

**BEFORE THE STATE CORPORATION COMMISSION
OF THE STATE OF KANSAS**

**DIRECT TESTIMONY OF
WILLIAM P. HERDEGEN, III**

**ON BEHALF OF
KANSAS CITY POWER & LIGHT COMPANY**

**IN THE MATTER OF THE APPLICATION OF
KANSAS CITY POWER & LIGHT COMPANY
TO MODIFY ITS TARIFFS TO CONTINUE THE
IMPLEMENTATION OF ITS REGULATORY PLAN**

DOCKET NO. 07-KCPE-_____-RTS

1 **Q: Please state your name and business address.**

2 A: My name is William P. Herdegen, III. My business address is 1201 Walnut, Kansas City,
3 Missouri 64106-2124.

4 **Q: By whom and in what capacity are you employed?**

5 A: I am employed by Kansas City Power & Light Company (“KCPL”) as Vice President,
6 Customer Operations.

7 **Q: What are your responsibilities?**

8 A: My responsibilities include the engineering, design, construction, maintenance, and
9 operation of KCPL’s distribution system, as well as the call center and revenue
10 management.

1 **Q: Please describe your education, experience and employment history.**

2 A: I graduated from the University of Illinois, Champaign-Urbana in 1976 with a Bachelor
3 of Science degree in Electrical Engineering, and in 1981, I received my M.B.A. from The
4 University of Chicago. I was first employed at KCPL in 2001. I have nearly 30 years of
5 experience in the electric utility industry. Prior to joining KCPL, I served as chief
6 operating officer for Laramore, Douglass and Popham, a consulting firm providing
7 engineering services to the electric utility industry. Additionally, I was vice president of
8 Utility Practice at System Development Integration, an IT consulting firm focused on
9 development and implementation of technology systems. I began my utility career at
10 Commonwealth Edison and over a course of more than 20 years held various positions,
11 including field engineer, district manager, business unit supply manager, operations
12 manager and vice president - Engineering, Construction & Maintenance.

13 **Q: Have you previously testified in a proceeding at the Kansas Corporation**
14 **Commission (“KCC”) or before any other utility regulatory agency?**

15 A: I have previously testified before both the KCC and the Missouri Public Service
16 Commission (“MPSC”).

17 **Q: What is the purpose of your testimony?**

18 A: The purpose of my testimony is to discuss the progress made, as well as the goals and
19 objectives of distribution system portion of KCPL’s Asset Management Plan (or the
20 “Plan”), including distribution investments and distribution automation projects.
21 Additionally, I will address the recommended adjustment to distribution maintenance
22 expense. I will also discuss the proactive storm response processes implemented along
23 with the strong operational performance of KCPL’s distribution business.

1 **Q: What are the goals and objectives of KCPL’s Asset Management Plan?**

2 A: Asset Management at KCPL is the structured and disciplined process to develop the
3 program of work for system expansion, system improvements, and maintenance (both
4 corrective and preventive). Our objective is to provide a scope of work to achieve three
5 key strategic goals at the most optimal cost: (i) Mitigate risks of major outage events to
6 our customers; (ii) Minimize the System Average Interruption Duration Index (“SAIDI”)
7 as it relates to the duration and frequency of outages to our customers; and (iii) Minimize
8 the number of customers with multiple interruptions. By implementing this Plan, KCPL
9 expects to manage asset replacement schedules and our aging infrastructure. We will
10 also optimize system maintenance programs, improve system design for better long-term
11 performance, and optimize strategic capital and operations and maintenance (“O&M”)
12 investments while maintaining Tier 1 reliability performance.

13 **Q: What progress has been made thus far with respect to distribution asset**
14 **management under the Plan?**

15 A: The Plan includes a number of distribution projects and programs. These Distribution
16 Asset Management Programs include the following:

- 17 ▪ High Outage Count Customer Program
- 18 ▪ Distribution System Inventory Program
- 19 ▪ Condition Assessment Program
- 20 ▪ Proactive Underground Residential Distribution (“URD”) Cable Replacement
21 Program
- 22 ▪ URD Cable Injection Program

1 Through the end of 2006, significant progress has been made on the five projects making
2 up the Distribution Asset Management Program which are all designed to improve
3 system reliability.

4 **Q: Please describe the High Outage Count Customer Program.**

5 A: The High Outage Count Customer Program focuses on proactively rebuilding and
6 replacing poor performing assets in areas where customers are experiencing multiple
7 outages. Corrective action includes tree trimming, pole, equipment and hardware
8 replacement, and line re-conductoring. Additional areas requiring improvements are
9 identified from worst performing circuit and lateral lists.

10 KCPL identified the 16 worst performing circuits and laterals under the High
11 Outage Count Customer Program and completed the engineering planning and design for
12 improvements. Five of the improvement projects have been completed.

13 **Q: Please describe the Distribution System Inventory Program.**

14 A: This program involves conducting a full system field inventory to collect distribution
15 system information at the component level. Based on the inventory data, the Asset
16 Management and Engineering group will conduct targeted asset management and
17 reliability studies focused on reducing outage minutes caused by problem or failure prone
18 equipment, wildlife, lightning, overhead wire issues, and line design and construction-
19 related issues. Benefits resulting from the studies and resulting system improvements
20 include improved reliability and customer satisfaction due to reduced outages.

21 A pilot inventory of 5% of the overhead electrical system was performed and
22 completed by INTEC Services (using EDM International, Inc. collection software) by
23 year-end 2005. Plans in 2006 called for completing targeted reliability studies using the

1 pilot inventory data, developing a program of work based on the findings, and fine-tuning
2 the process in preparation for launch of the full system inventory beginning in 2007.

3 Under the Distribution System Inventory Program, data for the 27 pilot circuits
4 has been loaded into the AM/FM System and targeted reliability studies are ongoing.
5 Lessons learned from the pilot were incorporated into KCPL's specifications for the
6 system-wide inventory. The technical and pricing evaluations for the Distribution
7 System Inventory/Condition Assessment contractor are complete and contract
8 negotiations are near completion.

9 **Q: Please describe the Condition Assessment Program.**

10 A: INTEC Services performed a condition assessment in tandem with the pilot system
11 inventory in order to identify corrective actions that will maintain and improve system
12 reliability. Corrective actions resulting from the pilot are reviewed, prioritized and
13 scheduled.

14 To date, corrective actions on 331 items have been scheduled and completed as
15 part of the Condition Assessment Pilot. Typical repairs included primary wire strand
16 damage repairs; replacement of spans of primary wire that had excessive splices;
17 reattaching "floating" conductors to insulators and supports; replacing broken or
18 damaged insulators; replacing broken, damaged or deteriorated cross-arms and braces;
19 re-sagging slack conductors; replacing blown or damaged lightning arrestors; and
20 replacing deteriorated open-wire secondary conductors. An additional 82 jobs are
21 planned for completion during first quarter 2007.

1 **Q: Please describe the Proactive URD Cable Replacement Program.**

2 A: KCPL initiated the Proactive URD Cable Replacement Program to maintain and
3 improve URD cable system reliability and increase customer satisfaction. The program
4 takes into consideration the type, age, design, number of failures experienced, and failure
5 impacts on customers. This provides a means to perform intelligently targeted proactive
6 cable replacement before failure. KCPL has completed 31 replacement jobs involving
7 approximately 8,356 feet of cable as part of this program. Three additional replacement
8 jobs are in progress and three more are currently in field design.

9 **Q: Please describe the URD Cable Injection Program.**

10 A: KCPL initiated the URD Cable Injection Program to maintain/improve URD cable
11 system reliability, increase customer satisfaction, and extend the useful life of existing
12 URD cable. The injection process involves a pressure injection of an insulating solution
13 through the stranded conductors to restore the insulation to near new condition. The
14 program takes into consideration the type, age, design, number of failures experienced,
15 and failure impacts on customers. Costs for cable injection are expected to be roughly
16 one-third of the cost of cable replacement.

17 The URD Cable Injection Program experienced a minor setback when it was
18 discovered during inspection and testing that some targeted cable sections were #2 solid
19 and could not be injected. The team researched historical standards and purchasing
20 records to eliminate #2 solid vintage cables from the program and identified a new target
21 sample of cables to be injected. Injections on 29 cable segments were completed.

1 **Q: Are there other programs related to distribution automation that KCPL has been**
2 **conducting?**

3 A: KCPL initiated five of the six total projects that are being funded under our
4 Distribution Automation initiative. The one remaining project, Rural Power Quality, was
5 studied during 2006 with larger scale deployment scheduled to begin in 2007. As part of
6 the Integrated Circuit of the Future Project identified below, the pilot program for
7 Dynamic Voltage Control (“DVC”) has been implemented and further studied. Due to
8 the success of the pilot program for DVC, the full DVC program was accelerated to begin
9 implementation in fourth quarter 2006. The objective of the Distribution Automation
10 projects is to improve customer service, reliability, and workers’ safety by taking
11 advantage of technological innovation. KCPL has been successful in utilizing
12 automation in Transmission & Distribution applications and has received recognition and
13 awards for its innovative automation technology implementation. The five projects being
14 implemented are as follows:

- 15 ▪ Network Automation
- 16 ▪ 50 C.O. relay automation
- 17 ▪ 34-kV switching device automation and fault indication
- 18 ▪ “Integrated Circuit of the Future”
- 19 ▪ Dynamic Voltage Control

20 **Q: Please describe the Network Automation Program.**

21 A: The Network Automation Project involves monitoring of KCPL’s underground (“UG”)
22 network. Prior to the Network Automation Project, KCPL had no means to monitor the
23 activity of this network. During annual inspections conducted by the UG department,

1 network protectors were found that had excessive operations, and some were in a state of
2 disrepair and had to be replaced. The new system allows KCPL to track the causes
3 associated with such issues so that action can be taken to address the symptoms and
4 mitigate a malfunction on the UG network. Due to automation of the network, engineers,
5 dispatchers, and the underground workers are alerted to abnormal situations that could
6 potentially cascade if left unchecked. Automation of the UG network has resulted in a
7 better understanding of the causes associated with excessive operations. As a result of
8 being able to proactively manage the network, premature failures have already been
9 averted and it is anticipated that the lives of transformers and network protectors will be
10 extended, all resulting in deferral of replacement of such expensive equipment. The
11 ability to retrieve important data from the UG network and to convert this data into useful
12 information will greatly improve the ability to troubleshoot issues related to the network
13 system.

14 KCPL automated 60 network protectors. An additional 21 network protectors are
15 planned for automation.

16 **Q: Please describe the 50 C.O. Automation Project.**

17 A: The 50 C.O. Automation Project involves enabling or disabling overcurrent relays
18 (“50 C.O.”) installed at substations by remote control. 50 C.O. relays are overcurrent
19 protection relays designed to trip open before lateral fuses blow, thereby preventing
20 sustained outages. The automation of these devices allows dispatchers to turn these
21 relays on or off remotely from their desktops. The ability to turn the relays off on fair
22 weather days will result in a reduction in momentary interruptions of service by 40 to
23 50 percent, which will greatly improve reliability and customer service. In addition, this

1 system will save fuses during storms to reduce outages, and the monitoring capability
2 will allow dispatchers to check the status of the relay.

3 KCPL completed installation on 19 buses, and began engineering for two (2) of
4 the 33 buses planned for 2007 installation.

5 **Q: Please describe the 34-kV Switching Device Automation and Fault Indication**
6 **Project.**

7 A: The 34-kV Switching Device Automation and Fault Indication Project involves
8 installation of automated switching devices and fault indicators. The rural circuits in the
9 East and South Districts on KCPL's 34-kV system are quite lengthy, and therefore, when
10 there is an outage, locating the cause of the outage can be time-consuming, resulting in
11 longer duration outages. Also, because the 34-kV feeders serve various
12 12-kV substations and municipalities, the number of customers affected is significant.
13 The installation of automated faulted circuit indicators will greatly improve dispatchers'
14 ability to troubleshoot the causes associated with an outage. In addition, the automated
15 switching devices will allow faster power restoration to customers because linemen will
16 not be required to drive to a switch and manually operate it. The combination of these
17 technologies will result in shorter outages and improved reliability and customer service.

18 KCPL developed standard design for installation of 34-kV reclosers, evaluated
19 bids and awarded a purchase order, initiated design projects for installation of the first
20 eight (8) reclosers, received 15 reclosers and controls, and completed field installation of
21 six (6) reclosers in the South District in 2006. Two (2) more reclosers are targeted for
22 completion during the first quarter of 2007. These first eight (8) installations will have

1 full automation and communication capability implemented by the end of first quarter
2 2007.

3 **Q: Please describe the Integrated Circuit of the Future Project.**

4 A: The “Integrated Circuit of the Future” Project involves the integration of various pieces
5 of distribution system automation technologies, engineering applications, and software in
6 order to support KCPL's vision of implementing a smarter distribution grid. KCPL
7 expects the future delivery system to have the ability to support two-way power flows
8 along with associated real-time information flows. In essence, the distribution network
9 will evolve to more closely resemble the transmission grid. This vision incorporates the
10 integration of control level data and applications from various devices on the circuit,
11 enabling the concept of a "self-healing grid" which will reduce power outages and
12 mitigate momentary interruptions. The real-time integrated input of data from
13 monitoring devices will help manage system load and losses, while also helping to
14 maintain voltage quality to our customers. The implementation of a smarter distribution
15 grid will require an incremental approach to fully develop and deploy, and will require
16 extensive collaboration among many industry parties.

17 **Q: What is involved in the initial phase of this project?**

18 A: The initial phase of this project includes the installation of radio-controlled switching
19 devices with sophisticated automation and configuration schemes. These devices are
20 capable of remote commands to reconfigure the system as needed to help minimize
21 power outages and momentary interruptions. Radio-controlled faulted circuit indicators
22 are also being piloted to assist in pinpointing system fault locations supporting prompt
23 diagnostics for service restoration. KCPL will also be installing new substation relays

1 that can be remotely configured to help minimize momentary power interruptions during
2 varying system conditions. KCPL is also installing automated capacitors along with
3 remote voltage and current sensors, all of which are expected to help KCPL manage and
4 improve customer power quality while limiting our system losses.

5 **Q: Would you also describe KCPL's Dynamic Voltage Control Program?**

6 A: The DVC program was piloted under the umbrella of the Integrated Circuit of the Future
7 project by utilizing the identified automation devices/ technologies along with real-time
8 system data. The DVC pilot was implemented for proof of concept of KCPL's ability to
9 optimize system load and power quality via automation technologies. The pilot proved
10 the concept and DVC implementation has been accelerated. I discuss DVC again later in
11 my testimony.

12 **Q: What is the status of the Integrated Circuit of the Future Program?**

13 A: Currently the "Integrated Circuit of the Future" is considered a pilot level effort to
14 provide continued proof of concept as all the above-mentioned technologies are
15 integrated into selected distribution circuits. During this pilot, our goal is to validate the
16 expected benefits of implementing these technologies, and then execute a full-scale
17 system deployment plan.

18 KCPL finalized the contract and scope for statistical analysis of the DVC study,
19 completed circuit testing and installation of monitoring hardware, began testing of
20 underground faulted circuit indicators, completed analysis of data from the summer tests
21 for the DVC study and began analysis of data from the winter tests.

1 **Q: Is KCPL accelerating the implementation of the Dynamic Voltage Control system?**

2 A: Yes. As a result of successful testing of the DVC system on the Integrated Circuit of the
3 Future, KCPL is accelerating implementation of the DVC system to all 203 metro Kansas
4 City substation buses. This is an increase of 65 buses from the 138 buses originally
5 planned for the DVC program.

6 The project includes the installation of substation voltage regulating controls with
7 intelligent electronic devices (“IEDs”) that will support state-of-the-art communications
8 protocols. In addition, intelligent substation Remote Terminal Units (“RTUs”) with
9 remote communication capability will be installed to allow integration and connection of
10 these regulation control IEDs. The project will also install remote voltage monitoring
11 devices at strategic points throughout the system to identify circuits or areas that need
12 additional capacitors to support the voltage during an event when the DVC system is
13 called upon to optimize system voltage and reduce system loading.

14 KCPL began implementation of the DVC system with installation and automation
15 of 64 buses in the field, integrated DVC controls into the Energy Management System
16 (“EMS”), and completed engineering for 36 buses for Spring of 2007 installations.

17 **Q: Has KCPL requested an adjustment to test year distribution maintenance expense?**

18 A: Yes. An adjustment is requested and is included in Adj-26b of Schedule JPW-2, attached
19 to the direct testimony of KCPL witness John P. Weisensee.

20 **Q: Please explain the requested adjustment.**

21 A. The adjustment requests an increase to test year distribution maintenance expense in the
22 amount of \$4.1 million. This amount represents incremental costs of projects not

1 included in the test year but planned for 2007 and representative of a normal level of
2 maintenance expense.

3 KCPL's distribution maintenance programs over the past few years have been
4 influenced by the impact of the 2002 ice storm. We focused reliability efforts on
5 customers experiencing the most outages, while overall system reliability performance
6 (SAIDI) continued to benchmark in the top quartile of electric utilities in numerous
7 benchmark studies. Programs were established to identify customers, laterals, and
8 circuits with outages above the system norm, evaluate the facilities serving those
9 customers, and develop corrective action plans to improve reliability in those areas.

10 Another part of the Plan was to take a step back from our traditional reliability programs
11 and conduct a system inventory and condition assessment to improve our understanding
12 of the health of the existing infrastructure. Following the assessment, KCPL plans to
13 utilize the additional intelligence to establish a portfolio of reliability programs and
14 studies that will have the greatest impact on system reliability.

15 **Q: Is KCPL ready to begin deploying the reliability programs?**

16 A: Yes. KCPL is now at the point of deploying reliability improvements based on the pilot
17 inventory and condition assessment discussed earlier. We have identified \$4.1 million in
18 additional reliability programs.

19 **Q: Please describe these programs.**

20 A: KCPL expects to generate approximately \$850,000 of required corrective maintenance
21 repairs in 2007 from the condition assessment performed in conjunction with the system
22 inventory. Other proactive maintenance expenditures are:

- 1 ▪ \$900,000 for wood pole inspection and treatment, a significant portion of which
2 are targeted for poor performing laterals or pocket areas.
- 3 ▪ \$800,000 for infrared thermal-scan inspections and associated repairs. This is for
4 scanning the backbone/mainline portion of overhead distribution circuits and
5 targeted scanning of pad-mounted and underground equipment and terminations.
- 6 ▪ \$350,000 for manhole inspections and associated repairs.
- 7 ▪ \$400,000 combined for predictive maintenance of automation equipment,
8 installing and administering new mobile power quality metering, mid-circuit fault
9 indicator installation, performance of a grounding/lightning performance study,
10 and a system hardening study for distribution circuits having critical load
11 customers and/or infrastructure.

12 Although automation equipment reduces overall maintenance costs, this equipment
13 requires predictive monitoring to ensure proper, reliable operation of the automation
14 schemes. The most significant example is monitoring battery condition in the automation
15 equipment for replacement prior to battery failure.

16 KCPL has ordered mobile power quality meters that employ the same technology
17 and communications as monitoring on the Integrated Circuit of the Future. These meters
18 will begin being deployed to monitor for quality issues. Data must be retrieved,
19 monitored and analyzed in order to pinpoint system problems and develop appropriate
20 solutions.

21 Faulted circuit indicators will be deployed near the midpoint of selected circuits at
22 a sectionalizing device to assist with outage restoration. Operations personnel can check
23 the midpoint indicator, identify the portion of the circuit with the fault, and then quickly

1 restore the unfaulted half of the circuit. Once the unfaulted portion is restored, the other
2 half will be patrolled to identify the fault and restore the remainder.

3 Engineering will perform a study of circuits with poor lightning performance and
4 assess the grounding and lightning protection. KCPL plans to utilize lightning stroke
5 data from the FALLS Lightning Detection system to pinpoint possible lightning strokes
6 that caused outages or damage. The study will produce recommendations for
7 improvements on the specific circuits and may initiate improvements in lightning
8 protection standards and application criteria.

9 We have identified an additional \$800,000 of necessary vegetation management
10 work. Our focus on reliability-based vegetation management practices has allowed us to
11 maintain excellent overall system reliability performance (top quartile) while slightly
12 reducing the number of tree related outages over the past five years. We are currently
13 within 10% of our established tree trimming schedules.

14 **Q: Has KCPL implemented any proactive storm response processes since the 2002**
15 **storm?**

16 **A:** Yes. Since the January 2002 ice storm, numerous improvements have been made to our
17 systems and processes to improve our response and communication abilities. After
18 KCPL was back to normal operations after the ice storm, several projects to improve
19 response were initiated. There were projects involving facilities, training, systems,
20 material and communication with local leaders.

1 **Q: What improvements have been made to KCPL's systems and processes to improve**
2 **KCPL's response to storms?**

3 A: Prior to the storm, KCPL had not designated a storm command center. In December
4 2005, an Emergency Operating Center ("EOC") was opened at our 801 Charlotte
5 location. An underutilized part of the building was designed to centralize storm
6 restoration efforts. This area features a large meeting room capable of video
7 conferencing, weather and news updates (cable television), and ties into our EMS,
8 Outage Management System ("OMS"), and Customer Information System ("CIS").
9 Space is available for our Corporate Communications personnel to get up-to-the-minute
10 information and make it available to interested parties.

11 Along with the EOC, a mobile command center was designed and built for onsite
12 local and remote command and control capability in the field. The vehicle is equipped
13 with heating, ventilating and air conditioning ("HVAC") and electrical power (generator
14 and system sources). Some of the equipment carried in the command center includes
15 handheld and base radios, cell phones, five phone lines with conference call capabilities,
16 two programmable radios for Police, Fire, etc., wide area network ("WAN") access and
17 five laptop computer stations.

18 Immediately after the storm in 2002, we invited representatives from the utilities
19 and contractors that assisted in the restoration to provide feedback on what we could do
20 to improve our restoration efforts. This information was used to revise our Storm
21 Evaluation & Restoration Plan ("SERP"). The majority of the feedback was on
22 communication – feeding back information to the Company in a timely manner. An
23 example of the improvements involves line fuses and when they get closed in. A new

1 Crew Evaluation and Information (“E&I”) OMS Update form was created. The field
2 forces use this for reporting line fuse progress. This one change assists with restoration
3 time estimates because of more accurate, timely information being submitted.

4 Along with any SERP changes, training goes hand in hand. Any plan changes
5 that are made need to be communicated, as well as training new personnel involved in the
6 restoration effort. Several tabletop drills have been conducted for the E&I teams, Staging
7 Managers and leadership positions in SERP. Cubic, a defense contractor that specializes
8 in terrorism response scenarios, was hired in 2005 to review our SERP and assist us in
9 developing training. In 2006, two tabletop exercises were conducted and the feedback is
10 being reviewed for inclusion in SERP. More exercises, leading up to a full-scale drill, are
11 being planned for 2007.

12 **Q: Has KCPL conducted any disaster drills to prepare for storms in the future?**

13 A: Yes. In early 2006, The Uriah Group, a nationally recognized disaster drill consultant,
14 was hired by KCPL. The goal was to develop a Joint Disaster Drill that tested the
15 communication and response capabilities between KCPL and the City of Kansas City,
16 Missouri. The drill involved activation of both parties’ EOCs and was a simulated real-
17 time, reality-based exercise. The information we received in the After-Action report will
18 be reviewed and follow-up with the City will be done. One outcome of the joint drill is a
19 commitment by both parties to continue meeting and discussing joint issues. A similar
20 drill is being discussed with Overland Park, Kansas.

21 **Q: Has KCPL conducted other training related to crisis management?**

22 A: Yes. The Senior Strategy Team has also requested training on crisis management. KCPL
23 has retained Cubic to co-develop an Executive Crisis Model and conduct a training

1 session in early 2007. Along with SERP, pandemic planning and business continuity are
2 being included into this effort.

3 **Q: Are there other ongoing efforts that are intended to help KCPL to improve its**
4 **response to future storms?**

5 A: Yes. KCPL is also partnering with the Metropolitan Community College system to
6 develop an Emergency Preparedness certification program. This could range from an
7 8-hour certificate to a 2-year Associate's degree. KCPL hosted the initial meeting and
8 included several customers and energy providers. Our Energy Consultants have
9 contacted numerous customers from our commercial/industrial base concerning their
10 interest in such a program and the response has been overwhelmingly positive. We will
11 serve on the advisory committee as the program is being developed.

12 **Q: Is KCPL also working with regional utilities to coordinate the response to storms in**
13 **the area?**

14 A: Yes. Due to the magnitude of the 2002 ice storm, we quickly realized a need for a larger,
15 coordinated effort among regional utilities. KCPL was the founding member of the
16 Midwest Mutual Assistance Group. When a situation arises, this group communicates
17 via email and conference calls, serving as a resource to any member utility in need.

18 **Q: Have there been other improvements in addition to the facilities and training?**

19 A: Yes. Along with the facility and training that has been done, numerous
20 systems/enhancements and process changes have been added. The desired outcome is to
21 assist our efforts in faster, more accurate communication with our field forces, customers,
22 community leaders and commissions.

1 **Q: Please elaborate on these improvements.**

2 A: KCPL maintains a database of customers with sensitive load situations, including homes
3 with medical equipment, nursing homes, and certain public facilities (water or sewage
4 treatment plants). Customer Relations promptly contacts these customers to provide
5 outage information and updates on restoration efforts. These customers also receive
6 higher restoration priority.

7 PowerWatch, an on-line, real time Outage Reporting System, was launched. This
8 system provides customers and the public with information, via maps, on outage
9 locations and restoration activities as it happens. PowerWatch is available on the
10 corporate website 24 hours a day, 7 days a week.

11 Customers who call into the Customer Care Center to speak to a representative
12 get more accurate information about the restoration effort than previously available.
13 Customer Care Center representatives have access to the OMS, giving them better
14 visibility into restoration efforts, including crew dispatching. On clear days, the system
15 automatically estimates restoration times. During storms, dispatchers enter estimated
16 restoration times once crews are assigned.

17 Customers have the option to contact the Customer Care Center and use the
18 automated phone system (“IVR”) to report their outage. Within this process, the caller is
19 given multiple options to narrow the reason or cause of the outage. Regardless of the
20 type of outage recorded, the system provides an estimated system restoration time in
21 hours and minutes. This is done as a courtesy, helping set a realistic and accurate
22 expectation for the caller. After the estimated restoration time is given, the caller hears
23 two additional offers asking: a) If you would like to be called back if your estimated

1 restoration time changes – press “1” and, b) We would like to call you back to confirm
2 your service is restored. To request a callback – press “1”. If for any reason the IVR is
3 unable to identify the caller or if there are multiple matches to the phone number entered,
4 the call is transferred to a live Customer Care Center representative.

5 Customers may also choose to report an outage by calling 888-LIGHT KC. This
6 call is handled by 21st Century providing a fully automated outage reporting system,
7 handling periods of extremely high call volume. Though this service is fully automated,
8 if for any reason the system is unable to identify the caller or if there are multiple
9 matches to the phone number entered, the call is transferred to a KCPL Customer Care
10 Center representative.

11 Lastly, both outage reporting systems utilize the OK-on-Arrival system. This
12 system receives reported outages from the systems described above and sends a signal
13 attempting to contact the service meter at the customer address. Two scenarios follow –
14 a) there is no response, indicating the outage report is legitimate, or b) the meter replies,
15 indicating there is indeed power to the meter and the outage may not be legitimate.
16 Legitimate outages are processed through KCPL dispatchers and crews are sent. In the
17 event the meter replies (indicating power is on at the meter), the phone system places an
18 automated call to the customer announcing (paraphrasing) “Power is currently on at your
19 meter, please check your circuit breaker or other electrical issues inside the house. If
20 your problem continues, please call KCPL.”

21 **Q: What is the Power Outage Application?**

22 A: The Power Outage Application (“POA”) runs on Cellnet’s system controller side, waiting
23 to read outage meter events. This application acts on real-time events and notifies the

1 utility as soon as possible. The OMS reads Cellnet's outage meter events every five
2 minutes. Once processed by the system, these events are either grouped under an existing
3 event or a new one is created. Dispatchers handle these calls as valid outages.

4 **Q: Are there other improvements that the Commission should be made aware of?**

5 A: Yes. Another Cellnet application, Restoration Verification Application ("RVA"), allows
6 KCPL to ping batches of meters to test for service. The OMS is then updated
7 automatically to close existing trouble tickets and flag accounts in CIS to signal that
8 service is restored.

9 **Q: Please describe the Outage Management System.**

10 A: KCPL recently upgraded its OMS, which allows KCPL to track outages, manage crews
11 more effectively and speed restoration. The system can predict the outage device and
12 location, which gives the restoration crew a head start on diagnosing the problem. It
13 automates the workflow and schedules the crews in the most efficient manner. Dynamic
14 management of the crew status and assignments is also possible. The system provides
15 paperless recording of trouble calls, assignments and resolution of outages, non-outages
16 and customer meets. CIS records are then updated so Customer Care Center
17 representatives and customers can see the status of the work. KCPL spent \$600,000 on
18 new UNIX servers, disk arrays, and the latest version of Centricity to increase the
19 capacity and stability of the system. The software was upgraded in 2006 and both
20 hardware and software will be upgraded in 2007.

21 **Q: Are there additional systems that are important in this area?**

22 A: An additional internal automation to rapidly assemble and communicate with KCPL
23 crews was implemented in 2006. The ARCOS system is used to call field personnel for

1 overtime assignments, storm restoration, etc. When activated, the system can call up to
2 three devices (home phone, pager, and cell phone) for individual employees or “blasted”
3 to all field personnel in the system within 80 seconds.

4 There are two additional efforts that also need to be mentioned. These procedural
5 items were in place for the 2002 ice storm but have been enhanced since that time. The
6 first item is the Wire Down Team. Public safety and increasing crew utilization
7 efficiency were the drivers for this effort. When a wire down call comes in, someone is
8 dispatched to the scene to assess the situation. If it is an unsafe condition, a qualified
9 person (a safety representative that is qualified to cut in the clear) takes appropriate
10 measures to correct the situation or guard the public until a crew arrives. If the situation
11 is not a public safety hazard, the team reports it as such and moves to the next call. This
12 team was expanded after the 2002 ice storm.

13 The second effort involves material used in the restoration process. Material lists
14 identifying primary (“A” Kits) and secondary (“B” Kits) were reviewed by Material
15 Services and selected linemen. They reviewed the particular items identified for the kits
16 and quantities available. Numerous changes were made and an additional list (“C” Kit)
17 was identified for the outlying districts. In addition, several “Conex” boxes were
18 purchased/donated and filled with material, specifically identified “for emergencies
19 only.” One box is filled with hand coils of wire and cable in predetermined lengths.
20 Each service center in the Kansas City metropolitan area has a Conex box filled with
21 material representing 5 “A” Kits and 5 “B” Kits. Any of the Conex boxes can be opened
22 on-site for use or loaded on a flat bed trailer and moved to a staging area or work
23 location.

1 **Q: Please discuss the communication of storm restoration efforts with local leaders.**

2 A: Communication of our storm restoration efforts is continually being refined. During a
3 storm, local leaders receive customized information to keep them informed of restoration
4 efforts. Company representatives contact designated individuals in each city in advance
5 of the storm to discuss anticipated conditions. As the storm progresses, personal status
6 updates continue, at a frequency selected by the city leader. If the outage is localized in a
7 particular area, or if a city requests, a liaison may be assigned to coordinate restoration
8 activities with key emergency operations personnel. During a major outage in Kansas
9 City, Missouri, two KCPL employees work at the City's EOC with remote access to the
10 Outage Management System and other critical KCPL systems. We are continually
11 working with the cities in our Kansas and Missouri service territories to identify ways to
12 better respond during an outage.

13 **Q: Have there been improvements in KCPL's vegetation management program?**

14 A: Yes. KCPL's vegetation management program has undergone many improvements since
15 the 2002 ice storm. The program is based on three major cornerstones: (i) a focus on
16 reliability, not just trimming trees; (ii) implementation of industry best practices; and
17 (iii) maintaining vendor competition. We have contracted a third-party vegetation
18 management consultant for pre-planning the line clearance work, on-site daily program
19 supervision, administration, and record-keeping, and tree-trimming contractor oversight.
20 Our overall line clearance strategy is centered on reliability-based trimming, where work
21 is planned based on risk and reliability performance of specific lines as opposed to the
22 same cycle for all lines. This focused approach on vegetation management has led to a
23 10% reduction in tree-caused customer minutes out (2003-2006 period versus the prior

1 four year period of 1999-2002). We have implemented a number of industry best
2 practices, including prescriptive work selection in advance of tree crews, proactive and
3 preventive scheduling rather than reactive maintenance, appropriate maintenance cycle
4 based on tree re-growth rates and clearance guidelines, brush control techniques and
5 herbicide application, and sourcing strategies. The sourcing strategies have led to vendor
6 competition and productivity improvements through best practices such as development
7 of comprehensive specifications, using multiple contractors with competitively bid
8 contracts, contractor evaluation and rating process, and performance-based contracts.

9 **Q: Please discuss the 2006 operational performance of KCPL's distribution business.**

10 A: KCPL's overall system reliability performance continued to be strong in 2006, and is
11 expected to remain in the top quartile of utilities in our benchmarking peer groups. In
12 2005, the Transmission & Distribution System Average Interruption Duration Index
13 (SAIDI) was 55.2 minutes, compared to a top quartile figure of 89.8 minutes. The source
14 of this data is the Electric Utility Cost Group ("EUCG") benchmarking study of which
15 KCPL ranked third out of thirty. EUCG is a global association of energy and electric
16 utility professionals who discuss current and emerging industry issues, share best
17 practices and exchange data for benchmarking purposes. In 2006, we finished with a
18 SAIDI of 63.8 minutes, a slight increase that was mainly due to a higher than average
19 number of Class II storms (ten in 2006 compared to historical average of four). The
20 above SAIDI data excludes major events and is based on the IEEE 1366 standard, a
21 method of distribution reliability reporting. A Class II storm for KCPL is defined as
22 5,000 to 15,000 customers out of power, and these storms are typically not classified as
23 major events per the IEEE 1366 standard.

1 **Q: What factors contribute to KCPL's recent reliability performance?**

2 A: Our reliability performance can be attributed to a number of factors. As mentioned
3 earlier in my testimony, we have focused our programs on improving reliability
4 performance for the customers who have experienced the most outages. These customers
5 are identified through our outage management system data. We analyze the cause and
6 trends of the outages, inspect the infrastructure serving them, then issue improvement
7 plans to mitigate the problems. Progress has been measured by tracking the number of
8 customers who have experienced three or more outages in a calendar year. In 2006, this
9 number was slightly less than 23,000 customers, compared to an average of about 50,000
10 for the previous two years. In addition, we have initiated several capital reliability
11 improvement programs, discussed earlier in my testimony, covering our Asset
12 Management Plan programs. KCPL has maintained engineering and design standards
13 (including Grade B construction), and material specifications, that also play a role in our
14 reliability performance by establishing an infrastructure that is built to withstand National
15 Electric Safety Code ("NESC") heavy loading conditions and provide contingencies to
16 quickly restore service when outages do occur. We have implemented a number of best
17 practices in our vegetation management program that have enabled us to maintain
18 reliability while controlling costs. Finally, our storm response processes, also discussed
19 earlier, contribute to our strong reliability performance by reducing the duration of
20 outages.

21 **Q: Do you have any comments regarding KCPL's performance in the safety area?**

22 A: Yes. While discussing KCPL's strong operational performance, it is important to
23 mention our performance in the area of safety. The Occupational Safety and Health

1 Administration (“OSHA”) Recordable Incidence Rate for the Customer Operations
2 division was 2.38 in 2006, and 2.05 for the entire Delivery division, both historically low
3 numbers. In addition, KCPL has been a top quartile performer in our benchmarking
4 studies with industry peers in overall safety performance, which includes evaluation in
5 four categories: OSHA Recordable Incident Rate, Lost Time Incident Rate, Lost Time
6 Severity Rate, and Total Vehicle Incident Rate.

7 **Q: What are KCPL’s goals for safety-related improvements in the future?**

8 A: Safety has always been a priority to KCPL, and will continue as we strive for our stated
9 goal of attaining a World Class Safety culture by 2008, based on annual evaluations by
10 DuPont Safety Resources. We have created a number of cross functional teams with
11 management and bargaining unit employees to develop and modify safety policies,
12 procedures, and training, and establish open communications to learn from our near
13 misses and accidents as we drive toward a goal of a zero accident workplace.

14 **Q: Does that conclude your testimony?**

15 A: Yes, it does.

