

**STATE OF ILLINOIS
ILLINOIS COMMERCE COMMISSION**

Illinois Commerce Commission)	
On Its Own Motion)	
)	
Adoption of report concerning the)	Docket No. 12-0682
2010 reliability performance of)	
Commonwealth Edison Company)	
pursuant to 83 Ill. Adm. Code 411.140)	

**RESPONSE OF COMMONWEALTH EDISON COMPANY TO
“ILLINOIS COMMERCE COMMISSION ASSESSMENT OF
COMMONWEALTH EDISON COMPANY RELIABILITY REPORT AND
RELIABILITY PERFORMANCE FOR CALENDAR YEAR 2010”**

Commonwealth Edison Company (“ComEd”) submits this response to the report of the Commission Staff dated October 5, 2012, and entitled “Illinois Commerce Commission Assessment of Commonwealth Edison Company Reliability Report and Reliability Performance for Calendar Year 2010.”

ComEd would like to thank Staff for providing a valuable assessment of its 2010 Annual Reliability Report. ComEd takes Staff’s assessment seriously and would like to take this opportunity to respond to comments by Staff in the Executive Summary and recommendations by Staff in the Summary of Recommendations. ComEd would also like to take this opportunity to expand on a few other points raised by Staff.

ComEd would also like to highlight the work that is being completed under the Energy Infrastructure Modernization Act (EIMA), which is a 10-year, \$2.6 billion investment program to strengthen the existing power grid. This includes a \$1.3 billion investment to replace thousands of miles of underground cable; inspect, treat and, where necessary, replace or reinforce wood poles; and perform “storm hardening”, which focuses on customer reliability and

further reduces susceptibility to storm related interruptions. Storm hardening improvements may include, but are not limited to, overhead to underground conversion, installation of tree-resistant cable, additional vegetation management and other engineered solutions.

The company will invest another \$1.3 billion to upgrade and digitize the electric system, including deployment of distribution automation devices that will automatically detect problems on the system and reroute power; modernize ten of its substations to digital technology with real-time equipment monitoring; and the installation of smart meters system wide.

In addition to continually monitoring reliability, ComEd implements improvement programs as needed, such as:

- Worst Performing Circuit Program
- Relay Obsolescence Program
- Lightning Protection Program
- Substation Breaker Overhauls
- Substation Bus Hardening Program
- Wildlife Mitigation Program

(Source: 2011 Annual Reliability Report, Introduction; pg 2-3)

Following is ComEd's response to Staff's concerns and recommendations, which are restated below in bold text.

I. Points Raised in the Executive Summary:

ICC Staff commented on several areas of concern on pages i and ii of the Executive Summary of the report.

A disturbing trend may be emerging with underground equipment failures being the leading cause of unplanned interruptions in 2009 and 2010 even though weather and tree related cause categories saw increases of 111% and 55% respectively. Underground equipment failures have been rising over the past 10 years. In the meantime, spending for 4kV, 12kV, & 34kV Circuit Improvements, which also addresses the replacement / treatment of direct buried cable, has been around \$80 million per year since 2007 and is projected to remain at that level through 2013. In real dollars, distribution construction and maintenance expenditures have been near the low 1998 levels for the last two years.

As part of EIMA and to further enhance reliability and minimize the impact of interruptions, ComEd has implemented reliability-related investments. These EIMA programs are planned to be completed over a five-year period plus reasonable ramp-up and ramp-down periods.

Underground Residential Cable ("URD") injection and replacement: This program is designed to remediate nearly 4,200 miles of bare concentric cable, some of which was installed as early as 1966. This work will reduce long duration interruptions primarily experienced in residential subdivisions.

Mainline cable system refurbishment and replacement: The most complex of all the reliability-related investments, this program includes planned assessment and refurbishment, where necessary, of all manholes on ComEd's system (approximately 28,000), replacement of an estimated 500 miles of mainline underground cable, and testing of an estimated 1,780 sections of mainline cable over the course of the program. This program is primarily targeted at the testing and replacement of lead cable in urban areas. (*Source: 2011 Annual Reliability Report, Section A; pg A-2–A3*)

ComEd would also like to point out that the summer of 2010 was the hottest in 15 years. There were 21 days with maximum temperatures at O'Hare International Airport of 90 degrees or hotter compared to four days in 2009. In addition to the hot weather, there was over 21 inches of rain reported in the summer of 2010, which was the highest amount of rain on record for the same time period going back to 1998. (*Source: 2010 Annual Reliability Report, Introduction; pg 1*)

Staff observed in the field instances where more careful investment or more careful attention to investment detail would yield greater reliability returns on ComEd's reliability investment. An example of this would be installing animal guards on Primaries going into a substation but not installing animal guards on the circuit static wire which allows animals to get to the substation structures via the static wire and access the Primaries behind the animal guards on the lines.

ComEd's Construction Specification C7510 "Wildlife Protection of Electrical Equipment – 34.5kV and Below Systems" comprises various wildlife protection measures to divert wildlife away from outside substation bus structures and conductors. Particularly in reference to Squirrel Guards (referred to as Line Guards in ComEd specification C7510), C7510 provides basic information for installation of Line Guards. The Line Guards need to be strategically placed based on the substation's physical layout to offer the best protection.

Since 2010, additional detail has been added to our construction specification C7510 to aid field personnel in the proper installation of these devices at the substation (*Exhibit A, Revised Construction Specification for C7510, Revised 10/8/11*). For example, the revised construction specification instructs that the physical placement of Line Guards is strategic in protecting against wildlife intrusion (Line Guards are to be placed 4 feet outside the station fence when possible to prevent access to the substation area inside the

fence) and it provides that these Line Guards will be installed on all overhead lines, static or live, that enter the station overhead to be able to provide the prevention to station access by wildlife that is intended.

Staff's observations in the field indicate that some maintenance is just not getting done. This is confirmed by the growing year-end backlog of distribution CM. Substation CM backlog had declined from 2006 to 2009 but had remained unchanged from 2009 to 2010. In spite of that, ComEd was projecting a 30% decrease in Substation CM spending from 2010 to 2011-2013 levels.

ComEd continues with our Substation CM programs to reduce the CM backlog and increase (1) the number of CMs getting completed and (2) the spending level on CMs (CMs completed: 2010 – 17,574; 2011 – 20,071; and 2012 – 24,589; Spending: 2010 – \$46M; 2011 – \$53M; and 2012 – \$65M).

In addition, year to year inventory of corrective maintenance tasks may increase or decrease. It is ComEd's general practice to establish policies and schedules by which to timely accomplish its objectives and provide safe and reliable service. Accordingly, ComEd establishes management practices such as hiring and maintaining a qualified workforce; providing training, tools, and resources necessary for its employees to complete Company objectives; supervising, monitoring, and controlling performance; working to improve future performance based on past experience, and implementing quality controls. (Source: *ComEd's Data Request Response to Staff Data Request ENG 3.01: b-e.*)

In the field, Staff observed shortfalls in the quality of vegetation management by observing trees making contact with ComEd's overhead electric distribution lines and observing where trees had grown into a position that threatened ComEd's overhead electric distribution lines and equipment.

ComEd's Transmission and Distribution Cyclic Maintenance Programs identify circuits requiring vegetation management each year and completes all work identified. In addition, a portion of payment for completed work is withheld until ComEd Quality Assurance can inspect all work to ensure that program standards are met as established within the programs, processes, and procedures that have been provided to the Commission. ComEd continues to monitor reliability performance and make adjustments to programs accordingly.

II. Recommended Actions:

Staff recommends ComEd continue to investigate problem areas and modify programs to advance *and maintain* a four-year (minimum) tree trimming cycle throughout its service territory that is in compliance with NESC Rule 218. Staff continues to recommend that, as ComEd makes additional progress in re-establishing the trim zones and removing dead wood above conductors of its distribution circuits, ComEd investigate more ways to address danger and hazard trees. Staff recommends ComEd pursue more opportunities to

educate customers on the reliability consequences of planting some types of vegetation beneath or near ComEd’s distribution equipment. Staff recommends ComEd identify and timely address vegetation management problem areas and modify programs to maintain their vegetation management progress.

ComEd continues to improve its vegetation management programs and contracting strategies. The Distribution Cycle Trim Program ensures trimming of circuits on a four-year cycle. The Mid-Cycle Trim and 34kV Programs continue to reduce interruptions by concentrating on circuits prior to the next trim cycle. ComEd’s contracting strategy for 2011 and 2012 changed to a single contractor performing four-year cyclic trimming and maintains a fixed cost structure. Further, as previously discussed, ComEd has quality assurance protection by retaining a percentage of contractor payment until a quality inspection is completed. As a result of focus on tree removals, over 57,000 trees were removed during distribution cycle maintenance in 2012, approximately 10% of the total trees worked, as compared to approximately 2% in previous years. *(Source: 2011 Annual Reliability Report, Section G, pg G-6, plus 2012 additional information)*

In order to educate and inform our communities, ComEd has reached out to municipalities to remove incompatible trees that have been repeatedly pruned for line clearance and replace them with low-growing compatible trees. ComEd has also attended community meetings and engaged in other outreach activities to educate communities on the importance of line clearance tree trimming

Furthermore, ComEd continues to work with customers and municipalities to promote planting “the right tree in the right place” to avoid future tree/ utility conflicts. In 2012, ComEd revised the customer notification post cards and door cards that are provided prior to conducting vegetation management to include an illustration showing where to plant different sized trees and a “plant the right tree in the right place” statement. This postcard was mailed to over 448,000 customers in 2012. ComEd also participates in and supports numerous Arbor Day events throughout the service territory. In fact, in 2012, ComEd was named a Tree Line USA utility by the Arbor Day Foundation for the 13th time. This award was given to ComEd in recognition of its national leadership in caring for and protecting our community’s trees while meeting service objectives. *(Source: 2011 Annual Reliability Report, Section G, pg G-6 & G-7, plus additional information)*

With respect to the Staff’s comments about overhanging branches forming canopies over electric distribution lines, ComEd’s program is consistent with Best Management Practices, where removal of overhanging limbs is dependent on the type of facility, tree species, and other site conditions. In 2007, ComEd enhanced the cyclic maintenance clearance guidelines for the 34kV system to allow no overhanging limbs. Since this time, ComEd has seen a decline in tree related interruptions to the 34kV system.

ComEd’s Storm Hardening program, implemented in 2012, is addressing overhanging branches and risk trees in targeted problem areas of the 12kV and 4kV system. ComEd is assessing the condition of each tree in the targeted areas, resulting in increased removal of overhanging branches and entire tree removals. ComEd uses interruption investigation

results, taking what we know about how trees typically fail and impact the electric lines, to develop the criteria for the storm hardening work. This approach takes into account the likelihood of the tree or branches to fail, in combination with the targeted areas identified by reliability analysis.

ComEd also reviewed the studies referenced by Staff. The publication by S. Guggenmoos published in 2010, “Storm Hardening the Electric System Against Tree-Caused Service Interruptions,” discusses storm impact to transmission ROW in the forested western U.S., and is not applicable to the urban/suburban ComEd distribution system. The publication from 2007, “Increased Risk of Electric Service Interruption Associated with Tree Branches Overhanging Conductors” is an evaluation of a single tree with different pruning applications and the impact to the distribution system when that tree fails. It does not take into account the likelihood of the tree failure. ComEd does not disagree that pruning overhanging branches back to the bole, as described by the author, would reduce service interruptions should that tree be subjected to storm stress loadings that cause the tree to fail. However, a utility must also take into account, as the author writes, the resulting significant alteration of tree appearance, impact on tree health, the public resistance to pruning, and negative public reactions. The author writes, “Electric distribution conductors and associated hardware must co-exist with the public’s valued shady, tree-lined closed-canopy streets.” (Guggenmoos 2007). As a result, utilities also consider the likelihood of the tree to fail, along with the consequences of tree failure (based on prioritized circuits or circuit sections).

Staff recommends that ComEd allocate sufficient resources to distribution corrective maintenance and show progress in working down the CM Backlog. Staff recommends ComEd explain how they have allocated sufficient resources to work down the substation corrective maintenance backlog.

ComEd continues to allocate the available resources with an appropriate focus on working down the inventory of high priority Corrective Maintenance items; one that is consistent with sound financial practices. Periodic reviews of existing CM work orders may also permit consolidation and/or removal of similar requests, and those requests that are no longer applicable or required. As shown on page 2 of this response, ComEd continues to complete Substation CMs annually.

In addition, ComEd remains focused on providing reliable service to customers. The plan continues the fundamental programs necessary to maintain equipment, meet projected load growth, and deliver reliable service. The investment plan is designed for the system as a whole, while ensuring community-specific reliability concerns are addressed. ComEd invests what is necessary to achieve reliable system performance in addition to investments to enhance reliability. ComEd is continually identifying and evaluating ways to improve operating efficiencies and internal processes. This is an ongoing effort that includes changes in how ComEd allocates its resources. The future investment plan will incorporate these efficiencies. (*Source: 2009 ComEd Annual Reliability Report, Section A, pg A-1*)

ComEd's reliability improvement long-range plan is designed to improve system reliability performance. In 2009, ComEd increased efficiency by continuing to implement process improvements such as increased utilization of internal resources, reduced outsourcing, renegotiated contractor costs and material costs, as well as use of a risk based decision making process. These planning and process improvements enabled ComEd to plan and execute reliability improvement programs with equivalent benefits at lower costs. (Source: 2009 ComEd Annual Reliability Report, Section A, pg A-3)

III. Other Points:

On page 40 of the Assessment, the data in Figure 27 does not appear to align with the proper year. The data shown for 2010 is the value for 2009, the data shown for 2009 is the value for 2008, etc. The actual value for 2010 is ~99, which is approximately the same level as 2009.

As noted by ICC Staff, substation gate found open and unattended at Elmhurst DCW343 Substation (Appendix A pg 22, Item 249-64): On 5/24/11, the ICC Inspector found the gate open and the lock not secured, hanging from the chain.

ComEd's requirement is to keep the gate closed and locked at all times unless there is a dedicated person monitoring entrants to the site. For this incident, ComEd completed an investigation considering all known departments that may have visited the station. The investigation was inconclusive as to who left it open since it is a common lock; however, it was determined that a system must be put in place to minimize and track access. Accordingly, ComEd currently has a program in progress to convert substation key locks to electronic locks (E-Locks) that would be able to identify the key holders and provide time-stamped recording for opening of the locks on the substation gates and doors. E-Locks are scheduled to be completed at all TSS, TDC, SS, and DC substations by the end of 2014.

As noted by ICC Staff, rust on dead-end transmission poles and vegetation in the yard and on the fence at Burr Ridge TSS136 Substation (Appendix A pg 11-12, Item 044-60):

ComEd performs substation inspections every 10 weeks to identify, or continue to monitor, (potential) corrective maintenance items such as the progression of rust on equipment, which should be, or already are, scheduled for repair in the future. If rust on pole type structures is suspected beyond surface rust, engineering will be engaged to measure/determine the extent of rust and its impact to the structure's integrity. Vegetation growth is controlled on a regular basis and cases of extensive vegetation growth identified between scheduled visits are addressed.

As noted by ICC Staff, rust on the TR 74 transformer radiators with and active oil leak at Oakbrook TDC566 Substation (Appendix A pg 13, Item 104-112):

ComEd performs substation inspections every 10 weeks to identify, or continue to monitor, (potential) corrective maintenance items such as the progression of rust on equipment or oil leaks that should be, or are already, scheduled for repair in the future. Note that ComEd has a specific annual program to address leaking oil-filled equipment.

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Respectfully Submitted,

/s/ Bradley R. Perkins

Bradley R. Perkins

Assistant General Counsel

Counsel for Commonwealth Edison Company

10 S. Dearborn St

49th Floor

Chicago, Illinois 60603

312.394.2632

Brad.Perkins@exeloncorp.com

CERTIFICATE OF SERVICE

Commonwealth Edison is currently the only party to this proceeding and no other parties are listed by the Commission in the e-Docket file in this case.

/s/ Bradley R. Perkins
Bradley R. Perkins