Illinois Commerce Commission

Staff's Assessment Report of
Mt. Carmel Public Utility Company
2009 Reliability Report

Pursuant to Part 411 of 83 Illinois Administrative Code

July 12, 2011

1. Executive Summary:

On June 2, 2010, Mt. Carmel Public Utility Company ("MCPU") filed its Annual Reliability Report for the calendar year 2009 pursuant to Section 16-125 of 220 ILCS 5/ Public Utilities Act and Part 411 of 83 Illinois Administrative Code.

MCPU reported that three customers experienced interruptions that exceeded reliability targets. MCPU reported that it has taken the necessary steps to mitigate further service interruptions to those customers.

MCPU reported that its company-wide System Average Interruption Frequency Index (SAIFI) for the year 2009 was 2.32. This index improved by approximately 46% relative to 2008; however, it ranked second worst among Illinois' six public utilities.

MCPU reported that its company-wide Customer Average Interruption Duration Index (CAIDI) for the year 2009 was 76 minutes. Altough it is 6 minutes worse than MCPU's 2008 CAIDI, it was the best company-wide CAIDI among Illinois public utilities for the year 2009. MCPU reported the best CAIDI among Illinois public utilities four times in the last five years.

In 2009, overhead equipment failure was the leading cause of equipment outages at nearly 26%. Overhead equipment outages caused more than 19% of the interruptions to MCPU customers.

The second leading cause of equipment outages in 2009 was weather, at approximately 21%. Weather-related equipment outages caused MCPU customers to experience the longest duration without electric service.

Although trees caused just less than 9% of MCPU equipment outages in 2009, customer service interruptions due to tree-related outages were nearly 30% of the total customer service interruptions. Tree-related equipment outages caused MCPU customers to experience the second longest duration without electric service. During Staff's field inspections of MCPU distribution circuits, Staff recorded many tree conflicts with supply lines. Tree-caused equipment outages are a serious problem at MCPU and the utility should increase its efforts to prevent tree contract with its facilities. MCPU should consider revising its current tree trimming practice by focusing on trimming entire circuits from beginning to end, rather than trimming geographic blocks that may contain portions of different circuits, providing that MCPU does not exceed the three-year time limit between tree-trimming operations at any location.[1]

In 2009, the number of customers who were impacted by animal-related equipment outages nearly tripled. That was the largest increase in customer service interruptions due to a single cause category. MCPU plans to install animal protection on its facilities

[1] On January 25, 2005, MCPU agreed to institute a three-year cycle tree-trimming program that covers all its electric circuits, beginning July 1, 2004.

that experience animal-related interruption when interruptions occur. MCPU should take a more aggressive approach to animal protection in its electric system, by installing animal protection where needed, rather than waiting for animal-caused interruptions to occur before installing the needed animal protection.

MCPU reported one equipment outage under cause category "Other Alternative Supplier/Utility" and attributed it to equipment failure on a transmission source in AmerenCIPS' substation that feeds MCPU via a 69,000 volt connection. Although that single outage lasted for only ten minutes, it caused approximately 15% of MCPU customer service interruptions for the whole year. Transmission-related problems continue to cause large numbers of MCPU customers to experience service interruptions. MCPU should consider addressing transmission-related equipment outages by adding redundancy to its current transmission system where economically feasible.

MCPU reported that it completed all remedial work on worst performing circuits described in its 2008 reliability report.

Section 7 of this report includes a summary of field inspections that Staff performed on MCPU distribution circuits. A detailed account of Staff findings during those circuit inspections is attached to this report as Appendix (A).

Section 9 of this report includes MCPU plans to improve its system reliability.

Section 11 of this report is a summary of MCPU's description of several ongoing projects that the company listed in its 2008 Reliability Report. The description includes updates of the progress and status of these projects.

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2. Introduction

On June 2, 2010, Mt. Carmel Public Utility Company ("MCPU") filed its Annual Reliability Report for the calendar year 2009 pursuant Section 16-125 of 220 ILCS 5/ Public Utilities Act and to Part 411 of 83 Illinois Administrative Code (the "Code"). Staff reviewed MCPU's 2009 Reliability Report and concluded that it was compliant with the Part 411 of the Code; however, due to some inaccuracies relating to some of the historical data that MCPU included in its report, MCPU had to file two revised reports, the second of which was filed on October 20, 2010.

According to Section 411.140, the Illinois Commerce Commission ("ICC") shall assess the annual reliability report of each electric public utility at least once every three years starting in the year 1999. Section 411.140 provide guidelines of such an assessment and the criteria of evaluation of such a report. Subsection 411.140(a)(2) requires the ICC to:

A) Assess the jurisdictional entity's historical performance relative to established reliability targets.

B) Identify trends in the jurisdictional entity's reliability performance.

C) Evaluate the jurisdictional entity's plan to maintain or improve reliability.

D) Include specific identification, assessment, and recommendations pertaining to any potential reliability problems and risks that the Commission has identified as a result of its evaluation.

E) Include a review of the jurisdictional entity's implementation of its plan for the previous reporting period.

The following is an assessment of MCPU's 2009 Reliability Report. Staff followed the guidelines described in Section 411.140 of the Code to complete the required assessment. After thorough investigation and analysis, Staff reached conclusions and presented them throughout this report. At the end of this report, Staff lists recommendations for MCPU to consider in the hope that they will help improve MCPU's system reliability.

3. MCPU's Customer Base and Service Territory

MCPU reported that it maintains only one operating area. MCPU's electric service territory covers approximately 107 square miles serving one incorporated municipality in and around the City of Mt. Carmel. It provides electric power to 5,679 electric customers, which is down from 5,923 customers in 2002.

4. MCPU's Electric Distribution System

MCPU reported that its distribution system consists of approximately 7.42 miles of underground facilities and approximately 261.29 miles of overhead facilities. MCPU reported that approximately thirty percent of its distribution system facilities are urban. The service territory is comprised of four distribution substations, three transmission substations, two industrial/wholesale substations, and thirteen distribution feeders.

In its 2009 Reliability Report, MCPU provided data about its distribution facilities' average age pursuant to Subsection 411.120(3)(G) of the Code. MCPU reported that the age of its transmission facilities is approximately eighteen years with approximately twelve years of remaining life. MCPU also reported that the average age of its distribution facilities is approximately sixteen years with approximately fourteen years of average remaining life. MCPU stated, "These figures are based on analysis completed 12/31/08 using the total transmission and distribution investment dollars and the life to date depreciation dollars to determine the percentage of remaining life." MCPU provided the age of all its facilities as required by Subsection 411.120(b)(3)(G);, however, the age that MCPU provided is the age of all its facilities combined rather than lists of the ages and remaining lives of each individual facility element separately i.e. poles, overhead equipment, substation equipment, transformers, etc. Staff is concerned by MCPU's 2009 Reliability Report's lack of detail regarding the age of MCPU's facilities. Staff recommends that MCPU include a detailed account of the age of each individual facility element listed separately.

5. Compliance of MCPU's 2009 Reliability Report

Staff reviewed MCPU's 2009 Reliability Report for compliance with the reporting requirements specified in Section 411.120. Staff found the report to be compliant with these requirements, well organized and structured to respond to each section in Part 411 of the Code in an orderly manner; however, Staff found inaccuracies in some of the historic data that MCPU included in its report. Staff pointed out to MCPU the lack of labeling of the tables that it included in its Reliability Report, which made it hard to reference or cite those tables. On June 14, 2010, MEC filed its revised annual reliability report, which included numbered tables. While reviewing MCPU's revised 2009 Reliability Report in the course of writing this assessment, Staff discovered errors in the numbers that MCPU provided in Table (14). Staff informed MCPU with this finding and subsequently, on October 20, 2010, MCPU filed a second revised Reliability Report with Table (14) that contains what appears to be correct information.

6. MCPU's Historical Performance Relative to Established Reliability Targets

Subsection 411.120(b)(3)(L) of the Code requires each electric public utility to list the customers who experienced interruptions that exceeded service reliability targets. For the purposes of this Subsection, the list shall identify the customers not by their names or account numbers but rather by a unique number assigned by the utility. The list shall

include the number of interruptions, the interruption durations experienced in each of the three preceding years and the number of consecutive years in which the customer has experienced interruptions in excess of the service reliability targets. The service reliability targets are specified in subsection 411.140(b)(4)(A-C) of the Code and are summarized in Table (1) below.

Table (1)
Service Reliability Targets

Immediate primary source of service operation voltage	Maximum number of interruptions in each of the last three consecutive years	Maximum hours of total interruption duration in each of the last three years
69,000 volts and above	3	9
Between 15,000 & 69,000 volts	4	12
15,000 volts and below	6	18

MCPU reported in its 2009 Reliability Report that only three customers experienced interruptions that exceeded the frequency reliability target. MCPU reported that it had no customer that exceeded the duration reliability targets. In 2008, three customers experienced interruptions in excess of service reliability targets; MCPU reported one of them to have exceeded frequency reliability targets in its 2009 Reliability Report.

MCPU continues to have few customers who experience interruptions that exceed the service reliability targets. MCPU reported that it has taken the necessary corrective measures to mitigate further service interruptions for those customers.

7. Analysis of MCPU's 2009 Reliability Performance

A. Reliability Statistical Data:

Reliability Indices:

Table (2) Lists 2009 company-wide reliability indices for all Illinois public utilities. MCPU reported the second highest (second worst) SAIFI[2] and CAIFI[3] among Illinois public utilities at 2.32 and 2.36 respectively. These values are above the average value of SAIFI and CAIFI for all Illinois utilities. MCPU reported the lowest (best) CAIDI[4] among Illinois public utilities at 76 minutes.

[2] System Average Interruption Frequency Index (SAIFI) is the average number of interruptions per customer during the year including customers who didn't experience service interruptions. It is calculated by dividing the total annual number of customer interruptions by the total number of customers served during the year.

[3] Customer Average Interruption Frequency Index (CAIFI) is the average number of interruptions for those customers who experience interruptions during the year. It is calculated by dividing the total annual number of customer interruptions by the total number of customers affected by interruptions.

[4] Customer Average Interruption Duration Index (CAIDI) is the average interruption duration for those customers who experience interruptions during the year. It is calculated by dividing the annual sum of all customer interruption durations by the total number of customer interruptions.

Table (2)
2009 Reliability Indices by Utility

	SAIFI	CAIFI	CAIDI (min.)
AmerenCILCO	1.37	1.85	197
AmerenCIPS	1.51	2.13	462
AmerenIP	0.99	1.60	187
ComEd	1.01	1.84	112
MidAmerican	2.51	3.01	106
MCPU	**2.32**	**2.36**	**76**

System Service Interruptions:

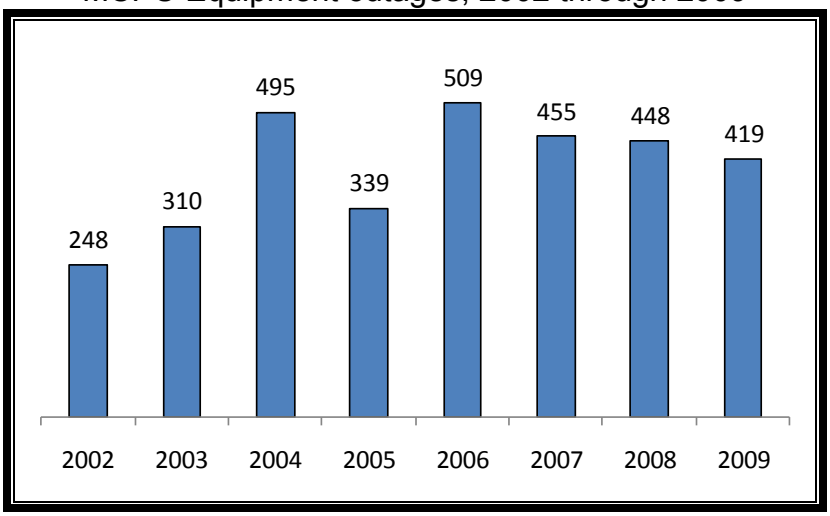
Public utilities should list all customer service interruption in accordance with Section 411.130 of the Code that categorizes customer service interruption by cause. Table (3) contains information provided by MCPU in its 2009 Reliability Report. It is a summary breakdown of MCPU 2009 equipment outages, customer service interruptions, and interruption durations based on the classifications specified per Section 411.130.

Table (3)
2009 Interruptions by Cause Category

Cause Category	Equipment Outage Events		Customer Service Interruptions		Customer Service Interruptions Durations	
	Q	%	Q	%	minutes	%
Animal Related	49	11.7%	997	7.0%	22,100	2.0%
Tree Related	37	8.8%	4,220	29.7%	284,008	26.3%
Weather	89	21.2%	3,040	21.4%	402,960	37.3%
Intentional/Maintenance	55	13.1%	994	7.0%	80,251	7.4%
Customer Equipment	26	6.2%	26	0.2%	958	0.1%
Public	8	1.9%	100	0.7%	8,296	0.8%
Overhead Equipment	108	25.8%	1,699	12.0%	207,394	19.2%
Phase overload	2	0.5%	623	4.4%	36,802	3.4%
Unknown	44	10.5%	378	2.7%	17,094	1.6%
Other (Alternative Supplier Equipment)	1	0.2%	2,120	14.9%	21,200	2.0%
Total	419	100.0%	14,197	100.0%	1,081,063	100.0%

There was a 6.5% decrease in the total number of equipment outages from 448 events in 2008 to 419 events in 2009. As shown in Figure (1), MCPU equipment outages have been decreasing for four straight years starting in 2006. As will be discussed later, this decreasing trend in MCPU equipment outages does not correlate with its trend in customer service interruptions.

Figure (1)
MCPU Equipment outages, 2002 through 2009



Overhead equipment failure was the leading cause of equipment outages in 2009 and caused nearly 26% of total equipment outages. Equipment outages due to overhead equipment failure increased for the second straight year form 44 outages in 2007 to 62 outages in 2008 to 108 outages in 2009. That is a 74% increase in outages due to overhead equipment failure compared to 2008.

In 2009, weather was the second leading cause of equipment outages at about 21%. Weather caused 89 outages in 2009, which is nearly one-third less than the number of outages weather caused in 2008.

Animal intrusion was the third leading cause of equipment outages in 2009. In 2009, the number of animal related outages increased by more than 11% to 49 from 44 in 2008. During Staff's field inspection of MCPU's distribution circuits in June 2010, Staff noticed a significant lack of animal protection. Staff informed MCPU with the findings of its circuit inspections on July 20, 2010. In its response to this particular finding, MCPU stated,

> *It has been past practice at MCPU to install animal protection on new transformer installations and existing transformer locations as animal issues arise. Recently MCPU began to install animal resistant wrap around poles, located in populated rural areas such as Mesa Lake and Sugar Creek, which have transformers or other line devices on them. MCPU plans to continue the practice of installing animal protection on poles and transformers at the time of new installation and to install such devices on existing poles as animal issues arise.*

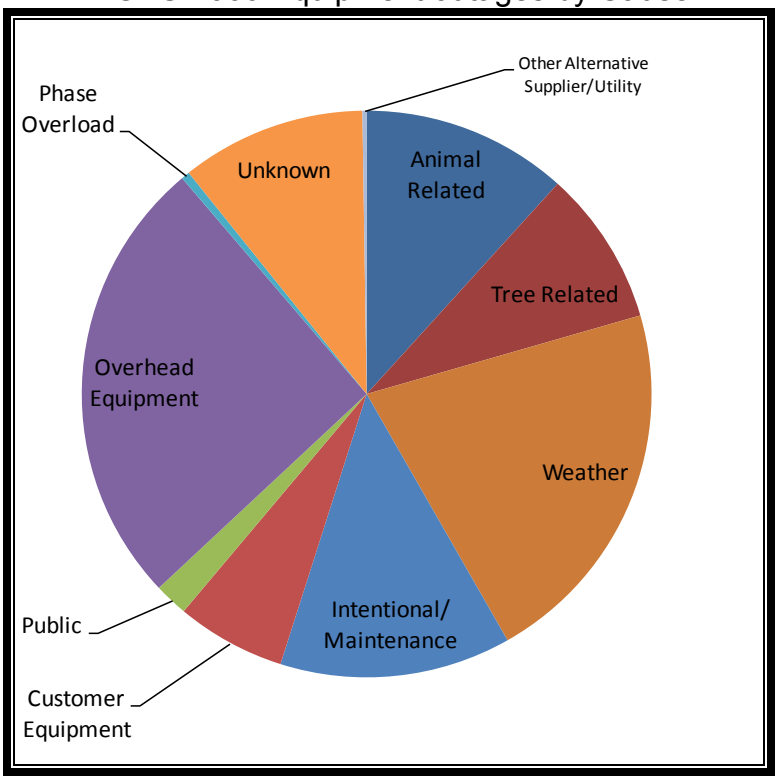
The animal resistant wraps that MCPU mentions in its Reliability Report are made of slick material that makes it hard for animals to climb to the top of a pole due to its slipperiness. While Staff commends MCPU for its proactive approach, MCPU should take a more aggressive approach towards installing animal protection on or around its

facilities. Waiting for animal related outages to occur before installing the needed animal protection may increase animal related outages and will have a negative effect on MCPU system reliability.

Trees related outages caused nearly 9% of the total number of equipment outages in 2009. The number of outages due to trees dropped in 2009 by nearly 12% from 42 outages in 2008 to 37 outages in 2009.

Figure (2) is graphical representation MCPU's 2009 equipment outages by cause category.

Figure (2)
MCPU 2009 Equipment outages by Cause



Customer Service Interruptions:

Although there was a relatively slight decrease of 6.5% in the total number of equipment outages in 2009 compared to 2008, there was a major decrease in the number of customer service interruptions and in the total duration of customer service interruptions in 2009 compared to 2008.

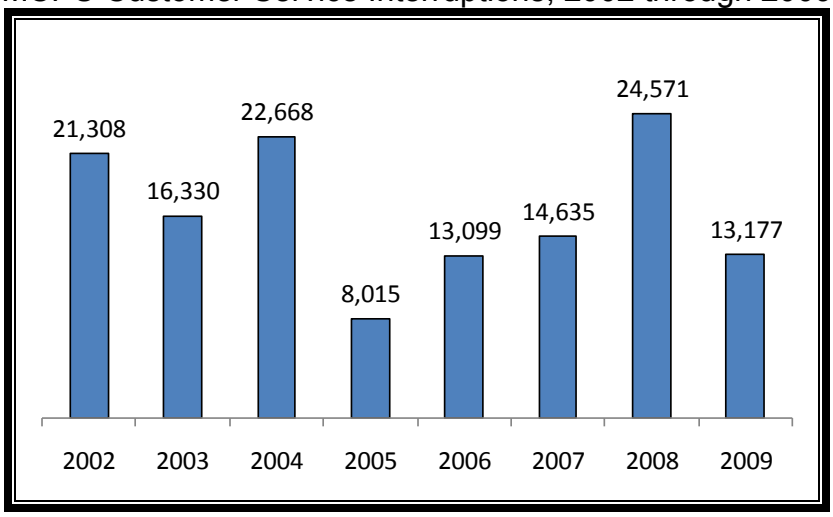
In 2009, the number of customer service interruptions decreased by more than 46% to 13,177 from 2008's level of 24,571[5]. This is the lowest number of customer service

[5] The customer service interruptions do not include planned interruptions or interruptions resulting from outages caused by customers' equipment. MCPU started reporting the number of customer service interruptions resulting from outages caused by customers' equipment in its 2007 Reliability Report.

interruptions since 2006. As shown in Figure (3), customer service interruptions followed an increasing trend in the four years prior to 2009. 2009 is the first year showing a decrease in customer service interruptions since 2005. Different factors contribute to the variation in customer service interruption total duration from one year to another. For example, in 2009, the major contributors were weather and tree-related outages. Intentional outages were the major contributor in 2007 and in 2008.

In 2009, the total duration of customer service interruptions decreased by nearly 75% from its 2008 level of 4,262,960 minutes to 1,081,063 minutes. However, total duration of customer service interruptions in 2009 amounted to nearly nine times the total duration of service interruptions in 2007 (121,064 minutes). It is worth noting that, in a response to Staff's question about 2008 high total interruption duration, MCPU stated that it had to intentionally disconnect line sections that served customers in low lying areas and along the Wabash River due to record flood conditions during June 2008. That action resulted in approximately 60% of the total customer service interruption duration in 2008. June 2008 flooding also caused MCPU's transmission system to contribute in approximately 22% of 2008 total customer service interruption duration.

Figure (3)
MCPU Customer Service Interruptions, 2002 through 2009

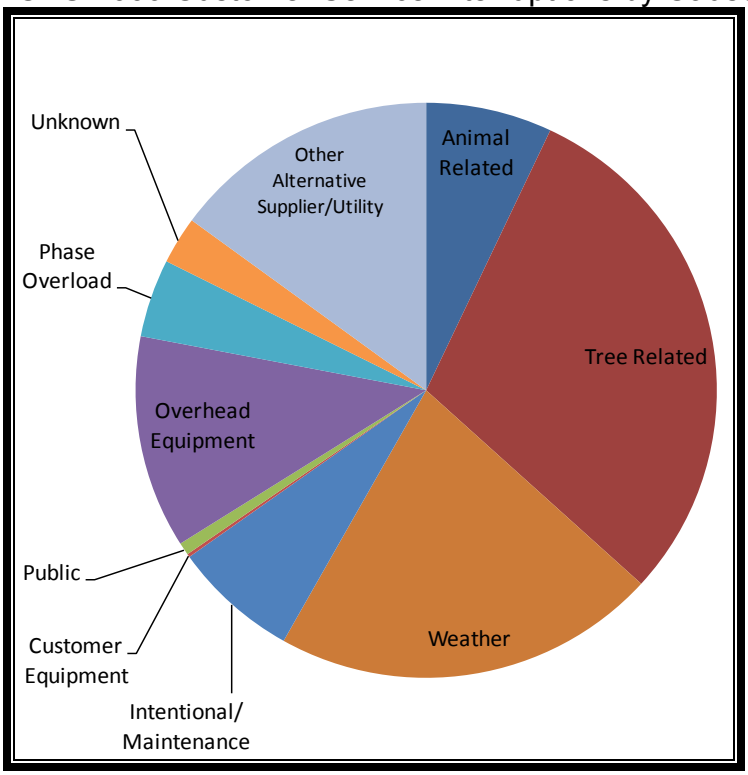


Although trees caused only 9% of the total number of equipment outages in 2009, trees were the leading cause for customer service interruptions. Tree-related outages caused nearly 30% of the total number of customer service interruptions. In 2009, the number of tree-related customer service interruptions was 4,220. This represents more than a twofold increase in the number of customer service interruptions trees caused in 2008. Because of tree-related outages, MCPU customers experienced power loss for more that 284,000 minutes in 2009. This is more than a threefold increase compared to about 71,000 minutes of customer service interruption duration caused by trees in 2008. This also represents more than 26% of the total customer service interruption duration in 2009, which is the second longest aggregate customer interruption duration that any service interruption category caused.

Weather was the second leading cause of customer service interruptions in 2009 and caused more than 21% of the total customer service interruptions in 2009. In 2009, weather caused the longest aggregate customer interruption duration among all other cause categories. In 2009, weather-related outages totaled 402,960 minutes. That is nearly 14% less than the service interruption duration that MCPU customers experienced in 2008 because of weather-related outages.

Customer service interruptions that resulted from outages due to overhead equipment increased by more than 38% from 1,229 in 2008 to 1,699 in 2009. Overhead equipment failure caused MCPU customers to experience 207,394 minutes of service interruptions, which is nearly one-fifth of the total duration of customer service interruptions in 2009. That represents more than 142% increase in the total duration of customer service interruptions caused by overhead equipment in 2009 compared to 2008.

Figure (4)
MCPU 2009 Customer Service Interruptions by Cause



In 2009, animal-related equipment outages demonstrated the largest proportional increase in customer service interruptions due to a single cause category. Customer service interruptions due to animal-related outages increased by nearly threefold from 253 in 2008 to 997 in 2009.

Service interruption duration due to animal-related outages increased by more than 175%; from 8,015 minutes in 2008 to 22,100 minutes in 2009.

MCPU reported that the category of "Other Alternative Supplier/Utility" caused only one outage. That single outage caused 2,120 customer service interruptions, which is nearly 15% of the total customer interruptions for 2009. MCPU responded to Staff's inquiry regarding more details about this outage by stating,

> *On April 8, 2009 at [approximately] 06:20 am Mt. Carmel experienced a loss of supply event on its transmission facilities being fed from AmerenCIPS at Lawrenceville and operating at 69kV. This event occurred as a result of the failure of a piece of equipment located in [AmerenCIPS'] Lawrenceville Substation. This loss of supply caused an interruption to two distribution circuits originating from MCPU's East 11th St. Substation, which is fed by the impacted 69kV source. Mt. Carmel was able to switch to an alternate supply source for supply to the East 11th St Substation and restored service to [its] impacted [customers] within [approximately] 10 minutes of the initial outage event.*

Figures (4) and (5) are graphical depictions of MCPU's 2009 customer service interruptions and customer service interruptions durations by cause respectively.

Figure (5)
MCPU 2009 Customer Service Interruptions Durations by Cause

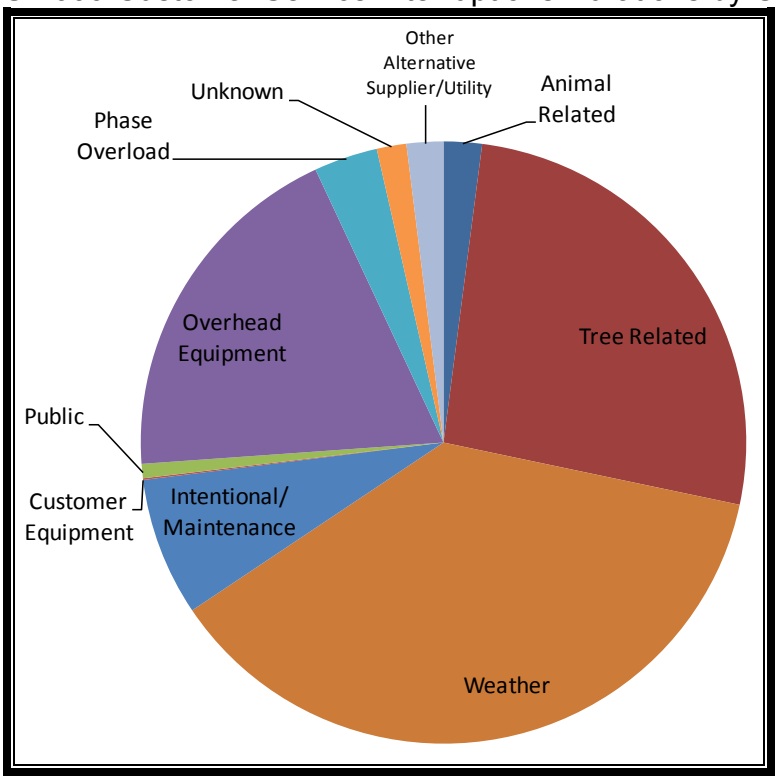


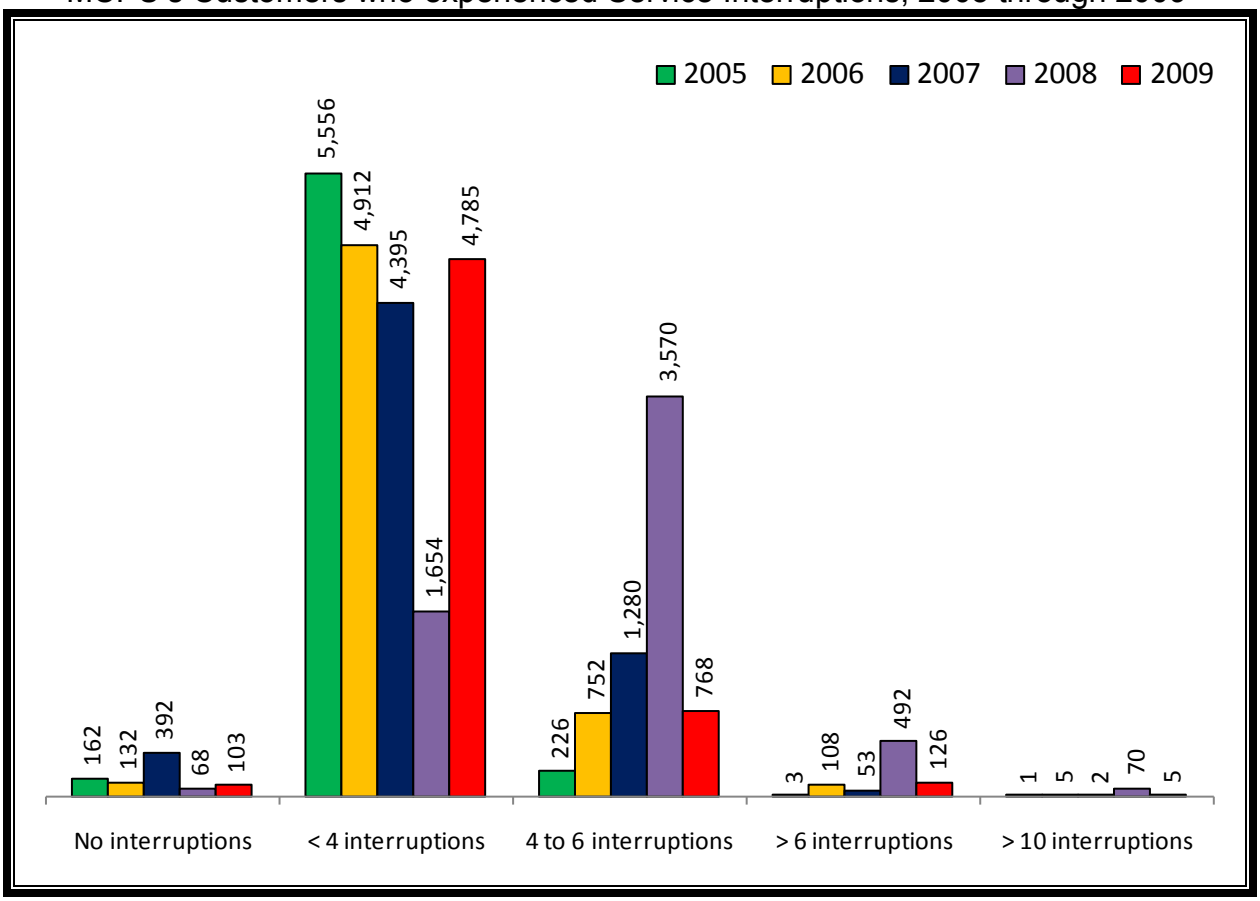
Table (4) shows the numbers and percentages of MCPU customers based on their experience as it pertains to service interruptions from 2005 to 2009. The following data includes five groups of customers; customers who experienced no service interruptions, customers who experienced less than four interruptions, customers who experienced

four to six interruptions, customers who experienced more than six interruptions and customers who experienced more than ten interruptions. Figure (6) is a graphical representation of the data contained in Table (4).

Table (4)
MCPU's Customers and Service Interruptions Experienced, 2005 through 2009

Year		2005	2006	2007	2008	2009
Total customers		5,785	5,772	5,728	5,716	5,679
Customers with No interruptions	Q	162	132	392	68	103
	%	2.80%	2.29%	6.84%	1.19%	1.81%
Customers with < 4 interruptions	Q	5,556	4,912	4,395	1,654	4,785
	%	96.04%	85.10%	76.73%	28.94%	84.26%
Customers with 4 to 6 interruptions	Q	226	752	1,280	3,570	768
	%	3.91%	13.03%	22.35%	62.46%	13.52%
Customers with > 6 interruptions	Q	3	108	53	502	126
	%	0.05%	1.87%	0.93%	8.78%	2.22%
Customers with >10 interruptions	Q	1	5	2	70	5
	%	0.02%	0.09%	0.03%	1.22%	0.09%

Figure (6)
MCPU's Customers who experienced Service Interruptions, 2005 through 2009



In 2009, the number of customers who experienced no service interruptions increased by more than 51% if compared to the number of customers who experienced no service interruptions in 2008. Customers who experienced fewer than four service interruptions comprised 84.26% of the total number of customers who experienced service interruptions in 2009. That number increased by nearly twofold in comparison to the number of customers who experienced fewer than four service interruptions in 2008.

In 2009, the number of customers who experienced four, five, or six service interruptions decreased by more that 78% compared to the number of customers who experienced four, five, or six service interruptions in 2008.

In 2009, the number of customers who experienced more than six service interruptions decreased by 75% compared to the number of customers who experienced more than six service interruptions in 2008. The number of customers who experienced more than ten service interruptions in 2009 dramatically decreased by nearly 93% compared to the number of customers who experienced more than ten service interruptions in 2007.

Based on the above analysis, Staff concludes that, in 2009, MCPU's system reliability performance has improved compared to 2008. In 2009, MCPU had the lowest number of equipment outages and customer service interruptions since 2005. In 2009, MCPU recorded a three-fourths decrease in customer service interruption total outage duration form 2008 level. However, MCPU needs to continue to improve in this regard, given that customer service interruptions total outage duration in 2009 is nearly nine times the customer service interruption total outage duration in 2007.

Subsection 411.120(b)(3)(F) of the Code requires public utilities to Include in its annual Reliability Report *[a] comparison of interruption frequency and duration for customers buying electric energy from the jurisdictional entity versus customers buying electric energy from another utility or alternative retail electric supplier for the annual reporting period.* MCPU stated it had no customers receiving power from another entity in 2009. Therefore, a comparison of interruptions frequency and duration for MCPU's customers buying from MCPU versus buying from other entities is not applicable.

Customer Satisfaction Survey:

Subsection 411.120(b)(3)(G)(v) of the Code requires each public utility to include in its annual Reliability Report the *"results of a customer satisfaction survey completed during the annual reporting period and covering reliability, customer service, and customer understanding of the jurisdictional entity's services and prices."* According to an independent customer satisfaction survey that MCPU included in its 2009 Reliability Report, MCPU received an overall reliability performance score of 8.33 out of 10 from its residential customers. This is a decline from the score of 8.44 out of 10, which MCPU received from its residential customers in 2008. Reliability performance scores that MCPU received from its non-residential customers continue to improve for the third consecutive year, from 8.21 in 2007 to 8.48 in 2008 to 8.81 out of 10 in 2009. Figure (9) is an illustration of scores that MCPU received from its residential and non-residential

customers from 2005 through 2009. In the past five years, MCPU received higher reliability performance scores from its non-residential customers compared to the scores that it received from its residential customers.

Figure (9)
MCPU's Survey Score for Providing Reliable Electric Service (2005-2009)
(Scores range from 1.0 to 10.0)

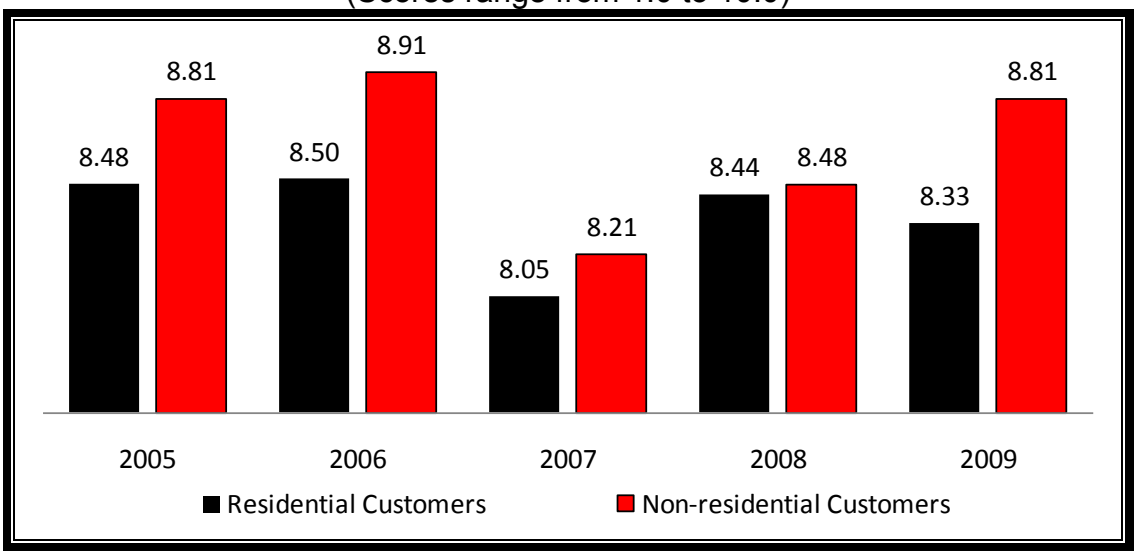


Figure (10) is an illustration of scores that Illinois public utilities received from their residential customers from 2005 through 2009. In 2009, MCPU ranked second to last in terms of reliability performance scores that public utilities received from their residential customers. In 2008, MCPU ranked second in this category.

Figure (10)
Residential Customers' Survey Scores
For Providing Reliable Electric Service by Utility (Scores range from 1.0 to 10.0)

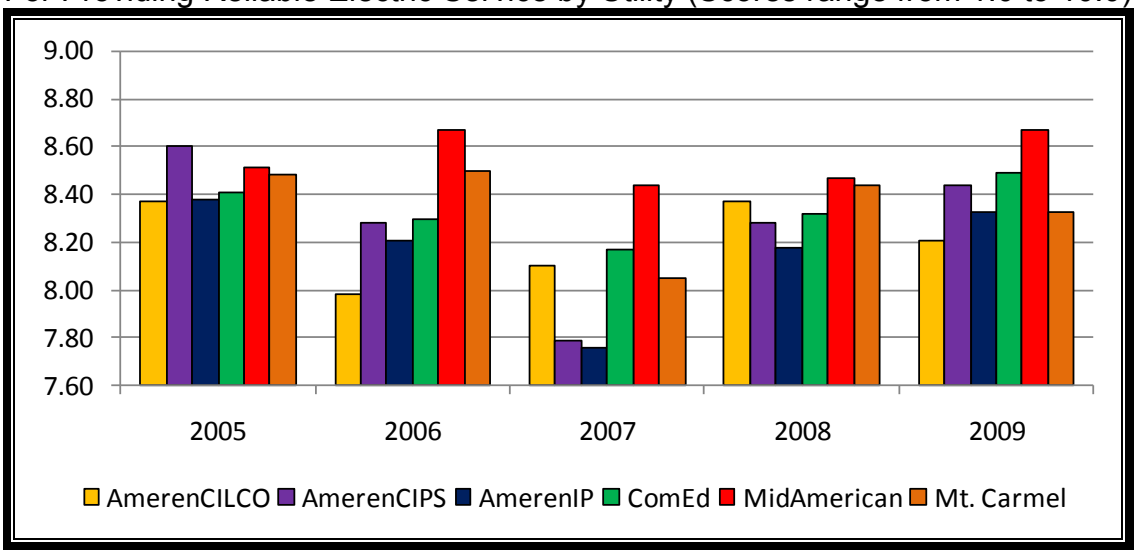
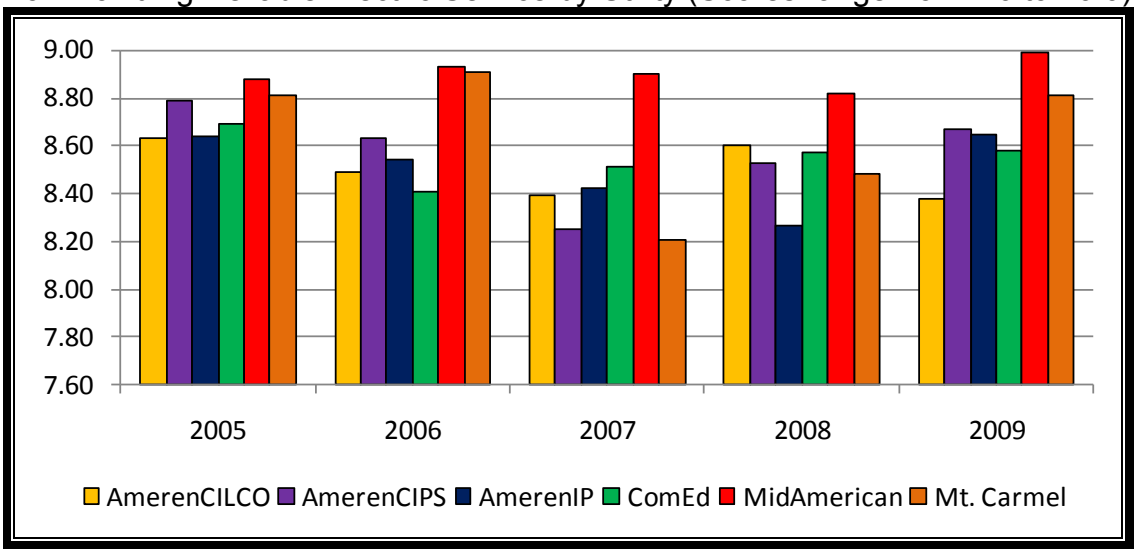


Figure (11) is an illustration of scores that Illinois public utilities received from their non-residential customers from 2005 through 2009. In 2009, MCPU ranked second among Illinois public utilities in terms of reliability performance scores that public utilities received from their non-residential customers. In 2008, MCPU ranked second to last in this category.

Figure (11)
Non-Residential Customers' Survey Scores
For Providing Reliable Electric Service by Utility (Scores range from 1.0 to 10.0)



B. Worst Performing Circuits Data:

Section 411.20 defines Worst Performing Circuits as follows:

> *"Worst-performing circuits" are those distribution circuits that, for each reliability index, are among the one percent of all circuits in an operating area (or at least one circuit for each reliability index) with the highest achieved values (lowest performance levels) for the reliability index. For the purpose of identifying worst-performing circuits, only distribution circuit interruptions and customers affected by such interruptions shall be considered in calculating the reliability indices*.

Subsection 411.120(b)(3)(I) of the Code requires public utilities to list the worst performing circuits ("WPC") for the reported year in their Reliability Reports. Table (5) contains reliability indices of MCPU's 2009 WPCs.

Table (5)
MCPU 2009 Worst Performing Circuits

Circuit	Substation	SAIFI	CAIFI	CAIDI
22000	E. 11th St. Sub.	**1.67**	2.19	90
31000	S. Division St. Sub.	1.51	**2.89**	105
16000	Plant Substation	1.12	1.14	**149**

The bolded values are the values of the indices that caused the circuit to be a worst performer.

Subsection 411.120(b)(3)(J) of the Code requires the public utilities to provide "[a] *statement of the operating and maintenance history of circuits designated as worst-performing circuits; a description of any action taken or planned to improve the performance of any such circuit (which shall include information concerning the cost of such action); and a schedule for completion of any such action.*"

Circuit 22000 (Allendale Feeder)
This circuit had the highest SAIFI among MCPU distribution circuits in 2009 at 1.67. This circuit also was the worst SAIFI and the worst CAIDI performing circuit in 2008. MCPU reported that Circuit 22000 experienced 99 outages, and most of them were overhead equipment-related (33 outages) and weather-related (28 outages). MCPU reported that it last inspected this circuit on March 2009 and issued work orders to repair major defects that its employees discovered during the inspection. MCPU estimated that it would complete tree trimming in this circuit by June 2010. MCPU provided the statement required by Subsection 411.120(b)(3)(J) in a table in which it listed maintenance projects that it implemented on this circuit. MCPU reported that it has taken corrective actions to maintain this circuit. MCPU reported that it has no plan for major projects for this circuit at this time.

Circuit 31000 (West Third Street Feeder)
This circuit had the highest CAIFI among MCPU distribution circuits in 2009 at 2.89. This circuit also was the worst CAIFI performing circuit in 2008. MCPU reported that Circuit 31000 experienced 63 outages, and most of them were overhead equipment-related (22 outage) and weather-related (19 outage). MCPU reported that it last inspected this circuit on April 2009 and issued work orders to repair major defects that its employees discovered during the inspection. MCPU estimated that it completed tree trimming in this circuit in June 2009. MCPU provided the statement required by Subsection 411.120(b)(3)(J) in a table in which it listed maintenance projects that it implemented on this circuit. MCPU reported that it has taken corrective actions to maintain this circuit. MCPU reported that it has no plan for major projects for this circuit at this time.

Circuit 16000 (Circuit #6)
This circuit had the highest CAIDI among MCPU distribution circuits in 2009 at 149 minutes. MCPU reported that Circuit 16000 experienced four outages, three of which were animal related, and one was weather related. MCPU reported that it last inspected this circuit in February 2010. MCPU estimated that it completed tree trimming on this circuit in March 2008. MCPU provided the statement required by Subsection 411.120(b)(3)(J) in a table in which it listed one maintenance project that it implemented on this circuit. MCPU reported that it has no plan for major projects for these circuits at this time.

In its 2008 Reliability Report, MCPU listed Circuit 22000 and Circuit 31000 as WPCs. In that report, MCPU described actions that it took to improve reliability on each circuit. In spite of those actions, MCPU reported the same circuits as WPCs in its 2009 Reliability Report. It appears that by taking those actions alone, MCPU was not able to improve service reliability on these circuits because they repeated poor performance in 2009. MCPU should investigate and target the root cause of the problems that lead the same circuits to repeat poor performance year-after-year.

C. Circuit Inspections:

Staff's Electrical Engineer Yassir Rashid performed circuit inspections on five MCPU distribution circuits. Field inspections allow Staff to verify that a utility has performed work to improve reliability on its distribution circuits and to see if there are any apparent reasons for poor performance of those circuits. Staff chose those circuits because each one of them was a WPC or next to a WPC in the near past.

Staff's Senior Electrical Engineer Greg Rockrohr accompanied Yassir Rashid in circuit inspections that Staff performed in June 2010. David Brown, MCPU Systems Design Manager, accompanied Yassir Rashid in the October 2010 circuit inspection. During the circuit inspections, Staff photographed situations that would illustrate some of the reliability and safety problems, as well as NESC violations that Staff has discovered. Staff included in this report those photographs that are reflective of those situations.

Staff noticed vegetation problems on the circuits that Staff inspected in June and October 2010. Staff noticed that animal protection on some parts of these circuits appears to be inadequate. This combination of high vegetation intensity and lack of animal protection may cause significant service interruptions unless MCPU addresses both problems appropriately. Staff also recorded instances of inadequate grounding. Staff noticed that, with the exception of Circuit 22000, MCPU seemed to have adequately protected its circuits with lightning arrestors.

After the conclusion of the circuit inspections, Staff informed MCPU of its findings. On August 17, 2010, MCPU responded to Staff's inspection findings and indicated that it had fixed, or plans to fix, all the issues that Staff discovered during the circuit inspections performed in June 2010. On November 29, 2010, MCPU responded to Staff's inspection findings and indicated that it plans to fix the issues that Staff discovered during the October 2010 circuit inspection. Staff is pleased that MCPU responded with plans to correct the problems that Staff found. However, the aim of a good maintenance program should be to prevent conditions on distribution circuits that might result in electric service interruptions. Trees do not grow into primary wires overnight, and wooden pole tops and crossarms do not rot out in a couple of years. Staff should never find such problems because the utility should have found and fixed the problems long before they became so serious.

Below is a summary of Staff's findings on these circuits. This summary represents findings noted by Staff during the inspections and is not intended to represent all of the

problems or potential problems that may exist on each circuit. Staff does not intend its inspections to take the place of more thorough and detailed inspections that MCPU should perform periodically and as needed.

A summary of all findings during Staff's circuit inspection is attached to this report as Appendix A.

Circuit 21000 (Froman Drive Feeder)

On June 9 and 10, 2010, Staff inspected Circuit 21000, known as Froman Drive Feeder, which serves predominantly rural parts of MCPU service territory. Circuit 21000 serves 1,099 customers at 12,470 volts. In 2009, MCPU reported Circuit 21000 as a next to worst SAIFI performing circuit at 1.12. MCPU reported Circuit 21000 as worst or next to worst SAIFI performing circuit from 2006 through 2009. Overall, the facilities of this circuit are in good condition. Lightning arrestors are adequately spread throughout the circuit. During Staff's inspection of this circuit, Staff recorded 77 observations that Staff believed might case a threat to reliability on this circuit. Fifty-five of those observations involved vegetation conflicts with overhead primary wires. Figures (12) through (16) are depictions of those situations.

Figure (12)
Tree contacts primary wire
(Circuit 21000-Photo 5)

Figure (13)
Pole enveloped by vegetation (Circuit 21000-Photo 8)

Figure (14)
Tree contacts primary wire (Circuit 21000-Photo 19)

Figure (15)
Vine growing on pole
(Circuit 21000-Photo 30)

NESC Rule 264.E.1 states, “The ground end of anchor guys exposed to pedestrian traffic shall be provided with a substantial and conspicuous marker.” Staff found NESC violations relating to down guys in thirteen locations. Figure (17) is an example of such situations. NESC Rule 234.C.1.a specifies the clearances of wires, cables, and rigid live parts from buildings and other structures. Staff recorded one primary wire NESC clearance violation, namely the primary wire above the rooftop of the garage of 110 Greenview Dr. Staff found one secondary wire NESC vertical clearance violation. Staff found a few instances of facility damage such as the ones pictured in Figures (18) and (19). There is a noticeable lack of animal protection for the overhead transformers throughout the circuit.

Figure (16) (Right)
Primary runs through a tree
(Circuit 21000-Photo 31)

Figure (17)
Missing guy guard and disconnected ground wire
(Circuit 21000-Photo 24)

Figure (18)
Bent top insulator pin
(Circuit 21000-Photo 21)

Figure (19)
Loose top insulator pin, deteriorated pole top and
deteriorated crossarm (Circuit 21000-Photo 26)

Circuit 31000 (West Third Street Feeder)

Circuit 31000, known as West Third Street Feeder, serves 862 customers at 12,470 volts in predominantly rural parts of MCPU's service territory. In 2009, 2008, and 2006, MCPU reported Circuit 31000 as the worst CAIFI performing circuit at 2.89, 3.66, and 2.36 respectively. On June 10, 2010, Staff performed a field inspection on Circuit 31000. Overall, the facilities of this circuit are in good condition. Lightning arrestors are adequately spread throughout the circuit.

During Staff's inspection of this circuit, Staff recorded 37 observations that Staff believed might cause a threat to reliability on this circuit. Twenty-six of those observations involved vegetation conflicts with overhead primary cables. Figure (20) depicts one of these situations.

The most serious issue that Staff noticed during its inspection of this circuit involved wide openings underneath the South Division Street Substation perimeter fence. That substation is the source for Circuit 31000. The openings were in all directions and were so wide that a relatively large animal such as a coyote can get inside the substation. In addition to being a reliability threat, those openings are so wide that a person can use them to enter inside the substation, which poses a public safety hazard. Figure (21) is a depiction of those openings. Figure (22) shows a ground cable broken away from the substation fence in violation of NESC Rule 092.E.5, which requires that the grounding conductor be connected to the substation fence's post.

Figure (20)
Primary wires run through tree branches (Circuit 31000-Photo 44)

Figure (21)
Opening beneath South Division St. Substation fence (Circuit 31000-Photo 41)

Figure (22)
Grounding wire disconnected from the post of
South Division St. Substation fence (Circuit 31000-Photo 40)

Staff found two instances of low primary wire clearance in violation of NESC Rule 234.C.1.a. Staff found badly leaning poles in two different locations. The more striking was a string of five poles on N. 1250 Boulevard, between West Third Street and Southern Railroad R.O.W. Figure (23) is a shot of two of those poles. Concerning this situation MCPU provided the following comment

> *These poles have been placed in this position in accordance with utility industry standards to allow for installation of new and upgraded facilities in an effort to replace approx. 0.47 line miles of existing facilities from the West Third Street Substation location east to Line Section #31000 to provide suitable supply capability for portions of this circuit to be back-fed from this location. MCPU estimates that this project will be completed by early fall 2010.*

MCPU stated that it placed these poles in that leaning position in late December 2009. It has been approximately a full year since those poles were placed in their current leaning position. Although it is a common practice for utilities to place poles in leaning position during the construction of nearby facilities, Staff believes that this is a very long time for those poles to be in that position and that they pose a threat to public safety.

During Staff's October circuit inspection, Staff visited the South Division Street substation to verify MCPU's remedial work on the substation fence that MCPU stated it has performed. Although MCPU has added another layer of wire netting to it, there are still openings beneath the substation fence. There are also openings on the gate of the substation. Grounding of the fence and the gates of the substation is still inadequate.

Figure (23)
Badly leaning poles (Circuit 31000-Photo 45)

Figure (24)
Top insulator pins loose nut (Circuit 31000-Photo 46)

Circuit 16000 (Circuit #6)

Circuit 16000, known as Circuit #6, serves 155 customers at 12,470 volts in a predominantly urban area within the city of Mt. Carmel. In 2009, MCPU reported Circuit 16000 as the worst CAIDI performing circuit at 149 minutes. On June 11, 2010, Staff performed a field inspection on Circuit 16000. Staff recorded six instances that might pose a threat to the reliability of this circuit. Figure (25) is representative of four situations that involved trees contacting primary wires that Staff found in this circuit.

Figure (25)
Tree contacts primary wire (Circuit 16000-Photo 52)

Staff discovered a violation of NESC Rule 234.C.1.a, which is an inadequate horizontal clearance between primary wires and the back of a two-story apartment building at 1222-1228 Cedar Lane.

Figure (26)
Bird nest on substation structure (Plant Substation-Photo 47)

Circuit 12000 (Circuit #2)

Circuit 12000, known as Circuit #2, serves 357 customers at 12,470 volts in a predominantly urban area within the city of Mt. Carmel. MCPU reported Circuit 12000 as next to worst performing circuit in 2009 and 2008. On June 11, 2010, Staff performed a field inspection on Circuit 12000. Staff recorded eighteen instances that might pose a reliability threat to this circuit. Fifteen of those instances involved trees conflicting with primary wires. NESC Rule 233.C.1 specifies the vertical clearance requirements between any crossing or adjacent wires, conductors, or cables carried on different supporting structures. Staff discovered a violation of this rule on an alley north of 614 Mulberry Street where the clearance between the circuit primary wires and a telecommunications cable did not meet the requirements of NESC Rule 233.C.1. The same electric cable has an inadequate clearance from the structure of house number 614 A Mulberry Street, which is a violation of NESC Rule 234.C.1.a. Figure (27) embodies both violations.

Figure (27)
Horizontal clearance violation
Vertical clearance violation
(Circuit 12000-Photo 57)

Circuit 22000 (Allendale Feeder)

Circuit 22000, known as Allendale Feeder, serves predominantly rural parts to the north of the City of Mt Carmel. Circuit 22000 serves 866 customers at 12,470 volts. This distribution circuit was the worst SAIFI performing circuit in 2009 and 2008, and was the worst CAIFI performing circuit in 2007. For three consecutive years, MCPU reported that it has taken actions to improve reliability in this circuit; however, Circuit 22000 continues to appear as worst performing circuit. On October 27 and 28, 2010, Staff inspected Allendale Feeder. Staff concluded that the condition of this circuit's equipment was by far the worst among the distribution circuits that Staff inspected in 2010. Staff recorded 113 observations that Staff believed might pose threats to this circuit's reliability. Fifty of those observations involved extensive vegetation growth near

distribution poles, on down guys; and near primary wires and other equipment. Generally vegetation conditions in this circuit are relatively better than the other circuits that Staff inspected in 2010; however, more needs to be done in terms of vegetation management before the spring of 2011. Figure (28) is an example of those situations.

Figure (26)
Primary and neutral wires run through a tree (Circuit 22000-Photo 66)

There are many NESC violations in this circuit. Sixteen of those violations involved missing guy guards, five involved broken down guys, seven involved broken ground wires; and four involved violation of minimum clearance between supply lines and other supply lines, telecommunications cables, and anchor guys. During the inspection, Staff noticed a lack of animal protection for overhead transformers.

NESC Rule 092.E.5 requires that grounding conductor be connected to the substation fence's post. As shown in Figure (27), MCPU's practice is to connect ground wires to the wire netting rather than to the posts as required by NESC. MCPU has to alter its practices to conform with the NESC requirements. Staff also noticed that the gates of this substation are not grounded properly.

Figures 28, 29, and 30 are examples of poorly maintained facility equipment.

Figure (27)
Inadequate substation fence grounding (Circuit 22000-Photo 60)

Figure (28)
Split pole top (Circuit 22000-Photo 74)

Figure (29)
Split crossarm (Circuit 22000-Photo 81)

Figure (30)
Decayed pole top
(Circuit 22000-Photo 84)

D. Vegetation management

NESC Rule 218 requires utilities to trim or remove trees that may interfere with ungrounded supply conductors or use appropriate methods to separate conductors from conflicting trees if trimming or removal is not practical. On January 25, 2005, MCPU agreed to institute a three-year cycle tree-trimming program that covers all its electric circuits, beginning July 1, 2004[6]. According to that agreement, MCPU submitted tree-trimming status reports with information about the progress of its tree-trimming program at the end of each quarter of the calendar year. Staff has been reviewing MCPU's quarterly tree-trimming status reports during the previous two tree-trimming cycles that ended in June 2010. Thus far, it appears that MCPU is on schedule on its tree-trimming program. Because of MCPU successfully submitted quarterly status reports for two tree-trimming cycles that indicated it stayed on schedule with its tree trimming, Staff informed the utility that it no longer needed to file quarterly status reports on its tree-trimming program. Staff informed MCPU that Staff expects that MCPU will continue its current tree-trimming program diligently as it has demonstrated for the last six years. Staff informed MCPU that Staff might ask the utility to resume sending the tree-trimming quarterly status reports if questions arise about MCPU's ability to stay on schedule with its tree-trimming program.[7] Although MCPU has stayed on schedule with its tree-trimming program, Staff inspections of MCPU distribution circuits revealed that the *quality* of the tree-trimming at many locations was questionable.

As discussed in the Circuit Inspection section of this report, during Staff's circuit inspections in MCPU service territory in June 2010, Staff found many cases of vegetation conflict with MCPU facilities. As discussed in Section 7(A) of this report, tree related outages were the second leading cause for customer service interruption's duration in 2009 at more than 26%. Staff believes that, despite what appears to be MCPU's compliance with the terms of its 2005 agreement with Staff; tree-related outages are a major contributor to MCPU equipment outages for the following reasons:

- MCPU does not base its tree trimming plans on individual circuits. Instead, the utility bases its plans on geographic areas, such as city blocks, that may contain different portions of different circuits (more than one circuit). By trimming trees under this plan, on one tree trimming period, the utility trims trees on more than one circuit while leaving the rest of each respective circuit for trimming in a different tree-trimming period. Because the trimming crews do not follow the circuits from beginning to end, it is more likely that they will miss trimming some trees near the lines. It may take up to three years for tree trimming operation to cover the whole of some of MCPU large circuits. If some parts of the circuit are susceptible to tree related outages, this approach enables such outages to affect the whole circuit even if the rest of the circuit is not vulnerable to tree related outages. In addition, since statistical calculations are based on individual circuits, then this approach is not consistent with the statistical performance measures that the Commission uses for

[6] Staff's agreement with MCPU is attached to this report as Appendix B.
[7] Staff's August 4, 2010 letter to MCPU regarding discontinuance of the tree trimming status reports is attached to this report as Appendix C.

the purposes of Part 411. Staff recommends that MCPU alter its tree-trimming practice to focus on whole circuits rather than the geographic block approach that MCPU currently adopts.

- MCPU should regularly inspect its electric system for vegetation conflicts with its supply lines and equipment and take appropriate actions accordingly.

- As further discussed in Section 9 of this report, MCPU's tree trimming expenditures have been declining since 2005. Staff believes that the reduction in tree-trimming expenditures might have contributed to the poor vegetation conditions that Staff witnessed during its circuit inspections.

- Staff understands that MCPU relies on its own employees to perform its tree-trimming operations. Given the limited number of MCPU employees who are trained to perform tree trimming, Staff believes that this scarcity of MCPU vegetation management resources hinders MCPU's ability to perform tree trimming to the highest quality standards[8]. Staff recommends that MCPU expand its tree trimming resources.

- According to correspondence between Staff and the utility, MCPU indicated that it utilizes part of its vegetation management personnel for other projects as necessary. Staff is concerned that the involvement of MCPU employees who perform tree trimming in other utility operations may relegate vegetation management to a low priority and reduce MCPU's tree trimming program effectiveness.

MCPU has been reporting tree related interruptions as a reliability challenge under Subsection 411.120(b)(3)(A)(iii) of the Code each year since 2002, yet it appears that MCPU has done little to remedy this challenge to its electric system. There are three ways MCPU could make sure trees do not grow into the lines. First, the utility could trim more vegetation off the trees so that they will take longer to grow back into contact with the lines. Second, the utility could trim on a shorter cycle such as two years instead of three. Third, MCPU could institute a mid-cycle tree-trimming program that is not as comprehensive as the cyclic tree-trimming program, but would enable MCPU to monitor tree growth around its equipment and facilities and deal with it in a timely manner.

E. NESC Violations

As discussed earlier, Staff discovered several NESC violations in MCPU service territory during Staff's circuit inspections in June and October 2010. Some of the NESC violations had existed for quite long periods. Others might have existed for only a short time. Staff sent MCPU a summary of the reliability problems that Staff discovered

[8] In response to Staff's inquiry about MCPU vegetation management personnel, MCPU stated, "*Mt. Carmel's tree trimming and vegetation management staff consists of five (5) employees, of which four (4) are trained in tree trimming operations. Mt. Carmel [utilizes] a crew of three (3) trained employees for the [purposes] of full time trimming operations. In addition Mt. Carmel [utilizes] a crew of two (2) additional employees, one (1) of whom is trained in trimming operations, for the [purposes] of other vegetation control such as R.O.W. clearance, mowing and spraying.*"

during its field inspections including the NESC violations. MCPU did not dispute these findings and stated that it had corrected or planned to correct them within different time frames. Staff's circuit inspections revealed that MCPU is not in full compliance with NESC Rule 218, which requires utilities to trim or remove trees that may interfere with ungrounded supply conductors or use appropriate methods to separate conductors from conflicting trees if trimming or removal is not practical in many locations. Staff is concerned about the vegetation conditions in MCPU service territory and urges MCPU to review its vegtation management practices to improve these conditions.

During Staff circuit inspctions, Staff recorded thirty six instances of NESC violations relating to guying issues. Staff also recorded twelve NESC violations relating to conductor clearance issues. Staff recorded fifteen NESC violations relating to grounding of MCPU equipment. These findings are discussed in Section 7(C) of this reposrt and are detailed in Appendix A.

MCPU should perform frequent inspections of its circuits and correct all NESC violations including vegetation conflicts with its supply lines and equipment. MCPU should also train its circuit inspectors to recognize all types of NESC violations. Clearly, MCPU's inspectors are not able to recognize some horizontal and vertical clearance violations because Staff found such clearance violations that had obviously existed for decades. MCPU's inspectors must also be unaware of the rules for grounding substation fences and gates.

8.Trends in MCPU's Reliability Performance

Figure (31) is a plot of reported company-wide SAIFI for Illinois puplic utilities from 2005 to 2009. Figure (31) shows that in 2009, MCPU had the second highest (second worst) reported company-wide SAIFI among Illinois pubilc utilitits at 2.32. In 2008 MCPU reported the highest (worst) SAIFI among Illinois public utilities at 4.30. Overall, SAIFI values have improved for all illinois public utilities in 2009 comapred to 2008.

Figure (31)
SAIFI by Utility, 2005 through 2009

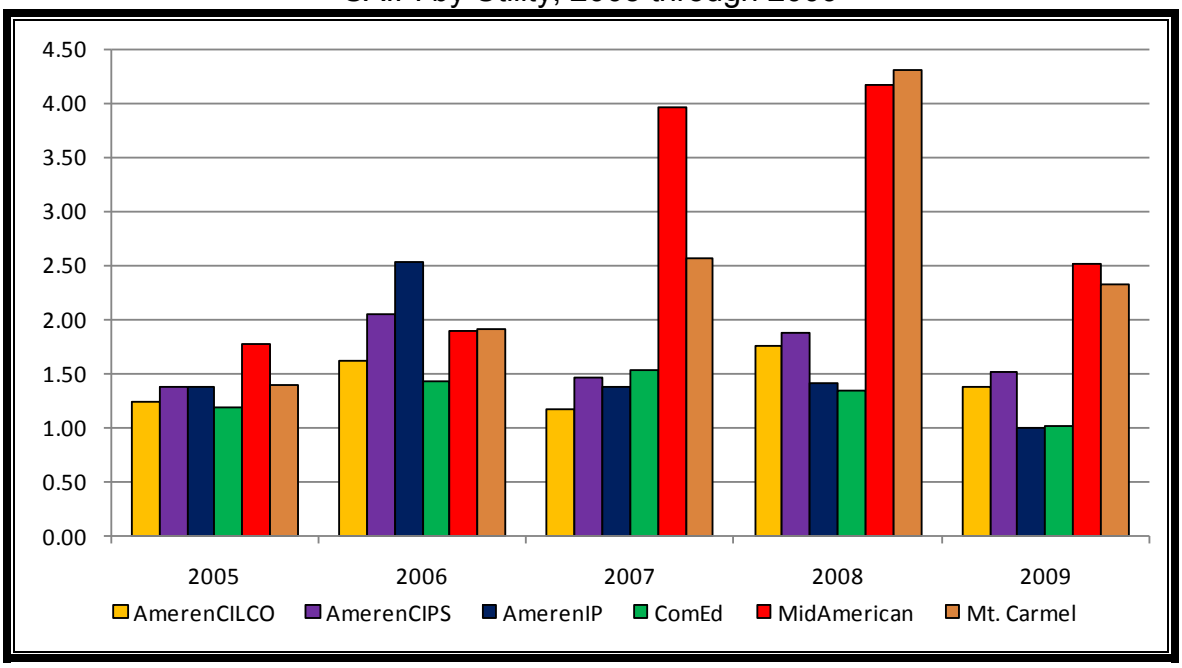


Figure (32) shows MCPU's company-wide SAIFI values from 2002 to 2009. This is the best SAIFI value that MCPU reported since 2006. MCPU's SAIFI has been increasing since 2005 until it reached its highest value of 4.30 in 2008. In 2009, MCPU's SAIFI has decreased (improved) by approximately 46% compared to 2008. Still, 2009 SAIFI is two thirds higher than the best SAIFI value that MCPU reported since 2002, (in 2005, MCPU reported a SAIFI of 1.39).

Figure (32)
MCPU Company-wide SAIFI, 2002 through 2009

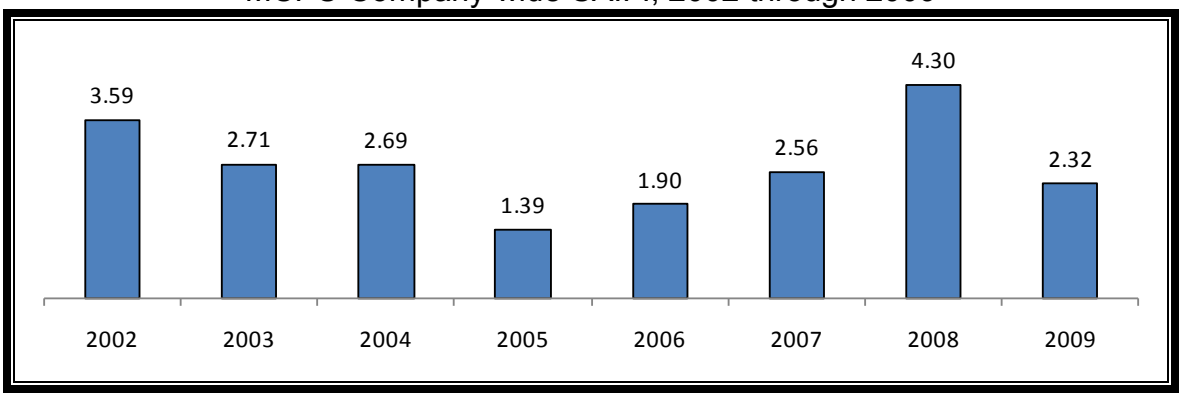


Figure (33) is a comparison of SAIFI values for each of the Illinois public utilities' single worst SAIFI performing circuit from 2005 through 2009. Figure (33) shows that in 2009, MCPU's worst SAIFI performing circuit had the lowest (best) SAIFI value among all Illinois public utilities' single worst SAIFI performing circuits at 2.32. This is less than half the SAIFI of the next worst SAIFI performing circuit among Illinois public utilities. MCPU has been reporting the best SAIFI value among other Illinois public utilities' worst SAIFI performing circuits since 2002

Figure (33)
Worst-Circuit SAIFI by Utility, 2007 through 2009

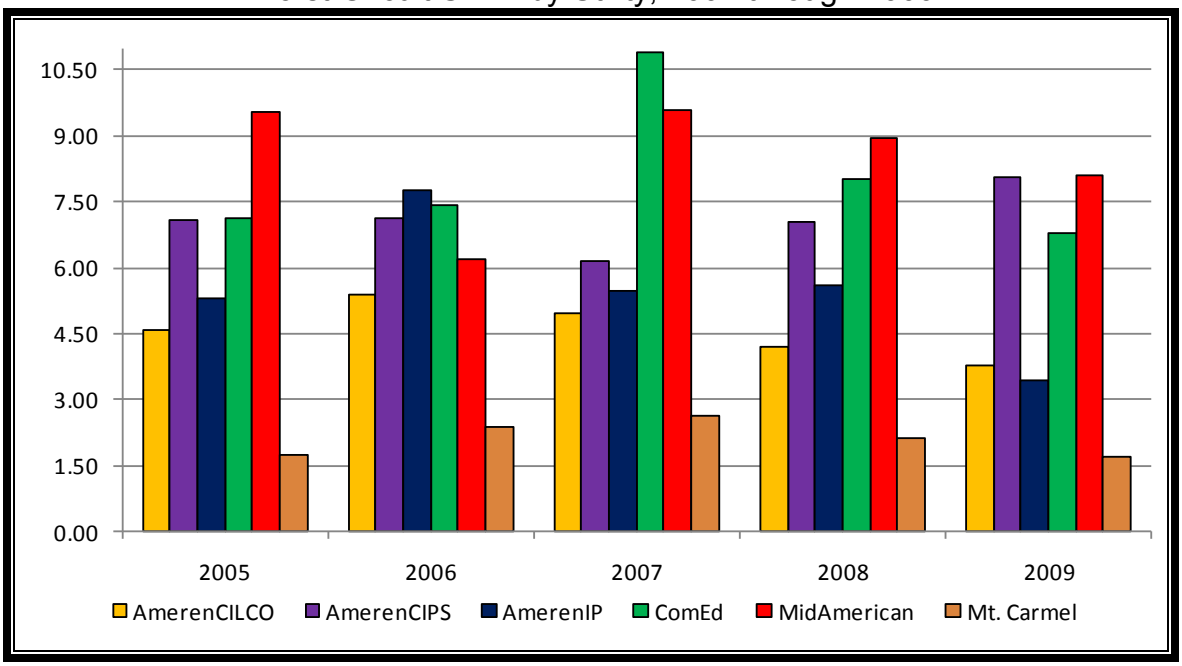


Figure (34) shows the SAIFI values for MCPU's worst-SAIFI performing circuits from 2002 to 2009. SAIFI value for the worst-SAIFI performing circuit has improved by more than 20% as compared to its 2008 level. It is important to note that the SAIFI value of the worst SAIFI performing circuit is less than the value of MCPU's company wide SAIFI (1.69 compared to 2.32 respectively). That is because MCPU excludes customer service interruptions due to transmission related outages from the calculation of the indices of the worst performing circuits as required by Section 411.20 of the Act. The effect of that exclusion is more apparent in MCPU's indices than in other utilities' indices because MCPU is supplied by only two transmission sources, the loss of either of which would affect MCPU's transmission related outages disproportionally higher than would the loss of transmission sources of other utilities affect their transmission related outages.

Figure (34)
MCPU Worst Performing Circuit SAIFI, 2002 through 2009

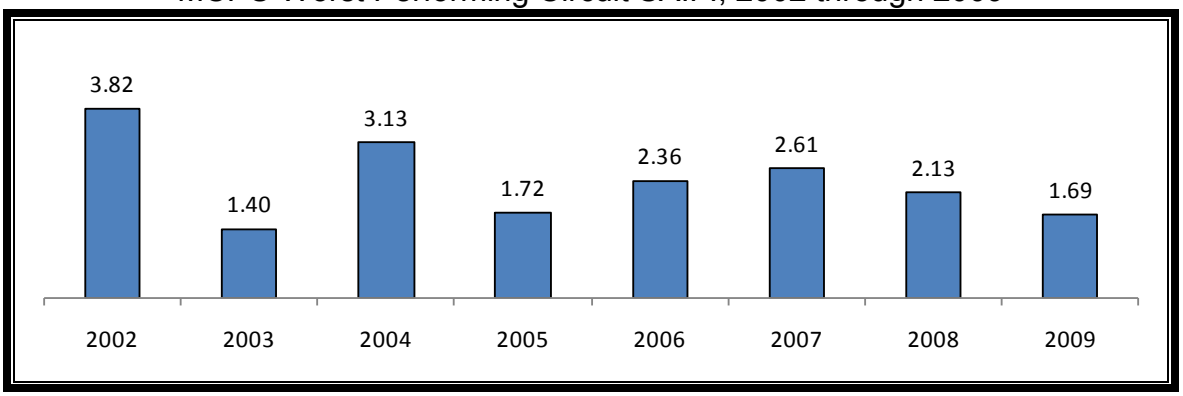


Figure (35) is a plot of company-wide CAIDI for all Illinois puplic utilities for the years 2005 to 2009. In 2009, MCPU reported the best CAIDI among Illinois public utilities at 76 minutes. MCPU reported the best CAIDI among Illinois public utilities in four of the last five years.

Figure (35)
CAIDI by Utility, 2007 through 2009 (minutes)

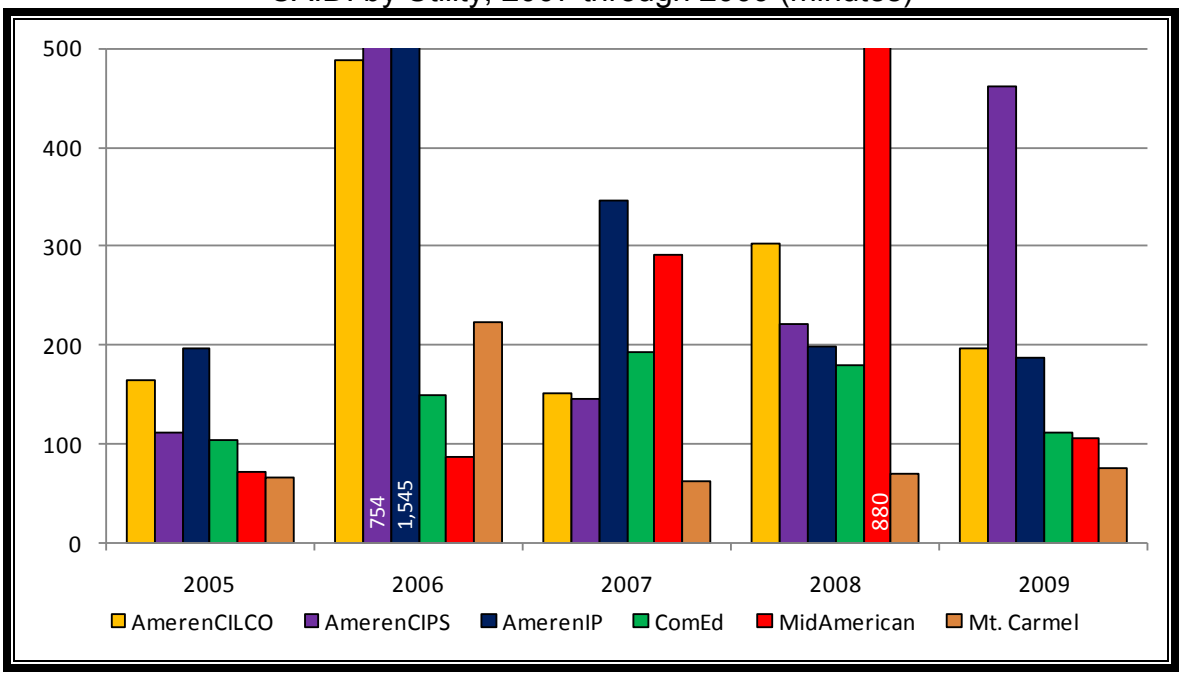


Figure (36) shows MCPU's company-wide CAIDI values from 2002 to 2009. In 2009, MCPU's CAIDI was 76 minutes. That was a seven minutes increase form the year before. For the sixth consecutive year, MCPU faild to reach or outperform its best CAIDI of 50 minutes that it reported in 2003.

Figure(36)
MCPU Company-wide CAIDI, 2002 through 2009 (minutes)

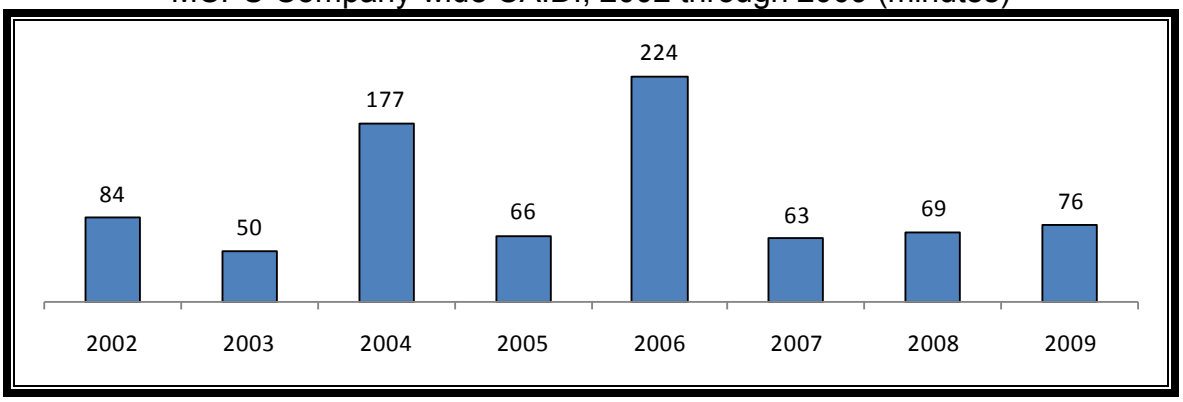


Figure (37) is a comparison of CAIDI values for each of Illinois public utilities' single worst CAIDI performing circuit for the years 2005 through 2009. In 2009, MCPU worst CAIDI performing circuit had the lowest CAIDI among Illinois public utilities' single worst CAIDI performing circuits at 149 minutes. This is nearly one sixth of the next utitlites worst CAIDI performing circuit index (867 minutes). MCPU worst CAIDI performing circuit had the lowest CAIDI among Illinois public utilities' single worst CAIDI performing circuit in four of the last five years.

Figure (37)
Worst-Circuit CAIDI by Utility, 2007 through 2009 (minutes)

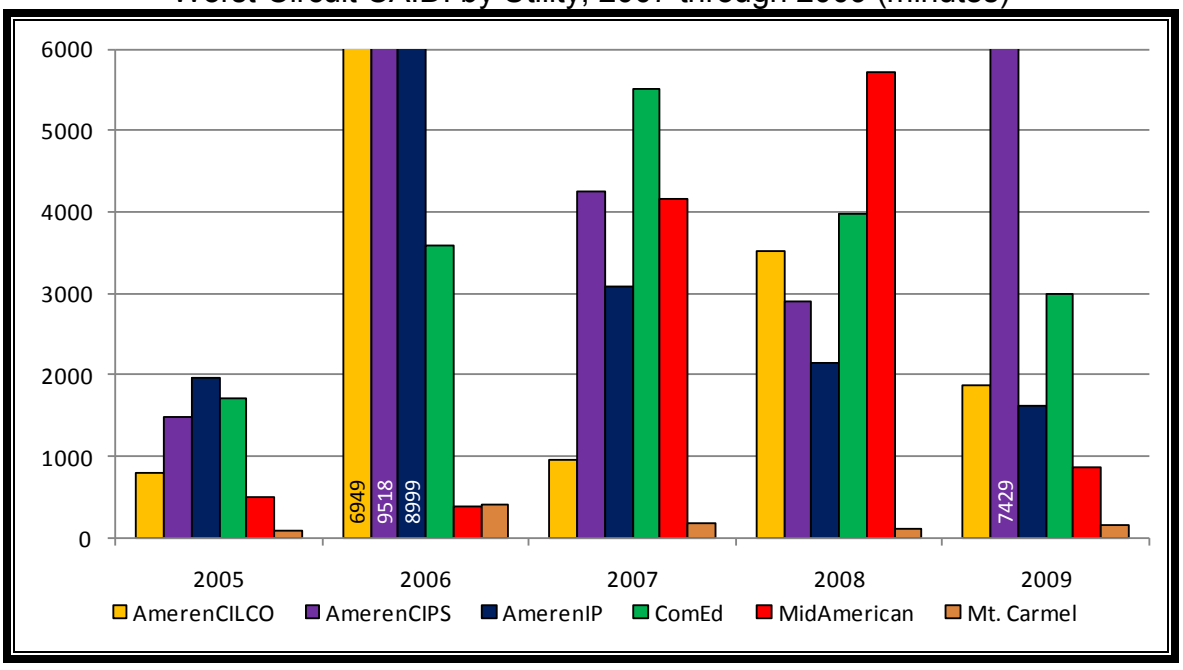
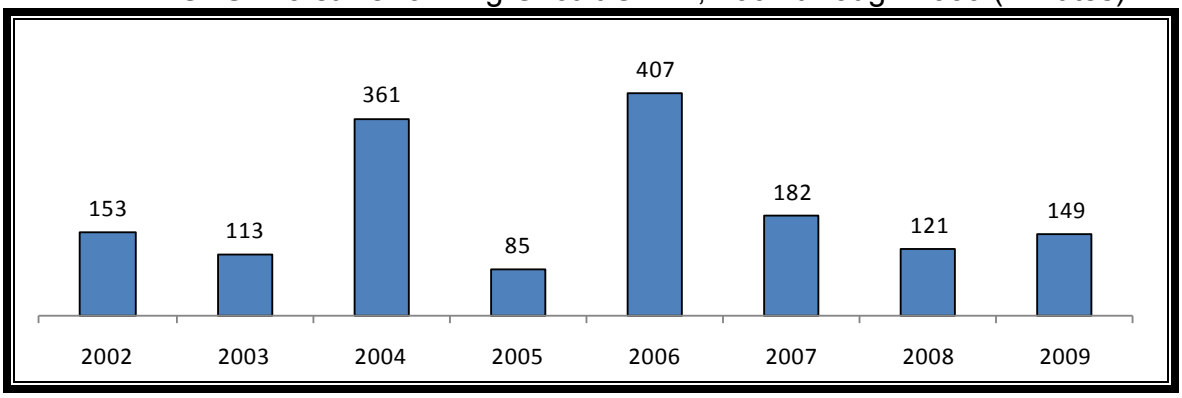


Figure (38) shows the CAIDI values for MCPU's worst CAIDI performing circuits from 2002 to 2009. This index has deteriorated by approximately 23% relative to 2008.

Figure (38)
MCPU Worst Performing Circuit CAIDI, 2002 through 2009 (minutes)



9. MCPU's Plans to Improve Reliability:

In accordance with Section 411.120(b)(3)(A) MCPU listed in its 2009 Reliability Report plans to improve reliability in 2009 Some of these plans are summarized below.

- MCPU reported that it would continue to install animal protection on its distribution cirucits at new transformer installations as well as at locations that experience animal related interruptions. However, Staff believes that MCPU should take a proactive approach in dealing with animal related outages by installing appropriate animal protection on its equipment before those equipment experience animal related outages.

  Protection of substation equipment from animal intrusion and animal caused outages is also important. During Staff's circuit inspection in June 2010, Staff noticed large openings beneath the perimeter fence of South Division Street Substation. These openings were large enough to allow animals to intrude into the substation, and a visual examination of the ground at the openings seemed to verify that animals were using them to enter the substation. MCPU took some minimal action to block the openings, but the openings were still there on Staff's second visit, and it is only a matter of time before this substation experiences an animal related outage as a result of those easy-access openings.

- MCPU reported that it would review circuit interruption data to determine if installation of more sectionalizing devices, or facility rebuild or relocation is necessary to improve reliability.

- MCPU reported that it would continue to work toward maintaining a three-year system wide tree trimming cycle. MCPU has been submitting quarterly status reports that detail the progress of its tree-trimming program since it started the

program in 2004. Staff discussed its reservations about this program in Section 7(D) of this report.

Annual Expenditures:

Table (6)
Annual Expenditure for Transmission and Distribution (thousands)[9]

Year	Transmission			Distribution		
	Capital	O & M	Total	Capital	O & M	Total
2002	$51	$90	$140	$516	$681	$1,197
2003	$8	$375	$383	$561	$743	$1,304
2004	$1	$180	$182	$534	$805	$1,339
2005	$7	$663	$670	$596	$960	$1,557
2006	$10	$33	$42	$556	$839	$1,395
2007	$571	$62	$633	$2,732	$787	$3,519
2008	$11	$37	$48	$1,098	$879	$1,977
2009	$33	$43	$77	$794	$1,007	$1,801
2010 Budget	$356	$103	$459	$383	$933	$1,316
2011 Budget	$200	$98	$298	$178	$943	$1,121
2012 Budget	$165	$101	$266	$50	$998	$1,048

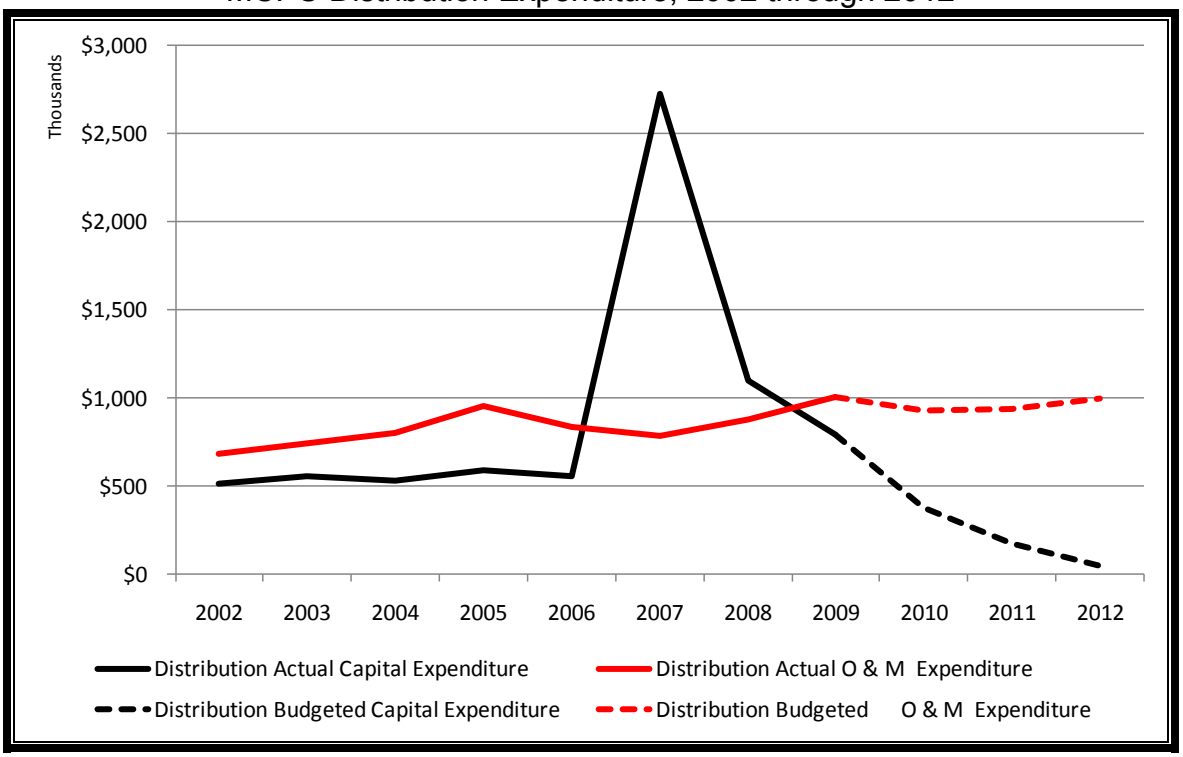
MCPU reported annual expenditures and budgets for its capital projects and its operations and maintenance (O & M) for both its distribution and transmission systems. It provided expenditures for years 2006 through 2009, and budgets for years 2010 through 2012 for these categories. Table (6) incorporates the data MCPU included in its 2009 Reliability Report as well as historic data that Staff obtained from MCPU's responses to Staff's data requests.

Distribution Expenditures:

Figure (39) is a graphical representation of MCPU historical and future distribution expenditures. In 2009, MCPU's distribution capital expenditures continued to decline for the second straight year since it had an acute spike in 2007, which was due to MCPU's investments in a new distribution substation. In 2009, it was nearly 44% higher than its average of nearly $553,000 for the year 2002 through 2006. MCPU's budget for its distribution capital expenditures will decline through 2012 to only $50,000 (9% of its average for the year 2002 through 2006). According to MCPU's plan, distribution capital expenditures will be less than 5% of its total distribution budget in 2012. MCPU did not provide reasons for that budget reduction.

[9] All the dollar figures provided in this section are expressed in actual year's dollars.

Figure (39)
MCPU Distribution Expenditure, 2002 through 2012



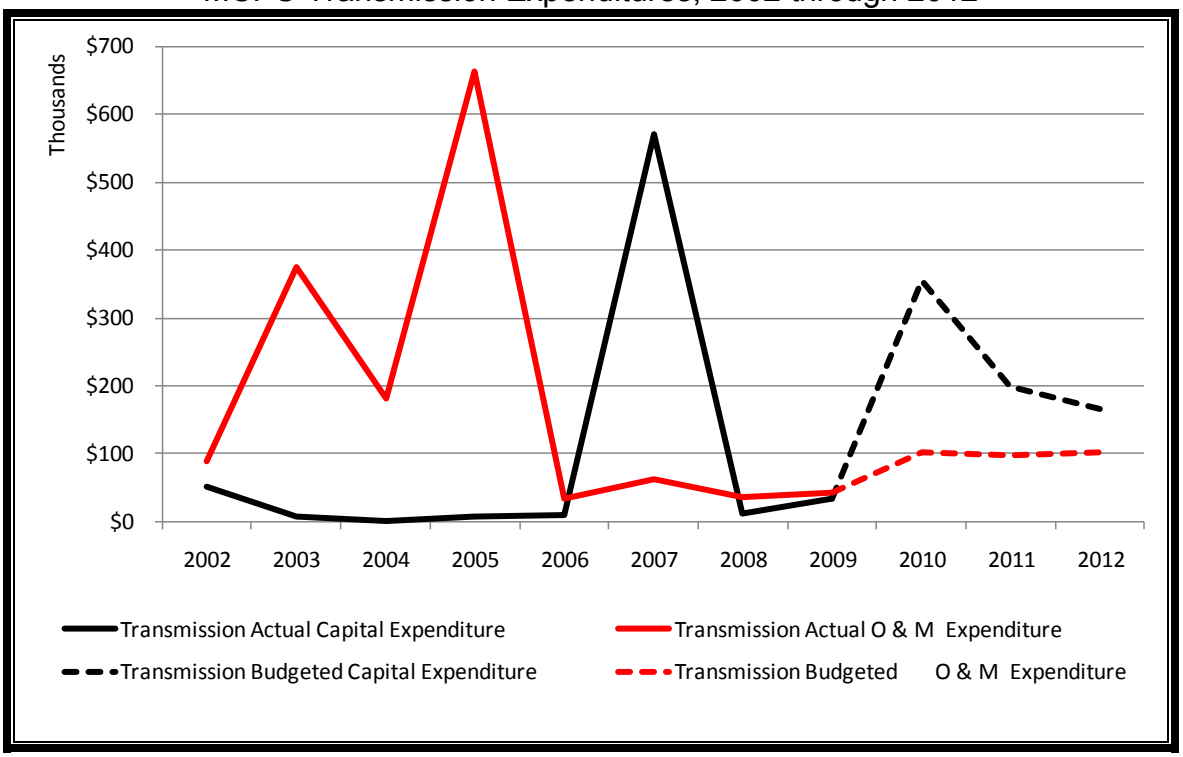
MCPU's $50,000 budget for distribution capital additions in 2012 is far too low to support the reasonable level of distribution upgrading that is required by every electricity delivery system. Replacement of poles, crossarms, and other major equipment items are capital expenditures. It is clear that MCPU intends very little replacement of major equipment during 2012, and that policy can only lead to a deterioration of service reliability.

Since 2002, MCPU's O & M expenditures averaged nearly $838,000 per year. In 2009, distribution O & M expenditures increased by nearly 15% compared to 2008. MCPU's O & M budget for 2010 is approximately 7% lower than its actual 2009 O & M expenditures. MCPU has followed a reasonably consistent pattern in its O & M expenditures with no significant fluctuations.

Transmission Expenditures:

Figure (40) is a graphical representation of MCPU historical and future transmission expenditures. Historically, MCPU dedicated less expenditures towards its transmission capital than it did towards its transmission O & M. The only exception was in 2007 when MCPU dedicated more than 90% of its total transmission expenditures towards transmission capital.

Figure (40)
MCPU Transmission Expenditures, 2002 through 2012



In 2007, MCPU upgraded its transmission system to accommodate a new distribution substation that MCPU built in 2007. In 2009, MCPU's transmission capital expenditures increased by more than twofold compared to 2008. MCPU expects that it will increase its transmission capital expenditures through 2012. MCPU is upgrading its transmission facilities between Lawrenceville and Mt. Carmel in connection with the change in that transmission line rating from 69,000 volts to 138,000 volts. MCPU expects that its transmission capital expenditures will increase by nearly fivefold in 2010 compared to 2009. As a direct result of this project, MCPU's transmission capital expenditures will exceed its transmission O & M expenditures in 2010 through 2012.

Starting in 2006, MCPU's transmission O & M expenditures were fairly consistent at an average of nearly $44,000 a year after it followed an erratic pattern from 2002 to 2006. In 2010, MCPU expects that its transmission O & M expenditures will increase by more than a double compared to 2009 and that it will remain around 2010 level through 2012.

Vegetation Management Expenditures:

Table (7) incorporates data that Staff obtained from MCPU's responses to Staff's data requests pertinent to MCPU's vegetation management program for 2009 reporting period as well as past reporting periods. Historically, MCPU followed an erratic spending pattern towards its vegetation management as shown in Figure (41). In 2009, MCPU spent nearly $291,000 on vegetation management, which is nearly 20% less than its 2008 vegetation management expenditures. In 2010, MCPU plans to spend nearly $326,000 on vegetation

management, which is nearly 12% more than it spent during 2009 in its vegetation management program.

Table (7)
MCPU Vegetation Management Expenditures, 2002-2012

Year	Vegetation Expenditure	Circuit Miles trimmed	Per mile tree-trimming cost
2002	$291,206	62.41	$4,666
2003	$296,366	71.78	$4,129
2004	$257,037	50.71	$5,069
2005	$385,448	126.47	$3,048
2006	$227,013	91.78	$2,473
2007	$326,352	67.95	$4,803
2008	$361,672	98.25	$3,681
2009	$290,887	94.10	$3,091
2010 Budget	$325,750	69.20	$4,707
2011 Budget	$335,245	112.77	$2,973
2012 Budget	$345,800	86.38	$4,003

As shown in Table (7), tree-trimming schedules vary each year in terms of the how many circuit miles along which MCPU performed or plans to perform tree trimming. Nevertheless, even that would not explain the variation of the per-mile tree trimming cost, which is depicted in Figure (42). When asked by Staff to explain this variation in its vegetation management spending patterns, MCPU replied by stating,

> *MCPU's tree trimming expenditures reflect those monies spent on tree trimming and other vegetation management practices [throughout] its system not specifically those monies spent on tree trimming specific operations conducted on scheduled line miles for a given year.*
>
> *The expenditures for vegetation [vary] in the above table for several reasons. One is that in 2005 MCPU hired a third party contractor to assist in tree trimming operations in an effort to get MCPU's tree trimming on a three year trimming schedule in accordance with a tree trimming agreement between Staff and MCPU. In 2008 MCPU hired a third party contractor for the [purposes] of removing several trees throughout its distribution system which were beyond the ability of MCPU's equipment. In addition expenditures for 2007 and 2008 would also include R.O.W. clearance for MCPU's 138\69Kv transmission line constructed in those years.*

Staff does not know whether MCPU's explanations account for all the variation in the utility's tree trimming expenditures. What is clear to Staff is that the money that MCPU has spent recently on trimming trees near its distribution circuits has not kept trees from growing into the lines. MCPU's tree trimming program does not appear to be effective and it needs to be fixed.

Figure (41)
MCPU Vegetation Management Expenditure, 2002-2012

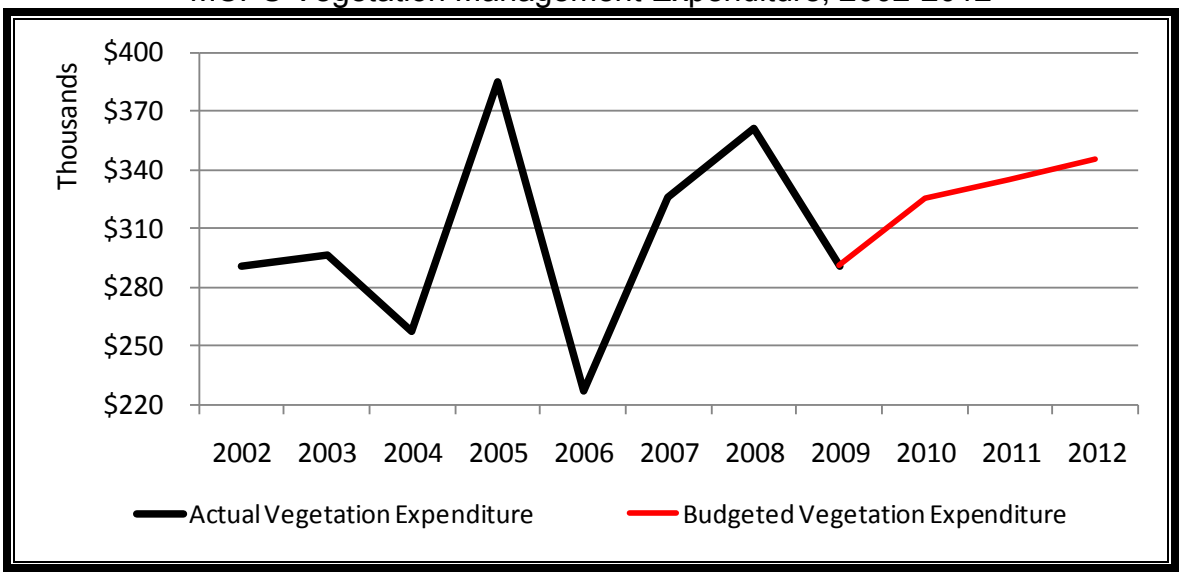
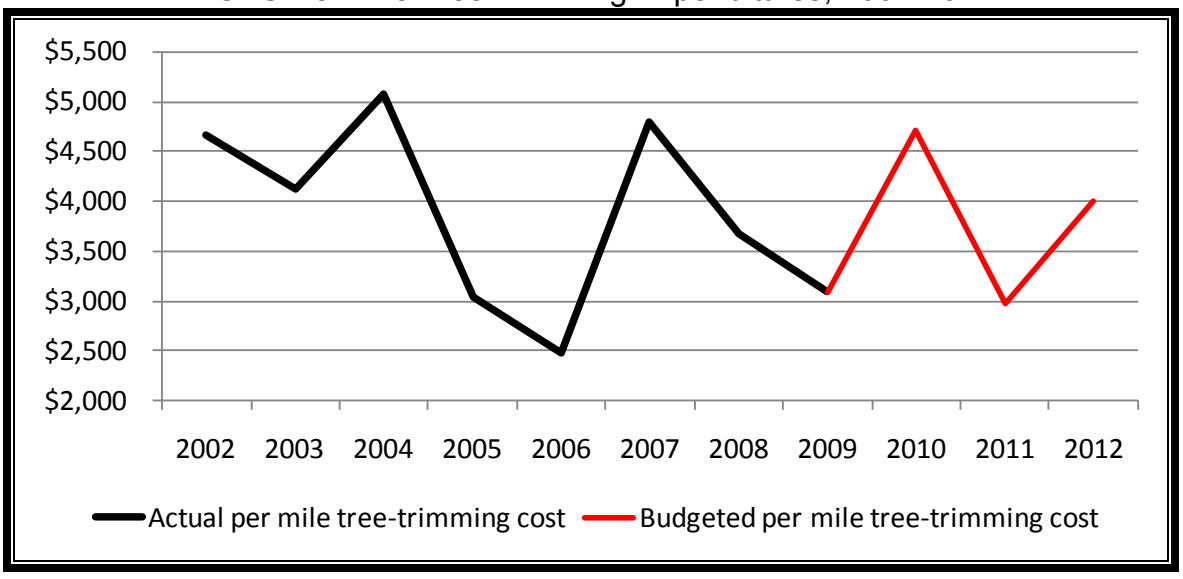


Figure (42)
MCPU Per-mile Tree Trimming Expenditures, 2002-2012



10. Potential Reliability Problems and Risks

Subsection 411.120(b)(3)(A)(iii) of the Code require public utilities to *"identify all foreseeable reliability challenges and describe specific projects for addressing each."*

In its 2009 Reliability Report, MCPU continued to list tree contacts as a foreseeable reliability challenge. MCPU reported that it considers installation of underground facilities, where feasible, and studies and analyzes areas that pose accessibility conflicts and addresses these areas as appropriate as part of its efforts to minimize interruptions due to tree contact. An apparent contradiction to this statement is MCPU's very small future distribution capital spending budget shown in Table 6 above. So small a budget cannot support much, if any, underground construction. As discussed earlier in this report, Staff recorded many instances of tree conflicts with supply lines during its circuit inspection. Staff discussed its view on MCPU tree trimming planning in Section 7(D) of this report.

MCPU reported that it would continue to install animal protection at new transformer installations and on existing facilities as animal related problems are encountered. MCPU should take a more proactive approach to install animal protection in its electric system, rather than waiting for animal-caused interruptions to occur before installing the needed animal protection. Earlier in this report, Staff voiced its concerns over the lack of animal protection in many overhead facilities and at several MCPU distribution substations.

MCPU reported that it studies distribution circuits that have experienced high numbers of outages, and where applicable, it adds sectionalizing devices, relocates, or adds line reclosers and, where feasible, switches portions of those circuits to other distribution circuits. MCPU reported that it would rebuild or relocate portions of those circuits that pose accessibility issues, as applicable. MCPU reported that it would maintain its distribution system by replacing existing facilities or installing new facilities as may be necessary to improve system reliability. Once again, MCPU's distribution budget for future years would seem to contradict the utility's reported plans.

MCPU reported that it conducts studies about areas where access to distribution facilities is limited to determine the feasibility of rebuilding or relocating those facilities.

Generally, MCPU listed some of the reliability challenges, but its description of the projects it considers to address those challenges lacks specificity.

Staff would add to the risks that MCPU identified in its report the risk related to MCPU's transmission system. In 2009, a single outage in AmerenCIPS' substation in Lawrenceville resulted in nearly 15% of MCPU customer service interruptions for the whole year. Although that outage lasted for only ten minutes, it accounted for nearly 2% of the total outage duration for the whole year. In 2008, transmission related outages caused more than 34% of MCPU customer service interruptions and accounted for nearly 22% of the total outage duration for 2008. Currently AmerenCIPS supplies

MCPU service territory through two transmission lines, one originates in Lawrenceville, and the other originates from Albion. MCPU should consider adding redundancy to its existing transmission system. In the absence of such redundancy, future transmission related outages that last for long periods could have adverse effects on MCPU system and may cause devastating consequences to MCPU customers.

11. Review of MCPU's Implementation Plan for the Previous Reporting Period.

Subsection 411.120(b)(3)(B) of the Code requires public utilities to report their implementation of plans filed pursuant to Subsection 411.120(b)(3)(A) in the previous annual Reliability Report. The report shall include an identification of significant deviations from the previous year's plan and the reasons for those deviations.

In its 2008 Reliability Report, MCPU reported some plans to improve its system reliability. MCPU 2009 Reliability Report includes the following update of the implementation of those plans:

- In its 2008 Reliability Report, MCPU reported that by late summer of 2009 it would replace two mechanical breakers servicing distribution feeders in its East 11th St. Substation with two electronic reclosers due to the age of the existing mechanical units. In its 2009 Reliability Report, MCPU reported that it completed the project at 154% over budget in June 2009.

- In its 2008 Reliability Report, MCPU reported that by spring 2010 it would replace three mechanical breakers servicing three distribution feeders in the South Division Street Substation with three electronic reclosers due to the age of the existing mechanical units. In its 2009 Reliability Report, MCPU reported that it completed the project at 6% over budget in November 2009.

- In its 2008 Reliability Report, MCPU reported that it would continue to upgrade and relocate existing distribution facilities in the Oressa Heights Subdivision from overhead to underground facilities and relocate them to the front of the properties due to accessibility issues. MCPU reported that it completed parts of this project at about 78% of the listed budget. MCPU stated that it would continue to work towards the completion of this project in 2010.

- In its 2008 Reliability Report, MCPU reported that it would continue to upgrade the 69,000 volts source from Lawrenceville to Mt. Carmel to 138,000 volts. MCPU reported that it reviewed this project in 2008 and internally placed it on a five-year schedule. MCPU indicated that the project is ongoing. MCPU spent approximately 6.6% of the project's total budget in 2008 and 2009. Furthermore, MCPU's budget for all transmission expenditures for 2010, 2011, and 2012 totals to only 69.4% of the project's total budget. MCPU did not explain how it is going to build the remainder of the project at 24% under budget.

In its 2009 Reliability Report, MCPU listed the following projects that are underway with the goal of improving its system reliability.

West Third Street Substation:

The plan for this substation is the construction of approximately 1.22 line miles of distribution facilities that include circuit ties between three circuits that originate from this substation. MCPU planned to complete this project in mid-2009. In its 2009 Reliability Report, MCPU stated that it has extended the completion date for this project to late 2010 due to continuing delays that resulted from the development and construction of a roadway extension by the City of Mt. Carmel that parallels MCPU's proposed circuit construction route.

Circuit # 31000 (West Third Street Feeder):

MCPU listed two plans to improve reliability on this circuit. The first plan aims at replacing approximately 0.47 line miles of conductor between West Third Street substation and another location on the circuit to provide portions of the circuit the capability to be back-fed from that location. MCPU extended the completion date of this project from late 2009 to the summer of 2010 because a portion of these facilities requires relocation due to Illinois Department of Transportation plans to rebuild a railroad overpass. The second plan involves replacing conductors and extending a portion of the circuit near a new Substation that is currently under construction on N. 1250 Boulevard. MCPU stated that this line section upgrade would allow the placement of approximately half of Circuit #31000 on the new substation once completed. MCPU plans to complete this project in 2011.

Circuit #21000 (Froman Drive Feeder):

MCPU listed two plans to improve reliability in this circuit. The first plan was to replace existing sectionalizing devices with reclosers and projected the fall of 2009 for completion of this project. MCPU indicated that it did not complete this project as planned because it continues to investigate its feasibility as it relates to the second project that it plans to implement on this circuit. The second plan is to rebuild and extend seven miles of existing facilities in an effort to provide suitable (more) supply capability for this circuit. MCPU estimates that it will complete this project in mid-2011.

MCPU listed projects that it completed in 2009, as projects that meet the requirements of Subsection 411.120(b)(3)(A). Most of those projects pertain to extending or modifying customers' electric service drops and do not necessarily contribute to MCPU's overall system reliability. The following are projects that Staff believes are pertinent to improving MCPU's system reliability.

- MCPU installed a sectionalizing device at the beginning of a tap servicing a customer.

- MCPU replaced an existing mechanical breaker at the beginning of Circuit #32000 with a solid-state electronic type unit due to age and condition of the existing breaker.
- MCPU performed maintenance on worst performing circuits that it reported in its 2008 Reliability Report. Those circuits were Circuit #22000 and Circuit #31000. Details of maintenance history for these two circuits work is provided in its 2009 Reliability Report as required by Subsection 411.120(b)(3)(J).

12. Summary of Recommendations:

- Staff is concerned that MCPU's distribution system capital budgets for 2011 and 2012 are not sufficient to support the equipment replacement necessary to maintain any electricity delivery system in reliable condition. Staff's inspections of selected MCPU distribution circuits revealed some deteriorated equipment in need of replacement. The utility has explained plans to avoid some tree problems by converting areas of overhead distribution to underground facilities. MCPU has also described plans to rebuild or alter portions of its distribution system to improve reliability. It is not clear that MCPU's current budgets will allow the needed expenditures.

- MCPU described a proactive approach it implements to deal with animal-related outages by installing animal resistant wraps around some of its poles. While Staff commends MCPU for its proactive approach, Staff recommends that MCPU take a more aggressive approach towards animal protection by installing animal protections on its distribution circuits and around its substations where needed rather that waiting for animal caused interruptions to occur before installing the needed animal protection.

- As discussed earlier in this report Staff is concerned with the condition of vegetation near MCPU's distribution system. For MCPU to improve those conditions, Staff would recommend that MCPU alter its tree trimming practice to focus on circuits rather than geographic blocks that contain portions of different circuits. Other options open to MCPU are to reduce the length of its three-year tree trimming cycle to 2 years or to begin more aggressive trimming of trees to achieve greater initial clearances between trees and power lines so that the trees will not grow back into the lines before MCPU returns to trim the trees again. An additional possibility is the complete removal of fast growing trees like soft maples so that they cannot grow back into power lines, and their constant trimming requirements will not burden MCPU's tree trimming budgets.

- In 2008, damage to MCPU transmission lines caused approximately 34% of MCPU customer service interruptions. In 2009, a single outage in Ameren's Lawrenceville substation, which is the source of MCPU main transmission line, caused nearly 15% of MCPU customer service interruption. Transmission related outages contributed greatly to customer service interruptions and service interruption durations in two consecutive years. Given that MCPU receives electric supply from two sources,

Staff recommends that MCPU add more redundancy to its transmission system to avoid devastating long lasting transmission related outages in the future.

- Staff is concerned by the Reliability Report lack of detail regarding the age of MCPU facilities. Staff recommends that MCPU include detailed account of the age of each individual facility element i.e. poles, overhead equipment, substation equipment, transformers, etc.

Appendix A

Utility	Mt Carmel	Date	6/9-10/2010
Circuit	21000 - Froman Drive Feeder	Inspector	Yassir Rashid, Greg Rockrohr

General Notes: Overall, the facilities of this circuit are in a good condition. There are several locations where Staff found NESC violations relating to down guys. All NESC violations are marked red in the this table. This circuit has many problems with trees contacting or close to primary wires. There is a huge lack of animal protection for the overhead transformers throughout the circuit.

Map No.	*Item Description*	*Photo(s)*	*Location*
1	Large opening at the substation gate	1	Substation
1	Trees contact primary		Between Hillcrest Dr and Plum St, North of LS 21000T010-C
1	Trees contact primary	2,3	East of the intersection of Pear St and 11th St
1	Missing guy guard		First pole on alley between Plum St and Pear St, south of 11th St
1	Trees contact primary		On Pear St, just north of 9th St
1	Broken Guy Guard		On alley between Cherry St and Pear St, north of 9th St
1	Trees contact primary and pole crossarm	4,5	On alley between Mulbery St and Cherry St, south of 12th St
1	Trees close to primary		On alley between Mulbery St and Cherry St, just south of 12th St
1	Primary lines run through trees	6,7	On 12th St, between Mulbery St and Market St
1	Trees close to primary		On alley between Mulbery St and Cherry St, just south of 13th St
1	Trees close to primary		Northeast of the intersection of Froman Dr and Mulberry St (east of Deer Ridge Crossing)
1	Pole surrounded by vegetation to the top	8	Southwest of the intersection of College Dr and Candler Dr (west of LS21060-C)
1	Trees close to primary		On college Dr, between Forio Dr and Greenbriar Dr
1	Trees close to primary		Southeast of intersection between Kirkman St and Candler Dr (north of LS21062T044-C)
1	Trees close to primary		Northeast of intersection between Kirkman St and Candler Dr
1	Primary lines run through trees	9	118 Greenbriar Dr (east of College View)
1	Primary lines run through trees	10	Between College View and Oak St, north of Greenbriar Dr
2	Primary lines run through trees	12,13,14	Three different locations across from Wabash Valley College, on College St
2	Trees close to primary		Between Park Rd and Marion St, south of Miskell Rd (south of LS21090T013-B)
2	Trees close to primary		Between Marion St and St. Joseph St, south of Miskell Rd (south of LS21090T029-B)
2	Trees close to primary		Between St. Joseph St and Kings Way, south of Miskell Rd (south of LS21090T045-B)
2	Trees close to primary		On tap beyond LS21090T030-B, between LS21090T030-B and the first transformer
2	Primary runs through trees		Between last two poles on tap beyond LS21090T030-B
2	Trees contact primary		Between last two poles on tap north of Ladue Dr, east of LS21000T397-A
2	Trees close to primary		Between last two transformers on tap south of Clubhouse Pl, east of LS21000T421-C
2	Trees close to primary		South of South Dr and west of Meadowbrook Ln, east of LS21403-A (behind homes)
2	Trees close to primary		South of South Dr and east of Meadowbrook Ln
2	Primary runs through trees		South of South Dr and east of Meadowbrook Ln, between two transformers
2	Pole buried in vegetation to the top	11	Across from 2807 Janeway Dr (at LS21405T056-C)
2	Trees contact primary		Between East Dr and Janeway Dr, south of North Dr
2	Trees contact primary		Between Erin Dr and North Dr, east of LS21405-C
2	Trees close to primary		In front of 10572 N. 1550 Blvd
2	Primary clearance from garage roof top is low		Garage of 110 Greenview Dr (located on Wallar Dr)
3	Trees close to primary		Intersection of N. 1550 Blvd and Wabash 13 Ave
4	Trees close to primary		On E. 1100 Rd, on tenth span north of voltage regulators
5	Trees close to primary		On E. 1100 Rd, between LS22500T279 and transformer north of LS22500T279
6	Vines growing on pole		Second pole north of first transformer north of LS22500T533-ABC, on E. 1100 Rd
6	Missing guy guard		Fifth pole west of E. 1100 Rd, on N. 1920 Blvd
6	Trees close to primary		Last span west of LS22505T344-A (on E. 1000 Rd, south of N. 1920 Blvd)
7	Missing guy guard		Pole with LS22508T113-A, on E. 1100 Rd
8	Loose insulator pin bolt	15,16,17	Third pole east of Friendsville Ave on N. 1950 Blvd

Appendix A

Utility	Mt Carmel	Date	6/9-10/2010
Circuit	21000 - Froman Drive Feeder	Inspector	Yassir Rashid, Greg Rockrohr

General Notes: Overall, the facilities of this circuit are in a good condition. There are several locations where Staff found NESC violations relating to down guys. All NESC violations are marked red in the this table. This circuit has many problems with trees contacting or close to primary wires. There is a huge lack of animal protection for the overhead transformers throughout the circuit.

Map No.	*Item Description*	*Photo(s)*	*Location*
9	Trumpet vine growing on pole	18	Fifth pole north of LS22700T240-A on N. 1950 Blvd (driveway)
9	Trumpet vine growing on pole		Seventh pole north of LS22700T240-A on N. 1950 Blvd (driveway)
9	Trees close to primary		8169 N. 1950 Blvd
9	Trees close to primary		On N. 1950 Blvd, north of LS22700T074-A
10	Trees close to primary		7388 N. 1950 Blvd
10	Missing guy guard		Last pole on N. 1900 Blvd, west of E. 700 Rd (west of LS22705-A)
10	Missing guy guard		18771 E. 700 (west of LS22703T133-A)
10	Riser not grounded		Third pole west of E. 700 Rd, on N. 1900 Blvd (pole with LS22705T025-A)
12	Two poles missing guy guards		First driveway west of Summer Ln on N. 2150 Blvd (Mesa Lake Dr), north of LS22628T054-A
12	Missing guy guard		Pole at the corner of Phelps Ln and N. 2150 Blvd (Mesa Lake Dr), east of LS22628T089-A
13	Broken Guy Guard		First Pole east of first transformer east of E. 700 Rd, on N. 2200 Ln (east of LS22626-A)
13	Missing guy guard		Pole holding third transformer east of E. 700 Rd, on HWY 11 (east of LS22625-ABC)
15	Trees close to primary		On tap north of LS22615T096-A on HWY 11
17	Trees close to primary		On N. 2100 Ln, west of LS22605T226-C
20	Trees close to primary		On E. 1000 Rd, north of the intersection of E. 1000 Rd and Friendsville Ave (between LS21655T016-A and LS21655T040-A)
21	Trees close to primary		Driveway off of Friendsville Ave, on tap east of LS21600T116-B
21	Trees close to primary		Driveway off of Friendsville Ave, on tap west of LS21600T225-CB
21	Trees close to primary		Driveway off of Friendsville Ave, on tap north of LS21600T292-A
21	Trees close to primary		Between LS21640T142-C and LS21640T160-C on Wabash 17 Ave
22	Trees contact primary		On N. 1600 Blvd, west of Wabash 13 Ave and between LS21821T119-C and LS21823-C
22	Trees contact primary	31,32	16338 Wabash 13 Ave
22	Vine growing on pole	30	Across from 16338 Wabash 13 Ave
22	Trees close to primary		Across from 16440 Wabash 13 Ave
23	Pole top insulator pin loose and leaning away from a deteriorated pole top	26,27,28	First pole east of the intersection of N. 1600 Blvd and E. 800 Ln
23	Broken and disconnected ground wire	29	Second pole west of the intersection of N. 1600 Blvd and E. 850 Rd
23	Trees close to primary		Between forth and fifth pole north of second transformer north the intersection of N. 1600 Blvd and E. 850 Rd
24	Secondary clearance low		Between first two transformers north of the intersection of N. 1750 Ln and E. 850 Rd (on E. 850 Rd)
24	Broken Guy Guard		East of the intersection of E. 850 Rd and N. 1750 Ln (on the north side of N. 1750 Ln)
24	Trees close to primary		8698 N. 1750 Ln
25	Bent top insulator pin	20,21	Second pole from the end of line on Wabash 12 Ave, west of E. 850 Rd (7323 Wabash 12 Ave)
25	Bent top insulator pin	22	Third pole from the end of line on Wabash 12 Ave, west of E. 850 Rd (7327 Wabash 12 Ave)
25	Trees contact primary	19	Across from 8782 N. 1550 Blvd
26	Trees contact primary		Driveway of 9000 N. 1400 Blvd
26	Trees close to primary		Driveway of 8662 N. 1400 Blvd
27	Broken ground line	23,24,25	Across from 9796 N. 1400 Blvd
27	Missing guy guard	23,24	Across from 9796 N. 1400 Blvd

Appendix A

Utility	Mt Carmel	Date	6/10/2010
Circuit	31000 - West 3rd St Feeder	Inspector	Yassir Rashid, Greg Rockrohr

General Notes: The general condition of the facilities is good. There is a lack of animal protection for the overhead transformers. There are a lot of tree conflicts with the primary lines. There is alarming openings underneath the substation fence in all directions. The openings are wide to the extent that a large animal can get inside the substation from under the fence. This fence openings problem needs immediate attention.

Map No.	*Item Description*	*Photo(s)*	*Location*
1	Substation gate not grounded	34	Substation
1	Bird nest on substation structure	36	Substation
1	Fence ground wire disconnected	40	Substation
1	Opening under the fence	35,37,38, 39,41	Substation
1	Primary lines run through trees	43,44	On Division St just south of 1st St
1	Trees contact primary		Behind 913 W 1st St
1	Trees contact primary		Between third and forth poles on tap ease of Division St and south of 1st St
1	Low vertical clearance over garage roof top		First tap north of 1st St and east of division St (the garage has an attached meter # 05007)
1	Primary line runs through trees		Last span on first tap north of 1st St and east of division St
1	Trees close to primary		On alley between 3rd St and 4th St west of Division St
1	Low vertical clearance over roof top		On alley between 4th St and 5th St just east of Division St
1	Trees close to primary		On Vine St between 4th St and 5th St
1	Trees close to transformer		On alley between Division St and Vine St, south of 6th St
1	Trees contact primary		On alley between Division St and Vine St, south of 6th St
1	Trees close to primary		On 7th St between Division St and Vine St
1	Trees contact primary		In front of trailer # 42 on trailer park west of Vine St
1	Primary lines run through trees		At the end of tap on trailer park west of Vine St
1	Trees close to primary		On West Third St between taps with LS31000T149-A and LS31000T147-BC
1	Trees contact primary		On tap crossing West Third St into N. 1250 Blvd
1	5 leaning poles	45	On N. 1250 Blvd between West Third St and Southern Railroad R.O.W.
1	Trees close to primary		On Wabash 0 Ave just south of West Third St
1	Trees close to primary		On tap south of West Third St, on Wabash 0 Ave by line recloser
2	Vines growing on pole		Pole next to last on tap north of LS31060T078-C
2	Trees close to primary		Between fifth and sixth poles east of 9461 N. 1250 Blvd
3	Trees contact primary		In front of 12311 E. 870 Blvd
3	Trees close to primary		Last span south of 12311 E. 870 Rd
3	Trees contact primary		Across from 11669 Sugar Creek Ave
3	Trees contact primary		In front of 11878 Sugar Creek Ave
3	Missing guy guard		Second to last pole on tap on N. 1100 Ln, east of Wabash 10 Ave
3	Primary lines run through trees		10914 E. 920 Ln
2	Primary lines run through trees		10413 E. 920 Ln
4	Loose insulator pin nuts	46	Fourth pole east of LS31300T072-AC on N. 1120 Blvd
5	Loose ground wire		Second pole south of railroad tracks on E. 820 Rd
5	Leaning poles		On E. 820 Rd, north of N. 1050 Blvd
6	Trees close to primary		Between LS31190-CBA and the corner of N. 900 blvd and E. 850 Blvd
6	Trees close to primary		Last span on E. 850 Blvd south of N. 900 blvd
9	Trees close to primary		In front of 13414 E. 700 Rd

Appendix A

Utility	Mt Carmel	Date	6/11/2010
Circuit	16000 - Circuit # 6	Inspector	Yassir Rashid, Greg Rockrohr

General Notes: This circuit is a small urban circuit inside the City of Mt Carmel. It has a few vegetation issues, however more than half of its overhead transformers lack animal protection.

Map No.	*Item Description*	*Photo(s)*	*Location*
1	Bird nest over substation structures	47,49	Substation
1	Tree contacts primary	51	315 Mulberry St
2	Tree contacts primary		In front of Mt Carmel Public Library (on Mulberry St)
2	Tree contacts primary	52	Between second and third pole north of 12th St
2	Primary runs through trees	53	Tap crosses Walnut St, just north of 12th St
2	Horizontal clearance violation	54	Line behind 1222-1228 Cedar Ln (on 13th St)

Appendix A

Utility	Mt Carmel	Date	6/11/2010
Circuit	12000 - Circuit # 2	Inspector	Yassir Rashid, Greg Rockrohr

General Notes: This is a small urban circuit. It has a serious vegetation problems. These problems has the potential to negatively affect the system reliability if not addressed soon. Approximately half of the circuit overhead transformers lack animal protection.

Map No.	*Item Description*	*Photo(s)*	*Location*
1	Trees close to primary		In front of 619 Mulberry St
1	Trees close to primary		On alley north of 614 A Mulberry St
1	Trees close to primary		On alley between 7th St and 8th St, east of Mulberry St
1	Trees close to primary		On alley between 7th St and 8th St, west of Mulberry St
1	Trees close to primary		On alley between 6th St and 7th St, east of Cherry St
1	Trees close to primary		On alley between 6th St and 7th St, west of Pear St
1	Trees close to primary		On alley between 7th St and 8th St, east of Cherry St
1	Primary runs through trees	55	On alley between 7th St and 8th St, west of Plum St
1	Tree contact		On the back of 413 E 7th St (on Plum St)
1	Trees close to primary		Across from 619 Plum St
1	Missing guy guard		First pole behind 615 Plum St
1	Trees close to primary		On alley between 5th St and 6th St, west of Plum St
1	Trees close to primary		On the west side of Plum St, between 5th St and 6th St (north of alley)
1	Trees close to primary		On the east side of Plum St, between 4th St and 5th St
1	Tree contact		In front of 315 Plum St
1	Primary runs through trees	56	In the back of 411 Plum St
1	Horizontal clearance violation	57	On alley north of 614 A Mulberry St
1	Vertical clearance violation (between electric line and telecommunication line)	58,59	On alley north of 614 A Mulberry St

Appendix A

Utility	Mt Carmel	Date	10/27-28/2010
Circuit	22000 - Allendale Feeder	Inspector	Yassir Rashid, David Brown

General Notes: This circuit was a worst performing circuit for three consecutive years. Its condition is by far the worst among the distribution circuits that Staff inspected in 2010. There are many NESC violations in this circuit, most of them relate to guying issues. Vegetation condition in this circuit is relatively better than the other circuits that inspected in 2010; however, more needs to be done in terms of vegetation management before spring 2011.

Map No.	Item Description	Photo(s)	Location
1	Inadequate fence grounding	60	Substation
1	Inadequate placement of equipment (post)	61	Substation
1	Low primary and secondary clearance		North of LS22002T062-B, along Southern Railroad R.O.W.
1	Missing guy guard		In front of 1413 Cherry St
1	Trees close to primary		On Cherry St, between Easy St and LS22000T173-B
2	Missing guy guard	62	In front of 319 Kieffer Ln
3	Trees close to transformer	63	On pole on LS22080T093A
3	Split pole top	64	First pole south of N 1560 Blvd, on LS22080T063-ABC (along Southern Railroad R.O.W.)
3	Trees close to primary		In front of 15830 E 1150 Rd
4	Trees close to primary		In front of 16308 E 1150 Rd
5	Trees close to primary		In front of 11820 N 1800 Blvd
5	Broken down guy		In front of 11904 N 1800 blvd
5	Primary run through trees	65,66,67	In front of 17515 E 1200 Rd
6	Deteriorated crossarm	68,69	Sixth pole from north of pole with customer owned transformers at E 1330 Ln
6	Violation of horizontal clearance between conductors	68,69	Sixth pole from north of pole with customer owned transformers at E 1330 Ln
6	Vines growing on pole	70	Sixth pole from the end of line on E 1300 Ln
9	Detached crossarm brace		Fifth pole west of 12437 N 1920 Blvd
9	Deteriorated crossarm and loose insulator pin	71,72	Sixth pole west of 12437 N 1920 Blvd
9	Deteriorated pole top and loose top insulator pin	73	Sixth pole west of 12437 N 1920 Blvd
11	Deteriorated pole top		Second pole east of LS22300T024-CB
11	Disconnected crossarm brace	78	Fifth pole west of HWY 1, on N 1970 Blvd
12	Broken ground wire		Across from 19938 Wabash 18 Ave
12	Trees close to primary		On LS22304T104-C, north of N 1200 Blvd
12	Woodpecker holes on pole		First pole south of N 2030 Blvd, on E 1520 Rd
13	Trees close to transformer		Transformer on top of last pole of LS22306-AC
13	Trees close to primary		Sixth span ease of E 1530 Rd, on N 1950 Blvd
13	Vines growing on down guy		Sixth pole from the end of LS22306-AC, on N 1950 Blvd
13	Deteriorated pole top and loose top insulator pin	76,77	Sixth pole of LS22307T091-CA, south of N 1900 Blvd
13	Missing guy guard		Sixth pole of LS22307T091-CA, south of N 1900 Blvd
13	Split pole top and woodpecker holes on pole	75	Pole at 19343 Wabash 18 Ave
13	Trees close to primary		Eighth span south of n 1970 Blvd, on Wabash 18 Ave
14	Split pole top	74	Second pole south of N 2100 Blvd on HWY 1
14	Trees close to primary		On LS22127T350-C, just east of E 1350 Rd
14	Trees close to primary		East of E 1350 Rd, on N 2100 Blvd
15	Broken ground wire		Second pole west of E 1300 Rd, on N 2020 Blvd
15	Missing Crossarm braces		Fifth pole east of E 1300 Rd, on N 2020 Blvd
15	Shell rot pole		Third pole east of E 1250 Rd, on N 2020 Blvd
15	Vines growing on guy guard		Pole at the corner of E 1250 Rd and N 2020 Blvd
15	Trees close to primary		On LS22100T1288-CBA, north of the corner of E 1250 Rd and N 2050 Blvd
15	Violation of horizontal clearance between conductors		On LS22100T1288-CBA, north of the corner of E 1250 Rd and N 2050 Blvd
15	Broken down guy		Second pole west of the corner of E 1250 Rd and N 2050 Blvd

Appendix A

Utility	Mt Carmel	Date	10/27-28/2010
Circuit	22000 - Allendale Feeder	Inspector	Yassir Rashid, David Brown

General Notes: This circuit was a worst performing circuit for three consecutive years. Its condition is by far the worst among the distribution circuits that Staff inspected in 2010. There are many NESC violations in this circuit, most of them relate to guying issues. Vegetation condition in this circuit is relatively better than the other circuits that inspected in 2010; however, more needs to be done in terms of vegetation management before spring 2011.

Map No.	Item Description	Photo(s)	Location
15	Trees close to primary and transformer		Last pole on tap to 20493 E 1200 Rd
16	Violation of vertical clearance between electric primary wires and telecommunication cables on a different support structure		Span of LS22225-AB east of E 1300 Rd, along HWY 11
16	Trees close to primary		In front of 12735 N 2100 Blvd
17	Broken ground wire		Fifth pole east of E 1200 Rd, on N 2100 Blvd
17	Trees close to primary		In front of 11688 N 2100 Blvd
17	Trees close to primary		Third span west of E 1150 Rd, on N 2100 Blvd
18	Lightning struck pole		Second pole east of E 1150 Rd, on HWY 11
18	Trees close to primary		First span on LS22420T403-A
18	Vines growing on down guy		Pole at the northwest corner of E 1800 Rd and HWY 11
18	Vegetation growing on pole		Fourth to last pole of LS 22424-A (on E 1800 Rd)
18	Missing guy guard		Last pole of LS22424-A
19	Disconnected ground wire (on pole top)		First pole south of LS22422T097-B
19	Missing guy guard		First pole north of LS22422T097-B
19	Trees close to primary		Spans between the two corners of E 1150 Rd and N 2300 Blvd, on N 2300 Blvd
19	Broken ground wire		Fourth pole of LS22454T153-C, south of N 2350 Blvd
19	Trees close to primary		Second span north of N 2350 Blvd, on E 1150 Rd
19	Trees close to primary		In front of 11253 N 2300 Blvd
19	Trees close to primary		First span east of E 1100 Rd, on N 2300 Blvd
19	Deteriorated pole top	79	Second pole east of E 1070 Rd, on N 2300 blvd
19	Trees close to primary		Fourth span north of N 2300 Blvd, on E 1100 Rd
19	Trees close to primary		Across from 23127 E 1100 Rd
19	Missing guy guard		Across from 23127 E 1100 Rd
19	Deteriorated crossarm	80,81	Across from 23262 E 1100 Rd (pole with capacitor bank)
20	Trees close to primary		Last span on LS22440T179-B, south of N 2350 Blvd
20	Trees close to primary		Third span west of E 1070 Rd, on 2350 Blvd
20	Trees close to primary		In front of 10567 N. 2350 blvd
20	Shell rot pole		Fifth pole west of E 1050 Rd, on N 2400 Blvd
20	Trees close to transformer		Last pole of LS22446T109B
20	Broken down guy		Last pole of tap on a driveway north of the intersection of E 1000 Rd and N 2400 Blvd
20	Woodpecker holes on pole		Eighth pole from the end of line on N 2400 Blvd (west of E 1000 Rd)
20	Woodpecker holes on pole		Sixth pole from the end of line on N 2400 Blvd (west of E 1000 Rd)
20	Broken down guy		Second pole from the end of line on N 2400 Blvd (west of E 1000 Rd)
21	Missing guy guard		Second pole east of E 1150 Rd, on N 2350 Blvd
21	Trees close to primary		Fourth pole west of E 1200 Rd, on 2350 Blvd
21	Trees close to primary		Second span of LS22453T061-C, west of E 1200 Rd
21	Trees close to primary		On LS22453T071-C, west of E 1200 Rd
21	Trees close to primary		Last pole of line on E 1200 Rd, north of N 2350 Blvd
22	Missing guy guard		First pole of LS22400T452-C, east of E 1200 Rd (at 22230 E 1200 Rd)
22	Missing guy guard		Second pole of LS22400T452-C, east of E 1200 Rd (at 22230 E 1200 Rd)

Appendix A

Utility	Mt Carmel	Date	10/27-28/2010
Circuit	22000 - Allendale Feeder	Inspector	Yassir Rashid, David Brown

General Notes: This circuit was a worst performing circuit for three consecutive years. Its condition is by far the worst among the distribution circuits that Staff inspected in 2010. There are many NESC violations in this circuit, most of them relate to guying issues. Vegetation condition in this circuit is relatively better than the other circuits that inspected in 2010; however, more needs to be done in terms of vegetation management before spring 2011.

Map No.	Item Description	Photo(s)	Location
22	Missing guy guard		First pole of LS22400T351-C, west of E 1200 Rd
23	Missing guy guard		Pole in front of 12390 HWY 11
23	Missing guy guard		First pole north of HWY 11, on E 1250 Ln
23	Missing guy guard		Last pole on LS22434T010-A, ease of E 1250 Ln
23	Missing guy guard		Second to last pole on LS22434T010-A, ease of E 1250 Ln
23	Vines growing on pole		Across from 22550 E 1250 Ln
23	Vines growing on pole		Second pole north of 22550 E 1250 Ln (on 1250 Ln)
23	Deteriorated and decayed pole top	82,83,84	Second to last pole in line
24	Trees close to primary		Third pole north of metering facility, on E 1300 Rd (north of the intersection with HWY 11)
24	Trees close to primary		Span crossing E 1300 Rd, north of metering facility (north of the intersection with HWY 11)
24	Vines growing on down guy		In front of 22311 E 1300 Rd
24	Trees close to primary		Span crossing E 1300 Rd, south of LS22204T045-B (north of the intersection with N 2250 Blvd)
24	Vines growing on down guy		On the south side on N 2250 Blvd, east of LS22206T060-CBA
25	Violation of horizontal clearance between supply conductors and down guys	85	South east corner of N 2350 Blvd and E 1300 Rd
25	Inadequate positioning of Johnny balls on down guys	85	South east corner of N 2350 Blvd and E 1300 Rd
26	Detached crossarm brace		Fourth pole south of N 2250 Blvd, on E 1400 Rd
26	Broken ground wire		Eighth pole south of N 2250 Blvd, on E 1400 Rd
28	Vines growing on pole		Pole at the northwest corner of N 2360 Blvd and HWY 1
28	Trees close to primary		Fourth span west of HWY 1, on N 2360 Blvd
28	Vines growing on down guy		Fifth pole west of HWY 1, on N 2360 Blvd
28	Vines growing on pole		Second pole west of LS22211T042-C (west of HWY 1)
28	Missing guy guard		First pole of LS22211T177-BAC (south of N 2360 Blvd, on E 1470 Ln)
28	Missing guy guard		Second pole of LS22211T177-BAC (south of N 2360 Blvd, on E 1470 Ln)
28	Broken ground wire		Fourth pole of LS22211T177-BAC (south of N 2360 Blvd, on E 1470 Ln)
28	Lightning struck pole	86	Second to last pole of LS22211T177-BAC (south of N 2360 Blvd, on E 1470 Ln)
28	Vines growing on pole		Second to last pole of LS22211T177-BAC (south of N 2360 Blvd, on E 1470 Ln)
28	Missing Crossarm braces		Pole the source of LS22211T203-AB (north side of N 2360 Blvd, west of E 1470 Ln)
29	Lightning struck pole		First pole on tap to 14246 N 2360 Blvd (east side of road)
29	Broken ground wire		First pole on tap to 14246 N 2360 Blvd (east side of road)
30	Vines growing on down guy		Last pole of LS22206T638-C (north of N 2250 Ln)
30	Trees close to primary		In front of 16002 N 2250 Blvd
32	Broken down guy		Fourth pole south of N 2250 Blvd, on Wabash 23 Ave
34	Detached crossarm brace		First pole west of E 1600 Rd, on Wabash 19 Ln

Appendix B

MT. CARMEL PUBLIC UTILITY CO.
316 MARKET STREET
P.O. BOX 220
MT. CARMEL, ILLINOIS 62863
AREA CODE 618
TELEPHONE 262-5151

January 25, 2005

Mr. Jim Spencer
Senior Electrical Engineer
Illinois Commerce Commission
527 East Capitol Avenue
Springfield, IL 62701

Dear Mr. Spencer:

This is to confirm the commitment of Mt. Carmel Public Utility Company (Mt. Carmel) to assure that all of its electric circuits are in compliance with a three-year tree trimming cycle and are trimmed and maintained in accordance with National Electrical Safety Code (NESC) Rule 218 by July 1, 2007.

Mt. Carmel Public Utility Company further agrees to the following:

1. We will provide to ICC Staff by January 28, 2005, a listing of all Mt. Carmel circuits which require tree trimming. The information for each circuit is to include the circuit number and substation feeder designation, nominal voltage, and most recent complete trim date (if known).

2. We will provide to ICC Staff by January 28, 2005, a current copy of Mt. Carmel's written "Tree Trimming and Vegetation Management Program" and a map (approximately 24" x 24" size) showing our proposed tree trimming grids by year. The grids will be clearly marked to indicate when each will be trimmed, and a key will be included to indicate which circuits, or portions of circuits, are included in each grid.

3. We will provide quarterly tree trimming status reports, signed by an officer of Mt. Carmel Public Utility Company, to ICC Staff. The quarterly reports will be due no later than 30 days after the end of each calendar quarter, with the first report due by January 30, 2005, and the final report due on July 30, 2007, or after achieving the three-year trimming cycle, whichever comes later. Each quarterly report will describe the tree trimming progress achieved during the quarter and compare the reported progress to what was planned for the quarter. In each quarterly report, Mt. Carmel will include an estimate of the percentage of the tree trimming within that year's grid that has been accomplished during the quarter and year-to-date, as well as any carry-over tree trimming from a prior grid. For any tree trimming not completed on schedule, Mt. Carmel will describe

its plan to recover and get back on schedule to assure timely achievement of the three-year trimming cycle.

Mt. Carmel Public Utility Company also agrees that, once achieved, it will continue to maintain a three-year tree trimming cycle that is in compliance with NESC Rule 218 and as described in the first paragraph of this letter.

Sincerely,

Philip Barnhard IV
President and CEO
Mt. Carmel Public Utility Co.

Appendix C

STATE OF ILLINOIS

ILLINOIS COMMERCE COMMISSION

August 4, 2010

Mr. Larry Horrall

Mt. Carmel Public Utility Company
316 Market Street
P.O. Box 220
Mt. Carmel, IL 62863-0220

Re: Tree-Trimming Quarterly Status Reports

Mr. Horrall,

On January 25, 2005, Mt Carmel Public Utility Company ("MCPU") agreed to institute a three-year cycle tree-trimming program that covers all its electric circuits. The first three-year tree-trimming cycle started on July 1, 2004 and ended on June 30, 2007. As part of that agreement, MCPU agreed to submit to the staff of the Illinois Commerce Commission ("Staff") quarterly status reports that document MCPU's tree-trimming program progress, which assisted Staff track MCPU's tree-trimming program progress.

On July 30, 2010, Staff received MCPU's quarterly tree-trimming report for the second quarter of 2010. By submitting 2010-second quarter tree-trimming report, MCPU has reported on the last quarter of the second consecutive three-year tree-trimming cycle since MCPU started the program in July of 2004.

Staff has been reviewing MCPU's quarterly tree-trimming reports during the previous two tree-trimming cycles. Staff concluded that MCPU has met its tree-trimming obligations for the last six years, and expects that it will continue to meet its tree-trimming obligations in the future. Staff believes that MCPU has adopted a consistent vegetation management regime and that it demonstrated it was able to implement it as planned.

Because of MCPU's successful completion of two tree-trimming cycles, Staff is suspending its directions to MCPU to file quarterly status reports on its tree-trimming program. Until further notice, MCPU can stop sending the quarterly reports to Staff. Staff expects that MCPU will continue its current tree-trimming program with the same diligence it has demonstrated for the last six years. Staff may ask MCPU to resume sending the tree-trimming quarterly status reports at some point in the future, if questions arise about MCPU's tree-trimming program.

Appendix C

If you have any questions about the foregoing statement, please do not hesitate to contact me.

Yassir Rashid

Yassir Rashid

Electrical Engineer
Illinois Commerce Commission

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Harry Stoller ICC
David Brown MCPU