Exhibit No.:
Issues: Callaway Power Plant
Witness: Charles D. Naslund
Sponsoring Party: Union Electric Company
Type of Exhibit: Direct Testimony
Case No.: ER-2007-0002
Date Testimony Prepared: July 5, 2006

MISSOURI PUBLIC SERVICE COMMISSION

CASE NO. ER-2007-0002

DIRECT TESTIMONY

OF

CHARLES D. NASLUND

ON

BEHALF OF

UNION ELECTRIC COMPANY
d/b/a AmerenUE

St. Louis, Missouri
July, 2006

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DIRECT TESTIMONY

OF

CHARLES D. NASLUND

CASE NO. ER-2007-0002

I. INTRODUCTION

Q. Please state your name and business address.

A. Charles D. Naslund, Ameren Services Company ("Ameren Services"), One Ameren Plaza, 1901 Chouteau Avenue, St. Louis, Missouri 63103.

Q. What is your position with Ameren Services?

A. I am Senior Vice President and Chief Nuclear Officer.

Q. What is Ameren Services?

A. Ameren Services provides various corporate, administrative and technical support services for Ameren Corporation ("Ameren") and its affiliates, including Union Electric Company d/b/a AmerenUE ("Company" or "AmerenUE"). Because AmerenUE is the only Ameren company owning or operating a nuclear power plant, all of Ameren Services' activities relating to nuclear generation are provided to AmerenUE.

Q. Please describe your educational background and employment experience.

A. I earned a bachelor's degree in Electrical Engineering in 1974 from the University of Missouri-Rolla and have completed 27 of 30 hours toward a master's degree in Civil Engineering Construction Management at the University of Missouri – Columbia.

I began my career at Union Electric Company in December 1974 as an assistant engineer in substation design. In February 1976 I became Construction Supervisor

for the new Callaway Nuclear Power Plant ("Callaway Plant"), working at the Callaway Plant at the time of its groundbreaking. In 1980, I was promoted to Supervising Engineer--Start-up and I became Superintendent of Start-up in 1983. After the nuclear core of the Callaway Plant was loaded in June 1984, I became the Superintendent of Instrument & Controls. Over the next thirteen years, I held the following additional positions at the Callaway Plant: Manager of Operations Support, 1986 to 1991; Manager of Nuclear Engineering, 1991 to 1998; and Assistant Vice-President of Power Operations, July 1998 to January 1999. From 1999 to September 2004, I was in charge of the fossil and hydroelectric generating fleet for AmerenUE. In September 2004, I returned to Callaway Plant as Vice-President, Nuclear Operations, and in December 2004 I was promoted to Senior Vice-President and Chief Nuclear Officer.

II. PURPOSE AND SUMMARY OF TESTIMONY

Q. What is the purpose of your testimony in this proceeding?

A. The purpose of my testimony is to: (a) provide a background of the Callaway Nuclear Plant's performance and its importance to Missouri; (b) discuss the substantial capital additions made to the Callaway Plant since the Company's last rate proceeding (Case No. EC-2002-1, initiated in July, 2001); (c) provide up-to-date information on several changes to the Callaway Plant's security infrastructure and the associated operation and maintenance ("O&M") cost increases, nearly all of which were driven by governmentally-mandated requirements following the September 11, 2001 terrorist attack; (d) discuss a key Callaway Plant operation, its regular (every 18 months) refueling outages; and (e) provide information related to a future decision that will have to be made regarding whether or not

the Company should seek to relicense the Callaway Plant. Attachment A is an Executive Summary of my testimony.

III. BACKGROUND OF CALLAWAY'S PERFORMANCE

Q. Please briefly describe the Callaway Plant.

A. The Callaway Plant is a 1,292 megawatt ("MW") nuclear plant located in Callaway County, Missouri. In 2005, the Callaway Plant was the third largest power producer on the Ameren system, accounting for 10.3 percent of AmerenUE's total generation. Only the coal-fired Labadie and Rush Island plants produced more power than Callaway. Callaway's 2005 net generation of 8 million megawatt-hours ("MWh") was enough to supply all the electricity needs of more than 656,000 homes.

Q. How has production from the Callaway Plant compared with production at other nuclear plants?

A. Callaway's production has exceeded that of most other nuclear units. Since beginning operation in 1984, Callaway has achieved the sixth highest lifetime generation among the 103 nuclear power plants operating in the U.S. (188,831,745 MWh through 2005). Callaway's lifetime generation through 2005 also ranked 22nd in the world, out of 443 nuclear plants operating in 30 countries.

Q. How has the operation of the Callaway Plant impacted the economy in Central Missouri?

A. Callaway is a major factor in both the state and local economy. More than 1,000 AmerenUE employees and contractors work there full time, with a total annual payroll of $81 million. During refueling outages which occur every 18 months, hundreds of additional workers are usually brought in for several weeks—providing a significant boost to

the local economy. The Callaway Plant is a major source of tax revenue to fund education and other critical services. In 2005, the plant accounted for $9.5 million of AmerenUE's property taxes paid to Callaway County, with $6.5 million of that amount going to local schools. In addition, assessed values based on AmerenUE's investment in the plant resulted in another $20.9 million in taxes shared by the remaining 68 counties in AmerenUE's Missouri service area.

IV. MAJOR CAPITAL ADDITIONS

Q. Please summarize the capital additions made to the Callaway Plant since 2001.

A. Significant major component replacements have been made to the Callaway Plant since 2001, including the 2005 replacement of the plant's four steam generators--the giant boilers that produce steam for generating electricity. In addition, in 2005 AmerenUE replaced one high pressure and three low pressure turbines and their associated casings and diaphragms. Turbines are the components of the plant which spin with steam pressure to operate the generators. Finally, the Company replaced the main feedwater isolation valve actuators, and installed new distributed control systems. In the area of plant security infrastructure, the Company installed a number of new security barriers, devices and systems required to meet federal guidelines. In total, the Company made $449,677,723 in capital additions to the Callaway Plant over approximately the past 5 years. Schedule CDN-1 summarizes each of these additions and their associated costs.

Q. Please explain some of the key drivers that necessitated the nearly $450 million of capital additions at the Callaway Plant over this period.

A. From a general perspective, each of these additions to the Callaway Plant was necessary to ensure that Callaway remains a reliable source of power for AmerenUE and its Missouri ratepayers. The Callaway Plant has now been in operation for more than 20 years. Many of its components are at end of their useful lives and/or have become obsolete due to the unavailability of replacement parts necessary to perform proper maintenance on them.

Q. Are there more specific drivers?

A. Yes. Several components were fabricated almost 30 years ago from "alloy 600" materials. "Alloy 600" is a special type of stainless steel metal used to fabricate steam generator tubing, piping and as a weld filler metal for many of the welds made in Callaway's reactor coolant system. In the 1970's when Callaway was being designed and components fabricated, alloy 600 was the best alloy available for the required temperature and pressure operating conditions. It is now known that alloy 600 materials were not able to withstand the operating temperature and pressure they were subjected to in a nuclear power plant, over the periods for which they were designed. As a result, the alloy 600 materials have failed prematurely. Among other consequences, the premature failure of the alloy 600 materials necessitated the replacement of all four of the Callaway Plant's steam generators.

Q. What materials were used to replace the alloy 600 materials?

A. In designing the new components, including the new steam generators, AmerenUE selected state-of-the-art materials that we expect to last for the remaining life of the plant. For the new steam generator tubing, alloy 690, a more durable stainless steel alloy was utilized. In addition, AmerenUE utilized modern design technologies to increase the efficiency of the components. This allowed the Company to improve both durability and plant output.

Q. What was involved in replacing the Callaway steam generators?

A. Replacing the steam generators was no small task, because each one is about 70 feet tall and 17 feet in diameter, and weighs about 400 tons. The new steam generators were manufactured in France and contain tubing from Sweden. They feature improved technology that has proven to be more efficient and durable than the original units. The improved efficiency of the new steam generators, combined with turbine upgrades that were also performed during the 2005 outage, increased Callaway's net generating capacity by 60 MW. The cost of the steam generator replacement and turbine upgrade projects was approximately $200 million.

Q. Please address the increase in plant output more specifically.

A. As a byproduct of replacing the newly designed steam generators, turbines and actuators in 2005, the Company was able to increase the output of the Callaway Plant from 1,232 MW gross to 1,292 MW, or a 60 MW output increase. This increase in plant output further assists the Company in serving its growing loads with a low-cost supply of energy.

Q. Was the Company successful in completing its replacement projects in 2005?

A. Yes. In 2005, Callaway set a new world record for the shortest time it took to replace four steam generators. Callaway's replacement time of 63 days and 13 hours was more than a day shorter than the previous record of 64 days and 17 hours set by the South Texas Project in 2002.

The entire 2005 outage was completed on time, under budget, and with no lost-time accidents among either Ameren employees or contractors. This was the most

complex and challenging outage since construction, because it included replacement of all four steam generators as well as replacement of all four turbines. The plant shut down September 17 and returned to service on November 19.

As in past refueling outages, which occur approximately every 18 months, thousands of maintenance activities, modifications, inspections and tests were performed throughout the plant to ensure top safety and reliability until the next refueling. About 3,000 people worked on the project, including more than 2,000 contractors and Ameren employees from other locations who joined the plant's regular staff to help handle the large volume of work. They completed approximately 2.1 million work hours.

Q. You previously mentioned post-9/11 upgrades in security infrastructure and related costs. Please elaborate.

A. After September 11, 2001, the Nuclear Regulatory Commission ("NRC") issued a series of orders to all U.S. nuclear plants, requiring major changes in how nuclear power plant operators must provide security for and defense of their nuclear plants. These changes were primarily driven by a revised Design Basis Threat, or "DBT." A DBT is the set of threat assumptions imposed by the NRC for which each nuclear plant must be able to defend against and protect the safety of the nuclear core. In order to meet these new requirements, the Company implemented a number of capital modifications by October 2004. Schedule CDN-2 summarizes the capital costs incurred to meet this new DBT. In addition to the security/defense related capital additions to the plant itself, the new DBT required a substantial increase in staffing requirements and other O&M expenses. These security-related costs have added $5 million per year to the Callaway Plant's O&M cost structure. These costs increases are also shown in Schedule CDN-2.

Q. What was the nature of these security changes?

A. The security changes to the plant include a concrete barrier around the entire site perimeter to act as a vehicle barrier to defend against the design basis threat. A portal through this barrier system to allow the processing of materials in and out of the plant was constructed. Multiple new fences with detection and monitoring systems were installed. Elevated hardened defense positions that provide 100% oversight of the site's perimeter were also constructed. Finally a new training facility and firing range were constructed to meet the training requirements established for the security force.

V. PERIODIC REFUELINGS

Q. You mentioned in the purpose section of your testimony the subject of periodic refuelings of the Callaway Plant. Please explain the need for those refuelings and what a "refueling outage" entails.

A. The Company completed the most recent refueling outage at the Callaway Plant in November of 2005. Like all nuclear power plants, the Callaway Plant's nuclear fuel must be replaced; i.e., the reactor must be "refueled" periodically. In the case of the Callaway Plant, refuelings must occur nominally every 18 months. During a refueling outage, the Company not only completes the necessary refueling, but also uses the outage as an opportunity to perform required maintenance of the plant and implement any capital/maintenance modifications required to meet regulatory requirements, address reliability issues or replace obsolete equipment. By combining scheduled maintenance and capital addition work with refuelings, the Company can minimize outage time and maximize the efficiency of the necessary operations. Schedule CDN-3 summarizes the duration and

costs of each outage since Callaway went online in December 1984. During this 21 year period and 14 outage cycles, Callaway has averaged 49.4 days per outage.

VI. FUTURE DECISIONS REGARDING CALLAWAY

Q. You indicated earlier that the Callaway Plant had been in operation for over 20 years and that the age of the plant required these rather major upgrades. What is the life of the Callaway Plant?

A. When the Callaway Plant commenced operations in 1984, the NRC granted the Company a 40 year license for the plant. This license will expire approximately 18 years from now in 2024. The plant is thus just over one-half of the way through its licensing period. The NRC has established a process for extending the original licenses an additional 20 years. This process normally is started about 10 years before the license is scheduled to expire. Consequently, AmerenUE will not be deciding whether or not to commence the relicensing process until around 2014. As of now, AmerenUE has made no decision as to whether it should request an extension of the Callaway license. The Company continues to engage in extensive data gathering, including monitoring critical plant components for life impacts due to radiation exposure and high temperature environments. The single most critical consideration in determining whether or not relicensing may be feasible is the condition of the reactor vessel itself. Extensive monitoring is in place to measure neutron embrittlement of the vessel wall. The additional data gained over the next approximately eight years will be critical in assisting the Company in making a relicensure decision. While no decision can be made for a number of years, the Company continues to do all the things necessary to preserve this option.

Q. Are there other factors that AmerenUE will consider in deciding whether to seek a license extension for the Callaway Plant?

A. Yes. The overall cost of continuing to operate the plant will also be a consideration. The cost can be impacted by a number of factors including changing regulatory requirements, increases in the cost of purchasing fuel or disposing of spent fuel rods and increases in O&M costs. In addition, the relative costs of other power sources will have to be considered at the time the decision is made.

Q. Does this conclude your testimony?

A. Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Union Electric Company d/b/a AmerenUE for Authority to File Tariffs Increasing Rates for Electric Service Provided to Customers in the Company's Missouri Service Area.	)))))	Case No. ER-2007-0002

AFFIDAVIT OF CHARLES D. NASLUND

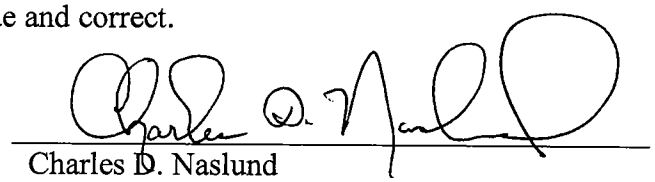
STATE OF MISSOURI)
) **ss**
CITY OF ST. LOUIS)

Charles D. Naslund, being first duly sworn on his oath, states:

1. My name is Charles D. Naslund. I work in the City of St. Louis, Missouri, and I am employed by Ameren Services Company as Senior Vice President and Chief Nuclear Officer.

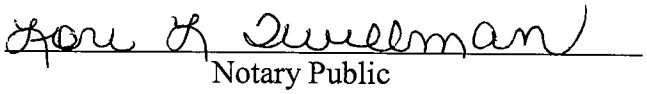
2. Attached hereto and made a part hereof for all purposes is my Direct Testimony on behalf of Union Electric Company d/b/a AmerenUE consisting of 10 pages, Attachment A and Schedules CDN-1 through CDN-3, all of which have been prepared in written form for introduction into evidence in the above-referenced docket.

3. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded are true and correct.



Charles D. Naslund

Subscribed and sworn to before me this 5th day of July, 2006.



Notary Public

My commission expires: 8-3-2007

LORI L. TWILLMAN
Notary Public - Notary Seal
STATE OF MISSOURI
Callaway County
My Commission Expires: Aug. 3, 2007

EXECUTIVE SUMMARY

Charles D. Naslund

Senior Vice President and Chief Nuclear Officer

*** * * * * * * * * ***

The purpose of my testimony is to: (a) provide a background of the Callaway Nuclear Plant's performance and its importance to Missouri; (b) discuss the substantial capital additions made to the Callaway Plant since the Company's last rate proceeding (Case No. EC-2002-1); (c) provide up-to-date information on several changes to the Callaway Plant's security infrastructure and the associated operation and maintenance ("O&M") cost increases, nearly all of which were driven by governmentally-mandated requirements following the September 11, 2001 terrorist attack; (d) discuss a key Callaway Plant operation, its regular (every 18 months) refueling outages; and (e) provide information related to a future decision that will have to be made regarding whether or not the Company should seek to relicense the Callaway Plant.

Callaway's production has exceeded that of most other nuclear units. Callaway's lifetime generation was the sixth highest among the 103 operating U.S. nuclear power plants, and 22nd in the world, out of 443 nuclear plants operating in 30 countries. Callaway has over 1,000 full-time employees and contractors. In 2005, the plant accounted for $9.5 million of AmerenUE's property taxes paid to Callaway County, with $6.5 million of that amount going to local schools.

Significant major component replacements have been made to the Callaway Plant since 2001, including the 2005 replacement of the plant's four steam generators--the giant

boilers that produce steam for generating electricity. In total, the Company made $449,677,723 in capital additions to the plant over approximately the past 5 years.

In order to meet new security requirements imposed by the Nuclear Regulatory Commission ("NRC") after September 11, 2001, the Company implemented a number of capital modifications by October 2004 and substantially increased staffing and other O&M expenses. These security-related costs have added $5 million per year to the Callaway Plant's O&M cost structure.

The Company completed a regular refueling outage at the Callaway Plant in November of 2005. By combining scheduled maintenance and capital addition work with such refuelings, the Company minimizes outage time and maximizes the efficiency of these necessary operations.

The NRC license for the Callaway Plant will expire approximately 18 years from now in 2024. The NRC's process for extending licenses an additional 20 years normally is started about 10 years before the license is scheduled to expire. Consequently, AmerenUE will not be deciding whether or not to commence the relicensing process until around 2014. The single most critical consideration in determining whether or not relicensing may be feasible is the condition of the reactor vessel itself. The additional data gained over the next approximately eight years will be critical in assisting the Company in making a relicensure decision. During that time, the Company will continue to do all the things necessary to preserve this option.

Ameren Corporation
Project Based
Proj Sum - Cap
In-Budget Row Only

Escalated, Accountable Dollars

Project	Grand Total	Opening Balance	Year 2001	Year 2002	Year 2003	Year 2004	Year 2005	Closing Balance
02000 - RADIATION DETECTION INSTRUMENTS	109,782	14,831	13,926	81,025				
02050 - UPGRADE LAB MATERIAL CONDITION	105,909			4,683	28,918	71,096	1,211	
02069 - NIS COMPUTER ROOM HVAC	143,380				81,828	61,552		
02233 - PERM PLTFRMS ON ISOPHASE STRUCTURE	98,016			97,824	192			
02397 - LOAD INDICATORS FOR THE POLAR CRANE	104,982					103,213	1,769	
02460 - LN CONTNMNT SUMPS WITH STNLS STEEL	233,348		111,185	110,847	7,575	3,741		
02483 - STATOR COOLING WATER LEAK MONITORNG	107,446	62,417	9,763	35,266				
02485 - LAN CONNECTED TELEMETRY	141,891			90,023	51,869			
0A015 - CAPITAL SP PART (UOP) & INITIAL PUR	1,812,221			229,974	33,481	1,047,270	501,496	
0A173 - WORK CONTROL CAPITAL TOOL PURCHASE	170,479						170,479	
0A216 - OFFICE FURNITURE	239,321						239,321	
0A502 - MISC HP - OPERATIONS CAPITAL EQPMNT	150,656						150,656	
0A505 - MISC CHEMISTRY CAPITAL EQUIPMENT	108,802						108,802	
10376 - HP FEEDWATER HEATER DUMP VALVE RPLC	386,902	250,894	133,887	2,120				
10579 - UPGRD OF TERRY TURB CNTL-DIG CNTLR	425,069	56,679	167,632	162,614	22,748	14,751	646	
10591 - RADIATION DETECTN INSTR CALIBRATOR	108,888		108,888					
10669 - COOLING TOWER FILL ADDITION	559,211		529,787	29,424				
10704 - VOLTAGE CORRECTION EQUIPMENT	4,767,032	2,524,589	1,783,411	439,117	11,406	8,509		
10806 - TUBE BUNDLE REPLCMNT-FEEDWATER HTRS	4,981,129	1,049,892	3,928,779	2,457				
10878 - 98-1027 REPL 2 IN CS PIPE WITH SS	653,619						653,619	
11009 - STEAM GENERATOR REPLACEMENT	1,625,542	267,225	1,119,597	203,394	35,327			
11013 - INSTALL SVC WATER BASKET STRAINERS	673,443	17,352	656,091					
11028 - RENOVATE THE HP ACCESS AREA	373,012	217,155	155,857					
11030 - RPLC MN STEAM ISOLATION VLV ACTUATR	12,614,905		763,999	2,545,407	1,181,731	4,597,524	1,089,149	2,437,095
11031 - REMOVE & DISPOSE OF FILTER ABSORBER	156,472		11,219	141,156	4,098			
11040 - CARBON STEEL PIPING REPLACEMENT	1,608,381	4,510	476,630	266,207	206,316	541,392	113,326	
11041 - INFRASTRUCTURE FOR DIGITAL CNTL SYS	2,852,759	8,301	838,021	1,199,831	696,814	109,686	105	
11042 - DIESEL GEN EXCITOR CONTROLS RPLCMNT	4,688,685		6,797	49,948	140,215	957,574	792,450	2,741,701
11043 - DIGITL FDWATER HEATER LVL CNTLS RPL	3,217,289				330,920	1,346,864	237,050	1,302,456
11044 - UPGRD CNTLS-POLSHR WASTE WATER PROC	5,239,302	934,002	1,500,659	1,328,473	1,371,704	113,743	(9,280)	
11045 - INSTALL MN STEPUP XFRMR GAS MONITRS	364,939	100,779	51,127	164,207	48,584	242		
11064 - ADD 10 ESW ISOLATION VLVS FOR 5 RM	739,897	15,863	186,087	198,866	105,356	233,725		
11123 - RPLC ATMOSPHERIC STEAM DUMP SILENCR	157,733		157,733					
11140 - REPLACE CONTAINMENT COOLER COILS	4,818,198	84,131	3,053,096	1,651,924	29,048			
11151 - CONDENSER TUBE REPLACEMENT	32,785,662				9,223,586	23,530,703	31,373	
11183 - RPLC FIRE PROTECTION SYSTEM EQPMNT	1,158,538		18,795	228,154	338,683	582,956	(10,051)	
11185 - RPLCMNT OF PK11&PK12 BATTERY BANKS	339,547			317,458	22,089			
11189 - UPGRD RDWSTE BLDG DRUM STORAGE AREA	477,937		107,464	120,387	97,425	130,197	251	22,214

Ameren Corporation
Project Based
Proj Sum - Cap
In-Budget Row Only

Escalated, Accountable Dollars

Project	Grand Total	Opening Balance	Year 2001	Year 2002	Year 2003	Year 2004	Year 2005	Closing Balance
11218 - OFFICE FURN. FOR CALLAWAY FOR 2001	216,528		200,165			16,362		
11219 - FURNITIRE 2002	283,097			282,958	140			
11220 - FURNITURE 2003	232,378				232,318	60		
11221 - FURNITURE 2004	196,788					198,786	(1,998)	
11234 - LOW PRESSURE ROTOR ELEMENT RPLCMNT	60,861,174			71,961	594,748	23,653,560	35,435,564	1,105,341
11283 - REPLACEMENT HEALTH PHYSICS SOFTWARE	510,803		65,417	445,386				
11286 - TRAINING CENTER HVAC UNITS	323,865		26,800	1,338	253,331	42,396		
11289 - MAIN FEED PUMP EHC UPGRADE	4,579,005				348,328	862,162		3,368,516
11293 - MN TURBINE GENERATOR GOVERNOR CNTLS	3,431,636				315,827	1,075,640	671,157	1,369,011
11298 - BOP NON-1E ANALOG CONTROLS REPLCMNT	424,344				265,409	147,427	11,507	
11307 - MAIN CONTROL BOARD UPGRADE	759,695				269,256	532,612	(82,297)	40,124
11308 - LSELS, ESFAS, MSFIS UPGRADE	14,572,038			1,502,355	1,181,269	7,525,779	(583,964)	4,946,601
11309 - DCS ACTIVITIES	282,136			139,519	467,817		(325,200)	
11311 - BCMS UPGRADE	366,225		20,628	162,180	130,465	50,258	2,694	
11312 - FLUX MAPPING SYSTEM UPGRADE	1,957,632			235,215	1,088,372	632,251	1,794	
11316 - WASTE GAS H2 ANALYZER REPLACEMENT	964,262		4,226	806,402	76,623	89,012	(35,405)	23,404
11339 - CONTROL ROOM SIMULATOR UPGRADE	4,660,514			846,186	1,456,573	1,257,880	1,099,875	
11342 - PLANT COMPUTER UPGRADE	9,813,035		248,917	1,009,430	1,034,148	2,570,478	1,533,043	3,417,018
11470 - 2004 WALKUP COPIER REPLACEMENT	145,737					145,737		
11472 - 2003 HIGH VOLUME COPIER REPLACEMENT	226,101				205,917	20,184		
11683 - REPLACE HVAC UNITS - 2 FL SERV BLDG	295,278		269,855	25,129	294			
11692 - MOLD REMOVAL IN CENTRAL PROCESS FAC	105,276		105,276					
11806 - RETIRE PASS	158,370		49,624	104,625	4,121			
12077 - INSTLL DIVERSION VLV:NEW HELPER TWR	492,679		492,679					
12319 - VIDEO CAPTURE & IRIS SCAN DOOR COMP	116,988				29,827	87,161		
12636 - STEAM GENERATOR REPLACEMENT	188,629,606		1,279,111	20,271,228	34,151,787	23,786,892	105,606,430	3,534,158
12748 - GAMMA 10 UPGRADE/REPLACEMENT	254,696				254,696			
12774 - REPLACE AUX BUILDING ROOF	628,792					394,176	228,381	6,235
12780 - CYCLE 12 SEC SIDE EROSION PIPE RPLC	1,762,403			1,750,157		12,246		
12817 - X-RAY MACHINE REPLACEMENTS	102,390			51,504	50,885			
12821 - BACKFILL UNIT 2 EXCAVATION	884,821		5,896	870,672	8,252			
12825 - REFUEL 13 NON SGR ACTIVITIES	2,142,469				121,314	2,594,090	(572,935)	
12828 - SGRP SUPPORT FACILITY	2,574,195				49,762	2,522,447	1,986	
12829 - DOCKING FACILITY	3,718,106		115	6,827	301,238	1,664,241	1,745,685	
12830 - SECURITY UPGRADE	1,461,152			8,534	265,195	1,177,339	10,084	
12866 - 01-1001 RPLC LIQUID RADWASTE SYSTEM	242,461				93,626	139,811	9,023	
12940 - UPGRADE MN GSU TRANSFORMER COOLERS	1,083,233				27,230	907,941	54,915	93,147
12970 - REPLACE MAIN FEEDWATER PIPING	2,959,407			2,959,407				
13128 - INSTALL VNDR SUPPLIED CHEM ADD EQPT	3,083,837		9,646	1,688,779	395,864	894,270	95,278	
13129 - RPLC ACID ADDTN EQPT FOR COOLNG TWR	554,080			360,914	40,601	66,389	40,773	45,403

Ameren Corporation
Project Based
Proj Sum - Cap
In-Budget Row Only

Escalated, Accountable Dollars

Project	Grand Total	Opening Balance	Year 2001	Year 2002	Year 2003	Year 2004	Year 2005	Closing Balance
13143 - REPLACE PK13 AND PK14 BATTERY BANKS	326,000				310,589	15,411		
13144 - REPLACE PJ11 BATTERY BANK	228,890					228,890		
13169 - RCP MOTOR CHANGEOUT SPPT COSTS RF13	331,826					331,826		
13201 - A LOOP FEEDWATER PIPING REPLACEMENT	127,221		125,543	1,678				
13254 - PLANT SECURITY UPGRADE	3,256,405			3,051,592	120,803	62,306	21,704	
13297 - CAPITAL SHOP TOOLS OVER $1,000	868,614				29,312	104,487	19	734,796
13342 - 02-1013 VIDEO MONITORING FOR HP ACC	563,156				231,219	331,764	173	
13411 - 02-1017 INSTALL SIRENS AROUND SITE	201,150				148,325	52,825		
13412 - AUTOMATIC RECIRCULATION VALVE SYS	783,945				169,137	604,875	9,933	
13417 - SF6 GAS RECLAIMER	124,292					124,292		
13457 - 2 RELIEF VLV TEST MACHINES PURCHASE	252,255				230,082	22,174		
13509 - 2003 SECURITY UPGRADES	22,315,170				1,340,781	19,673,838	1,300,551	
13673 - 1E FOXBORO CABINETS UPGRADE	398,011				206,130	181,088	10,793	
13731 - REPLACE EP8818 VALVES	1,302,607				1,720	85,264	1,182,432	33,191
13908 - TRAINING FACILITIES IMPROVEMENTS	204,974				56,775	23,458	124,741	
13925 - REPLACE WHOLE BODY COUNTERS	257,659				257,659			
14150 - REPLACE 2 CIRCULATING PUMPS	988,386				973,336	15,050		
14187 - RPLC MN GEN HYDROGEN COOLER BUNDLES	330,300				127,902	206,593	(4,195)	
14207 - C13&R13 SEC SIDE EROSION PIPE RPLC	3,532,836				318,173	3,307,047	(92,384)	
14754 - DOSE ASSESSMENT SOFTWARE	183,161				50,708	132,759	(306)	
14838 - C14&R14 ESW CARBON STEEL PIPE RPLC	1,430,902					2,919	1,427,983	
14842 - REPLACE PN01 AND PN02 INVERTERS	114,630					11,464	103,165	
14998 - REPLACE-RETIRE FEF02A AND FEF02B	1,291,262					10,071	1,281,191	
15127 - PORTLAND RIVER SAMPLER CNTRLS UPGRD	174,626					121,849	3,775	49,002
15203 - PRCHS 120 TON HYDRLIC TELESCPNG CRN	949,459					976,892	(27,433)	
15210 - REPLC SENE0061 POST ACCIDENT DETECT	144,514					144,514		
15889 - MILES GEAR, GUNS AND OPTICS	227,808						227,808	
15954 - REACTOR VESSEL HEAD MTCE EQUIPMENT	1,684,604						136,496	1,548,108
16155 - MET TOWER REPLACEMENT	362,115					6,322	93,525	262,268
16169 - CALLAWAY DIRECTOR SYSTEM	768,434						768,434	
16229 - REPLACE SWITCHYARD BATTERIES	168,172						168,172	
16265 - X-RAY MACHINE REPLACEMENTS	162,937						162,937	
19271 - REPLACE LOWER TURBINE BLDG ROOF	263,848						92,327	171,522
	449,677,723	5,608,620	18,794,331	46,354,763	62,357,798	133,300,302	156,010,601	27,251,308

Capital Costs Relating to NRC Orders

2002 Interim Compensatory Measures Order	$3.3 million

- Supplemental Vehicle Barrier System
- New Owner Controlled Access Facility
- Pavement of construction parking lot and roads
- Lighting of construction parking lot

2003 Orders Design Basis Threat Security Training Security Working Hours	$25.3 million

- New permanent Vehicle Barrier System
- New active Vehicle Barrier System (sally port)
- New hardened fixed security response positions
- New delay fences
- Modifications to our Secondary Alarm Station due to Design Basis Threat
- Movement of security multiplexer
- New intrusion detection system
- New camera system
- Electrical upgrades to security equipment
- Upgrades to the Security Firing Range

Total Orders	$28.6 million

O&M Increases in Costs 2001-2005

Total O&M Security Budget (By Year):

2001 $4.8 million

2002 $6.9 million

- Implementation of the Interim Compensatory Measures Order
- Additional security personnel to accommodate Order requirements
- Additional searches of vehicles and personnel
- Additional training requirements

2003 $6.8 million

2004 $9 million

- Implementation of the Design Basis Threat Order, the Security Training Order, and the Security Working Hours Order.
- Change in security strategy required additional staffing
- Additional security weapons
- Moving security presence out to OCA required additional staffing
- Security Training Order required additional training with required us to move to a 5-crew schedule
- Security working hours limits required less scheduled overtime therefore more people to cover the shifts

2005 $9.8 million

- NRC evaluated Force on Force Exercise
- Support of RF14

Increase from 2001 to 2004: $5 million

CALLAWAY REFUEL OUTAGE MAINTENANCE COSTS

	Refuel 1 Spring 1986	Refuel 2 Fall 1987	Refuel 3 Spring 1989	Refuel 4 Fall 1990	Refuel 5 Spring 1992	Refuel 6 Fall 1993	Refuel 7 Spring 1995
Maintenance Projects Excluding AmerenUE Wages			$14.0	$16.1	$23.0	$19.8	$20.7
Incremental AmerenUE Overtime Wages			$4.0	$5.7	$5.1	$5.0	$4.5
Replacement Energy			$8.3	$7.2	$7.7	$13.6	$8.6
TOTAL	Not Available	Not Available	$26.3	$29.0	$35.8	$38.4	$33.8
Duration	49 days	65 days	53 days	60 days	60 days	52 days	48 days

	Refuel 8 Fall 1996	Refuel 9 Spring 1998	Refuel 10 Fall 1999	Refuel 11 Spring 2001	Refuel 12 Fall 2002	Refuel 13 Spring 2004	Refuel 14 Fall 2005
Maintenance Projects Excluding AmerenUE Wages	$16.8	$16.3	$22.0	$23.1	$22.6	$40.1	$21.5
Incremental AmerenUE Overtime Wages	$3.5	$5.1	$5.0	$8.0	$4.9	$9.7	$9.3
Replacement Energy	$10.0	$7.7	$12.7	$18.1	$10.2	$24.3	$25.4
TOTAL	$30.0	$29.1	$39.7	$49.2	$37.7	$74.1	$56.2
Duration	31 days	31 days	35 days	45 days	34 days	65 days	63D 13H