2009	--	Review the feasibility
	81757	2008	Install recloser on Mechanic Street	04/01/2008	\$45,600	Completed, FY08 Engineering Reliability Review
	81757	2008	Install new fuses & refuse existing fuses	04/01/2008	\$66,800	Completed, FY08 Engineering Reliability Review
Fort Covington	89642	2000	Review coordination	04/01/2007	--	Completed
	89642	2008	Distribution cycle tree pruning	12/01/2008	\$165,200	Completed, Perform the pruning
Gabriels	83561	2008	3-phase distribution for hazard tree removals	12/01/2008	TBD	Completed, Perform the review
	83561	2008	46kV hazard tree removals	03/31/2009	\$25,000	Perform the removals
	83561	2008	Perform a coordination review	03/08/2008	--	Completed

Gilpin Bay	65661	2007	Rebuild Fish Creek Ponds Spur	06/01/2009	--	Study for feasibility.
		2007	Rebuild Hoel/Church Pond Area Spur	06/01/2009	--	Study for feasibility.
		2008	3-phase distribution for hazard tree removals	12/01/2008	--	Completed, Perform the review
		2008	46kV hazard tree removals	03/31/2009	\$30,000	Perform the removals
		2008	Upgrade the 13.2kV feeder tie from Lake Colby 92758	12/01/2009	--	Review the feasibility
		2008	Upgrade the new 46kV transmission from Stark	12/01/2009	--	Review the feasibility
Hammond	37062	2006	Perform Loading Review	06/01/2009	--	Re-scheduled
		2006	Perform Fuse Coordination Review	06/01/2009	--	Re-scheduled
Higley	92451	2008	Distribution hazard tree removals	12/01/2008	--	Completed, Perform the monitoring
Indian River	32358	2008	Distribution cycle tree pruning	12/01/2008	\$271,700	Completed, Perform the pruning
Little River	ES 955	2007	Automate 115kV switching	--	\$880,000	Completed, Cost estimates being created
Lowville	77354	2004	Create feeder tie with Lowville 77351 on Snell Road	--	--	Project being reviewed
-- (formerly)	77535	2004	Automate 115kV switching	--	\$880,000	Completed, Cost estimates created
Lyme	73353	2008	Install new fuses & refuse existing fuses	04/01/2008	\$19,500	Completed, FY08 Engineering Reliability Review
Malone	ES 895	2007	Reconfigure 115kV side of Malone substation	--	--	Re-scheduled
Nicholville	86061	2008	Perform a coordination	04/17/2008	--	Completed

			review			
Nicholville	86062	2008	Perform a coordination review	04/17/2008	--	Completed
N. Gouverneur	98352	2008	3-phase hazard tree removals	12/01/2008	--	Completed, Perform the review
Paul Smiths	83462	2000	Review potential line relocation	12/31/2009	--	Re-scheduled
	83462	2008	3-phase distribution for hazard tree removals	12/01/2008	--	Completed, Perform the review
	83462	2008	46kV hazard tree removals	03/31/2008	--	See Gabriels 83561
	83462	2008	distribution cycle tree pruning	12/01/2008	\$140,800	Completed, Perform the pruning
	83462	2008	Upgrade the 13.2kV feeder tie from Lake Colby 92758	12/01/2009	--	Re-scheduled, Review the feasibility
	83462	2008	Upgrade the new 46kV transmission from Stark.	12/01/2009	--	Re-scheduled, Review the feasibility
Piercefield	82961	1999	Relocate Transmission Feed at Dam Location	12/01/2009	--	In-process
	82961	2008	3-phase distribution for hazard tree removals	12/01/2008	--	Completed, Perform the review
	82961	2008	46kV hazard tree removals	03/31/2009	--	See Gilpin Bay 95661
	82961	2008	Perform a coordination review	03/27/2008	--	Completed
South Philadelphia	76462	2004	Rebuild County Route 28 (Halls Corners Road)	--	--	Re-scheduled
Thousand Island	81452	2003	Implement T.I. Transformer Replacement Project(s)	12/31/2010	--	Multi-year, multi-circuit, In-process
Thousand Island	81454	2001	Implement T.I. Transformer Replacement Project(s)	12/31/2010	--	Multi-year, multi-circuit, In-process
West Adams	87551	2008	Install recloser on Harbor Road	04/01/2008	\$45,600	Completed, FY08 Engineering Reliability

						Review
	87551	2008	Install new fuses & refuse existing fuses	04/01/2008	\$68,500	Completed, FY08 Engineering Reliability Review
	87551	2008	Provide 2nd 115kV source to substation	12/01/2009	--	Review the feasibility
West Adams	87552	2008	Install 4 new reclosers	04/01/2008	\$182,400	Completed, FY08 Engineering Reliability Review
	87552	2008	Install new fuses & refuse existing fuses	04/01/2008	\$53,000	Completed, FY08 Engineering Reliability Review
	87552	2008	Provide 2nd 115kV source to substation	12/01/2009	--	Review the feasibility
West Adams	87553	2008	Install 3 new reclosers	04/01/2008	\$136,800	Completed, FY08 Engineering Reliability Review
	87553	2008	Install new fuses & refuse existing fuses	04/01/2008	\$38,900	Completed, FY08 Engineering Reliability Review
	87553	2008	Provide 2nd 115kV source to substation	12/01/2009	--	Review the feasibility

J. SOUTHWEST REGION

1. OPERATING REGIONAL PERFORMANCE

a. CAIDI AND SAIFI INDICES WITH HISTORY FROM 2004 TO 2008

	2008	2007	2006	2005	2004
CAIDI (Target 1.75)	1.57	1.89	1.79	2.00	1.72
SAIFI (Target. 1.00)	0.61	0.98	0.82	0.80	1.38
SAIDI	0.96	1.86	1.48	1.60	2.38
Interruptions	1,252	1,111	1,135	968	1,220
Customers Interrupted	64,413	103,005	86,457	83,777	143,698
Customer Hours Interrupted	100,831	194,754	155,371	167,387	247,760
Customers Per Interruption	51.45	92.71	76.17	86.55	117.78
Availability Index	99.9890	99.9780	99.9830	99.9810	99.9720
Interruptions/1000 Customers	11.93	10.60	10.82	9.27	9.49

b. DISCUSSION OF REGIONAL PERFORMANCE

Reliability performance in the Southwest region as measured by CAIDI, SAIFI & SAIDI showed a significant improvement compared to 2007 statistics and the previous four year average. The 2008 year-end restoration index (CAIDI) was 1.57 hours of interruption per customer served, below the New York State Public Service Commissioner (PSC) minimum goal of 1.75, down 0.32 hours from 2007. The CAIDI result for 2008 was the lowest level in five years and well below the 1.85 average from 2004 to 2007.

The regions reliability performance as measured by SAIFI was notably good. The 2008 year end frequency index (SAIFI) was 0.61 customers interrupted per customer served. This was below the PSC goal of 1.00. The SAIFI for 2008 was down 39% compared to previous four year average. .

The SAIDI of 0.96 in 2008 indicates a 48.5% improvement in reliability when compared to the level in 2007 and the previous four year average

Despite a 12% increase in the number of interruptions, the number of Customers Interrupted (64,413) and Customer Hours Interrupted (100,831) in the Southwest Region dropped to a five year low--38% lower than number in 2007 and the previous four-year average. Indeed, the Customers Per Interruption was less than the previous four-year average by 44.9% and less than 2007 by 44.5%.

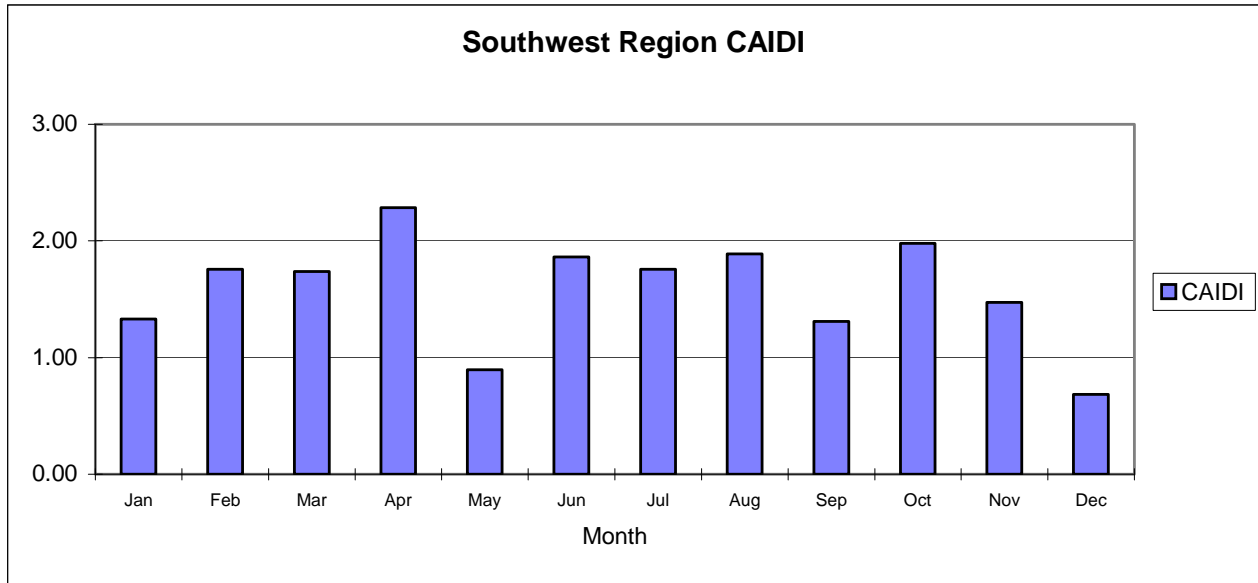
c. MONTHLY CAIDI AND SAIFI GRAPHS

The graphs on the following page show the monthly CAIDI and SAIFI for the Southwest Region for 2008.

For the year, CAIDI was below the PSC minimum level, with the best two months being May (0.90) and December (0.68). CAIDI exceeded the PSC minimum for six months in 2008: February (1.76), April (2.29), June (1.86), July (1.76), August (1.89) and October (1.98).

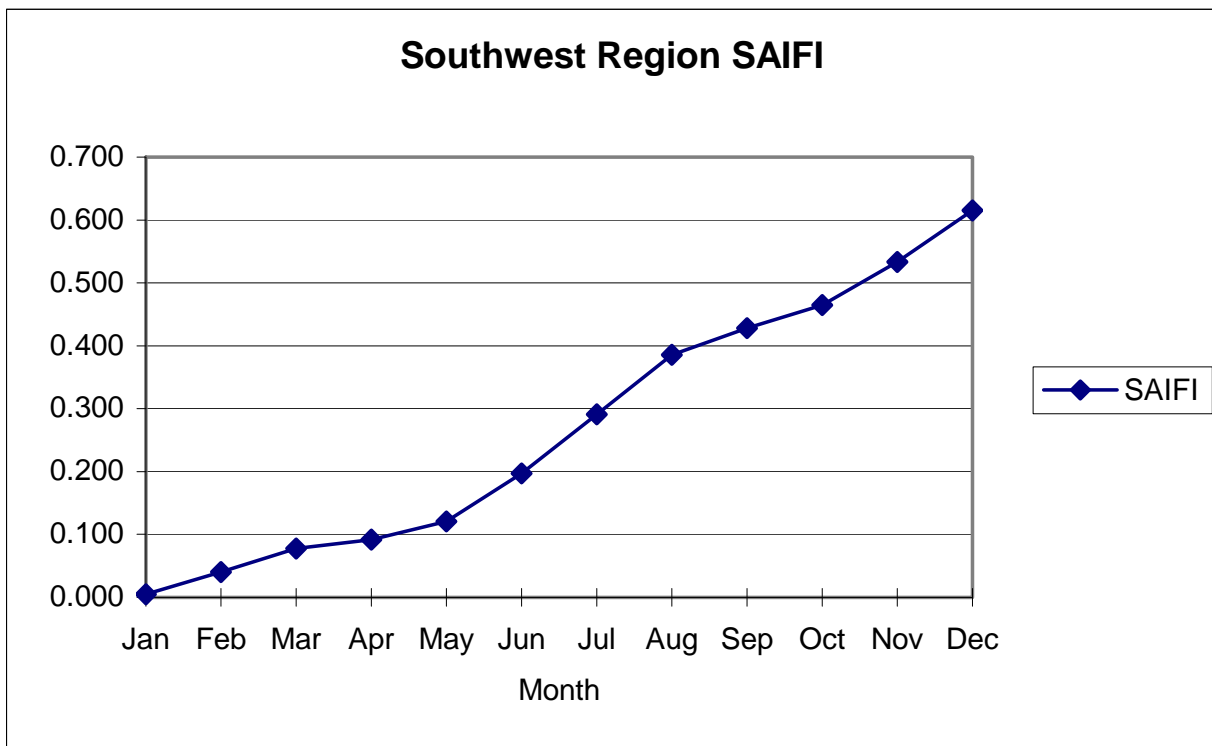
For the year, SAIFI was below the PSC minimum level. SAIFI showed the greatest increase during months of July (0.094), August, (0.095) and December (0.082); 44% of the Southwest Regions SAIFI occurred during these 3 months. The best 3 months for SAIFI were January (0.005), April (0.014) and October (0.037); the interruptions that occurred during these three months contributed 9.1% of the Southwest Regions SAIFI.

GRAPH OF MONTHLY CAIDI AND SAIFI FOR SOUTHWEST REGION



PSC CAIDI Goal:	
Minimum	1.75
2008 Actual	1.57

PSC SAIFI Goal:	
Minimum	1.00
2008 Actual	0.61



d. PSC CAUSE CODES

Cause Codes	Interruptions		Customers		Customer Hours	
	Number	% Total	Number	% Total	Number	% Total
(1) Major Storms	319	20.3	78,232	54.8	305,916	75.2
(2) Tree Contacts	420	26.7	23,007	16.1	42,092	10.3
(3) Overload	6	0.4	22	0.0	29	0.0
(4) Errors	0	0.0	0	0.0	0	0.0
(5) Equip. Failure	291	18.5	11,310	7.9	17,112	4.2
(6) Accidents	155	9.9	9,449	6.6	11,968	2.9
(7) Prearranged	51	3.2	1,966	1.4	2,117	0.5
(8) Cust. Equip.	7	0.4	16	0.0	32	0.0
(9) Lightning	195	12.4	7,196	5.0	13,257	3.3
(10) Unknown	127	8.1	11,447	8.0	14,230	3.5
Total	1,571	100	142,645	100	406,753	100

e. INTERRUPTION REVIEW BY PSC CAUSE CODES

Cause Code 01, “Major Storms”

There were four Major Storms in the Southwest Region during 2008. These storms were responsible for 20.3% of all interruptions, resulting in 54.8% of customers interrupted and 75.2% of customer hours interrupted. These were primarily high wind events which occurred Jan. 8, Jan 30, Sept. 14 and Dec. 28; with hurricane force gusts occurring on two of these events.

Cause Code 02, “Tree Contacts”

Tree Contacts were the greatest cause of interruptions in the Southwest Region during 2008. Trees were responsible for 26.7% of all interruptions and 16% (the second highest share) of customers interrupted during the year. Although tree interruptions were up by 16% in 2008, the number of customers interrupted from trees was down 22% and customer hours due to tree contacts were down 33% from 2007

The largest incident in this category was on June 10, Cattaraugus feeder F0461 experienced a lockout when a tree took down an overhead primary conductor. This interruption resulted in 2700 CHI. This one event alone equated to 6.4% of the total CHI from Tree contacts.

Cause Code 03, “Overloads”

There were six (6) Overloads, which had a limited impact on the Region. They contributed less than 1% or 0.38% to interruptions, customers interrupted, and CHI.

Cause Code 04, “Operator Error”

There were no (0) Operator Errors in 2008.

Cause Code 05, “Equipment Failures”

Equipment Failure was responsible for the third largest number of interruptions in 2008. This is down by 7.3% compared to 2007 and down by 4.0% compared to the previous four year average. The most equipment failures were experienced in December (51), followed by March (44) and November (36). This category interrupted the third most customers and also resulted in the third largest CHI in 2008.

The largest incident recorded was on October 29, when two 500KVA ratio transformers failed on the feeder F10451. These events alone caused a total of 3591 CHI which equated to 20.9% of the total CHI from equipment failures.

Cause Code 06, “Accidents”

Accidents or Events not under utility control accounted for 9.9% of interruptions during the year. Although incidents due to accidents were 25% above 2007 levels, customer interruptions were 26% below the 2007 level and the previous four years average. Two large incidents accounted for 15% of the CHI from accidents. These occurred on August 15 when an animal damaged a recloser on Erie Rd and on October 18 when motor vehicle caused an interruption on Nine Mile Rd. .

Cause Code 07, “Prearranged”

Prearranged interruptions accounted for fifty-one (51) interruptions in 2008. These interruptions contributed 3.2% to interruptions, 1.4% customers interrupted, and 0.5% CHI.

Cause Code 08, “Customer Equipment”

Customer equipment failures had a very limited impact in this Region in 2008.

Cause Code 09, “Lightning”

Lightning was responsible for 12% of interruptions in the Region in 2008. The 195 Interruptions (195) were up 32% from 2007 and 10% from the previous four year average. Most of the interruptions occurred in June (56), July (36) and August (79).

Cause Code 10, “Unknown”

Unknown was listed as the cause for 8.1% of all interruptions in the Region. The number of incidents with cause unknown was 13% above the 2007 level and 28% above the previous four year average. However, the customer hours interrupted for this category was 12.5% below 2007 levels and 18.8% above the previous four-year average.

2. OPERATING CIRCUIT LISTS

This section includes the following three (3) tables and worst performing circuit analysis for the Southwest Region.

- a. Worst Performing Circuit List
- b. Worst Performing Circuits with 3 Year History for CAIDI & SAIFI Indices
- c. Worst Performing Circuits by # of Momentary Interruptions

a. NATIONAL GRID WORST PERFORMING CIRCUIT

SOUTHWEST REGION

CIRCUIT #	A CUST. SERVED	B TOTAL INTER.	C # CUST. INTER.	D CUST. HRS.INTER.	D/A SAIDI	D/C CAIDI	C/A SAIFI	NUMBER OF MOMENTARIES
N. Chautauqua 7861	272	26	1,299	2,463	9.06	1.89	4.77	4
Vandalia 10451	998	21	2,752	4,510	4.51	1.63	2.75	9
Cattaraugus 1562	691	28	1,226	3,365	4.87	2.74	1.77	1

NOTE: This table excludes feeders with fewer than 2 interruptions or serving less than 100 customers.

CAIDI Min. 1.75
SAIFI Min. 1.00

b. NATIONAL GRID WORST CIRCUIT PERFORMING CIRCUITS WITH A 3 YEAR HISTORY FOR CAIDI AND SAIFI

SOUTHWEST REGION

CIRCUIT #	2008 CAIDI	2007 CAIDI	2006 CAIDI	2005 CAIDI	2008 SAIFI	2007 SAIFI	2006 SAIFI	2005 SAIFI
N. Chautauqua 7861	1.89	2.11	2.29	1.52	4.77	1.54	1.62	2.02
Vandalia 10451	1.63	2.76	1.63	1.54	2.75	1.78	1.14	1.31
Cattaraugus 1562	2.74	1.62	1.74	1.65	1.77	1.61	1.76	0.29

NOTES: This table excludes feeders with fewer than 2 interruptions or serving less than 100 customers.

CAIDI Min. 1.75

SAIFI Min. 1.00

c. NATIONAL GRID WORST PERFORMING CIRCUITS BY # OF MOMENTARY INTERRUPTIONS

No Circuit in the Southwest Region experienced more than 10 momentary interruptions in 2008.

d. WORST PERFORMING CIRCUIT ANALYSIS

This year the Southwest Region is reporting on three (3) Worst Feeders. The list consists of one 13.2 kV feeder and two (2) 4.8kV feeders.

For the Southwest Region, the PSC minimum CAIDI is 1.75 and the PSC minimum SAIFI is 1.00. The Southwest Region did meet the PSC minimum CAIDI with a 1.57 and also meet the PSC minimum SAIFI with a 0.61.

1. N. CHAUTAUQUA 7861 4.8kV

Profile: 272 Customers, 27.9 Circuit Miles

Indices: CAIDI = 1.89, SAIFI = 4.77

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	11	42.3%	848	65.3%	1,243	50.5%
5	EQUIPMENT	6	23.1%	350	26.9%	756	30.7%
6	ACCIDENTS	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	7	26.9%	80	6.2%	410	16.6%
10	UNKNOWN	1	3.8%	20	1.5%	45	1.8%
	Totals	26	100.0%	1,299	100.0%	2,463	100.0%

Problem Analysis:

- In 2008 this feeder was Corporation's 43rd worst feeder and the Southwest Region's worst feeder. This is the first time this feeder has appeared on the Southwest Region's worst feeder list.
- On February 9, an equipment station breaker malfunction caused a feeder lockout. This resulted in a 2.13 hour outage to 275 customers.
- On October 3, a tree caused a 34.5KV outage on Sub-T Line #855 causing station outage resulting in a 0.23 hour outage to 275 customers.
- On October 12, a tree fell on a 34.5 KV Sub-T Line #855 causing station outage resulting in a 0.55 hour outage to 275 customers.

Action Plans:

- Full cycle Sub-T tree trimming completed on L#855 in 2008 and ROW widened where possible.
- Full cycle Distribution tree trimming to be scheduled in FY11.
- Hazard Tree review to be completed in 2009.

2. VANDALIA 10451 13.2 kV

Profile: 998 Customers, 58.5 Circuit Miles

Indices: CAIDI = 1.63, SAIFI = 2.75

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	12	57.1%	1,085	39.4%	402	8.9%
5	EQUIPMENT	6	28.6%	1,463	53.2%	3,696	82.0%
6	ACCIDENTS	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	3	14.3%	204	7.4%	410	9.1%
10	UNKNOWN	0	0.0%	0	0.0%	0	0.0%
	Totals	21	100.0%	2,752	100.0%	4,508	100.0%

Problem Analysis:

- In 2008 this feeder was Corporation's 52nd worst feeder and the Southwest Region's 2nd worst feeder. This is the first time this feeder has appeared on the Southwest Region's worst feeder list.
- On February 2, a tree fell into a line causing the feeder to lockout. This resulted in a 0.25 hour outage to 998 customers.
- On October 29, the largest incident on this circuit occurred where two 500KVA ratio transformers failed on separate occasions. These events alone contributed a total of 3591 CHI.

Action Plans:

- Full cycle Distribution tree trimming completed in 2007.
- Hazard Tree work done in 2008 & some additional planned for 2008.
- New recloser was installed on S. Nine Mile Rd in 2008.
- An Engineering Reliability Review was completed in January 2008, which recommends additional fusing for this feeder.
- Replacement of failed recloser on Rt 219 is expected in FY10.

3. CATTARAUGUS 1562 4.8 kV

Profile: 691 Customers, 69.5 Circuit Miles

Indices: CAIDI = 2.74, SAIFI = 1.77

CAUSE CODE PERFORMANCE TABLE

Code	Category	Interruptions		Customers Interrupted		Customer Hours	
		Number	% Total	Number	% Total	Number	% Total
2	TREE	15	53.6%	1,050	85.6%	3,064	91.1%
5	EQUIPMENT	6	21.4%	35	2.9%	112	3.3%
6	ACCIDENTS	0	0.0%	0	0.0%	0	0.0%
9	LIGHTNING	5	17.9%	30	2.4%	38	1.2%
10	UNKNOWN	2	7.1%	111	9.1%	148	4.4%
	Totals	28	100.0%	1,226	100.0%	3,363	100.0%

Problem Analysis:

- In 2008 this feeder was Corporation's 70th worst feeder and the Southwest Region's 3rd worst feeder. This is the first time this feeder has appeared on the Southwest Region's worst feeder list.
- On June 29th, a tree fell on a line causing the feeder to lockout. This resulted in 2.58 hour outage to 690 customers.
- On August 26, fuse operated due to tree contact, resulting in a 3.43 hour outage to 200 customers.
- On September 15th, a downed primary as a result of a tree caused a 3.13 hour outage to 200 customers.

Action Plans:

- Full cycle Distribution tree trimming primarily completed in 2008 to be finished early 2009.
- Hazard Tree work completed in 2008.
- Line inspection scheduled for 2010.

3. ACTION PLAN SUMMARIES

a. SUMMARY OF ACTION PLANS FOR 2008 WORST PERFORMING CIRCUITS

Station	Feeder	Report Year	Action Plan	Projected Compl. Date	Cost	Comments
N. Chautauqua	7861	2009	Hazard Tree review	2009	\$1,000	To be completed in FY10
N. Chautauqua	7861	2009	Full cycle tree trimming- Sub-T L#855	2008	\$120,000	Completed 10/2008
Vandalia	10451	2009	Fusing per Engineering Reliability Review	2009	\$37,000	Scheduled for completion by 3/31/09
Vandalia	10451	2009	Replace failed recloser on Route 219	2009	\$41,000	To be completed in FY10
Vandalia	10451	2009	Hazard Tree removal	2008	\$6,700	Completed in 2008
Vandalia	10451	2009	Install new recloser on S. Nine Mile Rd.	2008	\$41,000	Completed in 7/2008
Cattaraugus	1562	2009	Full cycle tree trimming	2009	\$341,000	In-progress, expected completion in 2009.

b. STATUS OF PREVIOUSLY PROPOSED ACTION PLANS FOR 2007 WORST PERFORMING CIRCUITS

Station	Feeder	Report Year	Action Plan	Projected Compl. Date	Cost	Comments
Valley	4455	2008	Install additional lateral fusing, per Engineering Reliability Report	2008	\$5,800	Scheduled for completion by 3/31/09
Valley	4455	2008	Install additional sub-lateral fusing, per Engineering Reliability Report	2008	\$22,200	Completed 1/2009

GLOSSARY

CAIDI - Customer Average Interruption Duration Index is the average service restoration time for customers interrupted. It is determined by dividing the sum of all customer interruption durations by the total number of customers interrupted in a year.

Customer Hours of Interruption - The hours of interruption duration multiplied by the number of customers interrupted for a given interruption.

Distribution Circuit - An electric feeder line serving customers and operating at voltage levels below 23,000 volts; typically, 4.16, 4.8 or 13.2kV.

Failed Region - Any region whose indices exceed minimum level of CAIDI or SAIFI as set for that region by the Public Service Commission (PSC).

Fiscal Year - Beginning in 2002 the Company changed the cycle of its annual budgeting and reporting process from a calendar year beginning January 1st and ending December 31st to a fiscal year beginning April 1st and ending March 31st of the following year. Budget estimates for work to be performed on worst performing feeders will most likely reflect this shift in fiscal year budgeting while actual costs typically reflect work completed by the end of the calendar year.

Interruption - Loss of electric service for five minutes or more to one or more customers. This is a reliability rather than a power quality issue.

Major Storm - A storm that causes at least 10% of the metered customers in a region to be without service or a storm that results in metered customers to be without service for 24 hours or more.

Minimum Goal - As defined by the Company and the PSC, this is the level of service reliability below which a region fails and additional analysis is required.

Momentary Interruption - Loss of electric service for less than five minutes to one customer or more. This a power quality rather than a reliability issue.

Objective Goal - The target level of service reliability as defined by the Company and the PSC.

Power Quality - The performance of a circuit other than that defined by reliability. It is characterized by parameters such as the number of momentary (less than 5 minute) interruptions, steady state voltage sags, swells, surges, noise and harmonics.

Recloser - A loadbreak device that operates when a fault current of pre-determined level and duration flows through it.

Region - One of eight geographic areas within the Company's electric territory. For the purpose of this report, the eight regions are: Capital (Albany, Troy, Schenectady, Hudson); Central (Syracuse, Fulton, Oswego, Pulaski, Cortland); Frontier (Buffalo, Niagara Falls); Genesee (Batavia, Avon, Albion, Medina); Mohawk Valley (Utica, Rome, Oneida, Herkimer); Northeast

(Glens Falls, Saratoga, Ticonderoga); Northern (Watertown, Ogdensburg, Malone, Potsdam); and Southwest (Angola, Fredonia, Stow, Olean).

Reliability - The electric performance of a distribution circuit as experienced by its customers. It is based on interruptions of five (5) minutes or longer, their duration, frequency and number of customers affected.

SAI - System Availability Index is the percent of time that service was available during the year. The SAI is derived from the ratio of the total number of customer hours that service was available during the year ($24/\text{hour/day} \times 365 \text{ days/year} - \text{SAIDI}$) to the total customer hours available per year ($8,760 = 24 \text{ hours/day} \times 365 \text{ days/year}$) multiplied by 100 percent.

SAIDI - System Average Interruption Duration Index is the average interruption duration per customer served per year. It is the ratio of the customer hours interrupted to the total number of customers served.

SAIFI - System Average Interruption Frequency Index is the average number of times that a customer is interrupted in a year. It is determined by dividing the number of customers interrupted in a year by the average number of customers connected during the year.

Sectionalizer - A non-loadbreak circuit device that works with a substation breaker or a recloser to minimize the number of customers involved in an interruption.

Worst-Performing Circuits - Circuits in the system or a given region that are the worst performing based on the Company's combined rankings of:

- a. SAIFI
- b. SAIDI
- c. Number of Interruptions
- d. Number of Customer Hours Interrupted

	NATIONALGRID																		
	ELECTRIC SERVICE INTERRUPTION - ACTIVE FEEDER RANKING													DATE: 01/20/09					
	DURING TIME PERIOD JAN 01,2008 TO DEC 31,2008																		
	FACILITY TYPE(S) INCLUDE: DISTRIBUTION SUB STATION TRANSMISSION																		
	EXCLUDING PSC CODE(S): 01																		
	REPORT # 4																		
	SYSTEM REPORT																		
	ITEM	STATION	FDR	NO CST	NO.	RANK	TOT. DUR	AVG.	MAX.	CUST	MAX	TOT. CUST	RANK	SIF	RANK	SID	RANK	CID	FDR.
REG.	NO.	NAME	NO.	SERVED	INTR		HOURS	DUR	DUR	INTR	CUST	HOURS		INDEX		INDEX		INDEX	RANK
CE	1	NILES	29451	1257	39	1628	222.3	5.7	26.2	5354	1259	17790.34	1638	4.25	1618	14.15	1623	3.32	6507
MV	2	EAGLE BAY	38272	1034	33	1607	175.2	5.3	17	6860	1064	15351.94	1631	6.63	1637	14.84	1626	2.23	6501
MV	3	POLAND	62258	1508	56	1642	172.7	3	10	8615	1506	14894.84	1628	5.71	1633	9.87	1596	1.72	6499
CE	4	SANDY CR	6652	1591	35	1615	63.9	1.8	3.6	7812	1846	15109.45	1629	4.91	1630	9.49	1590	1.93	6464
CA	5	BLUE STORES	30353	1373	31	1594	103.8	3.3	14.7	5952	1372	15849.65	1633	4.33	1624	11.54	1607	2.66	6458
MV	6	LEHIGH	66954	2099	64	1645	318.7	4.9	23	5455	1207	21183.02	1642	2.59	1555	10.09	1598	3.88	6440
MV	7	LEHIGH	66952	1976	38	1625	172.6	4.5	19.2	4317	706	36718.4	1646	2.18	1516	18.58	1636	8.5	6423
MV	8	LEHIGH	66953	613	27	1565	148.8	5.5	17.5	2195	623	11047.51	1613	3.58	1603	18.02	1634	5.03	6415
MV	9	OLD FORGE	38362	715	30	1590	199.3	6.6	44.7	3090	725	8081.67	1595	4.32	1623	11.3	1604	2.61	6412
NE	10	ASHLEY	33151	1087	37	1621	139	3.7	15.9	3894	1091	9498.73	1601	3.58	1603	8.73	1582	2.43	6407
NO	11	CHASM FALLS	85251	1061	38	1625	174.7	4.5	14.1	2815	1072	11695.57	1617	2.65	1559	11.02	1601	4.15	6402
MV	12	LEHIGH	66951	1193	27	1565	132.2	4.8	10.3	4442	1191	12530.7	1622	3.72	1610	10.5	1600	2.82	6397
MV	13	POLAND	62257	1389	24	1534	87	3.6	11.7	6369	1391	11830.3	1618	4.58	1628	8.51	1581	1.85	6361
NO	14	N CARTHAGE	81652	2179	64	1645	303.6	4.7	37.4	5738	2188	12455.68	1620	2.63	1556	5.71	1534	2.17	6355
NE	15	CAROGA LAKE	21932	2148	20	1483	90.3	4.5	13	7027	2272	28473.83	1644	3.27	1594	13.25	1620	4.05	6341
NE	16	CLINTON ST	36653	2697	19	1465	68.5	3.6	10.2	10607	2699	33992.55	1645	3.93	1615	12.6	1615	3.2	6340
NE	17	GILMANTOWN	15451	1973	41	1632	199.9	4.8	16.8	4321	1964	13000.08	1625	2.19	1521	6.58	1554	3	6332
CE	18	WEST MONROE	27451	1900	26	1552	79.6	3	11.9	8529	1957	9989.9	1611	4.48	1627	5.25	1524	1.17	6314
CE	19	CLEVELAND	1166	490	26	1552	122.9	4.7	15.1	1666	489	5658.18	1556	3.4	1598	11.54	1607	3.39	6313
G	20	RICHMOND	3253	1468	26	1552	107.7	4.1	11.6	4712	1469	9928.48	1609	3.2	1591	6.76	1556	2.1	6308
MV	21	WHITE LAKE	39963	922	25	1539	129.6	5.1	30.9	3104	944	7553.04	1590	3.36	1596	8.19	1573	2.43	6298
CA	22	HEMSTREET	32851	2042	36	1618	153.9	4.2	23	7117	2044	8529.79	1598	3.48	1601	4.17	1470	1.19	6287
CA	23	HOAGS CORNER	22145	941	17	1412	109.4	6.4	11.6	3227	943	17416.49	1637	3.42	1599	18.5	1635	5.39	6283
G	24	WEATHERSFIEL	2362	175	19	1465	106.1	5.5	14.9	1046	175	4690.08	1529	5.97	1634	26.8	1641	4.48	6269
G	25	ORANGEVILLE	1961	654	17	1412	99	5.8	15.9	2109	655	12810.12	1623	3.22	1592	19.58	1639	6.07	6266
NO	26	N CARTHAGE	81654	1483	18	1436	47.2	2.6	5.7	5472	1486	14249.29	1627	3.68	1606	9.6	1593	2.6	6262
MV	27	EAGLE BAY	38271	882	14	1321	130.8	9.3	28.2	6454	931	16537.4	1634	7.31	1639	18.74	1637	2.56	6231
MV	28	ALDER CREEK	70152	975	46	1637	110.5	2.4	13.4	2391	975	4794.69	1534	2.45	1547	4.91	1510	2	6228
CA	29	EVERETT ROAD	42051	1874	25	1539	76.1	3	13	5995	1847	8807.85	1599	3.19	1590	4.7	1500	1.46	6228
CA	30	BLUE STORES	30351	2139	29	1582	86.8	2.9	13.5	5220	2137	9849.33	1605	2.44	1545	4.6	1495	1.88	6227
CE	31	COLOSSE	32151	2044	28	1572	97.5	3.4	12.1	7654	2044	7786.91	1593	3.74	1611	3.8	1447	1.01	6223
NE	32	WORCESTER	18924	1156	15	1353	58	3.8	9.6	3776	1157	18617.92	1639	3.26	1593	16.1	1630	4.93	6215
NE	33	GRAND ST	43351	1564	20	1483	39.1	1.9	5.2	4267	1562	9902.47	1608	2.72	1565	6.33	1549	2.32	6205
CA	34	FRONT ST	36053	1621	16	1385	61.8	3.8	9.5	6258	1593	13663.8	1626	3.86	1613	8.42	1578	2.18	6202
G	35	BATAVIA	155	1957	20	1483	81.4	4	10.9	4396	1952	11686.28	1616	2.24	1531	5.97	1541	2.65	6171
CA	36	ALTAMONT	28356	2258	39	1628	201.4	5.1	20	3238	2250	16808.2	1635	1.43	1335	7.44	1567	5.19	6165
NE	37	BROOK ROAD	36955	3105	43	1633	118.9	2.7	11.4	4469	990	21010.4	1641	1.43	1335	6.76	1556	4.7	6165
NO	38	PAUL SMITHS	83462	303	15	1353	55	3.6	8.7	2491	313	4961.27	1538	8.22	1641	16.37	1631	1.99	6163
CA	39	ALTAMONT	28355	1890	16	1385	54.8	3.4	9.2	4445	1882	17367.86	1636	2.35	1539	9.18	1587	3.9	6147
NO	40	BRADY	95757	711	20	1483	78.8	3.9	18.5	1670	710	5638.7	1555	2.34	1537	7.93	1572	3.37	6147
NE	41	SHARON	36352	1779	21	1507	94.7	4.5	16.9	3738	1777	9863.36	1607	2.1	1497	5.54	1529	2.63	6140

	NATIONALGRID																		
	ELECTRIC SERVICE INTERRUPTION - ACTIVE FEEDER RANKING													DATE: 01/20/09					
	DURING TIME PERIOD JAN 01,2008 TO DEC 31,2008																		
	FACILITY TYPE(S) INCLUDE: DISTRIBUTION SUB STATION TRANSMISSION																		
	EXCLUDING PSC CODE(S): 01																		
	REPORT # 4																		
	SYSTEM REPORT																		
	ITEM	STATION	FDR	NO CST	NO.	RANK	TOT. DUR	AVG.	MAX.	CUST	MAX	TOT. CUST	RANK	SIF	RANK	SID	RANK	CID	FDR.
REG.	NO.	NAME	NO.	SERVED	INTR		HOURS	DUR	DUR	INTR	CUST	HOURS		INDEX		INDEX		INDEX	RANK
MV	42	ALDER CREEK	70161	889	25	1539	86.9	3.4	15.7	2410	914	4310.85	1520	2.71	1564	4.84	1508	1.78	6131
SW	43	N CHAUTAUQUA	7861	272	24	1534	86	3.5	9.9	1299	275	2465.01	1378	4.77	1629	9.06	1585	1.89	6126
CA	44	STUYVESANT	3551	641	20	1483	91.9	4.5	10.7	1150	640	9804.18	1604	1.79	1395	15.29	1627	8.52	6109
CA	45	MENANDS	10153	1681	21	1507	84.9	4	15.3	2465	1687	20782.31	1640	1.46	1346	12.36	1614	8.43	6107
G	46	RICHMOND	3251	826	21	1507	74.5	3.5	7.7	2209	828	4170.01	1514	2.67	1562	5.04	1514	1.88	6097
NO	47	GILPIN BAY	95661	826	28	1572	127.4	4.5	16	1712	829	4197.47	1517	2.07	1489	5.08	1517	2.45	6095
G	48	E GOLAH	5152	1259	22	1525	58.2	2.6	6.9	2754	1260	5761.37	1558	2.18	1516	4.57	1493	2.09	6092
MV	49	OLD FORGE	38364	781	11	1195	68	6.1	16.6	4900	803	12062.2	1619	6.27	1636	15.44	1629	2.46	6079
NO	50	THOUSAND ISL	81458	2213	32	1599	138	4.3	14.3	3219	2100	11571.66	1615	1.45	1343	5.22	1522	3.59	6079
MV	51	RAQUETTE LAK	39861	485	10	1142	126.1	12.6	20.5	6657	496	25178.39	1643	13.72	1643	51.91	1644	3.78	6072
SW	52	VANDALIA	10451	998	20	1483	42.1	2.1	8.3	2752	998	4509.8	1524	2.75	1566	4.51	1490	1.63	6063
G	53	BASOM	1562	417	18	1436	62.1	3.4	6.8	1377	416	3141.78	1436	3.3	1595	7.53	1568	2.28	6035
CE	54	ROCK CUT	28651	1869	18	1436	67.3	3.7	13.8	7987	1873	6301.62	1568	4.27	1620	3.37	1411	0.78	6035
CA	55	SWAGGERTOWN	36453	1408	19	1465	91.6	4.8	13.7	2181	1410	12904.01	1624	1.54	1360	9.16	1586	5.91	6035
NE	56	DELANSON	26951	1969	28	1572	69.3	2.4	9.7	5746	1960	5416.08	1550	2.91	1570	2.75	1339	0.94	6031
NO	57	LOWVILLE	77351	892	17	1412	103.7	6.1	18.4	1819	897	6627.93	1578	2.03	1475	7.43	1566	3.64	6031
MV	58	SHERMAN	33352	1493	26	1552	97.6	3.7	10.9	2701	1497	6690.99	1580	1.8	1397	4.48	1486	2.47	6015
NE	59	SCHROON LAKE	42951	2206	39	1628	134.8	3.4	25.1	4700	2264	5701.38	1557	2.13	1501	2.58	1319	1.21	6005
MV	60	ROCK CITY	62370	613	16	1385	41.4	2.5	5.2	2374	615	3472.61	1473	3.87	1614	5.66	1531	1.46	6003
G	61	SHELBY	7656	1607	26	1552	77.2	2.9	9.7	3510	1599	5184.43	1544	2.18	1516	3.22	1390	1.47	6002
CE	62	SANDY CR 13.	6651	1692	45	1635	116.4	2.5	6.7	3365	1693	5535.77	1552	1.98	1410	3.27	1398	1.64	5995
NE	63	SCHENEVUS	26127	1028	10	1142	52.9	5.2	6.7	4373	1029	12502.18	1621	4.25	1618	12.16	1613	2.85	5994
NE	64	CEDAR	45351	1725	28	1572	78.2	2.7	7.7	3080	1720	6582.49	1576	1.78	1392	3.81	1448	2.13	5988
NO	65	STAR LAKE	72762	621	12	1246	62.3	5.1	11.7	1896	714	5989.89	1563	3.05	1584	9.64	1594	3.15	5987
NE	66	NORTH CREEK	12251	1881	56	1642	270.5	4.8	24.7	2819	1884	6383.51	1571	1.49	1354	3.39	1413	2.26	5980
NE	67	MIDDLEBURG	39052	2153	30	1590	90.2	3	11.9	4156	2160	6461.76	1572	1.93	1407	3	1366	1.55	5935
CA	68	FIREHOUSE	44953	2387	13	1291	27.5	2.1	4.5	7213	2389	9569.36	1602	3.02	1581	4	1461	1.32	5935
G	69	ROYALTON	9861	521	12	1246	37.7	3.1	8.2	1874	521	4117.55	1510	3.59	1605	7.9	1571	2.19	5932
SW	70	CATTARAUGUS	1562	691	28	1572	114.7	4	18.6	1226	690	3365.18	1459	1.77	1390	4.87	1509	2.74	5930
NO	71	THOUSAND ISL	81452	2004	34	1612	209.5	6.1	27.3	2656	1800	7085.93	1585	1.32	1309	3.53	1424	2.66	5930
G	72	ROYALTON	9863	681	10	1142	36.7	3.6	7.6	2513	681	6871.77	1582	3.69	1607	10.09	1598	2.73	5929
G	73	W HAMLIN	8254	2230	28	1572	110.3	3.9	8.2	3625	2220	7193.59	1588	1.62	1374	3.22	1390	1.98	5924
MV	74	OLD FORGE	38361	598	10	1142	194.9	19.4	125.3	2022	604	6590.85	1577	3.38	1597	11.02	1601	3.25	5917
NE	75	CORINTH	28552	1722	15	1353	63.9	4.2	10.2	3068	915	11537.99	1614	1.78	1392	6.7	1555	3.76	5914
NE	76	NORTHVILLE	33252	2289	29	1582	168.7	5.8	19.5	2648	1290	9857.88	1606	1.15	1244	4.3	1476	3.72	5908
NE	77	FORT GAGE	31954	2172	37	1621	107.7	2.9	15.1	5837	2270	4146.35	1512	2.68	1563	1.9	1189	0.71	5885
MV	78	CHADWICKS	66852	2420	37	1621	80.4	2.1	7.4	3048	2412	7559.91	1591	1.25	1283	3.12	1379	2.48	5874
NO	79	BREMEN	81557	649	14	1321	47.7	3.4	16.8	2060	649	3263.39	1449	3.17	1589	5.02	1513	1.58	5872
G	80	LEROY	455	1498	15	1353	38.4	2.5	6.3	3066	1493	6244.75	1566	2.04	1479	4.16	1468	2.03	5866
NO	81	NICHOLVILLE	86062	1093	16	1385	55	3.4	6.8	4778	1112	3457.52	1469	4.37	1625	3.16	1386	0.72	5865
CE	82	LIGHTHOUSE H	6144	1945	48	1640	172.7	3.5	9	2236	500	6540.68	1574	1.14	1237	3.36	1407	2.92	5858

	NATIONALGRID																			
	ELECTRIC SERVICE INTERRUPTION - ACTIVE FEEDER RANKING												DATE: 01/20/09							
	DURING TIME PERIOD JAN 01,2008 TO DEC 31,2008																			
	FACILITY TYPE(S) INCLUDE: DISTRIBUTION SUB STATION TRANSMISSION																			
	EXCLUDING PSC CODE(S): 01																			
	REPORT # 4																			
	SYSTEM REPORT																			
	ITEM	STATION	FDR	NO CST	NO.	RANK	TOT. DUR	AVG.	MAX.	CUST	MAX	TOT. CUST	RANK	SIF	RANK	SID	RANK	CID	FDR.	
REG.	NO.	NAME	NO.	SERVED	INTR		HOURS	DUR	DUR	INTR	CUST	HOURS		INDEX		INDEX		INDEX	RANK	
G	83	E BATAVIA	2855	2198	29	1582	73.2	2.5	12.4	4418	2204	5062.41	1542	2.01	1458	2.3	1270	1.14	5852	
CA	84	GROOMS ROAD	34557	2050	16	1385	62.6	3.9	10.4	3930	2000	8308.91	1596	1.91	1403	4.05	1465	2.11	5849	
CA	85	ROSA ROAD	13757	2950	31	1594	101.5	3.2	10.5	4823	2945	7039.91	1584	1.63	1375	2.38	1288	1.45	5841	
NE	86	WILTON	32952	1386	20	1483	34.6	1.7	7.3	2972	1399	3980.38	1501	2.14	1503	2.87	1349	1.33	5836	
NE	87	E WORCESTER	6021	679	9	1092	48.1	5.3	14.7	2102	686	6358.92	1569	3.09	1586	9.36	1588	3.02	5835	
NO	88	LAKE COLBY	92758	1880	14	1321	56.7	4	13.8	4077	1883	6656.01	1579	2.16	1508	3.54	1426	1.63	5834	
NO	89	PORT LEYDEN	75563	856	32	1599	145.7	4.5	29.3	967	100	4038.27	1507	1.12	1223	4.71	1502	4.17	5831	
CA	90	ELNORA	44257	1393	15	1353	65.1	4.3	9	3250	1394	4696.93	1530	2.33	1535	3.37	1411	1.44	5829	
MV	91	TURIN RD	65356	1288	36	1618	178.8	4.9	14.8	1545	337	4584.18	1526	1.19	1257	3.55	1427	2.96	5828	
NO	92	STAR LAKE	72761	814	10	1142	42	4.2	9.8	2262	963	5593.46	1554	2.77	1568	6.87	1560	2.47	5824	
CE	93	DUGUID	26551	1616	13	1291	43.8	3.3	5.8	3439	1610	6373.86	1570	2.12	1500	3.94	1456	1.85	5817	
CE	94	E PULASKI	32451	1846	25	1539	61.4	2.4	5.2	3194	1888	5209.79	1545	1.73	1386	2.82	1345	1.63	5815	
G	95	WEATHERSFIEL	2361	394	7	974	33.4	4.7	8.2	1464	397	6953.8	1583	3.71	1609	17.64	1633	4.74	5799	
MV	96	SHERMAN	33351	1132	20	1483	54.5	2.7	11.1	2168	1136	3812.43	1493	1.91	1403	3.36	1407	1.75	5786	
NE	97	VAIL MILLS	39253	3042	45	1635	207.1	4.6	22.6	3194	2715	9939.1	1610	1.05	1145	3.26	1395	3.11	5785	
CA	98	BLUE STORES	30352	1320	17	1412	95.2	5.6	29	2290	1322	4992.77	1540	1.73	1386	3.78	1446	2.18	5784	
NO	99	BREMEN	81556	1752	33	1607	80.2	2.4	9.8	2907	1745	4169.56	1513	1.65	1378	2.37	1285	1.43	5783	
NO	100	SUNDAY CREEK	87651	255	15	1353	65.7	4.3	8.4	492	257	2842.92	1418	1.92	1406	11.14	1603	5.77	5780	
NO	101	OGDENSBURG	93852	1142	9	1092	27.1	3	5.2	3143	1187	6777.37	1581	2.75	1566	5.93	1539	2.15	5778	
NE	102	SUMMIT	34733	844	10	1142	56.2	5.6	12.5	1967	845	5398.31	1548	2.33	1535	6.39	1552	2.74	5777	
NE	103	MIDDLEBURG	39051	1428	43	1633	155.1	3.6	15.7	2298	1420	3459.6	1470	1.6	1369	2.42	1293	1.5	5765	LIMIT
NO	104	HIGLEY	92451	1011	24	1534	620.9	25.8	482.9	2243	1038	2518.08	1385	2.21	1526	2.49	1307	1.12	5752	
NO	105	FORT COVINGT	89642	886	11	1195	25.6	2.3	4	2631	889	3968.81	1500	2.96	1571	4.47	1483	1.5	5749	NO LIMIT
CE	106	PHOENIX	5165	981	10	1142	52.6	5.2	12.4	2052	980	5949.81	1561	2.09	1494	6.06	1544	2.89	5741	
CA	107	FRONT ST	36052	1630	8	1037	28.7	3.5	5	3310	1626	15587.92	1632	2.03	1475	9.56	1592	4.7	5736	
CE	108	ASH	22358	804	11	1195	16.6	1.5	3.5	2975	798	3314.14	1454	3.7	1608	4.12	1467	1.11	5724	

2008 HIGHEST NUMBER OF MOMENTARIES CIRCUIT LIST
(Circuits with 10 or more Momentaries)

REGION	CKT NAME	CKT #	CKT KV	# OF MI's	RANK	
					SYSTEM	REGION
Genesee	Lima Station 36	3661	4.8	19	1	1
Genesee	Lima Station 36	3662	4.8	19	1	1
Central	Labrador	23051	13.2	14	2	1
Genesee	Shelby	7656	13.2	13	3	2
Central	Ballina	22151	13.2	11	4	2
Capital	Wolf Road	34453	13.2	10	5	1
Central	Cuyler	2425	4.16	10	5	3
Genesee	Knapp Road	22652	13.2	10	5	3