

Report to the Illinois General Assembly

Illinois Commerce Commission Staff

Analysis of Electric Utilities' Workforce:

Staffing and Training Benchmarks

August 16, 2010



STATE OF ILLINOIS

## Illinois Commerce Commission

527 EAST CAPITOL AVENUE  
SPRINGFIELD, ILLINOIS 62701  
217/785-7456

TIM ANDERSON  
EXECUTIVE DIRECTOR

160 NORTH LASALLE STREET  
CHICAGO, ILLINOIS 60601  
312/814-2841

August 16, 2010

The Honorable Members of the Illinois General Assembly  
State House  
Springfield, Illinois

Dear Honorable Members of the Illinois General Assembly:

P.A. 95-0081 and P.A. 96-0582 amended the Public Utilities Act to direct the Illinois Commerce Commission to conduct a workforce analysis study of each Illinois electric utility to determine the adequacy of staffing levels from 1995 – 2006, and to require staff of the Commission to develop benchmarks for employee staffing levels and training related to the following job classifications:

- in-house workers, commonly referred to as "linemen"
- customer service call-center employees
- meter service or repair employees

Initially, the ICC retained Jacobs Consulting, Inc., to conduct workforce study analyses of the electric utilities as required by Section 4-602 of the Public Utilities Act. The attached report presents staff's conclusions based on a review of the Jacobs studies, the reports from the utilities regarding their workforce size and training benchmarks, and the ICC's most recent reliability assessment of each utility's operations.

Sincerely,

A handwritten signature in black ink, appearing to read "Tim Anderson", with a long horizontal line extending to the right.

Tim Anderson  
Executive Director

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## Introduction

The Public Utilities Act ("PUA" or "the Act") was amended by Public Acts 095-0081 and 096-0582 by adding and amending Sections 4-602 and 4-603:<sup>1</sup>

### **Sec. 4-602. Electric utility workforce study.**

(a) The Commission shall conduct a comprehensive workforce analysis study of each electric utility to determine the adequacy of the total in-house staffing in each job classification or job title critical to maintaining quality reliability and restoring service in each electric utility's service territory. Each report shall contain a yearly detailed comparison beginning with 1995 and ending in 2006 of each electric utility's ratio of:

- (1) in-house workers, commonly referred to as "linemen", to customers;
- (2) customer service call-center employees to customers; and
- (3) meter service or repair employees to customers.

The ratios shall be reported from each utility's named service area, district, division, outlying area, village, municipality, reporting point, or region. The analysis shall determine the total number of contractor employees for the same time frame and shall be conducted in the same manner as the in-house analysis.

(b) The Commission may hold public hearings while conducting the analysis to assist in the adequacy of the study. The Commission must hold public hearings on the study and present the results to the General Assembly no later than January 1, 2009.

(c) An electric utility shall bear the costs of issuing any reports required by this Section and it shall not be entitled to recovery of any costs incurred in complying with this Section.

### **Sec. 4-603. Adequate employment for in-house utility employees**

Sec. 4-603. Adequate employment for in-house utility employees. The staff of the Commission shall develop benchmarks for employee staffing levels for each classification and employee training for each classification, subject to the requirements of Section 4-602 of this Act, within one year after the effective date of this amendatory Act of the 96th General Assembly.

As required by Section 4-603, this document is a report prepared by the Illinois Commerce Commission Staff ("Staff" or "Commission Staff") regarding benchmarks for (a) employee staffing levels for each of the employee classifications identified in Section 4-602 and (b) employee training for each of those same classifications.

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<sup>1</sup> Illinois Public Utilities Act, 220 ILCS 5/4-602 and 4-603.

As required by Section 4-602, the Illinois Commerce Commission (“Commission”) presented the results of comprehensive workforce analysis studies to the General Assembly in December 2008. The Commission retained the consulting services of Jacobs Consultancy Inc. (“Jacobs” or “Jacobs Consultancy”) to conduct workforce analysis studies of Commonwealth Edison Company (ComEd), the Ameren Illinois Utilities (AmerenIP, AmerenCIPS, and AmerenCILCO), and MidAmerican Energy Company (MEC). The Commission conducted the workforce study analysis of Mt. Carmel Public Utility Company (Mt. Carmel).<sup>2</sup>

Staff reviewed the Jacobs workforce analysis studies and additional information received from the electric utilities and herein presents its recommendations regarding the law's call for benchmarks for employee staffing levels and employee training.

### Current Utility Obligations

In addition to the obligations identified in Sections 4-602 and 4-603 of the Act, electric utilities have long-standing basic statutory and administrative code obligations regarding the quality, reliability, and restoration of public utility service that are pertinent to this review of utility staffing level and training benchmarks.

### Statutory Provisions

Section 1-102 provides the following direction and guidance for the review of a utility's provision of service:

- The General Assembly finds that the health, welfare and prosperity of all Illinois citizens require the provision of adequate, efficient, reliable...and least-cost public utility services...
- It is...the policy of the State that public utilities shall continue to be regulated effectively and comprehensively.

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<sup>2</sup> Staff sought and received affidavits from officers at three electric transmission companies regarding the applicability of PUA Sections 4-602 and 4-603. The three companies determined those sections are not applicable. Staff does not disagree with the companies' conclusions. The three companies' affidavits are attached as Attachment A.

- It is further declared that the goals and objectives of such regulation shall be to ensure... the ability of utilities to provide consumers with public utility services under varying demand conditions in such manner that suppliers of public utility services are able to provide service at varying levels of economic reliability giving appropriate consideration to the costs likely to be incurred as a result of service interruptions, and to the costs of increasing or maintaining current levels of reliability consistent with commitments to consumers.

Section 8-101 imposes an obligation on public utilities to maintain their equipment and facilities "as shall be in all respects adequate, efficient, just and reasonable".

Section 8-401 requires that "[e]very public utility subject to this Act shall provide service and facilities which are in all respects adequate, efficient [and] reliable...and which, consistent with these obligations, constitute the least-cost means of meeting the utility's service obligations."

Finally, with respect to electric utilities, Section 16-125, titled "Transmission and distribution reliability requirements", provides specifically that it is enacted "[t]o assure the reliable delivery of electricity to all customers in this State" and obligates the Commission to "adopt rules and regulations for assessing and assuring the reliability of the transmission and distribution systems and facilities that are under the Commission's jurisdiction."

#### Administrative Code Provisions

Section 280.80: Provides limitations on how often a utility may provide a customer bill based on an estimated level of consumption rather than on an actual meter reading,

Section 410.45: Provides rules identifying electric utility obligations regarding customer call center establishment and operations including such information as call abandonment rates and answer time performance.

Section 411.120: Provides requirements for electric utilities to forward to the Commission reports of power outages in their service territories when a single

even causes service interruptions for certain numbers of customers for beyond certain periods of time and for updates of the numbers of outages still existing over the time that the single-event outage persists. Also provides requirements for annual electric utility reports regarding their customer and system service reliability for the preceding year, including, for example, the numbers, frequencies, durations and causes of unplanned outages, numbers and severity of voltage variances, and customer satisfaction survey results.

Section 410.190: Provides rules identifying circumstances when a customer is entitled to request that the customer's utility meter be tested for accuracy.

#### Public Utilities Act Section 4-602: Jacob's Approach to Preparing Workforce Analysis Studies

The Commission retained the services of Jacobs Consultancy to conduct the required workforce analysis studies. Jacobs' approach consisted of Task 1, a workforce ratio analysis, and Task 2, a workforce adequacy analysis. As described by Jacobs:

Task 1 – The first step in determining the adequacy of the Utility's workforce was to compute and compare the yearly workforce ratios during the 1995-2006 timeframe for both in-house and contracted staff in each job classification or job title by service area, district, division, or region critical to maintaining service quality, reliability and service restoration.<sup>3</sup>

Task 2 – The second step in the study consisted of performing a detailed examination of [the electric utility's] workforce adequacy critical to maintaining quality, reliability, and restoring service in the Utility's Illinois service territory.<sup>4</sup> Jacobs' definition of "adequacy" is "the quality of being able to meet a need satisfactorily or being sufficient for the end in view".<sup>5</sup>

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<sup>3</sup> Jacobs' reports for all companies, pages 1-2.

<sup>4</sup> Ibid.

<sup>5</sup> Jacobs' reports for all companies, page 2.

Jacobs' conclusion regarding workforce adequacy is "In-house workforce adequacy should ... comprise a blend of resources that cost-effectively maintains reasonable system reliability and service quality, while utilizing outside resources to meet peak workload requirements."<sup>6</sup> Staff's position is that the "resources" to which Jacobs refers includes factors in addition to workforce levels that affect a utility's ability to provide adequate, efficient, reliable and least-cost utility services such as: maintenance programs, system improvements including upgrades and automation, preparations for planned and unplanned outages, reassignment of workers across regions, and construction programs. These plans and programs are influenced by, and in-turn influence, workforce levels.

Jacobs states an efficient blend of resources should accomplish the following:<sup>7</sup>

- Maintain reasonable system reliability and service quality
- Provide a cost-effective solution
- Use outside resources to supplement in-house resources to meet peak workload requirements
- Use outside resources to perform work efforts that require specialized equipment or specialized skill sets that are not economic to maintain in-house
- Permit in-house resources to maintain expertise and knowledge in their core business
- Utilize outside contractors to relieve in-house staff of non-core or non-critical workload
- Provide a reasonable level of regular and overtime opportunities to the in-house workforce
- Use of additional temporary outside resources to supplement in-house workforce and existing contract workers during emergencies.

Commission Staff finds Jacobs' approach to be a sound basis upon which to evaluate the electric utilities' workforce adequacy. The General Assembly is encouraged to

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<sup>6</sup> Jacobs' reports for all companies, page 2.

<sup>7</sup> Jacobs' reports for all companies, page 11.



review the Jacobs reports for ComEd, Ameren, and MEC, and the Commission's report for Mt. Carmel that were delivered to the General Assembly in December 2008 and that can be found on the Commission's website at <http://www.icc.illinois.gov/electricity/WorkforceStudyReports.aspx>.

### Public Utilities Act Section 4-603: Commission Staff's Approach to Developing Benchmarks for Employee Staffing Levels and Training

Following Commission Staff's review of the Jacobs reports, Staff met with representatives of the electric utilities and requested they provide reports that address each utility's approach to workforce benchmarking. Specifically, Staff asked that each report include proposed benchmarks related to staffing levels and training, and, as pertinent, references to the Jacobs reports, external standards, anticipated variables that might explain or influence future variations, processes to monitor compliance with or deviations from benchmarks, and reporting changes in benchmarks.

ComEd

#### Jacobs Study

Key findings, conclusions and recommendations in the study include:<sup>8</sup>

#### Workforce Ratios and Workforce Adequacy

- Regarding outsourcing/contracting: Jacob's characterizes ComEd's workforce level philosophy as maintaining an overall level of in-house employees needed to perform core base load work and supplementing the in-house employee efforts with contractors for workload peaks and valleys, on large projects, and for lower-skilled and specialized work. Jacobs concludes, ComEd's "approach and level of outsourcing and contracting represents a moderate amount from our experience". (pp. 4, 6 and 7, and Appendix B)
- Based on the customer satisfaction scores conducted by J.D. Power & Associates, ComEd's Customer Satisfaction Index scores have declined since

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<sup>8</sup> Jacobs' "Commonwealth Edison Company Workforce Study Analysis". Page numbers and other references in this section of Staff's Report refer to this Jacobs Study.

2006. Some portion of this decrease could be a result of issues such as multiple storms and/or rate increases that are beyond the direct control of the call center. (p. 5)

- The number of in-house linemen and substation workers in the "linemen" job classification decreased from 2,177 at the end of 2000 to 1,852 at the end of 2006. The number of contractor employees in this "linemen" classification increased from 245 at the end of 2000 to 577 at the end of 2006.<sup>9</sup> (p. 20)
- Factors influencing ComEd's "linemen" staffing levels<sup>10</sup> (p. 28)
  1. Crews working across regions
  2. Assignment of 2-person crews instead of 3-person crews
  3. Increased job site reporting
  4. Utilization of SCADA at all substations<sup>11</sup>
  5. OES assigned to emergent and non-emergent work<sup>12</sup>
  6. Improved supply fill rate
  7. Job site deliveries
  8. Creation of the System Services Group to allow Overhead Electricians to focus on traditional overhead construction and maintenance work
  9. Automated work management system
  10. Distribution automation
  11. Outage management system
  12. Automated Roster Callout System
  13. Cell phones
  14. GPS units with equipment data
  15. Mobile dispatch
- Customer service call-center employees totaled 291 at the end of 2006. (p. 22)

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<sup>9</sup> Linemen contractor data prior to 2000 was not available from ComEd.

<sup>10</sup> Factors 1 through 8 are related to work efficiencies, and factors 9 through 15 are related to technology improvements.

<sup>11</sup> SCADA is Supervisor Control and Data Acquisition.

<sup>12</sup> OES is the Overhead Electric Specialist job category.

- During the period studied, 1995-2006, ComEd used part-time CSRs (call service representatives) during peak times, but did not outsource bargaining unit work. (p. 28)
- The number of full-time and part-time CSR employees has gradually decreased following transition to a new customer and billing system in 2001. Additional technology improvements such as the IVRU<sup>13</sup> have also influenced staffing levels. (p. 29)
- In-house meter service employees totaled 684 at the end of 2006. Except for two minor events during the 1995-2006 study period, ComEd did not use outside contractors for the Meter Reader or Meter Technician job categories. (p. 29)
- The number of metering resources available per customer appears to be on a gradual decline due to the use of new metering technology. (p. 30)
- ComEd has articulated a series of distribution reliability improvement programs in its 2009-2013 business plan, with many in place prior to 2008. The programs are intended to prevent outages and reduce the number of customers affected by an outage. (pp. 35-38)
- ComEd employs benchmarking and best practices to better align its workforce with core work. (p. 39)
- Contracted and outsourced activities include: (pp. 48-50)
  - ✓ Work not ordinarily and customarily performed by ComEd bargaining unit employees (outsourcing)
  - ✓ A certain level of baseline work plus fill-in for seasonal requirements
  - ✓ Projects of a larger scale requiring special equipment or skills
  - ✓ Survey work, facilities locating, cleanup, vegetation management, hauling, aerial inspection
  - ✓ Substation construction not requiring relay technician or substation journeyman skills

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<sup>13</sup> IVRU, or Integrated Voice Response Unit, is an automated telephone system that interacts with callers, gathers information and routes calls to the appropriate recipient.

- On both substation and overhead line construction projects, work that was handled previously by contractors is increasingly being brought back in-house. (p. 49)
- ComEd's work order backlog is categorized as Priority 10 (immediate response), Priority 20 (begin within 24 hours), Priority 30 (impact on interruption frequency or duration) or Priority 40 (all other). Total backlog hours dropped from 5.7 million in 2005 to about 3.5 million in 2008. Jacobs notes these numbers represent "a significant level of backlog". (pp. 52-53)
- Regarding overtime, Jacobs concludes "Overtime for ComEd crews has remained consistently high and the use of contractors has increased significantly, indicating that the level of workload may be increasing such that the Company should consider augmenting its workforce consistent with ComEd's work plan." (p. 66)
- With regard to reliability, the ICC mandates that utilities provide a survey that captures customer sentiment toward their satisfaction with "providing electric service." Jacobs reproduced the results from ComEd's survey in the following table for 2000 through 2006. (p. 68)

**ICC Mandated Customer Reliability and Satisfaction Study**  
**Overall Satisfaction with "Providing Electric Service"**  
**0-10 scale, total satisfied scores = 6-10**

Year	Residential	Non-Residential
2000	7.63	7.67
2001	8.00	7.98
2002	8.19	8.10
2003	8.20	8.39
2004	8.47	8.56
2005	8.39	8.65
2006	8.27	8.41

0-10 scale, mean scores

- Jacobs' recommendations for ComEd's operations and maintenance functions (p. 79)
  - ✓ Consistent with ComEd's 2008-2012 staffing plans, ComEd should continue to aggressively increase its electric field workforce, consistent with its business needs and the overall economic climate.

- ✓ ComEd should strive to reduce high levels of overtime in the near term by balancing in-house work across departments, supplemented as needed with contracted resources.
- ✓ ComEd should immediately undertake an in-depth study to identify the appropriate level of staffing in the overhead electrician job category, determine their organizational alignment, and analyze the difficulties currently being encountered in attracting candidates.

### Training

- ComEd technical training is performed at five Illinois training facilities. (p. 79)
- Field crew, substation operator and customer service representative training is sorted into three broad categories: initial and progression training, compliance training and refresher training. (p. 81)
- Training for overhead electrician: 3-1/2 years including on-the-job training and evaluation. (p. 81)
- Training for underground workers: 3 years including on-the-job training and evaluation. (p. 81)
- Training for substation construction workers: 13 weeks plus on-the-job training and evaluation. (p. 81)
- The apprentice overhead electrician, apprentice underground workers, and apprentice substation construction workers training programs are typical of apprentice programs found in the electric distribution industry. (p. 89)
- Bargaining unit employees are an integral part of the training effort and act as classroom and pole yard demonstrators. Selection is based on qualifications, not seniority. (p. 89)
- ComEd established programs to review the effectiveness of training programs and to select new training topics and methods. (p. 89)

### ComEd's Report<sup>14</sup>

- Measures of reliability (SAIFI and CAIDI)<sup>15</sup> have consistently improved during the study period (1995-2006) primarily due to investments in system infrastructure and technology.
- Some of the system infrastructure and technology projects required increased staffing needs only during the pendency of the project or were necessarily staffed with contractors because of the need for short-term staffing or special skills or equipment.
- Staffing and work-assignment efficiencies allow for a more efficient and productive workforce.
- ComEd maintains an overall level of in-house employees to perform core base load work and uses contractors to meet peak workload requirements.
- Effect of unexpected changes in the economy and technological improvements:
  - ✓ Sudden decline in the economic climate and continued economic stagnation has slowed expected retirements and hiring needs declined.
  - ✓ Customer base and new service requests decreased.
  - ✓ New technological resources and automation tools affect future workforce requirements, including the number of employees and their needed skills.
  - ✓ Staffing efforts moving toward a more fluid and adaptable workforce, allowing the company to react in a timely manner to economic changes, special project needs, new technologies, and changing business conditions.
- Transmission & Substation Staffing Agreement in collaboration with Local 15 increases staffing and is designed to improve productivity.
- "Line school" candidates redirected to Meter Reader roles.
- March 2010 staffing levels for job classifications listed in the law's Section 4-602 decreased by 93 employees from levels at the end of 2006.

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<sup>14</sup> ComEd's Workforce Study Analysis, Attachment B.

<sup>15</sup> SAIFI is System Average Interruption Frequency Index and is a measure of the average number of interruptions a customer experienced during a specified timeframe. CAIDI is Customer Average Interruption Duration Index and is a measure of the average outage duration a customer experienced during a specified timeframe.

- ✓ Call Center staffing increased from 326 to 343, but the March 2010 number does not reflect additional staffing in April and June 2010.
- ✓ Meter Services staffing decreased from 684 to 655, but the March 2010 number does not reflect 60 temporary meter readers added in April 2010.
- ✓ Construction and Maintenance staffing decreased from 1,501 to 1,441. Many employees have been redeployed among various "linemen" job classifications, largely as Overhead and Underground Helpers, reflecting negative economic effects on some classifications and ComEd's strategy to retain trained and experienced workers.
- ✓ Substation staffing decreased from 383 to 362. ComEd notes staffing has remained virtually unchanged in the classification substation craft (electrical mechanics).
- Company offers a broad variety of training programs, including new hire coursework and on-the-job training, line schools, an array of safety courses targeted to job classification, skills refresher training programs, and any current need of the various business units.

#### Staff's Analysis and Opinion

- Jacobs Consulting thoroughly analyzed ComEd's workforce ratios, workforce adequacy, and training programs for each job classification critical to the quality, reliability and restoration of electric service.
- Staff annually reviews ComEd's electric reliability reports filed pursuant to the reliability provisions of Section 16-125 of the Public Utilities Act<sup>16</sup> and Administrative Code Part 411.<sup>17</sup> The utilities file these reports with the Commission by the end of May for the previous calendar year. The Commission Staff is required to perform an assessment of each utility's reliability report, at least every three years per 83 Ill. Adm. Code 411.140. The assessments include a review of the annual reliability reports and evaluate the reliability performances. The annual utility reports and Staff's assessment

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<sup>16</sup> Illinois Public Utilities Act Section 16-125. 220 ILCS 5/16-125. Transmission and distribution reliability requirements.

<sup>17</sup> 83 Illinois Administrative Code Part 411: Electric Reliability.

reports are on the Commission web site at <http://www.icc.illinois.gov/electricity/electricreliability.aspx> .

- The most recent Staff Assessment was posted to the Commission's web site on June 23, 2010. Excerpts from Staff's Assessment pertinent to workforce and training issues include the following:<sup>18</sup>
  - ✓ Factors affecting service quality, reliability and restoration include: weather and other variables outside a company's control, investment in the system, age of existing plant and equipment, maintenance, system protection, staffing, and training.
  - ✓ 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.
  - ✓ 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."
  - ✓ Staff concludes that 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).
  - ✓ ComEd's overall reliability performance has improved from 2007 to 2008.

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<sup>18</sup> Selected excerpts are not intended to give a complete overview of Staff's reliability assessment.



- ✓ Customer complaints are also improved, and on a "Complaints per 1000 Customers" basis, ComEd's customer complaints in 2008 were lower than any of the previous four years. This is reflected in ComEd's 2008 customer survey results
- ✓ Distribution corrective maintenance backlogs have increased from 2007 to 2008.
- ✓ Projected expenditures for substation preventive maintenance and corrective maintenance decreases for 2009 through 2011.
- ✓ Tree trimming projected expenditures for 2009 through 2011 are a level amount that is approximately the average of the last five years' actual expenditures.
- ✓ While, in general, ComEd's regional performance is good, ComEd's Southern Region consistently performs worse than the other three regions.
- ✓ Staff reviews progress on worst performing circuits because there is a concern 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 2004 through 2007.
- ✓ In 2009 Staff focused its substation inspections on substations that supplied circuits that Staff was also inspecting. Overall, Staff observed that the substations were in good material condition with few serious problems apparent. Staff recommends that detailed in-yard substation inspections be done in 2010.
- ✓ This is ComEd's eleventh annual reliability report filed pursuant to code part 411. ComEd's system CAIDI was second only to Mt. Carmel's performance while CAIFI and SAIFI reliability performances were the best of the six jurisdictional utilities.

- ✓ From 1998 to 2008, distribution construction and maintenance expenditures show a positive real growth rate (an annual compound rate of 3.8%) based on constant 1998 dollars from 1998 to the 2007 level.
- ✓ 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. 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.
- ✓ The number of company employees declined by 20% from 1999 to 2008 while the number of contract employees decreased by 25% for a total decrease over that period of 21%. 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.
- ✓ Another way to gauge progress in energy delivery systems reliability and availability improvements is to analyze distribution corrective maintenance backlogs. Backlogs for distribution corrective maintenance increased 14% from 2007 to 2008. As noted in last year's assessment beginning in 2003, expenditures for inspection and maintenance climbed sharply and, according to ComEd, the Company expected distribution corrective maintenance backlogs to increase over their four-year distribution inspection cycle because inspectors were identifying more corrective maintenance items. ComEd attributed much of the distribution corrective maintenance backlog increase to a significant increase number of cable faults due to storms and flooding and a reduction of resources due to the mutual assistance provided in Louisiana and Kentucky. Staff expects this backlog to re-establish its decline over time and will be closely monitoring this trend.

- ✓ Staff is encouraged that ComEd is actively looking for and beginning to address NESC violations as part of its regular inspection cycle. Staff was further encouraged to learn that ComEd found and is correcting line clearance issues associated with its transmission system.

Staff's Benchmarks Conclusion: ComEd

Staff's interest in ComEd's workforce adequacy and training is founded upon the aforementioned statutory and administrative code requirements that address the provision of adequate, efficient, reliable and least-cost public utility services. The size, makeup, and training of the workforce are components of a complex system. How well that system operates also depends on other factors such as investment in new plant, the age and reliability of existing plant and equipment, technological improvements, system protections, investment in the system, maintenance programs, age of existing plant and equipment, weather, how workers are assigned across the system, and variables that are outside a company's control.

Regarding training benchmarks, Staff recommends ComEd continue the programs as outlined in the Jacobs and ComEd reports.

Staff's benchmarks for ComEd's staffing levels are shown in the table below and are based primarily upon the findings and conclusions of the Jacobs study and Staff's most recent reliability assessment, both of which are summarized above and presented in their entirety on the Commission's web site.<sup>19</sup> Staff intends to review workforce levels annually in conjunction with ComEd's annual reliability report.

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<sup>19</sup> Staff associates no ratemaking implications with its workforce level recommendation.

Job Classification <sup>20</sup>	Jacobs Study Average 1995 - 2006	Jacobs Study 2006	ComEd March 2010	Staff Benchmark: March 2010 ± 5%
In-house workers, "linemen"	2,112	1,852	1,803	1,713 - 1,893
Call-center employees	687	684	655	622 - 688
Meter service or repair	383	291	343	326 - 360

## Ameren Illinois Utilities

### Jacob's Study

Key findings, conclusions and recommendations in the studies of the Ameren companies include:<sup>21</sup>

#### Workforce Ratios and Workforce Adequacy

- Jacobs characterizes the Ameren companies' workforce level philosophy as maintaining an overall level of in-house employees needed to perform core base load work, and complete workload peaks and valleys with contractors, while subcontracting lower-skilled work. (pp. 4 and 6 and Appendix B)
- CIPS has too few apprentices to accommodate expected retirements of line workers over the near and long term. (p. 4)
- With a potentially growing backlog of work requests for line workers and an aging workforce, the companies will need to carefully consider their near and long-term resource requirements. (p. 4)
- Jacobs concludes the companies' meter services workforce is adequate to provide required services. (p. 4 for CIPS and IP, p. 5 for CILCO)

<sup>20</sup> PUA Section 4-602's job classifications are "in-house workers, commonly referred to as 'linemen'", "customer service call-center employees" and "meter service or repair employees". No contractor employees are included in the "in-house workers" category. ComEd did not use contractors during the study period for the call-center and meter categories.

<sup>21</sup> Jacobs' Workforce Study Analyses for AmerenIP, AmerenCIPS, and AmerenCILCO. Page numbers and other references in this section of Staff's Report refer to these studies that are presented on the Commission's web site.

- Regarding call centers, the companies' internal goals and key performance indicators are satisfactory and increasing, indicating that the centers are managed in an effective and efficient manner. (pp. 4-5)
- The number of in-house linemen and substation workers in AmerenIP's "linemen" job classification decreased from 386 at the end of 1995 to 345 at the end of 2006. The number of contractor employees in this "linemen" classification increased from 27 in 1999 to 114 in 2006. Contractor numbers were not available for years prior to 1999. (p. 20)
- The number of in-house linemen and substation workers for CIPS' and CILCO's "linemen" job classification decreased from 524 at the end of 1995 to 438 at the end of 2006. The number of contractor employees in this "linemen" classification increased from 24 in 2001 to 61 in 2006. Complete contractor numbers were not available for years prior to 2001 for these companies. (p. 20)
- Factors influencing Ameren's "linemen" staffing levels:<sup>22</sup>
  - ✓ 1995: IP early retirement/restructuring, affecting 1995 and 1996 levels
  - ✓ 2000: IP acquisition by Dynegy, early retirement/severance program
  - ✓ 2004: IP acquisition by Ameren, voluntary separation program, transfer of employees to Ameren Services, employee terminations.
  - ✓ 1995-97: CIPS business process restructuring
  - ✓ 1997: CIPS acquisition by Ameren, transfer of employees to Ameren Services
  - ✓ 1998: Ameren announced hiring freeze and separation plan affecting AmerenCIPS
  - ✓ 2003: Separation package affecting AmerenCIPS
  - ✓ 2005: AmerenUE-Illinois operations merged into AmerenCIPS, resulting in an increase in employee headcount
  - ✓ 1995: CILCO early retirement package
  - ✓ 1999: CILCO acquisition by AES, early retirement package
  - ✓ 2001: CILCO/IBEW negotiations, early retirement package

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<sup>22</sup> Jacobs' AmerenIP study pages 26-28; AmerenCIPS study pages 25-27; AmerenCILCO study pages 26-28.

- AmerenIP did not use contract call center employees prior to 2005. At the end of 2006, the call center employees totaled 175 of which 47 were contract employees handling special types of calls such as turn on/turn off or delinquent accounts. (pp. 22 and 28-30)
- AmerenCIPS did not use contract call center employees prior to 2002. At the end of 2006, the call center employees totaled 64 of which 12 were contract employees handling special types of calls such as turn on/turn off or delinquent accounts. (pp. 21 and 27-29)
- AmerenCILCO did not use contract call center employees prior to 2005. At the end of 2006, the call center employees totaled 74 of which 7 were contract employees handling special types of calls such as turn on/turn off or delinquent accounts. (pp. 22 and 28-30)
- The number of AmerenIP in-house meter service employees decreased during the 1995-2006 study period from 210 to 148. Contract employee numbers totaled 84 at the end of 2006. Jacobs concludes the company's general philosophy with meter service employees has been to replace in-house employees with contractors as necessary, particularly in anticipation of the automatic meter reading programs in 1998 and 2006. (p. 24 and 29-30)
- The number of AmerenCIPS in-house meter service employees decreased from 93 at the end of 1995 to 70 at the end of 2006. Contract employees totaled 15 at the end of 2006. Jacobs' analysis notes that meter reading was exempted from the minimum staffing requirements dictated in union contracts, allowing for increased use of contractors. Also, the number of in-house meter readers declined in anticipation of automatic meter reading in certain areas. (pp. 23 and 28-30)
- The number of AmerenCILCO in-house meter service employees decreased from 55 at the end of 1995 to 27 at the end of 2006. Contract employees totaled 34 at the end of 2006. Jacobs' analysis notes the company's general philosophy with meter service employees has been to replace in-house employees with contractors as necessary. Jacobs also notes improved productivity resulting from better metering technology and more efficient

management of meter routes as reasons for the gradual decrease in meter service employees. (pp. 24 and 29-30)

- In general, the Ameren companies have increased the use of contractors for activities that do not require high level skills as possessed by journeyman linemen, relay technicians, substation journeyman, and meter maintenance, repair and service work. (CILCO, CIPS pp.36-37; IP pp. 39-40)
- Contracted or outsourced activities include: (CIPS p. 37; IP p. 40)
  - ✓ Meter reading
  - ✓ Line clearances
  - ✓ Vegetation management
  - ✓ Line construction
  - ✓ Substation construction
  - ✓ Directional boring
  - ✓ Circuit inspections
  - ✓ Facilities locating
  - ✓ Aerial patrolling
- Work backlog during the 2004-2007 period of 19% to 26% across the three companies is considered within normal utility ranges by Jacobs. (CILCO p. 38; CIPS p. 39; IP p. 41)
- Line worker overtime in the 15% to 20% range is a typical industry practice. CIPS' 22% in 2007 is comparable to the industry average. Higher-than-normal levels for CILCO and IP during 2006-2007 may be attributable to storm outages, but may also indicate the companies should consider augmenting the workforce. (CILCO p. 43, CIPS p.44, IP p. 46)
- The chart below shows AmerenCIPS' customer survey scores for providing Reliable Electric Service (2002-2006): (p. 49)

**ICC Mandated Customer Reliability and Satisfaction Study  
Overall Satisfaction with "Providing Electric Service"**

Year	Residential	Non-Residential
2002	8.77	8.80
2003	8.64	8.83
2004	8.76	8.78
2005	8.60	8.79
2006	8.28	8.63

(Illinois Customers Only)  
0-10 scale, mean scores

- The chart below shows AmerenIP's customer survey scores for providing Reliable Electric Service (2002-2006): (p. 51)

**ICC Mandated Customer Reliability and Satisfaction Study  
Overall Satisfaction with "Providing Electric Service"**

Year	Residential	Non-Residential
2002	8.18	8.44
2003	8.35	8.60
2004	8.54	8.64
2005	8.52	8.48
2006	8.55	8.65

(Illinois Customers Only)  
0-10 scale, mean scores

- The chart below shows AmerenCILCO's customer survey scores for providing Reliable Electric Service (2002-2006): (p. 48)

**ICC Mandated Customer Reliability and Satisfaction Study  
Overall Satisfaction with "Providing Electric Service"**

Year	Residential	Non-Residential
2002	8.42	8.59
2003	8.31	8.47
2004	8.32	8.61
2005	8.24	8.60
2006	7.91	8.46

(Illinois Customers Only)  
0-10 scale, mean scores

- The Ameren Illinois Utilities utilizes new technology through a "robust set of integrated applications" to enhance productivity and effectiveness in the maintenance, dispatch and operations functions. (IP pp. 56-60, 63)
- Jacobs' recommendations for Ameren operations and maintenance functions (IP p. 63)



- ✓ Ameren should annually review workforce needs based on recommendations from the Towers Perrin Work Force Projection Study.<sup>23</sup>
- ✓ Ameren Illinois should articulate and implement a staffing strategy that promotes consistent in-house and outsourced worker utilization between various divisions and operating centers.
- ✓ Ameren Illinois should study the advantages of expanding the Distribution Design Center concept system-wide to capture the efficiencies that it may offer and to permit field engineering representatives to focus more on customer relationships.
- ✓ Ameren Illinois should study the results of the program regarding job-site reporting for construction crews for effectiveness and consider extending the program system-wide.

#### Training<sup>24</sup>

- Ameren Illinois technical training is performed at two training facilities, one located in Decatur and the other in Missouri. All training for linemen apprentices, both overhead and underground as well as polyphase meter journeyman, are to be performed in Decatur. (p. 64)
- Bargaining unit journeyman linemen and substation mechanics supplement the training workforce, with selection based on qualifications rather than seniority. (p. 64-65)
- Course preparation is supported by training course development facilitators located in various departments and combined with the input from subject matter expert trainers. (p. 65)
- Safety-related technical training is coordinated by division safety specialists. (p. 65)
- Apprenticeship training includes classroom and on-the-job activities. (p. 65)

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<sup>23</sup> Ameren contracted Towers Perrin to develop a workforce projection for its Illinois Energy Delivery Groups in 2006. The study reviewed a wide range of job and position classifications and considered attrition, retirements and replacement required to maintain a level workforce. See Jacobs IP study pages 43-45.

<sup>24</sup> Jacobs' three studies present similar training findings for each company. Pager references are to the AmerenIP study.

- Apprentice training is a three-year program for journeyman linemen. (p. 65)
- Training program is accredited by the Illinois Department of Labor. (p. 65)
- Ameren belongs to a National Joint Apprentice and Training Committee and uses their standard training templates. (p. 70)
- Jacobs recommends the companies participate in an ongoing safety benchmarking survey with comparable electric distribution utilities, so that best practices may be identified and analyzed. (p. 71)

#### Ameren's Report<sup>25</sup>

- Ameren's benchmark staffing levels are based on the best estimate of staffing levels needed to provide safe and reliable service that meets regulatory requirements.
- Core training remains the same today as it was in 2006, and:
  - ✓ Companies work with bargaining organizations to achieve uniform training
  - ✓ Modifications have been made to accommodate work philosophy, technology, regulatory requirements, industry trends, consolidation efforts, the synchronization of policies and procedures and business changes.
- Summaries of training courses are included in Ameren's report.
- In general, Ameren's June 30, 2010 staffing levels are lower than the 2006 levels presented in the Jacobs studies. Ameren cites the significant decline in the economy since 2006 that has negatively affected new business, road expansions, and housing construction.
- Contract negotiations with bargaining units in 2007 provide for greater workforce flexibility with respect to linemen, call center, and meter service staff:
  - ✓ Company can assign workers across divisional and legacy company boundaries.
  - ✓ Work assignments can be made across multiple employee classifications.
- October 1, 2010 merger of the three companies into Ameren Illinois Company is anticipated to provide further synergies.

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<sup>25</sup> Ameren Illinois Utilities' Staffing and Training Benchmarks Report, Attachment C.

- Future variances may include work load changes, technological changes, efficiencies, and regulatory requirement changes.
- Company will annually review the open position action plan and fill positions consistent with meeting regulatory obligations.
- Regarding linemen employees:
  - ✓ Companies are striving to improve 5-year SAIFI and CAIDI results.
  - ✓ 2006 contractor staffing levels for AmerenCILCO were inflated due to special projects and an unusual level of new business.
  - ✓ Linemen reporting to AmerenCILCO's Homer Operating Center were transferred to AmerenIP as a result of 2007 negotiations.
- Regarding call center employees:
  - ✓ AmerenCILCO and AmerenCIPS June 2010 staffing levels are very close to the 2006 levels.
  - ✓ AmerenIP June 2010 staffing levels are below the 2006 levels primarily due to
    - Completion of a system conversion that required more employees in 2006
    - Reclassification of customer accounting and credit/collection personnel into separate organizations
  - ✓ Any AIU agent can handle any call regardless of the legacy company or agent location.
  - ✓ Staffing numbers are set to meet or exceed key performance indicators, business objectives, and regulatory requirements. Processes and policies are being realigned to identify best practices across the three companies.
  - ✓ Staffing numbers are set to respond to storm-related spikes.
  - ✓ Company monitors staffing needs on a daily and monthly basis.
  - ✓ Company utilizes the Electronic Work Force Management system to analyze call statistics, call volume, and scheduling functions.
- Regarding meter service employees:
  - ✓ Implementation of AMI (approximately 1.1 million meters) since 2006 has resulted in a reduction of approximately 100 meter service staff.

- ✓ Meter changer position reclassified since 2006.

### Staff's Analysis and Opinion

- Jacobs Consulting thoroughly analyzed Ameren's workforce ratios, workforce adequacy, and training programs for each job classification critical to the quality, reliability and restoration of electric service.
- Staff annually reviews Ameren Illinois Utilities' electric reliability reports filed pursuant to the reliability provisions of Section 16-125 of the Public Utilities Act and Administrative Code Part 411. The utilities file these reports with the Commission by the end of May for the previous calendar year. The Commission Staff is required to perform an assessment of each utility's reliability report, at least every three years per 83 Ill. Adm. Code 411.140. The assessments include a review of the annual reliability reports and evaluate the reliability performances. The annual utility reports and Staff's assessment reports are on the Commission web site at <http://www.icc.illinois.gov/electricity/electricreliability.aspx>.
- Factors affecting service quality, reliability and restoration include: weather and other variables outside a company's control, investment in the system, age of existing plant and equipment, maintenance, system protection, staffing, and training.
- 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.

- 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."
- The most recent Staff Assessment for AmerenIP was posted to the Commission's web site on July 14, 2010. Excerpts from Staff's Assessment pertinent to workforce and training issues include the following:<sup>26</sup>
  - ✓ Staff concludes that the actions taken and planned by AmerenIP seem reasonable to improve the service reliability for customers who experienced a number or duration of interruptions that exceeds the targets in 411.140(b)(4)(A-C).
  - ✓ AmerenIP's reliability indices for 2008 compared to 2007 indicate that AmerenIP's customers experienced more (SAIFI index) and shorter (CAIDI index) interruptions during 2008. Overall, AmerenIP reliability indices seem acceptable compared to the average in Illinois.
  - ✓ Comparing 2007 and 2008 cause of interruptions, Staff found significant increase in interruptions related to overhead equipment and trees. In 2008, AmerenIP reported 31% of customer interruptions related to overhead equipment compared to 22% in 2007. In addition, the percentage of tree related interruptions jumped from 5.1% in 2007 to 10% in 2008.
  - ✓ In 2009, AmerenIP claimed that it has implemented a more robust cleanup review process of overlapping Outage Analysis System ("OAS") orders following severe weather events. This improved process should result in more accurate outage data.
  - ✓ Compared to 2008 expenditures, AmerenIP is planning to decrease its distribution capital expenditures for the next four years. Starting in 2011, AmerenIP plans to decrease its transmission O&M expenditures. On the other hand, AmerenIP plans to increase its distribution O&M and its transmission capital expenditures in the next three years.

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<sup>26</sup> Selected excerpts are not intended to give a complete overview of Staff's reliability assessment.

- ✓ An AmerenIP rotted pole fell onto a car in 2009, suggesting that AmerenIP needs to review its inspection programs to make sure that those programs are reliable, efficient, and capable of detecting, fixing, and preventing problems before happening. Falling poles represent a serious threat to the public safety and AmerenIP must strive to prevent similar accidents.
- ✓ Trends in spending levels alone do not tell the Commission how well AmerenIP is addressing reliability issues unless the Commission has some indication of how efficiently those spending patterns are being applied. 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.
- The most recent Staff Assessment for AmerenCIPS was posted to the Commission's web site on July 14, 2010. Excerpts from Staff's Assessment pertinent to workforce and training issues include the following:<sup>27</sup>
  - ✓ Subsection 411.140(b)(4)(D) requires that the Commission's assessment determine if AmerenCIPS has a process in place to identify, analyze, and correct service reliability for customers who experience a number or duration of interruptions that exceeds the reliability targets. In its supplemental report, AmerenCIPS listed its assessment of the problems that caused the interruptions that exceeded Commission targets, along with actions taken or planned to improve reliability of service for the affected customers. Since AmerenCIPS' corrective actions appear reasonable for the majority of its circuits identified in its report, Staff has concluded that AmerenCIPS' has a process in place to identify, analyze, and correct service reliability for customers who experience interruptions that exceed the reliability targets.

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<sup>27</sup> Selected excerpts are not intended to give a complete overview of Staff's reliability assessment.

- ✓ AmerenCIPS has demonstrated it can identify customers who experience interruptions that exceed the targets by listing them in its annual report. During 2008, AmerenCIPS supplied data regarding customers who experienced interruptions in excess of reliability targets with 19 different distribution circuits. Staff found that for 17 of these circuits, AmerenCIPS' corrective actions, either taken or planned, appeared to be quite reasonable. For two of the 19 circuits, Staff found that AmerenCIPS' corrective actions appeared to be inadequate.
- ✓ During 2008, AmerenCIPS' system average interruption frequency index ("SAIFI"), customer average interruption frequency index ("CAIFI"), and customer average interruption duration index ("CAIDI") all increased (worsened), indicating that AmerenCIPS' customers, on average, experienced more and longer interruptions during 2008 than during 2007. Despite the higher values, AmerenCIPS' interruption frequency indices, SAIFI and CAIFI, indicated better than average performance when compared to the average of the indices of all the other reporting utilities.
- ✓ AmerenCIPS included information in its reliability report regarding the performance and operating and maintenance history of its circuits designated as worst performing. For the majority of its worst performing circuits, AmerenCIPS states in its report that a third party contractor circuit inspection would be completed in 2009, and that it expects that repair work associated with the inspections will be completed by year end 2010. For many of its worst performing circuits, AmerenCIPS states that the majority of outages were weather-related.
- ✓ In AmerenCIPS' annual reliability report, AmerenCIPS included aggregated information for all three Ameren Illinois Utilities ("AIU"). AmerenCIPS stated that AIU is trimming the trees adjacent to its distribution circuits on a four-year cycle, and trimmed 94% of the 7,874 circuit miles it intended to trim during 2008. Separately, as part of its compliance filing in rate case Docket 09-0307, AmerenCIPS indicated that

at the end of 2008, 15% of its distribution system went beyond a 4-year trim cycle (161 out of 1086 circuits).

- ✓ AmerenCIPS reported that the reason AIU was unable to complete all of the tree trimming it had planned was that it released tree trimming crews as part of mutual assistance agreements with out-of-state utilities for hurricane restoration activities, and moved crews in order to respond to an ice storm in the northern divisions of its operating area. While Staff understands that these might be valid reasons to temporarily fall behind on the 4-year cycle, each of the AIUs, including AmerenCIPS, needs to catch up.
- ✓ When inspecting AmerenCIPS' circuits during 2009, Staff noted many locations where vegetation was close to or contacting AmerenCIPS' distribution circuits. Staff is concerned that trees are growing into AmerenCIPS' primary lines before AmerenCIPS trims the trees as part of its normal trim cycle. Particularly considering the high number of tree-related interruptions during 2008, AmerenCIPS should make it a priority to catch-up its tree trimming program and return all circuits to a maximum 4-year cycle.
- ✓ During Staff's circuit inspections that occurred in the summer of 2009, Staff observed locations where AmerenCIPS' overhead facilities were in need of repair, as well as many locations where trees needed to be trimmed because they were contacting or coming close to AmerenCIPS' primary conductor.
- ✓ AmerenCIPS listed several maintenance activities in its reliability plan for 2009 that should have a positive impact on the reliability of its system. These activities include: tap fusing, worst performing circuit improvements, substation maintenance, capacity studies, circuit inspections, vegetation management, installation of animal protection on distribution transformers and at substations, installation of lightning protection, and installation of new automated switches. AmerenCIPS also described an activity called "Multiple Device Interruptions," with which AmerenCIPS reviews facilities



that have experienced three or more interruptions during a rolling 12 month period, and determines if additional corrective actions should be taken to minimize the risk of additional interruptions. Staff is hopeful that the result of the Multiple Device Interruptions activity at AmerenCIPS will be that fewer customers experience interruptions in excess of the Commission's reliability targets.

- ✓ AmerenCIPS has been generally increasing its distribution capital and O&M expenditures since 2005.
- ✓ Trends in spending levels alone do not tell the Commission how well AmerenIP is addressing reliability issues unless the Commission has some indication of how efficiently those spending patterns are being applied. 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.
- The most recent Staff Assessment for AmerenCILCO was posted to the Commission's web site on July 14, 2010. Excerpts from Staff's Assessment pertinent to workforce and training issues include the following:<sup>28</sup>
  - ✓ Subsection 411.140(b)(4)(D) requires that the Commission's assessment determine if AmerenCILCO has a process in place to identify, analyze, and correct service reliability for customers who experience a number or duration of interruptions that exceeds the reliability targets. AmerenCILCO has demonstrated it can identify customers who experience interruptions that exceed the targets, but it is not apparent to Staff that AmerenCILCO's process to correct service reliability issues for those customers is as effective as it should be.
  - ✓ During 2008, AmerenCILCO's system average interruption frequency index ("SAIFI"), customer average interruption frequency index ("CAIFI"),

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<sup>28</sup> Selected excerpts are not intended to give a complete overview of Staff's reliability assessment.

and customer average interruption duration index ("CAIDI") all increased (worsened), indicating that AmerenCILCO's customers, on average, experienced more and longer interruptions during 2008 than during 2007. Despite the higher values, AmerenCILCO's indices indicated average or better than average performance when compared to the average of the indices of all the other reporting utilities.

- ✓ AmerenCILCO's CAIDI was the second highest reported during 2008: approximately double its 2007 value. This higher CAIDI during 2008 indicates that, on average, AmerenCILCO's customers who experience interruptions were without electricity twice as long during 2008.
- ✓ AmerenCILCO included information in its reliability report regarding the performance and operating and maintenance history of its circuits designated as worst performing. For all eight worst performing circuits, AmerenCILCO states that a third party contractor circuit inspection was completed in 2009, and that repair work associated with these inspections should be completed by year end 2010. For many of its worst performing circuits, including its worst CAIDI circuit, AmerenCILCO states that the majority of outages were the result of a major ice storm in December of 2008.
- ✓ Staff is concerned, though, about the amount of time that AmerenCILCO allows to elapse prior to completing its repairs on worst performing circuits. AmerenCILCO stated in its report, which was filed on June 1, 2009, that it had not yet estimated costs or put together the work requests instructing the construction crews to perform the repairs identified by its inspectors. AmerenCILCO stated it plans to complete its repairs by the end of 2010 on distribution circuits that performed poorly during 2008. Staff strongly recommends that AmerenCILCO modify its practices so that it can more quickly identify and remove reliability threats and/or implement reliability improvements on its worst performing circuits
- ✓ In its reliability report, AmerenCILCO aggregated information about tree trimming for all three Ameren Illinois Utilities. Separately, as part of its

rate case compliance filing in Docket 09-0306, AmerenCILCO indicated that at the end of 2008, 14% of its distribution system went beyond a 4-year trim cycle (38 out of 280 circuits). AmerenCILCO further reported it had fallen behind because crews were relocated to other divisions in February for storm restoration, and because a December storm delayed completion of some feeders until January of 2009. AmerenCILCO indicated that none of its circuits went longer than 51 months since the prior tree trimming.

- ✓ AmerenCILCO reported there were 1,939 tree-related electric service interruption events during 2008, compared to 395 in 2007, 260 in 2006, and 231 in 2005. In other words, more than twice as many tree-related interruption events occurred during 2008 than occurred in the previous three years combined. AmerenCILCO experienced some severe weather during 2008, which could explain why the number of tree-related interruption events increased. However, when inspecting circuits during 2009, Staff noted many locations where vegetation was close to or contacting AmerenCILCO's distribution circuits. Staff is concerned that, though AmerenCILCO might be trimming trees every four years, the trees are growing into the primary lines before AmerenCILCO returns to trim the trees again as part of its normal trim cycle. In addition, AmerenCILCO's mid-cycle patrols can only be effective if they result in problem trees being identified and trimmed between regular trim cycles.
- ✓ During Staff's circuit inspections that occurred in the summer of 2009, Staff observed many locations where AmerenCILCO's overhead facilities were in need of repair, as well as many locations where trees needed to be trimmed because they were contacting or coming close to AmerenCILCO's primary conductor.
- ✓ AmerenCILCO also indicated that nearly 10% of its interruption events during 2008 were caused by underground equipment problems. AmerenCILCO has underground primary installed throughout its system, even in rural areas, where it is quite common that AmerenCILCO has

tapped the overhead lines at the road and installed underground primary onto the customer's property to supply the home or farm. AmerenCILCO's underground equipment failures increase its system CAIDI each year, since underground faults can be difficult to locate and isolate and typically take a long time to repair.

- ✓ AmerenCILCO's distribution O&M expenditures during 2008 were more than 30% higher than in 2007. AmerenCILCO's plan is to generally maintain this higher level of O&M expenditures, at least during the next few years.

#### Staff's Benchmarks Conclusion: Ameren Illinois Utilities

Staff's interest in Ameren's workforce adequacy and training is founded upon the aforementioned statutory and administrative code requirements that address the provision of adequate, efficient, reliable and least-cost public utility services. The size, makeup, and training of the workforce are components of a complex system. How well that system operates also depends on other factors such as investment in new plant, the age and reliability of existing plant and equipment, technological improvements, system protections, investment in the system, maintenance programs, age of existing plant and equipment, weather, how workers are assigned across the system, and variables that are outside a company's control.

Regarding training benchmarks, Staff recommends Ameren continue the programs as outlined in the Jacobs and Ameren reports.

Staff's benchmarks for Ameren's staffing levels are shown in the table below and are based primarily upon the findings and conclusions of the Jacobs studies and Staff's most recent reliability assessments for the three companies as summarized above and presented in their entirety on the Commission's web site.<sup>29</sup> Staff intends to review workforce levels annually in conjunction with Ameren's annual reliability report.

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<sup>29</sup> Staff associates no ratemaking implications with its workforce level recommendation.

Job Classification <sup>30</sup>	Jacobs Study Average 1995 - 2006	Jacobs Study 2006	Ameren June 2010	Staff Benchmark: June 2010 ± 5%
In-house workers, "linemen"	818	783	764	726 – 802
Call-center employees	279	313	246	234 – 258
Meter service or repair	362	378	244	232 - 256

## MEC

### Jacob's Study

Key findings, conclusions and recommendations in the study include:<sup>31</sup>

#### Workforce Ratios and Workforce Adequacy

- Jacobs characterizes MEC's workforce philosophy as maintaining a consistent level of employees and filling workload peaks and valleys with contractors. (p. 6)
- A growing backlog of work requests for line workers combined with an aging workforce and the need to plan ahead based on a four-year apprentice program prompts Jacobs to offer three recommendations: (p. 5)
  - ✓ MEC should conduct a strategic workforce planning study to identify gaps between the workforce required and the workforce supply forecasted to be available for certain critical positions.
  - ✓ Conduct an annual nonbinding potential retirement survey to aid in retirement forecasts.

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<sup>30</sup> PUA Section 4-602's job classifications are "in-house workers, commonly referred to as 'linemen'", "customer service call-center employees" and "meter service or repair employees". No contractor employees are included in the "in-house workers" category.

<sup>31</sup> Jacobs' Workforce Study Analysis. Page numbers and other references in the narrative above refer to this Jacobs Study.

- ✓ Increase the number of apprentices, particularly in the line worker category.
- The number of in-house linemen and substation workers in MEC's "linemen" job classification increased from 74 at the end of 1995 to 76 at the end of 2006. The number of contractor employees in this "linemen" classification increased from 4 in 2002 to 20 in 2006. Contractor numbers were not available for years prior to 2002. (p. 19)
- The number of call center employees peaked in 2002 at 219 and slightly decreased to 213 at the end of 2006. (p. 21)
- MEC's call center in the last six years has been in the highest quartile in customer satisfaction surveys conducted by several rating agencies. (p. 5)
- Meter service employees totaled 40 at the end of 2006 and averaged 42 over the 1995-2006 study period. There were no meter service contractor employees. (p. 23)
- MEC belongs to the Midwest Mutual Assistance Consortium, a non-formal group of 33 utilities, covering three north to south zones, that coordinates emergency needs. (p. 29)
- Outsourcing or contractual agreements provide additional workers for: (p. 35)
  - ✓ Vegetation management
  - ✓ Construction and maintenance projects
  - ✓ Underground facilities locating
- Over the 2002 to 2006 period, there was little work order backlog. In 2007, the backlog grew to 15%, which Jacobs reports is considered typical for many utilities. (p. 36)
- Electric line supervisors generally have not risen from the journeyman ranks, but have come from other areas of the company. Lack of direct field experience arose as a concern in interviews that included union and management personnel. (p. 49)
- MEC is implementing automated meter reading, reducing the need for meter readers. Some move on to become apprentice line and substation workers. (p. 41)

- Lineman overtime has increased steadily from about 10% in 1999 to almost 22% since 2002. (p. 39)
- MEC has recognized its aging linemen workforce and has made efforts to attract and retain apprentices to replace retirees and other workforce decreases. (p. 40)
- MEC utilizes its system performance in terms of reliability and other indices to determine areas of focus. (p. 42)
- The chart below shows MEC's customer survey scores for providing Reliable Electric Service (2000-2007): (p. 44)

**ICC Mandated Customer Reliability and Satisfaction Study  
Overall Satisfaction with "Providing Electric Service"**

Year	Residential	Non-Residential
2000	8.36	8.62
2001	8.18	8.56
2002	8.39	8.52
2003	8.49	8.76
2004	8.49	8.75
2005	8.52	8.92
2006	8.68	8.93
2007	8.43	8.79

(Illinois Customers Only)  
0-10 scale, mean scores

- Jacobs' workforce recommendations: (p. 50)
  - ✓ MEC should conduct a workforce planning study to define the required workforce and identify actions needed to meet those requirements.
  - ✓ Strive to increase the complement of apprentices.
  - ✓ Forecast bargaining unit retirements through the use of a nonbinding potential retirement survey.
  - ✓ Explore means to improve compensation parity to attract more journeyman line workers into line supervisor positions.

### Training

- At MEC, electrical training consists of a combination of classroom and on-the-job. (p. 50)

- Trainers are selected based on qualifications rather than seniority. (p. 51)
- An Electric General Apprentice Committee comprised of five management and five union employees oversees the apprentice program. (p.51)
- Substation group conducts informal nonbinding polls to help forecast departures and needs. The lineman department does not formally follow this practice. (p.52)
- MEC belongs to and uses the National Joint Apprentice and Training Committee training templates. (p. 52)
- The training program is accredited by the Illinois Department of Labor. (p. 52)

### MEC's Report<sup>32</sup>

- MEC projects a budgeted total linemen employee requirement of 90 for the period ending June 30, 2010. Of the 90 total employees, in-house linemen are projected to total 66. The company reported 70 in-house line and substation workers at the end of 2006.<sup>33</sup> MEC states:

A basic benchmark is the number of customers per lineman resource. As noted in the Workforce Report, MidAmerican's ratio compares very favorably to the other utilities in the study. MidAmerican does not expect any significant variances in the benchmark levels in the foreseeable future unless customer growth changes dramatically, the economy changes significantly, or there are significant technological advances in the way line work is performed.

MidAmerican does not anticipate any such changes in the near future.

- MEC projects a budgeted total call center employee requirement of 190 at the end of June 2010. At the end of 2006, Jacobs reported 186 in-house employees and 27 temporary employees in that job classification, for a total of 213. MEC notes the reduction is primarily due to the automated meter reading project and fewer calls related to estimated bills and improvements to the

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<sup>32</sup> MEC's Staffing and Training Benchmarks Report. See Attachment D.

<sup>33</sup> The Jacobs study reports 76 instead of 70 due to double-counting of six first-responder employees.



automated call handling systems. The June 2010 call center employee number is base on forecasted call volumes.

- MEC projects a budgeted total Illinois Quad Cities in-house meter service employee requirement of 13 for the end of June 2010. The 2006 level was 40. The difference primarily reflects the impact of the automated meter reading program. Reductions in the meter service employee workforce were handled either through attrition or by placement in other open positions.
- Factors to consider in future workforce variances include workload requirements, changes in technology, changes in customer counts or service level requirements, the cost-effectiveness of available options, and changes in regulatory requirements.
- Enhancements to the training program include additional classroom time for new call center employees and additional training on how to remotely read meters utilizing automated meter reading technology.

#### Staff's Analysis and Opinion

- Jacobs Consulting thoroughly analyzed MEC's workforce ratios, workforce adequacy, and training programs for each job classification critical to the quality, reliability and restoration of electric service.
- Staff annually reviews MEC's electric reliability reports filed pursuant to the reliability provisions of Section 16-125 of the Public Utilities Act and Administrative Code Part 411. The utilities file these reports with the Commission by the end of May for the previous calendar year. The Commission Staff is required to perform an assessment of each utility's reliability report, at least every three years per 83 Ill. Adm. Code 411.140. The assessments include a review of the annual reliability reports and evaluate the reliability performances. The annual utility reports and Staff's assessment reports are on the Commission web site at <http://www.icc.illinois.gov/electricity/electricreliability.aspx>.
- Factors affecting service quality, reliability and restoration include: weather and other variables outside a company's control, investment in the system, age of

existing plant and equipment, maintenance, system protection, staffing, and training.

- 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.
- 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.”
- The most recent Staff Assessment for MEC was posted to the Commission’s web site on August 19, 2009. Excerpts from Staff’s Assessment pertinent to workforce and training issues include the following:<sup>34</sup>
  - ✓ Staff agreed that many of the 2007 electric service interruptions occurred when severe storms tracked across MEC’s operating area. However, when inspecting MEC’s distribution circuits during 2008, Staff noted deteriorated facilities at several locations and concluded that the poor condition of some facilities likely contributed to the service interruptions that occurred during the 2007 storms.
  - ✓ MEC should perform thorough inspections of its distribution facilities more frequently than once every ten years, as is the current practice, to provide the opportunity to identify and correct reliability threats prior to interruption occurrence.

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<sup>34</sup> Selected excerpts are not intended to give a complete overview of Staff’s reliability assessment.

- ✓ MEC should remind its inspectors to continually look for National Electrical Safety Code violations. Staff believes that MEC's corrective process would only improve if more of its employees were noting and reporting NESC violations as they perform their normal daily field work.
- ✓ Staff has concluded that MEC has a process in place to identify, analyze, and correct service reliability for customers who experience a number or duration of interruptions that exceed the Commission's reliability targets, and should ensure that corrective actions occur promptly.
- ✓ Independent survey results indicate that MEC's residential and commercial customers gave MEC high scores for the provision of reliable electric service.
- ✓ Staff's follow-up inspection of MEC's 2007 worst performing circuit revealed MEC's corrective actions during late 2007 and in 2008 placed the circuit in excellent condition and that should result in improved service reliability for customers.
- ✓ Staff's inspection of circuit 13-107-1 revealed that significant damage and multiple interruptions could occur during a moderate storm due to the many deteriorated facilities.
- ✓ MEC indicated that it trims the trees that grow adjacent to its distribution circuits every 3 to 4 years, and Staff found MEC's tree-trimming efforts to be satisfactory.
- ✓ During 2007, MEC worked cooperatively with Staff to develop a plan under which it will inspect each of its Illinois circuits and correct any NESC violations that it finds, and convey its progress to Staff in quarterly reports.

Staff's Benchmarks Conclusion: MEC

Staff's interest in MEC's workforce adequacy and training is founded upon the aforementioned statutory and administrative code requirements that address the provision of adequate, efficient, reliable and least-cost public utility services. The size, makeup, and training of the workforce are components of a complex system. How well that system operates also depends on other factors such as investment in new plant,

the age and reliability of existing plant and equipment, technological improvements, system protections, investment in the system, maintenance programs, age of existing plant and equipment, weather, how workers are assigned across the system, and variables that are outside a company's control.

Regarding training benchmarks, Staff recommends MEC continue the programs as outlined in the Jacobs and MEC reports.

Staff's benchmarks for MEC's staffing levels are shown in the table below and are based primarily upon the findings and conclusions of the Jacobs studies and Staff's most recent reliability assessment for the company as summarized above and presented in its entirety on the Commission's web site.<sup>35</sup> Staff intends to review workforce levels annually in conjunction with MEC's annual reliability report.

Job Classification <sup>36</sup>	Jacobs Study Average 1995 - 2006	Jacobs Study 2006	MEC June 2010	Staff Benchmark: June 2010 ± 5%
In-house workers, "linemen"	65	70	66	63 – 69
Call-center employees	175	213	190	181 – 200
Meter service or repair	42	40	13	12 – 14

<sup>35</sup> Staff associates no ratemaking implications with its workforce level recommendation.

<sup>36</sup> PUA Section 4-602's job classifications are "in-house workers, commonly referred to as 'linemen'", "customer service call-center employees" and "meter service or repair employees". No contractor employees are included in the "in-house workers" category.

## Mt. Carmel Public Utility Company

### Mt. Carmel's Report<sup>37</sup>

The Commission did not engage Jacobs Consultancy to analyze Mt. Carmel's staffing levels. Instead, Staff requested the company to provide a Workforce Study Analysis for Staff's review. The following summarizes Mt. Carmel's report:

- For the years 1995 through 2006, the staffing levels for in-house linemen, meter service or repair employees, and customer service have been steady and no layoffs or downsizing was implemented.
- Additional employees have been hired in the year 2008 to increase the overall workforce.
- Minor variances were due to retirements, changes in job description or function, and other internal operational utilization such as moving from a described job to a supervisor position.
- PUA Section 1-102 requires that Mt. Carmel provide "adequate, efficient, reliable, environmentally safe and least-cost public utility services at prices which accurately reflect long-term cost of such services which are equitable to all citizens." With this general policy in mind, the company tries to find a proper balance in the provision of quality electrical service, efficiency and costs, including workforce staffing and training.
- During the reporting period, the company increased its training and safety focus:
  - ✓ Additional job-related training for the workforce to be more competent in their fields and to be more efficient in completion of work.
  - ✓ Acquisition of additional equipment, tools and computer programs (underground boring equipment; new customer information system programs to help in expediting work orders and tracking of job status and materials used; new line and service trucks).

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<sup>37</sup> Mt. Carmel's Workforce Study Analysis. See Attachment E.

- ✓ Helps decrease overtime needs.
- Increase in the number of apprentice linemen being trained to help in having multiple individuals available for coverage during vacations, outages and other times as needed.
- Increased efforts in vegetation management by utilizing outside contractors to bring the system into compliance. Following the rate freeze, the company hired additional workforce to keep reliability in place and to continually maintain and upgrade the system, thereby decreasing outages.
- Additional contractor roles include:
  - ✓ Periodic testing and critical maintenance and repair of substation components (in-house workers perform weekly and monthly inspections)
  - ✓ Major construction jobs such as substation design and construction
  - ✓ Transmission line projects
  - ✓ Assistance with severe emergency repairs
- Customer service center is open Monday through Friday, and personnel are available by phone after regular business hours. During times of severe or widespread outages, additional personnel are called in.
- The company's reliability indices indicate a reasonable and improved reliability record, with an overall improvement trend. System design to add circuitry and alternate feeds of electricity have also been utilized to increase reliability. This work has been completed with in-house services and outside contractors (for projects listed above).
- Customer satisfaction surveys show that on an ongoing basis, over 80% of the customers believe the company provides reliable electric service.
- Mt. Carmel employed an average of six in-house linemen during the 1995-2006 study period, and the total was seven at the end of 2006.
- Mt. Carmel employed an average of four meter service and repair workers during the 1995-2006 study period, and the total was three at the end of 2006.
- Mt. Carmel employed an average of eleven customer service workers during the 1995-2006 study period, and the total was twelve at the end of 2006.

## Staff's Analysis

- Staff annually reviews Mt. Carmel's electric reliability reports filed pursuant to the reliability provisions of Section 16-125 of the Public Utilities Act and Administrative Code Part 411. The utilities file these reports with the Commission by the end of May for the previous calendar year. The Commission Staff is required to perform an assessment of each utility's reliability report, at least every three years per 83 Ill. Adm. Code 411.140. The assessments include a review of the annual reliability reports and evaluate the reliability performances. The annual utility reports and Staff's assessment reports are on the Commission web site at <http://www.icc.illinois.gov/electricity/electricreliability.aspx>.
- Factors affecting service quality, reliability and restoration include: weather and other variables outside a company's control, investment in the system, age of existing plant and equipment, maintenance, system protection, staffing, and training.
- 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.
- 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."

- The most recent Staff Assessment for Mt. Carmel addresses the company's 2006 operations. Excerpts from Staff's Assessment pertinent to workforce and training issues include the following:<sup>38</sup>
  - ✓ Mt. Carmel should continue with its efforts to install animal protection on distribution equipment. Animals caused between 10% and 20% of interruption within Mt. Carmel's system during each of the last four years. It appeared to Staff that Mt. Carmel is doing a good job installing this protection, and Staff simply encourages Mt. Carmel to continue its efforts.
  - ✓ Mt. Carmel's tree trimming personnel should clear trees away from the conductor in such a manner that the trees will not grow or blow into the lines prior to being trimmed again. Staff noted several tree contacts when inspecting Mt. Carmel's distribution circuits in July of 2007. Mt. Carmel's assertion that it trimmed all of the grids in its operating area within three years is a positive step, but Mt. Carmel must trim trees in such a manner that the trees do not contact the power lines between cycles.
  - ✓ Mt. Carmel should consider utilizing overhead fault indicators to help identify the location of the causes of interruptions on its distribution circuits where line sections travel cross-country or are not easily seen from the roadway. Mt. Carmel's use of these devices could help its personnel locate problems faster, result in shorter overall interruption time, and lower Mt. Carmel's CAIDI.
  - ✓ In July of 2007 Staff inspected three of Mt. Carmel's distribution circuits that during the 2006 calendar year had higher SAIFI values than Mt. Carmel's system SAIFI value. Staff found that Mt. Carmel's distribution facilities were generally in very good shape. However, Staff observed several locations where trees were contacting or close to the primary conductor.
  - ✓ In Attachment B to its 2006 Reliability Report Mt. Carmel indicated only one of its customers experienced interruptions in excess of the reliability targets (and half of this customer's interruptions were weather-related). This was the

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<sup>38</sup> Selected excerpts are not intended to give a complete overview of Staff's reliability assessment.



first year Mt. Carmel reported any customers experienced interruptions in excess of the reliability targets.

- ✓ Commission rules require a process to identify, analyze, and correct service reliability for customers who experience a number or duration of interruptions that exceeds the reliability targets. It appears to Staff that the company does have such a process in place.
- ✓ Independent survey results indicate that for 2006, the company's residential customers gave the company a reliability score of 8.50 out of 10, and its non-residential customers gave the company a reliability score of 8.91 out of 10. These scores have been improving in recent years.
- ✓ In general, Mt. Carmel's worst performing circuits performed better than the worst performing circuits of the other utilities.

Staff's Benchmarks Conclusion: Mt. Carmel

Staff's interest in Mt. Carmel's workforce adequacy and training is founded upon the aforementioned statutory and administrative code requirements that address the provision of adequate, efficient, reliable and least-cost public utility services. The size, makeup, and training of the workforce are components of a complex system. How well that system operates also depends on other factors such as investment in new plant, the age and reliability of existing plant and equipment, technological improvements, system protections, investment in the system, maintenance programs, age of existing plant and equipment, weather, how workers are assigned across the system, and variables that are outside a company's control.

Regarding training benchmarks, Staff recommends Mt. Carmel continue its training geared toward employee competency and efficiency.

Staff's benchmarks for Mt. Carmel's staffing levels are shown in the table below and are based primarily upon the company's work study analysis and Staff's most recent reliability assessment for the company as summarized above and presented in its

entirety on the Commission's web site.<sup>39</sup> Staff intends to review workforce levels annually in conjunction with Mt. Carmel's annual reliability report.

Job Classification <sup>40</sup>	Jacobs Study Average 1995 - 2006	Jacobs Study 2006	Mt. Carmel July 2010	Staff Benchmark: July 2010
In-house workers, "linemen"	na	na	7	7
Call-center employees	na	na	3	3
Meter service or repair	na	na	12	12

## Conclusion

In addition to the obligations identified in Sections 4-602 and 4-603 of the Act, electric utilities have long-standing basic statutory and administrative code obligations regarding the quality, reliability, and restoration of public utility service that are pertinent to this review of utility staffing level and training benchmarks.

Section 1-102 provides the following direction and guidance for the review of a utility's provision of service:

- The General Assembly finds that the health, welfare and prosperity of all Illinois citizens require the provision of adequate, efficient, reliable...and least-cost public utility services...
- It is...the policy of the State that public utilities shall continue to be regulated effectively and comprehensively.

It is further declared that the goals and objectives of such regulation shall be to ensure... the ability of utilities to provide consumers with public utility services under varying demand conditions in such manner that suppliers of public utility services are able to provide service at varying levels of economic reliability giving appropriate consideration to the costs likely to be incurred as a result of service

<sup>39</sup> Staff associates no ratemaking implications with its workforce level recommendation.

<sup>40</sup> PUA Section 4-602's job classifications are "in-house workers, commonly referred to as 'linemen'", "customer service call-center employees" and "meter service or repair employees". No contractor employees are included in the "in-house workers" category.

interruptions, and to the costs of increasing or maintaining current levels of reliability consistent with commitments to consumers.

The Commission retained the services of Jacobs Consultancy to conduct the required workforce analysis studies.

Jacobs' general conclusion regarding workforce adequacy is "In-house workforce adequacy should ... comprise a blend of resources that cost-effectively maintains reasonable system reliability and service quality, while utilizing outside resources to meet peak workload requirements." Staff's position is that the "resources" to which Jacobs refers includes factors in addition to workforce levels that affect a utility's ability to provide adequate, efficient, reliable and least-cost utility services such as: maintenance programs, system improvements including upgrades and automation, preparations for planned and unplanned outages, reassignment of workers across regions, and construction programs. These plans and programs are influenced by, and in turn influence, workforce levels. Commission Staff finds Jacobs' approach to be a sound basis upon which to evaluate the electric utilities' workforce adequacy.

Staff's interest in electric utilities' workforce adequacy and training is founded upon the aforementioned statutory and administrative code requirements that address the provision of adequate, efficient, reliable and least-cost public utility services. The size, makeup, and training of the workforce are components of a complex system. How well that system operates also depends on other factors such as investment in new plant, the age and reliability of existing plant and equipment, technological improvements, system protections, investment in the system, maintenance programs, age of existing plant and equipment, weather, how workers are assigned across the system, and variables that are outside a company's control.

Staff's benchmarks for the Illinois electric utilities' staffing levels are based primarily upon the findings and conclusions of the Jacobs and Mt. Carmel studies and Staff's most recent reliability assessments for the companies as summarized above and presented in their entirety on the Commission's web site. It is Staff's opinion that

current workforce levels plus a band of  $\pm 5\%$  provide an effective benchmark for ComEd, the Ameren Illinois Utilities and MEC. The benchmark for Mt. Carmel is set at the company's July 2010 employee level.

It is Staff's opinion, based on the reports summarized above and Jacobs' findings, that the utilities' trainings programs are satisfactory. Staff will follow-up with the electric utilities on an annual basis to review changes in the training programs.

Notwithstanding the discussion above identifying the many factors in addition to workforce levels that affect a utility's ability to provide adequate, efficient, reliable, and least-cost service, Staff will increase its review of the workforce level factor in conjunction with the electric utilities' annual reliability reports and customer satisfaction reports.

**RECEIVED**

SEP 19 2008

Illinois Commerce Commission  
ENERGY DIVISION



September 18, 2008

Mr. Harry Stoller  
Director, Energy Division  
Illinois Commerce Commission  
527 East Capitol Avenue  
Springfield, IL 62701

Re: Affidavit of ITC Midwest  
Electric Utility Workforce Study in HB 825 and 220 ILCS 5/4-602

Dear Mr. Stoller:

Attached please find the Affidavit of Douglas C. Collins, Executive Director of ITC Midwest, concerning the participation of ITC Midwest in the Electric Utility Workforce Study being conducted by the Illinois Commerce Commission.

Please contact me if you have any questions, or require additional documentation of ITC Midwest's eligibility to participate in the study.

Respectfully submitted,

A handwritten signature in cursive script that reads "David B. Grover, Jr.".

David B. Grover  
Manager, Regulatory Strategy - Minnesota and Illinois  
ITC Midwest  
500 IDS Center - 80 South Eighth Street  
Minneapolis, MN 55402  
(612) 632-3415  
[dgrover@itctransco.com](mailto:dgrover@itctransco.com)

Attachment

**AFFIDAVIT OF DOUGLAS C. COLLINS**


**STATE OF IOWA**

**COUNTY OF DUBUQUE**

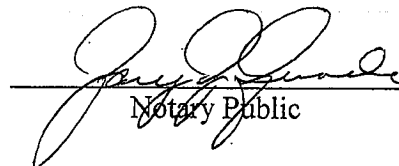
Mr. Douglas C. Collins, being first duly sworn on his oath, states:

My name is Douglas C. Collins. I am the Executive Director for ITC Midwest LLC, a wholly owned subsidiary of ITC Holdings Corp. ITC Holdings Corp. is the only publicly traded independent transmission company in the United States. ITC Midwest LLC acquired the electric transmission assets of Interstate Power and Light in December 2007, including 126 miles of electric transmission lines in the State of Illinois. Because ITC Midwest owns electric transmission facilities in Illinois, I believe it is considered a public utility in Illinois under the Public Utilities Act.

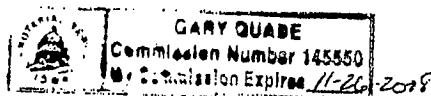
After reviewing the Public Act 095-0081 ("HB 825"), I do not believe the electric utility workforce study required in the law is applicable to ITC Midwest LLC. The study is based on examining utility employment data in several categories for the time period 1995 to 2006. Since ITC Midwest LLC did not exist as a public utility in Illinois for any part of the 1995 to 2006 time period, no data exists for review or analysis in the study.

  
Douglas C. Collins

Subscribed and sworn to before me this 17<sup>th</sup> day of September, 2008.

  
Notary Public

My Commission expires: 11-26-2008



AFFIDAVIT OF MAUREEN A. BORKOWSKI

STATE OF MISSOURI )  
 ) ss  
CITY OF ST. LOUIS )

Ms. Maureen A. Borkowski, being first duly sworn on her oath, states:

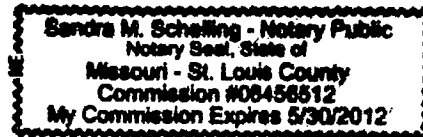
1. My name is Maureen A. Borkowski. I am the Vice President of Transmission for Ameren Services Company, which provides various corporate, administrative, and technical support for Ameren Corporation and its affiliates.
2. I am also a Vice President for Ameren Illinois Transmission Company ("AITC").
3. After reviewing the Public Act 095-0081 ("HB 825"), I do not believe the law is applicable to AITC.
4. To the extent that HB 825 does apply to AITC, no data exists for review because AITC had no linemen, call center employees, meter service or repair employees or contractor employees in similar classifications that would be subject to the review period (1995-2006).

Maureen A. Borkowski  
Maureen A. Borkowski

Subscribed and sworn to before me this 21<sup>st</sup> day of August, 2008.

Sandra M. Schelling  
Notary Public

My commission expires: 5/30/2012



STATE OF ILLINOIS  
BEFORE THE  
ILLINOIS COMMERCE COMMISSION

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In Re: The Matter of the Investigation )  
Of the Illinois Commerce Commission )  
Pursuant to 220 ILSC 5/4-602 and 4-603 ) Docket No. 08-  
Relating to the Work Force Analysis of )  
Certain Electric Utilities )

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AFFIDAVIT OF DALE LANDGREN ON BEHALF OF  
AMERICAN TRANSMISSION COMPANY LLC  
AND  
ATC MANAGEMENT INC.

Dale A. Landgren, on oath deposes and states, as follows:

1. My name is Dale A. Landgren. I am an adult resident of the State of Wisconsin over the age of 18 years and under no legal disabilities. I am employed by ATC Management Inc., the corporate manager of American Transmission Company LLC (Collectively "ATCLLC") as Vice President and Chief Strategic Officer. My business address is N19 W23993 Ridgeview Parkway W, Pewaukee, Wisconsin. I am authorized to provide this affidavit to the Illinois Commerce Commission.
2. American Transmission Company LLC and ATC Management Inc. were determined by the Illinois Commerce Commission to be "public utilities" subject to the Commission's jurisdiction in Docket No. 01-142. In that proceeding, the Commission made the following express finding:

The Commission, having examined the entire record herein, and being fully advised in the premises, is of the opinion and finds that:  
(1) American Transmission Company LLC and ATC Management Inc. are "public utilities" within the meaning of Section 3-105 of the Public



Utilities Act but are not “electric utilities” within the meaning of Section 16-102 of the Public Utilities Act;  
*American Transmission Company LLC and ATC Management Inc.*, Docket No. 01-142, Final Order (January 23, 2003) at p. 6.

3. Further, in granting the requested Certificate of Public Convenience and Necessity authorizing ATCLLC to operate the transmission facilities owned by ATCLLC in the State of Illinois, the Commission provided, as follows:

CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY

IT IS HEREBY CERTIFIED that the public convenience and necessity require the transaction of business by a public utility in Illinois by American Transmission Company LLC and ATC Management Inc., and they are authorized to perform the functions and services of a public utility in this State.

*Id.* at p. 7.

4. The Work Force Assessment required to be performed by the Illinois Commerce Commission is an assessment of the ratio of certain types of employees to retail customers of “electric utilities” that operate within the State of Illinois. ATCLLC has been determined by the Commission not to be an “electric utility” within the meaning of Illinois law. Sec. 4-602 and 4-603, which require the performance of such Work Force Assessments (and the establishment of certain benchmarks) requires that such assessments be done for “electric utilities.” Specifically, Sec. 4-602 provides as follows:

Sec. 4-602. Electric utility workforce study.

(a) The Commission shall conduct a comprehensive workforce analysis study of each electric utility to determine the adequacy of the total in-house staffing in each job classification or job title critical to maintaining quality reliability and restoring service in each electric utility's service territory...

Sec. 4-602 does not define “electric utility.” However, Sec. 16-102 does define “electric public utility” and the Commission has expressly determined that ATCLLC does not

meet that definition. As a result, the Work Force Assessment required under Sec. 4-602 and the bench marks to be established by the Commission under Sec. 4-603 are not applicable to ATCLLC.

5. Notwithstanding that ATCLLC is not an electric utility, and notwithstanding that Sec. 4-602 and 4-603 do not apply to ATCLLC, ATCLLC provides the following information relating to its operations in the State of Illinois.

A. American Transmission Company LLC acquired certain 69 kV and 345 kV transmission facilities from South Beloit Electric, Water and Gas Company and Wisconsin Power and Light Company located in the state of Illinois. ATC Management Inc. owns a 1/1,000,000 interest in such facilities. The net depreciated book value of such transmission facilities at the time they were acquired was less than \$1,000,000. American Transmission Company LLC and ATC Management Inc. began operations as public utilities in the State of Illinois on January 1, 2001 and have continuously operated in the manner authorized by the Certificate of Public Convenience and Necessity issued to American Transmission Company LLC and ATC Management Inc. by the Illinois Commerce Commission in Docket No. 01-142.

B. Neither American Transmission Company LLC nor ATC Management Inc. have a "service territory" as that term is defined and used in Illinois law.

C. American Transmission Company LLC has no employees in the State of Illinois or elsewhere.

D. ATC Management Inc. provides all the employees necessary to permit American Transmission Company LLC to render wholesale electric transmission service

in the State of Illinois subject to the provisions of the Federal Power Act and the jurisdiction of the Federal Energy Regulatory Commission (FERC).

E. Neither American Transmission Company LLC nor ATC Management Inc. have any retail service customers located in the State of Illinois or elsewhere. American Transmission Company LLC renders wholesale electric transmission service in the State of Illinois pursuant to the open access transmission and energy markets tariff of the Midwest Independent Transmission System Operator, Inc. The rates and charges for service provided under such tariff are authorized by the FERC for wholesale electric transmission service pursuant to the rules, regulations and orders of the FERC.

F. Neither American Transmission Company LLC nor ATC Management Inc. keep or maintain a call center in the State of Illinois or elsewhere.

G. ATC Management Inc. does not employ, contract with, or otherwise provide "linemen" or "meter service repairmen" as those terms are used in Sec. 4-602 and 4-603 of the Illinois Statutes. ATCLLC has entered into agreements with others, including Wisconsin Power and Light Company, an affiliate of ATCLLC, to provide services to ATCLLC to maintain and reliably operate the transmission facilities owned by ATCLLC in the State of Illinois. Those agreements were reviewed approved by the Commission in Docket No. 01-142.

**THE REMAINDER OF THIS PAGE INTENTIONALLY LEFT BLANK**

FURTHER, AFFIANT SAYETH NOT.

\_\_\_\_\_  
Dale A. Landgren

State of Wisconsin )  
County of Waukesha )

The above named, Dale A. Landgren, personally known to me, appeared before me and subscribed to the above and foregoing Affidavit on this \_\_\_\_\_ day of \_\_\_\_\_, 2008.

Notary

\_\_\_\_\_  
Name  
My Commission expires: \_\_\_\_\_



An Exelon Company

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**Workforce Study Analysis:  
Commonwealth Edison Company's  
Staffing and Training Levels  
as of March 31, 2010**

## **I. Introduction**

Section 4-602 of the Illinois Public Utilities Act directed the Illinois Commerce Commission (ICC) to conduct an analysis of the adequacy of staffing from 1995 – 2006 in each Illinois electric utility, including Commonwealth Edison (ComEd), for positions considered critical to maintaining reliable electrical service. The ICC selected Jacobs Consultancy (Jacobs) to conduct this review, which at ComEd occurred in late 2008. Jacobs submitted its *Commonwealth Edison Company Workforce Study Analysis* (Report) to the ICC on December 1, 2008.

As Section 4-602 mandated, in its Report, Jacobs addressed ComEd's staffing levels for:

- 1) "Linemen," including overhead electricians, cable splicers, overhead electricians special (OES), crew leaders, area operators, T&S field craft and substation construction, SSG service technicians, and helper and other mechanic positions related to these classifications;
- 2) Call Center customer service representatives (full-time and part-time); and
- 3) Meter service or repair employees, including meter readers, energy technicians, and meter mechanics.

Jacobs also examined the number of contractors ComEd used to supplement the above job classifications during peak work periods, for special projects or for projects requiring specialized skills or equipment. In addition, Jacobs performed a detailed examination of ComEd's workforce adequacy critical to maintaining quality, reliability, and restoring service in the Utility's Illinois service territory. In doing so, it examined staffing levels, use of contractors, overtime, work order backlog, system reliability performance, and customer satisfaction.

Pursuant to Section 4-603 of the Illinois Public Utilities Act, ICC staff is required to submit, by August 18, 2010, "benchmarks for staffing levels for each classification and employee training for each classification." ICC staff therefore has requested that each Illinois utility submit staffing numbers for the job classifications at issue, with an explanation of any changes to staffing numbers since the final audit year of 2006.

## **II. ComEd's Use of Technology and Capital Improvements to Create a More Efficient and Productive Workforce**

During the audit, ComEd submitted to Jacobs extensive information/documentation related to its efforts to maintain a safe and efficient workforce, as evidenced by the company's improved SAIFI and CAIDI numbers during the relevant time period, its consistent customer satisfaction ratings, and its outstanding safety record. It highlighted ComEd's extensive investments in system infrastructure and technology, as well as a variety of staffing and work-assignment efficiencies ComEd has implemented over the past decade that have allowed for a more efficient and productive workforce.

As noted in Jacobs Report, ComEd's system performance, as measured by CAIDI and SAIFI, has consistently improved since the beginning of the audit period (see Report at

68) because of investments in system infrastructure and technology, including the following sampling of improvements:

- Fiber Optic Communication System
- SCADA at all substations that provides remote control and real-time data
- Interactive Voice Response technology
- Customer Information Management System (CIMS)
- Automation (ITRON) for optimization of meter reading routes
- Work management system that automates work management processes and improves efficiencies in work scheduling and execution.
- Outage Management System (OMS) for real time connectivity information and automated outage analysis
- Automated Roster Call Out System (ARCOS) that enables expedited call outs of field personnel.
- Field Crews using GPS units that are uploaded with equipment data
- Mobile Dispatch technology for Construction & Maintenance, Transmission & Substation, and Distribution System Operations
- Upgraded Transmission Control Center including a training simulator
- Investments in distribution automation technology and cable replacement
- Completion of the West Loop project, a multi-year \$350M investment that transformed the grid in Chicago to a more reliable design standard with additional system capacity.

Some of these projects required increased staffing needs only during the pendency of the project or were necessarily staffed with contractors because of the need for short-term staffing or special skills or equipment.

Other staffing and work-assignment efficiencies ComEd has implemented over the past decade have allowed for a more efficient and productive workforce, including:

- Sending crews across regional and local boundaries to assist with localized workload issues.
- Agreements with Local 15 for more efficient crew make-ups. For example, 75% of overhead crews are 2 person crews)
- Job site reporting to reduce travel time.
- Increased productivity of 24X7 on shift OES positions by assigning opportunistic work that previously was completed by scheduled day crews.
- Supply fill rate and other performance improvements enable crews to be more productive (i.e., less wait time, job site deliveries)

Jacobs Consultancy concluded that the overall adequacy of ComEd's workforce was and had been in harmony with its philosophy to perform work at least cost. (Report at 5.) ComEd accomplished this goal through its philosophy of maintaining an overall level of in-house employees needed to perform core base load work and appropriately supplementing with contractors to meet peak workload requirements. (Report at 4.)

### **III. Staffing Levels and Adjustments to Staffing in Response to Unexpected Changes in the Economy and Cutting-Edge Technological Improvements**

In its Report, Jacobs recommended, in part, that ComEd should, "(c)onsistent with its Staffing Plans for 2008 through 2012, [] continue to aggressively increase its electric field workforce, consistent with its business needs and the overall economic climate." (Report at 5.) Thus, the Jacobs Report recognized that ComEd's future staffing requirements would depend on a variety of factors, including Illinois' overall business climate.

Consistent with the Jacob Report's recognition of the impact of external factors on the company's staffing needs, ComEd has been forced to reexamine its existing Staffing Plans in light of the slower business economy and other factors that have affected its growth projections and created a more ambiguous future for the company's talent pipeline needs.

The company's original staffing preparation plans for 2010 included an increase in hiring in particular job classifications to address the expected retirements of the "Baby Boomer" workforce. Because of the sudden decline in the economic climate and the continued economic stagnation, retirement attrition has not occurred as expected and immediate hiring needs therefore have declined. Additionally, for the first time in the last decade, ComEd's customer base has decreased instead of increased and new service requests virtually disappeared. In 2009, these business conditions required the New Business Department to deploy virtually its entire unionized workforce, the SSG bargaining unit service technicians, to fill positions in other ComEd departments.

In addition, despite the downturn ComEd continued to conduct Overhead, Underground and Substation craft schools, albeit at a lower pace to address demographic issues in the workforce.

Moreover, the recent availability of new technological resources and automation tools in pilot programs ComEd currently is testing has resulted in a re-evaluation of the impact such technology will have on ComEd's future workforce requirements, including the number of employees and the skill sets these employees will need. For example, with the launch of Smart Grid technology, the company is evaluating the potential impact to the Meter Reader workforce. As a result, the company's current staffing efforts in this department are strategic in leveraging a strong pool of candidates who can, if necessary, eventually support other areas within the company.

ComEd's recent efforts to staff positions in Revenue Protection Energy Technicians / Senior Energy Technicians, Meter Readers, and Customer Service Representatives, including some temporary bargaining unit workers, move toward a more fluid and adaptable workforce to enable immediate reaction to changing economic conditions and, thus, staffing needs. ComEd staffed the newly created Revenue Protection Department with temporary employees to permit a ramp-up on back-logged activities while it evaluates long-term department staffing needs. The company is hiring Customer Service



Representatives as permanent, part-time employees and temporary, full-time employees to support the fluidity in customer calls during special initiatives. ComEd also is hiring Meter Readers as temporary employees to support such special, short-term initiatives.

ComEd's commitment to adjusting its workforce to meet the needs of both the business and its employees is further demonstrated in the creation of a comprehensive Transmission & Substation (T&S) Staffing Agreement in collaboration with Local 15, whose membership voted to ratify the agreement. This agreement increases ComEd staffing and is designed to significantly improve productivity in the Overhead Transmission (OHT) Department.

As part of the T&S Agreement, the company committed to returning helicopter patrol work for cyclic and emergency patrols to bargaining unit employees within 18 months of ratification. ComEd further committed to exploring various options to expand bargaining unit employees' participation in other helicopter-related transmission work.

The company continues its partnership with the City Colleges Dawson Technical Institute Overhead Line Electrical Workers program (Dawson). As the need for "line schools" has decreased in light of the failure of expected retirements to occur, these candidates are being staffed in Meter Reader roles. As meter reading technology advances and the need for meter reading staffing slows, this strategy will allow ComEd to utilize these employees' skills in other permanent positions, such as helpers in Overhead, Underground and Substations.

ComEd's current staffing levels continue to reflect its improved processes, capital investments and an efficient workforce. Additionally, ComEd's current strategy displays ComEd's proactive approach to maintaining an efficient but flexible staffing level so that it is able to timely react to current economic influences, special project needs, new technological developments, and changing business conditions.

#### **IV. Comparison of 2006 Staffing Levels to March 31, 2010<sup>1</sup> Staffing Levels**

An examination of the current staffing numbers compared to staffing numbers in 2006 demonstrates that the overall number of employees in the pertinent job classifications largely has remained consistent: ComEd's total staffing levels in the applicable job classifications display a total reduction of 93 employees, which reflects the collapse of the new business market and subsequent large reductions of the SSG bargaining unit employees in the New Business Department and their absorption into open positions elsewhere in ComEd. In short, the greater change since 2006 can be found in the movement of employees among job classifications. ComEd has reacted decisively and appropriately to address the rapidly changing business needs described above and move employees into positions where they continue to perform essential work. The current economic climate and technological advances, particularly in the Meter Services

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<sup>1</sup> As noted where appropriate in each job classification, additional hires have occurred in the Call Center (CSRs) and Meter Services since March 31, 2010, when this data was run.

Department, highlight the need to quickly rethink hiring strategies and adjust staffing levels in particular job classifications without restriction.

### Call Center

FT CSRs current*	173	FT CSRs 2006	185
*Number includes some temporary CSRs			
PT CSRs current	170	FT CSRs 2006	141
Total current:	343	Total 2006:	326

Ten additional temporary full-time CSRs started April 5, 2010, and an additional complement will start in June 2010.

### Meter Services

Meter Readers current	463	Meter Readers 2006	530
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Approximately 60 Meter Readers have been upgraded temporarily to Energy Technician positions. Beginning in April, ComEd hired 60 temporary Meter Readers to backfill these positions from Dawson. These additional 60 hires are not reflected above. Meter Reading also currently has absorbed SSG Service Technicians into Meter Reader roles. Between 10-23 former SSG Service Technicians relocated to Meter Reading positions beginning in April, due to the continued downturn in new service requests in the New Business Department. ComEd's strategy has been to place these existing employees before additional new employees are hired.

Meter / Energy Techs current	192	Meter / Energy Techs 2006	154
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The increase in Energy Techs reflects the creation of the permanent Revenue Protection Group noted above. Also, as noted, approximately 60 Meter Readers have been upgraded temporarily to Energy Technician positions to perform Smart Grid installation duties.

Total current Meter Services:	655	Total 2006 Meter Services:	684
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### Construction & Maintenance / Operations

Overhead Electricians^ current	779	Overhead Electricians 2006	731
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Increase in OEs is a result of the redeployment of SSG Service Technicians to Helper positions in the Overhead Department plus the completion of several Overhead line schools.

OES current	212	OES 2006	236
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Currently, 20 Overhead Electricians are being upgraded to the OES classification, bringing the number of employees functioning in the OES classification to approximately 232.

Underground <sup>^</sup> current	263	Underground 2006	245
As in the Overhead Department, some of the increase in Underground positions is a result of the redeployment of SSG Service Technicians to Helper positions in the Underground Department plus the completion of several Underground schools.			
Area Operators current	147	Area Operators 2006	151
SSG Service Techs current	40	SSG Service Techs 2006	138
SSG Services Technicians have been redeployed into other ComEd positions, including Overhead and Underground Helpers and Meter Readers.			
Total current C&M / Operations:	1441	Total 2006 C&M / Operations:	1501

<sup>^</sup>Number includes Crew Leaders, Helpers and related positions

### Substation

Crew Leader current	97	Crew Leader 2006	110
Electrical Mechanics current	207	Electrical Mechanics 2006	208
Field craft current	58	Field craft 2006	65
Total current Substation:	362	Total 2006 Substation:	383

Transmission has approximately 40 overhead electricians and cable splicers not included in these numbers. Instead, those employees are included in the C&M / Operations staffing numbers above. Since 2006, staffing has increased in the Network High Rise group, and underground and overhead transmission. Staffing has remained virtually unchanged in substation craft (electrical mechanics) through the absorption of former SSG mechanics as helpers, as well as the completion of several substation schools.

### V. Training

ComEd's Training Department continues to offer the broad variety of training programs detailed in ComEd's previous submissions to Jacobs, including new hire coursework and OJT training, line schools, an array of safety courses targeted to job classification and any current need the business unit identifies, and skills refresher training programs. (See Report at 88-90.)

Additionally, the redeployment of SSG employees into new bargaining unit roles resulted in a greatly increased training programs to ensure that these employees were prepared to safely and efficiently perform these new roles. SSG employees transferred to meter reading roles, for example, completed the seven-day classroom Meter Pro training provided new hires and received OJT as well.

Moreover, the T&S Staffing Agreement noted above provided for newly developed structured training programs, including: Leadership courses for the new Crew Leader

Lead, Crew Leader/Planner, and Crew Leaders positions; construction standards training; transmission and distribution overhead training; structure rescue training; transmission switch training; and lock-out / tag-out training.

As part of the effort to bring T&S work previously performed by contractors in-house, 21 employees in the Transmission Underground Department received highly technical training on high-pressure splicing, and 16 employees received training on performing breaker overhaul work. Significantly, nine employees attended a four-week hand-on training program on Transformer Maintenance, specifically all aspects of Load Tap Changer repair and maintenance. Providing bargaining unit employees with these skills will further reduce performance of T&S work by outside contractors.

## **VI. Conclusion**

ComEd's current staffing levels continue to reflect the company's staffing philosophy that it must retain the ability to quickly respond to changing economic environment, special project needs, new technological developments, and evolving business conditions.

**Ameren Illinois Utilities  
Staffing and Training Benchmarks Report  
June 30, 2010**

**I. Introduction**

Pursuant to Section 4-602 of the Public Utilities Act [220 ILCS 5/4-602], the Illinois Commerce Commission ("ICC" or "Commission") retained Jacobs Consultancy Inc. ("Jacobs") to perform a workforce study analysis of each of the Illinois electric utilities. Accordingly, Jacobs submitted separate workforce study analyses for Central Illinois Light Company d/b/a AmerenCILCO, Central Illinois Public Service Company d/b/a AmerenCIPS and Illinois Power Company d/b/a AmerenIP (collectively the "Ameren Illinois Utilities" or "AIU") to the Commission in October 2008.

The objective of each such study was to determine the adequacy of the total in-house staffing in each job classification or job title critical to maintaining quality reliability and restoring service in each AIU service territory. Section 4-602 defined the critical workforce as: 1) In-house workers, commonly referred to as linemen; 2) Customer service call-center employees; and (3) Meter service or repair employees. Jacobs' analysis also examined the total number of contractor employees in the same manner as the in-house analysis. Subsequently, at the request of the ICC Staff, the AIU also included substation service employees.

Jacobs' approach to the AIU studies was broken down into two tasks:

- A. Computing and comparing the yearly workforce ratios during the 1995 – 2006 timeframe for the pertinent job classifications by service area, district, division, or region for AmerenCILCO, AmerenCIPS and AmerenIP, respectively.
- B. Performing a detailed examination of workforce adequacy critical to maintaining quality and reliability, and restoring service in AmerenCILCO's, AmerenCIPS' and AmerenIP's service territory, respectively.

With the changes in company ownership, organization structure and integration efforts, AmerenCILCO, AmerenCIPS and AmerenIP operated over the period 1995 – 2006 with varying operating centers. Neither the number of active operating centers nor the division to which they reported was consistent over the time period. The AIU continue to look at the organization structure and anticipate possible changes in the active operating centers and the number of divisions in the future. As a result, this report will focus on benchmarks for linemen, call center employees, and meter service employees in total for each critical job classification for each legacy company.

Based on their analysis, Jacobs concluded that the overall adequacy of the AIU's workforce has generally been in harmony with its philosophy to maintain an overall level of in-house employees needed to perform core base load work and complete workload peaks and valleys with contractors while subcontracting lower skilled work. [See page 5 of the respective AIU workforce study analysis reports.] The results of Jacobs' workforce study analysis for the AIU are summarized in Section II of this report.

Section 4-603 of the Public Utilities Act [220 ILCS 5/4-603] requires the development of benchmarks for employee staffing and employee training for each of the Illinois electric utilities. AIU benchmarks as of June 30, 2010 for the same critical workforce categories specified in Section 4-602 of the Act are provided in Section III of this report.

Section IV of this report addresses the differences between the Jacobs workforce study analyses for the AIU and the June 30, 2010 AIU benchmarks.

II. Workforce Study Analysis Results

A. Staffing Levels

The Jacobs workforce study analyses concluded that the AIU consistently and increasingly utilized outsourcing to augment its linemen, call center employees and meter service workforce throughout the 1995 – 2006 timeframe. In general, AmerenCILCO and AmerenIP maintained their workforce by balancing a decreasing number of in-house employees with an increasing number of outsourced employees.

1. Linemen Employees

Annual linemen (including substation/relay) employee data for the 1995 – 2006 timeframe for both in-house and contractor employees is shown in Section 4.1.1, Table 1, of the Jacobs' workforce study analysis for each of the AIU legacy companies. Linemen data for 2006, the last year reported, is shown below for each of the AIU along with Jacobs' related conclusions. Note: Contractor data was estimated based on contractor invoice data.

AmerenCILCO Linemen Employee Data

	<u>Total 2006</u>
<b>LINEMEN</b>	
UG - Crew Leader	4
UG - Journeyman / Cable Splicer	7
UG - Apprentice	2
OH - Crew Leader	18
OH - Journeyman	63
OH - Apprentice	0
Contract Lineman FTEs	37
Subtotal In-House Linemen	94
Subtotal Contract Linemen	37
Subtotal Linemen	131
<b>SUBSTATION/RELAY</b>	
Substation - Crew Leader	8
Substation - Journeyman	17
Substation - Apprentice	1
Contract Substation FTEs	0
Subtotal In-House Substation/Relay	26
Subtotal Contract Substation/Relay	0
Subtotal Substation/Relay	26
Total In-House Employees	120
Total Contract Employees	37
<b>Total Linemen &amp; Substation/Relay</b>	<b>157</b>

Since 1999 (the first year the number of linemen contractor employees could actually be quantified), there was a gradual increase in AmerenCILCO linemen contractor employees, enabling the overall total customers per linemen ratio to remain fairly level during the 1995 – 2006 timeframe. In addition, several of the dips in total in-

house linemen employees can be attributed to events that impacted staffing levels company-wide. [See page 30 of the AmerenCILCO workforce study analysis report.]

**AmerenCIPS Linemen Employee Data**

	<u>Total 2006</u>
<b>LINEMEN</b>	
Electric Utility Foreman	26
Lineman Journeyman	165
Lineman Apprentice	14
Line Foreman	46
Contract Lineman FTEs	24
Subtotal In-House Linemen	251
Subtotal Contract Linemen	24
Subtotal Linemen	275
<b>SUBSTATION/RELAY</b>	
Relay Journeyman	1
Relay Technician	10
Substation Foreman	13
Substation Electrician Troublemaker	18
Substation Electrician	14
Substation Electrician Apprentice	11
Contract Substation FTEs	0
Subtotal In-House Substation/Relay	67
Subtotal Contract Substation/Relay	0
Subtotal Substation/Relay	67
Total In-House Employees	318
Total Contract Employees	24
<b>Total Lineman &amp; Substation/Relay</b>	<b>342</b>

The total overall AmerenCIPS customers per linemen ratio gradually increased, thus providing fewer linemen resources per customer. Since 2001 (the first year that the number of linemen contractor employees could actually be quantified), the use of contract linemen has been minimal due to union contract requirements. [See page 29 of the AmerenCIPS workforce study analysis report.]

**AmerenIP Linemen Employee Data**

	<u>Total 2006</u>
<b>LINEMEN</b>	
Lineman	252
RCP Linemen	31
Contract Lineman FTEs	103
Subtotal In-House Linemen	283
Subtotal Contract Linemen	103
Subtotal Linemen	386
<b>SUBSTATION/RELAY</b>	
Substation	62
Contract Substation FTEs	11
Subtotal In-House Substation/Relay	62
Subtotal Contract Substation/Relay	11
Subtotal Substation/Relay	73
Total In-House Employees	345
Total Contract Employees	114

<b>Total Lineman &amp; Substation/Relay</b>	459
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For AmerenIP, the total overall customers per linemen ratio gradually decreased since 1998, thus providing more linemen resources per customer. Since 1999 (the first year the number of linemen contractor employees could actually be quantified), the use of contract linemen has been continuous and increasing, resulting in the use of fewer in-house linemen. [See page 30 of the AmerenIP workforce study analysis report.]

## **2. Call Center Employees**

Section 4.1.2, Table 2, of the Jacobs workforce study analysis for each of the AIU shows annual call center employee data for the 1995 – 2006 timeframe for both in-house and contractor employees. Call center employee data for 2006, the last year reported, is shown below for each of the AIU along with Jacobs' related conclusions.

<u>2006 Total Call Center</u>	<u>AmerenCILCO</u>	<u>AmerenCIPS</u>	<u>AmerenIP</u>
Customer Service Representatives (In-House Employees)	67	52	128
Contractor Employees	<u>7</u>	<u>12</u>	<u>47</u>
Total	74	64	175

AmerenCILCO initiated the use of contract resources in its call center in 2005. AmerenCILCO's ratio of customers per call center employee fluctuated during the 1995 – 2006 timeframe. Such ratio was influenced by voluntary retirement plans and transfers to other Ameren departments due to call center consolidations. [See page 30 of the AmerenCILCO workforce study analysis report.]

Prior to 2002, the AmerenCIPS call center did not use contract employees. Since 2005, Manpower employees were brought in as CSRs-in-training before AmerenCIPS potentially offered them permanent employment. AmerenCIPS' ratio of customers per call center employee fluctuated during the 1995 – 2006 timeframe. These fluctuations in the ratios were due to organizational changes, the consolidation of operating centers, the transfer of UE Illinois assets, and the call center becoming virtual in 2005. [See page 29 of the AmerenCIPS workforce study analysis report.]

The AmerenIP call center did not use contract employees prior to 2005. AmerenIP's ratio of customers per call center employee remained fairly stable during the 1995 – 2006 timeframe. Total call center employees increased slightly due to the conversion to a new Customer Information Suite of Systems in October 2005. [See page 30 of the AmerenIP workforce study analysis report.]

## **3. Meter Service Employees**

Annual meter service employee data for the 1995 – 2006 timeframe for both in-house and contractor employees is shown in Section 4.1.3, Table 3, of the Jacobs' workforce study analysis for each of the AIU. Meter service employee data for 2006, the last year reported, is shown below for each of the AIU along with Jacobs' related conclusions.

### AmerenCILCO Meter Service Employee Data

	<u>Total 2006</u>
METER SERVICE Electronic Tech	1



Instrument Tech	0
Journeyman Meterman	7
Crewleader Metering	0
Shop Tester	2
Apprentice Meterman	4
Meter Reader	13
Contract Meter Reader FTEs	34
<b>Total In-House Employees</b>	<b>27</b>
<b>Total Contract Employees</b>	<b>34</b>
<b>Total Meter Service</b>	<b>61</b>

AmerenCILCO's general philosophy was to replace in-house meter reading employees with contractors as necessary. The gradual increase in customers per meter service employee may have been made possible due to improved productivity resulting from better metering technology and more efficient management of meter routes. [See page 30 of the AmerenCILCO workforce study analysis report.]

AmerenCIPS Meter Service Employee Data

	Total <u>2006</u>
<b>METER SERVICE</b>	
Meter Reader Groundman	43
Meter Reader Apprentice	5
Metering Technician	15
Metering Technician Apprentice	1
Meter Foreman	0
Meterman Journeyman	6
Meterman Apprentice	0
Contract Meter Reader FTEs	15
<b>Total In-House Employees</b>	<b>70</b>
<b>Total Contract Employees</b>	<b>15</b>
<b>Total Meter Service</b>	<b>85</b>

AmerenCIPS' general philosophy was also to replace in-house employees with contractors as necessary. The gradual decrease in in-house meter readers was due to the anticipation of automatic meter reading in certain areas. AmerenCIPS chose to reduce the number of meter readers through attrition instead of laying off full time in-house meter readers at the time of conversion in late 2008. [See page 30 of the AmerenCIPS workforce study analysis report.]

AmerenIP Meter Service Employee Data

	Total <u>2006</u>
<b>METER SERVICE</b>	
Meter Readers	133
Meter Shop Testers/Support	15
Contract Meter Reader FTEs	84
<b>Total In-House Employees</b>	<b>148</b>
<b>Total Contract Employees</b>	<b>84</b>
<b>Total Meter Service</b>	<b>232</b>

Changes in AmerenIP's meter reading philosophies are the reasons for the fluctuations in the customers per meter service employee ratios during the 1995 – 2006 timeframe. AmerenIP's general philosophy was to replace in-house employees with contractors as necessary, particularly in anticipation of the automatic meter reading programs in 1998 and 2006. [See page 30 of the AmerenIP workforce study analysis report.]

## **B. Training**

Jacobs' workforce study analysis defined training as referring to the acquiring of knowledge, skills and competencies resulting from teaching. In the electric distribution industry, training forms the core of apprenticeships and provides the backbone for technical education. Apprentice programs supply the training for the initial qualifications, while refresher training provides the opportunity for continued technical development. At the AIU, electric technical training consists of a combination of both training in the classroom and on the job. AIU's approach to utilizing qualified bargaining unit members as linemen training instructors helps assure that they are skilled in current technical requirements, as well as being able to effectively deliver the training. [See pages 60 and 67 of the AmerenCILCO workforce study analysis report; pages 60 and 68 of the AmerenCIPS workforce study analysis report; and, pages 64 and 70 of the AmerenIP workforce study analysis report.]

### **1. Linemen Employees**

With respect to AmerenCILCO, Jacobs found that the linemen apprentice program had been four years in length; substation training program was three years in length. Typically, the apprentice linemen training courses in the electric distribution industry cover a three year period consisting of both classroom and in-house training. As a result of negotiations with the union, the AmerenCILCO linemen apprentice program was changing to three years to standardize the program length within the AIU. [See page 67 of the AmerenCILCO workforce study analysis report.]

Jacobs concluded that both the AmerenCIPS apprentice linemen and apprentice substation journeyman training programs were typical of apprentice programs found in the electric distribution industry with respect to the three-year length of the program and course content. AmerenCIPS belongs to a National Joint Apprentice and Training Committee and uses their standard templates. [See page 68 of the AmerenCIPS workforce study analysis report.]

AmerenIP's apprentice linemen and apprentice substation journeyman training programs are typical of apprentice programs found in the electric distribution industry with respect to the three-year length of the program and course content. AmerenIP belongs to a National Joint Apprentice and Training Committee and uses their standard templates. [See page 70 of the AmerenIP workforce study analysis report.]

### **2. Call Center Employees**

Jacobs reported that both AmerenCILCO and AmerenCIPS use Manpower, Inc. (an employment services company) as the way to source new employees. Each Manpower staff undergoes 17- 25 weeks of training, which serves as the screening process enabling the call center to make an offer of permanent employment. AmerenCILCO and AmerenCIPS both use a lab environment for training. In 2002, AmerenCIPS started using an outsourced call center in North Carolina which at that time generally handled delinquent accounts. [See page 78 of the AmerenCILCO workforce study analysis report and pages 78 – 79 of the AmerenCIPS workforce study analysis report.]

Jacobs found that as of October 2008 AmerenIP had not had any new employees since 2006, and they had not yet made a decision on whether to use Manpower or EEI for selection of new employees. AmerenIP also uses a lab environment for training. Following AmerenCIPS' lead, in 2005 AmerenIP started using an outsourced call center in North Carolina which generally handled delinquent accounts at that time. [See page 81 of the AmerenIP workforce study analysis report.]

**3. Meter Service Employees**

The Jacobs workforce study analysis reports for the AIU did not summarize any specific conclusions regarding meter service training.

**III. AIU June 30, 2010 Benchmarks**

**A. Staffing Levels**

The following staffing benchmarks are based on the AIU's best estimate of the staffing levels needed to provide safe and reliable service that meets regulatory requirements.

Future variances from the Jacobs workforce study analysis reports and the June 30, 2010 staffing benchmarks could be influenced by several factors. Such factors could include, but are not limited to, changes in bargaining unit agreements, changes in technology, changes in the number of customers, changes in customer service level requirements, changes in regulatory requirements, changes in workload requirements, and the cost-effectiveness of available options. In addition, staffing benchmarks will fluctuate as the AIU continue to adjust for economic conditions and synchronize with rate case results.

**1. Linemen Employees**

The AIU's anticipated June 30, 2010 total in-house and contract linemen (including substation/relay) employee headcount is shown below.

	<u>June 30, 2010</u>
<b>LINEMEN</b>	
<b>AmerenCILCO</b>	
In-House	106
Contract	<u>6</u>
Total	112
<b>AmerenCIPS</b>	
In-House	319
Contract	<u>9</u>
Total	328
<b>AmerenIP</b>	
In-House	339
Contract	<u>34</u>
Total	373

The June 30, 2010 numbers above include contract "flex crew" linemen who regularly perform work on a daily basis and assist with meeting new service obligations. Contractors working on special projects or programs are excluded. The numbers above also exclude the impact of the Liberty Audit recommendations. Filling the related positions is contingent on ICC approval of the AIU's proposed Rider RPS, Reliability Projects Surcharge, and timely and constructive rate case orders.

## 2. Call Center Employees

The AIU's anticipated June 30, 2010 total in-house and contract call center employee headcount is shown below.

	<u>June 30, 2010</u>
CALL CENTER	
AmerenCILCO	
In-House	60
Contract	<u>11</u>
Total	<u>71</u>
AmerenCIPS	
In-House	51
Contract	<u>12</u>
Total	<u>63</u>
AmerenIP	
In-House	90
Contract	<u>22</u>
Total	<u>112</u>
Total AIU	
In-House	201
Contract	<u>45</u>
Total	<u>246</u>

The AIU will staff to meet or exceed the following ICC call handling requirements:

- Average Speed of Answer (ASA) less than 60 seconds for all calls annually;  
and
- Call Abandon Rate less than 10% for all call annually.

## 3. Meter Service Employees

The AIU's anticipated June 30, 2010 total in-house and contract meter service employee headcount is shown below.

	<u>June 30, 2010</u>
METER SERVICE	
AmerenCILCO	
In-House	28
Contract	<u>9</u>
Total	<u>37</u>
AmerenCIPS	
In-House	58
Contract	<u>17</u>
Total	<u>75</u>
AmerenIP	
In-House	106
Contract	<u>26</u>
Total	<u>132</u>

The above numbers assume no expansion of the AIU's Advanced Metering Infrastructure ("AMI").

## B. Training

The core training remains the same today as it was in 2006. The AIU continue to work with the various bargaining organizations to achieve uniform training for each of the legacy companies. In addition, slight modifications have been made to accommodate work philosophy, technology, regulatory requirements, industry trends, consolidation efforts, the synchronization of policies and procedures and business changes. The AIU anticipate that further training modifications may be made from time to time to accommodate advances in technology (e.g., Smart Grid), etc.

Note: Since 2006 with respect to meter service employees, the AIU have reached an agreement with the various unions to utilize one common three-year training program. The program is a combination of classroom and on-the-job training.

Summaries of the training courses for linemen, substation/relay, call center, and meter service employees are provided in the various attachments. These summaries include the course title, a course description/outline, and course duration. The summaries are the same for each AIU legacy company.

#### **IV. Workforce Study Analysis vs. Benchmarks**

A comparison of the staffing levels included in the Jacobs' workforce study analyses for the AIU versus the AIU's June 30, 2010 staffing benchmarks reveals the following information. In general, the June 30, 2010 staffing levels are less than the 2006 staffing levels.

Many things have changed in the last four years. For example, the AIU recognize that the economy has significantly declined since 2006 by virtue of the decrease in new business and road expansions. While new business is only part of the AIU's construction activity, housing construction has dropped by approximately 77% according to the Home Builders Association of Illinois ("HBAI").

In 2007, the AIU negotiated contracts with various bargaining units that provide the AIU the flexibility to utilize resources across divisional and legacy company boundaries. For example, the AIU can now use staff from one work area and/or legacy company in another work area and/or legacy company when the amount of work is lower in one area and greater in another. Additionally, as a result of these negotiations the AIU were successful in expanding work assignments across multiple employee classifications (e.g. electric work to gas classifications and line work to substation classifications and vice versa). These contract changes allow the AIU to more efficiently utilize the workforce. The AIU began implementing the gains from these contract changes in 2008 and continue to take advantage of the greater flexibility in staffing with respect to linemen, call center, and meter service staff.

In addition, AmerenCILCO, AmerenCIPS and AmerenIP are in the process of merging into one company, Ameren Illinois Company. The merger is expected to be complete by October 1, 2010. As an outcome of the merger, further synergies of the merged organizations are anticipated.

Lastly, the ability to maintain the staffing benchmarks is dependent upon the AIU receiving constructive rate case relief. Absent constructive rate case relief, the AIU will be relegated to providing the minimum service levels that meet regulatory requirements.

In response to the recent ICC rate order and amended rate order in Docket 09-0306 (Consolidated), the AIU had to immediately begin to reduce operating and capital outlays to bring their costs in line with the revenue requirement established in the

Order. AmerenCILCO, AmerenCIPS and AmerenIP have taken the following actions to address the financial pressures created on the AIU:

- Significantly reduced budgets;
- Instituted a hiring freeze;
- Substantially reduced the use of contractors;
- Delayed or canceled certain projects and planned activities; and
- Reduced expenditures for capital projects designed to enhance reliability of their respective delivery systems.

The AIU June 30, 2010 staffing levels reflect the above actions. Given that the Commission did not grant the AIU's Motion for Partial Stay of Final Order as Corrected, the AIU will have no choice but to continue to work to identify further cost reductions that can be made while still allowing the AIU to provide adequate, efficient, and reliable service.

Future variances in the June 30, 2010 staffing benchmarks may include, but are not limited to, work load changes, technological changes, efficiencies, and regulatory requirement changes. At least annually (typically, more often), the AIU will review the open position action plan a/k/a the critical position list and fill positions consistent with meeting regulatory obligations and staying in line with the revenue requirement established in future rate case orders.

#### **A. Staffing Levels**

The following are comments specific to each job classification.

##### **1. Linemen Employees**

The AIU use IEEE and EEI data as reliability benchmarks. More specifically, the AIU are striving to improve upon our five-year average for both SAIFI and CAIDI results.

With respect to AmerenCILCO, contractor staffing levels were inflated in 2006 due to some special projects (e.g., system capacity improvements) along with an unusually large amount of new business. Contractors performing these activities are not a normal part of day-to-day activities. In addition, linemen reporting to the former AmerenCILCO Homer Operating Center were transferred to AmerenIP as a result of 2007 negotiations.

##### **2. Call Center Employees**

The 2006 AmerenCILCO and AmerenCIPS staffing levels are very close to the corresponding staffing benchmarks above. For AmerenIP, the 2006 staffing level is higher than the June 30, 2010 staffing benchmark. The following explanations are offered.

In 2006, AmerenIP was staffed up to convert to the Ameren Customer Information Suite of Systems. This resulted in higher staffing numbers to support such conversion. Subsequently, conversion employees were no longer needed and staffing was reduced at AmerenIP.

In 2006, Customer Accounting Department ("CAD") and Credit & Collections agents were included in the head count with call center agents at AmerenIP. This equated to approximately 40 FTEs. In 2010, CAD and Credit & Collections were moved into separate organizations. Therefore, CAD and Credit & Collections agents are no longer counted as call center employees.

As of December 31, 2008, call taking functions became "virtual" between the AIU. Simply stated, any AIU agent can handle any AIU call regardless of which legacy company the customer called or where the agent is located. In general, staffing numbers will vary based on call volume fluctuations, business rules and seasonality.

Staffing numbers are set to meet or exceed key performance indicators (KPIs), business objectives, and regulatory requirements. For example, staffing numbers meet or exceed Customer Contact Index (CCI), customer satisfaction, and quality assurance goals. The AIU are currently re-aligning processes and policies to identify best practices across the three legacy companies. Process efficiencies should be recognized and result in future enhancements resulting in resource reductions.

In addition, staffing numbers are set to respond to storm related spikes in a consistent and satisfactory manner. The AIU also examined AGA and EEI benchmarking data sources.

The AIU review staffing levels on a daily basis for short-term needs. Staffing levels for long-term needs are reviewed monthly. The AIU intend to monitor the June 30, 2010 staffing benchmarks versus future employee numbers by utilizing the Electronic Work Force Management ("EWF") system to analyze call statistics, call volume, and scheduling functions. The AIU also plan to consider the effect of implementing future business changes.

### **3. Meter Service Employees**

Historical staffing levels reflect actual data based on non-automated meter reading equipment. In contrast, the AIU have automated approximately 1.1 million meters since 2006. The implementation of AMI has resulted in a reduction of approximately 100 meter service staff.

In addition, AmerenIP meter changers are included in the June 30, 2010 staffing level and benchmarks in this report. Those positions were not included in the 2006 data.

**Ameren Illinois Utilities**

**June 30, 2010**

**Training Benchmarks**

**Summary Attachments**



## Ameren Illinois Utilities Overhead Electric Lineman Training

Course Title	Course Description	Course Duration
Lineman's Refresher	Instructor led presentation. Objectives of this class are to enhance the skills necessary for line workers to accomplish routine and emergency tasks, discuss hazards associated with certain tasks and equipment, encourage overall safety awareness and bolster problem solving and diagnostic skills. This is conducted on an every other year schedule.	8 hours
Substation Switching for Lineman	Instructor led presentation that reviews substation switching procedures. Review of substation equipment and their function. Presented on request of area.	24 hours
Substation Inspections for Lineman who Substation Inspections	Instructor led presentation that reviews the substation inspection process. This covers the different forms, how to fill them out, what to look for while doing an inspections. This training will be conducted every other year	1.5 to 2 hours

## Ameren Illinois Utilities Overhead Electric Apprentice Lineman Training

Course Title	Course Description	Course Duration
First Step Apprentice	This step is to introduce the Apprentice to line work, material, equipment, ground work, and climbing of wood and steel. The apprentice will be introduced to secondary voltages after demonstrating sufficient progress in these aforementioned areas. Secondary work will advance from simple single-phase 120/240-volt installations to three-phase secondary complex installations not to exceed 600 volts.	Classroom instruction and 1500 hours of on the job training
Second Step Apprentice	This step is a continuation of the introduction of the Apprentice to line work, material, equipment, ground work, and climbing of wood and steel. The apprentice will continue to work on secondary voltages, demonstrating sufficient progress in these aforementioned areas. While at the Training Center, the apprentice will be introduced to primary voltages not to exceed 5,000 volts.	Classroom instruction and 1500 hours of on the job training
Third Step Apprentice	This step is to advance the Apprentice from 4 kV primary to all rubber gloving assignments through 15 kV. The Apprentice will be expected to have proficient knowledge of 4 kV work and safe work practices in order to advance to higher primary voltages. Apprentice will be given 5-15 kV training prior to working primary operating within this voltage range. Within this step of the apprenticeship program the Apprentice will be assigned to a troubleman/LHO for a minimum of one week (not necessarily consecutive days) with emphasis on exposure to switching operations.	Classroom instruction and 1500 hours of on the job training

## Overhead Electric Apprentice Lineman Training

<b>Course Title</b>	<b>Course Description</b>	<b>Course Duration</b>
Fourth Step Apprentice	<p>This step will be dedicated to advancing the Apprentice Lineman to Journeyman Lineman status. The Company will work with the Apprentice Advisor to provide work assignments more technical in nature to further this advancement. The Apprentice will be trained in hot stick work and will progress from simple to complex applications. Complex applications in this step will be discussed with the Company, the Apprentice Advisor, and the Overhead Repairman/Crew Leader in charge of the work. The Apprentice will also be assigned to a Troublemaker/LHO for training purposes. This assignment will be a cumulative total of a minimum of two (2) weeks (this two week period is in addition to the one week period allowed in Step 3). During this step the Apprentice Advisor and the Company will also assess the progress of the Apprentice and provide work opportunities in areas of weakness.</p>	Classroom instruction and 1500 hours of on the job training

**Ameren Illinois Utilities  
Heavy Underground Department Cable Splicer Training**

<b>Course Title</b>	<b>Course Description</b>	<b>Course Duration</b>
Cable Splicer's Refresher	Supervisor/Trainer led presentation. Objectives are to enhance skills necessary for cable splicer's to accomplish routine and emergency tasks, discuss hazards associated with certain tasks and equipment, encourage overall safety awareness and bolster problem solving and diagnostic skills. This is conducted yearly	3 days

**Ameren Illinois Utilities  
Heavy Underground Department  
Cable Splicer Apprentice Training**

<b>Course Title</b>	<b>Course Description</b>	<b>Course Duration</b>
Year One Training	<p>Instructor lead. Description: Upon successful completion of this course, consisting of classroom and hands on, participant will be able to climb utility poles, learn underground material and work practices. Part of this training will include a two week lead splicing class. Following classroom instruction, participants will be tested on basic electric principles, underground distribution construction systems, and frequently used work procedures.</p> <p>Employees completing the program will also gain skills required such as CPR &amp; First Aid, as well as basic underground construction skills.</p>	6 and a half weeks and 2000 hours of on the job training
Year Two Training	<p>Instructor lead. Description: Upon successful completion of this course, consisting of classroom and hands on training, participant will be able demonstrate safe work practices, knowledge construction material and what uses they have, construction practices and procedures, wire splicing, wire termination, cable locating and introduction of basic trouble shooting procedures. A two week lead splicing class is included in this training, along with a 2 day protector class.</p>	6 and a half weeks and 2000 hours of on the job training

## Heavy Underground Department Cable Splicer Apprentice Training

<b>Course Title</b>	<b>Course Description</b>	<b>Course Duration</b>
Year Three Training	Instructor lead. Description: Upon successful completion of this course, consisting of classroom and hands on, participant will be able to demonstrate trouble-shooting protectors, cable faults, connections and transformer problems. They will also be able to describe switching procedures used in underground installations, and describe proper maintenance for use with URD transformers devices. A two week lead splicing class is included in this class along with a two day protector class.	6 and a half weeks and 2000 hours of on the job training.

## Ameren Illinois Utilities Electric Meterman Apprenticeship Training Program

Course Title	Course Description	Course Duration
Session 1A: Introduction - Safety and Tools	Apprentice learns the safety issues associated with EMJ and the tools they utilize on a day to day basis.	2 Weeks
Session 1B and 1C: Math for EMJ I and II	Apprentice is taught from fractions and decimals all the way to Trigonometry and Systems of Equations to prepare them for the math that is involved in the day to day activity of an EMJ	3 Weeks
Session 1D and 1E: AC/DC for Electric Meter Journeyman I and II	Apprentice is taught AC/DC theory ranging from simple series DC circuits all the way to AC parallel inductive and capacitive circuits.	3 Weeks
Session 1F: Single Phase Meter Basics	Single phase metering. Apprentice learns how the meter operates, how to measure energy consumption. The basic components of single phase meters. Wiring and wiring diagrams of single phase meters. Meter grounding, codes, and standards. Install/Remove/Exchange/Disconnect/Reconnect of all platforms of single phase meters.	2 Weeks
Session 1G: Working with Single Phase	Single phase testing and troubleshooting. Apprentice is taught how to test all platforms of single phase metering. This class wraps up the apprentices first year of training.	2 Weeks
Session 2A: Polyphase Meter Basics	Introduction into three phase power systems and phasors. Transformer theory and operation is discussed along with distribution transformer configuration and phase rotation meters.	1 Week

## Electric Meterman Apprentice Training Program

Course Title	Course Description	Course Duration
Session 2B: Working with Self-Contained Polyphase Meters	Three phase polyphase meter construction and identification. Installation/Removal/Exchange/Disconnect/Reconnect and Testing of all platforms of self contained three phase meters.	2 Weeks
Session 2C: Working with Transformer Rated Meters	Apprentice is taught identification and function of instrument transformers. Current Transformer burden testing. Also taught the installation, testing, troubleshooting, wiring, and verification of all transformer rated metering.	2 Weeks
Session 2C: Working with Transformer Rated Meters	Apprentice is taught identification and function of instrument transformers. Current Transformer burden testing. Also taught the installation, testing, troubleshooting, wiring, and verification of all transformer rated metering.	2 Weeks
Session 3A: Advanced Metering Work I	Construction and wiring of Primary Metering Installations. KVAR metering and Q-Hour metering	1 Week
Session 3B: Advanced Metering Work II	Solid State Metering. The operation and functional parts of solid state meters. How to wire pulse initiators and isolation relays and the many ways in which data is collected from electric meters.	1 Week
Session 3C: Advanced Metering Work III	Advanced Solid State Metering. High end meters and their function and operation. Also covered is substation metering and working with energized installations.	1 Week
Session 3D: Misc. Meter Work	Service entrance connection work. Inter-tie testing. Voltage monitoring. Capacitor controllers	1Week



## Electric Meterman Apprentice Training Program

<b>Course Title</b>	<b>Course Description</b>	<b>Course Duration</b>
Journeyman Testing	Apprentices are brought in to study and prepare for taking their journeyman examinations. The first part of the testing is a written examination covering their entire apprenticeship program. The second part is a hand on performance examination.	1 Week

## Ameren Illinois Utilities Journeyman Meterman Training

<b>Course Title</b>	<b>Course Description</b>	<b>Course Duration</b>
Journeyman Meterman Refresher Training	Instructor led presentation. Objectives of this class are to enhance the skills necessary for meter men to accomplish routine and emergency tasks, discuss hazards associated with certain tasks and equipment, encourage overall safety awareness and bolster problem solving and diagnostic skills. This is conducted on a yearly basis.	8 hours

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### **Electrical Mechanic Apprenticeship Session 1A**

*Class Duration – 3 Weeks*

*PeopleSoft Course Codes 0409-03(Written) & 0412-03(Performance)*

100 Intro to the EMA Training Program 135 Precision Measuring Tools  
105 One-Line Diagram Basics 140 Fasteners  
106 T&D Circuit Identification 145 Cable & Wire Size  
107 Transmission & Distribution System 150 Rigging & Hoisting  
110 Substation Components 153 Coldwelding  
120 Safety Overview 156 Installing a Ground Grid  
121 WPA 160 Bolted Connections  
122 LOTO (Energy Control Procedures) 164 Compression Terminations  
123 Grounding 168 Taping Bus Bars  
124 Using Rubber Goods 172 Cable Terminations  
125 Enclosed/Confined Spaces 176 Pneumatic Systems Basics  
126 Fall Protection 178 Hydraulic Systems Basics  
127 Tower Rescue 180 Conduit Basics  
128 Battery Safety 184 Conduits I  
130 Hand Tools 188 Conduits II

#### **Additional Topics taught in 1A**

1910.269 (CIPS)

Basket Rescue

DOT Drug Policy

Fire School

First Aid/CPR

Ladder Rescue

Lead Awareness

Live Line Tool Inspection

Power Trucks

Qualified Employee

Respirator Fit Test

Safe Work Practice Manual

Testing Lines & Equipment for Dead

Your Right to Know

### **Electrical Mechanic Apprenticeship Session 1B**

*Class Duration – 1 Week*

*PeopleSoft Course Codes 0413-02(Written) & 0414-02(Performance)*

201 Trenching & Shoring for the Competent Person

205 Loader / Backhoe Operation

210 Trencher Operation

215 Skid-Steer Loader Operation

220 Cranes / Boom Truck

### **Electrical Mechanic Apprenticeship Session 1C**

*Class Duration – 2 Weeks*

*PeopleSoft Course Codes 0415-02(Written) & 0417-02(Performance)*

301 Blueprint Reading I

302 Blueprint Reading II

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- 301 Concrete
- 305 Concrete Form Work
- 310 Foundations
- 315 Surveying Basics
- 320 Using a Transit
- 325 Using a Laser Level
- 330 Installing Switchgear House or Enclosure
- 335 Moving Transformers

### **Electrical Mechanic Apprenticeship Session 1D**

*Class Duration – 2 Weeks*

*PeopleSoft Course Codes 0418-02(Written) & 0420-02(Performance)*

- 405 Introduction to Schematic Diagrams
- 410 Schematic Basics
- 415 Control Circuits
- 420 Breakers & High Speed Ground Switches & Circuit Switchers
- 425 Transfer Schemes
- 430 Two Unit – Low Side
- 435 Motor Operators in Single Unit Substations
- 440 Motor Operators in Two Unit – High Side Substations

### **Electrical Mechanic Apprenticeship Session 2A**

*Class Duration – 2 Weeks*

*PeopleSoft Course Codes 0423-02(Written) & 0424-02(Performance)*

- 501 Gas Torch Introduction 540 Install Motor Operators
- 505 Flame Cutting 550 Install High Speed Ground Switches
- 513 Plumbing 555 Install Surge Arrestors
- 516 Painting 560 Install Bushings
- 520 Transformer Testing 570 Install Bus
- 530 Install & Assemble Steel 575 Install Circuit Breakers
- 535 Install Disconnect Switches

### **Electrical Mechanic Apprenticeship Session 2B**

*Class Duration – 2 Weeks*

*PeopleSoft Course Codes 0430-02(Written) & 0432-02(Performance)*

- 601 Voltage Regulators and LTC's
- 605 Voltage Regulator and LTC Controls
- 610 Servicing & Overhauling Voltage Regulators
- 615 Switching Voltage Regulators
- 620 Transformer Cooling & Oil Preservation Systems
- 625 Troubleshooting & Repairing Fan and Pump Motors
- 630 Servicing & Overhauling Transformers and LTC's
- 640 Tracing LTC Circuits
- 645 Troubleshooting Voltage Regulators and LTC's

### **Electrical Mechanic Apprenticeship Session 2C**

*Class Duration – 3 Weeks*

*PeopleSoft Course Codes 0433-02(Written) & 0434-02(Performance)*

- 701 Introduction to Circuit Breakers
- 703 Electrical Operation of Circuit Breakers

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- 705 Air Compressors
- 707 Pneumatic Operating Mechanisms
- 708 Hydraulic Operating Mechanisms
- 710 Servicing & Overhauling Air Magnetic Breakers
- 715 Servicing & Overhauling Vacuum Breakers
- 720 Servicing & Overhauling Oil Breakers
- 725 Servicing & Overhauling SF6 Circuit Breakers
- 730 Servicing & Overhauling Reclosers
- 735 Troubleshooting Circuit Breakers
- 740 Servicing Switchgear Compartments

### **Electrical Mechanic Apprentice Session 2D**

*Class Duration – 2 Weeks*

*PeopleSoft Course Codes 0426-02(Written) & 0428-02(Performance)*

- 801 Servicing Station Service Transformers
- 805 Servicing Disconnect Switches
- 810 Servicing & Repairing Motor Operators
- 815 Servicing & Repairing High Speed Ground Switches
- 820 Servicing Ground Switches
- 825 Hi-Lo Selective Scheme

### **Electrical Mechanic Apprentice Session 3A**

*Class Duration – 2 Weeks*

*PeopleSoft Course Codes 0435-02(Written) & 0436-02(Performance)*

- 901 Live Line Tools
- 905 Substation Batteries
- 910 Capacitor Banks
- 920 Arc Welding
- 930 Switching

## Ameren Illinois Utilities Relay Technician Apprenticeship Training Program

The training period shall encompass 3 years. During this period, the trainee shall have instruction and perform assignments under the constant direction of an Electronics Technician or management person. As the trainee progresses in the program, the trainee shall be taught and shall perform more complex work with an increasing level of independence and responsibility. During each stage of the program, the trainee shall be given, whenever possible, job assignments which reinforce the training received during classroom and hands-on sessions conducted during that stage. Each of the training modules listed below indicate the approximate classroom time.

The information in the first table is training for Stage 1 (1<sup>st</sup> 9 months of apprenticeship program).

Course Title	Course Description/Outline	Course Duration
<b>WPA and Lockout/Tag Out</b>	Instructor Led Training – Describe the purpose(s) of WPA & LOTO and the difference(s) between the two. Distinguish the different types of WPA, and identify the correct steps in requesting and releasing WPA. Identify the purpose of the LOTO procedure and consequences for non-compliance. Identify the employees affected by the LOTO procedure and the procedure for placing and releasing LOTO. Identify various other tags used by Ameren and describe the significance of each.	12 Hours
<b>Power Systems and One Line Diagrams</b>	Describe the sources of power, how power flows, and how power arrives to the customer in a typical electrical system. Describe the purpose of a one-line diagram and identify the meanings of symbols used. Use a one-line diagram to trace how power flows through a substation and to match the one-line diagram symbols to actual physical equipment in a substation.	16 Hours
<b>D.C. Schematics</b>	Identify the meaning of various schematic symbols. Identify the meaning of various device numbers. Use a Switch Development Table to determine the effect a given action would have on a control circuit. Identify the various DC voltages used in substations. Identify the electric operation of a coil and associated contacts.	4 Hours
<b>A.C. Schematics</b>	Identify the meaning of various schematic symbols. Identify the meaning of various device numbers. Calculate primary and secondary voltages and currents on PTs and CTs. Identify the direction of current flow thru a CT. Distinguish between the AC sensing versus AC power circuits. Discuss the station service supply and AC panel distribution	4 Hours
<b>Wiring Diagrams</b>	Distinguish the differences between schematics and wiring diagrams. Distinguish the differences between schematics and wiring diagrams. Distinguish between the four types of wiring diagrams. Given a schematic diagram and related wiring diagram, locate all associated wires and devices.	8 Hours
<b>Distribution Substation Protection Philosophies (One Lines - No Schematics)</b>	Identify the purposes of system protection. Identify the function of CTs and PTs as sensing devices. Identify how feeder protection is accomplished (overcurrent/reclosing). Identify how low side bus protection is accomplished (overcurrent). Identify how transformer protection is accomplished (overcurrent/undervoltage/temperature/HSGS). Identify how Auto Load Reduction protection is accomplished (overcurrent/temperature). Describe the purpose of remotely enabling or disabling the instantaneous units of the overcurrent relays.	4 Hours

<b>Overcurrent Protection Schemes</b>	Identify the electrical operation of the overcurrent protection used in feeder, transformer and ALR protection. Test, calibrate and perform maintenance on overcurrent relays. Troubleshoot overcurrent relays and overcurrent protection schemes.	12 Hours
<b>Circuit Breaker, MO Switch, and Circuit Switcher Internal Control Schemes</b>	Identify the internal electrical operation to trip and close various circuit breakers. Identify the internal electrical operation to trip and close motor operated switches. Identify the internal electrical operation to trip and close circuit switchers. Explain how a circuit is designed to prevent "pumping".	4 Hours
<b>Feeder Reclosing Schemes</b>	Identify the electrical operation of the reclosing relays. Test, calibrate and perform maintenance on reclosing relays. Troubleshoot reclosing relays and reclosing schemes.	12 Hours
<b>Lockout Relays</b>	Identify the purpose of lockout relays. Test, calibrate and perform maintenance on lockout relays.	8 Hours
<b>Distribution Substation Transfer Philosophies (One Lines - No Schematics)</b>	Describe an open and closed transition operation. Describe the switching sequence for the various high side transfer operations using one line diagrams. Describe the switching sequence for the various low side transfer operations using one line diagrams.	4 Hours
<b>Distribution Substation Transfer Schemes</b>	Identify the electrical operation of the various low side transfer schemes. Identify the electrical operation of the various high side transfer schemes. Test, calibrate and perform maintenance on undervoltage/phase sequence relays.	12 Hours
<b>Current Transformers Theory and Testing</b>	Describe the physical construction of current transformers. Calculate CT ratios and perform CT ratio testing. Understand CT polarity markings and perform CT polarity testing. Understand the operation and purpose of a linear coupler. Describe the excitation curve of a bushing current transformer. Perform an excitation test on a CT. Perform insulation resistance testing.	12 Hours
<b>Potential Transformers and Devices Theory and Testing</b>	Describe the various potential devices (PT, CCVT, Resistive Potential Device and Bushing Pot Device) and their theory of operation. Identify and perform the various types of tests and adjustments performed on potential devices.	12 Hours

The information in the table below is Stage 2 (2<sup>nd</sup> 9 months of apprenticeship program).

<b>Course Title</b>	<b>Course Description/Outline</b>	<b>Course Duration</b>
<b>Directional Phase Overcurrent Protection Schemes</b>	Identify the electrical operation of the directional overcurrent protection used in transformer and bus protection. Test, calibrate and perform maintenance on directional overcurrent relays. Indicate the direction of power flow, CT secondary currents, and calculate the unity power factor angles of the relay currents. Understand the operation and purpose of the	8 Hours

	directional polarizing unit. Troubleshoot directional overcurrent relays and protection schemes.	
<b>Load Checks</b>	Review of basic concepts; trigonometry, complex arithmetic, vector and phasor concepts, etc. Indicate the direction of power flow, CT secondary currents, and calculate the unity power factor angles of the relay currents. Identify transformer connections and phasing. Perform vector addition and subtraction. Complete associated paperwork.	4 Hours
<b>Trip Checks</b>	Describe the purpose of a trip check. Trip check all protective circuits in distribution substation.	2 Hours
<b>Operation Checks</b>	Describe the purpose of an operation check. Operation check circuits in distribution substation.	4 Hours
<b>Wiring Techniques</b>	Distinguish the differences between various wire/cable materials, sizes, insulation and construction. Identify and demonstrate proper wiring techniques and practices.	2 Hours
<b>Wire Checking</b>	Describe the purpose of wire checks. Identify the general rules which apply to the wire checking process. Identify the parts of a circuit which are required to be wire checked. Wire check a scheme which is part of new construction.	8 Hours
<b>Wiring Modifications</b>	Describe the purpose of wiring modifications. Wire check, operation test and trip test a circuit to verify wiring modifications were made correctly. Identify how to safely and effectively land wires on an in-service terminal. Wire check an energized circuit.	2 Hours.
<b>High Current Theory and Testing</b>	Describe the purpose of high current tests. Perform a bus differential high current test. Perform a transformer differential high current test.	2 Hours
<b>Negative Sequence Protection Schemes</b>	Identify the electrical operation of the negative sequence protection used in transmission/bulk protection schemes Test, calibrate and perform maintenance on negative sequence relays. Troubleshoot negative sequence relays and protection schemes.	8 Hours
<b>Zero Sequence Overvoltage Protection Schemes</b>	Identify the electrical operation of the zero sequence overvoltage protection used in transmission/bulk protection schemes. Test, calibrate and perform maintenance on zero sequence overvoltage relays. Troubleshoot zero sequence overvoltage relays and protection schemes.	8 Hours
<b>Transmission Transformer &amp; Bus Protection Philosophy (One Lines - No Schematics)</b>	Identify how bus protection is accomplished. Identify how transformer protection is accomplished. Identify how backup protection is accomplished.	4 Hours
<b>Differential Protection Schemes</b>	Identify the electrical operation of the differential protection used in transformer and bus protection. Test, calibrate and perform maintenance on differential relays. Troubleshoot differential relays and protection schemes.	8 Hours
<b>Temperature Protection Schemes</b>	Identify the electrical operation of the temperature protection used in transformer and ALR protection. Test, calibrate and perform maintenance on thermal relays. Troubleshoot thermal relays and thermal protection schemes.	2 Hours
<b>Breaker Failure Protection Schemes</b>	Identify the electrical operation of the breaker failure protection used in transformer and bus protection.	12 Hours



	Test, calibrate and perform maintenance on breaker failure relays. Troubleshoot breaker failure relays and protection schemes.	
<b>Sudden Gas Pressure Protection</b>	Identify the electrical operation of the sudden gas protection used in transmission/bulk transformer protection. Test, calibrate and perform maintenance on sudden gas pressure relays. Troubleshoot sudden gas pressure relays and protection schemes.	8 Hours
<b>Ground System Theory and Testing</b>	Identify the purpose of the following tests; Preliminary Ground Resistance Test, Final Ground Check, and Ground Riser Test. Perform of the following tests; Preliminary Ground Resistance Test, Final Ground Check, and Ground Riser Test.	4 Hours
<b>Underfrequency Protection Schemes</b>	Identify the electrical operation of the underfrequency protection used in transmission/bulk protection schemes. Test, calibrate and perform maintenance on underfrequency relays. Troubleshoot underfrequency relays and protection schemes.	8 Hours
<b>General Troubleshooting/Ungrounded DC Systems</b>	Describe and employ general troubleshooting techniques and concepts. Effectively use a multi-meter to troubleshoot circuit problems. Identify the operation of, and troubleshoot an ungrounded DC system.	16 Hours
<b>Capacitor Bank Protection and Control Schemes</b>	Identify the electrical operation of the capacitor bank protection and control schemes. Test, calibrate and perform maintenance on capacitor bank relays. Troubleshoot capacitor bank relays and schemes.	12 Hours
<b>Voltage Regulation Schemes</b>	Describe the purpose and theory of operation of voltage regulation. Identify the electrical operation of voltage regulating relays and load tap changers.	2 hours
<b>Station Battery Theory and Testing</b>	Describe the theory of operation of a battery. Identify the construction of a substation battery. Perform battery tests	2 Hours
<b>Directional Ground Overcurrent Protection Schemes</b>	Identify the electrical operation of a directional ground relay used in ground transmission line protection. Test, calibrate and perform maintenance on Westinghouse CR, IR, KR relays and General Electric CJCG, IBCG, JBCG relays. Troubleshoot Westinghouse CR, IR, KR relays and General Electric CJCG, IBCG, JBCG in ground transmission line protection schemes.	8 Hours

The information in the table below is Stage 3 (3<sup>rd</sup> 9 months of apprenticeship program).

<b>Course Title</b>	<b>Course Description/Outline</b>	<b>Course Duration</b>
<b>Introduction to Transmission Line Relaying</b>	Identify the various zones of protection on a transmission line. Describe the basic operation of a directional comparison carrier blocking protection scheme. Describe the basic operation of a permissive overreaching transfer trip protection scheme. Describe the basic operation of a direct transfer trip protection scheme. Describe the basic operation of a carrier unblocking protection scheme. Define and calculate the impedance of a transmission line. Describe the theory of	8

	operation of the various types of distance relays; impedance, reactance, and mho. Identify and describe the theory of operation of the various pilot relaying systems.	
<b>Phase Distance Relaying - Westinghouse KD Relay</b>	Identify the electrical operation of a KD relay used in phase transmission line protection. Test, calibrate and perform maintenance on KD relays. Troubleshoot KD relays and phase transmission line protection schemes.	8 Hours
<b>Distribution Transformer &amp; Bus Microprocessor-based Protection Schemes</b>	Identify the electrical operation of microprocessor relays used in transformer and bus protection schemes. Test, program, calibrate and perform maintenance on SEL 351, 587, and 2100 relays. Troubleshoot SEL 351, 587, and 2100 relays in distribution schemes.	16 Hours
<b>Phase Distance Relaying - General Electric GCX/GCY Relay</b>	Identify the electrical operation of a GCX/GCY relay used in phase transmission line protection. Test, calibrate and perform maintenance on GCX/GCY relays. Troubleshoot GCX/GCY relays and phase transmission line protection schemes.	8 Hours
<b>Phase Distance Relaying - General Electric CEB/CEY Relay</b>	Identify the electrical operation of a CEB/CEY relay used in phase transmission line protection. Test, calibrate and perform maintenance on CEB/CEY relays. Troubleshoot CEB/CEY relays and phase transmission line protection schemes.	8 Hours
<b>Directional Comparison Carrier Blocking Protection Schemes</b>	Identify the electrical operation of the directional comparison carrier blocking scheme.	4 Hours
<b>Direct Transfer Trip Protection Schemes</b>	Identify the electrical operation of the direct transfer trip scheme.	4 Hours
<b>Carrier Unblocking Protection Schemes</b>	Identify the electrical operation of the carrier unblocking scheme.	2 Hours
<b>Phase Distance Relaying - Westinghouse HZ Relay</b>	Identify the electrical operation of a HZ relay used in phase transmission line protection. Test, calibrate and perform maintenance on HZ relays. Troubleshoot HZ relays and phase transmission line protection schemes.	8 Hours
<b>Phase Distance Relaying - Westinghouse SD-2 Relay</b>	Identify the electrical operation of a SD-2 relay used in phase transmission line protection. Test, calibrate and perform maintenance on SD-2 relays. Troubleshoot SD-2 relays and phase transmission line protection schemes.	8 Hours
<b>Phase Distance Relaying - Westinghouse Static Packages</b>	Identify the electrical operation of a Westinghouse static package used in phase transmission line protection. Test, calibrate and perform maintenance on Westinghouse static package relays and phase transmission line protection schemes.	12 Hours
<b>Phase Distance Relaying - General Electric Static Packages Schemes</b>	Identify the electrical operation of a General Electric static package used in phase transmission line protection. Test, calibrate and perform maintenance on General Electric static package relays and phase transmission line protection schemes.	12 Hours
<b>Introduction to Ground Distance Relays</b>	Identify the electrical operation of various schemes used in ground distance transmission line protection.	4 Hours
<b>Ground Distance Relaying - Westinghouse SDG Relay</b>	Identify the electrical operation of a SDG relay used in ground transmission line protection. Test, calibrate and perform maintenance on SDG relays. Troubleshoot SDG relays and ground transmission line protection schemes.	2 Hours
<b>Line Current Differential Protection Schemes</b>	Identify the electrical operation of the line current differential protection schemes.	8 Hours

<b>Carrier Equipment Schemes &amp; Testing</b>	Identify the function of each component in a Carrier diagram. Test and tune the wavetrap. Identify the function of each component in a line tuner diagram. Align a line tuner. Program and test a Pulsar relay.	4 Hours
<b>Audio Tone Equipment Schemes &amp; Testing</b>	Test and troubleshoot phone lines and/or fiber optic circuits. Set the levels of the audio tone equipment. Perform operational check and end to end test on the audio tone equipment. Troubleshoot the audio tone equipment. Explain, compare and contrast the different modes of communication.	4 Hours
<b>Relaying Communication Processors and Related Devices</b>	Describe the operation of the various communication processors and their related devices. Program and set the following: SEL-2020, SEL-2030, DTA, Teltone SLSS, various GPS device and modems. Troubleshoot various communication circuits.	8 Hours
<b>Digital Fault Recorders</b>	Identify and verify the operation of a DFR. Program, test and calibrate a DFR.	12 Hours
<b>Underfrequency Protection Schemes</b>	Identify the electrical operation of the underfrequency protection used in transmission/bulk protection schemes. Test, calibrate and perform maintenance on underfrequency relays. Troubleshoot underfrequency relays and protection schemes.	8 Hours
<b>Sync-Check Relaying Schemes</b>	Identify the electrical operation of the sync-check control schemes. Test, calibrate and perform maintenance on Westinghouse CVE and General Electric IJS relays	8 Hours
<b>Transformer Paralleling and Cross Compensation Schemes</b>	Describe the purpose and theory of operation of paralleling transformers. Identify the electrical operation of transformer paralleling.	4 Hours

The information in the table below is Stage 4 (4<sup>th</sup> 9 months of apprenticeship program).

<b>Course Title</b>	<b>Course Description/Outline</b>	<b>Course Duration</b>
<b>Transmission Line Microprocessor-based Line Protection Schemes</b>	Identify the electrical operation of a microprocessor relay used in transmission line protection. Test, calibrate and perform maintenance on SEL 221, 311, 321,421 relays, General Electric DLP relays, and Alstom LFZP and LFCB relays. Troubleshoot SEL 221, 311, 321,421 relays, General Electric DLP relays, and Alstom LFZP and LFCB in transmission line protection schemes.	12 Hours
<b>Power Plant Systems Overview</b>	Describe the heat cycle in a typical coal-fired power plant.	16 Hours
<b>Power Plant Auxiliary Protection Schemes</b>	Identify and describe the electrical operation for electromechanical-based power plant auxiliary protection schemes. Identify and describe the electrical operation for microprocessor-based power plant auxiliary protection schemes. Test, calibrate and perform maintenance on General Electric Multilin 269, 469, 750 relays, and SEL-701 relays. Troubleshoot power plant auxiliary protection schemes and relays.	8 Hours
<b>Power Plant Generator Synchronizing Relay Schemes</b>	Describe the purpose of generator synchronizing relays. Identify and describe the electrical operation for power plant generator synchronizing schemes. Program, calibrate and perform maintenance on Beckwith M-0193B and Basler BE1-25A relays. Troubleshoot synchronizing relays and schemes	8 Hours

<b>Power Plant Generator Protection Schemes</b>	Identify the conversion from fuel to electrical power in a typical coal power plant. Identify the zones of protection in a power plant. Identify and describe the electrical operation for electromechanical-based power plant generator protection schemes. Identify and describe the electrical operation for microprocessor-based power plant generator protection schemes. Test, calibrate and perform maintenance on Beckwith 3420, 3425 and 3430, and SEL-300G relays. Troubleshoot generator protection schemes and relays.	16 Hours
<b>Distribution Metering &amp; Transducers</b>	Identify the construction and theory of operation of a single-phase and three-phase meter. Test, calibrate and perform maintenance on indicating and graphic meters. Identify the theory of operation of a transducer. Test, calibrate and perform maintenance on transducers.	8 Hours
<b>Transmission Metering</b>	Identify the construction and theory of operation of a VAR, watt and temperature meters. Test, calibrate and perform maintenance on VAR, watt, and temperature meters. Perform meter standard comparisons and interchange watthour meter tests.	4 Hours
<b>SCADA - Harris D20 RTU</b>	Identify the electrical operation of a Harris D20 RTU. Test, calibrate and perform maintenance on a Harris D20 RTU. Troubleshoot a Harris D20 RTU. Use an IBOX as an RTU test set. Test and configure an IBOX as an RTU.	12 Hours
<b>L&amp;N RTU – Conitel 2020</b>	Identify the electrical operation of a L&N RTU. Test, calibrate and perform maintenance on a L&N RTU. Troubleshoot a L&N RTU.	4 Hours
<b>SCADA - DAQ</b>	Identify the electrical operation of a DAQ RTU. Test, calibrate and perform maintenance on a DAQ RTU. Troubleshoot a DAQ RTU.	12 Hours
<b>Gas Control Schemes &amp; Testing</b>	Identify the electrical operation of the various gas control schemes. Test, calibrate and perform maintenance on gas control relays. Troubleshoot gas control relays and control schemes.	16 Hours

## Ameren Illinois Utilities Call Center Training

**Request:** Employee staffing levels for each classification and employee training for each classification as of June 30, 2010.

**Response:** Please find listed below the training for Call Center Employees (Agents). The three Illinois Call Centers handle initial agent training in the same manner; this outline applies to AmerenCILCO, AmerenCIPS, and AmerenIP.

Course Title	Course Description/Outline	Course Duration
<b>New Hire Training</b>		
Customer Rep IL – Outage, Delinquent, and Billing	Instructor Led Training - Starting with OAS and a focus on outage and trouble calls, this course delivers Delinquent Account and Billing training for the Illinois Customer Contact Centers. This training course is designed to introduce all CSS billing related modules, with an emphasis on Delinquent call handling and the application of the Delinquent Account Credit Matrix.	3 weeks
Outage, Delinquent, and Billing Lab	Agents who have completed the Outage, Delinquent, and Billing course are assigned the appropriate skill sets and take these limited calls in a controlled classroom setting with support from a trainer, supervisor, or seasoned agent; instructional tactics such as side-by-side monitoring and coaching are employed.	2-4 weeks
Floor Support	Once Lab is complete agents are integrated onto the call floor in a centralized location with two or three seasoned support agents nearby and available to offer assistance. Agents will remain in this location until the next training course begins or until business need requires a new seating arrangement.	4-6 weeks
Customer Rep IL - Service Orders	Instructor Led Training - This second course introduces service orders (including connects and disconnects, new installs, and service investigation orders) as well as any miscellaneous billing modules that were not previously covered.	2 weeks
Service Orders Lab	Agents who have completed the Service Order modules are assigned the appropriate skill sets and will take calls in a controlled classroom setting with support from a trainer, supervisor, or seasoned agent employing instructional tactics including side-by-side monitoring and coaching.	2-4 weeks
Floor Support	Once Lab is complete agents are integrated onto the call floor in a centralized location with two or three seasoned support agents nearby and available to offer assistance. Agents will remain in this centralized arrangement until the end of the floor support period or when business need requires a new seating arrangement.	4-6 weeks
<b>Course Title</b>	<b>Course Description/Outline</b>	<b>Course Duration</b>

<b>Refresher Training</b>		
High Bill Inquiry	Annual instructor-led review of the steps to take and information to review in response to a customer's high bill concerns. Refresh on the Energy Toolkit, Service Orders to initiate, Meter Testing, Suspend Charges, Supply Options, Usage data, etc...	2 hours
Standards of Conduct	Review of the Illinois Standards of Conduct. This is reviewed annually by CBT and is provided as instructor-led every other year.	.5 hours
Non Cold Weather Rule Refresher	Annual instructor-led review of the regulated processes and the internal policies of handling customer credit calls during cut season.	2 hours
Cold Weather Rule Refresher	Annual instructor-led review of the regulated processes and internal policies of handling customer credit calls for winter reconnects and for moratorium.	2 hours
Gas O & M Review	Annual review of gas emergency call procedures. Includes review of natural gas leak emergencies, carbon monoxide, building fires, and non-emergency gas situations. Conducted by CBT in the fall of each year as the heating season begins.	.75 hours
Gas Review	Instructor-led presentation on the physical nature of natural gas and gas equipment. Conducted every other year, this training provides the agents with instruction on gas orders.	1 hour
OAS/Storm Refresher	Update training on key features of using OAS, the OAS Back Up system, and handling customer communication during a storm. Provided annually as instructor-led training just prior to storm season.	2 hours
<b>Skill Enhancement Training</b>		
Handling ARES, RTP & PSP	Review of supply choices and billing methods.	2 hours
Energy Efficiency Programs	Discussion and presentation of the ActOnEnergy website and the Ameren Illinois Energy Efficiency programs.	1.5 hours
Billing Adjustments	Detailed instructor-led review of billing calculations and system descriptions of adjustments resulting from stopped, slow/fast, switched meters, etc...	1 hour
AMR	Billing and usage history via the AMRC screen; overview of AMR metering equipment and related service orders. Provided by handouts or CBT.	.5 hours
Revenue Protection	Walkthrough of various revenue protection scenarios and the processes involved, service orders, and payment requirements for revenue protection cases given through instructor-led training.	1.5 hours
Soft Skills	Call handling, dealing with difficult customers and situations, telephone skills, quality customer service, etc...multiple training venues provided primarily via CBT on an as-needed basis.	.5 + hours
Addressing Standards	CBT review of the requirements for adding postal addresses to the customer system (CSS).	.25 hours
<b>Specialized Training</b>		
Business Center	Courses related to handling non-residential customers to include non-residential rates, billing, and credit.	3 days
Solutions Center	Additional side by side training above and beyond the general answering training related to back office and off the phone tasks that can significantly impact Customer Service.	2 weeks
Credit	Courses related to handling credit related work to include in-depth look at LIHEAP, seasonal regulations, deposits, etc...	3 days
Customer Accounting	Courses related to handling billing related work to include	2 weeks

	basic billing, service orders and bill verification, billing adjustments, interval metering, and USMS.	(additional time may be required based on tasks being performed)
Quality Assurance	Training on the call recording and quality monitoring systems as well as processes involved in tracking, scoring, and training of call center quality requirements and error handling. Also included are tracking and investigation of complaints received from the ICC, CUB, AG, and the BBB.	2 weeks

Outsourced agents get the same training as the Ameren Illinois Call Center agents when they do the same work.

Additional training may be initiated based on external factors or business changes.

**Ameren Illinois Utilities  
Meter Reader Training**

Course Title	Course Description/Outline	Course Duration
How to read a meter	Computer based training of how to read a meter	8-16 hours
Meter reading basics	Video training on principles of gas and electric meter reading.	1 hour
Reading meters in the field	Supervisor lead training in the field. Supervisor monitors reader as meters are read and data is entered into the handheld computer. Provides opportunities for coaching on personal safety, accurate readings on various meter types, identifying damaged or unsafe meter conditions and customer interaction.	24-40 hours
Gas Operator Qualification	Prior to reading meters independently, each reader must complete training on how to handle gas emergencies.	4 hours
Substation entry-Illinois Power	Video training on safety procedures for substation equipment and entry. Applicant must pass test with 90%.	2 hours





# Line Department OSHA/DOT Training Matrix

09/09/2009

Course Number	Topic	Frequency	Resource
	Asbestos Awareness	Annual	Video & discuss potential presence of asbestos
0328-00	Bloodborne Pathogens	Annual	Video -- Decatur Training Center--Bloodborne Pathogen for Non-Healthcare
0315-00	Bucket Truck Rescue	Annual	Video (contact Decatur Training Center) & hands-on practice
7227-00	CPR/AED	Annual	Decatur Training Ctr or American Red Cross
3826-00	Derrick operation	Initial & as needed	Video
0300-00	Emergency & Fire Prevention Plans	Initial & as changes	Review of site specific plans -- Contact AIU safety specialist for plan, if needed
0299-00	Enclosed/Confined Space Procedures	Annual	Decatur Training Center -- Identified for groups exposed to work in underground vaults
0288-00	Excavation Competent Person	Initial & as needed	Decatur Training Ctr or AIU Safety
0287-00	Fall Protection	Initial & as needed	Video & review of equipment available -- Ameren Video Library 'Taking Control'
	First Aid	3 years	Decatur Training Ctr or American Red Cross
0233-00	Flagging Certification	3 years	Decatur Training Ctr
0351-00	Forklift	3 years	Evaluate by qualified observer--Decatur Training Center
3805-00	Grinder & Abrasive Wheels	Initial & as needed	Video
	Hand Tool Safety	Initial & as needed	Video & review of tools available
0245-01	Hazcom General Awareness	Initial & as changes	CBT on Scholar for Ameren specific program -- video 20041036 from Ameren Video Library
0254-00	Hearing Protection Training & Audiogram	Annual	Video & review of hearing protection available
0325-00	Ladder Rescue	Annual	Audiogram coordinated through EHHS
3592-00	Ladder Safety	Initial & as needed	video -- Ameren video library -- T&D #29
0290-00	Lead Awareness	Annual	Video
0242-00	PCB & Oil Spill Training	18 months	Video -- Ameren Safety Video Library -- 'Lead Safety'
	Personal Protective Equipment	Initial & as changes	Contact environmental -- video 16.01 & 16.02
0269-00	Pole Top Rescue	Annual	Video--Ameren video library 'Personal Protective Equipment' & review of specific equipment for job
0353-01	Portable Fire Extinguisher	Annual	Video (contact Decatur Training Center) & hands-on practice
3587-00	Signs & Tags	Initial	Hands on -- contact AIU Safety
	Slings	Initial & as needed	Video
0372-00	Substation Qualified Employee (Entry training)	Initial & as needed	CBT
0235-00	Work Area Traffic Control	3 years	Ameren required--Powerpoint & handbook Contact AIU Safety for Handbook & training
0267-00	Access to Employee Medical Records		Video -- Ameren Safety Video Library

**Note: Resources have not all been finalized at this time. Contact Safety Specialist with questions.**



## Gas Department OSHA/DOT Training Matrix

05/20/2009

Course Number	Topic	Frequency	Resource	Fitter Specified Individuals	Regulation Specified Individuals	Storage
0267-00	Access to Employee Medical Records		Video -- Ameren Safety Video Library	x	x	x
0328-00	Asbestos Awareness	Annual	Video & discuss potential presence of asbestos	x	x	x
0299-00	Bloodborne Pathogens	Initial	Video	x	x	x
0299-00	Confined Space	Annual		x	x	x
7227-00	CPR/AED	Annual	Decatur Training Ctr or American Red Cross	x	x	x
0300-00	Emergency & Fire Prevention Plans	Initial & as changes	Review of site specific plans	x	x	x
0288-00	Excavation Competent Person	Initial & as needed	Pawnee Training Center or AIU Safety	x	x	x
0287-00	Fall Protection	Initial & as needed	Video & review of equipment available	x	x	x
	First Aid	3 years	American Red Cross	x	x	x
0233-00	Flagging	3 years	Pawnee Training Center	x	x	x
0351-00	Forklift	3 years	Evaluate by qualified observer			
3805-00	Grinder & Abrasive Wheels	Initial & as needed	Video	x	x	x
	Hand Tool Safety	Initial & as changes	Video & review of tools available	x	x	x
0245-01	Hazcom General Awareness	Initial & as changes	Powerpoint--Specific info on Ameren system & discuss specific chemicals	x	x	x
0254-00	Hearing Protection Training & Audiogram	Annual	Video & review of hearing protection available	x	x	x
3592-00	Ladder Safety	Initial & as needed	Audiogram coordinated through medical exam	x	x	x
0290-00	Lead Awareness	Annual	Video	x	x	x
0269-00	Personal Protective Equipment	Initial & as changes	Video & review of specific equipment for job	x	x	x
0253-00	Portable Fire Extinguisher	Annual	Hands on -- contact AIU Safety	x	x	x
	Respirator Training & Fit Testing & Medical Exam	Annual	Pawnee Training Center			
3587-00	Signs & Tags	Initial	Fit Testing and Medical Exam conducted by medical van	x	x	x
	Slings	Initial & as needed	video	x	x	x
0235-00	Work Area Traffic Control	3 years	Powerpoint & handbook Contact AIU Safety for Handbook	x	x	x

**Note: Resources have not all been finalized at this time. Contact Safety Specialist with questions.**



# Illinois Metering

08/10/2009

Course Number	Topic	Frequency	Resource	Electric Meterman	Electric Meter Shop	Gas Meter Shop	Meter Reading	Office
0267-00	Access to Employee Medical Records		Video - Ameren Safety Video Library	x	x	x		
	Asbestos Awareness	Annual	Video & discuss potential presence of asbestos	x	x	x		
0328-00	Bloodborne Pathogens	Annual	Video	x	x	x	x	x
7227-00	CPR/AED	Annual	Decatur Training Ctr or American Red Cross	x	x	x		Offer
0300-00	Emergency & Fire Prevention Plans	Initial & as changes	Review of site specific plans	x	x	x	x	x
0287-00	Fall Protection	Initial	Video & review of equipment available	x	Peoria			
	First Aid	3 years	Decatur Training Ctr or American Red Cross	x	x	x		Offer
0351-00	Forklift	3 years	Evaluate by qualified observer	x	x	Name specific		
3805-00	Grinder & Abrasive Wheels	Initial	Video	x	x	x		
	Hand Tool Safety	Initial & as changes	Video & review of tools available	x	x	x		
0245-01	Hazcom General Awareness	Initial & as changes	Powerpoint-Specific info on Ameren system & discuss specific chemicals	x	x	x	x	x
0254-00	Hearing Protection Training & Audiogram	Annual	Video & review of hearing protection available			x		
3592-00	Ladder Safety	Initial	Video	x	x	x		
0290-00	Lock out/Tag out		Review specific program	x	x			
0269-00	Personal Protective Equipment	Initial & as changes	Video & review of specific equipment for job	x	x	x	x	
0253-00	Portable Fire Extinguisher	Annual	Hands on -- check with safety department	x	x	x	video only	video only
	Respirator Training & Physical Evaluation	Annual	Review use of respirator --video & discussion physical exam thru medical van			Name specific		
3587-00	Signs & Tags	Initial	video					

Note: Resources have not all been finalized at this time. Contact Safety Specialist with questions.



05/22/2009

**Fleet**  
**OSHA/DOT Training Matrix**

Course Number	Topic	Frequency	Resource
0267-00	Access to Employee Medical Records		Video - Ameren Safety Video Library
	Aerial Lift Operation	Initial & as needed	Video
	Asbestos Awareness	Annual	Video & discuss potential presence of asbestos
0328-00	Bloodborne Pathogens	Initial & as needed	Video
7227-00	CPR/AED	Annual	American Red Cross
3826-00	Derrick operation	Initial & as needed	Video
	Electrical safety	Initial & as needed	Video
0300-00	Emergency & Fire Prevention Plans	Initial & as changes	Review of site specific plans
0287-00	Fall Protection	Initial & as needed	Video & review of equipment available
	First Aid	3 years	American Red Cross
0351-00	Forklift	3 years	Evaluate by qualified observer
3805-00	Grinder & Abrasive Wheels	Initial & as needed	Video
	Hand Tool Safety	Initial & as needed	Video & review of tools available
0245-01	Hazcom General Awareness	Initial & as changes	Powerpoint - Specific info on Ameren system & discuss specific chemicals
	Hearing Protection Training		Video & review of hearing protection available
0254-00	& Audiogram	Annual	Audiogram coordinated through EHS
3592-00	Ladder Safety	Initial & as needed	Video
	Material handling equipment	Initial & as needed	Video
	Overhead Cranes	Initial & as needed	
0269-00	Personal Protective Equipment	Initial & as changes	Video & review of specific equipment for job
0253-00	Portable Fire Extinguisher	Annual	Hands on - contact AIU Safety
3587-00	Signs & Tags	Initial & as needed	video
	Slings	Initial & as needed	Video
	Substation Qualified Employee (Entry training)		
0372-00	Welding/Brazing	Initial & as needed	Powerpoint
	Work Area Traffic Control	Initial & as needed	Video
		3 years	Powerpoint & handbook Contact AIU Safety for Handbook

**Note: Resources have not all been finalized at this time. Contact Safety Specialist with questions.**



# Substation & Relay OSHA/DOT Training Matrix

08/09/2009

Course Number	Topic	Frequency	Resource	Substation	Relay
0267-00	Access to Employee Medical Records		Video -- Ameren Safety Video Library	x	x
	Asbestos Awareness	Annual	Video & discuss potential presence of asbestos	x	x
0328-00	Bloodborne Pathogens	Annual	Video	x	x
0315-00	Bucket Truck Rescue	Annual	Video SAF 3.5 (contact Decatur Training Center) & hands-on practice	x	x
7227-00	CPR/AED	Annual	Decatur Training Ctr or American Red Cross	x	x
3826-00	Derrick operation	Initial & as needed	Video	x	
0300-00	Emergency & Fire Prevention Plans	Initial & as changes	Review of site specific plans	x	x
0299-00	Enclosed/Confined Space Procedures	Annual	Decatur Training Center	x	
0288-00	Excavation Competent Person	Initial & as needed	Decatur Training Ctr or AIU Safety ???	x	
0287-00	Fall Protection	Initial & as needed	Video & review of equipment available	x	x
	First Aid	3 years	Decatur Training Ctr or American Red Cross	x	x
0233-00	Flagging Certification	3 years	Decatur Training Ctr	x	
0351-00	Forklift	3 years	Evaluate by qualified observer	x	x
3805-00	Grinder & Abrasive Wheels	Initial & as needed	Video	x	x
	Hand Tool Safety	Initial & as needed	Video & review of tools available	x	x
0245-01	Hazcom General Awareness	Initial & as changes	Powerpoint--Specific info on Ameren system & discuss specific chemicals	x	x
	Hearing Protection Training & Audiogram	Annual	Video & review of hearing protection available Audiogram coordinated through EHS	x	x
0254-00	Ladder Rescue	Annual	Video -- Decatur Training Ctr	x	x
3592-00	Ladder Safety	Initial & as needed	Video	x	x
0290-00	Lead Awareness	Annual	Video	x	x
0242-00	PCB & Oil Spill Training	18 months	Environmental	x	x
0269-00	Personal Protective Equipment	Initial & as changes	Video & review of specific equipment for job	x	x
0253-00	Portable Fire Extinguisher	Annual	Hands on -- contact AIU Safety	x	x
3587-00	Signs & Tags	Initial	video	x	x
	Slings	Initial & as needed	Video	x	x
	Tower Rescue	Annual		x	
	Work Area Traffic Control	3 years	Powerpoint & handbook Contact AIU Safety for Handbook & training	x	x

**Note: Resources have not all been finalized at this time. Contact Safety Specialist with questions.**



## Meter Changers OSHA/DOT Training Matrix

09/25/2009

Course Number	Topic	Frequency	Resource
0328-00	Bloodborne Pathogens	Annual	Video - Decatur Training Center-Bloodborne Pathogen for Non-Heathcare
7227-00	CPR/AED	Annual	Decatur Training Ctr or American Red Cross
0300-00	Emergency & Fire Prevention Plans	Initial & as changes	Review of site specific plans -- Contact AIU safety specialist for plan, if needed
	First Aid	3 years	Decatur Training Ctr or American Red Cross
	Hand Tool Safety	Initial & as needed	Video & review of tools available
0245-01	Hazcom General Awareness	Initial & as changes	Ameren Video Library
3592-00	Ladder Safety	Initial & as needed	Video
0269-00	Personal Protective Equipment	Initial & as changes	Video--Ameren video library 'Personal Protective Equipment' & review of specific equipment for job
0253-00	Portable Fire Extinguisher	Annual	Hands on - contact AIU Safety
3587-00	Signs & Tags	Initial	Video

**Note: Resources have not all been finalized at this time. Contact Safety Specialist with questions.**



**Call Center/Office Staff  
OSHA/DOT Training Matrix**

09/25/2009

Course Number	Topic	Frequency	Resource	Name specific
0328-00	Bloodborne Pathogens	Annual	Video -- Decatur Training Center--Bloodborne Pathogen for Non-Heathcare	Name specific
7227-00	CPR/AED First Aid	Annual 3 years	Decatur Training Ctr or American Red Cross American Red Cross	Name specific Name specific
0300-00	Emergency & Fire Prevention Plans	Initial & as changes	Review of site specific plans -- Contact AIU safety specialist for plan, if needed	
0245-01	Hazcom General Awareness	Initial & as changes	CBT on Scholar for Ameren specific program -- video 20041036 from Ameren Video Library	
0253-00	Portable Fire Extinguisher	Annual	Video (Hands on not required)	

**Note: Resources have not all been finalized at this time. Contact Safety Specialist with questions.**



MidAmerican Energy  
106 East Second Street  
P.O. Box 4350  
Davenport, IA 52808  
563 333-8005 Telephone  
563 333-8021 Fax  
rpjared@midamerican.com

Robert P. Jared  
Senior Attorney

April 26, 2010

Overnight Delivery

RECEIVED

APR 23 2010

Illinois Commerce Commission  
ENERGY DIVISION

Harry Stoller  
Director, Energy Division  
Illinois Commerce Commission  
527 East Capitol Avenue  
Springfield, IL 62701

Re: Staffing and Training Benchmarks Report  
MidAmerican Energy Company

Dear Mr. Stoller:

Enclosed is the Staffing and Training Benchmarks Report for MidAmerican Energy Company.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert P. Jared", written in a cursive style.

RPJ/sm  
Enclosure



**STAFFING AND TRAINING BENCHMARKS  
REPORT**

for

**MIDAMERICAN ENERGY COMPANY**

June 30, 2010

**I. INTRODUCTION**

Public Act 95-0081 adopted Sections 4-602 and 4-603 of the Public Utilities Act [220 ILCS 5/4-602 and 5/4-603, respectively] requiring the performance of a workforce study analysis and employee staffing and training benchmarking applicable to each of the Illinois electric utilities. Under the auspices of the Illinois Commerce Commission (“Commission”), Jacobs Consultancy, Inc. (“Jacobs”) was retained to perform the workforce study analysis for each electric utility.

Jacobs prepared a workforce study analysis, dated July 7, 2008, (“Workforce Report”) concerning MidAmerican Energy Company for the Commission. The objective of the Workforce Report was to determine the adequacy of the total in-house staffing in each job classification or job title critical to maintaining quality and reliability of electric service, and in restoring such service in the event of an interruption, in MidAmerican’s Illinois service territory. The Workforce Report also included an examination of the use of contractor employees.

The Workforce Report concluded that “the overall adequacy of MEC’s [MidAmerican] workforce has been in harmony with its philosophy of maintaining a consistent level of employees and filling workload peaks and valleys with contractors.” [Workforce Report, at 5].

**II. WORKFORCE REPORT ANALYSIS RESULTS**

**A. STAFFING LEVELS:**

In determining the adequacy of MidAmerican’s workforce, the analysis performed in the Workforce Report was organized along two tasks:

1. Computing and comparing the yearly workforce ratios during the 1995 – 2006 time frame for the pertinent job classifications by service area, district, division, or region; and
2. Performing a detailed examination of MidAmerican’s workforce adequacy critical to maintaining quality, reliability, and restoring service.

1. LINEMEN EMPLOYEES

The Workforce Report computed the ratios of customers per linemen employee. Section 4.1.1, Table 1, listed the number of MidAmerican customers in Illinois, on an annual basis, for the period from 1995 through 2006. Also included in Table 1 was a listing of the number of total in-house employees (linemen, substation employees, and first responder employees) and the number of contractor employees, on an annual basis, for the 1995 through 2006 period. For 2006, the latest year reported, MidAmerican had 96 total linemen employees, categorized as follows:

Linemen Employees	53
Substation Employees	17
First Responder Employees	<u>6</u>
Total Linemen In-House Employees	76
Total Linemen Contractor Employees	<u>20</u>
Total Linemen Employees	96

The Workforce Report noted that MidAmerican had consistently leveraged automation and the use of contractors to meet work requirements. Contractors were used to handle workload peaks and to perform larger scale projects where it was more cost and time-efficient. Further, that MidAmerican had recognized that its workforce was aging and had made efforts to attract and retain apprentices to replace retirees and other workforce decreases. [Workforce Report, at 4].

2. CALL CENTER EMPLOYEES

The Workforce Report also computed the ratios of customers per call center employee. Section 4.1.2, Table 2, listed the number of MidAmerican customers in Illinois, on an annual basis, for the period from 1995 through 2006. Also included in Table 2 was a listing of the number of total in-house employees [residential customer service agent (“CSA”) phone staff, business advantage CSA, mission control specialists, support services specialists, and lead CSAs] and the number of call center temporary employees, on an annual basis, for the 1995 through 2006 period. Call center employees handle all customer service calls, including those from both gas and electric customers, for all of MidAmerican’s service territories. For 2006, the latest year reported, MidAmerican had 213 total call center employees, categorized as follows:

Residential CSA Phone Staff	133
Business Advantage CSA	17
Mission Control Specialists	12
Support Services Specialists	11
Lead CSAs	<u>13</u>
Total Call Center In-House Employees	186
Total Call Center Temporary Employees	<u>27</u>
Total Call Center Employees	213

The Workforce Report noted that MidAmerican's call center in the last six years had been in the highest quartile in customer satisfaction surveys conducted by several rating agencies. [Workforce Report, at 4].

### 3. METER SERVICE EMPLOYEES

The Workforce Report also computed the ratios of customers per meter service employee. Section 4.1.3, Table 3, listed the number of MidAmerican customers in Illinois, on an annual basis, for the period from 1995 through 2006. Also included in Table 3 was a listing of the number of total in-house employees (meter employees and meter on-off employees), on an annual basis, for the 1995 through 2006 period. For 2006, the latest year reported, MidAmerican had 40 total meter service in-house employees, categorized as follows:

Meter Employees	26
Meter On-Off Employees	<u>14</u>
Total Meter Service In-House Employees	40

MidAmerican had no meter service contractor employees in 2006. The Workforce Report noted that the meter service group was maintained at a fairly consistent level over the 1995 to 2006 period. However, the overall meter service group levels would be declining in the future with the implementation of the automated meter reading program. In the Quad Cities Illinois district, the headcount for meter readers was expected to be reduced from 39 to 9 due to the efficiencies in the automated meter reading system. The Workforce Report concluded that MidAmerican's meter services workforce was adequate to provide the required services. [Workforce Report, at 4].

### **B. TRAINING:**

The Workforce Report defined "training" as "referring to the acquiring of knowledge, skills and competencies resulting from teaching." In addition, "in the electric distribution industry, training forms the core of apprenticeships and provides the backbone for technical

education." Further, "apprentice programs supply the training for the initial qualifications, while refresher training provides the opportunity for continued technical development." Also, at MidAmerican, "electric technical training consists of a combination of both training in the classroom and on the job." [Workforce Report @ 50].

The Workforce Report emphasized that safety, as stated by all levels of management and bargaining unit personnel, is a prime MidAmerican objective and that "based on our experience, the emphasis placed on safety has gone beyond what other utilities are requiring." [Workforce Report @ 55].

#### 1. LINEMEN EMPLOYEES

The Workforce Report noted that, whereas typically in the electric distribution utility industry the apprentice linemen training course covers a three-year period of classroom and in-house training, MidAmerican's linemen and substation training program is four years in length. Each apprentice receives a mandatory 144 hours of classroom training each year of the four-year apprenticeship. MidAmerican belongs to and uses the National Joint Apprentice and Training Committee ("NJATC") based training templates. NJATC is a joint program between the National Electrical Contractors Association and the International Brotherhood of Electrical Workers and has been shown to be the most cost-effective way to train qualified craft workers. MidAmerican's training program has been accredited by the Illinois Department of Labor. Electric refresher training is mandatory for all front-line fieldworkers. [Workforce Report, at 51-52].

#### 2. CALL CENTER EMPLOYEES

The Workforce Report noted that the call center temporary employees consist of probationary customer service agent phone staff that undergoes 12 weeks of training before MidAmerican generally makes them an offer to become permanent employees. These temporary employees were contracted from Manpower, Inc. to help MidAmerican filter new employees and to address the high turnover rate typically found in call centers. The Workforce Report noted that no contract employees were used to handle customer calls from 1998 to 2001. [Workforce Report, at 4, 26].

### III. MIDAMERICAN - JUNE 30, 2010 BENCHMARKS

#### A. STAFFING LEVELS

In preparing its benchmarks, MidAmerican utilized the critical workforce categories specified in Section 4-602 of the Act. These are the same categories used in the Workforce Report and are as follows:

1. "Linemen" employees, which consist of line and substation workers

2. "Meter Service" employees, which includes meter technicians, meter readers, and meter on-off employees
3. "Call center" employees, which includes residential, business and lead customer service agents, as well as mission control and other support service specialists.

The staffing levels are determined by MidAmerican's evaluation of the staffing levels necessary to provide safe, efficient, and reliable service to its customers.

1. LINEMEN EMPLOYEES

MidAmerican projects a budgeted total linemen employee requirement of 90 for the period ending June 30, 2010, categorized as follows:

Linemen Employees	50
Substation Employees	16
First Responder Employees	--
Total Linemen In-House Employees	66
 Total Linemen Contractor Employees	 24
 Total Linemen Employees	 90 [*See Section IV.A.1.]

2. CALL CENTER EMPLOYEES

MidAmerican projects a budgeted average call center employee requirement of 190 for the period ending June 30, 2010, categorized as follows:

Residential CSA Phone Staff	140
Business Advantage CSA	16
Mission Control Specialists	12
Support Services Specialists	10
Lead CSAs	12
 Total Call Center In-House Employees	 190
 Total Call Center Temporary Employees	 0
 Total Call Center Employees	 190

3. METER SERVICE EMPLOYEES

MidAmerican projects a budgeted total Illinois Quad Cities meter service employee requirement of 13 for the period ending June 30, 2010, categorized as follows:

Meter Employees	7
Meter On-Off Employees	6

Total Meter Service In-House Employees 13

**B. TRAINING**

1. LINEMEN EMPLOYEES

MidAmerican continues to utilize the four-year apprentice training program discussed in <sup>1</sup> the Workforce Report, supplemented by refresher training. <sub>2</sub>

2. CALL CENTER EMPLOYEES

Newly hired employees are now provided 13 weeks of classroom training which includes several hours of one-on-one mentoring with a seasoned customer service agent. After graduation, the employees work an additional four to eight weeks in a training bay environment where trainers are readily available for questions. All call center employees receive refresher training throughout the year on critical subject matter such as safety-related and gas/electric emergency training, as well as training on other complex subjects such as MidAmerican's budget billing program and current credit and collection practices.

3. METER SERVICE EMPLOYEES

Meter readers complete one week of training which includes three days in the field with a veteran meter reader, review and test on operation qualifications, review of the meter reader manual, safety training, and equipment training.

The category of meter on-off employees includes the classifications of electric meter technician and gas serviceman. An electric meter technician is required to complete a 4-year apprenticeship program. During the apprenticeship program, an apprentice must complete 6,624 hours of on-the-job training with an electric meter technician. The skill training includes single phase, polyphase and instrument rated, and substation/generation meter work. The apprentice learns how to operate electric meter software and bench test and field test electric meters. The apprentice must also complete 576 hours of supplemental training which includes direct and alternating current theory, training video tapes on meter theory and operation, practical troubleshooting and installation methods, and National Electrical Code training. The apprentice also attends four one-week electric meter training schools.

A gas serviceman is required to complete a 3-year apprenticeship program. During the apprenticeship program, an apprentice must complete 5,400 hours of on-the-job training with a gas serviceman journeyman. The skill training includes pipe fitting, gas leak investigations, carbon monoxide investigations, turning gas and electric meters on and off, clocking meters, customer appliances, mobile data terminals, pressure checks, regulator stations, locates, cathodic protection, odorization, safety and gas standards. The apprentice learns how to operate regulators, threading machines and other equipment. The apprentice must also complete 532 hours of supplemental training. The apprentice also attends a 3-day re-lit training session.

#### IV. DISCUSSION OF VARIANCES FROM WORKFORCE REPORT

##### A. STAFFING LEVELS

A comparison of MidAmerican's June 30, 2010 staffing level benchmarks with the employee levels set forth in the Workforce Report discloses the following:

##### 1. LINEMEN EMPLOYEES

MidAmerican notes that the Workforce Report separately identified 53 linemen employees and 6 first responder employees. However, the 6 first responder employees were actually included in the 53 linemen employees. This double-counting has been corrected in the projected June 30, 2010, staffing levels. MidAmerican's budgeted overall staffing levels of Company and contractor linemen employees are consistent with the 2006 staffing levels. The numbers represent budgeted positions and the allocation of resources assigned for work in both the Iowa Quad Cities and Illinois Quad Cities areas. ①

MidAmerican's requirement for linemen employees is based on projected work load levels. Work load is driven by factors such as the amount of customer-driven work such as new housing construction, amount of system rebuild requirements to serve new load or to maintain system integrity, maintenance requirements, regulatory or compliance requirements, and the ability to provide emergency responses. ②

MidAmerican has developed a process for reviewing the work load and for matching the workforce to the work load. As part of the annual budgeting and forecasting cycle, MidAmerican evaluates the electric system and identifies projects that will be required for new load, system integrity or compliance. Estimates are prepared for the projects and are routed for review and approval. Customer growth projections and input from local service areas provide the basis for new business construction. Based on historical information and any known changes, operation and maintenance manpower requirements are estimated. Based on the overall work load projection, manpower needs are estimated. In-house linemen are primarily used to handle base work load and outside resources are used to meet peak work loads or to perform specialized work. Bi-weekly meetings are held to review work load and available ③

manpower. Adjustments are made by increasing or decreasing the use of outside resources. On a longer term basis, any known or projected significant changes in conditions or operations are factored into the forecasted manpower requirements.

A basic benchmark is the number of customers per lineman resource. As noted in the Workforce Report, MidAmerican's ratio compares very favorably to the other utilities in the study. MidAmerican does not expect any significant variances in the benchmark levels in the foreseeable future unless customer growth changes dramatically, the economy changes significantly, or there are significant technological advances in the way line work is performed. MidAmerican does not anticipate any such changes in the near future. (1)

## 2. CALL CENTER EMPLOYEES

The June 30, 2010, staffing level benchmarks reflect a reduction of 23 call center employees from the 2006 numbers included in the Workforce Report. This reduction was due to reduced call volumes as a result of the implementation and completion of the automated meter reading project throughout MidAmerican's service territories. Automated meter reading has produced many customer benefits, the primary one being a reduction in calls related to estimated bills. Further, improvements have been made to MidAmerican's automated call handling systems, which include the web and the Integrated Voice Response Unit, such as the automation of the phone payment process. These systems have vastly improved and expanded self service options for MidAmerican's customers. Call center employees provide service to customers in all four states in which MidAmerican operates. (2)

The benchmark staffing numbers for the call center were established based on forecasted call volumes for 2010. This forecast and an estimation of call arrival times, based on historical information as well as industry standards, are run through a suite of call center workforce management software tools. The suite includes call center agent scheduling and call center forecasting software applications designed to create the appropriate number of work schedules to staff MidAmerican's 24/7 call center based on forecasted call volumes, a predetermined service level goal, and adjustments made for agent time away from the phone. Once these schedules are assigned, daily performance is monitored for changes in forecast conditions and staffing adjustments are made as needed to address these changes. Agent compliance with individual schedules is tracked using real-time reporting tools. Any variances to the schedule are addressed with the individual agent. Critical schedules that are vacated throughout the year are backfilled using schedule adjustments or permanent schedule changes. Depending on the level of attrition experienced, and the number of new hire classes trained in a given year, critical schedules can be backfilled as frequently as quarterly. (3)

## 3. METER SERVICE EMPLOYEES

The automated meter reading program was implemented in 2008 in MidAmerican's Illinois service territory. This resulted in a reduction in the meter service employee workforce. The reductions were handled either through attrition or by placement into other open positions (4)



throughout the Company. Meter service employees serve both the Iowa Quad Cities and the Illinois Quad Cities areas.

The benchmarking staffing numbers for the meter service employees were created from historical data based upon actual operations of an automated meter reading system that has been in operation for over 15 years. This system was the basis for the adoption and implementation of MidAmerican's automated meter reading system. Factors used in determining the benchmark staffing levels included the number of manual billing reads collected by meter readers, number of manual "change of party" reads collected by meter field personnel, existing staffing levels, area logistics, time taken to complete reads, and relevant comparisons to the automated meter reading data referenced earlier. MidAmerican currently collects the majority of "change in party" and billing reads with the mobile automated meter reading system, resulting in the reduction in staffing levels. (2)

Factors to be considered in addressing any future variances from the Workforce Report or from the June 30, 2010, staffing level benchmarks, include the respective workload requirements, changes in technology, changes in customer counts or service level requirements, the cost-effectiveness of available options, and changes in regulatory requirements. MidAmerican will monitor its staffing level requirements on an as-needed basis giving due consideration to these and such other factors as might be appropriate. (4)

## B. TRAINING

A comparison of MidAmerican's June 30, 2010 training benchmarks with the training discussion in the Workforce Report discloses the following:

### 1. LINEMEN EMPLOYEES

The linemen training program is essentially the same as that which existed in 2006. (1)  
(2)

### 2. CALL CENTER EMPLOYEES

The major difference between the 2006 and 2010 call center training is the elimination of staffing new hire classes with temporary employees. Staffing for the call center is now done by directly hiring as MidAmerican employees. The classroom schedule has been increased by one week to accommodate new technologies employed at MidAmerican, such as automated meter reading. (1)  
(3)

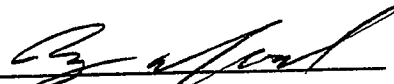
### 3. METER SERVICE EMPLOYEES

As a result of the implementation of the automated meter reading program, meter reading employees received training on how to remotely read meters utilizing automated meter reading technology. Due to the requirement of additional driving as a result of automated meter reading, meter readers have also received concentrated training related to (1)  
(2)

driving motor vehicles. Electric meter technicians and meter on-off employees follow an apprenticeship program which is essentially the same as that which existed in 2006.

Respectfully submitted,

MidAmerican Energy Company

By   
Barry Campbell  
Vice President, Delivery

Date 4/23/10

**DRAFT**

**Outline of benchmarks for Section 4-603 of the Public Utilities Act**

Mt. Carmel Public Utility Co., pursuant to 220 ILCS 5/4-603 is providing the Illinois Commerce Commission Staff a draft outline of benchmarks for employee staffing levels for each required employee classification, and benchmarks for employee training for each classification set forth in Section 4-602 of the Public Utilities Act.

The work classifications are Linemen; Call Center Employees; and Meter Service/Repair Employees. The report is for the entire service territory of Mt. Carmel Public Utility Co. as it does not have separate or distinct districts, divisions, outlying areas, etc. as referenced in the statutes.

The benchmarks are established partially based on Mt. Carmel Public Utility Co.'s Workforce Study Report dated July 18, 2008, which were historical numbers. Specifically, the report showed the number of employees in each classification and the ratio of each to customers for the years 1995 through 2006. In setting forth the benchmark numbers herein, the number of employees for each of the years 2007 and 2008, have been incorporated by Mt. Carmel Public Utility Co. as well.

In 2007, Mt. Carmel had 5,562 electric customers. The number of in-house linemen was 5 with a ratio of linemen to customers of 1:1,112. The number of meter service/repair employees was 3, with a ratio to customers of 1:1,854. There were 12 customer service call center employees with a ratio to customers of 1:463.

In 2008, Mt. Carmel had 5,544 electric customers. The number of in-house linemen was 7 with a ratio of linemen to customers of 1:792. The number of meter service/repair employees was 4, with a ratio to customers of 1:1,386. There were 12 customer service call center employees with a ratio to customers of 1:462.

Therefore, Mt. Carmel believes that based on the current staffing levels in 2008 which have carried forward to the current time, the proper benchmark for linemen is 7; meter service/repair employees is 4; and customer service call center employees is 12.

Mt. Carmel Public Utility Co. also believes that the statute requires benchmarking of the training to be done for the various employee classifications. For the linemen, the training requirements are a 3-year apprentice program offered through the IBEW Local 702 training program. This program includes not only classroom work but also involves on the job experience. During the time of the apprenticeship, evaluations are made by co-workers and management staff, as well as grading through the IBEW program.

The training for the meter service/repair employees consists of being a qualified lineman and having exhibited the same training as a lineman above, but with additional training of meter schooling. These courses involve a minimum of attendance at meter schools put on by Mid South Meter School. Further, the training involves on the job experience in disciplines with other meter service repairmen for testing of meters and meter installation processes.

The training for the customer service call center personnel consists of on the job training and experience. The personnel are given training to cover proper utilization of telephones, customer interaction and education on 83 Ill. Adm. Code Part 280, specifically dealing with customer connects, disconnects, reconnects, financial payments and other Part 280 issues. Further, the training involves crisis control and being able to field calls for outages or accidents or other similar related matters. The personnel are also trained on the telephone systems and the computer systems of Mt. Carmel Public Utility Co. as tools with which to be able to properly handle these job requirements.

Therefore, the benchmark numbers for employees in each of the categories for the year 2010 are as follows:

Linemen: 7  
Meter service/repair: 4  
Customer Service / Call center: 12

Respectfully Submitted,

Mt. Carmel Public Utility Co.

By: \_\_\_\_\_  
Larry K. Horrall  
Vice-President of Operations