Illinois Commerce Commission

Assessment of Commonwealth Edison Company

Reliability Report and Reliability Performance

for Calendar Year 2007

Pursuant to 83 Ill. Adm. Code 411.140

April 8, 2009

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 "2007 Electric Power Delivery Reliability Report" ("Reliability Report") on Friday, May 30, 2008. 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.

Staff is concerned about the following issues revealed by our assessment:

- Residential customer satisfaction is down.
- Customer complaints are up.
- Customers experiencing large numbers of interruptions are up.
- Interruptions are at their highest since 1998.
- System Average Interruption Frequency Index (SAIFI) is at its highest since 1998 and is the worst of the four largest electric utilities in Illinois.
- Trees growing into a ComEd 345,000 volt electric transmission line caused instantaneous open and reclosues of the line on three different days during the summer of 2008.
- Total number of ComEd employees and contractors has declined by 15 percent since 1999.
- Since 1997, ComEd's electric delivery function has been managed by nine different managers who have held the position for an average of 1.24 years each.

Of the 116 worst performing circuits in ComEd's 2007 Reliability Report, 15 of the worst performing circuits represented repeats from one or more of the years 2003 through 2006. Repeats are down from 22 in 2006, 17 in 2005, and 21 in 2004 – but up slightly from the 14 in 2003.

ComEd's Southern Region consistently provides less reliable service to customers as represented by the higher average number of service interruptions and longer average durations of interruptions than ComEd's other service regions.

A series of events in July 2008, on a 345 kV transmission line cause by a grove of about 100 trees growing unnoticed beneath the transmission line over a number of years has heightened Staff's concerns that ComEd's transmission and distribution vegetation management programs may not be adequately staffed leading to an overreliance on contractor reports. See Appendix E.

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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 "2007 Electric Power Delivery Reliability Report" ("Reliability Report"), filed on Friday, May 30, 2008, and evaluates ComEd's reliability performance.

In producing this document Staff relies on everything that may come to light during the review period up to the date of this document in addition to the Reliability Report.

This was ComEd's 10th annual reliability report filed pursuant to Code Part 411.

3. ComEd's 2007 Customer Base and Service Territory

ComEd provides electric service to roughly 3.8 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 (2003 through 2007).

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

	2007	2006	2005	2004	2003
Lightning arresters					
Distribution	14	13	13	12	13
Transmission	15	10	13	12	6
Substation	12	14	16	28	28
Underground cables	18	17	17	16	16
Direct Buried	17	16	16	15	15
Cables in Conduit	32	31	31	31	31
Conductors					
Distribution Copper & Other	58	57	56	55	55
Distribution Aluminum	33	32	31	30	30
Transmission	36	35	34	33	32
Poles & Towers					
Distribution (mostly wood)	38	37	36	36	36
Transmission Steel poles	26	25	24	23	24
Transmission Wood poles	39	38	37	37	37
Transmission Towers	40	39	38	37	36
Distribution crossarms	32	31	30	29	26
Meters	13	13	13	13	15
Distribution transformers	15	15	15	16	16
Substation Transformers	30	30	29	28	28

While reviewing the year-to-year trends is intriguing, Staff believes that the increasing 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 recognizes that, in some circumstances, older equipment can be more robust if it has been well maintained. For that reason, among others, 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 aging or inadequate maintenance to determine if equipment is deteriorating to the point that it is reducing the reliability of the electric system.

[1] Page G-3 through G-5 of ComEd's Reliability Reports for 2007 thru 2003 – 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 some historical years.

5. Assessment of ComEd's 2007 Reliability Report

ComEd filed its 2007 Reliability Report and its supplemental report on Friday, May 30, 2008, 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.

For the tenth year, ComEd divided its Reliability Report by referencing the applicable subparts of Part 411. Staff commends ComEd for organizing the Reliability Report so that information is easily located.

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. In January 2008, ComEd and the other utilities agreed to extend the agreement through the 2012 reporting period.

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 2007, 2006, 2005 and 2004 per Part 411.120(b)(3)(L) and the April 2004 agreement[2].

[2] 2007 Reliability Report, Supplemental Report, Customers Experiencing Interruptions (controllable and uncontrollable).

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 **2007**[3]	Customers exceeding Service Reliability Targets (i. &/or ii.) in **2006**	Customers exceeding Service Reliability Targets (i. &/or ii.) in **2005**	Customers exceeding Service Reliability Targets (i. &/or ii.) in **2004**
69kV or above	3	9	0/0	0/0	0/0	0/0
Between 15kV & 69kV	4	12	0/0	0/0	0/0	0/0
15kV or below	6	18	137/332	125/261	262/343	406/46
Total			469	386	605	452

As summarized in Table 2, no ComEd customers experienced interruptions in excess of reliability targets for customers whose immediate primary source of service operates above 15kV. ComEd did report in the supplemental report that 137 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 332 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 will continue to closely monitor these trends in the future.

For the above-mentioned customers, ComEd identified in the 2007 Supplemental Report[6] various actions the company plans or has taken to address their reliability concerns. These actions include installing additional lightning protection, tree trimming, replacing underground cable, and replacing and/or upgrading various overhead equipment at multiple locations.

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[7].

[3] Pages 1 thru 11, ComEd's 2007 Reliability Report, Supplemental Report.
[4] Up from 125 in 2006 while down from 262 in 2005 and 406 in 2004 but up from 5 in 2003.
[5] Up from 261 in 2006 while down from 343 in 2005 but up from 46 in 2004 and 163 in 2003.
[6] Pages 12 & 13, 2007 Supplemental Report.
[7] The difference between the total of interruptions in Table 3 versus other parts of the Report 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).

Table 3. Interruptions

Interruption Cause Category	2007 Interruptions	2006 Interruptions	2005 Interruptions
Animal Related	2,815	2,480	2,274
Customer	7	10	7
Intentional	3,083	2,538	2,671
Other	514	922	816
Overhead Equipment Related	6,953	7,089	5,956
Public	2,516	2,536	2,881
Tree Related	8,331	7,369	4,686
Transmission & Substation Equip	90	83	61
Weather Related	7,330	6,373	4,449
Underground Equipment Related	7,900	7,068	7,205
Unknown	544	647	1,140
ComEd/Contractor Errors	283	275	261
Total	**40,366**	**37,390**	**32,407**

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 2007 Reliability Performance

In Section C Tables 5-9 (pages C-3 through C-12) of ComEd's 2007 Reliability Report ComEd broke out the 2007 planned and unplanned interruptions into 64 separate cause categories in detail for the system as a whole and each of the four regions. Table 4 below compares, for the last three years, aggregations under leading cause categories that together represented roughly three-quarters of total annual interruptions.

Table 4. Leading Causes of Unplanned Interruptions[8]

	2007 Interruptions	% Improvement from 2006 to 2007	2006 Interruptions	% Improvement from 2005 to 2006	2005 Interruptions
Weather Related	7,330	(15%)	6,373	(43%)	4,449
Animal Related	2,816	(14%)	2,480	(9%)	2,274
Tree Related	8,331	(13%)	7,369	(57%)	4,686
Overhead Equipment Related	6,954	2%	7,089	(19%)	5,956
Underground Equipment Related	7,900	(12%)	7,068	2%	7,205

[8] Page C-3, Table 5: 2007 Planned and Unplanned Interruptions – System, 2007 ComEd Reliability Report.

In Table 4 it is apparent that weather, animal and tree related interruptions have increased substantially each year since 2005. Staff believes that a large number of the weather, tree or animal related interruptions in Table 4 could be eliminated or moderated by effective tree and vegetation management programs in addition to effective animal protection programs. If the current trend continues[9] it could be an indication of a programmatic failure within the company programs. 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 2007 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		2007	2006	2005	2004	2003
Residential	Providing electric service overall (Overall Service)	8.13	8.27	8.39	8.47	8.20
	Providing reliable electric service (Service Reliability)	8.17	8.30	8.41	8.41	8.31
Non-Residential	Providing electric service overall (Overall Service)	8.54	8.41	8.65	8.56	8.39
	Providing reliable electric service (Service Reliability)	8.51	8.41	8.69	8.64	8.50

According to ComEd on page G-11 of the 2007 Reliability Report the 2004 & 2005 ratings were statistically significantly greater than the 2007 ratings of the Residential survey responses listed in Table 5 indicating a ratings decline in the past 2-3 years. On page G-12, no statistically significant differences were noted for Non-Residential customers shown in Table 5.

Table 6 provides another perspective on customer satisfaction through the viewpoint of customer reliability complaints[10] when values from this year's Reliability Report are compared to previous years. The bottom line of the table

[9] It is ComEd's position that current trends are due to unusually extreme weather conditions in 2007, in particular the August 23 & 24, 2007, storms (ComEd comments 1-28-2009). If that is the case then the worsening trend from 2005 should reverse sharply in the future. Staff believes insights from multi-year trends may be more valuable than year-to-year variations.

[10] Table 17, Page G-13, ComEd's 2007 Reliability Report

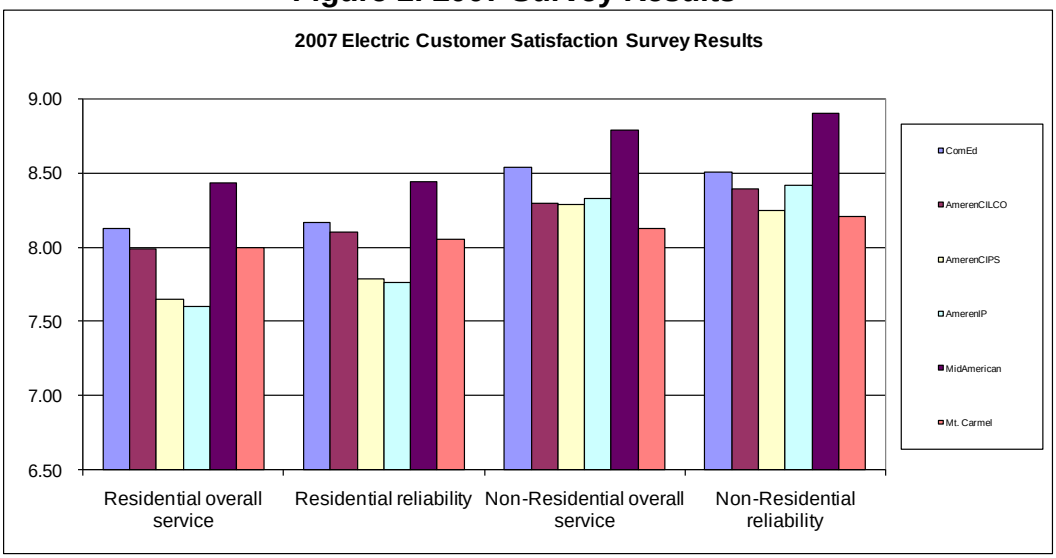
shows the calculated number of complaints per 1,000 customers and provides a relative measure of complaints from the years 2003 through 2007 for the system. Table 6 shows that the number of complaints per 1,000 customers was lower in 2007 than in 2005, 2004, and 2003 but has increased above the 2006 average.

Table 6. Customer Complaints: System Total

	2007	2006	2005	2004	2003
Nature of Complaints	System Total	System Total	System Total	System Total	System Total
Sustained Interruptions	2,784	2,579	2,685	2,389	2,249
Momentary Interruptions	374	346	377	498	624
Total Low/High Voltage	631	635	790	886	943
Totals	3,789	3,560	3,852	3,773	3,816
Customers Served	**3,775,345**	**3,731,505**	**3,684,662**	**3,652,572**	**3,614,717**
Complaints per 1000 Customers	1.00	0.95	1.05	1.03	1.06

Figure 1 compares ComEd's 2007 customer satisfaction ratings to those of the other reporting jurisdictional utilities. In 2007 ComEd's survey results were consistently better than all other jurisdictional utilities except MidAmerican. ComEd's residential ratings were significantly better than those for AmerenCIPS and AmerenIP and ComEd should be commended on that performance while the markedly better performance of MidAmerican illustrates that better performance is possible. Staff recommends that ComEd should continue its focus on improving customer service.

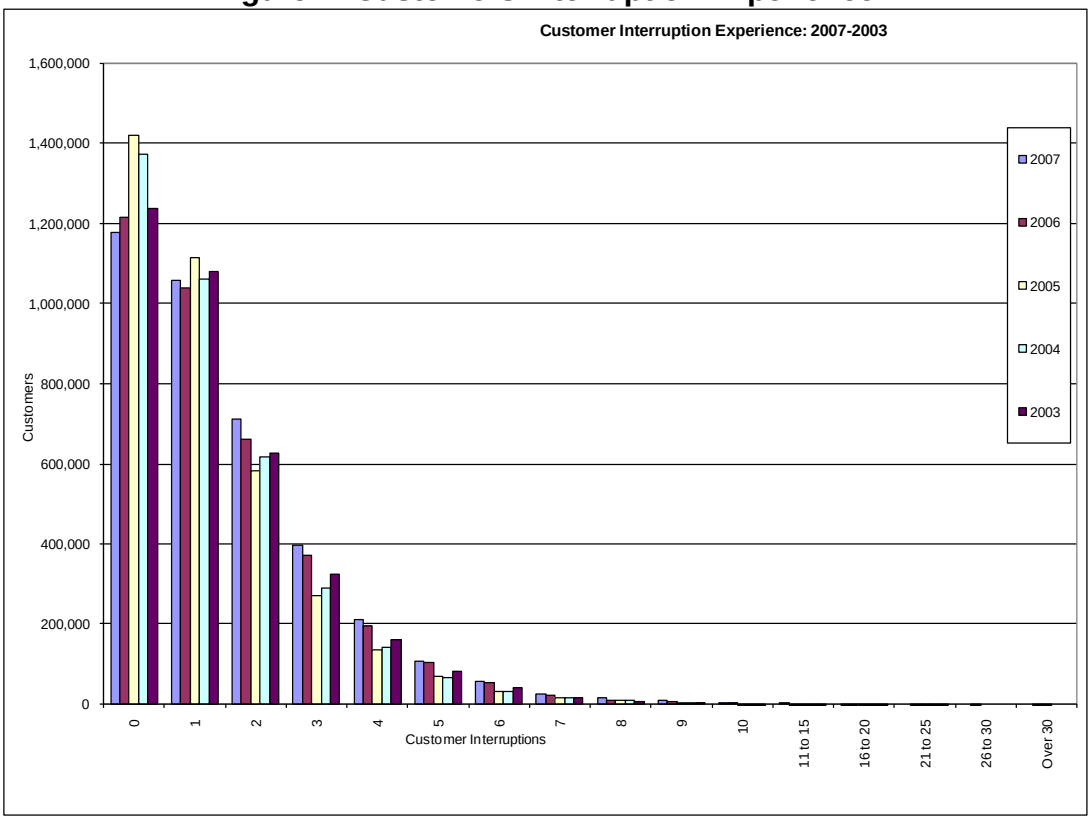
Figure 1: 2007 Survey Results[11]



[11] Since the final orders in Dockets 05-0835 & 05-0836 on January 3, 2007, Interstate and South Beloit, respectively, are no longer within the Commission's jurisdiction

Part 411.120(b)(3)(K) requires the utility to report the total number of customers that experienced a set number of interruptions during 2007. 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 experienced one interruption but over the five year period[12] this percentage of customers experiencing no interruptions has decreased from 35% in 2003[13] to 31% in 2007. Over this same time period the number of customers experiencing 10 or more interruptions has increased 474% from 1,522 in 2003 to 8,741 in 2007. This worsening trend[14] is clearly apparent in Figure 3 where the number of customers experiencing 5 or more interruptions increased 52% from 146,792 in 2003 to 223,185 in 2007.

Figure 2: Customers Interruption Experience

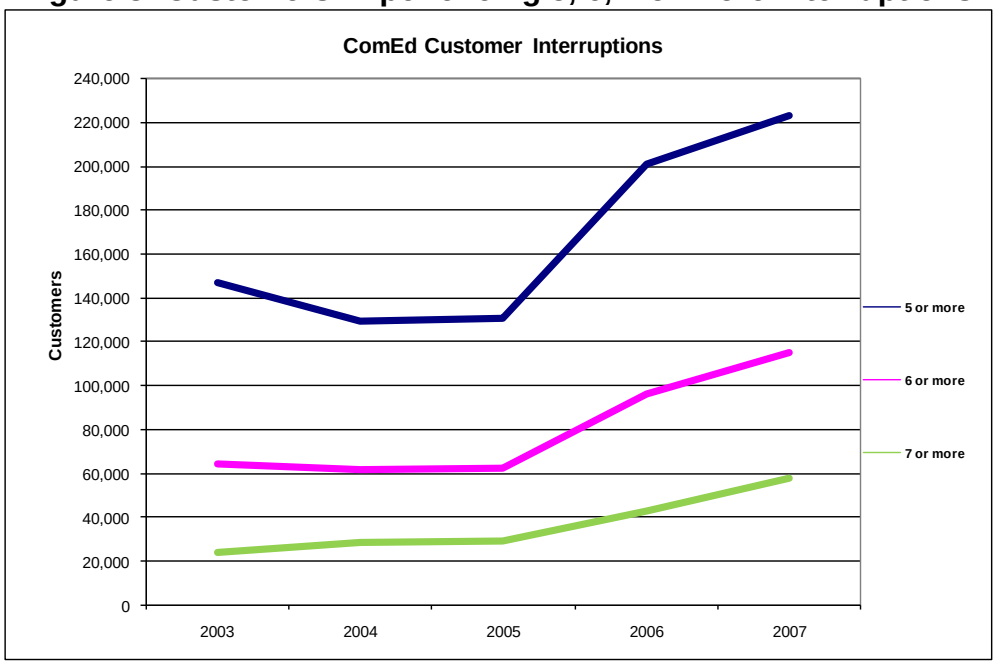


[12] It is ComEd's position that current trends are due to unusually extreme weather conditions in 2007, in particular the August 23 & 24, 2007, storms (ComEd comments 1-28-2009). If that is the case then the worsening trend from 2005 should reverse sharply in the future. Staff believes insights from multi-year trends are more valuable than year-to-year variations.

[13] As Figure 2 illustrates, this number improved in 2004 and 2005 but dropped in 2006 and again in 2007. In 2002 the number was 41%.

[14] It is ComEd's position that current trends are due to unusually extreme weather conditions in 2007, in particular the August 23 & 24, 2007, storms (ComEd comments 1-28-2009). If that is the case then the worsening trend from 2005 should reverse sharply in the future. Staff believes insights from multi-year trends are more valuable than year-to-year variations.

Figure 3: Customers Experiencing 5, 6, 7 or more Interruptions



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, 2008.

Worst Performing Circuit Repeats from Previous Reports

Of the 116 worst performing circuits in ComEd's 2007 Reliability Report, fifteen[15] (Table 7), of the worst performing circuits represented repeats from one or more of the years 2003 through 2006.

[15] Down from Twenty-Two in 2006, Seventeen in 2005, Twenty-One in 2004, and up from Fourteen in 2003.

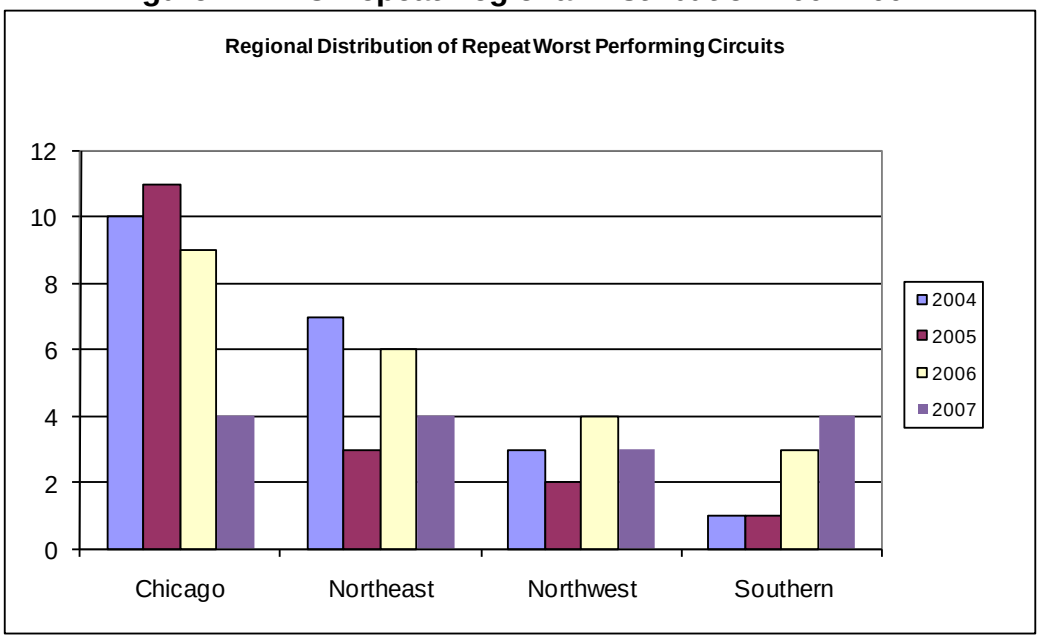
Table 7. 2007 Worst performing circuit repeats[16]

Feeder & Customers Served on 12/31	Region	Communities Served	Year Repeated From	Predominantly Urban/Rural Underground (UG) or Overhead (OH)
X7149 1,695	Chicago	Chicago, Harwood Heights	CAIDI-2004	Urban OH
Z1406 2,180	Chicago	Chicago	CAIDI-2004 CAIDI-2005	Urban OH
Z15087 1,536	Chicago	Chicago	SAIFI/CAIFI-2003 SAIFI/CAIFI-2006	Urban OH
Z4349 37	Chicago	Chicago	SAIFI/CAIFI-2005	Urban OH
W660 215	Northeast	Oakbrook	CAIDI-2006	Urban UG
E532X 706	Northeast	Schaumburg, Hoffman Estates	SAIFI/CAIFI-2003 SAIFI/CAIFI-2004	Urban UG
C046X 1,255	Northeast	Highwood, Highland Park	SAIFI/CAIFI-2003	Urban OH
D461 132	Northeast	Northlake	CAIDI-2006	Urban OH
W7024 1,510	**Northwest**	**Elgin**	**SAIFI/CAIFI-2005**	**Urban OH**
E4001 1,110	**Northwest**	**Cary, Cuba Twp, Fox River Gr, Algonquin Twp, Barrington Hills**	**SAIFI/CAIFI-2004**	**Urban OH**
H406 217	Northwest	Walnut, Walnut Twp	CAIDI-2006	Rural OH
G657 1,659	**Southern**	**Dolton, Calumet City, Thornton Twp, South Holland**	**SAIFI/CAIFI-2004**	**Urban OH**
G6588 1,972	Southern	Dolton, Calumet City, Thornton Twp	CAIDI-2003	Urban OH
F295 457	Southern	Park Forest	SAIFI/CAIFI-2006	Urban UG
G315 972	Southern	Riverdale	CAIDI-2003	Urban OH

Figure 4 illustrates the distribution of these Worst Performing Circuit ("WPC") repeats in ComEd's regions. Figure 4 shows WPC repeats down from the previous year in all of ComEd's regions except the Southern region.

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

Figure 4: WPC Repeat Regional Distribution 2004-2007



Staff is concerned that the number of repeats from previous years may be indicative of (1) inadequacies in inspections and/or (2) non-completion of needed corrective actions and/or (3) non-completion of subsequent regular preventive maintenance for worst performing circuits from 2003 through 2006. Staff will closely follow this trend in future reports.

Field Inspections

To evaluate the overall trend of conditions in ComEd's service territory, Commission Staff conducted a series of field inspections in 2008 (Table 8). The purpose of the inspections was for Staff to see if there were any obviously visible reasons for poor reliability performance. For example, on circuits Staff looked for problems such as poor tree trimming practices, broken or damaged equipment, rotten poles, and overly slack spans (low sagging lines), while in substations Staff looked for problems such as low or leaking oil, load tap changers regularly operated at extreme positions, and poor maintenance practices.

Table 8. Field Inspections for 2007 Report Assessment

Notes	Appendix
Random Circuit Inspections	A
Worst Performing Circuit Inspections	B
Substation Inspections	C
Staff Report on Inspection of Distribution Feeder Circuit C128	D

Summaries of the field inspections, photos and items noted during inspections are included in this report as Attachments or Appendices A, B, C, and D (Table 8). 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. It is important to note that it is not the purpose of Staff's field inspections to find problems for ComEd to fix[17] but rather to develop a picture of the overall condition of the power delivery infrastructure in ComEd's service territory.

Conclusions from Field Inspections

Tree Conditions

> "…[I]t is generally accepted that the single largest cause of electric power outages occurs when trees, or portions of trees, grow or fall into overhead power lines. The odds are that every single electric customer in the US and Canada has, at one time or another, experienced a sustained electric outage as a direct result of a tree and power line conflict."[18]

Staff inspections of tree conditions near ComEd's overhead electric distribution lines in areas that are readily accessible to Staff demonstrated a continued significant improvement over observations four to six years ago.

NESC[19] 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 Staff noted significant improvement in ComEd's tree trimming program in recent years from what it once was, Staff is concerned that ComEd is still not in compliance with the requirements of NESC Rule 218 throughout its service territory and in particular those areas that are not readily accessible to company internal audit or project management personnel. Staff's emergent concerns about comprehensive quality control and management oversight of ComEd's vegetation management program are discussed in detail in Section 10 and Appendix E of this report.

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[17] Though Staff would expect that those identified problems and the problems inferred would be addressed.

[18] U.S.-Canada Power System Outage Task Force, Final Report on the August 14th Blackout in the United States and Canada: Causes and Recommendations (April 2004) (Final Blackout Report).

[19] 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.

The problem areas that are observed in the appendices demonstrate that ComEd still has work to do to achieve *and maintain* a four-year (minimum) tree trimming cycle throughout its service territory that is in compliance with NESC Rule 218. 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 served. 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 investigate more ways to address problem trees. Problem trees are those under the conductors that are fast-growing candidates for removal or hazard[20] trees. By addressing problem trees sooner rather than later, ComEd can moderate future costs of vegetation management while improving reliability. Staff's field review of circuit W7217 (see Appendix A) again this year is a clear example of perpetual problems that will need careful attention to problem trees and vines. 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. Staff encourages future efforts in this area.

Circuit Conditions

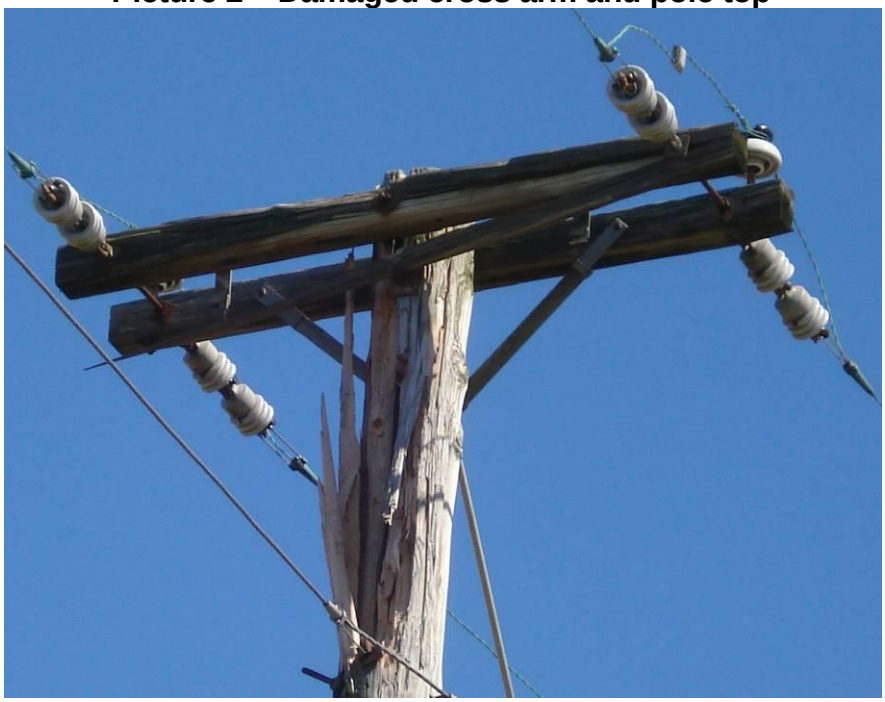
Random Circuit Inspections

In some cases, Staff noted the conditions of portions of circuits randomly observed while travelling within ComEd's service territory, going to and from locations of circuits chosen for inspection, while evaluating conditions in randomly picked areas, or going to random locations and locations where problems had generally existed in the past. Staff observed a number of deficiencies (materials deficiencies such as broken or hanging cross arm braces, bad pole tops, and blown lighting arrestors, and vegetation management deficiencies such as trees and vines growing into equipment). In some locations Staff found only minor materials issues. See Appendices A & D or pictures 1 and 2 for examples.

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

Picture 1 – Line Hose[21] where Line is next to Tree in Residential Back Yard

Picture 2 – Damaged cross arm and pole top



[21] Line Hose is a voltage-resisting flexible rubber like device that completely surrounds the conductor providing electrical insulation. According to W. H. Salisbury & Co., who introduced Line Hose to the electrical utility market in 1923, Line Hose quickly proved itself to be the most convenient device for protecting workers around overhead electrical lines from accidental contact with the energized lines. Line Hose can be used to prevent accidental contact from trees that have grown to close to a primary until the tree can be removed.

Staff reviewed random locations with problems last year and noted, in most cases, that the identified problems had been fixed while in the case of W7217 (a worst performing circuit repeat that had been reviewed by Staff in previous years including the most recent 2006 Assessment Report) Staff found that problems continued to exist with vegetation regrowth. (See picture 3 and 4.)

Picture 3 – Vine Regrowth in 2006

Picture 4 – Vine Regrowth in 2008 on Same Circuit

Worst Performing Circuit Inspections

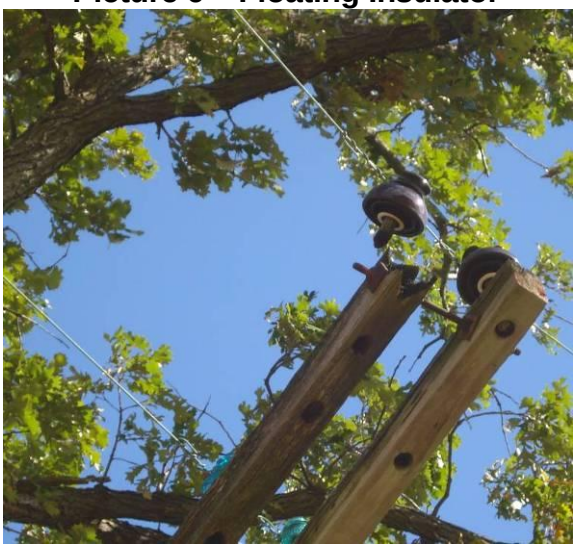
For the Worst Performing Circuit ("WPC") inspections this year, Staff observed three WPC repeats (highlighted in Table 7 – 2007 Worst Performing Circuit Repeats) plus three additional WPC's. The purpose of the WPC and WPC

repeats inspections was for Staff to see if there were any “visible obvious” reasons for the poor reliability performance that caused those circuits to be worst performers in 2007.

Staff noted varying degrees of vegetation issues including many fast growing trees & vines (see Picture 5) as well as areas with significant canopy overhangs that will be perpetual problems without careful attention. One WPC (B703 – see appendix B) had a number of materials issues (such as a floating insulator – see Picture 6) that could result in future interruptions.

Picture 5 – Vine Growth on Pole Mounted Transformer Bank

Picture 6 – Floating Insulator



It’s important to again note that Staff’s field observations were only intended to identify the “visibly obvious” deficiencies and **do not** represent all of the problems or potential problems that may exist.

Substation Conditions

Staff did a number of reviews of substation conditions (see Appendix C) including observations of insulating oil levels and equipment conditions & appearances within the substation yards. When Staff entered substation yards for detailed inspections Staff was accompanied at all times by ComEd personnel. Overall, Staff observed that the substations were in good material condition with few serious problems apparent.

8. Trends in ComEd's Reliability Performance

This is ComEd's tenth annual reliability report filed pursuant to code part 411. Listed in Table 9 are ComEd's reliability indices as reported in the 2007 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 2007. ComEd's system CAIDI, CAIFI and SAIFI reliability performances each ranked fourth (out of the six jurisdictional utilities) when compared to the other jurisdictional utilities[22].

ComEd's Southern Region consistently provides less reliable service to customers due to higher average number of service interruptions (CAIFI & SAIFI for 2002 through 2007) and longer average durations of interruptions (CAIDI for 2004 through 2006) than ComEd's other service regions. While last year the system-wide WPC for SAIFI & CAIFI was in the Southern Region the system-wide WPC for 2007 was in Mount Prospect in the Northeast Region. The reason for the Southern Region's reduced reliability is not obvious, and ComEd should provide some explanation[23] and, where appropriate, plans to correct any Southern Region deficiencies in future Reliability Report's. Staff is concerned that ComEd's "system-wide" reliability investment planning approach as described on page A-2 of the Reliability Report may be shortchanging customers in less metropolitan areas as well as fast growing areas.

When ComEd's four regions are compared to the six jurisdictional utilities and each other, the regions' performance is spread across the spectrum of CAIDI performance. ComEd's Chicago Region leads the other Regions and jurisdictional utilities with the best performance for CAIFI and SAIFI while the remaining ComEd regions follow behind the Ameren companies performances.

[22] Last year ComEd system ranked second (behind only MidAmerican) in CAIDI performance while ranking first (best) in SAIFI performance.

[23] In their 1-28-2009 comments ComEd stated that reduced reliability in the Southern Region is due to storms. While very localized intense storms could potentially account for some year to year volatility in reliability performance, in Staff's opinion a five year trend as the consistently worst performing region is more likely an indication of poor system design and/or inadequate maintenance.

Table 9 Comparison of reliability indices for 2007

	CAIDI (minutes)	CAIFI (interruptions)	SAIFI (interruptions)
ComEd System Total	**193**	**2.24**	**1.53**
ComEd Chicago Region	142	1.82	1.06
ComEd Northeast Region	301	2.28	1.67
ComEd Southern Region	156	2.41	1.81
ComEd Northwest Region	122	2.33	1.75
AmerenCILCO	**151**	**1.98**	**1.16**
AmerenCIPS	**146**	**2.13**	**1.46**
AmerenIP	**346**	**2.13**	**1.38**
MidAmerican	**291.11**	**4.3701**	**3.9532**
Mt. Carmel	**62.7**	**2.74**	**2.56**

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 (CAIFI & SAIFI indices) 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). In dockets 07-0066, 07-0067, and 07-0068 Staff demonstrated how reliability indices that attempt to exclude storm periods are misleading[24] and unsuitable[25] for Commission use.

[24] "… Utilities that choose to adequately maintain their electric delivery facilities and workforces might significantly reduce the number and duration of electric service interruptions that their customers experience during storms. The reductions could cause Standard 1366 to identify fewer Major Event Days. Conversely, utilities that fail to adequately maintain their electric delivery systems and workforces might increase the number and duration of electric service interruptions that their customers experience during storms and cause Standard 1366 to identify more Major Event Days. With a larger number of Major Event Days, the utility with the inferior maintenance programs or too-small workforce might appear in the resulting reliability statistics to be performing better than the utility with the superior maintenance program and bigger workforce. …" Docket No. 07-0066 Attachment Q to Order dated January 24, 2007; Docket No. 07-0067 Attachment B to Attachment to Order dated January 24, 2007, Docket No. 07-0068 Attachment Q to Attachment to Order dated January 24, 2007.

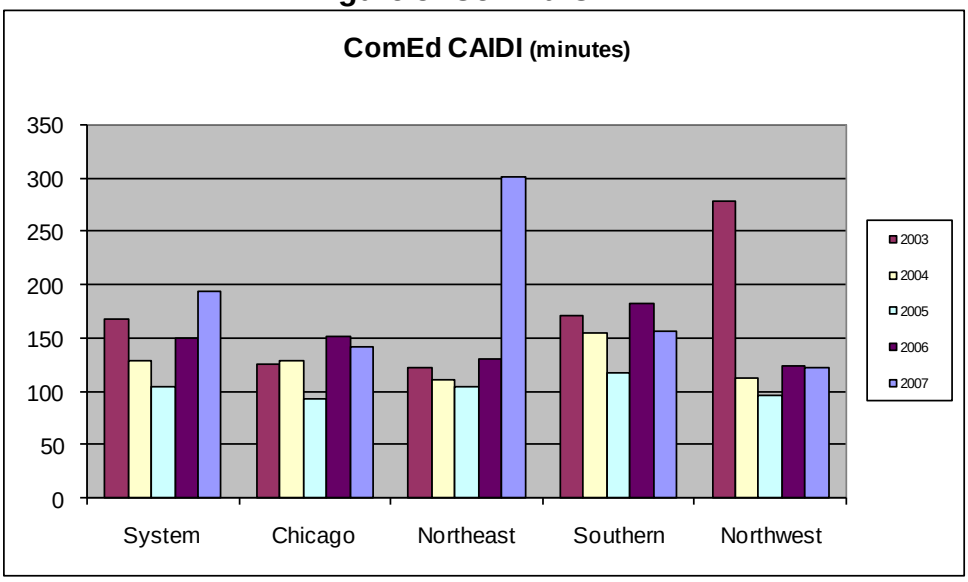
[25] "…If Ameren utilities could classify a significant number of the electric service interruptions their customers experience as caused by the weather and use a method … to make many of those weather interruptions disappear from their statistics, then they could report reliability to the

In Table 18b, page H-2, of ComEd's 2007 Reliability Report ComEd listed reliability indices that excluded reportable events as defined in 83 Illinois Administrative Code Part 411.120(a). Such a methodology is problematic because of issues outlined in dockets 07-0066, 07-0067, and 07-0068 and because it was never the purpose of Section 411.120(a) to define what could be excluded from reliability statistics but rather to define when "[a] jurisdictional entity must provide notice by telephone or by facsimile transmission to the Consumer Services Division of the Commission when any single event (e.g., storm, tornado, equipment malfunction, etc.) causes interruptions for 10,000 or more of the jurisdictional entity's customers for three hours or more." By using the language defining a reportable event in Section 411.120(a) **ANY** single event, including poor maintenance practices like trees growing up into transmission lines and cascading into system wide outage events, would be excluded from the reported statistics. By using such a methodology a hypothetical jurisdictional utility could zero out construction and maintenance expenses and potentially look good statistically once the Section 411.120(a) events were removed from the statistics. While Staff has no concerns about jurisdictional utilities excluding Section 411.120(a) reportable events internally for their own reliability improvement purposes, if they find it appropriate in some special circumstances, Staff believes the methodology is not appropriate for use by the Commission. Staff used the reliability indices as required by the Commission rules.

Figure 5 illustrates ComEd's CAIDI indices over the last five years in each region. Note that **lower** bar sizes in Figure 5 represent **better** performance.

Commission that their customers could only wish for, but had never actually seen. … The disturbing possibility that Standard 1366 could alter reliability statistics to favor utilities with poor maintenance programs and inadequate workforces seems to Staff to make Standard 1366 unsuitable for Commission use. …" Docket No. 07-0066 Attachment Q to Order dated January 24, 2007; Docket No. 07-0067 Attachment B to Attachment to Order dated January 24, 2007, Docket No. 07-0068 Attachment Q to Attachment to Order dated January 24, 2007.

Figure 5: ComEd CAIDI



In Figure 5 above, CAIDI performance has worsened substantially in the Northeast region while the other regions have demonstrated some improvement over last year (2006) but are still worse than their performances in 2005 and 2004.

Figure 6: CAIDI by Utility

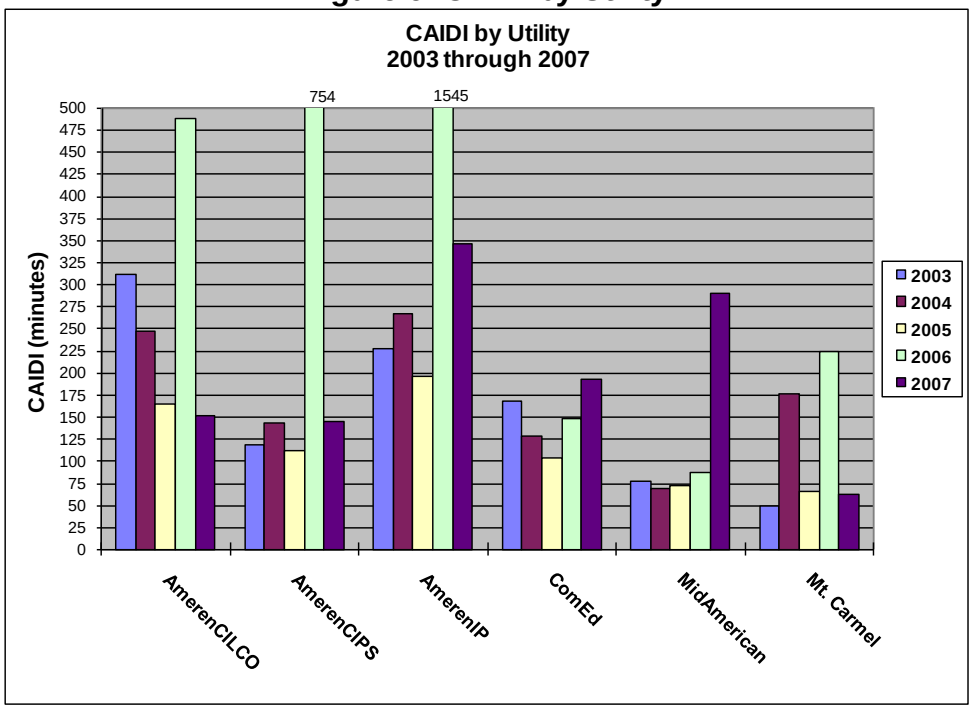


Figure 6 shows a comparison of CAIDI values reported for the years 2003 through 2007 by the jurisdictional utilities. In 2007, ComEd's performance ranking declined to fourth place when compared to the jurisdictional utilities. Of the four largest jurisdictional utilities (AmerenCILCO, AmerenCIPS, AmerenIP, and

ComEd) ComEd improved to third place by performing better (less time) than AmerenIP by approximately 44%.

Figure 7: Worst-Circuit CAIDI by Utility

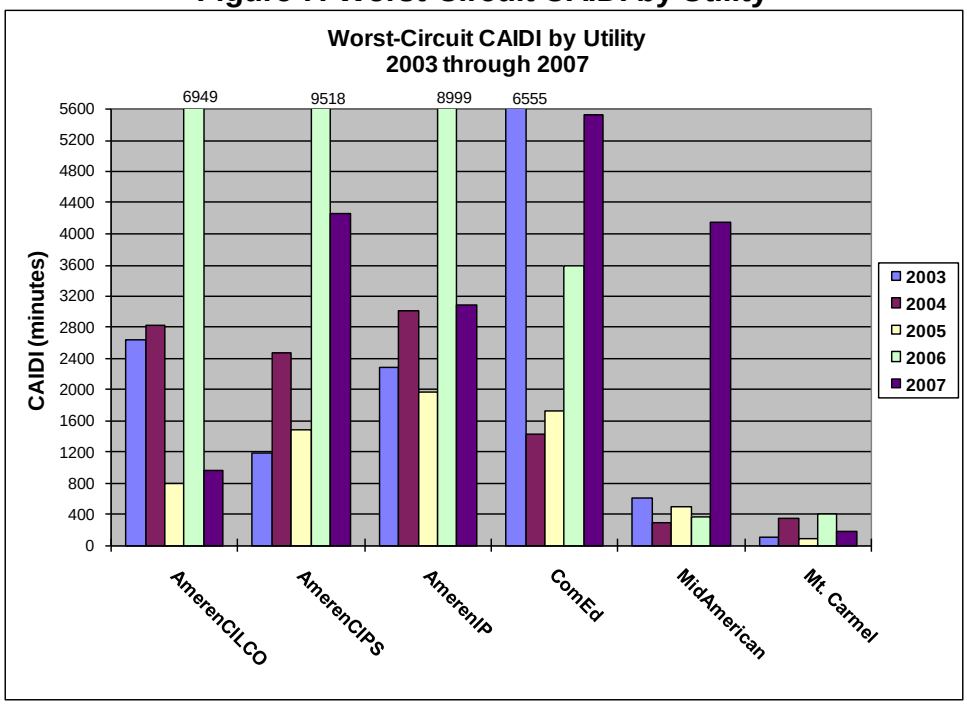


Figure 7 shows a comparison of CAIDI values for the worst circuit for each of the jurisdictional utilities. In 2007, ComEd's worst-circuit CAIDI performance is worse than any other jurisdictional utility in Illinois.

Figure 8: ComEd CAIFI

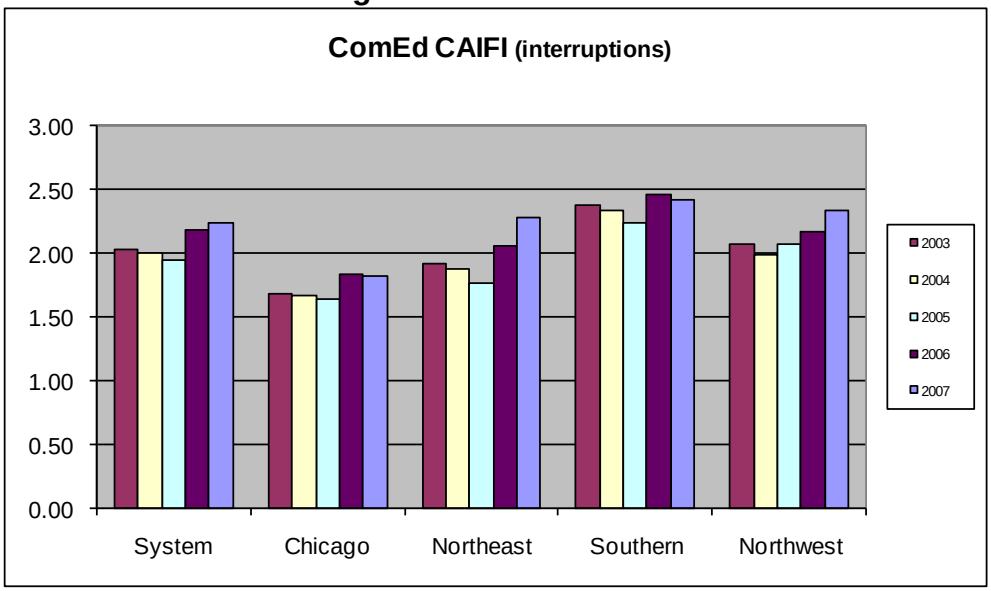


Figure 8 shows CAIFI improving slightly for the Chicago and Southern Regions for 2007 though their performance in 2007 is worse than their performance in 2003 through 2005. In contrast, the CAIFI performance in the Northeast and Northwest Regions in 2007 was their worst CAIFI performing year of the five year period from 2003 through 2007 which drove the overall system CAIFI performance in 2007 to be the worst in the 5 year period. Note that the taller the CAIFI bar in Figure 8, the worse the CAIFI performance.

Figure 9: CAIFI by Utility

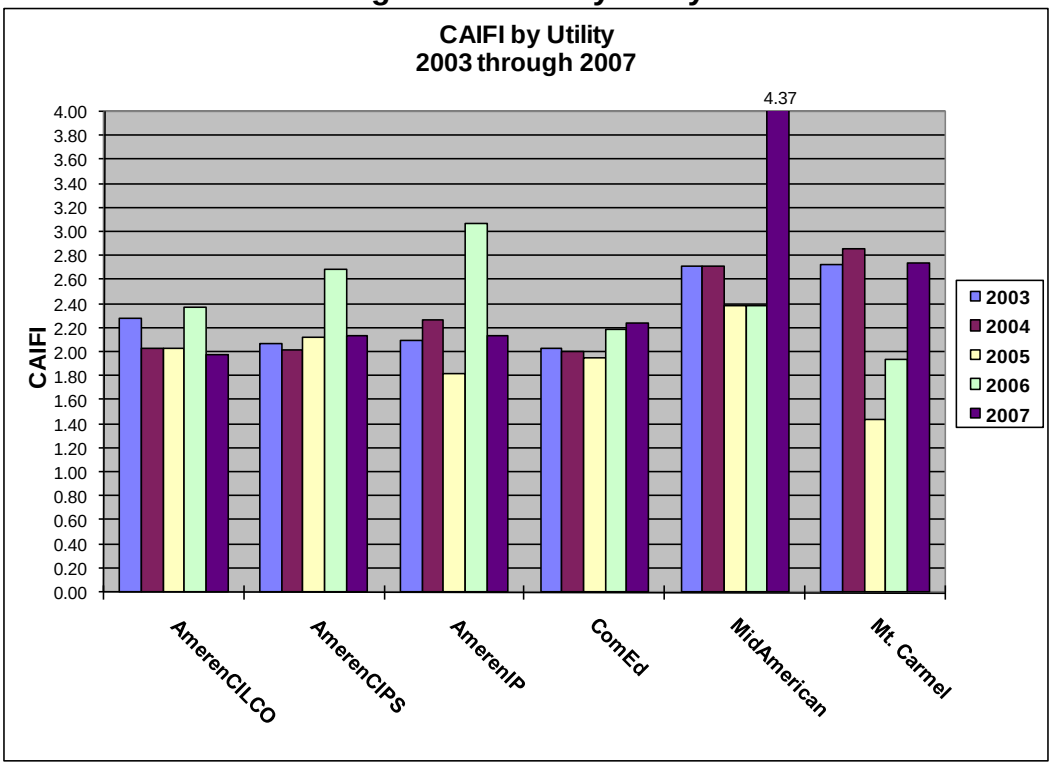


Figure 9 shows a comparison of CAIFI values reported for the years 2003 through 2007 by the jurisdictional utilities. In 2007, ComEd's CAIFI ranking dropped from second in 2006 to fourth (out of six) amongst the other jurisdictional utilities. Of the four largest jurisdictional utilities, ComEd's CAIFI performance was the worst in 2007.

Figure 10: Worst-Circuit CAIFI by Utility

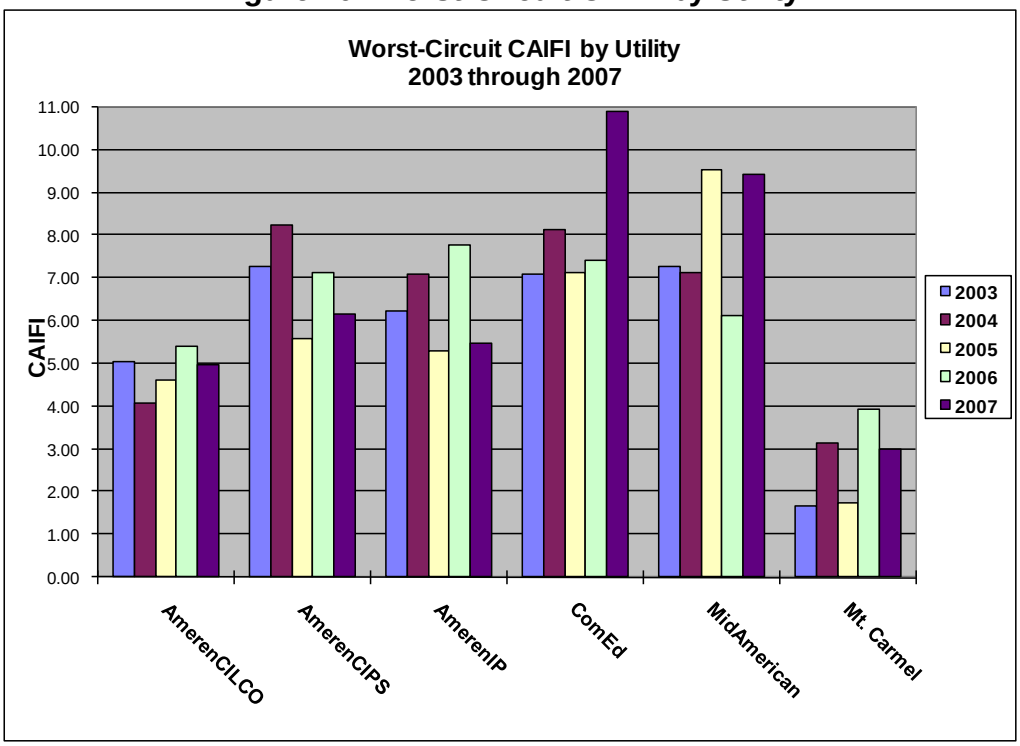
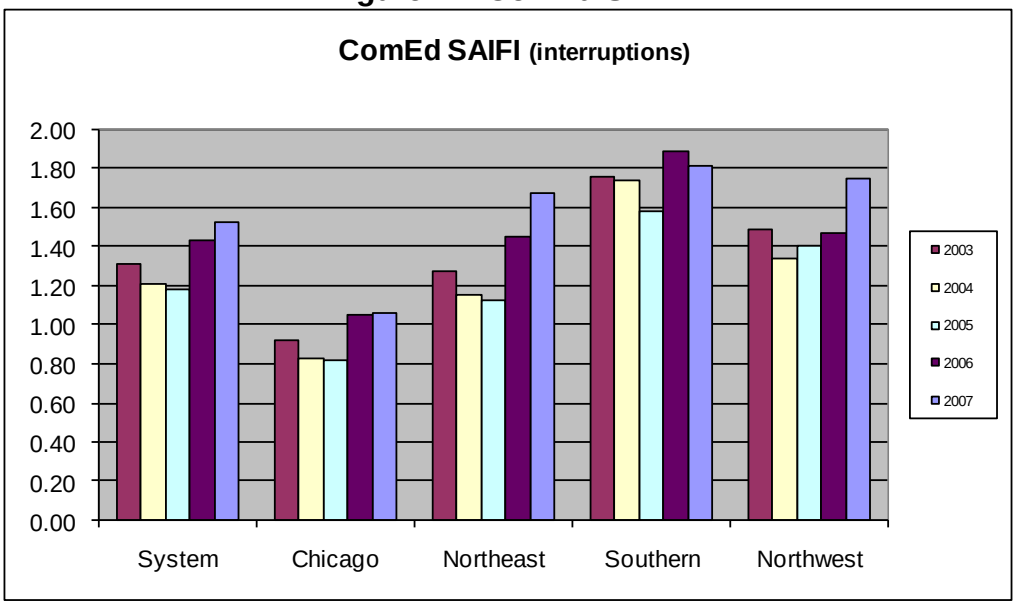


Figure 10 shows a comparison of CAIFI values for the worst-circuit for each of the jurisdictional utilities. In 2007, of the six jurisdictional utilities, ComEd had the CAIFI worst performing circuit.

Figure 11: ComEd SAIFI



In Figure 11, ComEd's Southern Region's SAIFI performance in 2007 is slightly better than its performance in 2006 but for the other three Regions and the

overall System the 2007 SAIFI performance is the worst of the five year periods from 2003 through 2007.

Figure 12: SAIFI by Utility

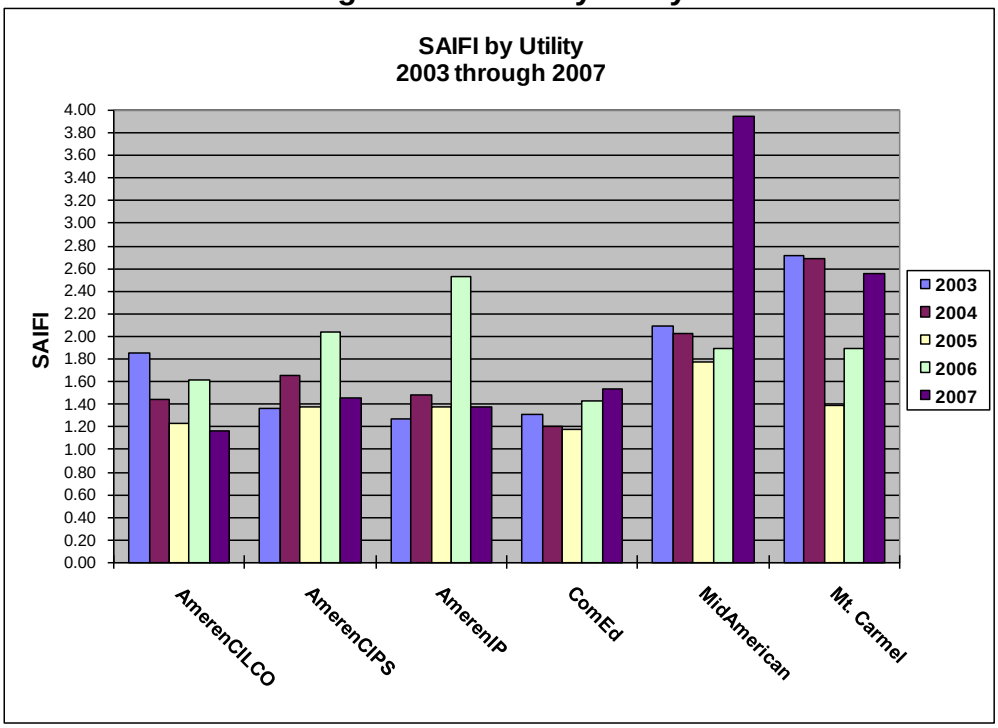


Figure 12 above shows a comparison of SAIFI values reported for the years 2003 through 2007 by the six jurisdictional utilities. In 2006, ComEd ranked best among the electric utilities. As a result of slightly worse performance in 2007, combined with significant improvements by Ameren, ComEd's 2007 ranking was forth out of the six utilities.

Figure 13: Worst-Circuit SAIFI by Utility

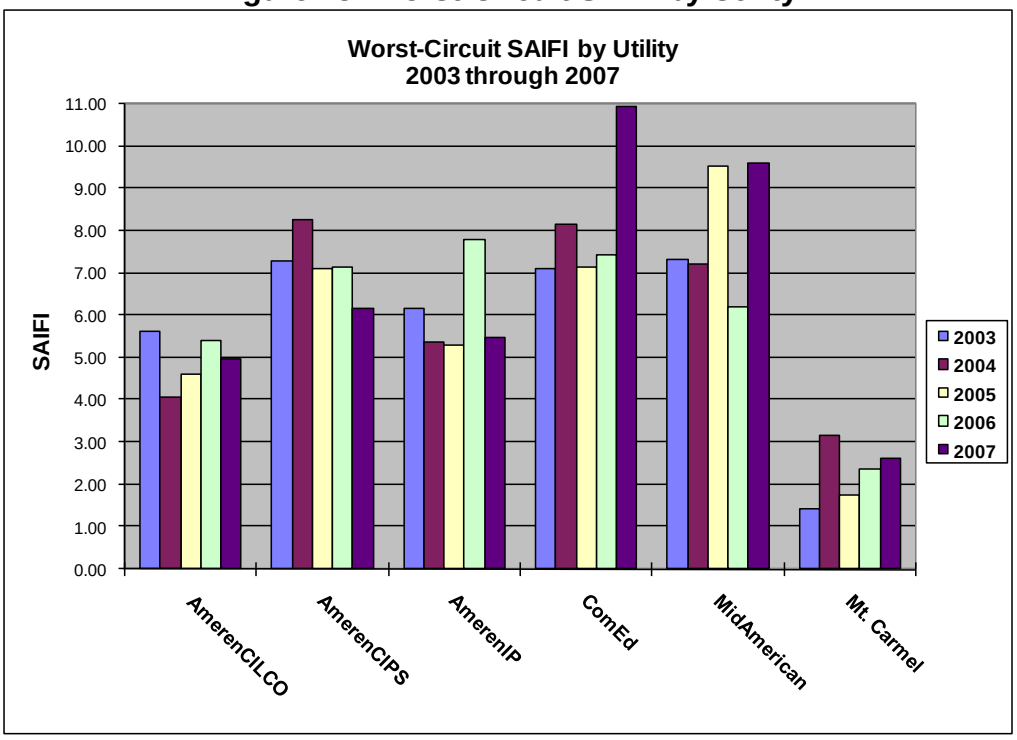
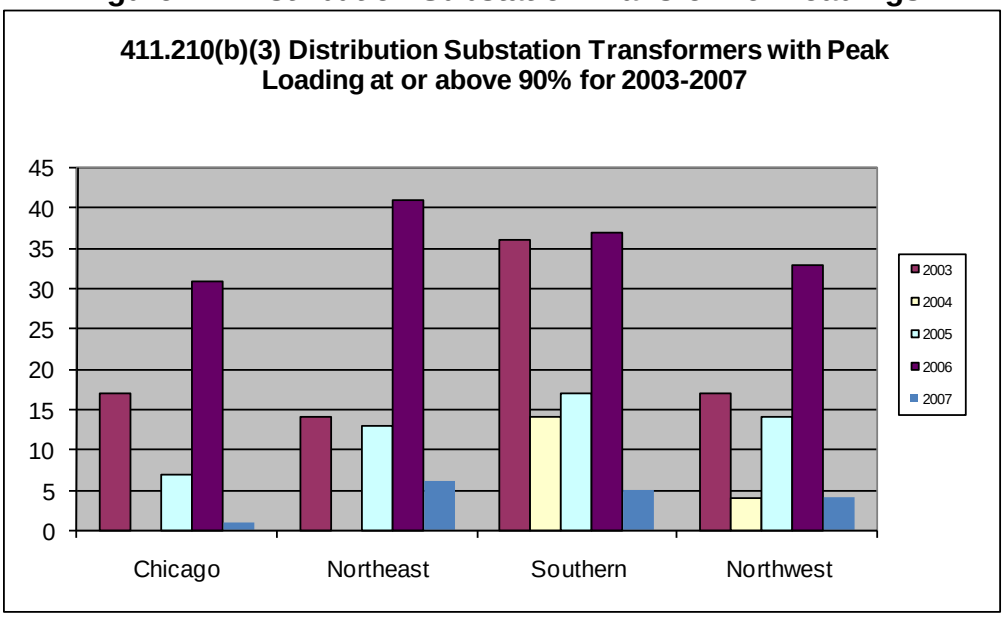


Figure 13 shows a comparison of SAIFI values for the worst circuit for each jurisdictional utility. ComEd's worst-circuit SAIFI ranking was sixth (out of six) place of the jurisdictional utilities for 2007.

The poor performance of ComEd's worst-circuit in relation to the worst-circuit of other jurisdictional utilities for 2007 in Figures 7, 10, and 13 remains a matter of concern for Staff. Of the six jurisdictional 2006 utilities in Illinois, ComEd had the worst circuit of all jurisdictional utilities in all three reliability performance indices. Figures 7, 10, and 13 clearly show that potential exists for reliability improvement while demonstrating the existence of significant risk for future reliability problems. Staff will continue to closely follow developments in this area.

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 14: Distribution Substation Transformer Loadings



In Figure 14, after the 2006 Report's 178% increase, information in the 2007 Report indicated an 89% decrease from 2006 to 2007 in distribution substation transformers with peak loadings at or above 90%. 2007 marks the best year with only 16 transformers exceeding the criterion in Part 411.210(b)(3) distribution substation transformer loadings at or above the 90% loading. 2007's better performance may be attributed to a 2007 actual peak load (21,972 MW) that was lower than projected (23,525 MW) by 6.6% and lower than the actual load in 2006 (23,613 MW) by nearly 7%. A significant portion of 2007's better performance may also be attributed to ComEd's increase in new substation additions in 2007 versus 2006 as is apparent in Figure 28.

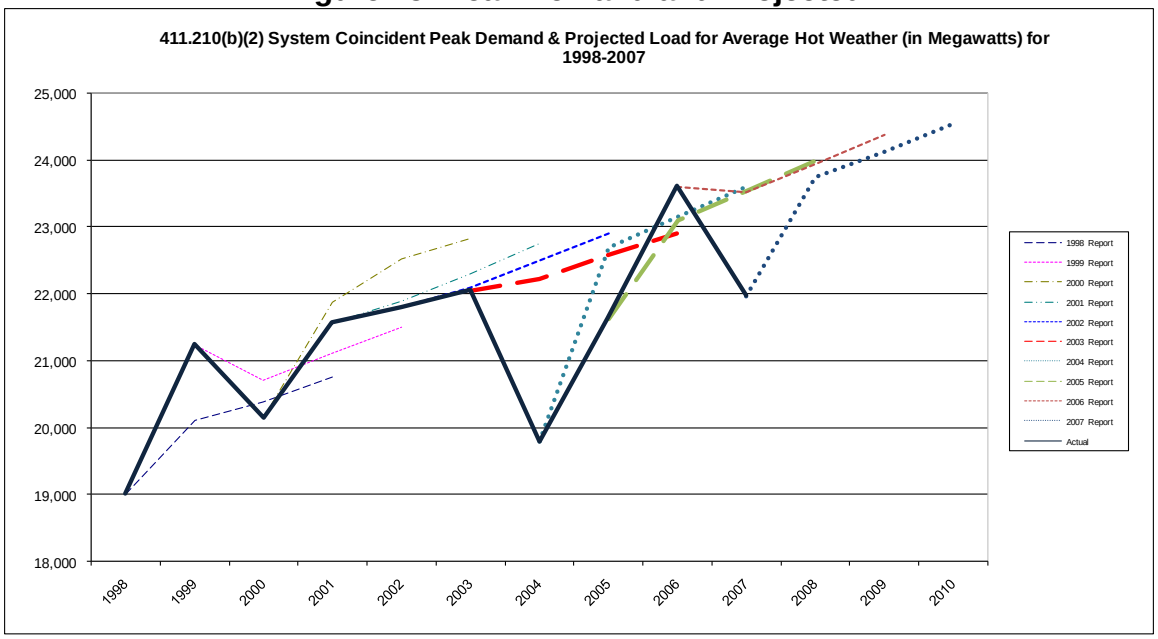
As Figure 15 shows, the system peak for 2007 is significantly below the overall trend for demand. The trends of transformer loadings are an important indicator of how well capacity additions are keeping up with demand growth. On that basis, Staff is concerned about the number of transformers that exceed the criterion in Part 411.210(b)(3) when system loading is near projected levels and will continue to closely follow these trends in the future.

A rising number of transformers exceeding the criterion in Part 411.210(b)(3) could be a sign of increasing reliability risks in the future. High transformer loadings can impact reliability in three 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[26] due to the cumulative thermal deterioration from overloading; (2) when a transformer is highly loaded, this reduces system reconfiguration flexibility when other failures occur in the system or when greater-than-expected load growth occurs; and (3) a trend toward a higher number of

[26] Higher operating temperatures, dependent in part on loading, shorten transformer life.

transformers exceeding the criterion in Part 411.210(b)(3) at or below planning criterion load levels may signify inadequate substation capacity expansion planning.

Figure 15: Peak Demand and Projected

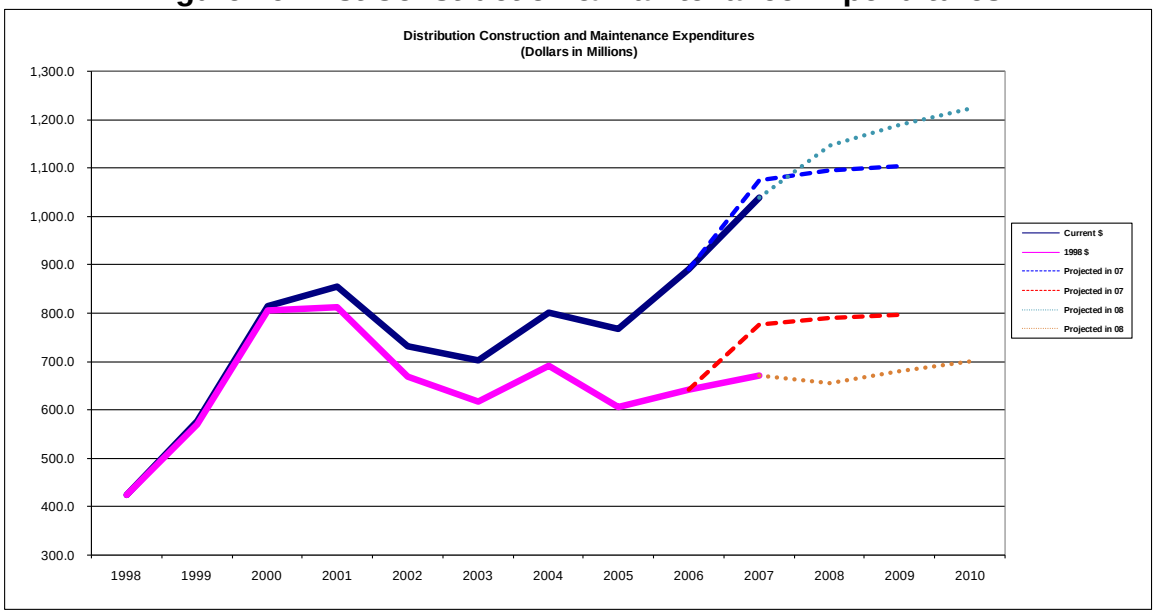


9. ComEd's Plan to Maintain or Improve Reliability

To understand the trend in real dollars for expenditures, Staff turned to the information from Part 411.120(b)(3)(G)(iii & iv). Figures 16 and 17 display "Construction and Maintenance Expenditures" in current and constant dollars for Distribution and Transmission, respectively.

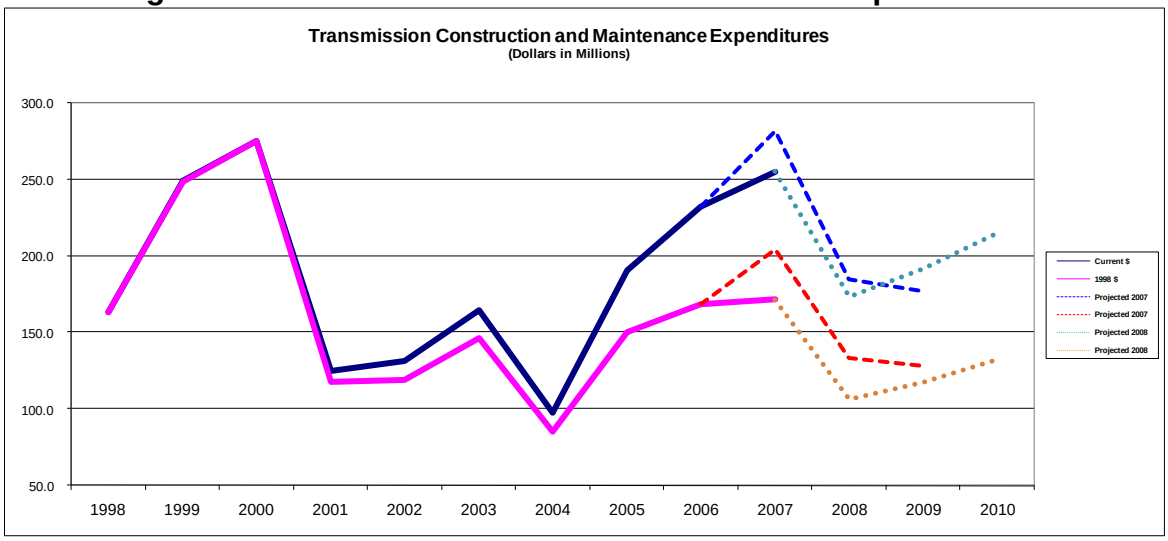
From 1998 to 2007, distribution construction and maintenance expenditures show a positive real growth rate (an annual compound rate of 5.2% based on constant 1998 dollars from 1998 to the 2007 level – Figure 16). The overall increase from the low 1998 levels is apparent in Figure 16 with the heavy ramp up of activity visible in 1999 through 2001 followed by a decline to the present level of expenditure in constant 1998 dollars. Last year ComEd had projected that, starting in 2007, spending levels would ramp up to near 2000 levels in constant dollars. The actual amount spent, in constant 1998 dollars, was only up slightly from the 2006 amount and projected future amounts through 2010 would be roughly level with 2007 amounts.

Figure 16: Dist Construction & Maintenance Expenditures



On the other hand, transmission construction and maintenance expenditures (see Figure 17) show a barely positive overall growth rate (annual 0.55% compound growth rate) from 1998 to 2007 in constant 1998 dollars. From the peak spending levels in 2000, transmission construction and maintenance expenditures have declined at an average compound rate of -6.55% in constant 1998 dollars. Figure 17 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. Projected spending levels for 2008 through 2010 are below the actual 1998 levels in constant 1998 dollars.

Figure 17: Trans Construction and Maintenance Expenditures



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-7, including Table 1 on pages A-4 through A-7, of the 2007 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 shows that the planned future investment level for 2008 is lower than what had been planned for that year in the 2005 report but is the same as the amount for that year in the 2006 report. Table 10 also shows for the planned investment level for 2009 the amount currently planned is higher than the amount planned in the 2006 Report.

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

	Plan 2008	Plan 2009	Plan 2010
Transmission System Improvements [see page A-4 of 2007 Report]	66	49	102
Distribution Capacity [see page A-5 of 2007 Report]	119	131	124
Substation [see page A-5 of 2007 Report]	47	41	51
4kv, 12kv, & 34kv Ckt. Improvements [see page A-6 of 2007 Report]	74	88	92
Inspection and Maintenance [see page A-7 of 2007 Report]	115	119	122
	421	**428**	**491**
Variance from plan in 2006 Report	0	19	
Variance from plan in 2005 Report	-44		

A detailed analysis of actual (using information from Part 411.120(b)(3)(B)) and projected investment plans (Part 411.120(b)(3)(A) information from the 2001 through 2007 Reliability Reports) is illustrated in Figures 18 through 23.

Figure 18: Comparison of Actual vs Plan for Future Investment

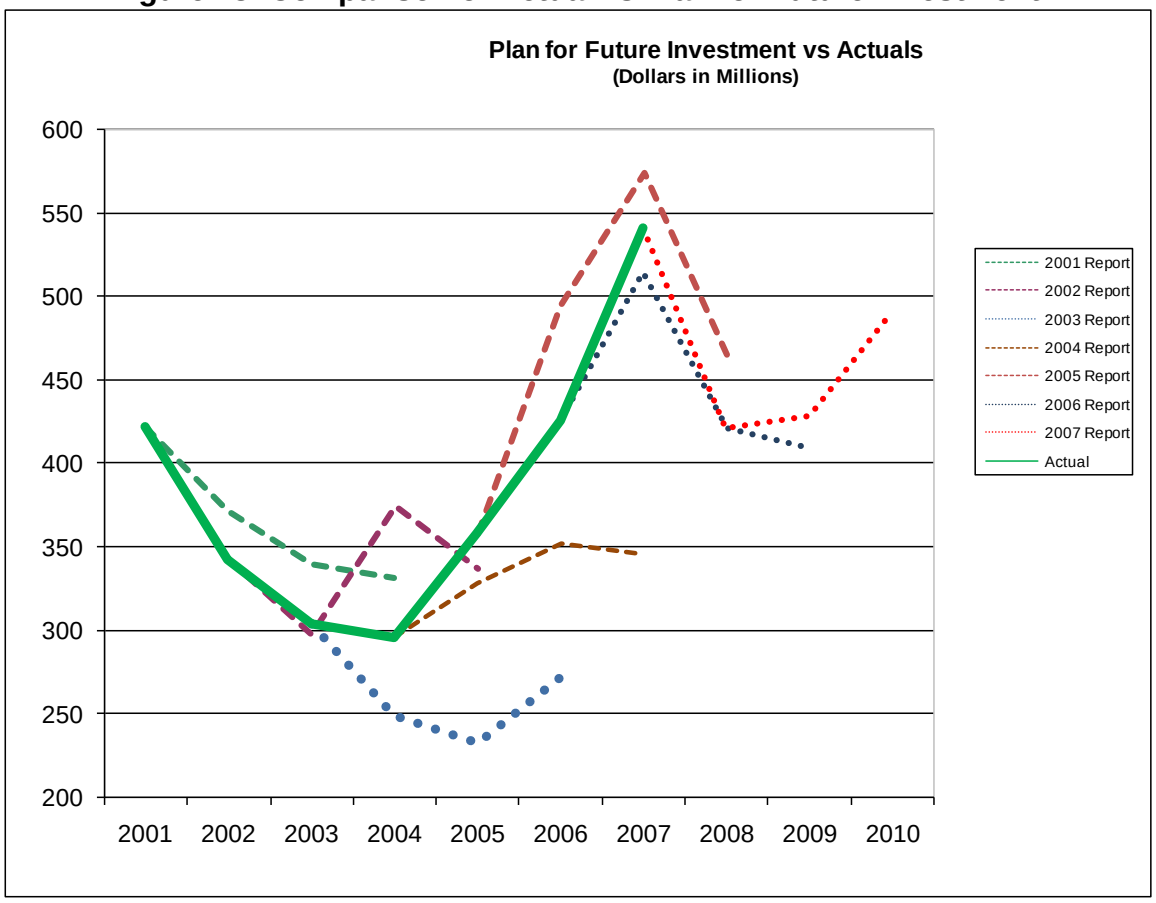
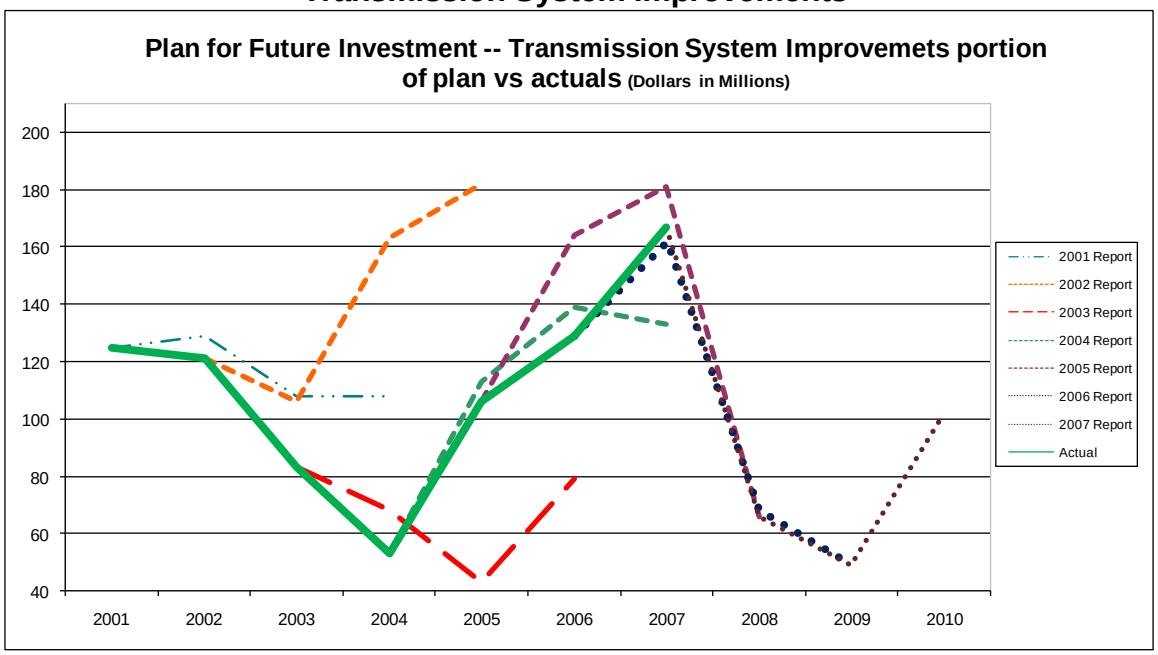


Figure 18 shows how the actual 2007 investment was less than the amount projected for that year in the 2005 Report, but was higher than the amounts projected for 2007 in the 2006 and 2004 Reports. On pages A-1 and A-2 of the 2006 Reliability Report, ComEd describes its plan for future investment.

Figure 19: Comparison of Actual vs Plan for Future Investment – Transmission System Improvements



Actual Transmission System Improvements spending levels for 2005 through 2007 closely follow the projections from the 2004 and 2006 reports. Spending in this category is expected to peak in 2007 and then trail off as ComEd completes a major 345kV transmission project serving the City of Chicago in 2008.

Figure 20: Comparison of Actual vs Plan for Future Investment – Distribution Capacity

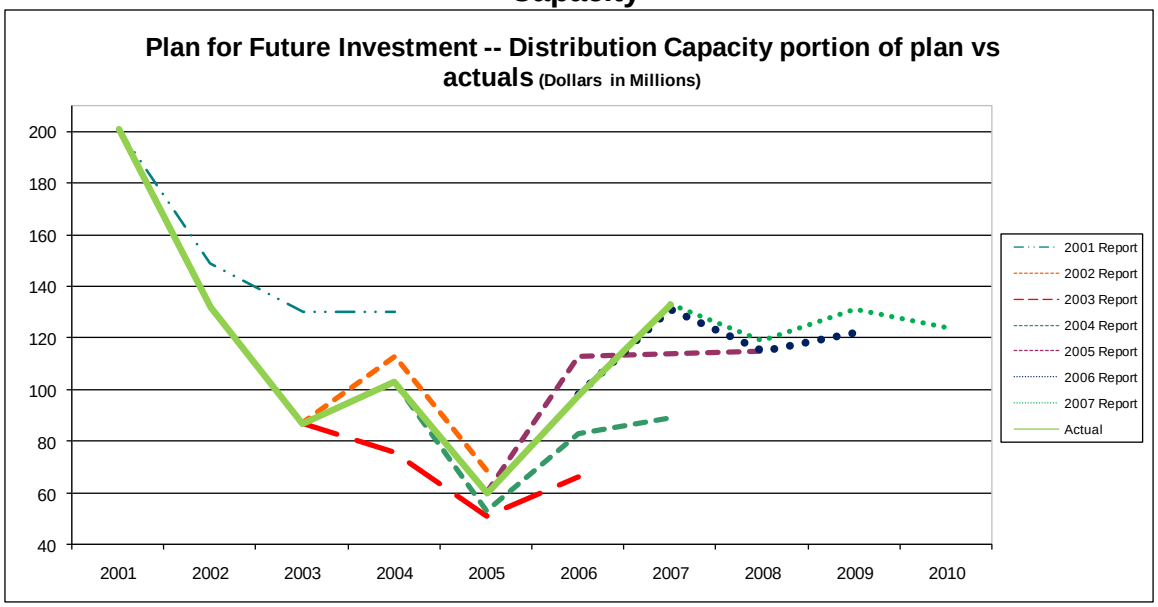


Figure 20 shows that the planned investment in distribution capacity expansion should be leveling off at slightly below 2007 levels after a period of trending up after the downward trend from 2001 through 2005.

Figure 21: Comparison of Actual vs Plan for Future Investment – Substation

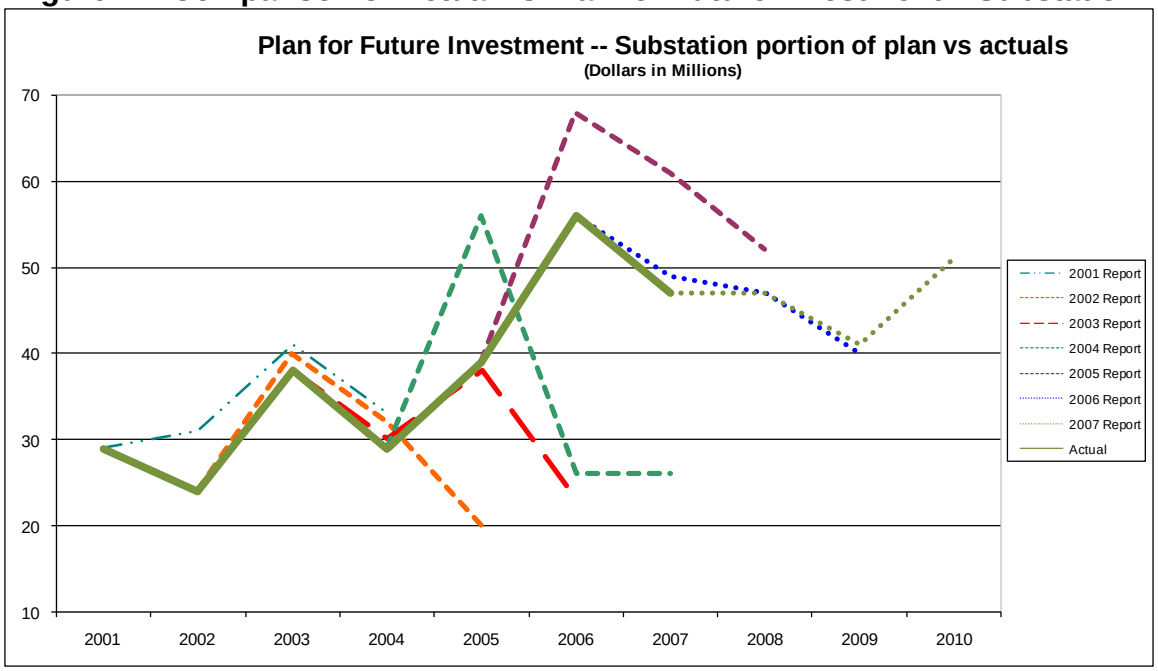


Figure 21 illustrates that planned substation investment peaked in 2006 and will be declining until the next upward trend in 2010.

Figure 22: Comparison of Actual vs Plan for Future Investment – 4kv, 12kv, & 34kv Circuit Improvements

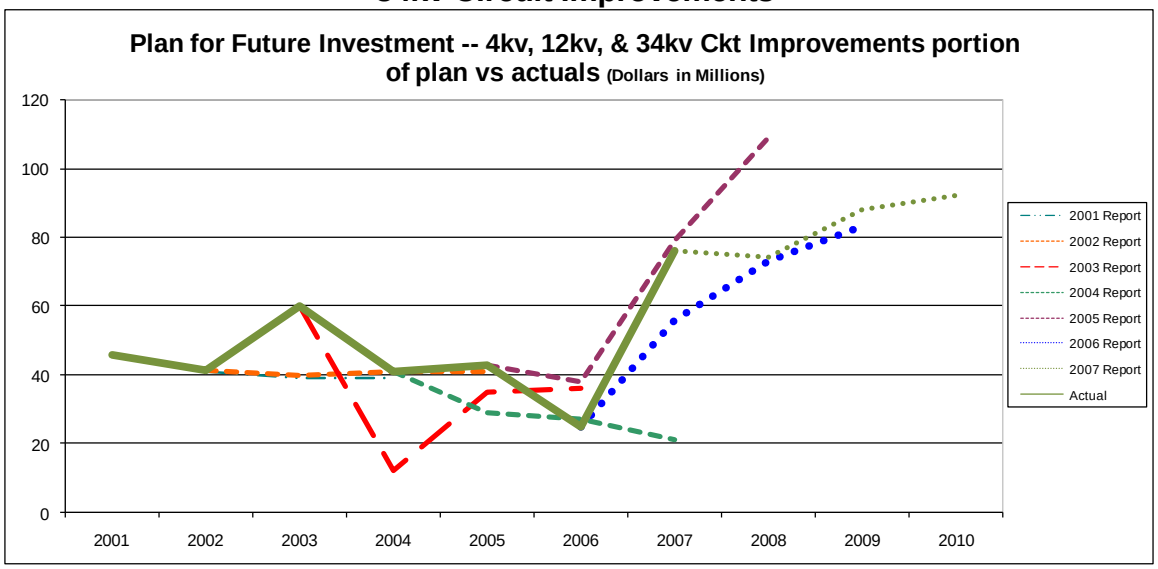


Figure 22 shows that, after a decrease in spending from 2003 through 2006, actual spending increased substantially in 2007 with continued increased investment planned over the next three years in distribution circuit improvements to reduce interruption frequency and duration and to address line disturbances.

Figure 23: Comparison of Actual vs Plan for Future Investment – Inspection and Maintenance

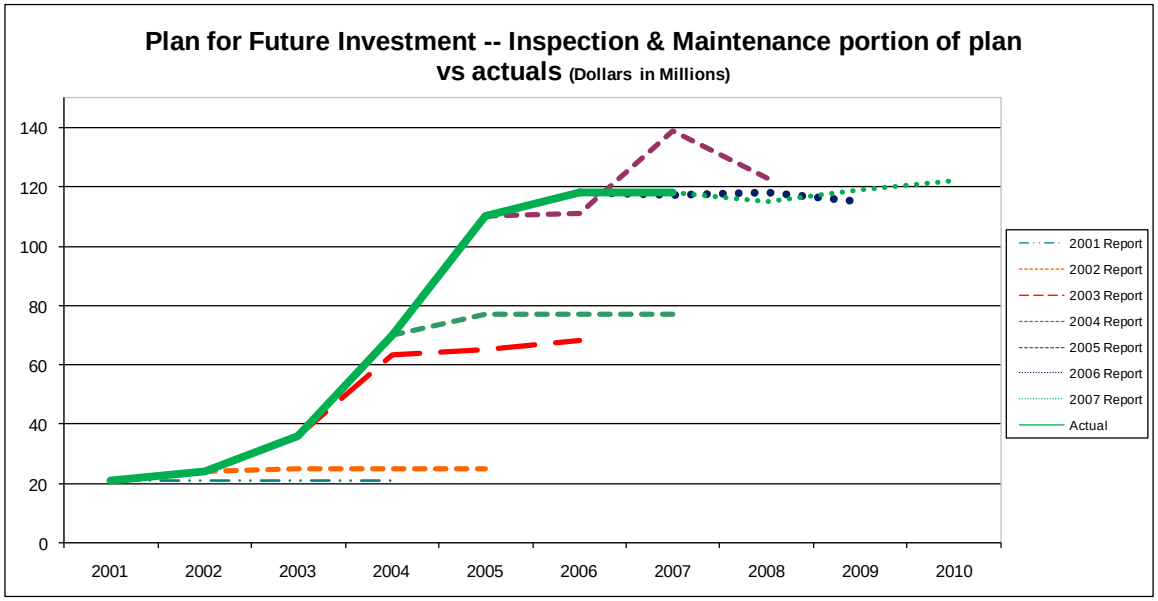


Figure 23 shows that the planned investment over the next three years to be approximately level with the 2007 actual spending levels for inspection and maintenance. The 2007 actual and planned spending levels are consistent with the 2006 actual and planned spending levels which is in sharp contrast with projections in previous years.

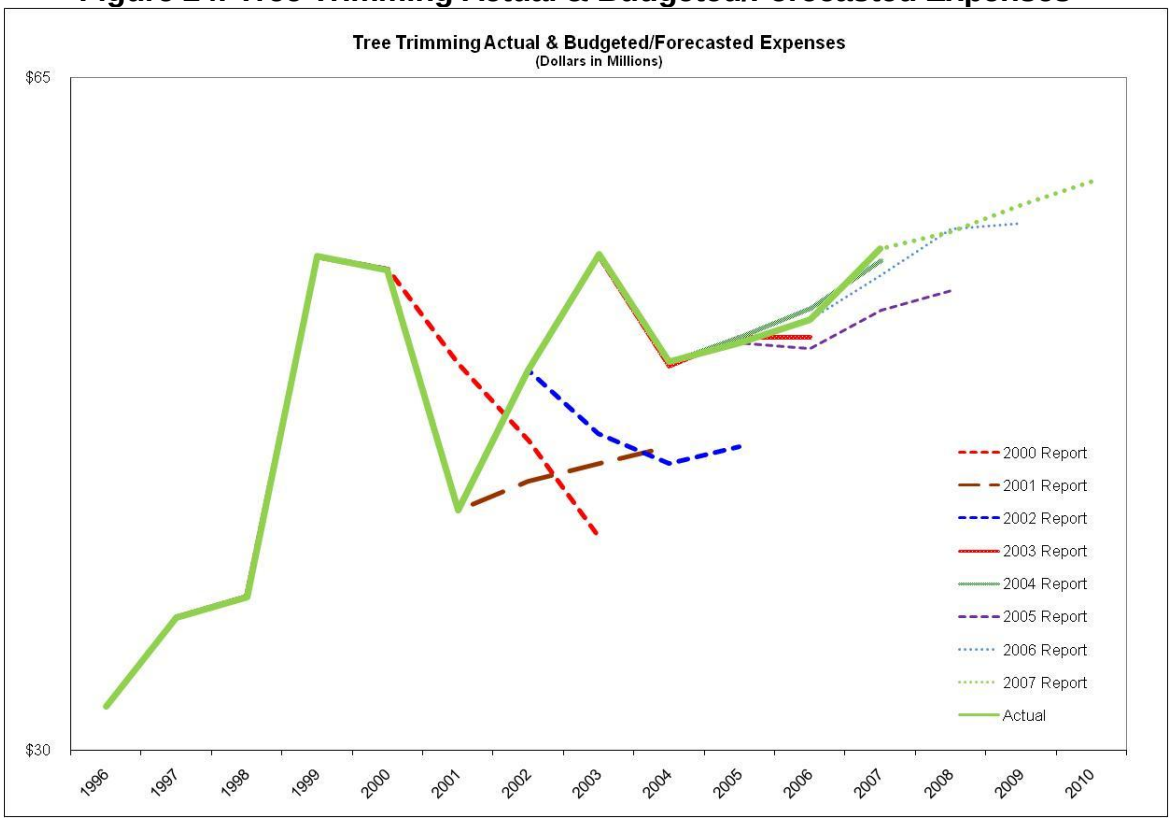
Trends in spending levels alone do not tell the Commission how well ComEd is addressing reliability issues unless the Commission has some indication of how efficiently those spending patterns are being applied. For example, if all else were equal, then spending patterns similar to those in the mid 1990's would be a cause for alarm because the spending patterns of the mid 1990's were a precursor to the reliability problems of 1999. However, rarely are all things equal and a good example of this would be to look at the strides made over the past 15 years in capabilities of distribution and substation automation technologies and costs.

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 of whether the work that should be done is actually getting 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.

Figure 24 illustrates the actual tree trimming (vegetation management) expenditures from 1996 through 2007 as well as the three-year budget/forecasts[27] 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 during adverse weather conditions as well as more normal conditions. The overall spending trend of Figure 24 is upward, but the year-to-year variations in expenditures show inconsistency from 2000 to 2004. The large variances in 2001 and 2003 between actual and budgeted amounts involved differences between what was budgeted for storm expenses and actual expenditures[28].

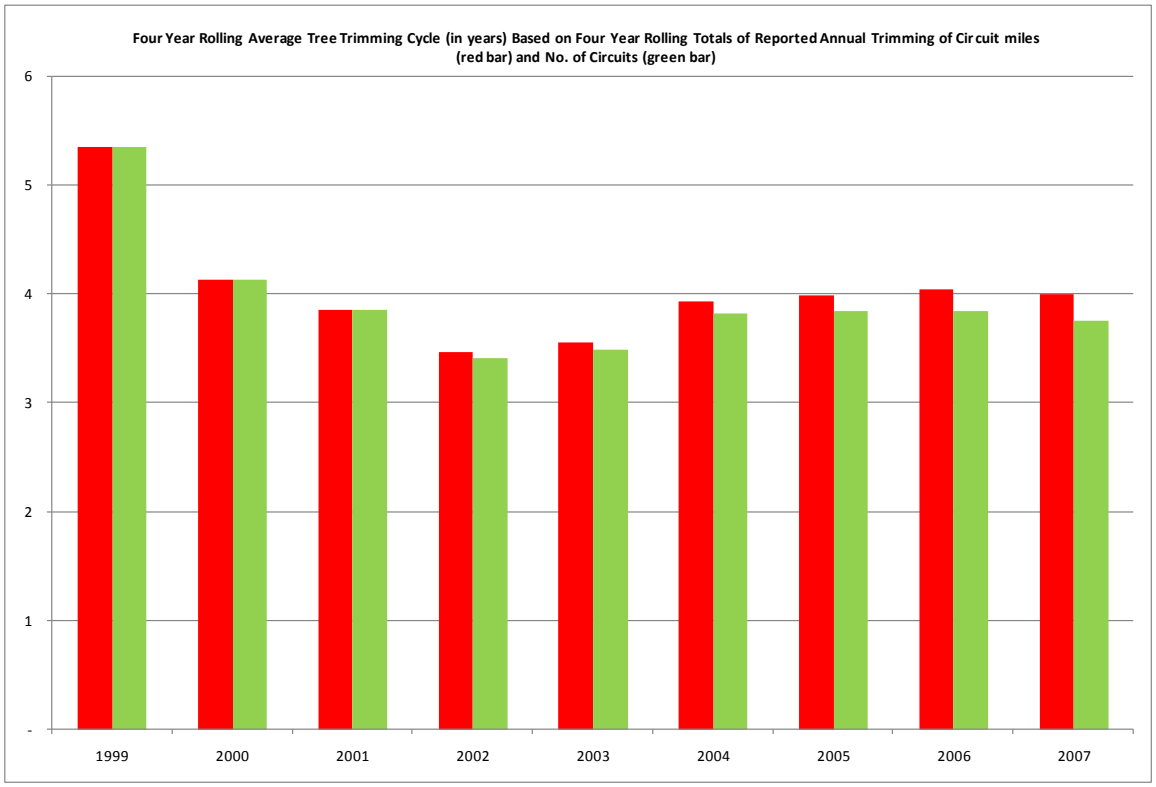
Figure 24: Tree Trimming Actual & Budgeted/Forecasted Expenses



Since May 18, 2000, ComEd has claimed to be on a four-year tree trimming cycle. Figure 25 indicates, based on most recent four year rolling totals of reported circuits trimmed[29], that ComEd has been on a four-year cycle since the year 2000.

[27] The first year in the future is a budget number followed by two forecast numbers.
[28] ComEd response to DR REL 3.1.
[29] See sections 7 and 10 of this report for discussions and illustrations of quality issues.

Figure 25: Rolling Average Tree Trimming Cycle Based on Most Recent Four Year Totals



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 that 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[30]. In Figure 16 ComEd's distribution construction and maintenance expenditures, in constant 1998 dollars, are projected by ComEd to decrease slightly from 2007 to 2008 before leveling up slightly in 2009 and 2010. In constant 1998 dollars, ComEd's 2007 transmission construction maintenance expenditures (see Figure 17) are slightly above 1998 levels, but ComEd's projections show those expenditures below 1998 levels in 2008 through 2010. Staff will continue to closely follow trends in this area for

[30] 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 1998 and 1999. Figures 26 and 27 illustrate some of the impact of this implied delay effect.

impacts on reliability while also encouraging ComEd's efforts to improve efficiencies and economies of maintenance and operations.

Figure 26: Total O&M Spent by ComEd per Customer

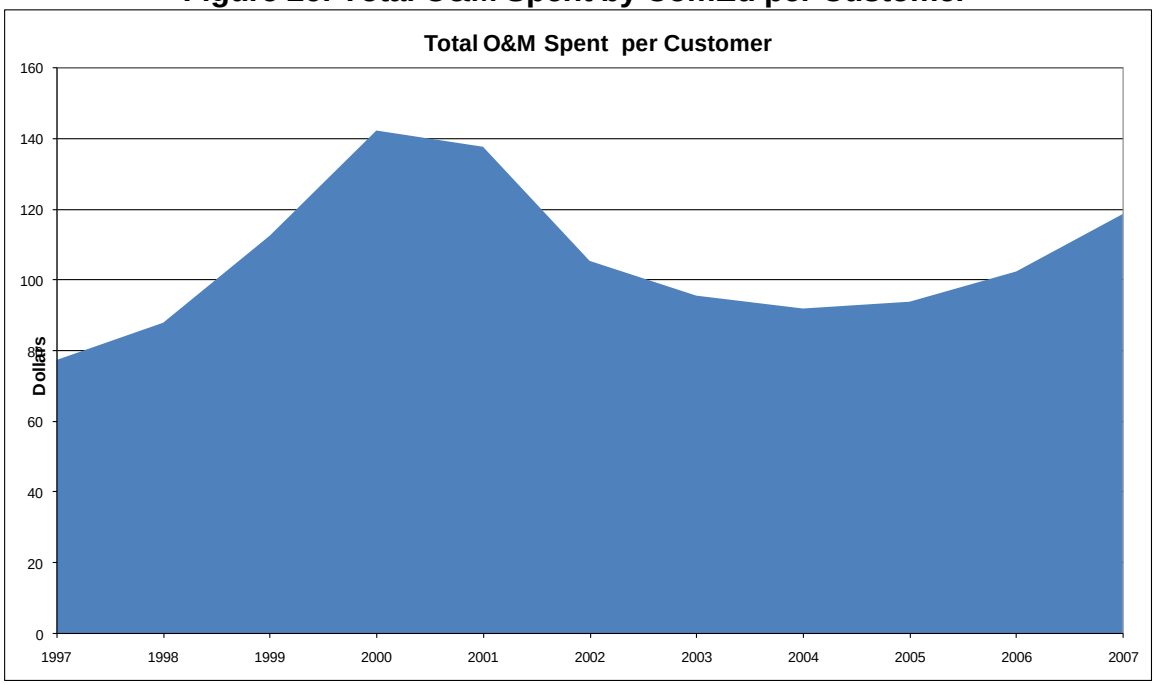


Figure 26 shows that total O&M dollars spent per ComEd customer had bottomed in 2004 and has significantly increased over the last year. Staff will continue to follow this closely.

Figure 27: Annual Interruption totals

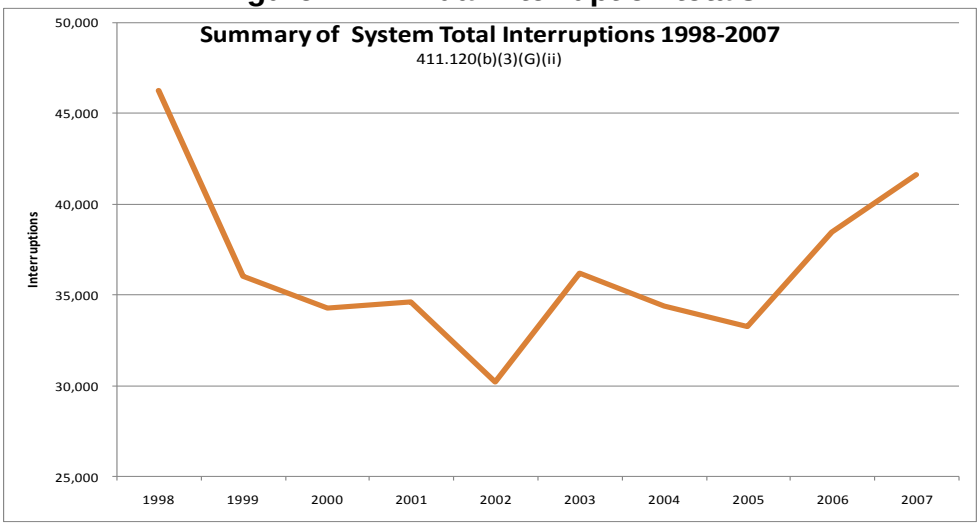


Figure 27 shows the trend in total annual system interruptions from 1998 through 2007 as defined in ComEd's responses to Section 411.120(b)(3)(G)(ii)[31]. The highest number of interruptions (46,286 interruptions) are seen in 1998 which corresponds to the time when ComEd's distribution system unavailability became so conspicuously apparent. For 2002, after ComEd spent a few years improving its system, ComEd reported only 30,548 interruptions in response to 411.120(b)(3)(G)(ii). Since 2002 the overall trend has been upward with total interruptions in 2006 and 2007 (38,488 and 41,645 interruptions respectively) at the highest number of annual interruptions since 1998. This recent upward trend is consistent with the trends that were discussed in relation to Table 4 in Section 7 Staff is concerned, should this multi-year trend continue, and will follow this issue closely.

Figure 28: Company and Contract Employees – End of Year Totals

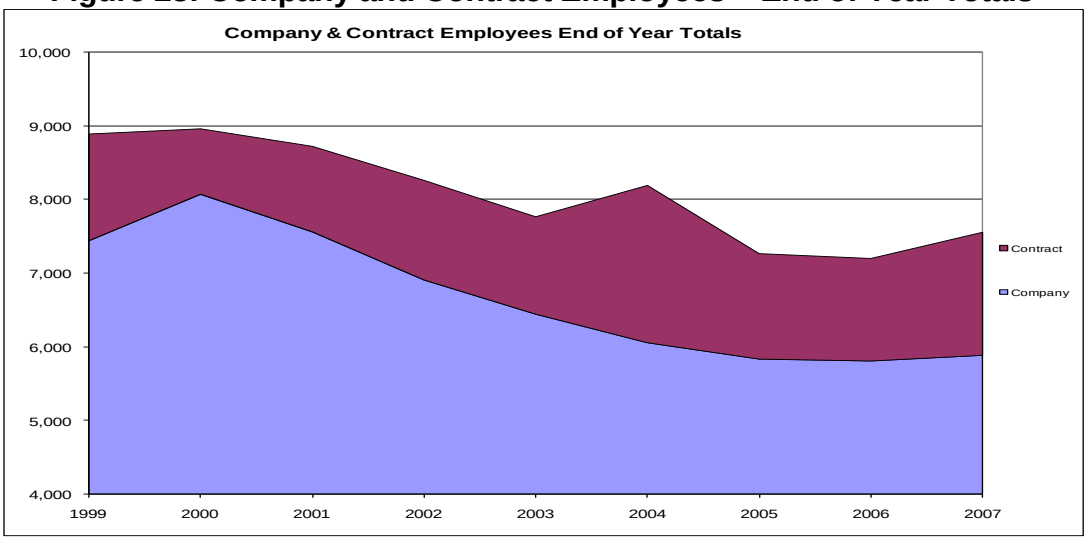


Figure 28 shows that the number of company employees declined by 21% from 1999 to 2007 while the number of contract employees increased by 15% for a total decrease over that period of 15%. The impact that this total employee decrease may have on reliability has yet to be determined, but Staff will continue to follow developments in this area for signs of direct or indirect impacts.

It is Staff's opinion that ComEd's transmission system vegetation management program has been weakened, in part, as a result of employee reductions. See Appendix E, Staff's Investigation Report into the July 2008 transmission line problems. Staff is concerned ComEd's 21% reduction of employees over the last 8 years may also suggest programmatic problems in distribution and substation operations yet to be discovered or reported to Staff. ComEd may not have enough personnel properly allocated to know with confidence that the work is

[31] The 2007 System Total of 41,645 interruptions is from Table 12 on Page G-8 of ComEd's 2007 Report.

getting done because of reliance on contractor reports and metrics instead of first hand field knowledge.

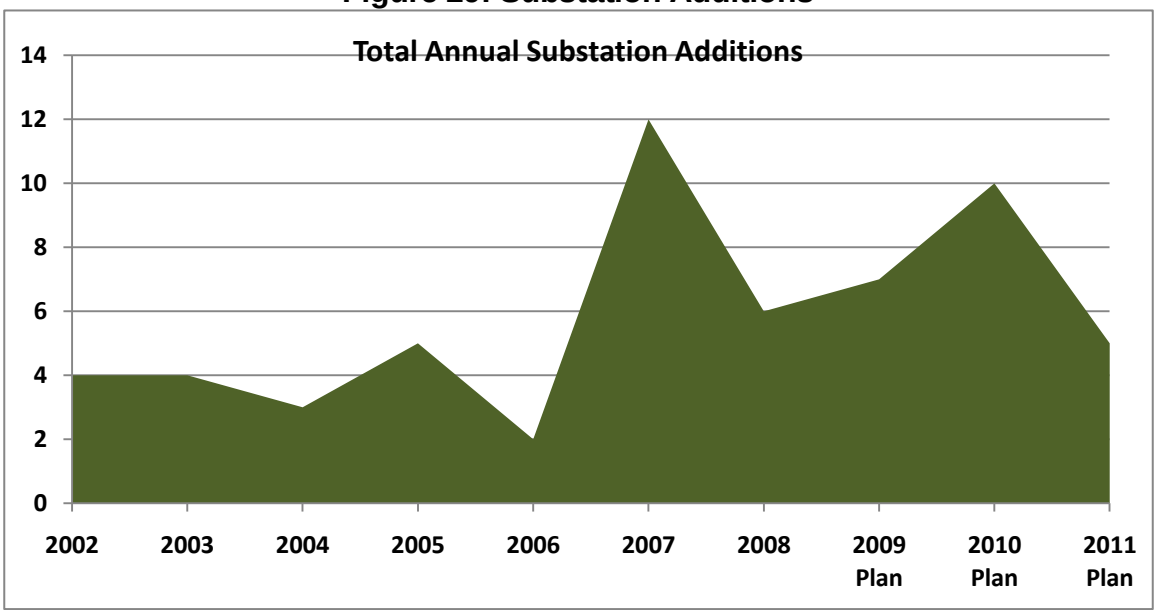
Table 11 indicates the term lengths that a number of people have held the position of ComEd executive responsible for energy delivery reliability, starting with Paul McCoy on October 22, 1997, up through the current executive, Barry Mitchell, the position of ComEd executive responsible for energy delivery reliability. Staff is concerned that the lack of management continuity in this and other positions could and already may have had a detrimental impact on reliability and efficiency. Staff notes that Mr. Costello is the only person to have held that position for two years or more since October 1997. Staff will continue to 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	2.3
9	Barry Mitchell	1.3+ as of end of 2008

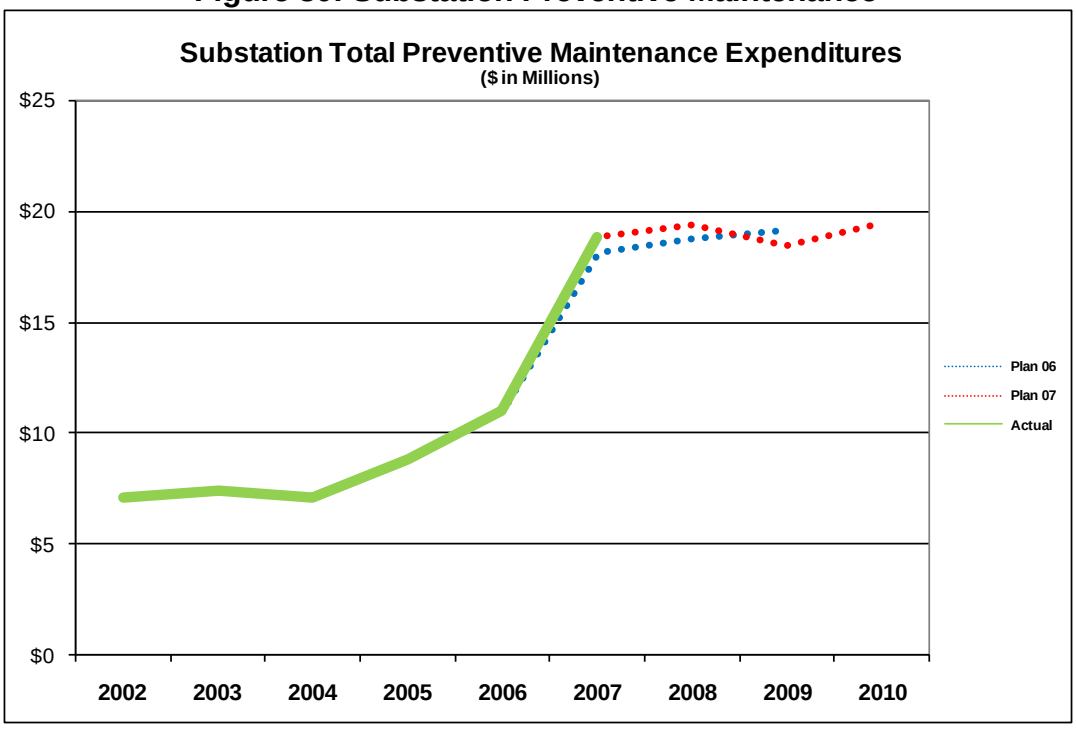
Figure 29 illustrates actual substation additions through 2008 as well as planned additions through 2011. Staff believes that much of the improved performance illustrated in Figure 14 from 2006 to 2007 may be partly responsible to the increase in substation additions in 2007.

Figure 29: Substation Additions



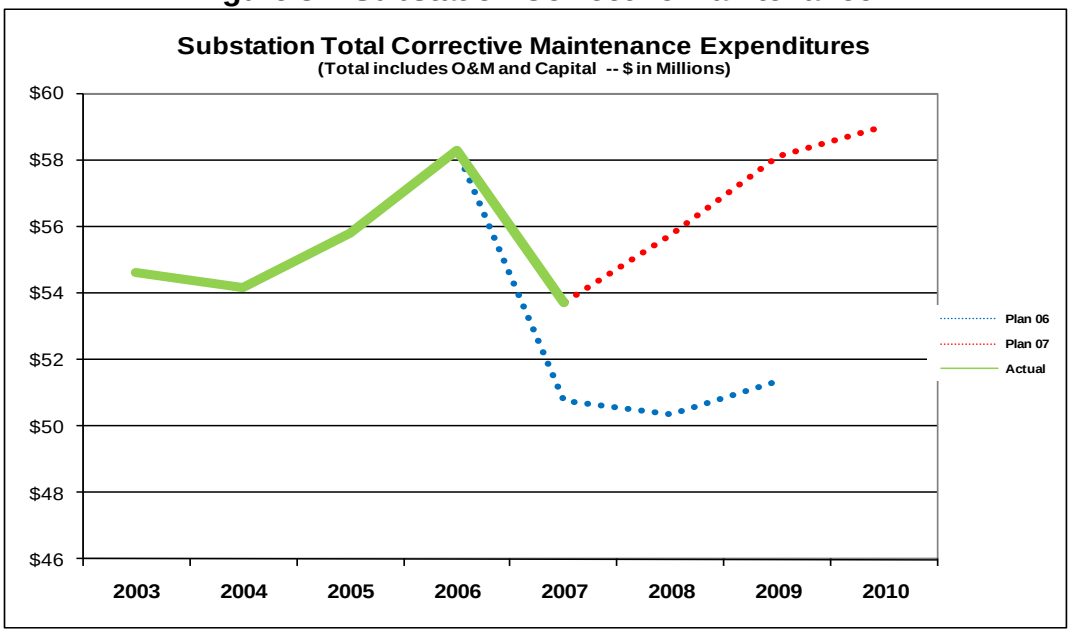
In addition to building new substations to meet increased demand and to improve customer reliability it is important that maintenance be scheduled and completed in substations to insure maximum capability, flexibility and reliability during periods of high demand. Figures 30 and 31 show the trends in spending on preventive and corrective maintenance expenditures.

Figure 30: Substation Preventive Maintenance



Spending more on preventive maintenance, all other things being equal, should result in improved equipment reliability and availability. In Figure 30 the 2007 actual expenditure closely tracked the 2006 planned amount for that year. The planned preventive maintenance expenditures are projected to remain roughly level through 2010. In Figure 31 the actual expenditure in 2007 is markedly lower than the expenditures in 2006 but is higher than what was planned for 2007 in the 2006 plan. The 2007 plan projects increasing corrective maintenance expenditures through 2010. Staff will closely follow these trends.

Figure 31: Substation Corrective Maintenance



Another way to gauge progress in energy delivery systems reliability and availability improvements is to analyze distribution corrective maintenance backlogs. Figure 32 tracks the end of the year backlogs for distribution corrective maintenance.

Figure 32: Distribution Corrective Maintenance End of the Year Backlog

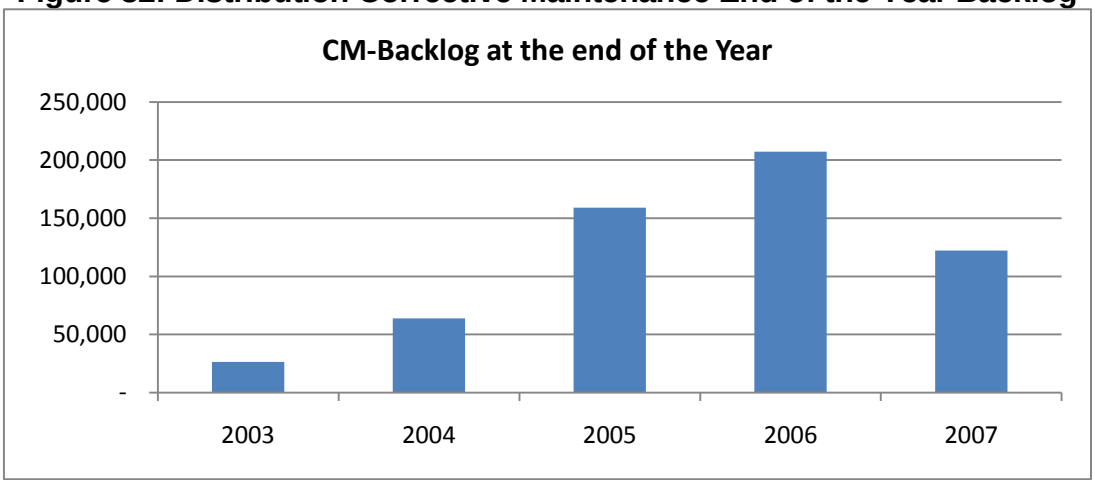


Figure 32 is more telling when looked at in conjunction with the trends seen in Figure 23 where expenditures for inspection and maintenance climbed sharply after 2003. According to ComEd,[32] the Company expected distribution corrective maintenance backlogs to increase over their four-year distribution inspection cycle because they were looking harder and identifying more corrective maintenance items than would have been previously noted. Figure 32 shows for the first time in four years a decline in distribution corrective maintenance backlogs from 2006 to 2007. While Staff finds this change encouraging it is too soon to tell if it is a continuing real trend or if the quality of inspections and maintenance has been sustained over time.

In response to Staff's concerns in the 2006 assessment report about continuing to find NESC 261.D.4.c violations, ComEd reported 108 locations[33] were identified in the last year that need remediation, and, as of December 12, 2008, construction is completed or currently in progress for approximately 90% of these locations. Staff will follow progress in this area and other NESC type violations as ComEd works through its remaining 2 and 4-year distribution inspection cycles.

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

A report on the significant deviations from ComEd's 2006 plan for 2007 from 2007 actuals was included in ComEd's 2007 reliability report in pages B-1 through B-5. Table 13 summarizes the data from ComEd's plan and shows a significant [i.e. ~10% or more] variance in "4kV, 12kV, & 34kV Circuit Improvements" and overall the 2007 actual was 5% above the 2006 plan for 2007.

Table 12 Comparison of 2006 plan for 2007 to 2007 actuals (in $ Million's)

	2006 Plan for 2007	Actual 2007	Var	% Var
Transmission System Improvements [see page B-2]	162	167	5	3.1%
Distribution Capacity [see page B-3]	131	133	2	1.5%
Substation [see page B-3]	49	47	-2	-4.1%
4kv, 12kv, & 34kv Circuit Improvements [see page B-4]	56	76	20	35.7%
Inspection and Maintenance [see page B-5]	117	118	1	0.9%
	515	**541**	**26**	**5.0%**

[32] Statement by Preston Swafford at Liberty Verification Close-Out meeting January 11, 2005.

[33] ComEd stated: "… The thorough inspection of 34kV lines are performed every 2 years and 4kV and 12kV lines are inspected every 4 years. … The Maintenance Inspectors were last re-trained in August 2007. …"

Figure 22 summarizes a comparison of actual versus planned investment for “4kV, 12kV, & 34kV Circuit Improvements” from the Reliability Reports from 2001 up to the present day.

On page B-4 regarding the “4kV, 12kV, & 34kV Circuit Improvements” 35.7% variance, ComEd noted that variances were mainly: “… due to higher than anticipated expenditures to replace system components as a result of storms and low voltage power cable replacements. These items were offset by a less than anticipated spend in the replacement of direct buried cable for underground residential distribution (URD). While work for 2007 URD cable replacement was completed, the spend was less than budgeted. …”

ComEd’s explanations for their major variances in response to 411.120(b)(3)(B) appear reasonable.

12. Summary of Recommendations

Staff recommends the following actions:

- Staff should continue regular inspections in 2009 of conditions in the field (including tree conditions) coupled with monitoring emerging spending patterns as well as indicators of efficiency improvements. (Section 9)
- ComEd should continue its focus on improving customer service. (Section 7)
- ComEd should continue its efforts in implementing the tree replacement program associated with “the right tree in the right place” near its power lines. (Section 7)
- 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. (Section 7)
- ComEd should review and correct as appropriate the comprehensive quality control and management oversight of ComEd’s vegetation management programs. (Appendix E)
- ComEd should provide an explanation and plans to correct Southern Region deficiencies in future Reliability Report’s. (Section 8)