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BEFORE
THE PUBLIC UTILITIES COMMISSION OF OHIO

In the Matter of the Application of Columbus Southern Power Company for Approval of its Electric Security Plan; an Amendment to its Corporate Separation Plan; and the Sale or Transfer of Certain Generating Assets	)	Case No. 08- 917-EL-~~UNC~~ SSO
and	)	
In the Matter of the Application of Ohio Power Company for Approval of its Electric Security Plan; and an Amendment to its Corporate Separation Plan	)	Case No. 08- 918-EL-~~UNC~~ SSO

DIRECT TESTIMONY
OF
KARL G. BOYD
ON BEHALF OF
COLUMBUS SOUTHERN POWER COMPANY
AND
OHIO POWER COMPANY

Filed: July 31, 2008

INDEX TO DIRECT TESTIMONY OF
KARL G. BOYD
PUCO CASE No. 08-917-EL-UNC
PUCO CASE No. 08-918-EL-UNC

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PERSONAL DATA

Q. WHAT IS YOUR NAME AND BUSINESS ADDRESS?

A. My name is Karl G. Boyd. My business address is 850 Tech Center Drive, Gahanna, OH 43230.

Q. BY WHOM YOU ARE EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by the American Electric Power Service Corporation (AEPSC) as Vice President of Distribution Operations for Columbus Southern Power Company (CSP) and Ohio Power Company (OPCo), collectively known as AEP Ohio (AEP Ohio or the Companies). AEPSC is a subsidiary of the American Electric Power Company, Inc. (AEP) and provides technical and other services to AEP Ohio and other operating units within the AEP System.

Q. WHAT IS YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL EXPERIENCE?

A. I earned a bachelor's degree in Technology from Purdue University and a master's degree in Business Administration from Indiana University. I also completed

AEP's Strategic Leadership Program at The Ohio State University and the Darden Executive Program at the University of Virginia.

I have 34 years of electric utility experience, focusing primarily on transmission and distribution operations. In 1974, I joined the Indiana Michigan Power Company (I&M), an operating unit of AEP, as a Communications Engineer in Marion, Indiana. In 1979, I became Station Engineer Senior in Marion, before being named Station Supervising Engineer in 1982 for the South Bend Division. Three years later, I became Station Supervisor in South Bend, Indiana. In 1987, I was named Transmission and Distribution (T&D) Superintendent in South Bend. In 1994, I became District Manager for I&M's Fort Wayne District, and in 1997, I was named Indiana/Ohio Region Director for AEP. I was named Vice President of Distribution Operations for I&M in June 2000. I was named to my current position in January 2008.

Q. WHAT ARE YOUR RESPONSIBILITIES AS VICE PRESIDENT OF DISTRIBUTION OPERATIONS FOR AEP OHIO?

A. I am responsible for overseeing the planning, construction, operation and maintenance of the distribution system. My duties include extension of service to new customers, the safe and reliable delivery of service to our customers and restoring service when outages occur. My responsibilities also include overseeing AEP Ohio's distribution system vegetation management program, asset management programs, reliability programs and major capacity programs.

PURPOSE OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to provide an overview of AEP Ohio's current power quality (momentary interruptions) and service reliability (sustained outages and service restoration) programs. Next I will explain the increase in customers' expectations for better power quality and reliability. I will then present a three-year Enhanced Service Reliability Plan (Plan) consisting of four reliability programs designed to modernize and improve the Companies' energy-delivery distribution infrastructure to better meet our customers' growing reliability needs.

Q. ARE YOU SPONSORING ANY EXHIBITS?

A. Yes. I am sponsoring EXHIBIT KGB-1 which is support for the Enhanced Reliability Programs.

DISTRIBUTION RELIABILITY PROGRAMS

Q. PLEASE BRIEFLY DESCRIBE AEP OHIO'S SERVICE TERRITORY?

A. AEP's distribution system in Ohio includes approximately 1,500 distribution circuits and 32,200 miles of primary overhead and 6,400 miles of primary underground operated at voltages from 4kV to 34.5kV. AEP also operates and maintains approximately 520 stations.

Q. ARE CSP AND OPCo UNIQUE AMONG OHIO INVESTOR-OWNED UTILITIES IN THE EXPANSE AND DISPERSION OF THEIR SERVICE TERRITORIES?

A. The Companies' service territories reach into all quadrants of the state and in many cases are broken up by the presence of numerous electric cooperatives and/or municipal electric systems. Of the approximate 32,000 miles of overhead distribution lines, the majority of these lines are located in rural areas. This is significant because the counties in the southeastern part of the state have the heaviest concentration of vegetation. These counties also tend to be hilly and rural in nature, making access to lines more difficult.

Q. WHAT ARE THE PRINCIPAL CAUSES OF SERVICE INTERRUPTIONS?

A. The principal causes of service interruptions on AEP Ohio's system in 2007, excluding events such as major storms, were equipment failures and tree related contacts.

Equipment failures caused approximately 33 percent of sustained, non-major event outages on AEP Ohio's system during this time period, while tree related outages caused approximately 20 percent. Short momentary interruptions can also occur when a tree branch is blown against a line causing conductors to come together. Longer sustained interruptions can occur when a tree limb falls into a line. Trees falling into the distribution right-of-way also can damage distribution poles and conductors.

Q. HOW DOES AEP OHIO MAINTAIN AND IMPROVE RELIABILITY ON ITS DISTRIBUTION SYSTEM?

A. AEP Ohio uses various combinations of programs to maintain its distribution infrastructure. These programs are designed to minimize the impact of service interruptions to customers and can be divided into three major categories:

- Distribution Asset Management Programs;
- Major Distribution Reliability Improvements and Capacity Additions; and
- Distribution Vegetation Management Program.

Q. PLEASE BRIEFLY DESCRIBE AEP OHIO'S DISTRIBUTION ASSET MANAGEMENT PROGRAMS.

A. The distribution asset management programs are designed to optimize expenditures and system performance. AEP Ohio has six ongoing Distribution Asset Management Programs. The programs and their roles with respect to distribution system reliability are as follows:

- *Overhead Circuit Facilities Inspection and Maintenance Program:* Under this Asset Program, AEP Ohio visually inspects its overhead facilities to identify and correct conductor, hardware and equipment deficiencies and other potential problems before they cause service interruptions.

- *Pole Inspection and Maintenance Program:* The objective of this Asset Program is to maintain and prolong the structural integrity of AEP Ohio's wood poles. AEP Ohio's service territory contains more than 966,800 company-owned wood poles. In order to maintain and extend where possible the useful life of these assets, AEP Ohio conducts a pole inspection and maintenance program designed to inspect, treat, reinforce and/or replace wood poles on a continual basis.

- *Pad-Mount Transformer Program:* The objective of this program is to visually inspect and perform any corrections required on the external, above-ground portions of underground distribution facilities (pad-mount transformers, pedestals, switchgear, etc.) on an ongoing basis.

- *Recloser Maintenance / Replacement Program:* The objective of this program is to inspect and test in-service recloser units for reliable operation and to maintain or replace, as needed, those units that are not operating properly or require maintenance.

- *Line Capacitor Program: A*EP Ohio has in excess of 3,500 distribution line capacitor banks in service within the Company's service territory. Capacitor banks can be either fixed or switched type. A fixed bank remains in service at all times, whereas a switched bank has a control to turn the bank on or off depending on circuit parameters (current, voltage or power factor) at the bank location. AEP Ohio conducts an annual check of capacitor banks in service to ensure reliable and accurate operations.

- *Network System Program:* The objective of this program is to ensure reliable service to our network system through inspections of our urban underground networks, and through associated preventive maintenance.

In addition to these asset programs, AEP Ohio has expanded its efforts to minimize underground cable deficiencies by restoring the integrity of cable through either cable injection or cable replacement. This initiative targets areas served with underground cable which are experiencing above-average interruptions, thereby minimizing the likelihood of future service interruptions to our customers. In addition, we have been focusing on replacing cutouts and arresters, another leading cause of equipment outages.

Q. PLEASE DESCRIBE WHAT IS INCLUDED IN THE MAJOR DISTRIBUTION RELIABILITY IMPROVEMENTS AND CAPACITY ADDITIONS PROGRAMS.

A. Each year, AEP Ohio completes various major distribution reliability improvements and capacity additions that are not included in the more routine Distribution Asset Programs category that I described above. During 2007, for instance, AEP Ohio completed extensive improvements to prevent overloading on equipment, balance loads and voltage, enhance protection schemes and improve its ability to restore power to customers on a timely basis. These improvements range from distribution circuit reconfigurations within a residential area to as complex a project as adding new substations and associated lines to establish new distribution circuits to better serve our customers.

Q. NOW PLEASE DESCRIBE AEP OHIO'S THIRD MAJOR CATEGORY OF PROGRAMS, THE DISTRIBUTION VEGETATION MANAGEMENT PROGRAM.

A. AEP Ohio has approximately 32,000 miles of overhead distribution lines that require varying levels of vegetation management. The Company's vegetation management program is a comprehensive, integrated program that employs a variety of practices such as mechanized trimming including aerial sawing; manual trimming including roping and hand climbing; brush mowing; and herbicide applications. These practices are conducted in accordance with standards established by the American National Standards Institute (ANSI), the Occupational Safety and Heath Administration (OSHA), and the National Electrical Safety Code (NESC), as they relate to, among other things, the pruning and removal of trees

(arboriculture), safety and worker protection, work clearances and training requirements, and safety clearance guidelines.

AEP Ohio's vegetation management program employs a "performance-based" approach, which prioritizes work on AEP Ohio's facilities after taking into consideration a number of input variables. These variables include the time elapsed since vegetation management activities were last performed; the results of recent line inspections; tree-related reliability performance; critical customer service needs such as fire stations, police departments and hospitals; customer service experiences; and environmental conditions. AEP Ohio has used the performance-based approach to allocate resources to particular circuits, or portions of circuits. The program is dynamic and flexible and is intended to respond to local needs that may arise during the course of the year.

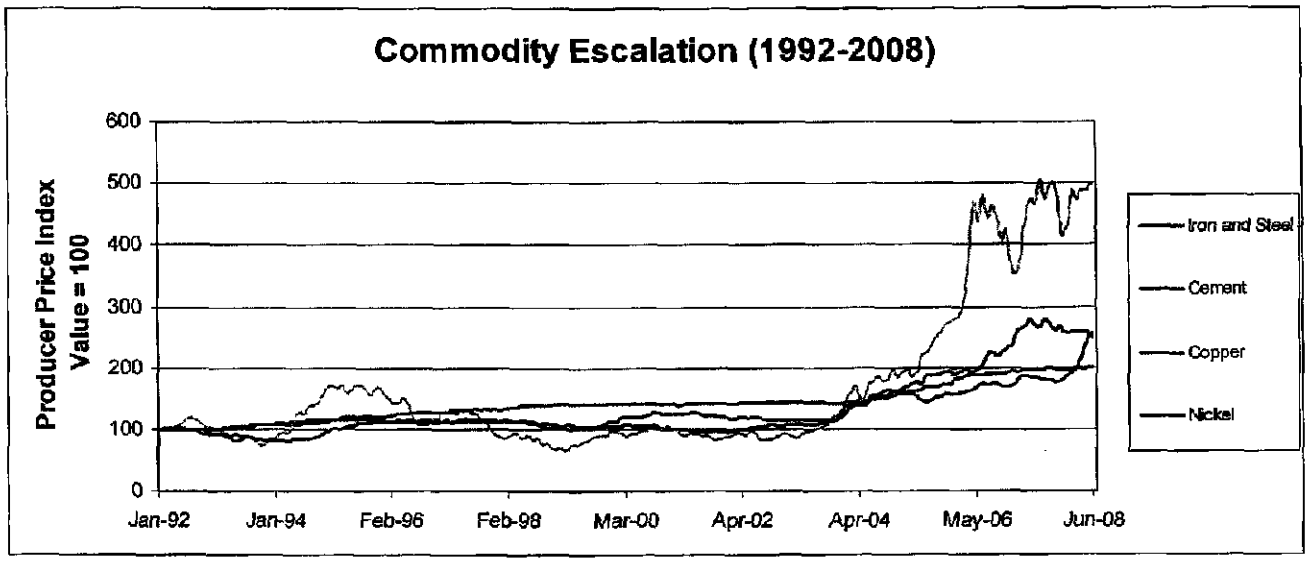
Q. IS AEP OHIO ABLE TO MAINTAIN ITS CURRENT LEVEL OF SERVICE RELIABILITY AT ITS CURRENT LEVEL OF SPENDING ON THE DISTRIBUTION SYSTEM?

A. No, it is not. There are two forces working against AEP Ohio's ability to maintain and/or further improve its current level of service reliability at its present spending level. The first force is inflation (partially offset by beneficial effects of anticipated load growth). As costs of labor and materials increase, the same dollars spent in, for example, Year 2 will not produce the same amount of work as they did in Year 1. Less work, with all else remaining the same, could result in reduced service reliability.

More specifically, AEP Ohio has incurred cost escalations in material and contract labor related to providing distribution service. Over the past several years, AEP Ohio has experienced an increase in material costs related to price increases on commodity metals, including copper and steel. Chart 1 below shows the average historical escalation of these items from 1992 through 2008. These costs have increased significantly since December 2003 and continue to escalate in certain areas. For example, the cost for copper recently reached another all-time high.

In summary, commodity price escalations continue to challenge AEP Ohio's ability to maintain and/or further improve its current level of service reliability.

Chart 1



Note: Data extracted from Bureau of Labor Statistics' website on July 22, 2008.

In addition, the Department of Energy issued an improved efficiency standard for new distribution class transformers. In order to meet the new standard, transformer costs are anticipated to increase in the short-term (prior to 2010) nearly 15 percent and in the long-term (post 2010) over 30 percent due to the anticipated

shortage of higher grade core steel and transformer coil materials. Moving forward, AEP Ohio is experiencing an increase of 4.5 percent in the cost of contract labor in 2008 and anticipates an additional increase in 2009 through 2011 of approximately 3.5% per year.

The notion of "all else remaining the same" brings me to the second force. Based on my experience, I know that "all else" does not remain the same because asset failure rates are also increasing as the Companies' distribution infrastructure ages. As a result, it is reasonable to expect some increase in equipment failures in Year 2 compared to Year 1. In combination, these two forces could work to impact service reliability unless AEP Ohio is given the funding to go beyond traditional means of maintaining the energy delivery infrastructure.

INCREASING CUSTOMER EXPECTATIONS

Q. ARE CUSTOMERS MORE SENSITIVE TODAY TO POWER QUALITY ISSUES THAN THEY USED TO BE?

A. Yes they are. The two basic reasons for the increased sensitivity are that the average household consumption of electricity has increased dramatically providing more comfort to our customers. Electronically-controlled devices, which are more sensitive to power quality disturbances, are becoming more prevalent and critical to the comfort and quality in our customers' lives. Consider your own experience. As the cost of televisions decline, households have more televisions. Appliances, VCRs, DVD players, as well as cell phones and cordless home phones, computers,

and video games have attained higher saturation rates in households over the past several years. For instance, US Census data for 2003 shows nearly 60 percent of Ohio homes had at least one computer and just over 50 percent had internet access. US Census data for 2007 shows the percent of Ohio homes with internet access has grown to 59% while the percentage of Ohio homes with high speed broadband connections has grown to 49%. Home operated businesses and telecommuters rely heavily on electric-driven technology to achieve success. The more customers rely on electricity for virtually every facet of their lives, the more sensitive they become to service interruptions, even momentary interruptions.

The second reason for this increase in sensitivity to service interruptions is the pervasive presence of digital technology. Because digital technology is more dependent on a constant stream of electric service than analog technology, even momentary service interruption can be problematic. The rapid advancement in the deployment of digital technology has created particular electric service reliability sensitivity issues for non-residential customers. Whether those customers are commercial facilities or manufacturing facilities, their reliance on digital technology to conduct their business has increased their sensitivity to electric service interruptions, including momentaries.

Q. IS AEP OHIO PROVIDING SAFE AND RELIABLE SERVICE TO ITS CUSTOMERS?

A. Yes. AEP Ohio's asset programs are designed to ensure that customers' expectations are aligned with the Companies' ability to provide safe reliable service.

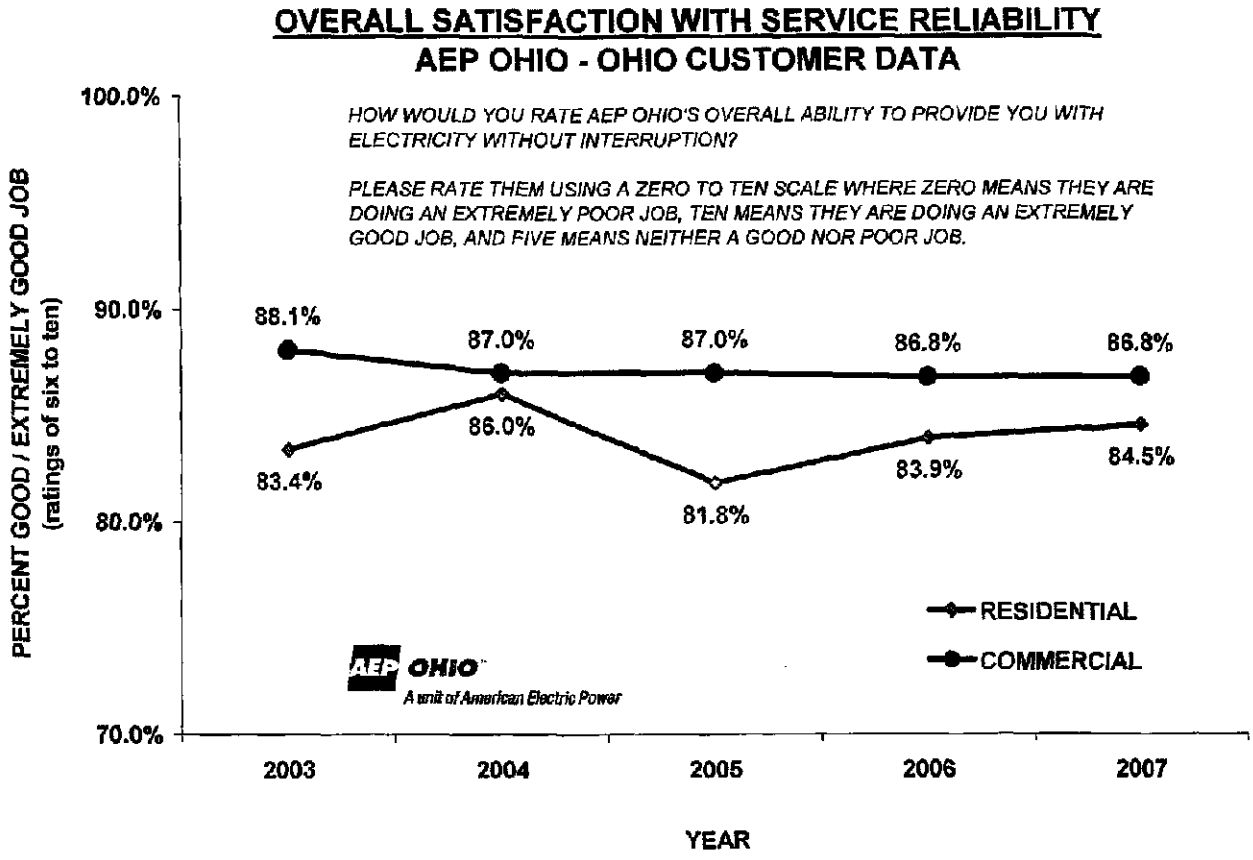
Q. HOW SATISIFED ARE CUSTOMERS' WITH AEP OHIO'S OVERALL SERVICE RELIABILITY?

A. AEP Ohio conducts ongoing quarterly surveys of its residential and (unmanaged) commercial Ohio customers. A total of approximately 1400 (800 residential, 600 commercial) of these telephone administered surveys are completed annually by Market Strategies, International (MSI)[1].

When asked about AEP Ohio's overall ability to provide electricity without interruption, survey respondents in 2007 overwhelmingly rated AEP Ohio as doing a good or extremely good job (85% residential, 87% commercial). With the exception of two devastating ice storms impacting central Ohio in late 2004 and early 2005, these levels have remained relatively stable over the years as shown in Chart 2.

[1] Market Strategies International (MSI) is a top 25 global market research firm with extensive energy industry experience and knowledge. MSI assumes an active research partnership role with its clients, offering custom and syndicated research through a variety of methodologies to deliver quality results and sophisticated analytics.

Chart 2



Q. ARE CUSTOMERS' SERVICE RELIABILITY EXPECTATIONS INCREASING?

A. Absolutely. Survey results show, for the first half of 2008, that one in every four residential respondents (24%) and one in every three commercial respondents (33%) believed their future reliability expectations would increase over the next five years. This extrapolates to over 300,000 residential and 54,000 commercial AEP Ohio customers likely to have higher reliability expectations in the coming years. These percentages are up from the 2005 levels of 18% (residential respondents) and 29% (commercial respondents) when AEP Ohio started surveying its customers for this information.

Q. AS CUSTOMER SENSITIVITY TO RELIABILITY RELATED SERVICE INTERRUPTIONS INCREASE, WHAT ARE SOME OF THE MAJOR CHALLENGES THE AEP OHIO DISTRIBUTION SYSTEM WILL FACE IN MEETING ITS CUSTOMERS' FUTURE EXPECTATIONS FOR AN ENHANCED LEVEL OF SERVICE?

A. As designed and currently operated, the power quality and reliability state of the AEP Ohio system is being challenged to keep up with customer expectations now and in the future. The system design and protection functions are constructed for the prior generation of distribution technology and electric consuming appliances. There is no real-time data capabilities built into the current distribution system. Restoration of service relies on customer calls to report outages and the dispatch of service trucks to patrol, find the fault location, where they then isolate line sections to begin repairs. Control and response functions have not changed for decades.

In addition, electric distribution companies are also being further tasked with enhancing their current facilities to assist in ways to reduce overall energy use through energy efficiency options and adjusting their peak demand (or peak load - the maximum amount of energy used at any one time) to offset the need for future generation facilities. The Companies' energy efficiency and "gridSMART^{SM}" initiatives are discussed in greater detail in AEP Ohio's witnesses Ms. Sloneker and Mr. Castle's direct testimonies.

Q. AS AGE-RELATED EQUIPMENT FAILURES INCREASE, HAS AEP OHIO EMBARKED ON A PROGRAM TO TOTALLY REBUILD THE DISTRIBUTION SYSTEM?

A. No. It would be extraordinarily expensive to rebuild the entire distribution system. Just because equipment is old and/or beyond its original expected useful life does not mean it will fail in the near future. As long as equipment is properly functioning and serving the customers needs, it is reasonably anticipated that it will continue to function properly for several years and can be considered reasonable to leave that equipment in place while performing life extension maintenance when needed. Through the use of inspections and the use of technology like infrared scanning and electro-magnetic interference detection devices, the Companies are able to predict that certain types of equipment will fail. If it is predicted that certain equipment is likely to fail in the near future it would be reasonable to remove such equipment even while it continues to function.

Q. HOW DOES AEP OHIO PLAN TO CLOSE THE "GAP" AND TO ENSURE THAT THE RELIABILITY OF ITS DISTRIBUTION FACILITIES ARE ALIGNED WITH CUSTOMERS' FUTURE EXPECTATIONS?

A. Continued focus on current level of distribution reliability improvement programs can take the reliability of a distribution system only so far. Eventually, equipment wears out and fails. To reach a higher level of reliability, AEP Ohio has developed a long-term Enhanced Service Reliability Plan (Plan) focusing on enhanced reliability initiatives to address AEP Ohio's aging infrastructure and customers'

demand for increased quality of service. Stated differently, AEP Ohio's plan is designed to ensure that sufficient resources are dedicated to the reliability of its distribution system to align with customers' future expectations.

Q DOES THE PLAN CONTEMPLATE A MORE COMPREHENSIVE APPROACH TO THE REPLACEMENT OF OLD BUT FUNCTIONING EQUIPMENT?

A. Yes, it does. While the Companies still are not adopting a "total rebuild" approach, they will be more likely to replace equipment as they inspect it as part of the proposed enhanced initiatives discussed later in my testimony. Depending on equipment age, expected service life, condition, operating history and other considerations, old but functioning equipment will more likely be replaced as part of the enhanced reliability initiatives than is the case today. Obviously, that change alone will result in improved power quality and service reliability.

Q. HOW CAN AEP OHIO FURTHER IMPROVE ITS POWER QUALITY AND SERVICE RELIABILITY?

A. To further improve and modernize aging assets of its distribution system AEP Ohio's focus is on addressing the leading causes of momentary interruptions and sustained outages, which includes vegetation management, both in and out of rights-of-way, equipment failure and other specific factors that have the greatest negative impact on service reliability. Based on that information, AEP Ohio's Plan was developed to take aim at mitigating those negative impacts thus improving the customers' overall service experience by reducing and/or eliminating momentary

and sustained interruptions and in some cases providing quicker restoration of service when an interruption occurs.

Q. WHAT IS THE PRIMARY FOCUS OF THE PLAN?

A. The primary focus of the Plan is to enhance and modernize AEP Ohio's energy delivery infrastructure to meet customers' increasing reliability expectations. The Plan, therefore, focuses on the leading outage causes (both momentary and sustained) to significantly enhance the overall "customer experience." The Plan consists of the following components:

- Enhanced overhead line inspection approach, targeting specific asset modernization/replacements and reliability enhancements;
- Enhanced vegetation management (right-of-way clearing);
- Targeted distribution automation; and
- Targeted underground residential distribution cable replacement and rejuvenation.

Q. HOW DOES THE PLAN SUPPORT AEP OHIO'S STRATEGIC VISION, AS DESCRIBED BY WITNESS HAMROCK?

A. The Plan is one of the foundational components of AEP Ohio's overall strategic vision in meeting customers' future expectations. As previously discussed, customers' growing expectations for better power quality and reliable service have and will continue to increase. Accomplishing this objective alone will enable customers to experience better power quality and reliable service at work and home.

ENHANCED RELIABILITY INITIATIVES

Enhanced Overhead Inspection and Mitigation Initiative

Q. PLEASE BRIEFLY STATE THE PURPOSE OF THE ENHANCED OVERHEAD INSPECTION AND MITIGATION INITIATIVE.

A. The purpose of this initiative is to improve the customer's overall service experience by reducing equipment related momentary interruptions and sustained outages to our customers. This can be accomplished through a comprehensive overhead inspection process, which will better enable us to proactively identify and replace hardware and equipment that either are prone to failure or that have the potential to fail.

Q. PLEASE BRIEFLY IDENTIFY THE TYPES OF HARDWARE AND EQUIPMENT THAT WILL BE INSPECTED.

A. Hardware on circuits includes poles, crossarms, insulators, conductors, connectors, splices, guy wires, guy anchors, ground wires, mounting brackets and other miscellaneous items. Equipment on circuits would include devices such as, fuse cutouts, arresters, reclosers, sectionalizers, switches, voltage regulators, transformers, and capacitor banks.

Q. HOW DO THE PLAN'S ENHANCED OVERHEAD INSPECTIONS DIFFER FROM CURRENT OVERHEAD INSPECTIONS BEING PERFORMED UNDER THE ELECTRIC SERVICE AND SAFETY STANDARDS (ESSS) FOUND IN RULE 4910:1-10-27 OF THE OHIO ADMINISTRATION CODE?

A. The ESSS rules require AEP Ohio to conduct an overhead line inspection based on a five-year cycle that results in an annual inspection of approximately 20 percent of the overhead distribution facilities. The current inspection program provides a basic visual assessment of the *general* condition of distribution facilities. The proposed Enhanced Overhead Line Inspection Initiative will continue to inspect 20 percent of the overhead distribution facilities annually, as well as other selected circuit zones or pocket areas as needed. The enhanced initiative will consist of a *comprehensive* inspection of the hardware and equipment on each structure by conducting any combination of the following:

- Walking the circuit versus drive-by to visually inspect facilities and/or
- Physically climbing some structures or using a bucket truck to inspect the hardware and equipment.

In addition, as part of its Enhanced Overhead Line Inspection Initiative AEP Ohio will use a variety of technologies, such as infrared inspections and electro-magnetic interference detection devices, to identify distribution hardware and equipment in the beginning stages of failure. The inspection will focus on all hardware and equipment located on each structure.

Q. PLEASE BRIEFLY DESCRIBE THE ACTIONS WHICH WILL BE TAKEN BASED UPON THE RESULTS OF THE ENHANCED OVERHEAD INSPECTIONS.

A. Following the inspection of line miles and the structures associated with those miles, the ensuing mitigation work would range from no action to full structure,

hardware and equipment replacement. More specifically, the mitigation (repair and replacement) work would be categorized as follows:

- Full structure replacement to include the pole. The existing hardware and equipment would either be transferred to the replacement pole or replaced with new hardware and equipment, depending upon the condition of the existing units.

- Partial structure replacement such as a cross arm. The attached hardware and equipment would either be transferred to the replacement arm or replaced with new hardware and equipment, depending upon the condition of the existing units.

- Replacement of major equipment such as transformers, reclosers, sectionalizers, switches, voltage regulators, capacitor banks, and capacitor controls, as needed.

- Replacement of minor equipment such as insulators, arresters, cutouts, conductor segments or spans, additional ground rods, and underground terminations, as needed.

- Minor repairs to existing hardware such as tightening bolts, repair of guy wire, replacement of connectors and/or splices, and installation of animal guards, as needed.

Q. IN CONJUNCTION WITH THE ENHANCED OVERHEAD INSPECTIONS AND ASSOCIATED MITIGATION WORK, ARE THERE ANY OTHER TARGETED INITIATIVES AEP OHIO WILL BE IMPLEMENTING THAT ADDRESS OVERHEAD FACILITIES?

A. Yes. In addition to other mitigation opportunities identified during the enhanced overhead inspections, AEP Ohio is proposing to *proactively* focus on targeted assets. This effort is designed to address both momentary and sustained service interruptions through the focus on five asset areas.

Q. PLEASE BRIEFLY IDENTIFY THE FIVE TARGETED OVERHEAD ASSET INITIATIVES.

A. The five targeted overhead asset initiatives are as follows:

1) *Cutout Replacement:* A cutout is a fuse or disconnecting device consisting of an assembly of a fuse, insulating support and a fuse holder, which may include a fuse link or disconnecting blade. If the cutout contains a fuse link, then it is classified as an expulsion fuse. A cutout will sense over currents due to a line fault, melt the fuse link and then open to clear the fault. Proactively replacing cracked cutouts (which are not always visible from ground inspections) will assist in the mitigation of both momentary and sustained interruptions.

2) *Arrester Replacement:* An arrester, also referred to as a lightning or surge arrester, is a device that protects an electrical circuit, transformer or other equipment from over voltages such as those caused by a nearby lightning strike. When system voltage is normal, the device has no impact on the operation of the system. However, when high voltage is experienced at an arrester location, it clips the portion of the voltage that is above a harmful level, and protects the system. Proactively replacing faulty and obsolete arresters (which has been an emerging industry issue) will assist in the mitigation of both momentary and sustained interruptions.

3) *Recloser Replacement:* With the installation of three single-phase reclosers in place of a three-phase recloser, a circuit is essentially divided by phases. If a fault occurs on one phase, customers located on the other phases will not experience the outage or momentary interruption. Outage times can be minimized with the installation of three single-phase reclosers in place of a three-phase recloser because line crews will be able to quickly identify the phase on which the fault has occurred.

4) *34.5 kV Protection:* The 34.5 kV protection initiative is designed to enhance the protection of existing 34.5 kV circuits. These circuits are capable of handling larger loads and are normally longer in length. Because these circuits are longer than most, their exposure to faults is greater. To minimize this exposure, AEP Ohio intends to implement a combination of several solutions, including "dividing" or sectionalizing the circuits, installing additional lightning arresters and/or adding reactors to lower fault current to improve the

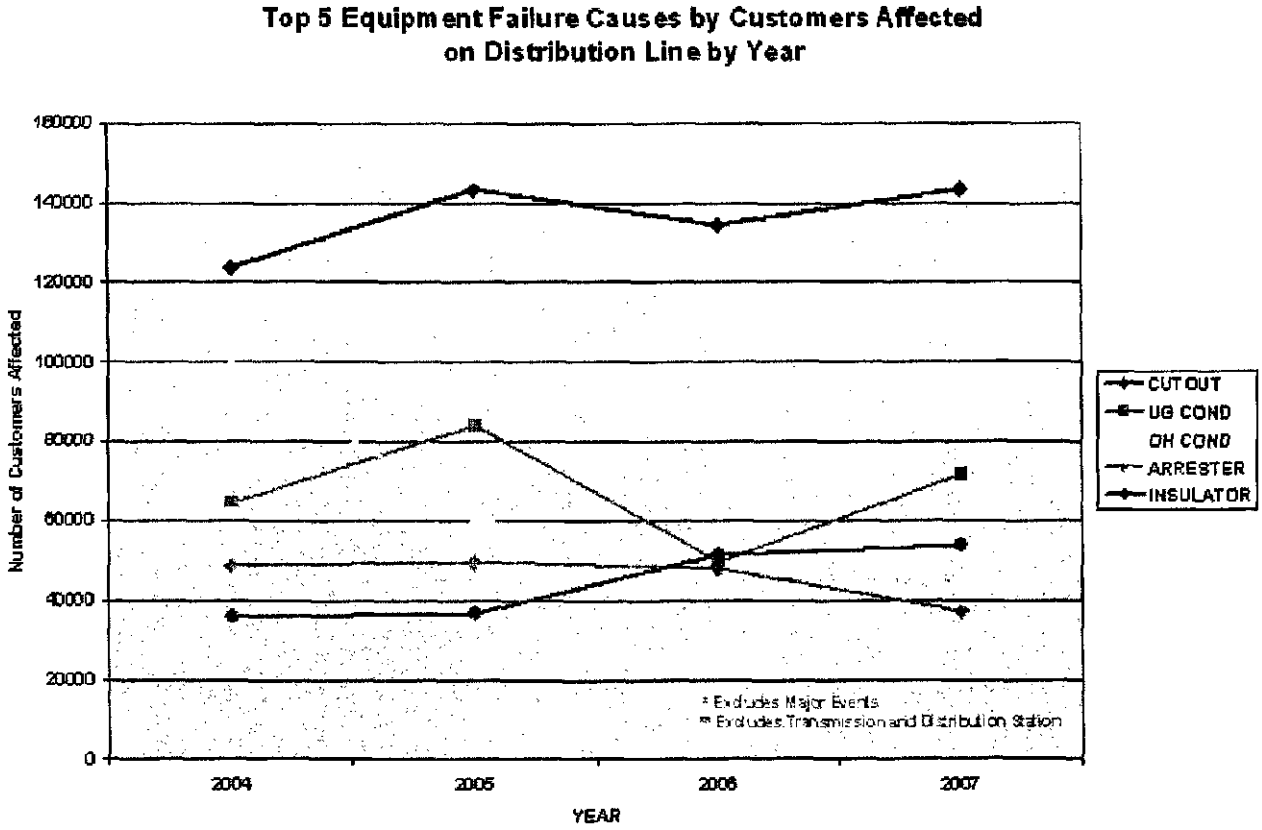
protection device coordination and performance. These solutions should result in a reduction of momentary and sustained outages.

5) *Fault Indicator:* As a way to reduce service restoration time, AEP Ohio plans to install fault indicators on all three-phase overhead switches, all feeder exit riser poles and underground residential distribution (URD) riser poles. Fault indicators are devices used on distribution lines to help locate the cause of both temporary and permanent interruptions. Most of these devices will display a 'flag' when there is a downstream fault. These 'flags' help line crews determine where the fault has occurred, minimizing service restoration times. Although these devices would not help eliminate any momentary or sustained outages, they are used to help determine the location of the cause of the interruption and reduce outage restoration time.

Q. HOW DID AEP OHIO DETERMINE WHICH ASSETS TO TARGET?

A. Chart 3 shows the top five causes of equipment failures on distribution lines since 2004 excluding major events and transmission caused outages which are cutouts, underground conductor, overhead conductor, arresters, and insulators. The five leading equipment failure causes equate to approximately 350,000 customers experiencing some type of equipment related outage. This outage related data coupled with years of industry experience, determined which asset programs AEP Ohio could accelerate to obtain maximum reduction in number of outages and duration of outages.

Chart 3



Q. YOU HAVE INDICATED CUSTOMERS WILL EXPERIENCE AN IMPROVEMENT IN BOTH MOMENTARY AND SUSTAINED INTERRUPTIONS THROUGH THE IMPLEMENTATION OF THE ENHANCED OVERHEAD INSPECTION AND MITIGATION WORK AND THE FIVE TARGETED OVERHEAD ASSET INITIATIVES. PLEASE ELABORATE ON THESE BENEFITS.

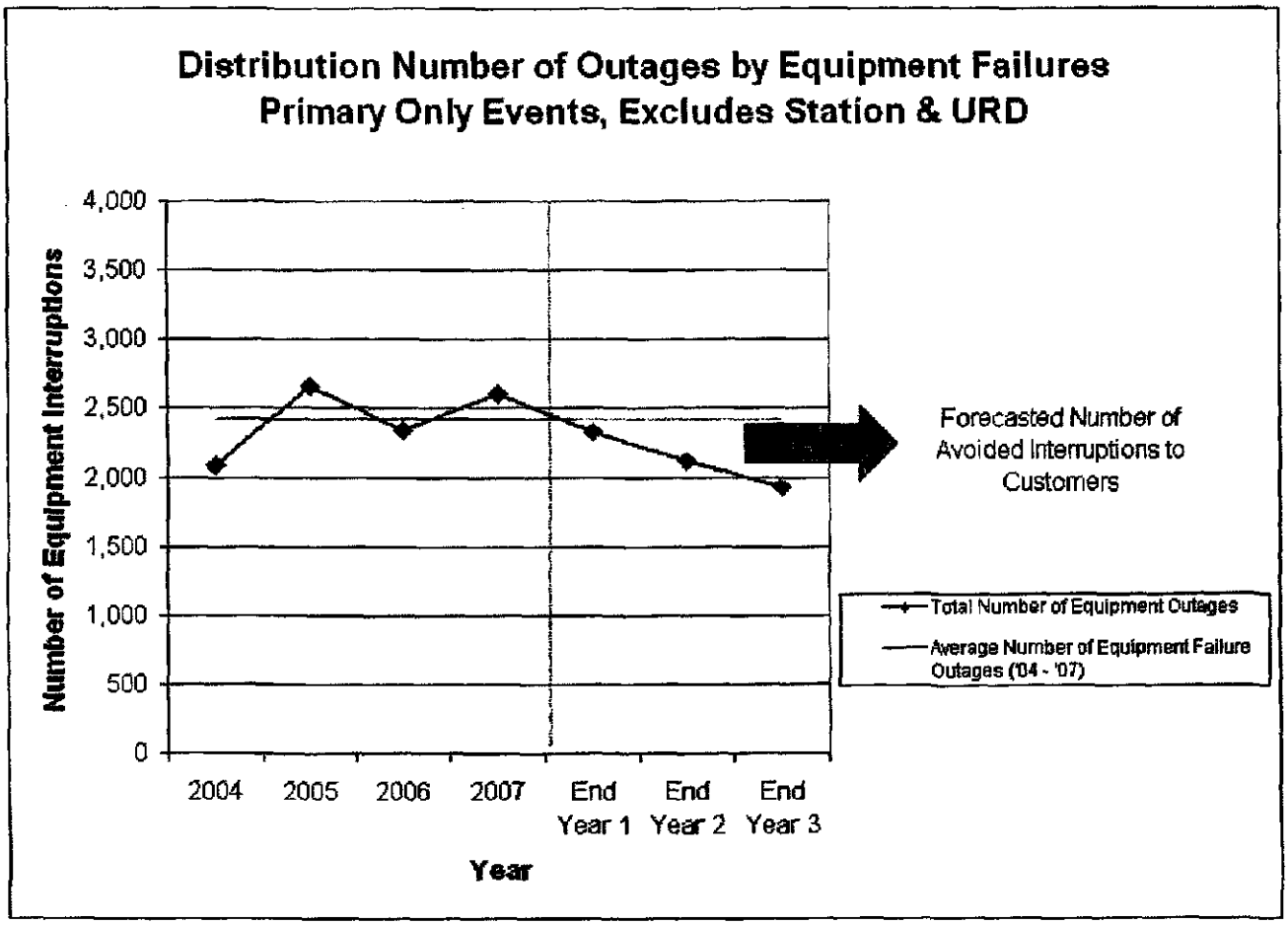
A. In many situations, such as equipment failure, sustained outages are preceded by temporary faults that are often cleared by automatic reclosing devices. By mitigating the ultimate cause, targeting and replacing equipment before it fails for instance, both

the momentary and subsequent sustained interruptions from a permanent fault can be eliminated, resulting in better power quality and reliability to our customers.

As illustrated in Chart 4, once a circuit has been fully mitigated, the Companies are forecasting a 40% reduction in distribution primary equipment related outages. Because momentary interruptions are often a prelude to sustained outages, it is not uncommon to also see a reduction in momentary interruptions as well. The benefits of the enhanced reliability initiatives can be measured approximately one year after the mitigation work has been completed. However, customers will recognize the power quality and reliability benefits immediately once the work has been completed.

In summary, comprehensive inspections and targeted asset initiatives proactively improve customers' overall service experience.

Chart 4



Q. PLEASE SUMMARIZE THE WORK UNITS TO BE PERFORMED AND ASSOCIATED COST FOR THE ENHANCED OVERHEAD INSPECTION AND MITIGATION WORK AND THE FIVE TARGETED OVERHEAD ASSET *INITIATIVES*.

A. Chart 5 represents the forecasted costs and units of work to be performed under the enhanced overhead inspections and the five targeted overhead asset initiatives.

Chart 5

Enhanced Overhead Inspection and Mitigation Initiative and Associated Incremental Cost												
Forecasted Units of Work	**Year 1**				**Year 2**				**Year 3**			
Miles to be Inspected	6,500				7,000				8,000			
Cutout Replacement	12,000				11,000				11,600			
Arrester Replacement	4,000				3,500				3,500			
Reclosers Replacement	75				75				75			
34.5 kV Number of Circuits	10				12				14			
Fault Indicators	1,000				1,000				1,000			
($ Millions)												
Incremental Cost	**O&M**		**Capital**		**O&M**		**Capital**		**O&M**		**Capital**	
	CSP	**OP**	**CSP**	**OP**	**CSP**	**OP**	**CSP**	**OP**	**CSP**	**OP**	**CSP**	**OP**
	7.1	13.4	12.4	23.5	8.9	16.9	16.3	30.8	9.7	18.3	17.2	32.6
	20.4		36.0		25.8		47.1		27.9		49.8	

Enhanced Vegetation Initiative

Q. PLEASE BRIEFLY STATE THE PURPOSE OF THE ENHANCED VEGETATION INITIATIVE.

A. The purpose of the Enhanced Vegetation Initiative is to improve the customer's overall service experience by reducing and/or eliminating tree caused momentary interruptions and/or sustained outages to our customers. This can be accomplished through an increased focus of moving from a performance-based to a more cycle-based approach regarding vegetation management.

Q. HAS AEP OHIO EXPERIENCED ANY BENEFITS BY INCREASING ITS SPENDING ON VEGETATION MANAGEMENT?

A. Yes. Increased spending over the 2004-2005 time period has led to some reduction in tree-caused outages, resulting in better reliability to the customer. For example, in reviewing circuits which received incremental vegetation management work, the Companies were able to realize a 62 percent reduction in outages associated with trees within rights-of-way. This equates to a 75 percent decrease in customers affected and over a 75 percent decrease in customer minutes.

In order to continually manage vegetation growth on the distribution system, AEP Ohio proposes to balance its performance-based approach to reflect a greater consideration of cycle-based factors to continue these positive results.

Q. WHAT IS THE DIFFERENCE BETWEEN A PERFORMANCE-BASED VERSUS A CYCLE-BASED APPROACH TO VEGETATION MANAGEMENT?

A. AEP Ohio uses the performance-based approach to allocate labor and financial resources to areas where tree-related outage concerns exist. Therefore, under the current program, it is common that a circuit may not be completely cleared end-to-end for some number of years. In contrast to this approach is a strict cycle-based program that allows trees along lines to be trimmed only on a fixed time continuum.

Q. HOW WILL AEP OHIO BALANCE ITS PERFORMANCE-BASED APPROACH TO REFLECT A GREATER CONSIDERATION OF CYCLE-BASED FACTORS?

A. AEP Ohio would combine elements from both performance-based and cycle-based vegetation management philosophies. During an initial three-year period, AEP Ohio would employ the use of improved technology to collect, store, predict and analyze specific vegetation data. More specifically, this new improved process/technology would allow the Company to inventory tree species' growth rates to create detailed work plans for each circuit (or portions of a circuit) to annually predict and schedule maintenance cycles as the need exists. For example, some species' growth rates may dictate a trim cycle to be every two years, while other cycles may be longer. Because species' growth rates are not the only determinant of when vegetation needs to be managed, other information will be collected and stored to assist in the cycle analysis. The location of vegetation in proximity to the conductors, accessibility, density, and vegetation coverage (e.g., vines) are other input variables critical to the planning process.

Q. WOULD YOU PLEASE BRIEFLY SUMMARIZE THE MAJOR WORK COMPONENTS ASSOCIATED WITH THE ENHANCED VEGETATION INITIATIVE?

A. Yes. If our Plan is approved, AEP Ohio will deploy the following enhanced work initiatives:

- employ additional resources - approximately equivalent to doubling the current number of tree crews working in Ohio.
- employ greater emphasis on cycle-based planning and scheduling;
- increase the level of vegetation management work performed so that all distribution rights-of-way can be inspected and maintained, "end-to-end;" and

- use improved technologies to collect tree inventory data to optimize planning and scheduling by predicting problem areas before momentary interruptions or sustained outages occur.

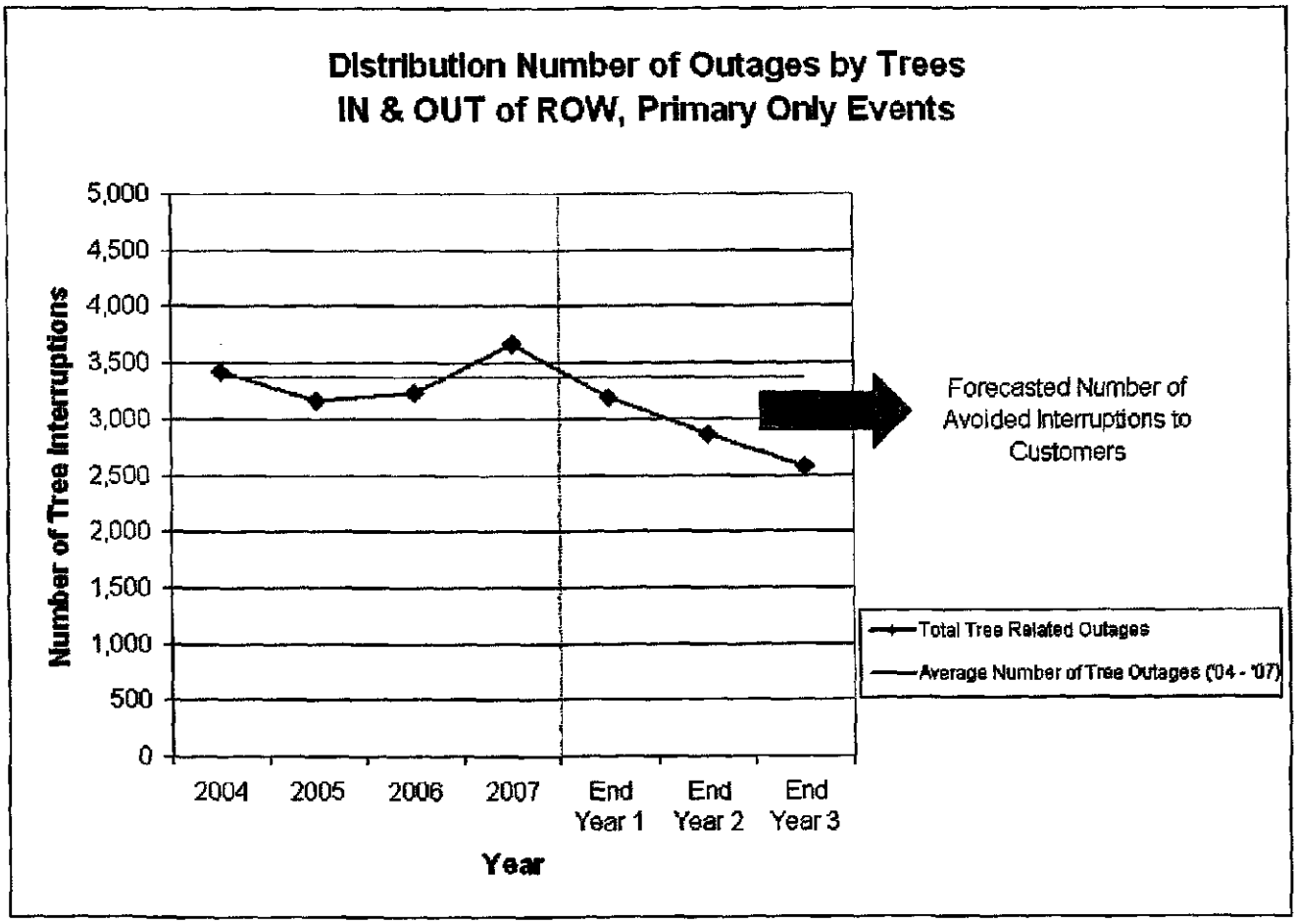
Q. YOU HAVE INDICATED CUSTOMERS WILL EXPERIENCE AN IMPROVEMENT IN BOTH MOMENTARY AND SUSTAINED INTERRUPTIONS AS A RESULT OF THE ENHANCED VEGETATION INITIATIVES. COULD YOU PLEASE ELABORATE ON THESE BENEFITS?

A. Yes. Storms, wind and ice are major contributors to tree-caused momentary interruptions, sustained interruptions and longer restoration times. These weather-related elements can cause trees to fall or branches to break or bend into wires thus, resulting in an electrical arc or flash between the two conductors, which can cause a momentary interruption and/or sustained outage. Additionally, these limbs provide a clear path way for animals to come in contact with these same facilities producing the same results. Simply put - trimming and clearing more vegetation from our rights-of-way will result in better power quality and reliability to our customers through the reduction in momentary and sustained interruptions.

Chart 6 provides a total estimated customer tree related sustained outage reductions under years 1, 2 and 3 for the circuits cleared under the enhanced initiative. The benefits of the enhanced vegetation initiatives can be measured approximately one year after the mitigation work has been completed. However, customers will recognize the power quality and *reliability* benefits immediately

once the work has been completed. Enhanced vegetation initiative proactively reduces tree-caused outages, which improves customers' overall service experience.

Chart 6



Q. PLEASE SUMMARIZE THE WORK UNITS TO BE PERFORMED AND ASSOCIATED COST FOR THE ENHANCED VEGETATION MANAGEMENT INITIATIVE.

A. Chart 7 represents the forecasted costs and units of work to be performed under the enhanced vegetation management initiative. Year 1 shows somewhat less work than years two and three because of the need to ramp-up additional resources

necessary to complete this initiative. Once the distribution system has been totally cleared and inventoried, AEP Ohio expects the number of tree crews to decrease.

Chart 7

Enhanced Vegetation Management Initiative and Associated Incremental Cost												
Forecasted Incremental Units of Work	**Year 1**				**Year 2**				**Year 3**			
Trees Trimmed	285,000				302,000				305,000			
Trees Removed	164,000				174,000				175,000			
Brush Cleared (Acres)	1,600				1,700				1,800			
($ Millions)												
Incremental Cost	**O&M**		**Capital**		**O&M**		**Capital**		**O&M**		**Capital**	
	CSP	**OP**	**CSP**	**OP**	**CSP**	**OP**	**CSP**	**OP**	**CSP**	**OP**	**CSP**	**OP**
	9.1	17.1	1.8	3.4	9.8	18.5	2.3	4.3	10.5	19.8	2.7	5.2
	26.2		5.3		28.2		6.6		30.2		7.9	

Enhanced Underground Cable Initiative (Cable Initiative)

Q. PLEASE BRIEFLY STATE THE PURPOSE OF THE ENHANCED CABLE INITIATIVE.

A. The purpose of this initiative is to reduce momentary interruptions and sustained outages due to failures of aging underground cable. This initiative includes substation power cables, mainline feeder cables and underground residential distribution (URD) cables in developments served by underground facilities. This can be accomplished by targeting underground cables manufactured prior to 1992 to replace and/or restore (rejuvenate) the integrity of the cable insulation through the injection of a compound that restores the strength of the cable insulation.

Q. PLEASE DISCUSS THE RATIONALE FOR PROPOSING THE ENHANCED CABLE INITIATIVE.

A. Some underground cable is approaching the end of its useful life. This useful life is impacted by age; insulation type; operational history, including the number of previous failures; digs-ins; soil type; and cable condition.

URD cable installed during the 1970s and 1980s was manufactured with insulation prone to break down from electrical stresses, as well as voids in the insulation. As technology improved, the insulation quality also improved along with the manufacturing methods. URD cable had bare concentric neutrals up through the mid-1980s. The design has since been changed to jacketed cable, which provides protection to the concentric neutral conductors, and in 1992 the specification was changed to include a conductor strand shield which prevents water from migrating along the conductor.

Q. YOU HAVE INDICATED THAT A TARGETED NUMBER OF CUSTOMERS WOULD EXPERIENCE A REDUCTION IN MOMENTARY INTERRUPTIONS AND SUSTAINED OUTAGES AS A RESULT OF THE ENHANCED CABLE INITIATIVE. PLEASE EXPLAIN.

A. As previously discussed, the Companies will target older power cables and mainline feeder cables as well as developments served by underground facilities (pre-1992) and areas experiencing interruptions. By treating or replacing cable in a proactive initiative, associated momentaries and failures are reduced. Unlike the Enhanced Vegetation Management Initiative and the Enhanced Overhead Inspections and

Mitigation Initiatives, which have an overall impact on system customer outage minutes, a portion of the Cable Initiative is designed to target areas in older residential subdivisions for improvement. When cables begin to fail in these older developments, the Companies often see repeated failures over a short period of time. Customers' tolerance for outages diminishes rapidly in these instances, resulting in customer dissatisfaction with their service.

Q. PLEASE SUMMARIZE THE WORK UNITS TO BE PERFORMED AND THE ASSOCIATED COST FOR THE ENHANCED CABLE INITIATIVE.

A. Chart 8 shows AEP Ohio's forecasted Cable Initiative work plan over three years and the cost to achieve that work plan. It is important to note that this plan may change over the time period specified due to other emerging issues.

Chart 8

Enhanced Underground Cable Initiative and Associated Incremental Cost												
Forecasted Units of Work	**Year 1**				**Year 2**				**Year 3**			
Line miles Replaced/Rejuvenated	205				205				205			
($ Millions)												
Incremental Cost	**O&M**		**Capital**		**O&M**		**Capital**		**O&M**		**Capital**	
	CSP	**OP**	**CSP**	**OP**	**CSP**	**OP**	**CSP**	**OP**	**CSP**	**OP**	**CSP**	**OP**
	0.8	0.3	27.1	10.1	1.2	0.5	28.7	10.7	1.3	0.5	30.4	11.3
	1.1		37.2		1.7		39.4		1.8		41.7	

Distribution Automation (DA) Initiative

Q. PLEASE DISCUSS THE RATIONALE FOR PROPOSING THE DA INITIATIVE.

A. DA can be considered a critical component of the gridSMART distribution initiative because of both the reliability benefits it provides to every customer through the use of advanced technology, and by providing the advanced communications network to help support other aspects of AEP Ohio's gridSMART Phase 1 initiative, as discussed further by AEP Ohio's Witness Sloneker. The communication system used by DA will also allow for communication between switches, capacitor banks, and regulators to help monitor and control power quality, while also allowing a pathway for the customer's meter to communicate real-time information. The DA system itself not only allows for the automatic restoration of customers in non-faulted zones, but also transmits information about the characteristics of the faults allowing for the faster service restoration for customers. Targeted DA applications lend themselves well not only to residential customers but in economic development initiatives by attracting new businesses seeking a higher level of power quality and reliable service.

Q. PLEASE DESCRIBE THE PURPOSE OF DISTRIBUTION GRID MANAGEMENT.

A. Distribution grid management, including DA and Advanced Metering Infrastructure (AMI), are new technologies that improve service reliability by minimizing, quickly identifying and isolating faulted distribution line sections and remotely restoring

service interruptions. More specifically, distribution grid management can provide advanced capabilities such as outage and restoration reporting, distribution equipment monitoring (energy usage), and remote meter reading and validation of power status. With this capability, AEP Ohio can provide an additional means for identifying outage events and as an added advantage customers will experience more accurate meter reads, quicker identification of problematic meters and better capability to resolve "high" bill complaints. AMI also provides AEP Ohio the ability to map momentary and sustained outages and improve quality of service by leveraging electronic meter alarms and alerts, as well as demand response information to help reduce and manage a customers' peak demand use.

Q. WILL THE DA INITIATIVE IMMEDIATELY PROVIDE THE SAME ENERGY EFFICIENCY BENEFITS AS ARE AVAILABLE UNDER THE gridSMART PHASE 1 INITIATIVE?

A. DA compliments the gridSMART initiative but also provides a stand alone benefit. DA switches installed on circuits not included in AEP Ohio's gridSMART Phase 1 initiative will not enable customers to take advantage of meter communication and energy efficiency programs. However, customers served on circuits not included in Phase 1 but have DA circuit capability, will experience the improved reliability benefits I previously described. As Phase 1 is expanded, then those gridSMART benefits will also be expanded.

Q. PLEASE SUMMARIZE THE WORK UNITS TO BE PERFORMED AND ASSOCIATED COST FOR THE DA INITIATIVE.

A. Chart 9 shows AEP Ohio's forecasted DA initiative work plan over 3 years and the cost to achieve that work plan. It is important to note that this plan may change over the time period specified due to other emerging issues.

Chart 9

Distribution Automation Initiative and Associated Incremental Cost												
Forecasted Units of Work	**Year 1**				**Year 2**				**Year 3**			
Switches to be Installed	**30**				**30**				**40**			
($ Millions)												
Incremental Cost	**O&M**		**Capital**		**O&M**		**Capital**		**O&M**		**Capital**	
	CSP	**OP**	**CSP**	**OP**	**CSP**	**OP**	**CSP**	**OP**	**CSP**	**OP**	**CSP**	**OP**
	0.0	0.0	1.2	2.2	0.0	0.0	1.3	2.4	0.0	0.0	1.6	3.0
	0.0		3.4		0.0		3.6		0.0		4.6	

SUMMARY

Q. PLEASE SUMMARIZE THE ENHANCED SERVICE RELIABILITY PLAN'S INCREMENTAL CAPITAL AND O&M REQUIREMENTS FOR THE COMPANIES OVER THE THREE-YEAR ESP?

A. Chart 10 and EXHIBIT KGB-1 shows the total funding requirement being requested for each of the proposed enhanced initiatives.

Chart 10

Enhanced Initiatives	Incremental Cost ($ Millions)			
	O&M		Capital	
	CSP	OP	CSP	OP
Vegetation Management	29.3	55.4	6.8	12.9
Overhead Inspection and Mitigation	25.6	48.5	46.0	86.9
Underground Cable	3.3	1.2	86.1	32.1
Distribution Automation	0.0	0.0	4.0	7.7
Total Incremental Cost	58.2	105.1	142.9	139.6
	163.3		282.6	

The recovery of the cost of making these improvements to service reliability is, of course, a critical consideration in implementing this Plan. In addition, consideration must be given to the potentially limited availability of both human and material resources in order to implement the Plan. Finally, it must be understood that the cost projections contained in the Plan represent AEP Ohio's best efforts to estimate the amount of work that will need to be done, the cost of such work and the effects that inflation will have on these costs. This latter point is a greater concern the further out in time the cost projections go.

Q. WHAT OTHER FACTORS SHOULD BE CONSIDERED IN APPROVING THIS PROPOSED PLAN?

A. In reviewing this Plan it is important to keep in mind several key considerations. First, this Plan presents a three-year horizon. That does not mean, however, that AEP Ohio has approached the development of its Plan as a three-year exercise, after which its distribution reliability efforts and current costs will revert to a pre-Plan level. As

customers' expectations increase that will dictate that AEP Ohio continue to support the need for a longer-term outlook. As a result, the Plan is intended to be adjustable as circumstances warrant. If new problems arise or new technologies become available, AEP Ohio will evaluate what changes should be made to the Plan to reflect such developments.

Q. DOES THAT CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, it does.

Enhanced Reliability Programs
Amounts in $millions

	Year 1		Year 2		Year 3		Total	
Cost Component	O&M	Capital	O&M	Capital	O&M	Capital	O&M	Capital
Internal Labor	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Outside Service	$24.7	$3.8	$26.6	$4.8	$28.5	$5.7	$79.8	$14.3
Materials	$1.3	$0.2	$1.4	$0.3	$1.5	$0.3	$4.2	$0.8
Subtotal	**$26.0**	**$4.0**	**$28.0**	**$5.0**	**$30.0**	**$6.0**	**$84.0**	**$15.0**
Labor Fringes (36% of Labor)	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Transportation (26% of Labor)	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Stores Loading (11% of Materials)	$0.1	$0.0	$0.2	$0.0	$0.2	$0.0	$0.5	$0.1
Sales Tax (6.5% of Materials)	$0.1	$0.0	$0.1	$0.0	$0.1	$0.0	$0.2	$0.0
CCO Load (31% of Capital Cost)	$0.0	$1.2	$0.0	$1.6	$0.0	$1.9	$0.0	$4.7
Vegetation Management Loaded Costs	**$26.2**	**$5.3**	**$28.2**	**$6.6**	**$30.2**	**$7.9**	**$84.7**	**$19.8**
CSP Veg	$9.1	$1.8	$9.8	$2.3	$10.5	$2.7	$29.5	$6.8
OP&G Veg	$17.1	$3.4	$18.5	$4.3	$19.8	$5.2	$55.4	$12.9
Total	$26.2	$5.3	$28.2	$6.6	$30.2	$7.9	$84.7	$19.8

	Year 1		Year 2		Year 3		Total	
Cost Component	O&M	Capital	O&M	Capital	O&M	Capital	O&M	Capital
Internal Labor	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Outside Service	$10.5	$14.3	$13.2	$18.7	$14.3	$19.8	$38.0	$52.8
Materials	$8.6	$11.7	$10.8	$15.3	$11.7	$16.2	$31.1	$43.2
Subtotal	**$19.0**	**$26.0**	**$24.0**	**$34.0**	**$26.0**	**$36.0**	**$69.0**	**$96.0**
Labor Fringes (36% of Labor)	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Transportation (26% of Labor)	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Stores Loading (11% of Materials)	$0.9	$1.3	$1.2	$1.7	$1.3	$1.8	$3.4	$4.8
Sales Tax (6.5% of Materials)	$0.5	$0.8	$0.8	$0.8	$0.8	$0.9	$1.7	$2.4
CCO Load (31% of Capital Cost)	$0.0	$8.1	$0.0	$10.5	$0.0	$11.2	$0.0	$29.8
Overhead Line Program Loaded Costs	**$20.4**	**$36.0**	**$26.8**	**$47.1**	**$27.9**	**$49.8**	**$74.1**	**$132.9**
CSP Overhead Line Program	$7.1	$12.4	$8.9	$16.3	$9.7	$17.2	$25.6	$46.0
OP Overhead Line Program	$13.4	$23.5	$16.9	$30.8	$18.3	$32.6	$48.6	$86.9
Total	$20.4	$36.0	$26.8	$47.1	$27.9	$49.8	$74.1	$132.9

	Year 1		Year 2		Year 3		Total	
Cost Component	O&M	Capital	O&M	Capital	O&M	Capital	O&M	Capital
Internal Labor	$0.0	$0.1	$0.0	$0.1	$0.0	$0.2	$0.0	$0.4
Outside Service	$0.0	$0.8	$0.0	$0.6	$0.0	$0.8	$0.0	$2.0
Materials	$0.0	$1.6	$0.0	$1.8	$0.0	$2.2	$0.0	$5.6
Subtotal	**$0.0**	**$2.4**	**$0.0**	**$2.5**	**$0.0**	**$3.2**	**$0.0**	**$8.0**
Labor Fringes (36% of Labor)	$0.0	$0.0	$0.0	$0.0	$0.0	$0.1	$0.0	$0.1
Transportation (26% of Labor)	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.1
Stores Loading (11% of Materials)	$0.0	$0.2	$0.0	$0.2	$0.0	$0.2	$0.0	$0.6
Sales Tax (6.5% of Materials)	$0.0	$0.1	$0.0	$0.1	$0.0	$0.1	$0.0	$0.3
CCO Load (31% of Capital Cost)	$0.0	$0.7	$0.0	$0.8	$0.0	$1.0	$0.0	$2.5
Distribution Automation Loaded Costs	**$0.0**	**$3.4**	**$0.0**	**$3.6**	**$0.0**	**$4.6**	**$0.0**	**$11.7**
CSP Distribution Automation	$0.0	$1.2	$0.0	$1.3	$0.0	$1.6	$0.0	$4.0
OP Distribution Automation	$0.0	$2.2	$0.0	$2.4	$0.0	$3.0	$0.0	$7.7
Total	$0.0	$3.4	$0.0	$3.6	$0.0	$4.6	$0.0	$11.7

	Year 1		Year 2		Year 3		Total	
Cost Component	O&M	Capital	O&M	Capital	O&M	Capital	O&M	Capital
Internal Labor	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Outside Service	$0.6	$16.2	$1.0	$17.2	$1.0	$18.2	$2.6	$51.5
Materials	$0.4	$10.8	$0.6	$11.4	$0.7	$12.1	$1.7	$34.4
Subtotal	**$1.0**	**$27.0**	**$1.5**	**$28.6**	**$1.7**	**$30.3**	**$4.3**	**$85.9**
Labor Fringes (36% of Labor)	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Transportation (26% of Labor)	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Stores Loading (11% of Materials)	$0.0	$1.2	$0.1	$1.3	$0.1	$1.3	$0.2	$3.8
Sales Tax (6.5% of Materials)	$0.0	$0.6	$0.0	$0.6	$0.0	$0.7	$0.1	$1.9
CCO Load (31% of Capital Cost)	$0.0	$8.4	$0.0	$8.9	$0.0	$9.4	$0.0	$26.6
Underground Cable Program Loaded Costs	**$1.1**	**$37.2**	**$1.7**	**$39.4**	**$1.8**	**$41.7**	**$4.6**	**$118.2**
CSP Underground	$0.8	$27.1	$1.2	$28.7	$1.3	$30.4	$3.3	$86.1
OP Underground	$0.3	$10.1	$0.5	$10.7	$0.5	$11.3	$1.2	$32.1
Total	$1.1	$37.2	$1.7	$39.4	$1.8	$41.7	$4.6	$118.2

	Year 1		Year 2		Year 3		Total	
	O&M	Capital	O&M	Capital	O&M	Capital	O&M	Capital
Vegetation Management	$26.2	$5.3	$28.2	$6.6	$30.2	$7.9	$84.7	$19.8
Overhead Line Program	$20.4	$36.0	$26.8	$47.1	$27.9	$49.8	$74.1	$132.9
Distribution Automation	$0.0	$3.4	$0.0	$3.6	$0.0	$4.6	$0.0	$11.7
Underground Cable Program	$1.1	$37.2	$1.7	$39.4	$1.8	$41.7	$4.6	$118.2
Total	$47.7	$81.8	$56.7	$96.7	$60.0	$104.1	$163.4	$282.6