Illinois Commerce Commission

Assessment of Commonwealth Edison Company

Reliability Report and Reliability Performance

for Calendar Year 2005

Pursuant to 83 Ill. Adm. Code 411.140

March 20, 2007

1. Executive Summary

In compliance with Section 16-125 of the Public Utilities Act and the Illinois Commerce Commission's ("Commission's") electric reliability rules as found in 83 Illinois Administrative Code, Part 411, Commonwealth Edison Company ("ComEd") prepared and filed its "2005 Electric Power Delivery Reliability Report" ("Reliability Report") on Thursday, June 1, 2006. ComEd divided its Reliability Report by referencing the applicable subparts of Part 411 in a format that made locating information easy in the current report.

ComEd's Southern Region consistently provides less reliable service to customers due to higher average number of service interruptions and longer average durations of interruptions than ComEd's other service regions. The reason for this reduced reliability is not obvious, and ComEd should provide some explanation and, where appropriate, plans to correct any Southern Region deficiencies in future Reliability Report's.

ComEd's distribution construction and maintenance expenditures, in constant 1998 dollars, have declined steadily since 2001, with the exception of the year 2004. ComEd's forecasts for distribution operation and maintenance expenses are relatively flat in current dollars. In constant 1998 dollars, ComEd's 2005 transmission construction maintenance expenditures are below 1998 levels. ComEd's forecasts for transmission operations and maintenance expenses are relatively flat in current dollars. The number of ComEd employees in 2005 is 22% lower than levels in 1999. Since October 1997, eight people have been responsible for energy delivery reliability. Staff is concerned that the lack of management continuity in this and other positions could have a detrimental impact on reliability and efficiency. Staff will continue to closely follow trends in these areas for impacts on reliability while also encouraging ComEd's efforts to improve efficiencies and economies of maintenance and operations.

In customer satisfaction survey results ComEd did not show any statistically significant change from 2004 to 2005 but ComEd continued in 2005 to outperform two other Illinois utilities (AmerenCILCO and AmerenIP) in customer satisfaction. Commission Staff ("Staff") continues to recommend that ComEd focus on improving customer service.

ComEd reported 116 worst performing circuits ("WPC's") in 2005, seventeen were repeat WPC's from one or more of the previous 4 years. The seventeen repeats in 2005 is down from the twenty-one reported in 2004 but up from fourteen reported in 2003. Staff continues to follow this trend.

During field circuit inspections Staff observed some material deficiencies but overall their levels appeared lower than what would have been typical in previous years. Staff's inspections of tree conditions near ComEd's overhead electric lines revealed some inconsistency in the quality of ComEd's tree trimming program, but overall improvement from Staff observations in prior years. ComEd should be commended for its efforts in implementing the tree replacement program associated with "the right tree in the right place" near its power lines. These efforts provide an immediate benefit in the areas where troublesome tree species have been removed in both reliability improvements and future maintenance costs. In several recommendations Staff encourages ComEd to continue improving its vegetation management program.

Table of Contents

2. Introduction

Beginning with the year 1999, and at least every three years thereafter, 83 Ill. Adm. Code 411.140 ("Part 411.140") requires the Commission to assess the annual reliability report of each jurisdictional entity and evaluate its reliability performance. Part 411.140 requires the Commission to:

A) Assess the reliability report of each entity.

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

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

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

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

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

This document assesses ComEd's "2005 Electric Power Delivery Reliability Report" ("Reliability Report"), filed on Thursday, June 1, 2006, and evaluates ComEd's reliability performance for calendar year 2005. This is ComEd's 8th annual reliability report filed pursuant to code part 411.

3. ComEd's 2005 Customer Base and Service Territory

ComEd provides electric service to roughly 3.7 million customers. ComEd's service territory encompasses over 400 municipalities in northern Illinois, including the City of Chicago.

4. ComEd's Electric Distribution System

Part 411.120(b)(3)(G) states that the utility is to report on the age, current condition, reliability and performance of its existing distribution and transmission system. To comply with the requirement that a utility report on the age of its existing distribution and transmission systems, ComEd provided age data on various types of equipment. The age data reported for the equipment included information on the median age, age distribution, and quantity by age. Table 1 lists the median age of some of the equipment that ComEd reported in the last five reports (2001 through 2005).

Table 1. Median Age[1] (in years) of Typical Equipment

	2005	2004	2003	2002	2001
Lightning arresters					
Distribution	13	12	13	12	11
Transmission	13	12	6	7	40
Substation	16	28	28	29	31
Underground cables	17	16	16	17	15
Direct Buried	16	15	15	15	13
Cables in Conduit	31	31	31	32	30
Conductors					
Distribution Copper & Other	56	55	55	54	52
Distribution Aluminum	31	30	30	29	27
Transmission	34	33	32	31	30
Poles & Towers					
Distribution	36	36	36	35	33
Transmission Steel poles	24	23	24	23	26
Transmission Wood poles	37	37	37	37	37
Transmission Towers	38	37	36	35	34
Distribution crossarms	30	29	26	28	26
Meters	13	13	15	14	20
Distribution transformers	15	16	16	14	18
Substation Transformers	29	28	28	28	27

While reviewing the year to year trends is intriguing, Staff believes that the median age of the existing equipment in service does not provide, by itself, an indication of possible reduction in reliability performance of the distribution or transmission systems. Staff believes that a stronger determinant of future reliability performance is how consistently the equipment is maintained on a regular basis. An increase in the number of interruptions due to equipment failures or malfunction would provide a stronger basis either due to ageing or inadequate maintenance to determine if equipment is deteriorating to the point that it is reducing the reliability of the electric system. The increase in interruptions over the last three years associated with Overhead and Underground Equipment seen in Tables 3 and 4 has been alarming in this regard and may be the basis for increased scrutiny if the trends don't abate in the future.

5. Assessment of ComEd's 2005 Reliability Report

ComEd filed its 2005 Reliability Report and its supplemental report on Thursday, June 1, 2006, in compliance with Section 16-125 of the Public Utilities Act and the Commission's electric reliability rules as found in 83 Illinois Administrative Code, Part 411. ComEd organized the Reliability Report by the applicable subparts of Part 411.120 and 411.210.

[1] Page G-3 through G-5 of ComEd's Reliability Reports for 2005 thru 2001 – Due to the refunctionalization of a portion of ComEd's equipment and enhancements in their data ComEd believes this analysis may not be directly comparable between years.

For the eighth year, ComEd divided its Reliability Report by referencing the applicable subparts of Part 411. This format made locating information easy in the current report as well as referencing materials in past reports. Staff commends ComEd for the organization of their response in the Reliability Report.

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

Part 411.140(b)(4)(A-C) establishes electric service reliability targets that jurisdictional entities (utilities) must strive to meet. These targets specify limitations on customer interruptions as well as hours of interruption that a utility must strive not to exceed on a per customer basis. Code Part 411.120(b)(3)(L) requires each utility to provide a list of every customer, identified by a unique number, who experienced controllable interruptions in excess of the service reliability targets, the number of interruptions and interruption duration 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.

In April 2004, ComEd, along with all other regulated Illinois electric utilities, agreed to report on all interruptions (controllable and uncontrollable) in relation to the service reliability targets for the reporting periods of 2003 through 2007, and to include the specific actions, if any, that the utility plans or has taken to address the customer reliability concerns.

Table 2 summarizes the reliability targets defined in Part 411.140(b)(4)(A-C) and the number of ComEd customers exceeding Service Reliability Targets in 2005, 2004 and 2003 per Part 411.120(b)(3)(L) and the April 2004 agreement[2].

Table 2. Service Reliability Targets

Immediate primary source of service operation level	i. Maximum number of interruptions in each of the last three consecutive years	ii. Maximum hours of total interruption duration in each of the last three years	Customers exceeding Service Reliability Targets (i. &/or ii.) in **2005**[3]	Customers exceeding Service Reliability Targets (i. &/or ii.) in **2004**	Customers exceeding Service Reliability Targets (i. &/or ii.) in **2003**
69kV or above	3	9	0/0	0/0	0/0
Between 15kV & 69kV	4	12	0/0	0/0	0/0
15kV or below	6	18	262/343	406/46	5/163

[2] 2005 Reliability Report, Supplemental Report, Customers Experiencing Interruptions (controllable and uncontrollable). All electric utilities in the State of Illinois agree to file a supplement to the Annual Reliability Report on June 1 for the reporting periods of 2003 through 2007.
[3] Pages 1 thru 16, ComEd's 2005 Reliability Report, Supplemental Report.

As summarized in Table 2, no ComEd customers experienced interruptions in excess of reliability targets for customers whose immediate primary source of service operates at 69kV or above. Additionally, no ComEd customers experienced interruptions in excess of reliability targets for customers whose immediate primary source of service operates between 15kV and 69kV. ComEd did report in the supplemental report that 262 customers[4] (whose immediate primary source of service operates at 15kV or below) exceeded the maximum number of six interruptions in each of the last three consecutive years while 343 customers[5] (whose immediate primary source of service operates at 15kV or below) exceeded the eighteen hour maximum of total interruption duration in each of the last three years. Staff notes that when customer totals are looked at on a yearly basis with the data in Table 2, a troubling trend of an annually increasing number of customers exceeding the targets totals is occurring with 168 in 2003, 452 in 2004, and 605 in 2005. If this trend continues, Staff recommends that ComEd explain why this is occurring in future reliability reports.

For the above-mentioned customers, ComEd identified various actions the company plans to take to address their reliability concerns. These actions included the installation or upgrade of fuses, lightning arrestors, wildlife protection, reconductoring, performing tree trimming, replacing cable, repairing damaged insulators & static wires and replacing switchgear.

Part 411.140(b)(4)(D) states that "Exceeding the service reliability targets is not, in and of itself, an indication of unreliable service, nor does it constitute a violation of the Act or any Commission order, rule, direction, or requirement." ComEd appears to have a process in place to identify, analyze, and correct service reliability for customers who experienced a number or duration of interruptions that exceeds the targets in 411.140(b)(4)(A-C).

The number and causes of interruptions for Part 411.120(b)(3)(D) are shown for the ComEd system in Table 3. Interruptions in Table 3 were as defined in 411.20[6].

Table 3. Interruptions

Interruption Cause Category	2005 Interruptions	2004 Interruptions	2003 Interruptions
Animal Related	2,274	3,013	3,892
Customer	7	9	7
Intentional	2,671	2,812	2,807
Other	816	315	410

[4] Down from 406 in 2004 but up from 5 in 2003.
[5] Up from 46 in 2004 and 163 in 2003.
[6] The difference between the total of interruptions in Table 3 versus Table 4 can be traced to the differences in the definition of "Interruption" in Part 411.20 for scheduled interruptions initiated by a jurisdictional entity for purposes of the targets set forth in Section 411.140(b)(4) and calculating reliability indices and scheduled interruptions that are reportable under Section 411.120(b)(3)(C).

Overhead Equipment Related	5,956	4,315	4,131
Public	2,881	2,850	3,237
Tree Related	4,686	5,628	6,847
Transmission & Substation Equip	61	69	80
Weather Related	4,449	7,220	7,654
Underground Equipment Related	7,205	6,085	5,691
Unknown	1,140	1,040	420
ComEd/Contractor Errors	261	371	534
Total	**32,407**	**33,727**	**35,710**

Staff commends ComEd's expanded and more meaningful response to the requirements of Part 411.120(b)(3)(L).

7. Analysis of ComEd's Year 2005 Reliability Performance

ComEd broke out the 2005 planned and unplanned interruptions into 64 separate cause categories in detail for the system as a whole and each of the four regions in Tables 5-9 in section C (pages C-3 through C-12) of ComEd's 2005 Reliability Report. Table 4 below compares, for the last three years, aggregations under leading cause categories that represented a significant percentage of total interruptions.

Table 4. Leading Causes of Unplanned Interruptions[7]

	2005 Interruptions	% of Total	2004 Interruptions	% of Total	2003 Interruptions	% of Total
Public	2,881	9%	2,850	8%	3,237	9%
Weather Related	4,449	13%	7,220	21%	7,654	21%
Animal Related	2,274	7%	3,013	9%	3,892	11%
Tree Related	4,686	14%	5,628	16%	6,847	19%
Overhead Equipment Related	5,956	18%	4,315	13%	4,131	11%
Underground Equipment Related	7,205	22%	6,085	18%	5,691	16%
Intentional	3,174	10%	3,531	10%	3,702	10%
Total[8]	**33,300**		**34,403**		**36,222**	

[7] Page C-3, Table 5: 2005 Planned and Unplanned Interruptions – System, 2005 ComEd Reliability Report.

[8] Page G-8, Table 12: Summary of Interruptions (2005), Page G-22, Table 12: Summary of Interruptions (2004); Page G-36, Table 12, Summary of Interruptions (2003); 2005 ComEd Reliability Report

Five categories listed in Table 4 for 2005 ("weather" through "underground equipment") amount to 74% of all interruptions in the 2005 Reliability Report which is down from 77% in the 2004 Report and 78% in the 2003 Report. Looking at the raw numbers we see that significant progress was made in reducing weather, tree, and animal related interruptions but that progress was eclipsed by major increases in Overhead and Underground Equipment related interruptions. Staff will continue to follow the progress of these and other trends in interruptions.

Part 411.120(b)(3)(G)(v) states that the utility is to perform a satisfaction survey covering reliability, customer service and customer understanding of the utility's services and prices. Through a rulemaking, the Commission designed and approved a single customer survey applicable to each Illinois jurisdictional entity on a yearly basis starting in 2000. These entities joined forces and, through a competitive bidding process, selected Opinion Dynamics Corporation ("ODC") to implement the study. ODC asked customers to rate ComEd's performance on a scale of zero to ten where zero means the utility is doing a poor job and ten means the utility is doing an excellent job. An average rating or response to each question is presented on pages G-11 and G-12 of ComEd's 2005 Reliability Report. A summary of some responses is shown in Table 5.

Table 5. Summary of Customer Survey Responses
(average rating on the zero-to-ten scale)

Customer Class		2005	2004	2003	2002	2001
Residential	Providing electric service overall (Overall Service)	8.39	8.47	8.20	8.19	8.00
	Providing reliable electric service (Service Reliability)	8.41	8.41	8.31	8.22	8.03
Non-Residential	Providing electric service overall (Overall Service)	8.65	8.56	8.39	8.10	7.98
	Providing reliable electric service (Service Reliability)	8.69	8.64	8.50	8.14	8.08

In Table 5 the ratings for 2005 are not a statistically significant improvement (or decline) from 2004.

Table 6 provides another perspective on customer satisfaction through the viewpoint of customer reliability complaints[9] when values from this year's Reliability Report are compared to previous years. The bottom line of the table shows the calculated number of complaints per 1,000 customers and provides a relative measure of complaints from the years 2005 through 2001 for the system. The number of complaints per 1,000 customers has remained above the 2001 level throughout the entire period.

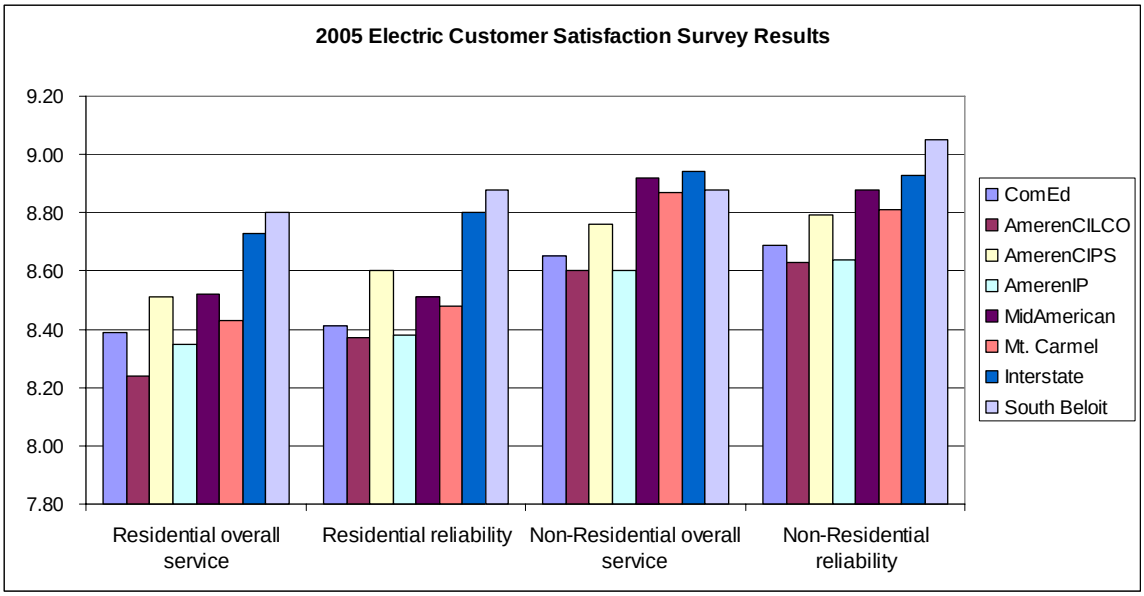
[9] Table 17, Page G-13, ComEd's 2005 Reliability Report

Table 6. Customer Complaints: System Total

	2005	2004	2003	2002	2001
Nature of Complaints	**System Total**	**System Total**	**System Total**	**System Total**	**System Total**
Sustained Interruptions	2,685	2,389	2,249	2,202	2,847
Momentary Interruptions	377	498	624	511	275
Total Low/High Voltage	790	886	943	888	436
Totals	3,852	3,773	3,816	3,601	3,558
Customers Served	**3,684,662**	**3,652,572**	**3,614,717**	**3,574,224**	**3,546,901**
Complaints per 1000 Customers	1.05	1.03	1.06	1.01	1.00

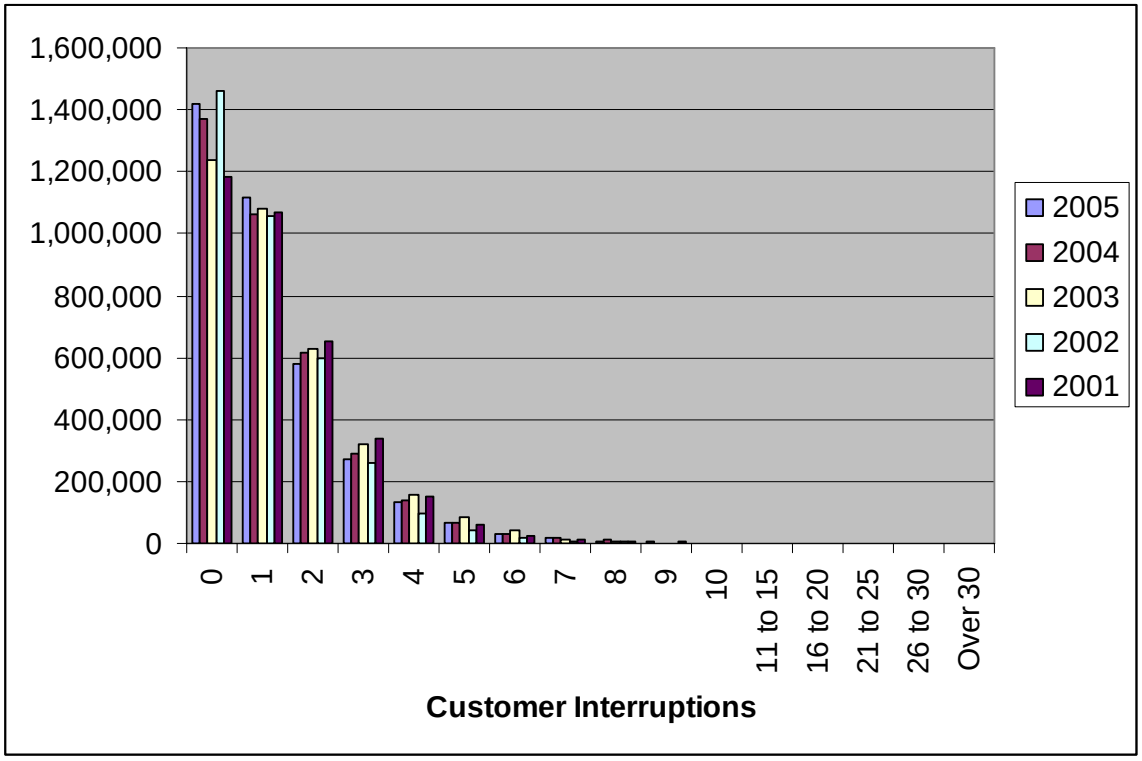
Figure 1 compares ComEd's 2005 customer satisfaction ratings to those of the other reporting jurisdictional utilities. ComEd continues the trend that emerged last year of scoring more in the neighborhood of the other utilities and clearly exceeds the scoring of AmerenCILCO & AmerenIP while still trailing AmerenCIPS, MidAmerican, Mt. Carmel, Interstate, and South Beloit. Staff will continue to recommend that ComEd focus on improving customer service.

Figure 1: 2005 Survey Results



Part 411.120(b)(3)(K) requires the utility to report the total number of customers that experienced a set number of interruptions during 2005. Figure 2 shows ComEd customers interruption experience for the last five years. For each of the five years more ComEd customers experienced no interruptions than one interruption and this percentage of customers experiencing no interruptions has increased from 34% in 2001 to 39% in 2005. Over this same time period the number of customers experiencing 10 or more interruptions has declined from 2,925 in 2001 to 1,542 in 2005.

Figure 2: Customers Interruption Experience



Part 411.120(b)(3)(I)&(J) requires the reporting utility to list its worst performing circuits (subsection I) and then state (subsection J) what corrective actions are planned to improve the circuits' performance. ComEd selected its worst performing circuits from those distribution circuits with the worst performance (highest reliability index scores) from each operating area and for each of the three reliability indices. This list totaled 116 circuits, and ComEd classified them as its worst 1% performers. Per subsection J, ComEd listed the date, number of customers affected, length of time, and cause of each interruption for each of these 116 circuits. All of the work planned for these 116 circuits was to be completed by December 31, 2005.

Worst Performing Circuit Repeats from Previous Reports

Of the 116 worst performing circuits in ComEd's 2005 Reliability Report, seventeen[10] (Table 7) represented repeats from one or more of the years 2004 through 2001.

[10] Down from Twenty-One in 2004 but Up from Fourteen in 2003.

Table 7. Worst performing circuit repeats[11]

Feeder	Region	Communities Served	Year Repeated From
D5001	Chicago	Chicago	2002
GRDX361	Chicago	Chicago	2002
MFLD145	Chicago	Chicago	2001
THRP30	Chicago	Chicago	2002
X5356	Chicago	Chicago	2002
Y13053	Chicago	Chicago	2001
Y1960	Chicago	Chicago	2002, 2001
Z1406	Chicago	Chicago	2004
Z1408	Chicago	Chicago	2002
Z4349	Chicago	Chicago	2001
Z5535	Chicago	Chicago	2004, 2003
C090	Northeast	Riverwoods, Buffalo Grove, Deerfield	2003
C801	Northeast	Main Twp, Glenview, Northfield Twp	2001
E707	Northeast	Arlington Heights	2004, 2002
E2106	Northwest	Woodstock, Dorr Twp, Lakewood, Grafton Twp	2004, 2001
W7217	Northwest	Elgin, Dundee Twp, West Dundee, Sleepy Hollow	2003
G761	Southern	Dixmoor, Blue Island	2001

The Commission is concerned that the number of repeats from previous years may be indicative of inadequacies in inspections and completion of needed corrective actions and subsequent regular preventive maintenance for worst performing circuits from 2001 through 2004. The Commission will be closely following future reports to see how this trend develops.

Field Inspections

To evaluate the overall trend of conditions in ComEd's service territory, Commission Staff conducted a series of inspections. The purpose of the inspections was for Staff to see if there were any visible obvious reasons for poor reliability performance. For example, on circuits Staff looked for poor tree trimming practices, broken or damaged equipment, rotten poles, overly slack spans (low sagging lines), etc. while in substations Staff looked for low or leaking oil, load tap changers regularly operated at extreme positions, poor maintenance practices, etc.

[11] See Table 10 for a definition of each reliability statistic

Table 8. 2005 Field Inspections

Notes	Appendix
Random Tree Inspections: "Tree Conditions in Commonwealth Edison Company's Service Territory"	A
Random Circuit Inspections	B
Worst Performing Circuit Inspections	C
Substation Inspections	D

Summaries of the field inspections, photos and items noted during inspections are included in this report as Attachments A, B, C, and D. The summary for each inspection represents typical observations noted during the field inspections and **does not** represent all of the problems or potential problems that may exist.

Conclusions from Field Inspections

Tree Conditions

Staff inspections of tree conditions near ComEd's overhead electric lines revealed some inconsistency in the quality of ComEd's tree trimming program, but overall improvement from Staff observations in prior years. ComEd's tree trimming program has significantly improved in the past two years, overall, from what it was a few years ago. As noted in Appendix A, trimming was very well done in several areas inspected this year, but not as well done in some of the others. While most of the tree conflicts noted this year involved fast growing tree species, a few were slower growing hardwoods. For example: Crystal Lake appeared to be at the end of the four-year trimming cycle and, although contractors were trimming while Staff was there, the tree conflicts Staff observed were more than should be there even at the end of the trim cycle. While trimming in much of Mendota looked okay, there were too many scattered conflicts there also.

NESC[12] Rule 218(A)(1) and its associated note state the following:

> "Trees that may interfere with ungrounded supply conductors should be trimmed or removed.
>
> *NOTE:* Normal tree growth, the combined movement of trees and conductors under adverse weather conditions, voltage, and sagging of conductors at elevated temperatures are among the factors to be considered in determining the extent of trimming required."

[12] In all cases when referring to the NESC Staff is referring to the 2002 NESC adopted by the Commission in Illinois Administrative Code 305.20 on June 15, 2003.

Even though Staff noted significant improvement in ComEd's tree trimming program in recent years from what it once was, ComEd is still not in compliance with the requirements of NESC Rule 218 throughout its service territory. It is apparent that ComEd is not making sufficient effort to assure adequate tree trimming is being done and properly maintained to assure that there are no tree contacts with its energized primary conductors before it returns to trim them again in all of the communities in its service territory.

The problem areas discussed in Appendix A and the photos shown in Appendix A -- Attachment "A" as well as the vegetation issues noted during random and worst performing circuit inspections in Appendices B and C are meant to demonstrate that ComEd still has work to do to achieve *and maintain* a four-year (minimum) tree trimming cycle that is in compliance with NESC Rule 218 throughout its service territory. ComEd should investigate the problem areas mentioned and determine the cause(s) for the apparent inconsistency of tree trimming in these areas with its otherwise good tree trimming program in the remaining portions of the communities inspected. It should also take steps to correct these problem areas and to prevent recurrence of the problem.

As ComEd continues to make progress in re-establishing the trim zones and removing dead wood above conductors of its distribution circuits ComEd should begin placing more emphasis on problem trees. Problem trees are those under the conductors that are fast growing or candidates for removal and hazard[13] trees. By addressing problem trees sooner rather than later, ComEd can moderate future costs of vegetation management while improving reliability. Customer education programs on the consequences of planting some varieties of trees underneath or near overhead conductors could help eliminate the introduction of many future problem trees and thus reduce future costs and reliability issues.

ComEd should be commended for its efforts with the involved communities in implementing the tree replacement program associated with "the right tree in the right place" near its power lines. These efforts provide an immediate benefit in the areas where troublesome tree species have been removed, and should reduce the required tree trimming in those areas in future years.

Circuit Conditions

Random Circuit Inspections

In some cases Staff noted the conditions of portions of circuits randomly observed by Staff while in travel within ComEd's service territory, going to and from locations of worst performing circuits, while evaluating vegetation conditions in randomly picked areas, or going to random locations and locations where problems had generally existed in the past. While Staff observed some deficiencies (such as blown lightning arrestors, shell rotted poles, loose bolts,

[13] Trees that are outside the trim zone but that could affect reliability.

and split or damaged crossarms) the level of deficiencies appeared lower overall than what would have been typical in previous years. See Appendix B or pictures 1 and 2 for examples. Many issues were tree and vegetation related which have been discussed under Tree Conditions.

Picture 1 – Vegetation deficiency

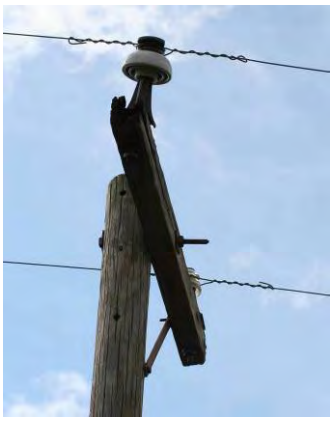
Picture 2 – Bad pole top & loose bracket

Worst Performing Circuit Inspections

Because of the prevalence of worst performing circuit repeats from year to year ComEd worked to complete much of the corrective maintenance on the 2005 worst performing circuits by the end of June 2006. Staff observed some material deficiencies such as hardware and pole conditions as well as some vegetation issues (see Appendix C or pictures 3 and 4 for examples) during Staff's field inspection of a small sample of the worst performing circuits. The tree and vegetation related issues have been discussed under Tree Conditions.

Picture 3 – Loose bracket

Picture 4 – Bad Cross Arm



As another general note, in a few instances Staff observed that guy markers were missing. Many of the missing guy markers Staff notes are violations of NESC Rule 264.E and may have a detrimental effect on reliability as well as public safety. Staff notes that the number of occurrences of missing guy markers observed this year was again significantly diminished from previous years.

Substation Conditions

Staff did only a limited review of substation conditions consisting mostly of "outside the fence" observations of insulating oil levels and equipment conditions apparent from outside the substation fence line while Staff was in the area for Random or Worst Performing Circuit inspections (see Appendices B and C).

Appendix D has photos and comments from Staff inspections of two substations. Staff has found few notable deficiencies. On a few occasions Staff observed that load tap changers ("LTC") had been operated at extreme positions which could over time tend to wear of the equipment sooner and require more attention from personnel in order to maintain reliable operation. ComEd personnel at the substation were aware this and appeared to be taking appropriate actions. Where LTC's have been operating at the extremes, either high or low, may be an indication of excessively high or low voltages experienced by customers. Staff will continue to closely follow developments in this area.

On all inspections Staff assessed the condition and appearance of the substation and yard (i.e. substation housekeeping). Only TDC 446's vegetation foliage in the substation yard (see Appendix B) appeared worse in 2006 than 2005. It has been Staff's experience that over time substation housekeeping is one indicator of the degree personnel feel responsible for maintaining the equipment at a substation.

8. Trends in ComEd's Reliability Performance

This is ComEd's eighth annual reliability report filed pursuant to code part 411. Listed in Table 9 are ComEd's reliability indices as reported in the 2005 Reliability Report (for all interruptions) for ComEd's overall system as well as each region in comparison to the system values reported by the other jurisdictional utilities for 2005. ComEd's system CAIDI performance ranks third[14] (out of the eight jurisdictional utilities) behind Mount Carmel and MidAmerican, while ComEd's system SAIFI ranked third[15] behind Interstate and South Beloit.

When ComEd's four regions are compared to the eight jurisdictional utilities and each other, the regions' performance stays bunched in the upper (better) half of the range for CAIDI. For SAIFI, ComEd's Northwest and Southern regions are at tenth and eleventh place (out of twelve). ComEd's Chicago region CAIDI performance ranks best of the four ComEd regions at 93 minutes[16], while ComEd's Southern region ranks worst at 117 minutes[17]. ComEd's Chicago region SAIFI performance ranks best of the four ComEd regions at 0.82 interruptions[18] while the Southern region ranks worst at 1.58 interruptions[19].

[14] Up (better) from fourth last year (2004) and sixth in 2003.
[15] Same as last year (2004) and down (worse) from second in 2003
[16] And third best out of twelve in the state of Illinois when the regions are compared to the eight jurisdictional utilities
[17] And eighth best out of twelve in the state of Illinois when the regions are compared to the eight jurisdictional utilities
[18] And third best out of twelve in the state of Illinois when the regions are compared to the eight jurisdictional utilities
[19] And eleventh best out of twelve in the state of Illinois when the regions are compared to the eight jurisdictional utilities

Table 9 Comparison of reliability indices for 2005

	CAIDI (minutes)	CAIFI (interruptions)	SAIFI (interruptions)
ComEd System Total	**104**	**1.95**	**1.18**
ComEd Chicago Region	93	1.64	0.82
ComEd Northeast Region	104	1.77	1.13
ComEd Southern Region	117	2.24	1.58
ComEd Northwest Region	96	2.07	1.40
AmerenCIPS	**112**	**2.12**	**1.38**
AmerenCILCO	**165**	**2.02**	**1.23**
Illinois Power	**196**	**1.81**	**1.38**
MidAmerican	**72.17**	**2.376**	**1.7719**
Interstate	**161.5**	**1.3**	**0.54**
Mt. Carmel	**66.19**	**1.43**	**1.39**
South Beloit	**135**	**1.42**	**0.69**

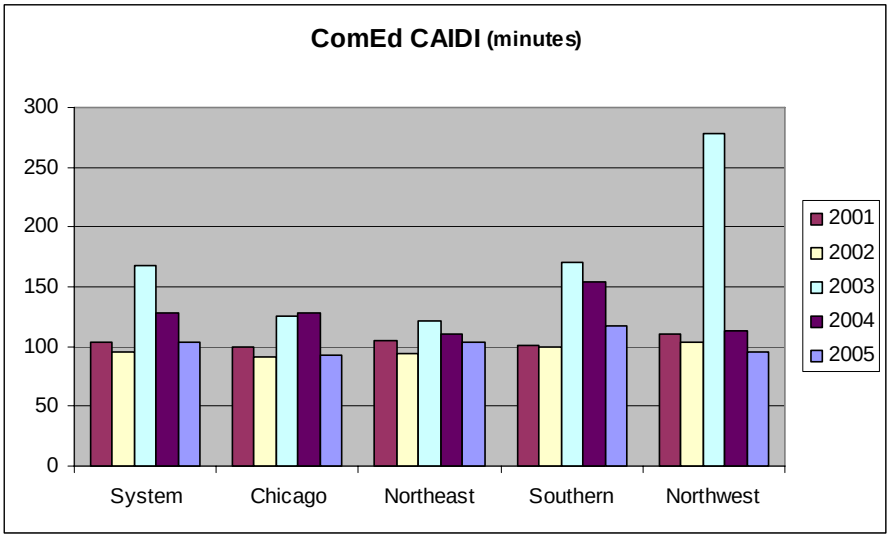
CAIDI: Customer Average Interruption Duration Report (cay' dee). This represents, for the group of customers that actually had one or more interruptions, how long, on average, the interruptions lasted.

CAIFI: Customer Average Interruption Frequency Index (cay' fee). This represents the interruption frequency for the group of customers that had interruptions. **A CAIFI index much higher than SAIFI suggests that subsets of customers experienced significantly more frequent interruptions than the overall system average.**

SAIFI: System Average Interruption Frequency Index (say' fee). This represents the number of customer interruptions divided by total system customers.

The reliability indices required by the Commission rules and provided by ComEd include storm related interruptions. Staff expects that the better designed and maintained an electric system is, the smaller the number or magnitude of storm related problems and the quicker the restoration of the electric system would be, resulting in a lower average customer interruption time ("CAIDI index"). Figure 4 illustrates ComEd's CAIDI indices over the last five years in each region.

Figure 4: ComEd CAIDI



In Figure 4 above, all regions have improved their CAIDI performance from the previous year, but no trend is evident.

Figure 5: CAIDI by Utility

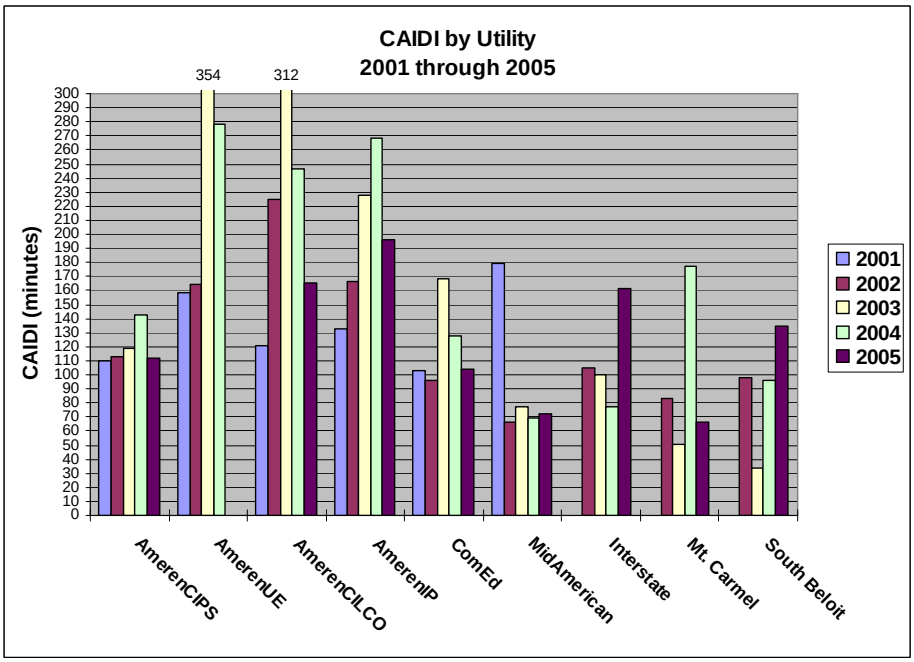


Figure 5 shows a comparison of CAIDI values reported for the years 2001, 2002, 2003, 2004 and 2005 by the jurisdictional utilities. In 2005 ComEd improved to third compared to the other jurisdictional utilities.

Figure 6: Worst-Circuit CAIDI by Utility

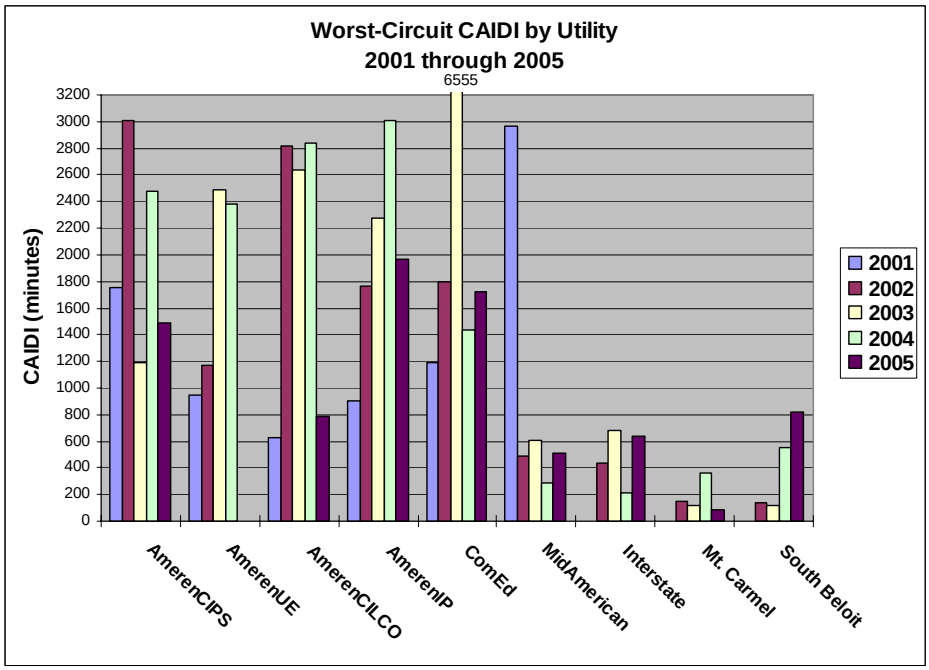
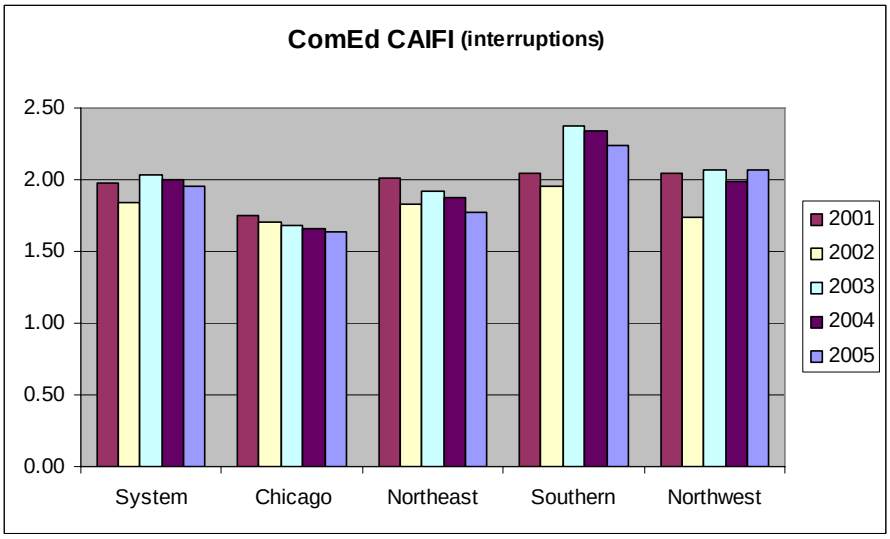


Figure 6 above shows a comparison of CAIDI values for the worst circuit for each of the jurisdictional utilities. Figure 6 shows that in 2005 ComEd's worst-circuit CAIDI performance is worse than it's performance in 2004 and now only ranks better than AmerenIP's worst-circuit CAIDI.

Figure 7: ComEd CAIFI



In Figure 7, only the Chicago region has shown consistent year-by-year progress over the time period. The other regions showed improved (decreasing interruption) levels of CAIFI from 2003 through 2005 except for the Northwest region which showed worsening (increasing interruptions) from 2004 to 2005.

Figure 8: CAIFI by Utility

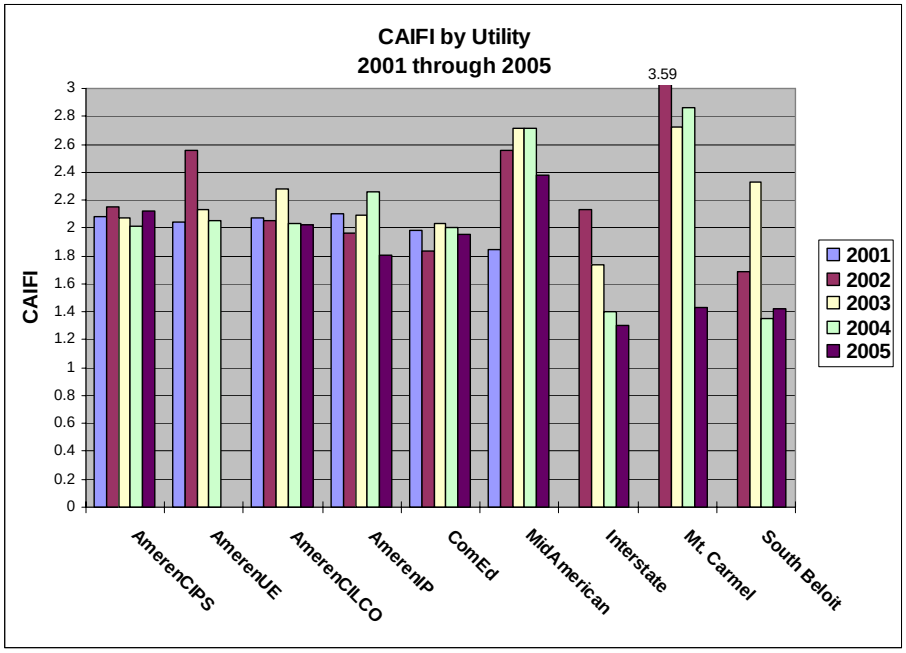


Figure 8 above shows a comparison of CAIFI values reported for the years 2001 through 2005 by the jurisdictional utilities. In 2005, ComEd had the fifth best (out of eight) ranking for CAIFI amongst the other jurisdictional utilities – a drop from third best in 2004.

Figure 9: Worst-Circuit CAIFI by Utility

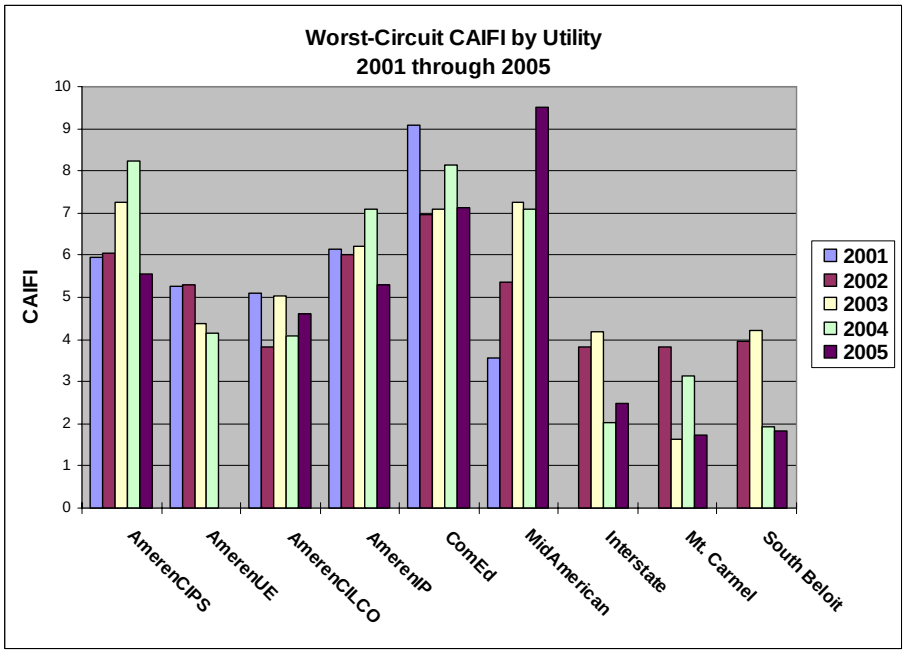


Figure 9 shows a comparison of CAIFI values for the worst circuit for each of the jurisdictional utilities. In 2005, of the eight jurisdictional utilities, only MidAmerican performed worse than ComEd in this category of worst-circuit CAIFI.

Figure 10: ComEd SAIFI

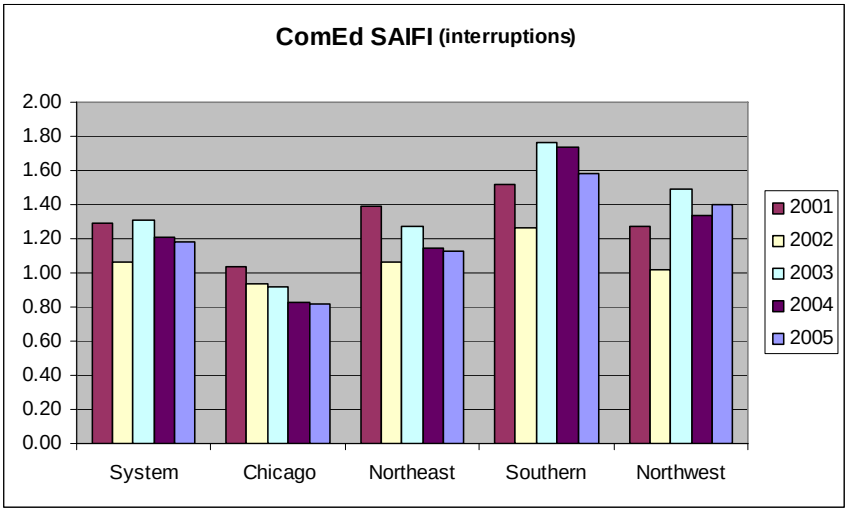


Figure 10 above shows that only the Chicago Region has demonstrated a consistent year-to-year improvement (lower number of interruptions) in SAIFI over the time period. The other regions do show improvement from 2003 to 2005 but their level of interruptions in 2005 is still not as good (low) as they were in 2002.

Figure 11: SAIFI by Utility

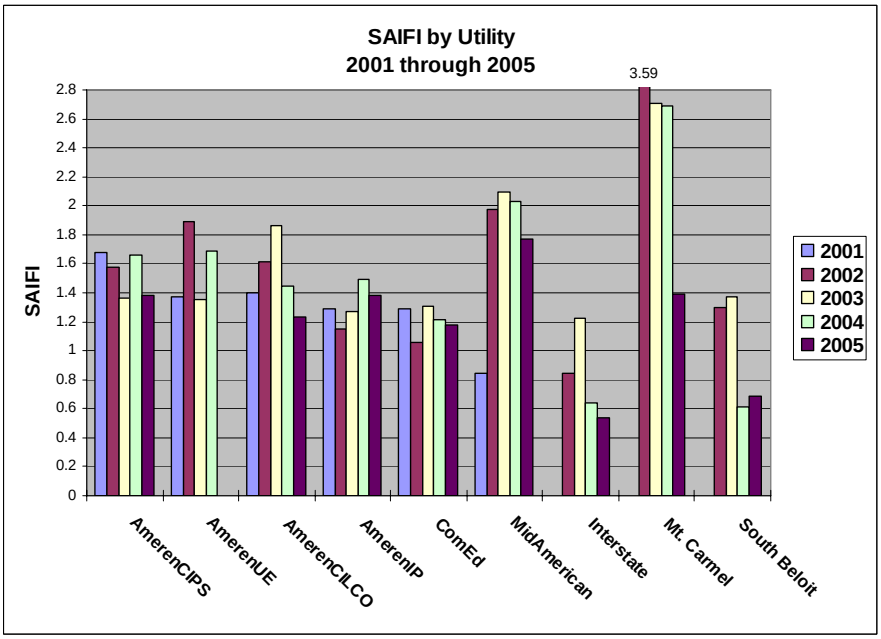


Figure 11 above shows a comparison of SAIFI values reported for the years 2001 through 2005 by the jurisdictional utilities. In 2005 ComEd ranked again third best (third lowest number of interruptions) out of eight amongst the jurisdictional utilities.

Figure 12: Worst-Circuit SAIFI by Utility

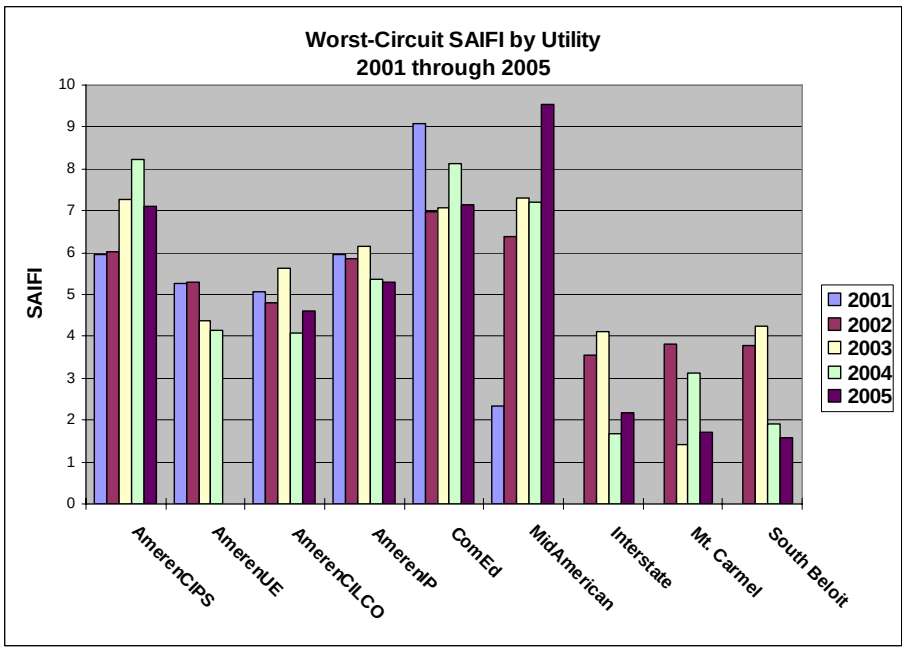
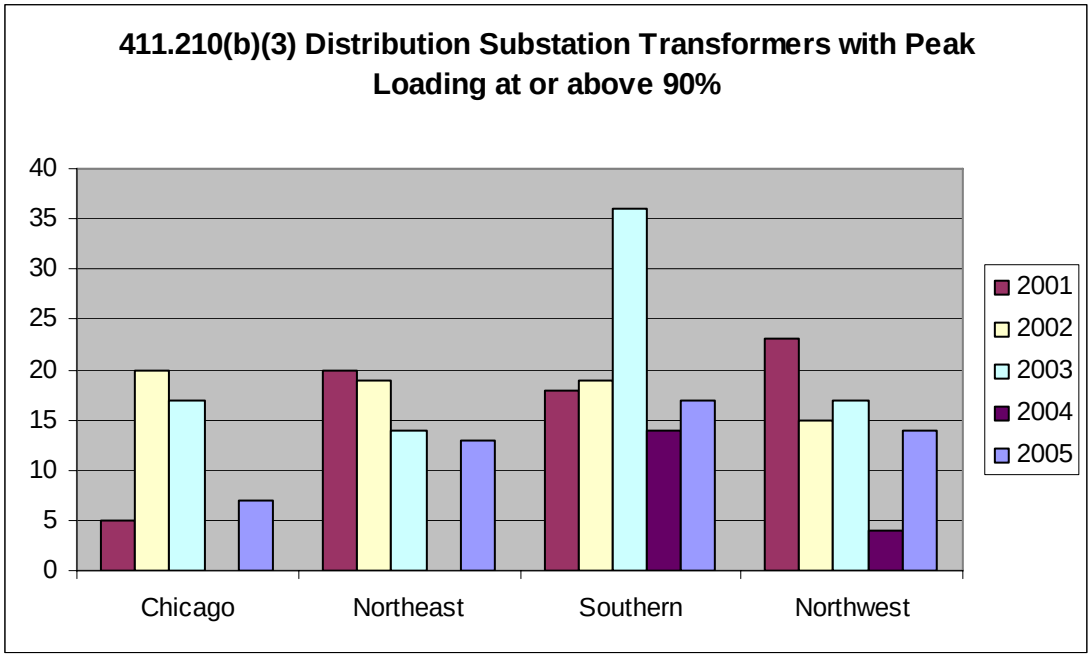


Figure 12 shows a comparison of SAIFI values for the worst circuit for each jurisdictional utility. ComEd's worst-circuit SAIFI ranking was seventh (out of eight) place of the jurisdictional utilities for 2005 with only MidAmerican performing worse in this category.

Part 411.210(b)(3) states that each utility having 1,000,000 or more customers is to provide a list of substation transformers that had a peak loading that equaled or exceeded 90% of their rated normal capacity.

Figure 13: Distribution Substation Transformers Loading



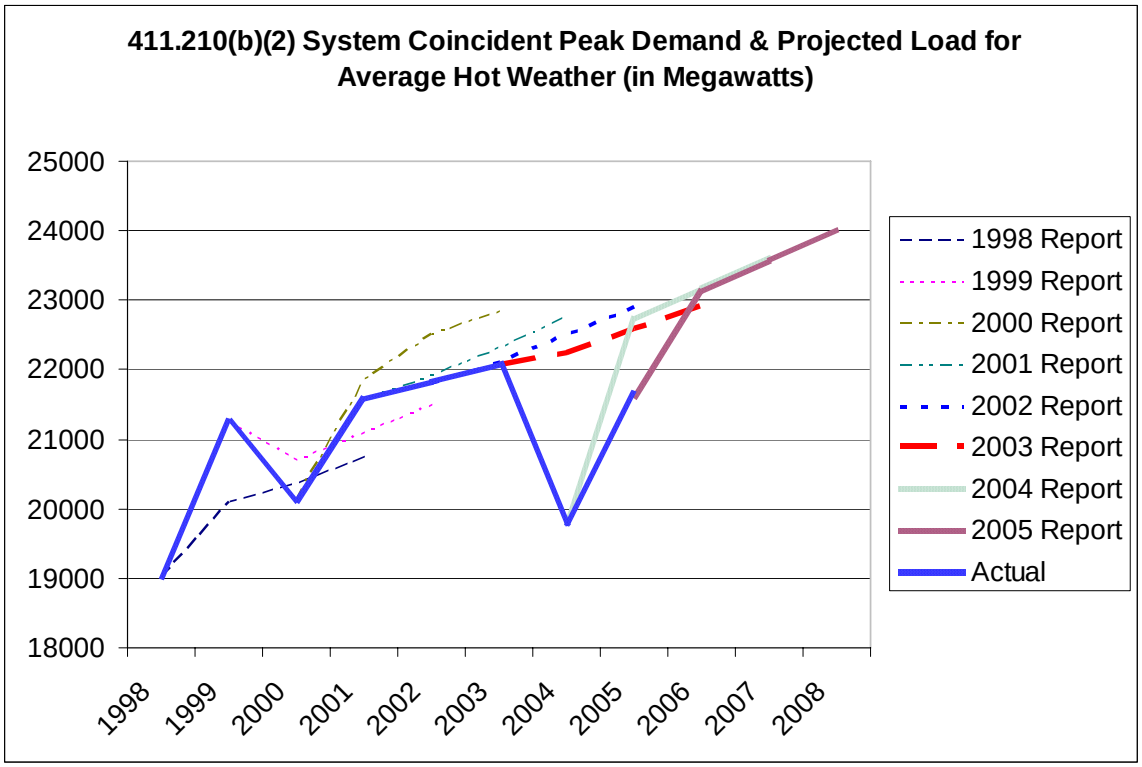
In Figure 13 Staff notes an increase from 18 in 2004 to 51 transformers in 2005[20] that exceeded the criterion in Part 411.210(b)(3). Much of 2004's performance may be attributed to a peak load that was significantly lower than expected (see Figure 14) – the 2004 peak load was roughly 7% below the 1999 peak.

As Figure 14 shows the system peak for 2005 was slightly above the 2001 peak (by 1.8%) and lower than the peaks for 2002 and 2003. On that basis Staff is encouraged that the totals for 2005 in Figure 13 are lower than those for 2001 in the Northeast, Southern, and Northwest regions. Staff will continue to follow these trends in the Chicago and other regions in the future.

Staff is concerned that high transformer loadings can impact reliability in two ways: (1) when a substation transformer is loaded over its normal capacity rating for a length of time, the likelihood that the transformer may fail increases[21] due to the cumulative thermal deterioration from overloading; and (2) when a transformer is highly loaded, this removes system reconfiguration flexibility when other failures occur in the system or when greater than expected load growth occurs.

[20] A 183% increase.
[21] The dielectric strength of the insulating paper will deteriorate due to heating making the transformer more susceptible to failure on a cumulative basis.

Figure 14: Peak Demand and Projected

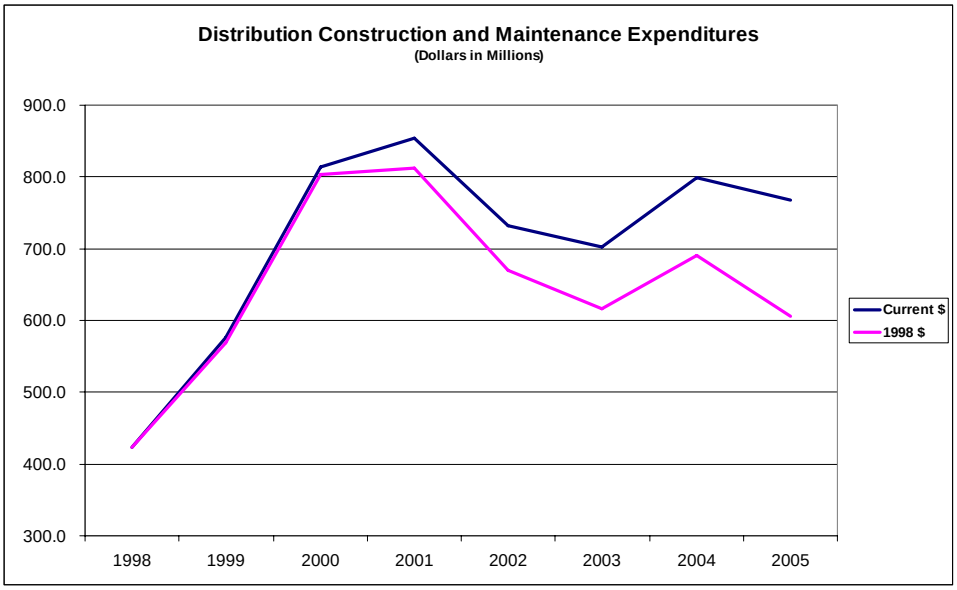


9. ComEd's Plan to Maintain or Improve Reliability

To understand the trend in real dollars for expenditures Staff turned to the information from Part 411.120(b)(3)(G)(iii & iv). Figures 15 and 16 displays "Construction and Maintenance Expenditures" in current and constant dollars for Distribution and Transmission respectively.

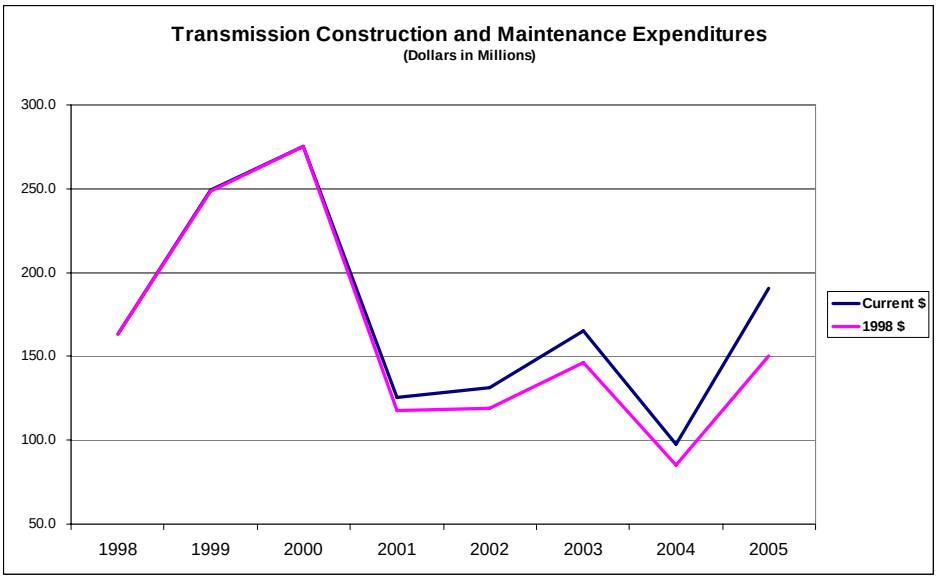
From 1998 to 2005 distribution construction and maintenance expenditures show a positive real growth rate (an annual compound rate of 5.2% based on constant 1998 dollars from 1998 to the 2005 level). The overall increase from the low 1998 levels is apparent in Figure 15 with the heavy ramp up of activity visible in 1999 through 2001 followed by a decline to the present level of expenditure in constant 1998 dollars. From the spending peak in 2001, distribution construction and maintenance expenditures trend down at an annual compound rate of -7.1% in constant 1998 dollars. Significant improvements in efficiency would appear necessary to maintain reliability levels if this trend continues.

Figure 15: Dist Construction & Maintenance Expenditures



On the other hand, transmission construction and maintenance expenditures (see Figure 16) show a negative overall growth rate (-1.2% compound growth rate from 1998 to 2005) from 1998 to 2005 in constant 1998 dollars. From the peak spending levels in 2000, transmission construction and maintenance expenditures have declined at an average compound rate of -11.4% in constant 1998 dollars. Figure 16 does show that there was a sizable buildup of expenditures in 1999 and 2000 before trailing off to below 1998 levels in constant 1998 dollars.

Figure 16: Trans Construction and Maintenance Expenditures



Staff believes the overall decline shown in Figure 16 and the declining trend in Figure 15 since 2001 should be viewed as flags during further review.

Part 411.120(b)(3)(A) states that the utility is to include a future investment plan within its report. Pages A-1 through A-6, including Table 1 on pages A-3 through A-6, of the 2005 Reliability Report detail ComEd's plans for future investment. A summary of the current plan is shown in Table 10 along with total variances from previous plan years.

Table 10 Future Investment Plan ($'s in Millions)

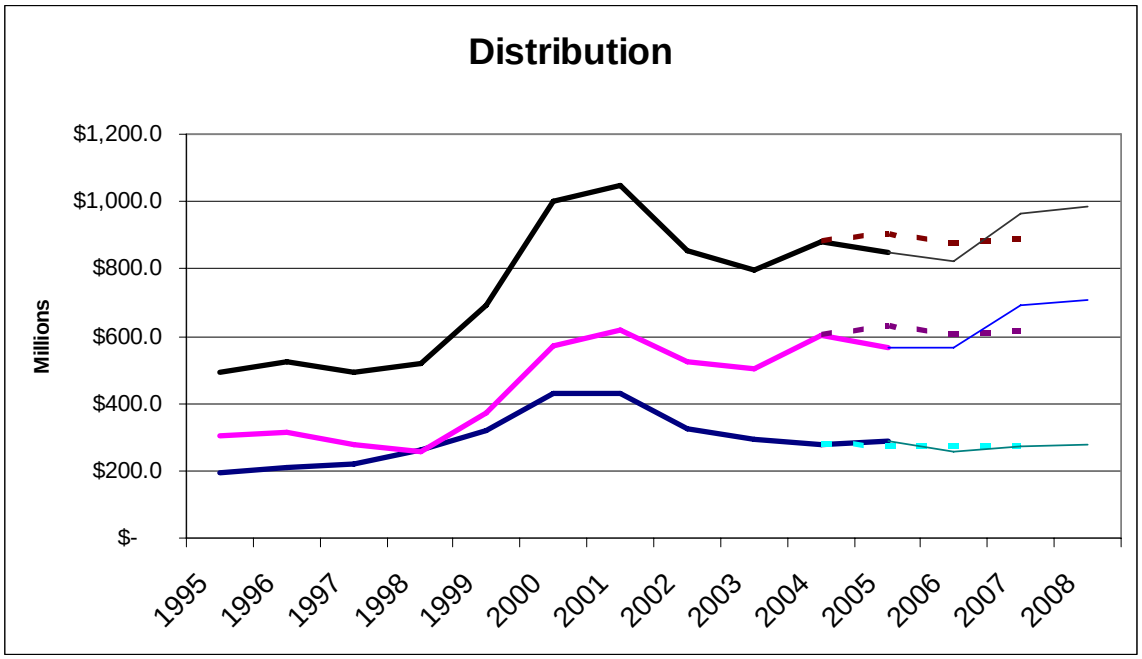
	Plan 2006	Plan 2007	Plan 2008
Transmission System Improvements [see page A-3 of Report]	164	181	66
Distribution Capacity [see page A-4 of Report]	113	114	115
Substation [see page A-4 of Report]	68	61	52
4kv, 12kv, & 34kv Ckt. Improvements [see page A-5 of Report]	38	79	109
Inspection and Maintenance [see page A-6 of Report]	111	139	123
	494	**574**	**465**
Variance from plan in 2004 Report	142	228	
Variance from plan in 2003 Report	222		

A detailed analysis of actual and projected spending patterns from 1995 through 2008 is illustrated in Figures 17, 18 and 19[22]. All three Figures show the spikes in spending in the 1999 through 2001 period to address the deficiencies of the power delivery infrastructure manifested in 1998 and 1999. In Figure 17 spending, in nominal dollars, for distribution O&M and capital is trending upward and that projected spending for 2008 represents a value that would equal a compounded annual rate of 2.9% and 6.8% respectively from 1995[23]. 1995 is used for comparison because the spending patterns in the mid 1990's were a precursor to the reliability problems of 1999. Similarities between patterns in the mid 1990's and current or future patterns should be a flag for further analysis and not taken as proof that there is indeed a problem. Figure 17 also shows how the plan in the 2004 Report (dotted line) compares to the plan in the 2005 Report (thin solid line). ComEd reported that the increase in Distribution Capital over the planning period 2006-2008 is partly due to their plans to proactively replace cable and the connection of new Data Centers.

[22] In order to compare projected numbers in Figures 17, 18, and 19 to reported actual numbers in those figures it was necessary include in capital projections estimates for overheads, benefits and all work categories. It would be inappropriate to compare these numbers to those in Sections A or B of the report.

[23] For the period 1998 through 2008 the compound growth rates are 0.5% for Distribution O&M and 10.7% for Distribution Capital in Figure 17.

Figure 17: Distribution O&M and Capital Expenditures and Forecasts



Legend ($'s in Millions):

Distribution O&M: Actual = Bottom heavy blue line; 2004 Plan = Bottom dotted line; 2005 Plan = Bottom thin line

Distribution Capitol Actual = Middle heavy pink line; 2004 Plan = Middle dotted line; 2005 Plan[24] = Middle thin line

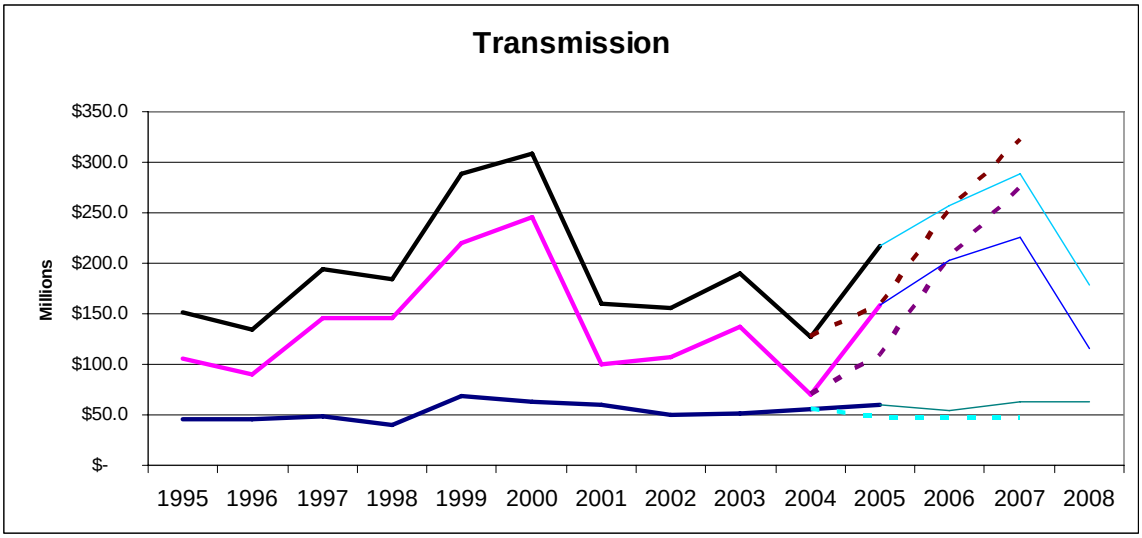
Total Distribution O&M plus Capital Actual = Top heavy black line; 2004 Plan = Top dotted line; 2005 Plan = Top thin line

The trend in Figure 18 shows a compound growth rate of 2.5% from 1995 through 2008 for transmission O&M and a 0.7% compound rate for transmission capital during the same period[25]. ComEd reported that the increase in Transmission Capital expenditures in 2006-2007 time-frame is primarily due to the construction of a transmission line and transmission substation in Chicago with expenditures expected to trail off in 2008 as the projects are completed that summer.

[24] The capital expenditures in the 2005 Plan (2006 through 2008) include actual expenditures for 2006.

[25] For the period 1998 through 2008 the compound growth rates are 4.8% for Transmission O&M and -2.3% for Transmission Capital in Figure 18.

Figure 18: Transmission O&M and Capital Expenditures and Forecasts



Legend ($'s in Millions):

Transmission O&M: Actual = Bottom heavy blue line; 2004 Plan = Bottom dotted line; 2005 Plan = Bottom thin line

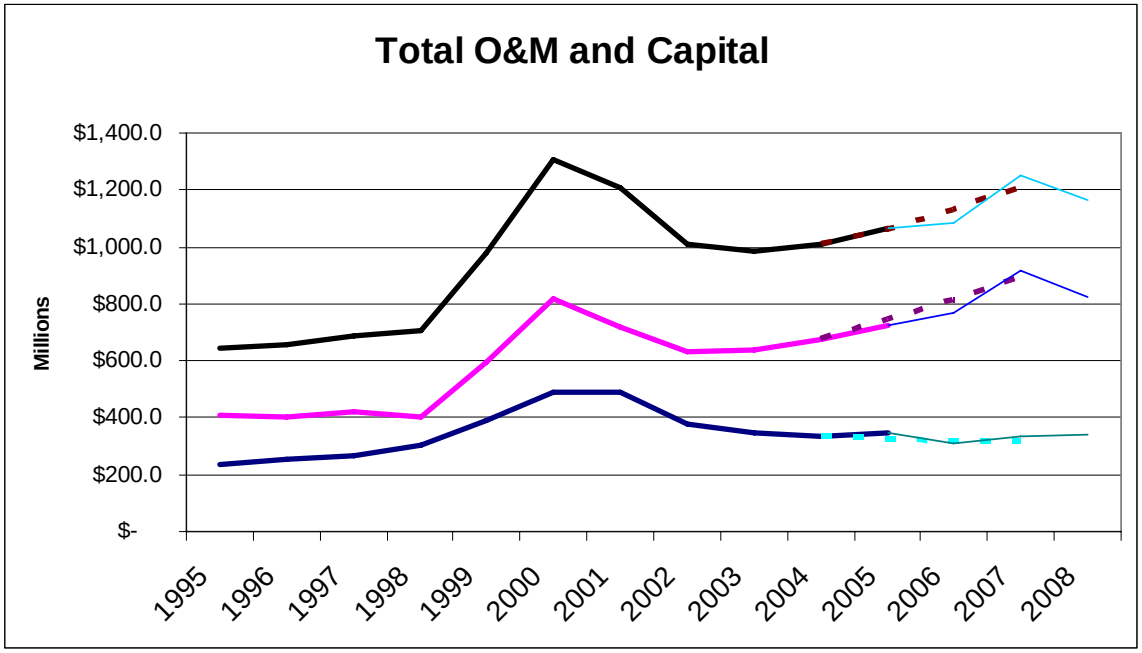
Transmission Capitol Actual = Middle heavy pink line; 2004 Plan = Middle dotted line; 2005 Plan[26] = Middle thin line

Total Transmission O&M plus Capital Actual = Top heavy black line; 2004 Plan = Top dotted line; 2005 Plan = Top thin line

Figure 19 is a combination of actual and projected nominal expenditures for transmission and distribution. Figure 19 shows a compound growth rate of 2.8% from 1995 to 2008 for total O&M and a 5.6% compound rate for total capital during the same period.

[26] The capital expenditures in the 2005 Plan (2006 through 2008) include actual expenditures for 2006.

Figure 19: Total (Distribution plus Transmission) O&M and Capital Expenditures and Forecasts



Legend ($'s in Millions):

Total O&M:	Actual = Bottom heavy blue line; 2004 Plan = Bottom dotted line; 2005 Plan = Bottom thin line
Total Capitol	Actual = Middle heavy pink line; 2004 Plan = Middle dotted line; 2005 Plan[27] = Middle thin line
Total O&M plus Capital	Actual = Top heavy black line; 2004 Plan = Top dotted line; 2005 Plan = Top thin line

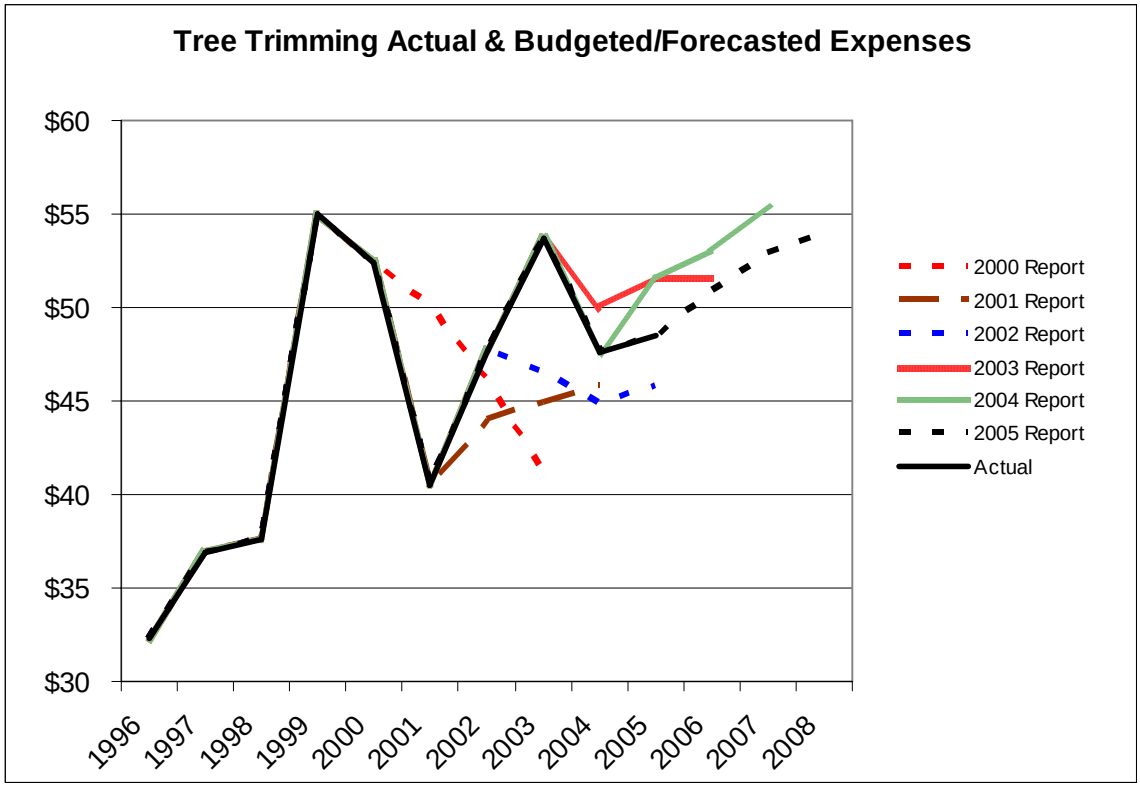
Trends in spending levels alone do not tell the Commission how well ComEd is addressing reliability issues unless the Commission has some indication of how efficiently those spending patterns are being applied. For example, if all else was equal then spending patterns similar to those in the mid 1990's would be a cause for alarm because the spending patterns of the mid 1990's were a precursor to the reliability problems of 1999.

On page A-1 of the reliability report, ComEd states that it "is constantly striving for ways to improve operating efficiencies and internal processes." Indicators of efficiency coupled with reviews of spending patterns, spending levels and inspections by Staff of actual conditions in the field with their assessment if the work is getting done that should be done is the most effective way to determine the status of plans to improve reliability. Staff recommends that in the future Staff continue regular inspections of conditions in the field coupled with monitoring emerging spending patterns as well as indicators of efficiency improvements.

[27] The capital expenditures in the 2005 Plan (2006 through 2008) include actual expenditures for 2006.

Figure 20 illustrates the actual tree trimming expenses from 1996 through 2005 as well as the three-year forecasts associated with the current and previous report analyses. The quality as well as quantity of vegetation management can significantly impact the number of customer experienced interruptions. The overall trend of Figure 20 upward but the year to year variations in expenditures shows inconsistency. Staff plans to closely follow this issue in the future.

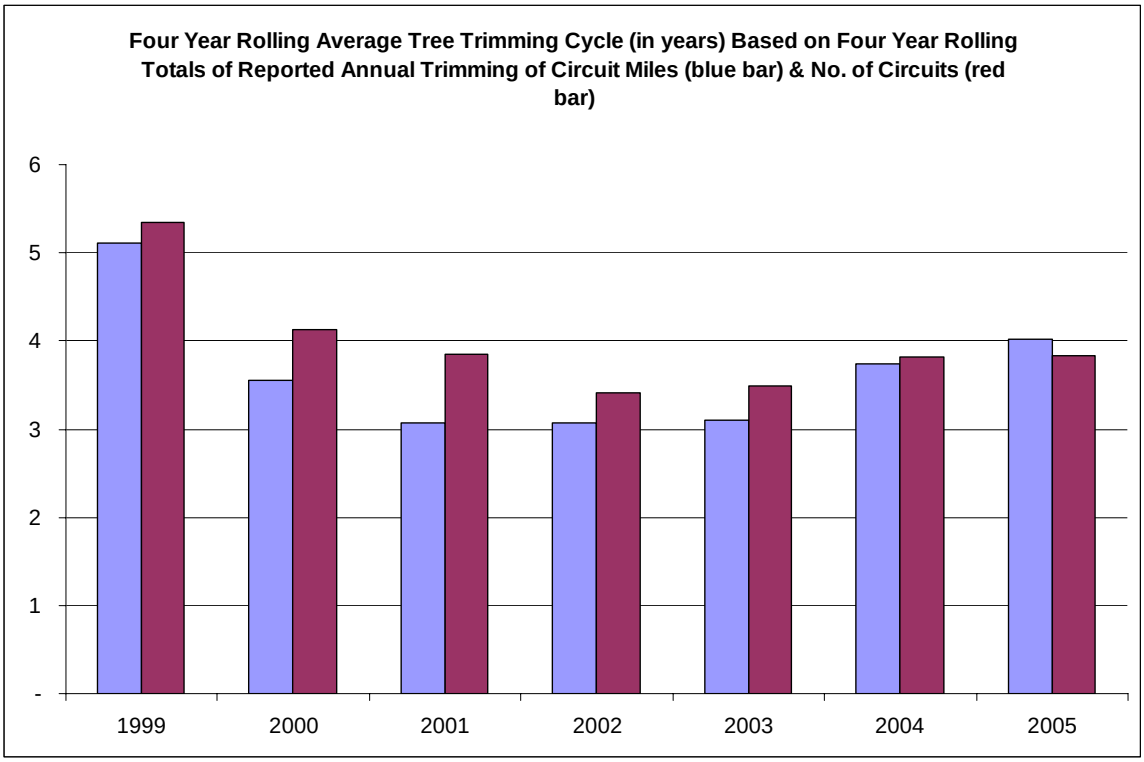
Figure 20: Tree Trimming Actual and Budgeted Expenses



Since May 18, 2000, ComEd has claimed to be on a four year tree trimming cycle. In reviewing the data illustrated in Figure 21 of the rolling average tree trimming cycle based on the most recent four year rolling totals of reported circuit miles trimmed that , assuming there are no quality[28] issues, ComEd has indeed been on a four year cycle since the year 2000. Figure 21 also indicates that based on most recent four year rolling totals of reported circuits trimmed that ComEd has been on a four year cycle since the year 2001.

[28] See section 7 and the appendices of this report for discussions and illustrations of quality issues.

Figure 21: Rolling Average Tree Trimming Cycle Based on Most Recent Four Year Totals



Staff's field observations, discussed in section 7 and appendix A of this report, noted significant improvement in ComEd's tree trimming program in recent years from what it once was, but that ComEd is still not in compliance with the requirements of NESC Rule 218 throughout its service territory. It is apparent that ComEd is not making sufficient effort to assure adequate tree trimming is being done and properly maintained to assure that there are no tree contacts with its energized primary conductors before it returns to trim them again in all of the communities in its service territory.

ComEd still has work to do to achieve *and maintain* a four-year (minimum) tree trimming cycle that is in compliance with NESC Rule 218 throughout its service territory. ComEd should investigate the problem areas mentioned in section 7 and the appendices and determine the cause(s) for the apparent inconsistency of tree trimming in these areas with its otherwise good tree trimming program in the remaining portions of the communities inspected. ComEd should also take steps to correct these problem areas and to prevent recurrence of the problem.

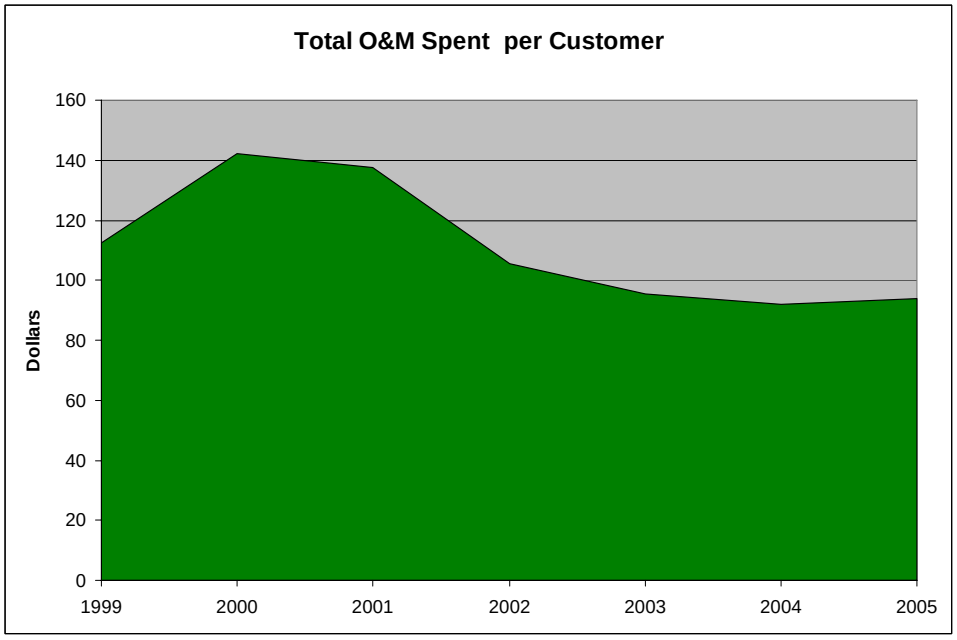
10. Potential Reliability Problems and Risks

Adequate preventive and corrective maintenance programs, which include a well planned vegetation management program, are the most important factors to

influence long-term customer reliability. Unfortunately, maintenance programs are one area where a company can cut spending quickly and have an immediate impact on short-term income statement performance with minimal impact on short-term reliability performance[29]. In Figure 15 ComEd's distribution construction and maintenance expenditures, in constant 1998 dollars, have declined steadily since 2001, with the exception of the year 2004. ComEd's forecasts for distribution operation and maintenance expenses are relatively flat in current dollars (see Figure 17). In constant 1998 dollars, ComEd's 2005 transmission construction maintenance expenditures (see Figure 16) are below 1998 levels. ComEd's forecasts for transmission operations and maintenance expenses are relatively flat in current dollars (see Figure 18). Staff will continue to closely follow trends in this area for impacts on reliability while also encouraging ComEd's efforts to improve efficiencies and economies of maintenance and operations.

Table 4 shows for the year 2005 that 34%[30] of ComEd's interruptions were weather, tree or animal related. Staff believes that a large number of these interruptions could be eliminated or moderated by effective tree and vegetation management programs in addition to effective animal protection programs. Staff believes ComEd should be commended for progress in this regard as it demonstrates the importance of continued future focus on these programs.

Figure 22: Total O&M Spent by ComEd per Customer



[29] Staff would expect a delay of up to several years between when maintenance expenditures are cut and when material impacts will be apparent in reliability performance. An analogy would be the depressed spending levels for distribution in 1995-1998 and the service reliability problems of 1999.
[30] Which is down from 46% in 2004 and 51% in 2003.

Figure 22 shows that total O&M dollars spent per ComEd customer has leveled off since 2003 in the low to mid 90's from a high of over $140 in 2000.. Staff will continue to follow this closely.

Figure 23: Company and Contract Employees – End of Year Totals

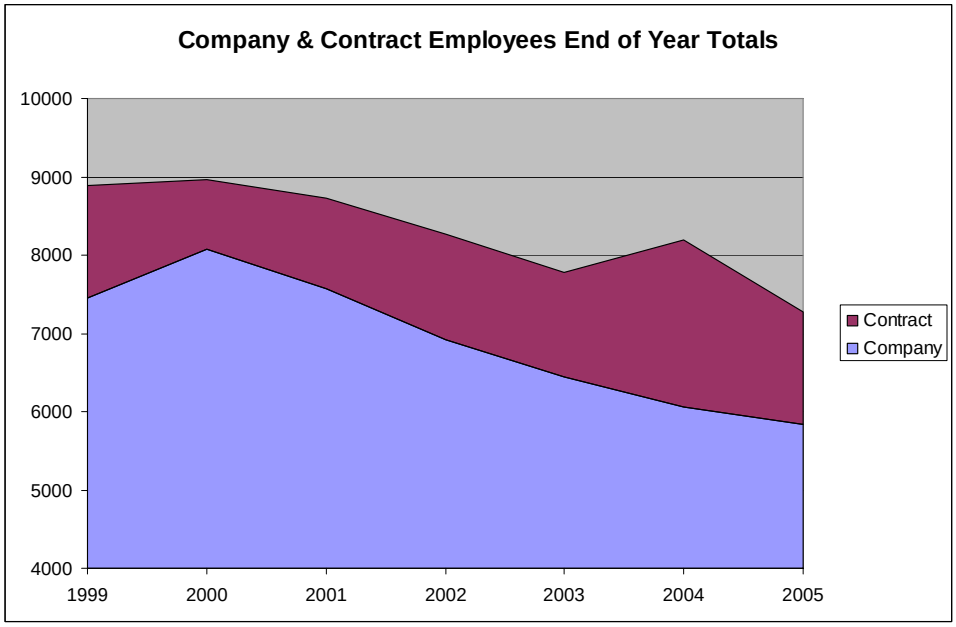


Figure 23 shows that the number of company employees in 1999 was greater than the combined number of company and contract employees in 2005. From 1999 through 2005 the number of company employees has declined 22% while contract employee numbers are down 1%. The impact this may have on reliability has yet to be determined but Staff will continue to follow developments in this area.

The poor performance of ComEd's worst-circuit in relation to the worst-circuit of other jurisdictional utilities for 2005 in Figures 6, 9, and 12 remains a matter of concern for Staff. Of the eight jurisdictional utilities in Illinois only MidAmerican ranked worse than ComEd in CAIFI & SAIFI in this category while only AmerenIP ranked worse than ComEd in CAIDI in this category. Figures 6, 9, and 12 clearly show that potential exists for continued reliability improvement while demonstrating the existence of significant risk for future reliability problems. Staff will continue to closely follow developments in this area.

Table 11 indicates the term lengths that a number of people have held starting with Paul McCoy on October 22, 1997 up through the current executive, John Costello, responsible for energy delivery reliability. Staff is concerned that the lack of management continuity in this and other positions could have a detrimental impact on reliability and efficiency. Staff notes that after mid-March 2007 Mr. Costello's term will exceed that of Mr. McCoy's of 1.8 years in that

position and then become the longest serving person in that position since October 1997. Staff will closely follow developments in this area.

Table 11 Management Term Lengths

	Name	Approx Yrs in Position
1	Paul McCoy	1.8
2	David Helwig	0.1 (Interim)
3	Carl Croskey	1.3
4	David Helwig	1.4
5	Gregory N. Dudkin	1.3
6	Carl Segneri	0.1 (Interim)
7	Preston Swafford	1.7
8	John Costello	1.7+ as of 1/31/07

During field inspections six NESC 261.D.4.c[31] violations were discovered and ComEd was made aware of those violations. Table 12 indicates the amount of time from when ComEd was aware of the violations to when they were corrected. Staff noted that the time for correction ranged from 63 days to as high as 142 days.

Table 12 Time to Correct NESC 261.D.4.c Violations Discovered During Field Inspections

Description	Date ComEd Aware	Date ComEd Notified ICC Violation Corrected	Days to Correct Violation
Grayslake RR crossing at Rt. 120 just west of Rt. 83 during Staff Tree Inspections 5/10/2006	5/10/2006	9/25/2006	138
Crystal Lake RR crossing at Terra Cotta Ave. east of Park Blvd. During Staff Tree Inspections 5/10/2006	5/10/2006	9/29/2006	142
Crystal Lake RR crossing at Terra Cotta Rd. & Juniper Dr. During Staff Tree Inspections 5/10/2006	5/10/2006	9/15/2006	128
Huntley RR crossing at IL Rt. 47 & Rd. SS-75 during Staff Tree Inspections 5/10/2006	7/18/2006	11/7/2006	112
Bolingbrook limited access highway crossing of I-55 at Upton Road northeast of Exit 267 during Staff Tree Inspections 5/10/2006	7/18/2006	11/29/2006	134
Rockford RR crossing on Business US-20 during Staff Random Circuit Inspections 9/27/2006	9/27/2006	11/29/2006	63

Staff recognizes that these are not the only type of NESC violations on the ComEd circuits it inspected this year. Some of the deteriorated structures, for example, may not meet the strength requirements of NESC Table 253-2, footnote 3. As another example, many of the missing guy markers Staff notes are violations of NESC Rule 264.E and may have a detrimental effect on reliability as well as public safety. ComEd should resolve all of these NESC

[31] See Appendix A and Appendix B.

violations within a reasonable time. It should also assure that watching for and noting NESC violations of these and other types are included in its circuit inspection program and that all violations found are resolved in a timely manner.

ComEd's Southern Region consistently provides less reliable service to customers due to higher average number of service interruptions (CAIFI & SAIFI for 2001 through 2005) and longer average durations of interruptions (CAIDI for 2004 & 2005) than ComEd's other service regions. The reason for this reduced reliability is not obvious, and ComEd should provide some explanation and, where appropriate, plans to correct any Southern Region deficiencies in future Reliability Report's.

Since May 18, 2000, ComEd has claimed to be on a four-year tree trimming cycle. Staff's field observations, recorded in the appendices and discussed in Section 7 of this report, noted significant improvement in ComEd's tree trimming program in recent years from what it once was, but that ComEd is still not in compliance with the requirements of NESC Rule 218 throughout its service territory. It is apparent that ComEd is not making sufficient effort to assure adequate tree trimming is being done and properly maintained to assure that there are no tree contacts with its energized primary conductors before it returns to trim them again in all of the communities in its service territory.

ComEd still has work to do to achieve *and maintain* a four-year (minimum) tree trimming cycle that is in compliance with NESC Rule 218 throughout its service territory. ComEd should investigate the problem areas mentioned in section 7 and the appendices and determine the cause(s) for the apparent inconsistency of tree trimming in these areas with its otherwise good tree trimming program in the remaining portions of the communities inspected. ComEd should also take steps to correct these problem areas and to prevent recurrence of the problem.

As ComEd continues to make progress in re-establishing appropriate trim zones around conductors Staff believes ComEd should begin placing more emphasis on problem trees in order to moderate future costs of vegetation management while improving reliability.[32]

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

A report on the significant deviations from ComEd's 2004 plan for 2005 from 2005 actuals was included in ComEd's 2005 reliability report in pages B-1 through B-5. Table 13 summarizes the data from ComEd's plan and shows that there are some significant variances.

[32] See "Conclusions from Field Inspections" in this report.

Table 13 Comparison of 2004 plan for 2005 to 2005 actuals (in $ Million's)

	2004 Plan for 2005	Actual 2005	Var	% Var
Transmission System Improvements [see page B-2 of ComEd Reliability Report]	113	106	-7	-6.2%
Distribution Capacity [see page B-3 of ComEd Reliability Report]	53	60	7	13.2%
Substation [see page B-3 of ComEd Reliability Report]	56	39	-17	-30.4%
4kv, 12kv, & 34kv Circuit Improvements [see page B-4 of ComEd Reliability Report]	29	43	14	48.3%
Inspection and Maintenance [see page B-5 of ComEd Reliability Report]	77	110	33	42.9%
	328	**358**	**30**	**9.1%**

Figure 24 summarizes a comparison of actual versus plan for future investment from the Reliability Reports from 2001 up to the present day. Figures 25 and 26 show details for the same period for the plan categories that had variances over 40% in Table 13, i.e. Circuit Improvements and Inspection & Maintenance.

Figure 24: Comparison of Actual vs Plan for Future Investment

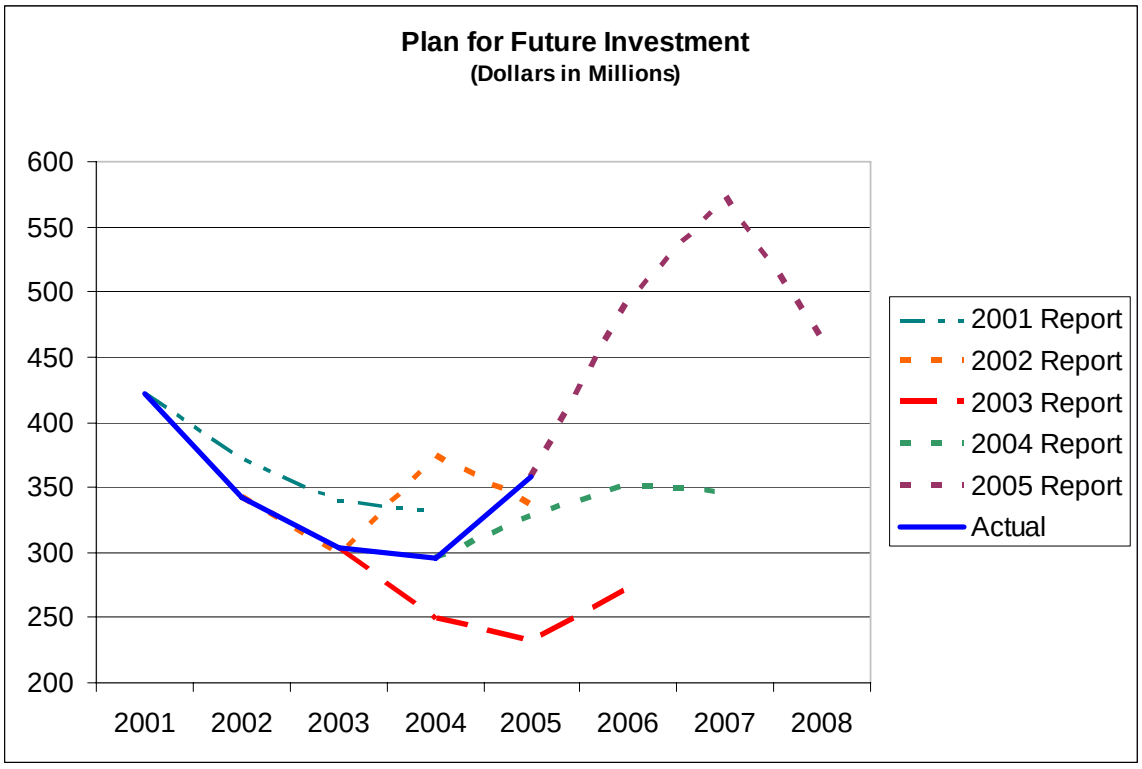


Figure 25: Comparison of Actual vs Plan for Future Investment – 4kv, 12kv, & 34kv Circuit Improvements

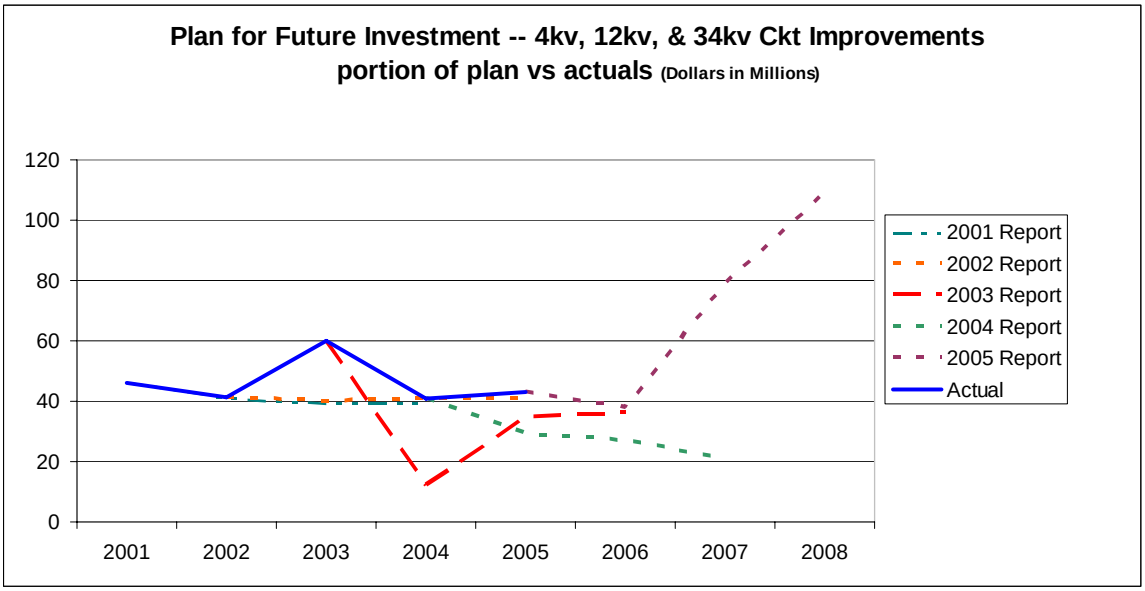
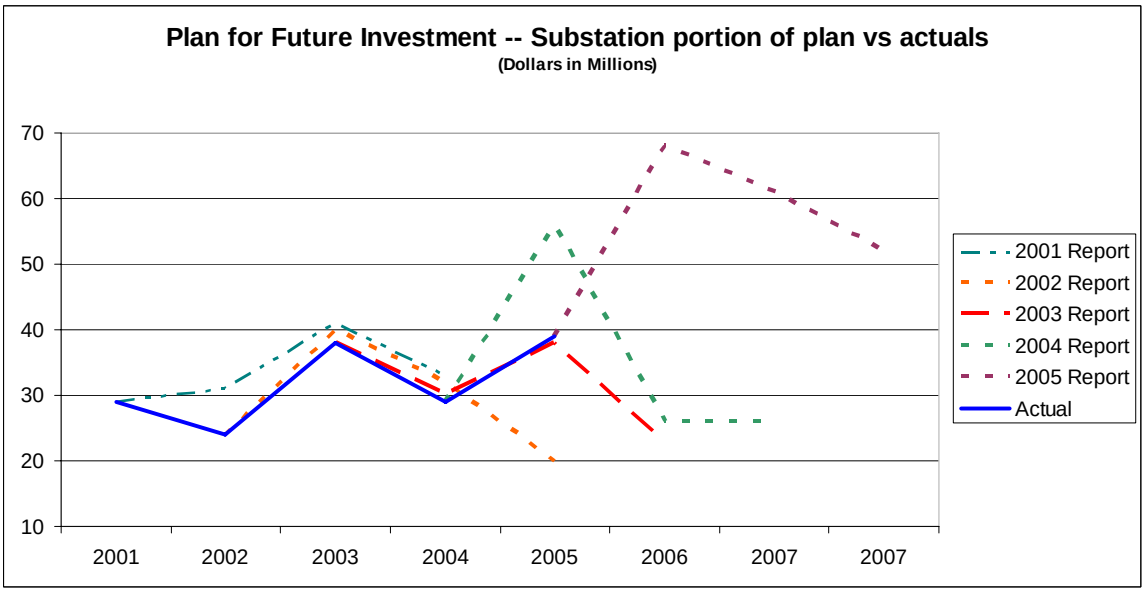


Figure 26: Comparison of Actual vs Plan for Future Investment – Inspection and Maintenance



On page B-5 regarding Inspections & Maintenance ComEd noted that: "In 2005 there was a greater than anticipated amount of work performed in the area of cable fault repair and replacements." Nothing on page B-5 describes if this in the only or major reason for the 42.9% variance in Inspections & Maintenance while there is no explanation on page B-4 why there is a 48.3% variance in expenditures on Circuit Improvements except for a general statement near the top of the page that "(t)his category reflects greater emphasis on circuit improvements as well as the tap fusing initiative". Staff recommends that in future Reliability Reports ComEd

provide more detail identifying significant deviations from the plan and reasons for the deviations when addressing the requirements of Section 411.120(b)(3)(B).

12. Summary of Recommendations

Staff recommends the following actions:

- If the trend of an annually increasing number of customers exceeding the targets totals in Table 2 continues, Staff recommends that ComEd explain why this is occurring in future reliability reports.
- ComEd should continue its focus on improving customer service.
- ComEd should continue its efforts in implementing the tree replacement program associated with “the right tree in the right place” near its power lines.
- ComEd should provide more detail identifying significant deviations from the plan and reasons for the deviations when addressing the requirements of Section 411.120(b)(3)(B).
- ComEd should provide some explanation and, where appropriate, plans to correct any Southern Region reliability deficiencies in relation to it’s other Regions in future Reliability Report’s.
- ComEd should investigate the problem areas discussed in Appendix A to determine why those areas are not in compliance with NESC Rule 218 and to determine the causes(s) of inconsistency of tree trimming in these areas with the remaining portions of the communities inspected.
- ComEd should resolve the tree clearance problems identified in this report as soon as possible.
- ComEd should assure that it meets and continues to meet the requirements of NESC Rule 218 throughout its service territory by assuring that all trees near its overhead electric lines are trimmed such that there are no tree contacts with its energized primary conductors before it returns to trim them again.
- ComEd should determine where else in it’s service territory it is in violation of NESC Rule 261.D.4.c and make provisions to correct them as soon as possible.
- ComEd should resolve other NESC violations within a reasonable time.

MEMORANDUM

TO: Roy Buxton, Engineering Department Manager

FROM: Jim Spencer, Senior Electrical Engineer

DATE: July 25, 2006

RE: Tree Conditions in ComEd's Service Territory

1. Introduction

During May 2006, I performed random inspections of tree conditions near ComEd overhead electric lines in eleven cities served by ComEd. I was accompanied by ComEd's Merle Turner and Mary Vincent on May 9 & 10, and by John Albers on May 24 & 25, 2006. The communities inspected on each date were as listed below:

Date	Location(s)
5/9/06	Skokie, Glenview, Schaumburg
5/10/06	Libertyville, Grayslake, McHenry, Crystal Lake
5/24/06	Mendota
5/25/06	Bolingbrook, Orland Park, Morris

I performed the inspections by driving around the areas chosen and looking at trees near ComEd overhead electric lines without regard to circuit identification and without the use of circuit maps. This memorandum documents the results of the field inspections and my assessment of the state of tree trimming on those dates in the eleven communities inspected. Example photographs of some of the more severe tree conflicts noted are included in Attachment "A" to this memorandum.

I chose the above cities for inspection because I had not looked at tree trimming conditions in any of them before and they provide a fairly wide geographic diversity within the area of Illinois served by ComEd. While the area covered by these inspections represents only a small portion of ComEd's service territory, I believe it is reasonable to expect that the tree trimming conditions observed in the variety of communities chosen for these inspections are representative of what is likely to be found in many of the other communities served by ComEd.

2. Findings

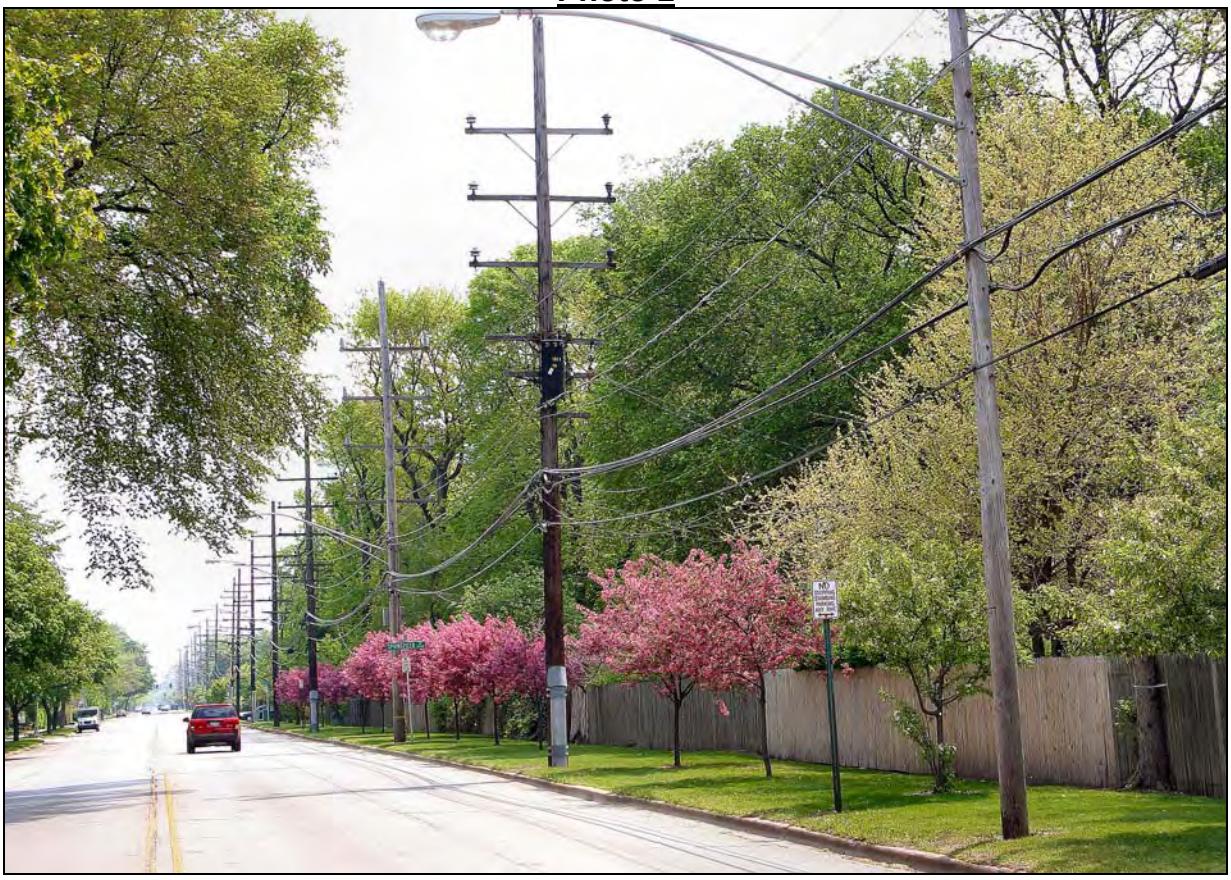
Tree trimming in Skokie was very well done, with only a few exceptions noted. The few problems I did observe were confined to the east side of town. My notes of the tree inspection in Skokie are summarized in Table 1 below. Figure 1 in Attachment "A" is a photograph of one of the problems noted on Ridgway Avenue.

Table 1

Summary of Tree Conditions Field Inspections by ICC Staff			
Town	***Item Description***	***Photo(s)***	***Location***
Skokie (5/9/06)			
	Silver maple tree into 3-phase primary	109-0955, 956	Ridgway Ave. just north of Oakton St. (3724 Oakton)
	Siberian elms into primary (scheduled to be cut 6/6/06)	959	In alley west of Springfield Ave., just south of Crain St.
	Siberian elms & Norway maples very close to primary		In alley east of Springfield Ave., just south of Crain St.

ComEd promotes planting “the right tree in the right place” near its power lines, and has reached a cooperative agreement with some of the communities it serves to share the cost of replacing troublesome tree species with more compatible low-growing species under its lines along city streets. Photo 1, below, shows the results of one such project on Church Street west of Springfield Avenue in Skokie. ComEd should be commended for its joint efforts with the involved communities in implementing this program.

Photo 1



Trimming in the City of Glenview was well done, generally, except for four to five blocks on Glenview Road and four other isolated locations. Several varieties of trees were into ComEd’s primary along Glenview Road in the southeast part of town. My notes of the

tree inspection in Glenview are summarized in Table 2. Figures 2 & 3 in Attachment "A" show two of the tree conflicts I noted on Glenview Road.

Table 2

Summary of Tree Conditions Field Inspections by ICC Staff			
Town	***Item Description***	***Photo(s)***	***Location***
Glenview (5/9/06)			
	Norway maple trees into primary (primary through the trees)	960, 961	Glenview Rd. between Chatham Dr. & Glenayre Dr.
	Crabapple tree (in bloom) into primary	962	Glenview Rd. between Chatham Dr. & Glenayre Dr.
	Honey locust tree into primary	963	Glenview Rd. between Chatham Dr. & Glenayre Dr.
	Trees into primary		Glenview Rd. between Glenayre Dr. & Lenox Rd.
	Walnut tree into primary	964	East of Shermer Rd. in easement north of Fir St.
	Trees into primary		East of Shermer Rd. in easement north of Fir St. (farther east than walnut tree in photo 964)
	Trees close to primary		On Pfingsten Rd. at Astor Dr. & just north of Maple Leaf Dr. (2 locations)

ComEd's electric system in Schaumburg is mostly underground, and the overhead portion of the electric system there is on a 2-year trim cycle dictated by the city. Trimming on the overhead feeders I inspected looked good, with only one close clearance location noted (see Table 3).

Table 3

Summary of Tree Conditions Field Inspections by ICC Staff			
Town	***Item Description***	***Photo(s)***	***Location***
Schaumburg (5/9/06)			
	Hackberry tree close to primary		Wise Rd. near Edward St.

Tree trimming in Libertyville was very well done in most of the town. I noted a few scattered problems, however, including one structural problem. A significant portion of Libertyville has underground electric facilities. See the summary of my inspection notes in Table 4. Figures 4 & 5 in Attachment "A" show two of the tree conflicts on Austin Avenue.

Table 4

Summary of Tree Conditions Field Inspections by ICC Staff			
Town	***Item Description***	***Photo(s)***	***Location***
Libertyville (5/10/06)			
	Bad pole top & bad crossarms	968, 969	2nd Ave. north of Rockland Rd.
	Pines close to primary		Austin Ave. just west of Rt. 21
	Black locust tree into primary (w/ contact)	970, 971	Austin Ave. west of Rt. 21
	Bradford pear tree into primary	972	Austin Ave. just east of Oak St.
	Honey locust tree into primary	973, 974	Austin Ave. just west of Ash St.
	Trees close to primary		7th Ave. north of Rockland Rd.
	Norway maple tree into primary (w/ contact)	965, 966, 967	2nd St. south of Grant Ct.
	Norway maple close to primary		North Ave. west of 2nd St.

I found no tree trimming problems in Grayslake, but did note one NESC violation at a railroad crossing there (see Table 5). I am handling the resolution of this NESC violation as a separate matter with ComEd.

Table 5

Summary of Tree Conditions Field Inspections by ICC Staff			
Town	***Item Description***	***Photo(s)***	***Location***
Grayslake (5/10/06)			
	Code structural strength violation (NESC 261.D.4.c): Single wood crossarms supporting a 3-phase crossing of a railroad, on both sides of the railroad crossing	975, 976	Railroad crossing at Rt. 120 just west of Rt. 83

Tree trimming in the City of McHenry was excellent, with no problems noted. ComEd reported that trees were trimmed in McHenry two years ago.

I noted many trimming problems in Crystal Lake, and ComEd's contract tree trimmers were working in Crystal Lake while I was there. I also noted two NESC violations at railroad crossings, which I am handling separately with ComEd. My notes of the tree inspection in Crystal Lake are summarized in Table 6, and photographs of several of the tree conflicts I observed are included as Figures 6 through 10 in Attachment "A".

Table 6

Summary of Tree Conditions Field Inspections by ICC Staff			
Town	***Item Description***	***Photo(s)***	***Location***
Crystal Lake (5/10/06)			
	Maple tree close to primary		Terra Cotta Ave. & Ellsworth St.
	Trees into primary		Terra Cotta Ave. between 1st & 2nd Sts.
	Ash tree into 3-phase primary	977, 978	Walkup Ave. north of Railroad St.
	Trees close to primary		Brink St. between Minnie & Grant Sts.
	Norway maple tree into primary		Woodstock St. between Oak St. & Lincoln Pkwy.
	Trees into primary		Terra Cotta Ave. between Ridge Ave. & Oak St.
	Siberian elm tree into primary	986, 987	Oak St. north of Rockland Rd.
	Crimson King maple & locust trees into primary		Oak St. south of Hilkert Ct.
	American elm tree into primary		Dole Ave. at Oriole Trail
	Norway maple tree into primary	985	Dole Ave. just northeast of Virginia St.
	Box elder tree into primary	984	Barlina Rd. west of St. Andrews Ln.
	Many trees into primary		Barlina Rd. west of St. Andrews Ln. (west of box elder in photo 984)
	Osage orange trees into primary		Barlina Rd. between Huntington & Woodmar Drs.
	Trees into primary		Barlina Rd. between Woodmar Dr. & McHenry Ave.
	Mulberry tree into 3-phase primary	979	McHenry Ave. south of Berkshire Dr.
	Box elder tree into 3-phase primary	980	McHenry Ave. south of Berkshire Dr.
	Elm trees into 3-phase primary	981	McHenry Ave. south of Berkshire Dr.
	Siberian elm tree into primary		McHenry Ave. south of Buckingham Dr.
	Cottonwood tree into 3-phase primary	982	McHenry Ave. at entrance to Crystal Lake South High School
	Ash tree into 3-phase primary	983	McHenry Ave. at entrance to Crystal Lake South High School
	Maple trees very close to primary		Huntley Rd. south of Belfield Rd.
	Code structural strength violation (NESC 261.D.4.c): Single wood crossarms supporting a 34 kV and 2-12 kV crossings of a railroad, on the west side of the railroad crossing.	988, 989	Railroad crossing at Terra Cotta Ave. east of Park Blvd.
	Code structural strength violation (NESC 261.D.4.c): Single wood crossarm supporting a neutral crossing of a railroad, on the south side of the railroad crossing (lowest crossarm on the structure, with only the neutral on the arm).	990	Railroad crossing at Terra Cotta Rd. & Juniper Dr.

Trimming in much of Mendota looked okay, but I did note and photograph many (too many) scattered tree conflicts there. I also performed a random inspection of ComEd's circuits in Mendota, and have provided those notes and photographs to John Stutsman for use in his assessment of ComEd's electric service reliability. See Table 7 for a summary of my field notes regarding tree trimming in Mendota. Figures11 through 17 in Attachment "A" are photographs of several of the tree conflicts I noted in Mendota.

Table 7

Summary of Tree Conditions Field Inspections by ICC Staff			
Town	***Item Description***	***Photo(s)***	***Location***
Mendota (5/24/06--w/ John Albers)			
	Soft maple tree growing into 12 kV primary	109-0994	In alley east of 4th Ave., just north of 8th St.
	Soft maple tree close to primary	995	In alley east of 4th Ave., just north of 4th St.
	Soft maple tree very close to primary	996, 997	In alley east of 4th Ave., just north of 4th St.
	Hard (Norway) maple into primary (w/ contact)	999, 1000	Lincoln Ave. just south of 14th St.
	Tree close to primary		Jefferson St. just east of Pennsylvania Ave.
	Primary through edge of tree	110-1006, 1007	13th Ave. (Rt. 251/52) north of Jefferson St.
	Large limb on center phase of primary	1016	Pennsylvania Ave. north of Monroe St.
	Single phase primary through soft maple tree	1015	Chicago St. east of Pennsylvania Ave.
	Ash (?) tree growing into 3-phase primary	1012, 1013, 1014	E. Main St. north of 12th St.
	Soft maple tree into primary	1017	4th St. east of 13th Ave. (Rt. 251/52)
	Tree growing into 3-phase primary	1018	In alley east of 13th Ave., north of 4th St.
	Soft maple trees growing into single phase primary	1019	Rolling Green Dr. between S. Park Ave. & Meadowbrook Dr.
	Single phase primary through soft maple tree	1020	14th Ave. & Rolling Green Dr.
	Soft maple tree into 3-phase primary		Meridan St. west of 14th Ave.
	Hard maple tree into single phase primary		Meridan St. east of Hillcrest Dr.

I found no tree trimming problems in Bolingbrook, in which most of ComEd's electric system is underground. I did find an NESC violation at a crossing of ComEd's distribution line over I-55 there, however. This violation is noted in Table 8, and I am handling its resolution separately with ComEd.

Table 8

Summary of Tree Conditions Field Inspections by ICC Staff			
Town	***Item Description***	***Photo(s)***	***Location***
Bolingbrook (5/25/06--w/ John Albers)			
	Code structural strength violation (NESC 261.D.4.c): Single wood crossarm supporting a 3-phase crossing of a limited access highway, on the north side of the crossing (double arms required).	1023, 1024, 1025	Crossing of I-55 at Upton Road, northeast of Exit 167.

Trimming along the overhead feeders in Orland Park was well done, with only one close clearance location noted (see Table 9). ComEd serves much of the city from underground electric facilities.

Table 9

Summary of Tree Conditions Field Inspections by ICC Staff			
Town	***Item Description***	***Photo(s)***	***Location***
Orland Park (5/25/06--w/ John Albers))			
	Trees close to primary (1 foot or closer)		Along 143rd St. between 88th & 85th Aves.

Tree trimming in Morris looked very good, with only one exception noted (see Table 10 below and Figure 18 in Attachment "A"). I also performed a random inspection of ComEd's circuits in Morris, and have provided those notes and photographs to John Stutsman for use in his assessment of ComEd's electric service reliability.

Table 10

Summary of Tree Conditions Field Inspections by ICC Staff			
Town	***Item Description***	***Photo(s)***	***Location***
Morris (5/25/06--w/ John Albers)			
	Two soft maple trees into primary, with contact & leaves curled	1026, 1027	Spruce St. just north of Jackson St.

In summary, my inspections of tree conditions near ComEd's overhead electric lines in the eleven cities described above revealed some inconsistency in the quality of ComEd's tree trimming program, but overall improvement from my observations in prior years. I believe ComEd's tree trimming program has significantly improved in the past two years, overall, from what it was a few years ago. As I noted, trimming was very well done in several of the cities I inspected this year, but not as well done in some of the others. While most of the tree conflicts I noted this year involved fast growing tree species, a few were slower growing hardwoods. Crystal Lake appeared to be at the end of the four-year trimming cycle and, although contractors were trimming while I was there, the tree conflicts I observed were more than should be there even at the end of the trim cycle. While trimming in much of Mendota looked okay, there were too many scattered conflicts there also.

NESC Rule 218(A)(1) and its associated note state the following:

> "Trees that may interfere with ungrounded supply conductors should be trimmed or removed.
>
> *NOTE:* Normal tree growth, the combined movement of trees and conductors under adverse weather conditions, voltage, and sagging of conductors at elevated temperatures are among the factors to be considered in determining the extent of trimming required."

Even though I have noted the significant improvement in ComEd's tree trimming program in recent years from what it once was, ComEd is still not in compliance with the requirements of NESC Rule 218 throughout its service territory. It is apparent that ComEd is not making sufficient effort to assure adequate tree trimming is being done and properly maintained to assure that there are no tree contacts with its energized primary conductors before it returns to trim them again in all of the communities in its service territory.

The problem areas discussed in this memo and the photos shown in Attachment "A" are meant to demonstrate that ComEd still has work to do to achieve *and maintain* a four-year (minimum) tree trimming cycle that is in compliance with NESC Rule 218 throughout its service territory. ComEd should investigate the problem areas mentioned

and determine the cause(s) for the apparent inconsistency of tree trimming in these areas with its otherwise good tree trimming program in the remaining portions of the communities inspected. It should also take steps to correct these problem areas and to prevent recurrence of the problem.

ComEd should be commended for its efforts with the involved communities in implementing the tree replacement program associated with "the right tree in the right place" near its power lines. These efforts provide an immediate benefit in the areas where troublesome tree species have been removed, and should reduce the required tree trimming in those areas in future years.

3. Recommendations

- ComEd should investigate the problem areas discussed in this memorandum to determine why those areas are not in compliance with NESC Rule 218 and to determine the cause(s) of inconsistency of tree trimming in these areas with the remaining portions of the communities inspected.

- ComEd should resolve the tree clearance problems identified in this report as soon as possible.

- ComEd should assure that it meets and continues to meet the requirements of NESC Rule 218 throughout its service territory by assuring that all trees near its overhead electric lines are trimmed such that there are no tree contacts with its energized primary conductors before it returns to trim them again.

- Staff should perform additional random tree condition inspections in ComEd's service territory in 2007.

Figure 1 (Photo 06-CE955)
Silver maple tree into 3-phase primary,
Ridgway Ave. just north of Oakton St., Skokie

Figure 2 (Photo 06-CE961)
Primary through Norway maple trees ,
Glenview Rd. between Chatham Dr. & Glenayre Dr., Glenview

Figure 3 (Photo 06-CE962)
Crabapple tree into primary,
Glenview Rd. between Chatham Dr. & Glenayre Dr., Glenview

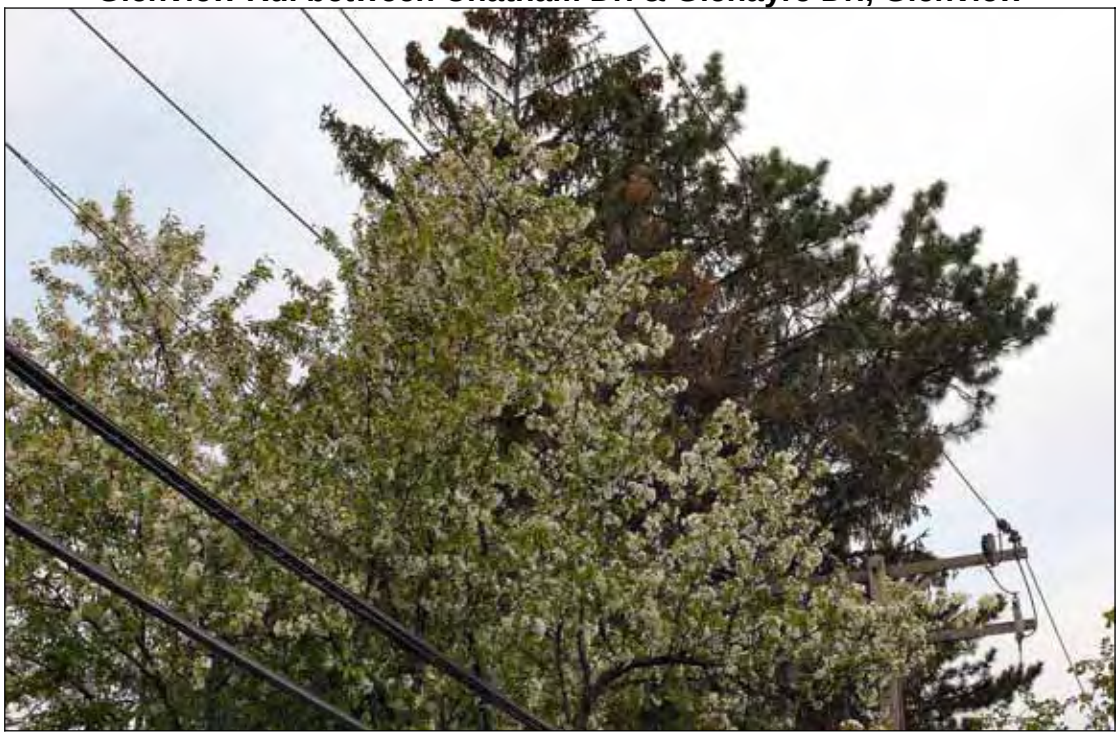


Figure 4 (Photo 06-CE972)
Bradford pear tree into primary,
Austin Ave. just east of Oak St., Libertyville

Figure 5 (Photo 06-CE973)
Honey locust tree into primary,
Austin Ave. just west of Ash St., Libertyville

Figure 6 (Photo 06-CE987)
Siberian elm tree into primary,
Oak St. north of Rockland Rd., Crystal Lake

Figure 7 (Photo 06-CE984)
Box elder tree into primary,
Barlina Rd. west of St. Andrews Ln., Crystal Lake

Figure 8 (Photo 06-CE980)
Box elder tree into 3-phase primary,
McHenry Ave. south of Berkshire Dr., Crystal Lake

Figure 9 (Photo 06-CE981)
Elm trees into 3-phase primary,
McHenry Ave. south of Berkshire Dr., Crystal Lake

Figure 10 (Photo 06-CE983)
Ash tree into 3-phase primary,
McHenry Ave. at entrance to Crystal Lake High School, Crystal Lake

Figure 11 (Photo 06-CE1000)
Hard (Norway) maple tree into primary, with contact,
Lincoln Ave. just south of 14th St., Mendota

Figure 12 (Photo 06-CE999)
Hard (Norway) maple tree into primary, with contact,
Lincoln Ave. just south of 14th St., Mendota (same location as Figure 11)

Figure 13 (Photo 06-CE994)
Soft maple tree growing into 12 kV primary,
In alley east of 4th Ave., just north of 8th St., Mendota

Figure 14 (Photo 06-CE1016)
Large limb on center phase of primary,
Pennsylvania Ave. north of Monroe St., Mendota

Figure 15 (Photo 06-CE1015)
Single phase primary through soft maple tree,
Chicago St. east of Pennsylvania Ave., Mendota

Figure 16 (Photo 06-CE1014)
Ash tree growing into 3-phase primary,
E. Main St. north of 12th St., Mendota

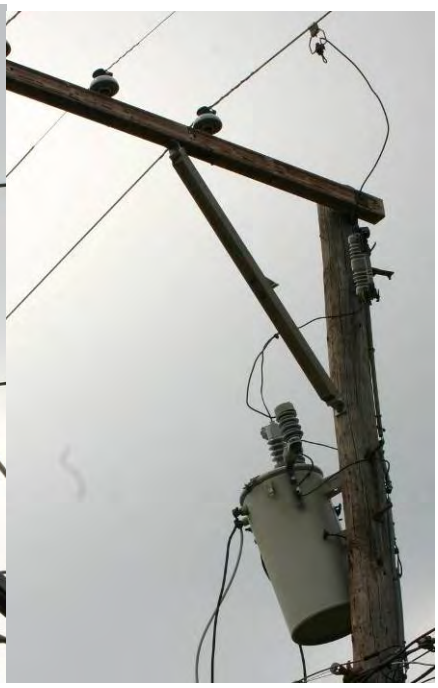
Figure 17 (Photo 06-CE1020)
Single phase primary through soft maple tree,
14th Ave. & Rolling Green Dr., Mendota

Figure 18 (Photo 06-CE1026)
2 soft maple trees into primary, with contact & leaves curled,
Spruce St. just north of Jackson St., Morris

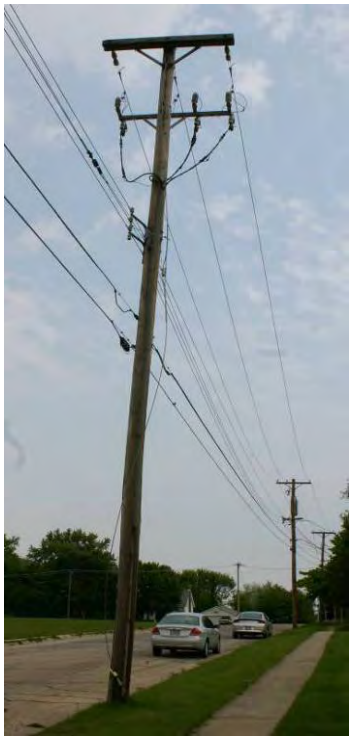
APPENDIX B

Field Report – Wednesday, May 24, 2006
Staff: J.D. Spencer, John Albers

Random Distribution Circuit(s) – in Mendota & Rural to west and southwest area

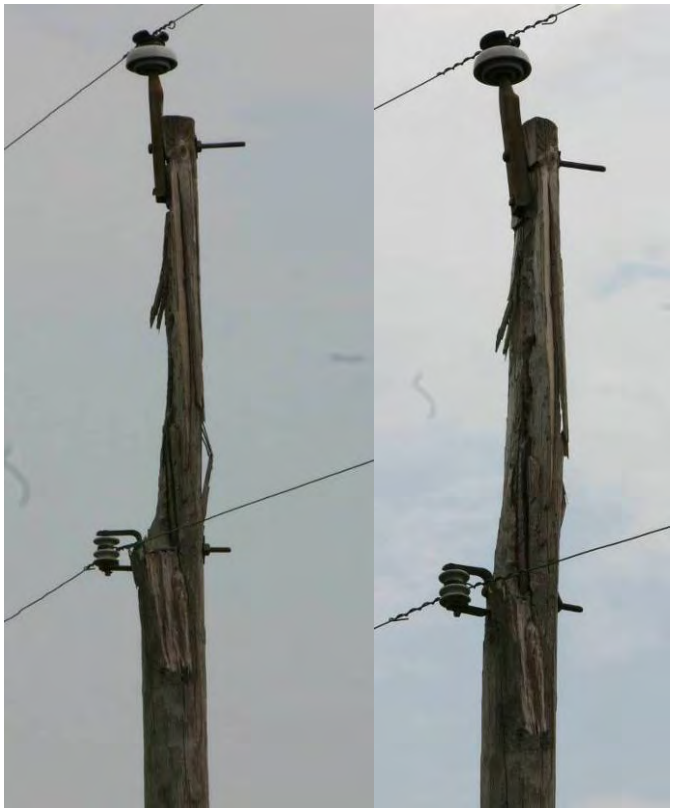
Img-1003 & 1004 – Transformer falling off pole (lower bracket off bolt through pole, upper bracket bent) – Pole #319-28-1A1



IMG-1002 – Broken primary downguy.

APPENDIX B

IMG-1008 – Old lightning damage to pole and broken spool in secondary clevis



IMG-1009 & 1010 – Badly lightning damaged pole top

APPENDIX B

IMG-1021 – Badly shell rotted pole

Other in Mendota Area

- Blown lightning arrester – pole #319-6-3B3.
- Blown lightning arrester – 3rd pole from south end of 1-phase spur on E050th St., North of 41st St., Southwest of Mendota.

APPENDIX B

Field Report – Thursday, May 25, 2006
Staff: J.D. Spencer, John Albers

Random Distribution Circuit(s) – Morris & nearby rural area

IMG-1028 & 1030 – Unsanitary conditions on pole (unused facilities left hanging on pole)

IMG-1032 -- Split crossarm (flagged for replacement)

Other – west of Morris

- Disconnected lightning arrester – 6th pole east of Ashton Rd. on Rt. 6
- Broken primary downguy – at intersection of Ashton Rd. & Rt. 6
- Blown lightning arrester – 4 spans west of Ashton Rd. on Rt. 6

APPENDIX B

Field Report – Tuesday, September 12, 2006
Staff: John Stutsman
ComEd: Maintenance & Regulatory Personnel

Random Distribution Circuit(s) – Random in Darien Area, west Chicago (Crawford Station) area
Substation DCW38 in the Darien Area was included in a series of random observations made in the area covering only a sample of circuits visible from some roadways.

Pic_0060 – Insulating oil levels in equipment that was observed at DCW38 substation appeared normal from substation fence line. Animal protection devices are abundantly visible on top of the transformer and other equipment in the substation.

Pic_0062 – Tree contact with primary near corner of Cheese Rd and Oldfield Rd.

Additional Comments – Random Circuit(s):
- Possible tree contacts [2 locations] noted with primary along Clarendon Hills Rd.
- Nothing to report from observations in west Chicago area.

APPENDIX B

Field Report – Wednesday, September 13, 2006
Staff: John Stutsman
ComEd: Maintenance & Regulatory Personnel

Random Distribution circuits: Hegewich & South Chicago Area, Burnham Area, Calumet City Area, and Lansing Area


Pic_0071 – Vegetation on poles in ROW near TSS 55. [Hegewich/South Chicago Area]


Pic_0072 – Primary into trees – Pole has Red tag. [Hegewich/South Chicago Area]

APPENDIX B

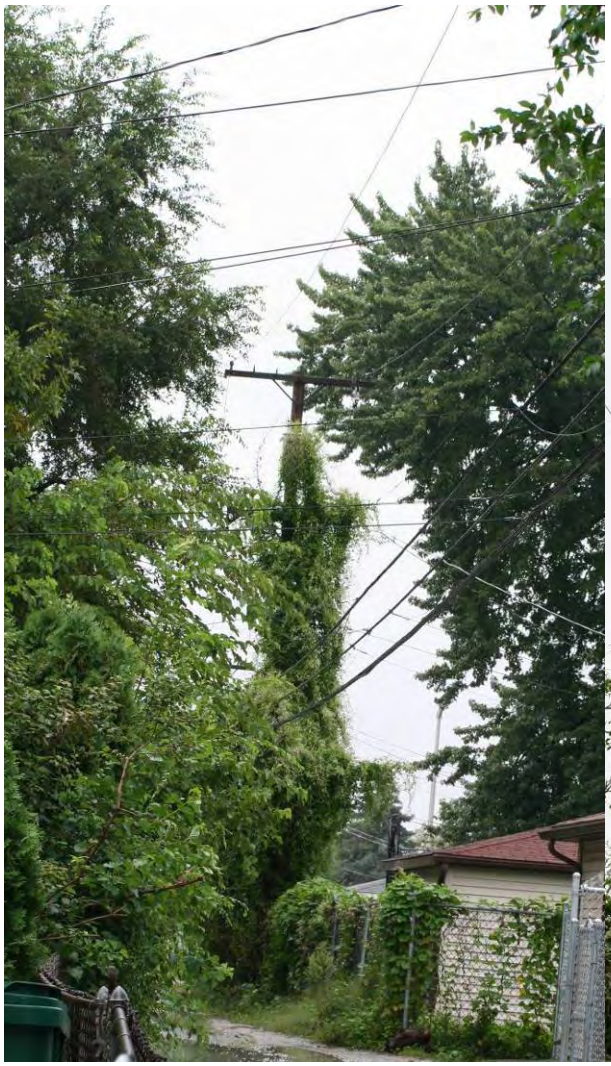
Pic_0074 – Primary into trees. [Hegewich/South Chicago Area]

Pic_0077 – Cross arms used as braces on pole [Hegewich/South Chicago Area]

Additional Comments Hegewich/South Chicago Area

- Ragged pole tops in several location
- Transformers without animal guard in Rowan Park area

APPENDIX B



Pic_0080 & 0081 – Vines covering pole and transformer in Calumet City Alley. No animal guard.

Additional Comments Burnham & Calumet City Areas

- Transformers without Animal guards at several locations
- Ragged pole tops at several locations

Additional Comments South Holland & Lansing Areas

- Transformers without Animal guards at several locations

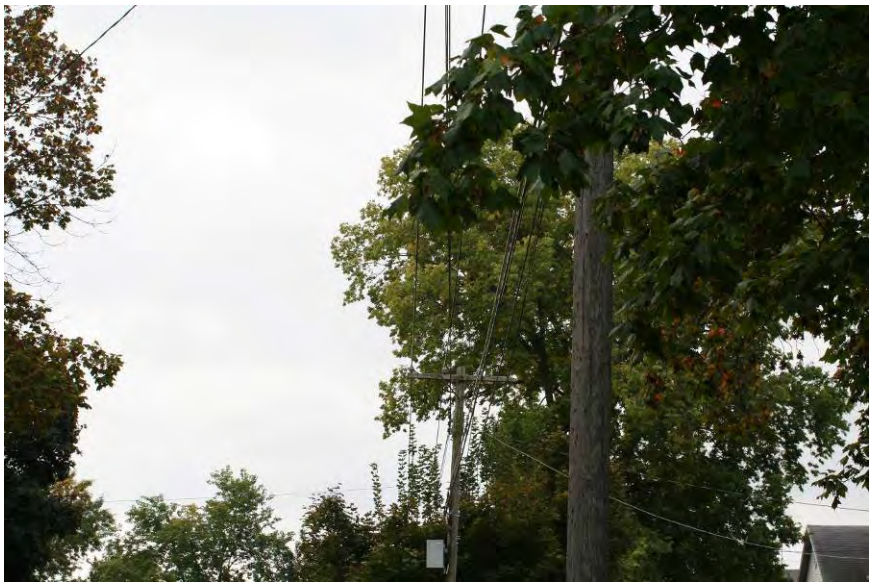
APPENDIX B

Field Report – Wednesday, September 27, 2006
Staff: John Stutsman
ComEd: Maintenance & Regulatory Personnel

Random Distribution circuits: Freeport Area, Areas between Freeport and Rockford, and Rockford Area

Random Distribution Circuits: Freeport Area

Pic_0088 – Broken overhead branch making contact (laying on) with primary. [Freeport Area]



Pic_0089 – Trees close to primary [Freeport Area]

APPENDIX B

Other

- On way to Freeport, noted vegetation on guy wires near church.

Random Circuits: Along HW20 between Freeport and Rockford.

Pic_0121 – Top bolt is loose and poking out but nut is still on back.

Pic_0123 – Both bolts appear loose.

APPENDIX B

Pic_0124 – Nut is gone and bottom bolt is almost completely out of the pole.

Other – Random Circuit along US 20 between Freeport and Rockford

- Broken guy wire wrapped around pole.
- Near business and US 20 split some vegetation appears in primary.

Random Circuits: Rockford & Rockford Area

Pic_0125 & 126 – NESC violation seen in a single wood cross-arm supporting a 3 phase primary and neutral on the west side of a rail road crossing in Rockford.

Staff recognizes that these are not the only type of NESC violations on the ComEd circuits it inspected this year. Some of the deteriorated structures, for example, may not meet the strength requirements of NESC Table 253-2, footnote 3. As another example, many of the missing guy markers Staff notes are violations of NESC Rule 264.E and could have a detrimental effect on reliability as well as public safety. ComEd should resolve all of these NESC violations within a reasonable time. It should also assure that watching for and noting NESC violations of these and other types are included in its circuit inspection program and that all violations found are resolved in a timely manner.

Other -- Random Circuits: Rockford & Rockford Area

- Along East Business US 20 vegetation on poles and guy wires noted at several locations
- Along Johnston Ave. close vegetation & vegetation into primary noted at several locations
- Close vegetation & vegetation in primary noted at locations along South Bell School Road.

Pic_0129 – As the picture illustrates, Staff noted no problems with insulating oil levels in equipment visible from the fence line of TDC 380.

APPENDIX B

Field Report – Thursday, September 28, 2006
Staff: John Stutsman
ComEd: Butch Burgett; Mary Vincent
Random Distribution circuits: Elgin Area, Areas East of Elgin

Random Distribution Circuits: Elgin Area

Pic_0158 – Elgin – example of various locations along Sheridan St of trees/vegetation into primary. Note to the left of the primary and partially hidden crossarm is the trunk of a tall dead tree that may be a hazard in the future.

Pic_0162 – Elgin – slack guys in Union St & Sheridan St areas

APPENDIX B

Pic_0165 – Elgin – Center St. Area -- lightning arrestor for primary phase on left side is completely blown out of its bracket.

Other Random Circuits: Elgin Area

- South Street – close vegetation several locations
- Illinois 31 south of Elgin – vegetation into field side of primary
- Scott Ave/Blackhawk Dr area – Primary into tree
- Scott Ave/Blackhawk Dr area – several ragged/deteriorated poles in several locations
- N. Union St area – Dead tree next to primary
- N. Union St area – Vegetation close to or into primary
- N. Union St. & Sheridan St area – no animal guard on dist. Transformer
- Bent St. area – broken branch was contacting primary and multiple tree-primary contacts or close contacts were noted along the street
- Lucille Ave – Vegetation contacts with primary
- Area east of Fox River and West of IL-25 – Numerous Vegetation contacts and near contacts; missing guy guards.

APPENDIX B

Field Report – Monday, October 2, 2006
Staff: John Stutsman

Random Distribution Circuits: Thornton, Lansing, Calumet City Areas

Thornton Area

Pic_0166 – Thornton Area – field primary into tree.

Pic_0167 – Thornton Area – Vegetation/Tree growing up into primary.

APPENDIX B

Lansing Area

Pic_0171 – TDC 446 – While the vegetation in the substation yard appears dead it is apparent that there is a lot more vegetation than the previous year – see P6270024 below of TDC 446 taken in 2005.

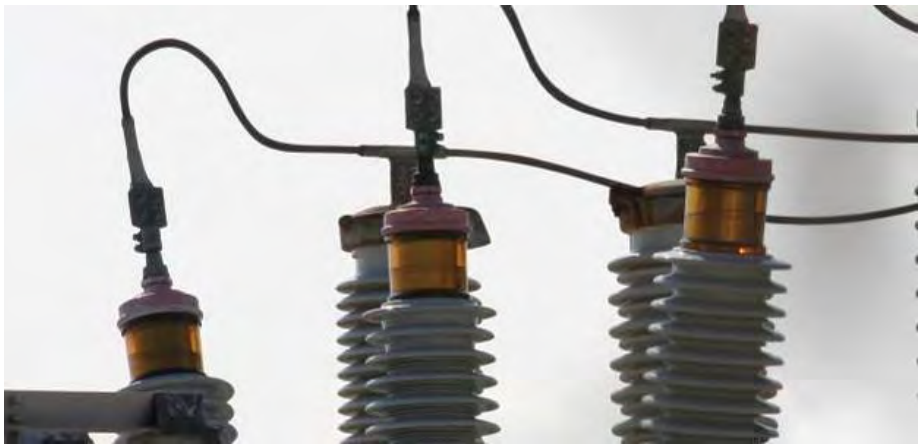
P6270024 – TDC 446 in June of 2005 – compare to Pic_0171 of TDC 446 taken in October of 2006.

APPENDIX B

Calumet City Area

Pic_0179 – TDC 447 – yard is clear of vegetation.

Pic_0180 – Bushing oil levels in north transformer. Bushing on the left – level is markedly higher than the other two.



Pic_0182 – Bushing oil levels in South transformer.

APPENDIX B

Field Report – Tuesday, October 3, 2006
Staff: John Stutsman

Random Distribution Circuit(s): I-55 Braidwood Area & frontage roads – *(later determined to be parts of circuit J695 in Wilmington Twp out of substation DCJ69 [Braidwood][1])*

Pic_0188 – 3 poles south of transformer #533284A5 – this is visible from I-55 Southbound lanes along frontage road.

Pic_0192 – vegetation problem noted on the same circuit.

[1] ComEd e-mail of 12/6/2006 and telephone follow-up call on 12/13/2006

APPENDIX B

Pic_0195 – location on same circuit at one point where it crosses over Interstate 55 on West side – missing down guy markers.

Other Location in this area:

- Missing down guy markers

Field Report – Tuesday, September 12, 2006
Staff: John Stutsman
ComEd: Maintenance & Regulatory Personnel
Distribution Circuits Inspected:
W550 – Northeast Region
Y2568 – Chicago Region
D7812 – Northeast Region

Circuit W550
There were three underground equipment related interruptions, two intentional interruptions for emergency repairs, and the five remaining interruptions were vegetation-animal-weather-unknown related. At an estimated cost of $21,000 in 2006 ComEd installed lightning arresters at 1 location, installed fused at 3 locations, reconductored 5 spans of wire, repaired or replaced poles at 3 locations and moved a pole at 1 location. Circuit W550 originates at TDC 555. See page J-50.

Pic_0036 – Insulating oil levels that could be determined outside of the originating substation fence line appeared normal – such as the bushing oil levels on the primary side of the above transformer.


Pic_0037 – near originating substation vegetation was noted close to primary [ComEd Dwg W555—1 of 3]

APPENDIX C

Pic_0039 – Primary looked low but may be OK [ComEd Dwg W550 – 3 of 3]

Pic_0040 – Popular tree close to Primary [Dwg W555 1 of 3]


Pic_0043 & Pic_0044 – examples of the many squirrels seen on this circuit. Note the animal protection on the transformer. [ComEd Dwg W555 1 of 3]

Pic_0045 – Mulberry tree into primary. [ComEd Dwg W555 1 of 3]

Additional Comments W555:

ComEd Dwg W555—1 of 3

- Vegetation/trees appeared to be in primary at several locations
- Vegetation/trees appeared to be close to primary at several locations
- Observed deteriorated pole tops in at least two locations
- Observed loose down guy in one location
- Observed lots of squirrels on overhead equipment

ComEd Dwg W555 – 2 of 3

- Primary appeared near some trees/vegetation in several locations

Field Report – Tuesday, September 12, 2006
Staff: John Stutsman
ComEd: Maintenance & Regulatory Personnel
Distribution Circuits Inspected:
W550 – Northeast Region
Y2568 – Chicago Region
D7812 – Northeast Region

Circuit Y2568
The majority of interruptions on this circuit had been underground equipment related. At an estimated cost of $44,000 in 2006 ComEd installed lightning arresters at 4 locations, replaced crossarms at 7 locations, reinforced or replaced poles at 8 locations, and performed cable testing. Circuit Y2568 originates at Substation STA13. See Page J-17.

Pic_0047 – Insulating oil levels in equipment that was observed at the originating substation appeared normal.

Pic_0049 – pole was worn between protective plates [Dwg Y2568 -- 3 of 3]

Additional Comments Y2568:
ComEd Dwg Y2568—3 of 3
- Many locations were seen of broken ground molding on the sides of poles near the bottom of poles or the ground wire was outside of the molding
- Many locations were seen of deteriorated pole tops

Field Report – Tuesday, September 12, 2006
Staff: John Stutsman
ComEd: Maintenance & Regulatory Personnel
Distribution Circuits Inspected:
W550 – Northeast Region
Y2568 – Chicago Region
D7812 – Northeast Region

Circuit D7812
The majority of interruptions on this circuit had been overhead equipment related. At an estimated cost of $13,000 in 2006 ComEd installed fuses at 2 locations, reinforced or replaced poles at 6 locations, and installed new pole to reduce a long span at 1 location. Circuit D7812 originates at Substation TSS78. See Page J-47.

Pic_0055 – Insulating oil levels in equipment that was observed at the originating substation appeared normal.

Pic_0056 – Lightning arrester blown on one phase [Dwg D7812 – 3 of 4]

Additional Comments D7812:
ComEd Dwg D7812—2 of 4
- Primary contact with trees noted in 4 locations

ComEd Dwg D7812—4 of 4
- Primary contact with trees noted in 2 locations in general area of capacitor bank 1511C

Field Report – Wednesday, September 13, 2006
Staff: John Stutsman
ComEd: Maintenance & Regulatory Personnel
Distribution Circuits Inspected:
G6083 – Southern Region

Circuit G6083
Six of the nine interruptions on this circuit had been underground equipment related while two interruptions were overhead equipment related and one interruption was intentional in order that emergency repairs could be made on the circuit. At an estimated cost of $15,000 in 2006 ComEd installed lightning arresters at 2 locations, installed or moved fuses at four locations, reinforced or replaced pole at one location, and performed cable testing. Circuit G6083 originates at TSS 60. See page J-73.

Pic_0065 & 0066 – Newer vines are seen growing up older vines existing on pole and equipment [Dwg G6083 – 2 of 4]

Pic_0068 – Gap between top crossarm & pole and gap between transformer top bracket and pole [Dwg G6083 – 2 of 4]

Additional Comments G6083:

ComEd Dwg G6083—2 of 4

- Tree contact noted at one location along 109th St. and two locations on Mayfield Ave.
- Weather cracked/split pole noted near Mayfield Ave and 108th PL.
- New pole on ground along 109th PL
- Distribution transformer without animal guard

ComEd Dwg G6083 – 3 of 4

- Tree contact noted in one location
- Transformer without wildlife protection
- Pole with ground wire but ground molding is missing
- Many cases were approximate transformer location is not shown on the drawing

ComEd Dwg G6083 – 4 of 4

- Transformers without wildlife protection at two locations
- Tree contact in one location
- Many cases where approximate transformer location is not shown on the drawing
- New construction seen on circuit

Field Report – Wednesday, September 27, 2006
Staff: John Stutsman
ComEd: Maintenance & Regulatory Personnel
Distribution Circuits Inspected:
B210Y – Northwest Region

Circuit B210Y
Eleven of the 23 interruptions on this circuit were weather & tree related. The remaining interruptions were distributed among causes like underground & overhead equipment, intentional for emergency repairs, vehicles, and one interruption of unknown causes. At an estimated cost of $20,000 in 2006 ComEd installed fuses at six locations, relocated a recloser at 1 location, and removed a disconnect and replaced with fuse at 1 location. Circuit B210Y originates at TSS 121. See page J-95.

Pic_0095 – At TSS 121, where visible from the fence-line, insulating oil levels in devices appear normal.

Pic_0096 – At TSS 121, animal protection is visible on some of the equipment.

Pic_0097 – Vegetation on guy wires and vegetation on fence surrounding TSS121. DWG B210Y – 1 of 17

Other DWG B210Y – 1 of 17

- 2 locations noted deteriorated pole tops
- Vegetation growing on pole in 3 locations

Other DWG B210Y – 2 of 17

- 2 locations noted deteriorated pole tops

Pic_0099 – Deteriorated crossarm. DWG B210Y – 16 of 17

Pic_0100 – Splitting at pole top and possible shell rotting. Dwg B210Y – 16 of 17

Pic_0102 – Primary phase conductor is in apparent imminent danger of falling -- Loose support bracket for Primary insulator and deteriorated pole top. Dwg B210Y – 16 of 17

Pic_0103 – Primary phase conductor is in apparent imminent danger of falling -- deteriorated pole top. Dwg B210Y – 16 of 17.

Other – Dwg B210Y – 16 of 17

- Potentially bad/ragged pole tops in multiple locations
- Loose down guy at one location
- Vegetation on poles in two locations

Pic_0106 – Loose bolt/washer supporting crossarm. Badly deteriorated pole top. Dwg B210Y – 12 of 17

Pic_0109 – Broken guy wire hanging lose. Shell rotted pole. Dwg B210Y – 12 of 17

Other Dwg B210Y – 12 of 17

- Several deteriorated pole tops in various locations.

Pic_0110 & Pic_0111 – Vegetation growing up pole. Dwg B210Y – 10 of 17 and Dwg B210Y – 6 of 17

Pic_0113 – picture from road of tops of poles that are leaning in a field on this circuit. According to a local resident they had been leaning for three years. ComEd personnel indicated that the poles would be fixed this year (2006) after the crops had been taken in and the fields had dried out significantly. Dwg B210Y 6 of 17

Pic_0114 – While the poles have a pretty good lean the primary doesn't appear to be excessively low. Picture taken from between leaning poles and away from road. Dwg B210Y – 6 of 17

Pic_0116 – picture taken from between leaning poles and towards roadway. Dwg B210Y – 6 of 17.

Other B210Y – 6 of 17

- Deteriorated pole tops seen
- Broken secondary down guy
- Vegetation growing on down guy

Pic_0117 – Vegetation growing up guy wire and pole. Note animal guard on transformer.
Dwg B210Y 5 of 17

Other Dwg B210Y 15 of 17

- Vegetation seen growing on three pole including two nearby location of Pic_0117.

Field Report – Thursday, September 28, 2006
Staff: John Stutsman
ComEd: Maintenance & Regulatory Personnel
Distribution Circuits Inspected:
W7217 – Northwest Region

Circuit W7217
Eight of the thirteen interruptions on this circuit were weather and tree related while the remaining five interruptions were one each of the causes: Overhead equipment, underground equipment, accident by ComEd contractor, intentional for emergency repairs, and "other". At an estimated cost of $28,000 in 2006 ComEd replaced fuses at two locations, replaced a fuse with recloser at one location, and replaced a fuse with electronic sectionalizer at one location. Circuit W7217 originates at TDC 572. See page J-91.

Pic_0131 & 132 – Station yard was clean while insulating oil levels in devices visible from fence line appeared appropriate.

Pic_0134 – Red tag seen on riser/device near riser for W7217 – Red tag dated 3-18-2006 and say's "do not liven" but disconnects appear closed and fuses are in. Dwg W7217 1 of 7

Pic_0140 – hazard/dead tree near primary. Dwg W7217 1of 7

Other – Dwg W7217 2 of 7

- Vegetation close to primary in some locations

Pic_0141 – Pole has lean – Note that a large number of new evergreen trees are planted below primary between this pole above and next pole east along Boncosky Rd. and will be a source of recurring vegetation management costs in the future. Dwg W7217 3 of 7

Other – Dwg W7217 3 of 7

- Vegetation close to and into primary on Boncosky Rd east of Far Hills Dr.

Pic_0145 – dead trees near primary and canopy of vegetation above primary. Dwg W7217 3 of 7

Pic_0147 – Vegetation growing up pole and transformer. Note six splices in primary in close proximity of pole. Dwg W7217 4 of 7

Pic_0153 – Dead vines on guy wire with newer vines growing up pole. Dwg W7217 4 of 7

Pic_0155 – Another location where new growth is beginning to replace dead vines on a pole and transformer. Dwg W7217 4 of 7

Other Dwg W7217 4 of 7

- Burn marks visible on primary from previous reliability problems
- Vegetation problems throughout area

Other Dwg W7217 6 of 7

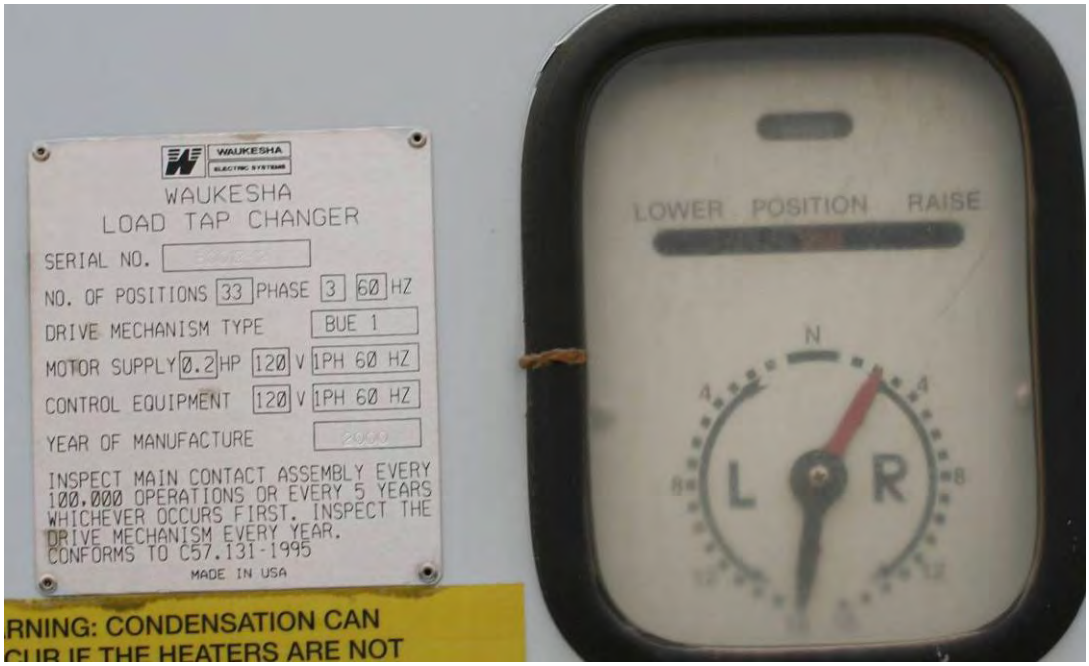
- Street side phase of primary was covered by line hose next to tree.
- Vine growing onto distribution transformer at one location

Field Report – Wednesday, October 17, 2006
Staff: John Stutsman

TDC 561 Substation:

Pic_0212 – Insulating oil levels were observed in substation power equipment – such as the transformer bushings visible above.

Pic_0242 – This indicates the range that the load tap changer has operated on transformer 71 recently [and is currently operating]. Ideally one would expect or prefer the limits to be more centered on the scale in order to optimize the value of the tap changer to control distribution voltage and minimize maintenance requirements for the tap changer itself.



Pic_0251 – Load tap changer for Transformer 74.

Field Report – Thursday, October 18, 2006
Staff: John Stutsman

TDC 204 Substation:

Pic_0291 – Oil leak on secondary of Transformer 74.

Pic_0292 – Insulating oil levels were observed in power equipment at the substation such as the transformer bushings above.

Pic_0301 – On transformer 72 the range of operation is at the very lower end of the load tap changer.

Pic_0302 – On transformer 73 the range of operation is at the very lower end of the load tap changer.


Pic_0303 – Absorbent paper set out to catch a slow oil leak.