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BEFORE THE STATE CORPORATION COMMISSION OF THE STATE OF KANSAS

STATE CORPORATION COMMISSION
JAN 31 2006
Susan Talbott
Docket Room

DIRECT TESTIMONY OF

JOHN R. MARSHALL

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 BEGIN THE IMPLEMENTATION OF ITS REGULATORY PLAN

DOCKET NO. 06-KCPE-828-RTS

Q: Please state your name and business address.

A: My name is John R. Marshall. My business address is 1201 Walnut, Kansas City, Missouri 64106-2124.

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

A: I am employed by Kansas City Power & Light Company ("KCPL") as Senior Vice President, Delivery Division.

Q: What are your responsibilities?

A: My responsibilities include overseeing Customer Operations, Transmission Services, Information Technology and Energy Solutions.

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

A: I graduated from the University of Arkansas at Fayetteville in 1976 with a Bachelor of Science degree in Electrical Engineering. Further education from 1990 through 1997 includes management development at Columbia University, The Aspen Institute, The Wharton School, and Harvard Business School Advanced Management Program. I began employment at KCPL in May 2005. Prior to joining KCPL, I was a Senior Executive Resource for GFI Energy Ventures LLC; Chairman of InfraSource Services Inc.; Chairman of SPL World Group Inc.; and a Director of Power Measurement Holdings, Inc. From 2001-2002, I was Senior Vice President of Customer Service at the Tennessee Valley Authority, and from 1999-2001, I served as President of Duquesne Light Company, Pittsburgh, Pennsylvania. Prior to joining Duquesne Light, I was Vice President of Entergy Corporation and served in various nuclear and fossil generation, transmission, distribution, customer service, information services and retail operations positions from 1976 through 1999.

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

A: Yes, I have testified in proceedings before the Texas Public Utility Commission.

Q: What is the purpose of your testimony?

A: The purpose of my testimony is to summarize the provisions of the Stipulation and Agreement in Docket No. 04-KCPE-1025-GIE ("Regulatory Plan Stipulation and Agreement") that pertain to KCPL's Asset Management Plan (or the "Plan") and to provide an update explaining what steps KCPL has taken thus far with respect to the Plan. I will discuss the goals and objectives of the Asset Management Plan, including distribution and transmission investments and distribution automation projects. I will also discuss some of the specific elements of the Plan, and the capital budget requirements to support those programs. Additionally, my testimony discusses the Delivery Business Plan and outlines the specific strategies on which we will focus to drive our business forward.

Q: Was KCPL's Asset Management Plan addressed in the Regulatory Plan Stipulation and Agreement?

A: Yes, most specifically in Appendix A-1.

Q: Describe the purpose, goals, and benefits of the Asset Management Plan?

A: Asset Management at KCPL is the structured and disciplined process to develop the program of work for system expansion, system improvements, and maintenance (both corrective and preventive). Our objective is to provide a scope of work to achieve three key strategic goals at the most optimal cost: (i) Mitigate risks of major outage events to our customers; (ii) Minimize the System Average Interruption Duration Index ("SAIDI") as it relates to the duration and frequency of outages to our customers; and (iii) Minimize the number of customers with multiple interruptions. In addition to the strategic goals above, KCPL must manage its transmission and substation assets to insure compliance with reliability standards and criteria at the national (*i.e.*, National Energy Reliability Council ("NERC") and Federal Energy Regulatory Commission ("FERC")) and regional (*i.e.*, Southwest Power Pool ("SPP")) levels. Transmission and substation asset management is an important component in meeting these operating requirements.

Q: What are the specific elements of the Asset Management Plan?

A: Our practice at KCPL has historically been to manage identified risks, maintain system capacity levels to meet forecasted growth, and repair facilities as they reach the end of their useful life. This has certain inherent risk because the system is aging and we have known pockets of poor performing facilities. We expect from experiences of other utilities that failure rates of certain components will increase over time.

As part of our Strategic Intent, we have developed plans to address this issue that require additional funds. This Plan allocates resources to address known issues on the system that either present the highest risk of a major system outage or impact customers through multiple outages over relatively short spans of time.

The Plan includes a number of projects and programs. We will conduct a system-wide condition assessment and inventory of the overhead distribution system. We will implement projects to address components that are nearing the end of their useful life and are experiencing high failure rates on both the transmission and distribution systems. Customer outage data will be used to develop programs targeted at improving reliability for the customers that experience the highest number of outages.

We will utilize industry experience along with our inventory and performance data to conduct studies that will lead to targeted asset renewal programs. Maintenance practices will be refined to extend the useful life of existing facilities while optimizing costs. Implementation of automation programs will enable automated fault detection, isolation, and reconfiguration of the distribution network to improve reliability and minimize outage duration. Additional automation programs will automate substation equipment to reduce momentary outages and monitor key components of our highly reliable but aging downtown and Plaza area underground secondary networks.

By implementing this Plan, we can expect to manage asset replacement schedules and our aging infrastructure. We will also optimize system maintenance programs, improve system design for better long-term performance, and optimize strategic capital and operation and maintenance ("O&M") investments while maintaining Tier 1 reliability performance. Tier 1 is defined as performance in the top quartile (25%) of electric utility companies in peer benchmarking groups.

Q: Does the current anticipated timing of capital requirements differ from the timing set forth in the Regulatory Plan Stipulation and Agreement?

A: Yes, it does.

Q: Why has the anticipated timing changed?

A: The Distribution Automation initiatives for 2005 could not be implemented in 2005 because the Regulatory Plan Stipulation and Agreement was approved late in 2005. In addition, money for some years was moved between programs KA50 and KA52 (defined below) per year and between years per Schedule JRM-1. However, the respective totals for KA50 and KA52 did not change for the sum of the entire period, nor did the total spent on all projects change.

Q: What programs are to be funded under the Asset Management Plan?

A: KCPL has identified three broad programs that will be funded under the Asset Management Plan and have assigned specific budget items to each of these programs. These programs are (i) the "KA50" - Distribution Asset Management Strategic Intent Program; (ii) the "KA52" - Distribution Automation Strategic Intent Program; and (iii) the "BP01" - Transmission and Substations Asset Management Strategic Intent Program. The proposed funding break down for each program is shown in the attached Schedule JRM-1.

Q: What programs are to be funded under the Distribution Asset Management Strategic Intent Program?

A: KCPL has identified three programs that will be funded under the Distribution Asset Management Strategic Intent Program: (i) the High Outage Count Customer Program; (ii) the Underground Renewal Programs; and (iii) the Overhead Distribution System Inventory and Condition Assessment Programs. A detailed description of each of these programs follows:

High Outage Count Customer Program – In addition to providing its customers Tier 1 reliability, KCPL is committed to achieving Tier 1 customer satisfaction. To measure this, our Marketing Research group conducts and publishes annual surveys. One of the conclusions of this research is that customer satisfaction begins to deteriorate as a customer experiences multiple interruptions within recent memory, for example, after two to three interruptions in one year. A tool used to measure this concept is CEMIn, which is the percentage of Customers Experiencing Multiple Interruptions of 'n' or more per year. Because of its customer satisfaction research, KCPL has included as one of its three strategic reliability goals the minimization of multiple customer interruptions, as measured by CEMIn. Given that the threshold before deterioration of customer satisfaction appears to be three outages per year, the appropriate indicator at present is CEMI4. After the program has had some success, one might expect to be able to address the level of CEMI3.

KCPL's program for addressing CEMI4 is directed at the worst-performing laterals and devices. At other utilities such programs are often termed "worst device" or "repeat outage" programs because they focus on the numbered fuse or interrupting device (which could be a recloser) that has multiple interruptions over a given period. At KCPL, this program is called the CEMI program, because repeat outages on laterals are the most common cause of customers experiencing multiple outages.

Note that the other programs listed above mainly impact the other two key reliability goals: avoiding the risk of major outages and minimizing SAIDI. In addition, the feeder-oriented programs will tend to reduce not only SAIDI but also CEMI by reducing mainline outages on those feeders that may have multiple interruptions to the whole feeder. The lateral-oriented programs described here address the remaining source of multiple interruptions: repetitive outages on devices below the feeder mainline level. The two key programs in this regard are the CEMI program, aimed mainly at overhead taps and transformers, and the Underground Residential Distribution ("URD") Cable programs, aimed at underground residential distribution taps. The URD programs are discussed in the next section.

For the High Outage Count Program, an exception report is developed that flags for attention those devices with multiple outages. An analysis is done based on known data about the number and type of outages, number of customers affected, and the length of the lateral behind the device or, if the device is a transformer or the length of secondary wire, if any. Based on this analysis a preliminary ranking is done to suggest which devices should be targeted for remediation based on the overall value, *i.e.*, the number of repetitive customer interruptions avoided per dollar spent. The attached Schedule JRM-2 illustrates the distribution of devices by number of outages. The data shown are for 2004; this will vary from year to year. It includes all outages, *i.e.*, it does not exclude storm outages.

The distribution engineer studies the map, outage history, and system condition, including a site visit, to determine the best program of remediation for the lateral or transformer behind that device, using the guidelines assumed in the original analysis, but with flexibility for what is discovered on the site visit and detailed analysis. The remediation may be a combination of tree trimming, animal guards, lightning arresters, or rebuilt structures (poles, crossarms, insulators). Fuse coordination may be an issue, or slack spans. For underground laterals, the best solution is usually replacement or injection of the cable (see URD cable replacement below). Based on the situation, the cost of the remediation can vary widely; from as little as a few hundred dollars for an animal guard or fuse coordination, to a few thousand dollars for a single pole replacement or a mile of tree trimming, to over $100,000 to completely rebuild a portion of line. KCPL's Asset Management team has performed studies and investigations to determine the most efficient way to allocate the available budget resources in order to address those customers experiencing problems, in particular those on the High Outage Count Customers list. KCPL has worked to allocate the available resources to address the High Outage Count Customer issues and will accomplish this task in such a way as to maximize the benefits to our customers given the budget limitations. The work has been prioritized with respect to the number and duration of outages experienced as well as the number of customers affected. Another factor in determining priority of work is number of complaints received in a geographic area regarding outages. The prioritization was done based upon assumptions for the amount of work required to address the problems. As more detailed plans and cost estimates are developed, the prioritization will be revisited and changes will likely be made to the prioritization lists.

Underground Renewal Programs – Underground feeder and URD cable represent an important part of the KCPL distribution system. Significant portions of the underground primary cable are facing end-of-life issues, most notably the older Paper-Insulated, Lead-Covered ("PILC") feeder cable in the older parts of the system and the pre-1983 direct buried URD on our underground laterals. KCPL has developed Underground Renewal Programs to address these issues utilizing a portion of the Distribution Asset Management Strategic Intent funding.

Underground Feeder Cable Replacement Program

Underground feeder cable is a critical component on the KCPL distribution system, since a problem on the feeder cable will affect all customers served by the circuit. In 2004, KCPL experienced 76 feeder cable failures that caused approximately 3,286,000 customer minutes out ("CMO"). On a system basis, feeder cable outages comprised approximately 0.74% of all outages but contributed approximately 10.60% of all non-storm related CMO's. These numbers show the high impact that feeder cable failures can have on system reliability and the importance in reducing these outages and their effects. KCPL has performed an advanced feeder cable study to investigate all feeder cable failures since 1993 and identified correlations between the outages and various feeder cable characteristics and field conditions. This study investigated feeder cable failures on a geographic basis and mapped out feeder cable failures across the system and took into consideration the type, age, and design of feeder cable that failed, where available. The indicators evaluated include age of cable, size of duct bank (4-, 6-, 8-, 10-, or 12-way duct bank), diameter of the ducts, length of the duct bank, construction materials used in the duct bank, loading of the cable, expected temperatures of the cable due to loading, location of the cable in the duct bank, cause of failure (presence of water in the manhole, etc.), and geographic location by substation. Several major correlations between failures and the various indicators were developed as a result of this study. In addition to the correlations between failures and the various indicators, the study was also able to identify several areas where a pattern of cable failures could be identified.

One action item from this study is that the Distribution Engineering and Underground groups will determine the extent of the problems and develop possible solutions to investigate these areas further. In these areas, as well as on a system wide basis, this information may be used to drive a proactive feeder cable replacement program if strong enough correlations are found to exist. The current practice at KCPL is to reactively replace feeder cable as it fails. Until strong correlations can be determined between failures and measurable indicators, the reactive replacement program will remain in place. However, if strong correlations can be determined and accurately applied to installed cable, a proactive feeder cable program may be implemented.

Proactive URD Cable Replacement Program

KCPL has experienced reliability issues with the URD cable system since the late 1980's and early 1990's. Since the issues with URD surfaced, KCPL has had several programs in place to address the issues, some proactively and some reactively. Today's guidelines and programs are reactive in nature and are designed around the second-failure criteria and the prioritization guidelines for URD cable replacements. A proactive URD cable replacement program was implemented in 1991 to increase URD reliability. This program's focus was to research the adjacent cables in a loop of a failed URD cable and to replace all the cables of the same vintage in the loop if the failure rate would warrant it. This guideline proved to be a proactive method to replace aging cables. This guideline was ceased in 1995. KCPL's plan is to initiate a similar program to proactively address URD cable failures before they occur. The guidelines for the proactive replacement program have been developed and target replacements have been identified. This program takes into consideration the type, age, design, number of failures experienced, number of cable sections with failures on a given lateral, and the number of customers affected for the URD cable. Using the URD cable-tagging method as a basis for installation data, KCPL can accurately estimate the age, design, and possibly manufacturer of trended problem cables and identify areas and sections of URD cable that have similar characteristics as the failed cables, thereby providing a means to perform intelligently targeted proactive cable replacement before failure.

URD Cable Injection Program

KCPL recently investigated the feasibility of initiating an injection program for stranded pre-1983 URD cables. The injection process involves a pressure injection of an insulating solution through the stranded conductors so as to fill "treeing" voids in the existing insulation with the intention of restoring the insulation to near new condition and reducing cable failures. This process can only be performed on stranded conductor cables and only if certain characteristics are present on any splices on the cable. The injection process is estimated to cost $10/foot versus approximately $28/foot for new URD cable in duct. KCPL has approximately 3,300 sections of URD cable that would qualify for the cable injection program. KCPL has initiated a cable injection program targeting high outage URD areas.

Overhead Distribution System Inventory Pilot Project

KCPL has identified the need to conduct a distribution system inventory and asset assessment as a key step in enhancing an integrated Asset Management Plan. The extent of the initial pilot project is for the inventory and system assessment on approximately 5% of the overhead electric distribution system. Work on the pilot system inventory commenced in mid-May, 2005 and was performed by INTEC Services, Inc. using a software tool developed for KCPL by EDM, Inc. The pilot project data collection was completed on December 16, 2005. Now that the data collection is complete for the pilot area, Asset Management and Engineering will conduct targeted reliability studies focused on reducing outage minutes caused by problem or failure prone equipment, wildlife, lightning, overhead wire, and inadequate line design and construction. These studies will be performed throughout 2006. It is estimated that the targeted reliability studies will produce savings in CMO of 35-75% in the areas listed above. An additional benefit would be increased customer satisfaction due to reduced outages.

The timeline for the implementation of the Overhead Distribution System Inventory Project is as follows:

- Initial Pilot Inventory Program (5% of the KCPL System) – Completed December, 2005;
- Conduct targeted reliability studies using the Pilot Inventory data and develop work program based upon findings – January 2006 thru December 2006;
- Fine tune inventory program software and data collection requirements for Full System Condition Assessment and Inventory – May 2006 thru September 2006;
- Full System Condition Assessment and Inventory – February 2007 thru December 2008; and

- Conduct targeted reliability studies for the full KCPL system – 2007 thru 2009.

Q: What programs are to be funded under the Transmission and Substations Asset Management Strategic Intent Program?

A: KCPL has identified various programs that will be funded under the Transmission Asset Management Strategic Intent Program. These programs generally fall into transmission-related and substation-related projects. The projects that make up these programs are discussed in more detail below.

Transmission Pole, Arm, Shield Wire and Switch Replacement Program - KCPL's transmission system consists of 1,372 miles of 345 kV, 161 kV and 69 kV lines. Most of these lines were predominantly constructed on wood poles with wood crossarms. Approximately 62% of the line miles were constructed more than 25 years ago with some dating back to the 1940's. We have been replacing poles and arms as they deteriorate but inspections are showing that many of the poles and arms are reaching end of life and are starting to deteriorate at a faster rate than in the past. The transmission pole and arm replacement program will accelerate the replacement of the worst poles and arms on the transmission system improving line reliability and safety.

We have identified several lines where the galvanized steel shield wire is suffering increased failures due to vibrational fatigue, lightning damage and corrosion. Several transmission switches have also been identified as unreliable. Failures of these items have caused outages on the transmission system and an increase in customer outage minutes. Selected sections of shield wire and several transmission switches will be replaced under this program.

Substation Programs – The substation programs have three major goals (i) mitigate risks of major outage events to our customers; (ii) minimize the SAIDI and (iii) replace obsolete equipment. Some of the specific projects are:

1) **Overhaul 12kV Breakers** - Distribution breakers throughout the system have reached the end of their life cycle. The estimated life of this type of breaker is 20 years. Currently, KCPL has approximately 180 General Electric distribution breakers with an average age of 37 years. These breakers are decreasing in reliability and causing more unplanned outages and maintenance cost. As these breakers become less reliable, safety and customer outages become more of an issue with faults not being interrupted as they should. These breakers will undergo a complete rebuild with replacement of worn bearing and linkages, refurbishment or replacement of trip and closing mechanisms and arc shoots. When rebuilt these breakers should have as good or better service life expectations than the original.
2) **Replace PSD Breakers** - KCPL currently has 36 McGraw Edison type PSD breakers left on its system. These breakers are hydraulically operated and have a history of issues that lead to decreased reliability and increased maintenance cost. As these breakers become less reliable, safety and customer outages become more of an issue with faults not interrupted as they should. For this style of breaker it is economical to completely replace the breaker with a new modern vacuum breaker.
3) **SF6 Breaker Change-Out** – We have identified two 345kV SF6 (sulfur-hexafluoride) breakers that continue to leak and repairs have been unsuccessful. The cost of rebuilding is nearly the cost of a new breaker. Installing new breakers will

eliminate the need to constantly replace the SF6 gas, which has been identified as a greenhouse gas, and improve system reliability.

4) **Replace 34 & 69 kV Oil Circuit Breakers -** Many 34 kV and 69 kV Oil Circuit breakers are over 50 years old. Parts are scarce or unavailable and the breakers are requiring frequent maintenance to keep them performing reliably. This program will replace some of the worst performing breakers.

5) **Replace Substation Transmission Disconnect Switches -** Many transmission disconnect switches in KCPL's substations are 40 or more years old. The failure rate on these switches has been increasing in recent years. Switches are critical items in the transmission system and high reliability is required to operate and maintain the system. This program will replace the worst performing switches.

6) **Remote Terminal Unit Replacement -** Remote terminal units ("RTUs") are part of every substation in the Kansas City metropolitan area. The RTU informs our control center of the system's condition, including voltage, line loading, breaker and alarm status. Also, the RTU allows for remote operation of substation equipment. We have obsolete RTU's (27% of all our RTU's), and spare parts are no longer available for these units. Replacement of these RTU's will provide spare parts for the remaining units, and provide additional functionality where new units are installed.

Q: What programs are to be funded under the Distribution Automation Strategic Intent Program?

A: The programs that are to be funded include: (i) the network automation project; (ii) the 50 CO relay automation project; (iii) the 34 kV switching device automation and fault indication project; (iv) the power quality monitor project for rural circuits; (v) the

"Integrated Circuit of the Future" project; and (vi) the dynamic voltage control project. These programs will enable automated fault detection, isolation, and reconfiguration of the distribution network to improve reliability and minimize outage duration. In addition, service quality and power quality will be improved.

Q: Describe the underground networks on KCPL's system?

A: KCPL has three underground grid network systems with one in the Country Club Plaza and two in the downtown area. In addition, there are 24 local networks (spot networks), so-called because they are small network systems comprised of two, three, or four network transformers and protectors configured together. These underground network systems have been in service for several decades and have been successful and reliable. However, the existing system does not have provisions to monitor or control this automatic switching activity.

Q: Describe KCPL's Network Automation Project.

A: This project provides the rollout of new communicating network protector relays, sensors, and radios to allow operators to obtain system status of the switches and will report abnormal conditions automatically. Monitoring this automatic switching and health of the system is important to ensure there are no overloads during abnormal conditions.

In addition, the project includes the installation of voltage monitors at strategic locations on the networks. These monitors will report voltage problems to allow KCPL to resolve these proactively before customers experience difficulties. When a power outage occurs, the monitors will immediately report this to distribution system operators. This project will also enhance KCPL worker safety by allowing them to remotely perform any manual switching. This will allow the switching to be done without sending the employee into the vault. Safety issues for network protector switching became heightened in 2004 when two underground workers escaped injury as they quickly exited a vault following a fault inside a network protector during switching. The project also is attractive because of hopes to reduce O&M costs related to these grid networks. There have been a significant number of automatic switching events on certain network protectors. This project will allow KCPL to monitor the switching events to determine the cause and effect of these network protectors experiencing excessive switching. Before this project, underground network technicians simply knew there were certain network protectors that have experienced a high number of operations over a yearly cycle. Crews or engineers did not have a way to monitor these and did not know when or what was causing this excessive switching. The excessive switching has caused components to fail and prematurely reach the end of the life cycle. This project will allow underground network technicians and engineers to know when the protectors have cycled and provide clues to lead to causes of this excessive switching.

Early evidence from the network protectors in the Plaza network suggest the following issues are contributing to the excessive switching:

- Changes in impedance due to reconfiguration of substation transformers;
- Changes in impedance due to reconfiguration of primary circuitry; and
- Difference in voltage from various substation buses.

The project includes development of web-based software to allow dispatchers and engineers to access network operating data more efficiently and to track radio reliability.

Software developments also include provisions to provide the data to be brought through the outage management system ("OMS") and energy management system ("EMS"). The project includes reviewing and changing the settings on the network protectors to reduce the number of their operations. Also included in the project is a review and refinement of system operating procedures to ensure conditions are satisfactory to reduce the likelihood of conditions that cause excessive network protector operations. Finally, the project includes development of web-based software to allow dispatchers and engineers to access network data more efficiently and to track radio reliability. Software development also includes provisions to bring data back through the EMS and OMS systems. A radio upgrade from analog to digital is part of the project. The communication supplier has recently developed the digital solution and KCPL has ordered a few radios for testing. KCPL hopes to convert their existing network automation system from analog communications to digital GPRS beginning in 2006. This will include sending the existing analog radios back to the supplier for exchange to the new technology that can be deployed thereafter.

Q: Please summarize the benefits of KCPL's Network Automation Project?

A: Here is a list of benefits from this project:

- Increased safety for KCPL employees by facilitating remote control of network protector relays;
- Improved efficiency of quarterly network protector test;
- Annual savings from life extension of spot network transformers;
- Annual savings for summer load readings;
- Avoided network protector patrols due to network feeder outages;

- Avoided equipment failure;
- Avoided annual replacement costs; and
- Deferred maintenance by extending downtown grid repair schedule.

An additional benefit from this project is that technical workshops are being provided to our underground crews, engineers, and dispatchers regarding network systems. The first three-day training session has already been completed. A second three-day session will be scheduled in 2006.

Q: Describe the 50 CO relay automation project.

A: Typically, automated substation overcurrent relays are now installed on any newly built KCPL substation in the metropolitan area. This automation provides a way for KCPL operators to remotely monitor and control a relay scheme. The hardware is wired to effect the relaying configuration for all circuits on a given bus where this feature is installed. The relay protection scheme allows the circuit breaker to open quickly during a fault with the hopes that the fault may be temporary and will clear when the breaker automatically closes. This protection scheme, called "Quick-Trip", allows enabling or disabling the overcurrent relay (50 CO) by remote control.

During storms, there are many temporary faults on utility distribution circuits. An example of a cause of a temporary fault would be a lightning strike on overhead lines or a tree limb that comes into contact with these lines. If the fault is temporary, this relay protection design allows the breaker to open temporarily before the fuse on a lateral line blows. When this occurs, the breaker briefly opens to allow time for the temporary fault to clear. During this brief time period (less than a second), all customers on the affected circuit experience a power interruption. Then, when the circuit breaker closes in (reclose), service is restored to the customers on the entire circuit without any sustained outages.

This relay has worked well during storms, and has prevented many sustained outages by allowing momentary outages as a trade-off to sustained outages. However, KCPL has learned this relay feature causes our customers problems during a typical (fair weather) day.

On a typical day, there are less temporary faults. When a temporary fault on a lateral occurs on a typical day, studies performed by KCPL show that half of the time the lateral fuse will blow anyway since the fault is not always temporary. This project will allow KCPL to retrofit existing substations that are not currently equipped with this relay automation. KCPL operators will then be able to remotely control and monitor this relay feature and ensure the "Quick Trip" is turned off during a typical day.

Preliminary studies show that momentary power interruptions will be reduced by 40% to 50% for each switchgear that is automated. This feature will especially help commercial and industrial customers. The rollout of the project for the metropolitan area will take six years.

Q: Please summarize the benefits of the 50 CO relay automation project.

A: The benefits of this project are as follows:

- Improve customer satisfaction by reducing momentary power interruptions;
- Allows way to reduce sustained customer minutes out during a storm by ensuring "Quick-Trip" feature is enabled during a storm;
- Allows remote control of "Quick-Trip" relays; and

- Provides a way to monitor the "Quick-Trip" status (enabled or disabled) to ensure proper status is provided.

Q: Describe the 34-kV switching device automation and fault indication project.

A: KCPL has 34-kV sub-transmission systems in the East and South Districts. These systems help deliver power to cities and substations that transform the power to distribution level voltages. These 34-kV lines are strategic for this power delivery. These lines can be lengthy and in some cases, the circuit may be up to dozens of miles long. This project will provide a way for KCPL system operators to remotely control these switches and obtain operating information from sensors installed at these switches. This will allow KCPL operators to quickly isolate problems and perform remote switching to re-route the power.

Because the 34-kV feeders are much longer than metropolitan feeders and remotely located from service centers, the performance numbers are not as good on these 34-kV circuits as metropolitan feeders. Also, because the 34-kV feeders serve various 12-kV substations and municipalities, the number of customers affected is considerable.

The East and South Districts have also reported operating problems regarding some of the existing manual 34-kV switches. These problems are due to a combination of the age of the switches plus difficulties and O&M costs needed to keep these manual switches serviced and calibrated due to the various mechanical parts.

This project calls for the installation of 34-kV remote controlled switching devices equipped with cost-effective Telemetric RTMs for long-haul communication back to the KCPL operating center. Telemetric will initially provide a website to facilitate monitoring and control of these remote switching devices. The longer-term solution is to integrate this solution into EMS and later, the OMS applications used by Distribution System Operators.

In addition, the distribution automation team will look at the installation of 34-kV radio controlled faulted circuit indicators on the 34-kV system in 2007. These devices will report when they have metered current high enough to be registered as a fault. This will allow dispatchers and field personnel to locate faulted circuit sections much more quickly than traditional manual patrols.

Q: Please summarize the benefits of the 34-kV switching device automation and fault indication project.

A: Itemized benefits include:

- Increased safety and efficiency for switching 34-kV system;
- Reduction in switching costs due to remote switching capabilities;
- Increased customer satisfaction;
- Use of switch sensors for operating information;
- Use of switch sensors for engineering models and studies; and
- Reduction in customer minutes out per event.

Q: Describe the Power Quality Monitor Project for Rural Circuits.

KCPL has many distribution level substations in our East and South Districts that are served by the 34-kV sub-transmission system. Each substation has transformers, voltage regulators, and circuit protectors and several distribution circuits. Currently, KCPL does not have any provisions to remotely monitor the voltage levels at these substations, or to automatically report outages due to any equipment failure or malfunction in the substations or circuits.

This project provides for the installation of a radio-based voltage monitor to automatically report voltage anomalies and power outages. This will allow KCPL to proactively respond to our customers' service quality needs. Engineers will perform a study to determine if this equipment could best be used in the substation, on the distribution lines, or even a combination of both.

KCPL will work with the supplier to add a voltage imbalance feature to the power quality monitor. An alarm will be automatically generated when the voltage difference between the three phases exceeds a preset value.

The project will also include a review of ways to bring back rural substation electrical data from substation or line regulators and reclosers. The project will also include the installation of faulted circuit indicators for use on the 15-kV circuits in the rural areas. The faulted circuit indicator will automatically alarm when the metered current exceeds a preset value.

A pilot program will begin in 2006 for radio-controlled voltage monitor installations as a part of the "Integrated Circuit of the Future" project. Based on a successful pilot project, KCPL will consider a rollout of this technology to remaining installations in the rural substations that do not currently have any EMS support. This project will include integration of this data into the EMS and OMS platforms at KCPL. The installation of rural substation regulators, and faulted circuit indicators will begin in 2007.

Q: What are the benefits of the Power Quality monitors of rural circuits?

A: Itemized benefits include:

- Proactive notification of power outages;
- Proactive notification of voltage sags or swells;

- Proactive monitoring for voltage balance;
- Monitor electrical operating characteristics of rural substations;
- Monitor operating status and performance of substation regulators;
- Monitor operating status and performance of line equipment; and
- Monitor and report fault conditions on strategic rural feeders.

Q: Describe the "Integrated Circuit of the Future" Project.

A: KCPL believes there are opportunities to progressively use technology and engineering applications to achieve customer satisfaction, operating and performance objectives and reduce O&M expenses.

KCPL will choose two distribution circuits that connect to each other to demonstrate this technology. The KCPL distribution automation team has a plan in place to begin this study in 2006. However, this endeavor will be progressive and "cutting edge." In addition, the project includes initiatives to integrate various aspects of distribution automation and information technology over a period of years.

We anticipate this project will be dynamic as we learn which applications serve as integrated building blocks to achieve our overall objectives as initially mentioned.

The plans for 2006 include the installation of various radio-controlled switching devices to allow remote control capability to dispatchers. It is important to allow our lineman, dispatchers, and engineers to become comfortable with the operating and safety aspects of the new radio-controlled switching devices. However, we will be constantly looking at ways to augment this application by additional automated processes such as automatic sectionalizing, automatic reconfiguration, or system integration.

In addition, KCPL will install fault detectors and load loggers at strategic points of these two feeders to allow dispatchers to quickly pinpoint circuit anomalies and loading characteristics.

KCPL will install radio-controlled voltage monitors at various points of the circuits to monitor voltage, voltage imbalance, and power outages. These monitors may be installed on strategic equipment on the KCPL feeder or at the customer point of use.

In addition, radio-controlled automation equipment will be installed on capacitor banks with these two circuits. The radio-controlled equipment will bring back vital electrical operating information plus the health and operating status of the capacitor bank.

Metering equipment will be installed on these circuits to allow monitoring of electrical characteristics of the customer usage. This will be strategically valuable because the two circuits chosen include customers targeted for the air-conditioning Demand Side Management ("DSM") project, also a part of the KCPL Strategic Intent initiative. The metering will allow engineers to aggregate the effects of electrical usage at a higher level than the customer site and will provide valuable information regarding the effectiveness of this DSM project. The overall project management of the DSM air conditioning project will be covered under another Strategic Intent program.

This project will demonstrate how new technology can be used to integrate these applications with Distribution Automation to improve service reliability and meet our customers' needs in the future.

The final objective of the 2006 project is to install automation in the substation to allow KCPL to remotely and automatically regulate voltage through radio-controlled electronic voltage regulator controls. This technology is called Dynamic Voltage Control

("DVC")". KCPL distribution engineers will perform computer modeling of these two circuits. The computer model will identify the customers that may see the lowest voltage on the distribution circuits. Data from the voltage monitors can be used to validate the circuit computer model. Furthermore, the voltage monitors will provide a real-time solution to monitor voltage integrity to specific customers. KCPL hopes the validated computer model will allow ourengineers to predict system operating conditions that will ensure proper operating voltages for all customers on the given circuits.

This project calls for an engineering study and a demonstration of this vision on a KCPL circuit. This project will integrate progressive utility applications such as automatic circuit reconfiguration, sensors to detect faults and voltage problems. In addition, the project calls for ways to monitor the effects of various DSM programs and implement progressive conservation techniques by controlling system voltage.

Q: What are the benefits of the "Integrated Circuit of the Future" Project?

A: Itemized benefits include:

- Improved customer satisfaction;
- Reduction in restoration times following an outage;
- Provides sensors that will bring data to help with sensitivity analysis for DSM studies;
- Provides pilot study for dynamic voltage control; and
- Future functionality will be studied in 2007-2009 with regard to the following topics:
    - EMS capability to support circuit of the future;
    - OMS capability to support circuit of the future;
    - Ways to further leverage the CellNet system;

- Seamless transfer of data independent of protocol issues;
- Installation of Pi Historian data warehouse; and
- Further ways to leverage distribution to meet customer needs and reduce operating expenses.

Future rollouts of all or any portion of this "Integrated Circuit of the Future" study will be based on the results of the 2006 project. One of these projects is the Dynamic Voltage Control Project.

Q: Further Describe the "Dynamic Voltage Control Project".

A: If the trial installation of this technology works successfully, KCPL will deploy additional substations with this capability. Load tap changers of KCPL metropolitan substations are controlled by a single electronic regulating control that affects all three phases. Settings to the voltage control will be monitored and adjusted using a radio interface. This will further ensure proper voltage is supplied from the substation. In addition, radio-controlled voltage monitors could be installed on some circuits served from this setup. The installation of these voltage monitors would be targeted to a few strategic installations for the circuits served from the DVC source. These select monitors would be installed at the secondary service to the targeted customer locations.

Q: How secure is this proposed plan based on KCPL's past experience with distribution automation?

A: KCPL's Distribution Automation initiatives have been very dynamic and changeable through their development process over the past ten years. However, once the benefits, costs, and technology options have been studied, defined, tested, and refined, KCPL has adhered to a consistent and successful implementation strategy. KCPL looks forward to moving ahead with the proposed projects with enthusiasm, but anticipates the results of these studies and the resulting application experience will bring about unexpected future changes in response to future findings. These unexpected findings also include added unforeseen benefits.

Q: **What has KCPL done to date concerning the implementation of its Asset Management Plan?**

A: The Asset Management Strategic Intent program funded one project in 2005, the Overhead System Inventory and Condition Assessment Pilot project. The KCPL Asset Management team has identified the need to conduct a distribution system inventory and asset assessment as a key step in enhancing an integrated asset management plan. The extent of the initial pilot project is for the inventory and system assessment on approximately 5% of the overhead electric distribution system. Once the data collection is complete, Asset Management and Engineering will conduct targeted reliability studies focused on reducing outage minutes caused by problem or failure prone equipment, wildlife, lightning, overhead wire, and inadequate line design and construction. These studies will be completed in the remaining months of 2005 and throughout 2006. It is estimated that the targeted reliability studies, which will be performed once the distribution system inventory and asset assessment is completed, will produce savings in CMO of 35-75% in the areas listed above. These CMO reductions are estimated to result in savings of approximately $1,000,000 annually once the entire KCPL system is inventoried and assessed. An additional benefit would be increased customer satisfaction due to reduced outages. After a review of results of this pilot project and the resulting reliability improvement projects, Asset Management will evaluate whether a second similar project will be authorized for completing an inventory and asset assessment on the remaining 95% of the KCPL overhead distribution system.

During the year 2005 the following progress was achieved for this project.

1) KCPL contracted with EDM to develop a System Inventory/Condition Assessment tool (ALPS) for use in collecting data for this project. Development of this tool was completed by the end of May 2005.
2) KCPL procured the data collection tools required for this project. These tools included a mobile computing system and bar-code scanners.
3) KCPL hired a Quality Assurance/Quality Control ("QA/QC") contractor to ensure that the accuracy of the data collected meets KCPL's requirements. The QA/QC contractor was hired on March 1, 2005.
4) KCPL awarded INTEC, Inc. the data collection contract in early May 2005. The contract is structured for payment on a "per item" basis with payment made upon delivery and acceptance of the data. Ramp-up for the project and training of the data collection personnel was on-going through June 30, 2005. As of December 31, 2005, INTEC had completed the data collection on all 27 circuits and has submitted them to KCPL. KCPL has reviewed the circuits and has accepted the data submissions for all 27 circuits. A follow-up "After Action" report was developed to evaluate the inventory process and make recommendations for the full inventory to follow.
5) The KCPL Information Technology group has contracted with Intergraph to develop the interface to import the inventory data into Koppel's AM/FM system. The interface has been developed and the data import will be completed by January 2006.

Q: What costs has KCPL incurred in these efforts?

A: Through 2005, KCPL has incurred $508,111.

Q: How did KCPL determine that these specific projects should be undertaken as part of the Asset Management Plan?

A: The Asset Management team at KCPL followed a disciplined and structured process to program scope of work for system expansion, system improvements, and maintenance – both corrective and preventive. The scope of work is formed with three key corporate strategic goals:

- Mitigating risks of major outage events to our customers;
- Minimizing the duration and number of outages that our customers experienced as measured by the SAIDI index; and
- Minimize the percent of our customers with multiple interruptions, as measured by the CEMIn index.

The process of Asset Management and selection of appropriate projects and funding is accomplished through the integration of three main activities – option development, project prioritization, and project management. Option development involves continuously assessing the system condition, developing and maintaining standards, identifying potential projects to maintain or improve the system, and evaluating alternative solutions for a given problem. This overall assessment involves identifying those utility assets with the greatest challenges and those that can best achieve the corporate goals. Project prioritization involves ranking all the possible projects and developing a level of funding and a project schedule that is consistent with the Company's objectives for reliability, financial return, customer satisfaction, regulatory, compliance, etc. Project management ensures that the results, in terms of cost and system performance, are what were expected when the projects were approved. This step also involves benchmarking and goal setting, which then feeds back into the first step in a continuous loop.

Distribution Assets

1) Proactively rebuild and replace overhead lateral in failure prone areas where customers are experiencing multiple outages;
2) Replace and rebuild failure prone areas identified through the System Inventory and Condition Assessment Pilot Project;
3) Proactively replace URD in failure prone areas; and
4) Inject stranded URD in failure prone areas.

Distribution Automation

1) Complete automation of network protectors;
2) Automate substation buses to control relays to reduce momentary outages;
3) Automate switches for the 34-kV sub-transmission system;
4) Install Power Quality Monitors, wireless reporting;
5) Implement integrated solution to demonstrate Circuit of the Future; and
6) Install Substation Dynamic Voltage Control.

Transmission and Substation

1) Overhaul 12kV Breakers;
2) Sugar Creek-Hawthorn-Sub H- LaFarge Junction, Shield Wire Rebuild;
3) Replacement of RTUs;
4) Replace PSD Breakers;
5) 161kV Trans. Arm Replacements;

6) 345kV Trans. Arm Replacement;

7) Hawthorn-Moberly poles;

8) Montrose ABCD Line Pole Top Replacement;

9) Replace transmission disconnect switches;

10) Replace 69 kV circuit breakers;

11) Craig R8-11 SF6 Breaker Replacement;

12) GOAB switch at Higginsville; and

13) GOAB switch at Corder.

Q: How will KCPL recover these costs?

A: The capital expenditures towards the assets in the scope of work under the Strategic Intent for Distribution Assets, Distribution Automation, and Transmission and Substation will be recovered after the work is completed and the assets are cleared into plant and service.

Q: Is KCPL on track to meet the goals for the Asset Management Plan?

A: KCPL is on course to achieve the goals in the Asset Management Plan in 2006. As the plan unfolds over the years 2006 through 2010, Asset Management will periodically assess the priorities and scope of the overall Plan for Distribution Assets, Distribution Automation, and Transmission and Substation. Asset Management will assess the system assets and identify the best projects at that point in time that help maintain or improve the system and those that can best achieve the corporate goals. Projects will continuously be ranked and funding will be determined; projects will follow a time schedule that is consistent with the Company's objectives for reliability, financial return, customer satisfaction, regulatory, compliance, etc. Projects will be managed to ensure the expected results were achieved in terms of cost and performance.

Q: What additional projects will KCPL undertake in the future to implement its Asset Management Plan?

A: At this time the projects that are described herein have been selected based on a structured and disciplined asset management approach. Projects related to system expansion, system improvements and maintenance have been considered that fulfill the key strategic goals at the most optimal cost. The Asset Management team will continue to assess the roster of projects and, if there are other projects that offer an even better solution than those currently identified, the Asset Management team will include these in the five-year schedule.

Q: What will be the accounting processes and procedures regarding the planned and actual costs that are incurred during the implementation of the Asset Management Plan?

A: KCPL will provide quarterly status updates on the infrastructure project described in this direct testimony. The updates will include detailed information regarding actual expenditures in comparison to planned expenditures and a description of any and all the efforts by KCPL to efficiently and reasonably procure equipment and services related to the investments. In addition, KCPL will continue its current process of working with the parties in its long-term resource planning efforts to ensure that its current plans and commitments are consistent with the future needs of its customers and the energy needs of the State of Kansas.

Q. Please describe the progress KCPL has achieved through its Delivery business.

A. KCPL's Delivery business strives for excellence in four key areas, namely, safety, reliability, customer satisfaction and cost. As outlined in the Delivery Business Plan, attached as Schedule JRM-3 **(Confidential)**, KCPL expects to be Tier 1 or better in all four areas by 2008.

Q. Does KCPL have a strategy to achieve Tier 1?

A. Yes. KCPL has already achieved Tier 1 in reliability and safety, and achieving a world-class safety culture is within reach. Our goal is to attain Tier 1 performance in customer satisfaction benchmark by 2008. Based on the current proposed 2006 O&M budget targets, Delivery will attain Tier 1 cost performance in 2006. The combined performance should result in KCPL ranking as the top performing delivery operation in Missouri and Kansas and Tier 1 on a national basis.

As outlined in detail in Schedule JRM-3 **(Confidential)**, over the next three years, our game plan will build on the following seven strategy areas. Within each strategy, a number of specific initiatives are defined that will enable us to achieve the desired performance and results.

- Customer
- Community
- Communications
- Regulatory & Governmental
- Infrastructure & Asset Management
- Information Technology
- Transmission Services

The Delivery Business Plan focuses on:

- Achieving Tier 1 performance in safety, reliability, customer satisfaction and cost.
- Partnering with customers to deepen our understanding of their needs and expanding the solutions we provide to meet those needs.
- Participating in the communities we serve to build and strengthen customer loyalty and company image, and enhance customer satisfaction.
- Supporting the overall implementation of the KCPL Comprehensive Energy Plan.
- Achieving industry leadership by embracing demonstrated technology and best practices to best meet customer and system needs today and in the future.
- Continued leadership and skills development, and employee engagement that will build high performance individuals and teams in an evolving Winning Culture.

Q. Does Schedule JRM-3 (Confidential) cover any other strategy you wish to discuss?

A. Yes. The Schedule discusses a Winning Culture strategy. The Winning Culture is based on a continuous learning philosophy, leadership and skills development, and engaging employees to build a high performance workforce. The Winning Culture strategy and the staffing and development of our workforce are strategically intertwined; creating a diverse workplace that mirrors the communities in which we serve.

Q: Does that conclude your testimony?

A: Yes, it does.

BEFORE THE STATE CORPORATION COMMISSION
OF THE STATE OF KANSAS

In the Matter of the Application of Kansas City	)	
Power & Light Company to Modify Its Tariffs to	)	Docket No. 06-KCPE-____-____
Begin the Implementation of Its Regulatory Plan	)	

AFFIDAVIT OF JOHN R. MARSHALL

STATE OF MISSOURI)
) ss
COUNTY OF JACKSON)

John R. Marshall, being first duly sworn on his oath, states:

1. My name is John R. Marshall. I work in Kansas City, Missouri, and I am employed by Kansas City Power & Light Company as Senior Vice President, Delivery Division.

2. Attached hereto and made a part hereof for all purposes is my Direct Testimony on behalf of Kansas City Power & Light Company consisting of thirty-five (35) pages and Schedules JRM-1 through JRM-3, all of which having been prepared in written form for introduction into evidence in the above-captioned docket.

3. I have knowledge of the matters set forth therein. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded, including any attachments thereto, are true and accurate to the best of my knowledge, information and belief.

John R. Marshall

Subscribed and sworn before me this 27th day of January 2006.

Carol Sivils
Notary Public

My commission expires:

CAROL SIVILS
Notary Public - Notary Seal
STATE OF MISSOURI
Clay County
My Commission Expires: June 15, 2007

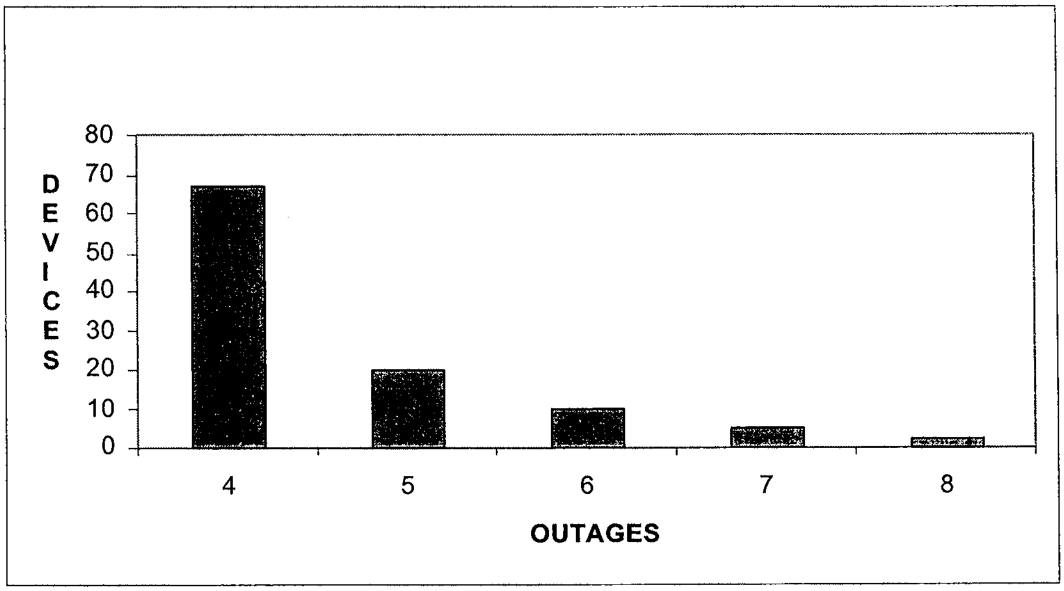
CAROL SIVILS NOTARY SEAL NOTARY PUBLIC STATE OF MISSOURI

Proposed Asset Management Plan Capital Expenditures by Program 2005-2009

Budget Item	Program	2005	2006	2007	2008	2009	Thru 6/1/2010	2005-2010 Total
Original Plan								
KA50	Distribution Asset Management Strategic Intent	$500,000	$1,480,000	$3,297,000	$6,174,000	$7,674,000	$0	$19,125,000
KA52	Distribution Automation Strategic Intent	$1,000,000	$1,720,000	$2,703,000	$2,626,000	$2,626,000	$0	$10,675,000
BP01	Transmission & Substations Asset Management Strategic Intent	$2,500,000	$2,500,000	$2,500,000	$2,500,000	$2,500,000	$0	$12,500,000
Original Total		**$4,000,000**	**$5,700,000**	**$8,500,000**	**$11,300,000**	**$12,800,000**	**$0**	**$42,300,000**
Current Plan		**2005**	**2006**	**2007**	**2008**	**2009**	**Thru 6/1/2010**	**2005-2010 Total**
KA50	Distribution Asset Management Strategic Intent	$500,000	$1,720,000	$3,536,000	$6,062,000	$7,307,000	$0	$19,125,000
KA52	Distribution Automation Strategic Intent	$0	$1,480,000$	$2,464,000	$2,738,000	$2,303,000	$1,690,000	$10,675,000
BP01	Transmission & Substations Asset Management Strategic Intent	$0	$2,500,000	$2,500,000	$2,500,000	$2,500,000	$2,500,000	$12,500,000
Current Total		**$500,000**	**$5,700,000**	**$8,500,000**	**$11,300,000**	**$12,110,000 0**	**$4,190,000**	**$42,300,000**

Schedule JRM-1

Devices With Four or More Multiple Outages - 2004



Schedule JRM-2

Delivery Business Plan

Customer Operations
Energy Solutions
Information Technology
Transmission Services

December 6, 2005

Schedule JRM-3

Kansas City Power & Light®
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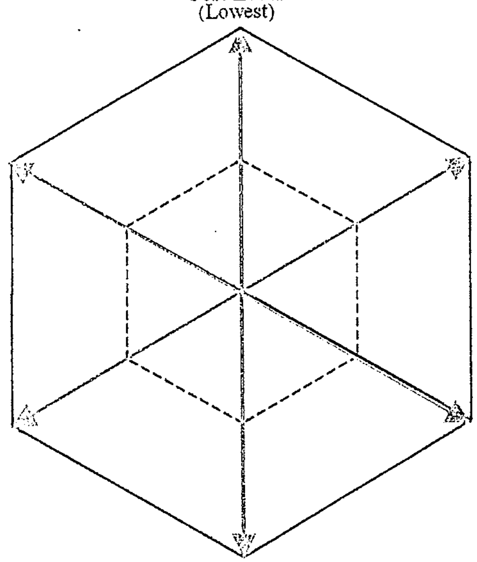
Introduction

The Delivery business plan focuses on:

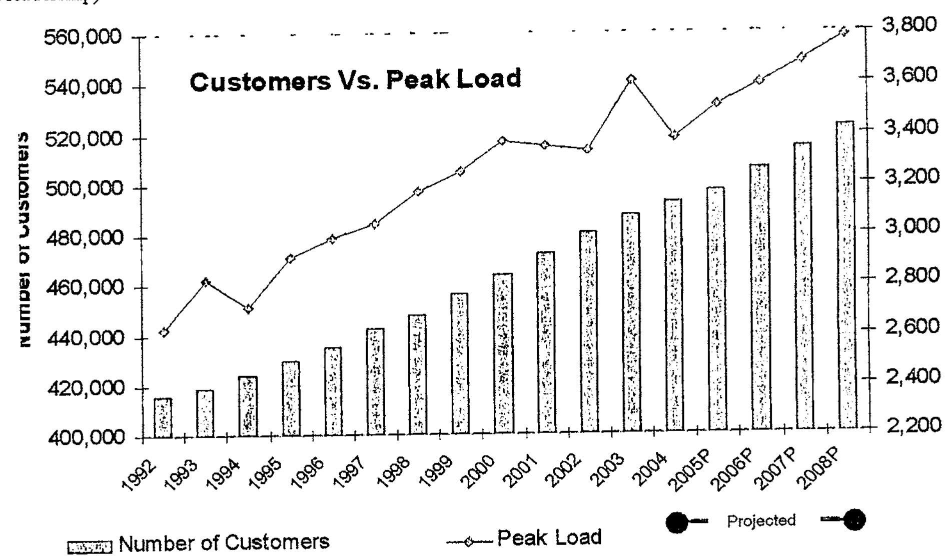
- Achieving Tier 1 performance in safety, reliability, customer satisfaction and cost
- Partnering with customers to deepen our understanding of their needs and expanding the solutions we provide to meet those needs
- Participating in the communities we serve to build and strengthen customer loyalty and company image, and enhance customer satisfaction
- Supporting the overall implementation of the KCP&L Comprehensive Energy Plan and preparing for upcoming rate cases
- Maximizing regulatory opportunities resulting from the 2005 Energy Policy Act
- Achieving industry leadership by embracing demonstrated technology and best practices to best meet customer and system needs today and in the future
- Continued leadership and skills development, and employee engagement that will build high performance individuals and teams in an evolving Winning Culture

Customer needs continue to increase on multiple dimensions and load continues to grow while cost pressures are also increasing



Cost Pressures
✓ Labor costs – for KCP&L and contractors
✓ Benefits – healthcare and pensions
✓ Materials – steel based products
✓ Fuels – gasoline and diesel

- Our customer base has grown by 20% since 1992 and system peak load has increased 34%
- We will celebrate the 500,000 customer mark in early 2006



December 6, 2005

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Despite the challenges, we've made substantial progress and Delivery will be Tier 1 or better by 2008

	2001	2002	2003	2004	2005	2006	Goal 2008
Safety	T4	T4	T2	T2	T1	T1	World-Class
Reliability	T2	T2	T1	T1	T1	T1	Tier 1
Customer Satisfaction	T3	T3	T2	T2	T2	T2	Tier 1
Cost	T4	T3	T3	T2	T2	T1	Tier 1

We have an integrated strategy that will drive our business forward

GPE Strategic Intent provides an overview of GPE objectives of which ...

... the Delivery Organization Strategy is consistent with and provides additional detail...

... and includes specific action plans and initiatives ...

GPE Strategic Intent

- ❑ Leadership in supplying and delivering energy solutions
- ❑ Strong operating performance and competitive asset base
- ❑ Benefit from changing market and technological innovation
- ❑ Build core strengths and add capabilities to benefit stakeholders

Delivery Strategy

- ☑ Customer
- ☑ Community
- ☑ Communications
- ☑ Regulatory & Governmental
- ☑ Infrastructure & Asset Management
- ☑ Information Technology
- ☑ Transmission Services

Initiatives

- ❑ Strategic Initiatives
  - Customer focused programs
  - Infrastructure and Asset Management programs
- ❑ Ongoing Operational Initiatives
  - Regulatory
  - Community
  - Communication
  - Customer Satisfaction
  - Cost Control
  - Efficiency & Productivity
  - Process improvement

Winning Culture

Performance Management and Metrics

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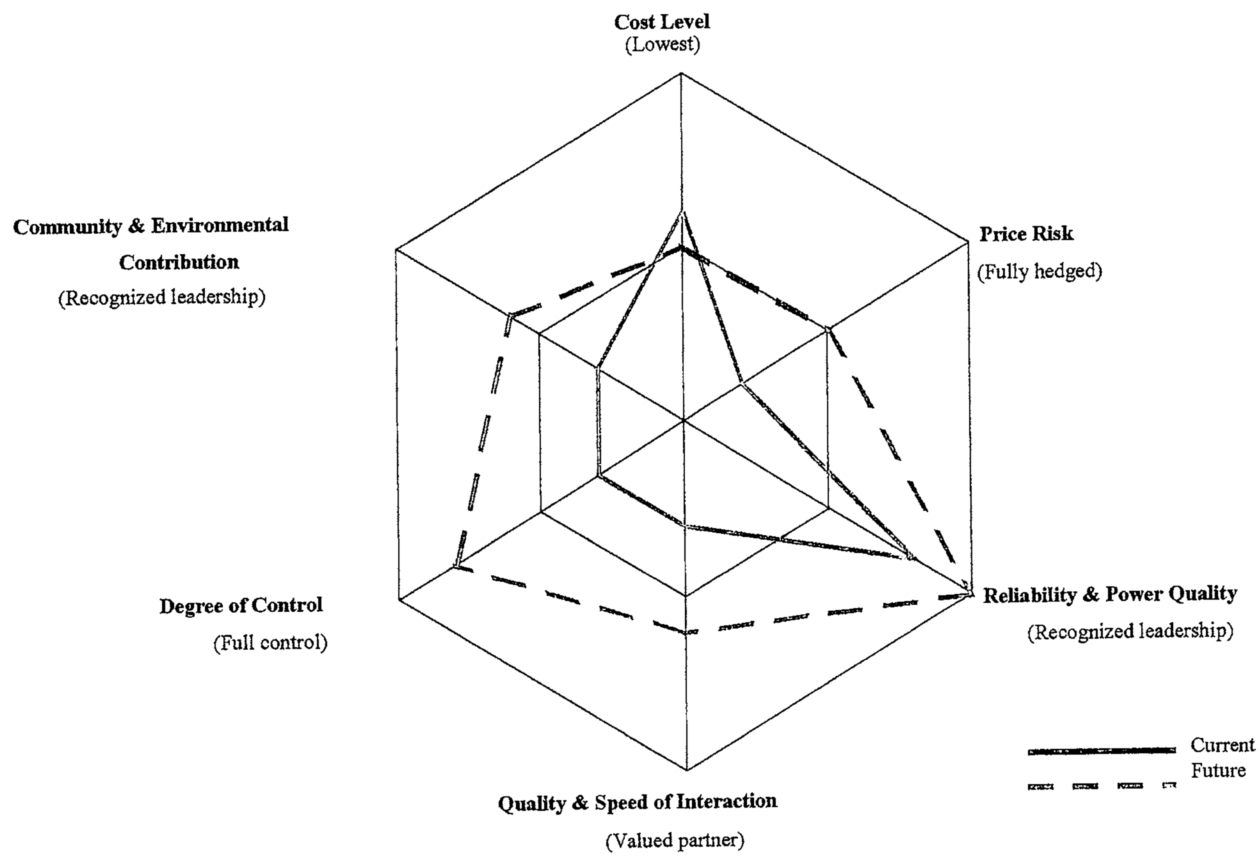
Understanding customer needs is a key first step in building the delivery system of the future

Components of KCP&L Retail Customer Value Proposition



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In the future, we will provide more value to each customer by offering a more robust set of products & services

Level of customer interaction

Solution Type					
Core electric service	❑ Basic electrical service tariffs	❑ Specialized tariffs including green and time of use pricing, and basic load control	❑ Coincident pricing and other tailored pricing (requires software upgrade)	❑ Dynamic, real-time price signals (requires communication infrastructure upgrade)	❑ Customized pricing solutions (e.g., net metering)
Complementary service offerings	❑ Basic electric service	❑ Financial solutions (e.g., payment, risk management, e-services)	❑ Electric services – integrated beyond meter, physical (e.g. O&M for customer-owned facilities) & financial	❑ Full suite of energy services (e.g., gas and electric management)	❑ Essential services – beyond electric (e.g., consumer services – security, maintenance; financial services; telecom)
Asset ownership and operation	❑ Limited	❑ EMS control ❑ Limited dispatch	❑ Selected ownership and partnership within regulated context ❑ Leasing outside of regulated model ❑ Greater involvement in dispatch decisions ❑ Limited operational risk	❑ Build/own/operate customer facilities and resources – outside of "rate base" ❑ Assume operational risk	

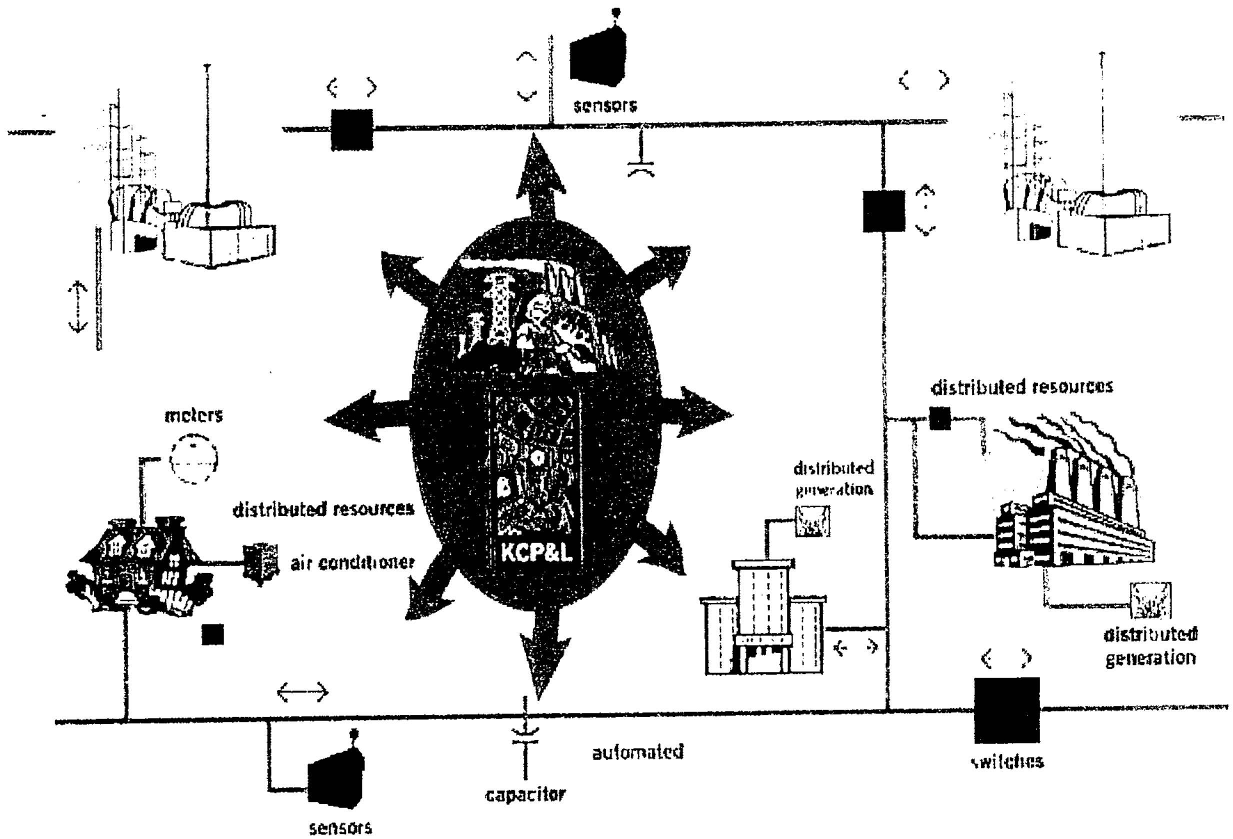
KCP&L current

Future

One means to provide this capability is through improvements to our electric and communications infrastructure – a set of changes we call "the circuit of the future"

KCP&L Circuit of the Future

- The circuit of the future will optimize the utilization of our assets and yield significant operational improvements
  - Reduced line loss
  - Reduced momentary outages
  - Optimized voltage levels
  - Asset optimization/utilization
  - Shift from reactive to predictive maintenance



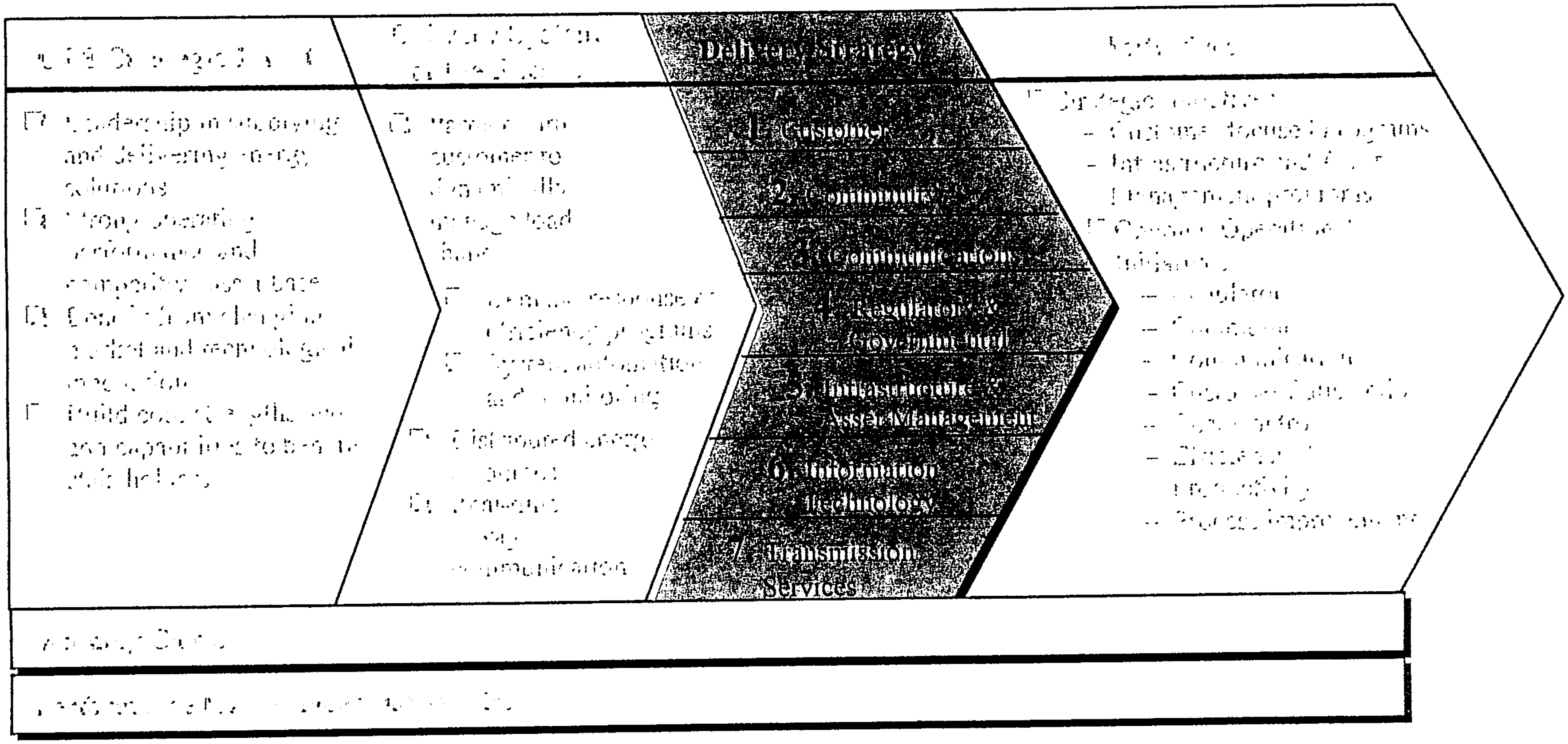
We will build on our history of technology innovation and leverage current investments as we evolve toward the "Delivery System of the Future"

Future	Real-time, two-way communication with customers	Distributed Generation	Distributed Resources	Information-based System Operations	Advanced Reliability Technologies
Additional Delivery system of the future programs and investments	❑ Customer portal ❑ Advanced metering ❑ Energy management ❑ Information flow	❑ Diesel and natural gas fired internal combustion engines ❑ Fuel cells	❑ Energy storage ❑ Price response programs ❑ Energy efficiency	❑ Distribution transformer monitoring ❑ Real-time distribution load flow ("state estimator")	❑ Fault detection and fault anticipation

2006	Power quality monitors	Targeted Deployment of 12 & 34 Kv Switches	Circuit of the Future	Strategic Intent Demand-Side Management Programs
Programs and investments planned for 2006	❑ Install ~ 100 power quality monitors on rural circuits in 2006 ❑ Wireless reporting	❑ Monitoring ❑ Fault detection ❑ Automated remote switching & reconfiguration	❑ Install and implement integrated solution for technology applications including: – Switching/reconfiguration – Sensors for fault detection & anticipation – Voltage reduction – Distributed Generation – Demand Response	❑ Air Conditioning Cycling ❑ "MPower" program – curtailment for large C&I customers ❑ Energy Efficiency

Foundation	**AMR (CellNet)**	**Automated Capacitor Banks**	**EMS/OMS -- SCADA**	**Network Automation**	**Relay Automation**
Current programs and investments	❑ Fixed wireless radio network with ~485k automated meters ❑ Provide daily billing reads ❑ On-demand reads ❑ Soft connects disconnects ❑ Outage alarms ❑ Restoration verification ❑ Interval data available (at add'l cost, not real time)	❑ ~900 units automated ❑ Real-time monitoring and alarming ❑ Remote control ❑ Utilize CellNet system communication infrastructure in metro ❑ Telemetric communication system is the rural solution	❑ Energy Management and Outage Management systems provide real-time monitoring, control, operation, and record keeping for Transmission and Distribution systems	❑ Automated relays provide monitoring of underground secondary networks (Downtown and Plaza) ❑ Remote control and operation of network protectors ❑ 46 of 144 network protectors automated through 9-2005 ❑ Will complete all 144 protectors by 12-2006	❑ Automated relays (SCADA control) in substation busses ❑ Reduces momentary outages on clear-day situation ❑ 70 out of a total of 191 busses currently automated ❑ Will automate remainder over next 6 years

Over the next three years, our gameplan will build on the following seven strategy areas



1. Customer Strategy

Define, develop, and implement high quality solutions that meet individual customer needs for reliability and value, and exceed their expectations of our performance. Build consumer satisfaction through reliability, quality, and service excellence.

KEY STRATEGIES

- Move from one-size-fits-all to a portfolio of segment-specific products and services and provide innovative billing options and new solutions to support the new services
- Drive customer satisfaction by enhancing customer self-service options on how we connect with customers, how they are billed, and how they communicate with us.
- Identify and recognize customers as part of the communities in which they live
- Develop deeper understanding of drivers and influences of customer satisfaction, and focus on the levers that have the greatest impact
- Devise metering strategies to meet the needs of various customer segments

MAJOR INITIATIVES

- Develop needs-based customer segments and rationalize product portfolio to meet customer needs
- Launch AC Cycling demand response program, obtain 10 MW capacity in 2006 and 15 MW in 2007
- Launch C&I curtailment program ("MPower") and secure 60 MW capacity in 2006 and 75 MW in 2007
- Establish and launch Energy Efficiency and Affordability programs
- Continue moving Customer Care Center from a transaction-based operation to a solutions-based provider including adding Spanish capability
- Improve receivable performance through increased automation, technology and proactive management processes
- Enhance the New Business process and shorten cycle time for connecting new services
- Enhance customer self-service options (eServices)

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2. Community Strategy

Better define and understand the communities we serve, and communicate with them clearly, proactively, and frequently. Reinforce our commitment to the community by building on our long history of hands-on participation, and individual employee involvement

KEY STRATEGIES

- Coordinate community involvement decisions for consistency
- Promote economic development efforts and successes
- Fund only events consistent with community strategy
- Clearly define role for GPE and KCP&L names in community activities
- Encourage employee involvement in community events, including civic board participation
- Build company loyalty through community involvement and opportunities to discuss concepts and issues with customers and community groups

MAJOR INITIATIVES

- Participate in the development of a company-wide community strategy and align contributions & employee involvement programs with the strategy
- Conduct preparedness drill for major storm event, including involvement/interaction with cities, counties, and local constituencies
- Leverage community involvement to help recruit new employees and diverse candidates
- Continue community outreach and collaborative approach
- Utilize the mobile command center to conduct targeted community outreach programs

3. Communication Strategy

Reinforce clear and simple messages about who we are and what we intend to do for customers and the community. Communicate consistently through multiple channels – traditional media, through listening to our customers, and community interaction. Focus on reinforcing fundamental messages including safety, reliability, environmental commitment, customer partnership, and the overall value provided by our services

KEY STRATEGIES

- Coordinate communications across all channels
- Ensure all messages reinforce KCP&L's image and GPE's strategic intent
- Create clear benefit messages to all audiences
- Leverage employees to communicate messages and serve as ambassadors
- Communicate through channels that are most convenient for our audiences
- Develop and implement brand strategy

MAJOR INITIATIVES

- Create an integrated communication plan to ensure consistency of messages across all audiences and channels
- Further leverage the KCPL-CAN program
- Improve consistency and quality of KCP&L signage
- Improve customer outage restoration communication
- Refresh Web site and create Energy Plan site to proactively address progress
- Revamp the Speaker's Bureau program

4. Regulatory & Governmental Strategy

Deliver on our commitments, communicating effectively with regulators and other participants throughout the process to ensure they understand our actions, and also to engage them in design of new tariffs, programs, and investments that support implementation of the delivery system of the future

KEY STRATEGIES

- Work closely with regulators to develop effective frameworks that balance needs of our customers, communities, employees, and investors
- Become actively involved in advancing federal and state legislation and regulation
- Coordinate and leverage GPE and KCP&L relationships with regulators and legislators at local, state, and federal levels
- Support rate cases and regulatory reporting requirements
- Discuss State (rather than current FCC) oversight of 3rd party attachers to facilitate more balanced treatment and better recovery of actual costs

MAJOR INITIATIVES

- Create new tariffs to support customer-centric strategy and quickly respond to customer needs
  - Overhead to underground conversion in existing neighborhoods
  - Residential critical peak pricing with home energy management system
  - Large C&I RTP with basic energy information system
  - Use of credit and debit cards for payment
  - Low income tariff
- Build strategy into rate case for major asset replacement (such as breakers, underground cable, and overhead line rebuilds), and a storm reserve fund
- Establish quarterly meetings between Delivery senior management and state commissions

5. Infrastructure & Asset Management Strategy

Better understand the assets and capabilities of our delivery system, and how they can be used to address customer needs. Operate and invest to improve performance through better processes and design, eliminating defects, and encouraging innovation. Look more broadly at means for collaborating on and financing innovation based on the value it will create, from customers, governmental, and private sources

KEY STRATEGIES

- Incorporate Distributed Utility model and concepts into system planning, design and construction
- Conduct a comprehensive system inventory and employ data to make effective repair/replace decisions
- Target reliability improvement projects for customers experiencing the most outages
- Make continual operational improvements and leverage technology to increase worker productivity
- Install automation technology across the system to improve monitoring and operation
- Leverage the supply chain to enhance asset management and utilization

MAJOR INITIATIVES

- Complete downtown redevelopment infrastructure improvements and the underground secondary network automation projects
- Implement mobile workforce management technology and install wireless networks to expand access and personnel productivity
- Continue relay automation to reduce momentary outages and begin targeted deployment of automated switches on 34 kV system and install power quality monitors on rural circuits
- Continue neighborhood meetings to address reliability concerns
- Install and implement integrated solution to demonstrate Circuit of the Future
- Build Midsize Utility Consortium and continue efforts to identify/share best practices and leverage purchasing power

6. Information Technology Strategy

Deliver and support enabling tools and technologies for business units and their customers. Leverage and rationalize existing IT assets and make strategic investments in new technologies that extend KCP&L's customer touch, enhance utility asset management, and support the utility growth strategy. This will require shifting emphasis within IT from a cost focus to meeting a full set of customer needs with the right capabilities at the lowest cost

KEY STRATEGIES

- Meet business needs through business and customer-centric approach
- Utilize package application solutions, minimize customization and extend business value with integration
- Keep current on software maintenance and maintain the applications and infrastructure on supported versions across the IT portfolio
- Extend IT asset life and lower total cost of ownership
- Rationalize the IT systems for lowest cost and best fit of our business requirements
- Improve communication capabilities of our substations and other key facilities

MAJOR INITIATIVES

- Upgrade microwave radio, data communication equipment, and telecommunication infrastructure
- Expand fiber infrastructure in conjunction with Transmission expansion and upgrades
- Implement new productivity tools such as Collaboration Tools, Portal, Messaging/Application Integration
- Evaluate Data Center proximity to address potential risks
- Continue with implementation of new business application needs, such as RTO Market Systems, Mobile Workforce Management, Outage Management and Communication, Customer Billing System Enhancements, Customer Self-Service Enhancements, and Revenue Management

7. Transmission Strategy

Participate in wholesale market development to compliment other Delivery strategies. Investigate alternative structures for the ownership and operation of the Eastern Interconnection. Optimize the value of KCP&L's transmission assets

KEY STRATEGIES

- Implement market settlement system for transmission revenues and regional expansion plan cost allocation
- Continue plans on SPP control areas consolidation
- Conversion of Grandfathered Transmission Service agreements to regional tariff
- Monitor and respond to FERC NOPRs and NOIs
- Continue leadership role on RTO committees, working groups, and task forces (Ancillary Services Market development and implementation, regional expansion plan)
- Participate in continued development of reliability criteria
- Continue development of 20 year updates of expansion plan for substation and transmission

MAJOR INITIATIVES

- Be prepared to begin the SPP imbalance market May 2006
- Participate in regional planning process
- Complete RTO driven transmission expansion projects
- Implement RTO settlement systems
- Prepare for North America Electric Reliability Organization oversight and audits
- Evaluate costs, benefits and hurdles to divesting KCP&L transmission assets and forming an Independent Transmission Company
- Propose formula rates for transmission service
- Complete EMS replacement in 2007
- Initiate discussion with transmission service customers who take service under KCP&L tariffs

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Living the GPE IDEAL to its fullest is essential to creating a winning culture...

Inspired Leadership Initiatives

- GPE University matriculation for middle management beginning Q4 2005
- Identify common developmental needs and work w/ HR to develop appropriate GPE University programs
- Continue to evolve succession planning process to achieve bench strength in all key positions
- Leverage our association with Midwest Energy Association (MEA) to define and launch e-learning courses for all employees
- Evaluate and implement changes to improve the effectiveness of first line supervisors
- Hold monthly meeting with first line supervisors to address management issues and help them improve management techniques

Disciplined Performance Management Initiatives

- Adopt performance metrics employees understand – provide comparisons on crew productivity, fleet costs, revenue needs, reliability, customer care service levels, etc.
- Utilize balanced scorecard system and communicate results in regularly monthly group meetings with management as well as bargaining unit employees
- Apply project management approach to getting work done, and reviewing progress of major projects and initiatives on a monthly basis
- Improve the new-hire process to assure right people are brought on board

…and high performance workforce

Engaged Employees Initiatives

- Expand the IDEAL Partners program piloted at Dodson and Southland service centers, and IT Department to other areas
- Quarterly meeting with Locals 1464 & 1613 E-Boards
- Implement Dale Carnegie innovation projects and communicate results
- Cross-functional and joint management-bargaining unit teams will continue to solve business problems
- Adding new programs to the Continuous Learning Process applicable to both professional and trade employees

Accountability Initiatives

- Utilize diligent performance planning and appraisal process to establish clear expectations and measure performance, including semi-annual reviews with all employees
- Measure success in implementing Winning Culture through the OHS survey, 360 degree feedback, and monitoring of employee attendance, attrition rates, and involvement

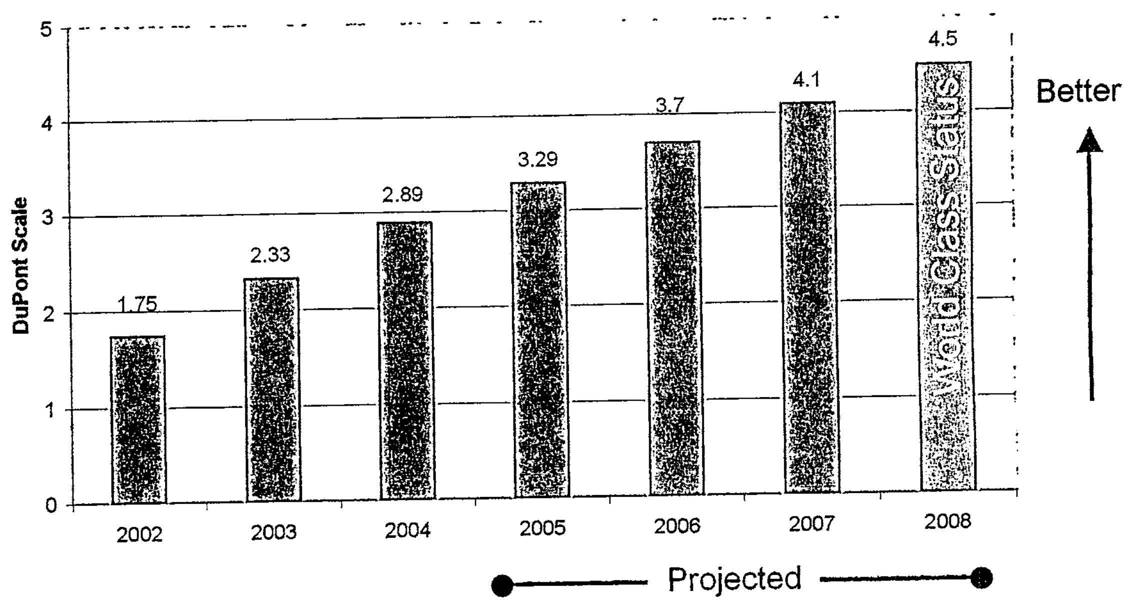
Loyalty Initiatives

- Build trust and reinforce commitment through regular executive visits to worksites and increased senior management visibility & interaction at service centers, meetings, and group gatherings
- Inform the workforce of accomplishments and findings that create new areas of focus and celebrate successes
- Build company loyalty through community involvement and opportunities to discuss concepts and issues with customers and community groups

Safety is the cornerstone of our operations and achieving a world-class safety culture is within reach

- KCP&L's Safety Philosophy is based on the following beliefs:
  - Safety MUST be the first priority at KCP&L
  - Safety training for employees is essential
  - Employees have the right to work under safe conditions
  - Employees have the right to insist that safe work procedures and safety rules be followed
  - No task is so important that an employee should degrade safety while performing his/her work
  - Prevention of accidents is good business

Annual Average Performance of Dupont's 12 Essential Elements of World-Class Safety Culture

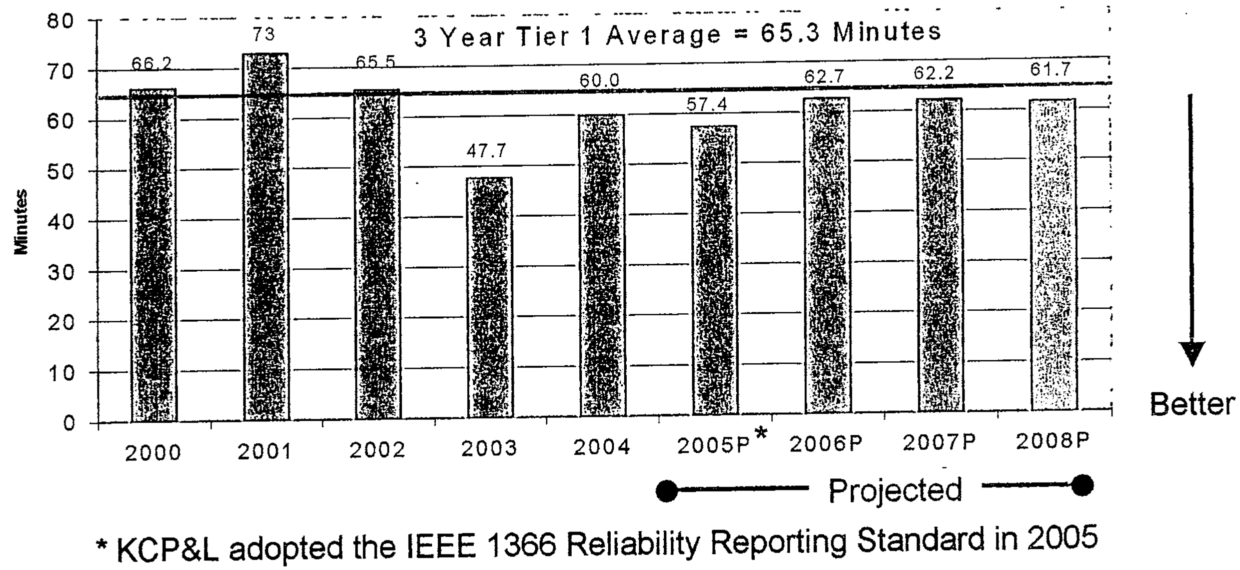


Joint management and bargaining unit efforts have yielded the best safety performance in 15 years in 2005, including a reduction of 50% in vehicle accident rates

Reliability continues solid performance at Tier 1 levels despite a record number of storms in 2004 and 2005

KCP&L SAIDI Performance
(excluding major events)

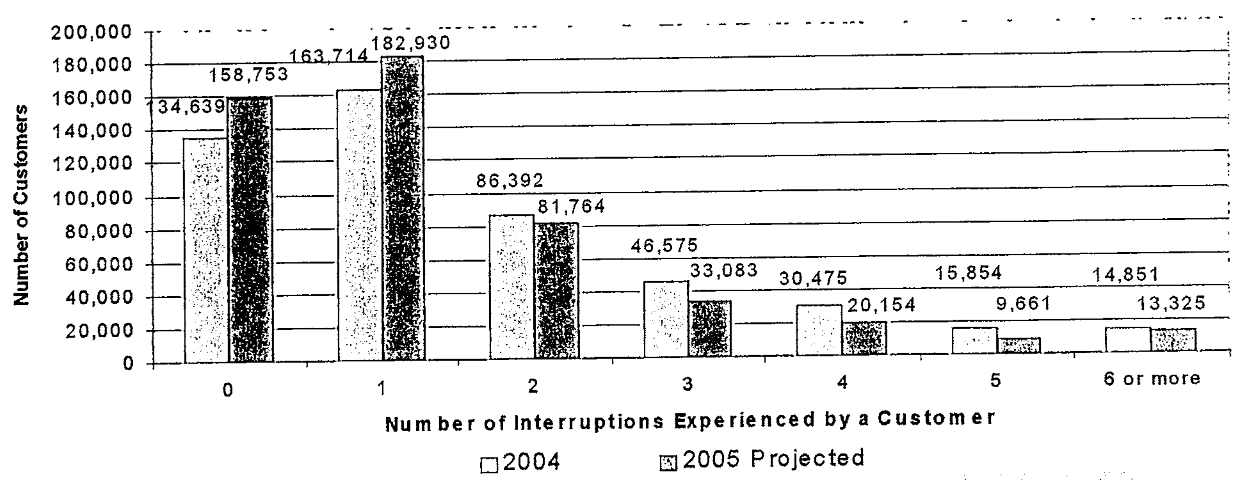
- KCP&L System Average Interruption Duration Index consistently outpaces PA benchmarking peers



* KCP&L adopted the IEEE 1366 Reliability Reporting Standard in 2005

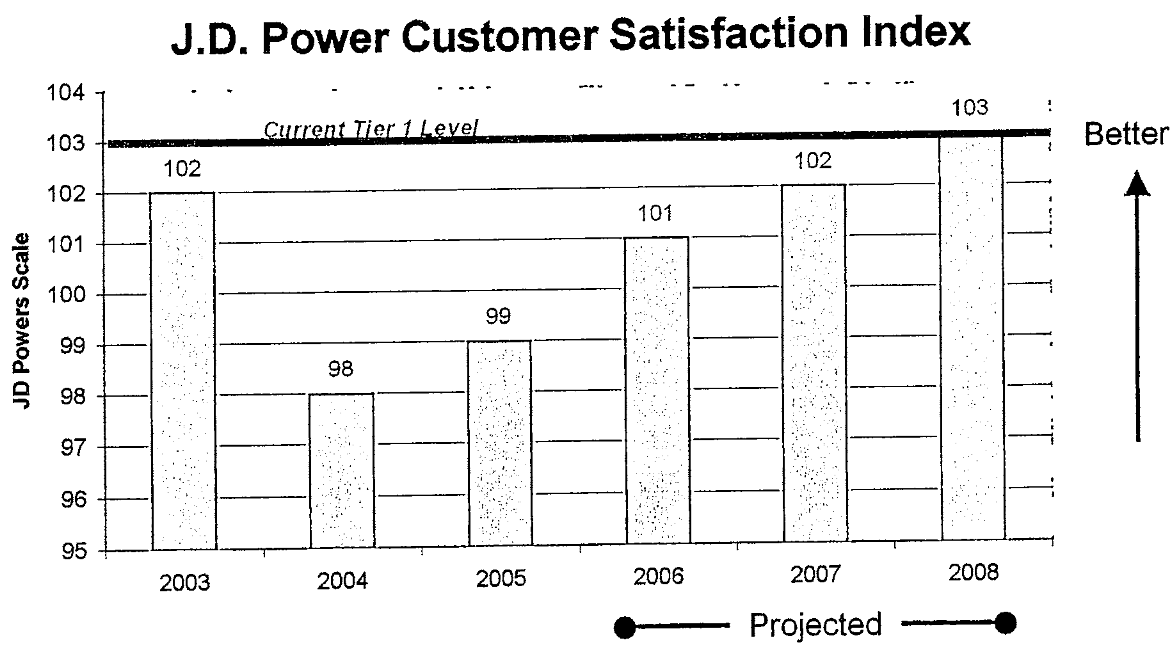
Customers Experiencing Multiple Outages

- The number of customers experiencing two or more interruptions has been reduced by over 18% over 2004



Kansas City Power & Light
ENERGIZING LIFE

Our goal is to attain Tier 1 performance in customer satisfaction benchmark by 2008



- In light of planned rate increases, customer and communication strategies will be crucial to improving customer satisfaction performance

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The foundation of Delivery's performance management process will continue to be the Balanced Scorecard

- Scorecards at the departmental, divisional, and overall Delivery level are closely aligned, and reviewed in monthly meetings at all levels of the organization to
  - monitor progress on key metrics,
  - identify metrics that are not on track,
  - and develop plans to improve performance where necessary
- Scorecard metrics are adjusted annually to reflect changing business needs
- Continuous improvement of our benchmarking and best practices capability
- In addition, industry proven project management techniques will be used across the organization to accomplish work

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There are a number of risks facing Delivery that must be managed and mitigated

Delivery Risks

Image/Reputation	Environmental	Regulatory/Legal	Revenue/Cashflow	T&D/Operational	Catastrophic Business Discontinuity
• Significant reliability event • Breech of IT security and system access • Higher energy prices	• Oil spills • Substation fires • Substation & Right-of-Way siting • US Fish & Wildlife concerns • New laws and regulations	• Rate cases • Reliability performance • Customer complaints • Liability associated with injury • Impact of SPP/RTO	• Billing • Bad debt • Revenue protection • Economic growth/new additions • Significant economic slowdown • Significant decrease in natural gas prices	• Major storms • Terrorism attacks on infrastructure • IT Data and network security • IT Business continuity	• Multiple major loss of facilities and capabilities • High impact, low probability events affecting infrastructure

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In summary, the Delivery Business has set the stage for change, and will create lasting shareholder value

- Achieving the goals detailed in this plan support GPE's strategic intent of demonstrating leadership and customer partnership
- The plan will create significant, measurable value and contribute stability and cash flow to KCP&L's comprehensive approach
- Investors will recognize our performance and differentiated capabilities, which will translate into greater shareholder value