Exhibit No.:	
Issue:	*Depreciation of Plant*
Witness:	*Jolie L. Mathis*
Sponsoring Party:	*MoPSC Staff*
Type of Exhibit:	*Direct Testimony*
Case No.:	*ER-2007-0002*
Date Testimony Prepared:	*December 15, 2006*

MISSOURI PUBLIC SERVICE COMMISSION

UTILITY SERVICES DIVISION

DIRECT TESTIMONY

OF

JOLIE L. MATHIS

UNION ELECTRIC COMPANY
d/b/a AMERENUE

CASE NO. ER-2007-0002

Jefferson City, Missouri
December 2006

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter on Union Electric 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 JOLIE L. MATHIS

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

Jolie L. Mathis, of lawful age, on her oath states: that she has participated in the preparation of the foregoing Direct Testimony in question and answer form, consisting of 11 pages to be presented in the above case; that the answers in the foregoing Direct Testimony were given by her; that she has knowledge of the matters set forth in such answers; and that such matters are true and correct to the best of her knowledge and belief.

Jolie L. Mathis

Subscribed and sworn to before me this 14th day of December 2006.

Notary Public

TONI M. CHARLTON
Notary Public - State of Missouri
My Commission Expires December 28, 2008
Cole County
Commission #04474301

TONI M. CHARLTON NOTARY SEAL NOTARY PUBLIC STATE OF MISSOURI

DIRECT TESTIMONY

OF

JOLIE L. MATHIS

UNION ELECTRIC COMPANY

d/b/a AMEREN UE

CASE NO. ER-2007-0002

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UNION ELECTRIC COMPANY

d/b/a AMEREN UE

CASE NO. ER-2007-0002

Q. Please state your name and business address.

A. Jolie L. Mathis, P.O. Box 360, Jefferson City, Missouri, 65102.

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

A. I am employed by the Missouri Public Service Commission (Commission) as a Utility Engineering Specialist III in the Engineering and Management Services Department.

Q. What are your duties as a Utility Engineering Specialist III in the Engineering and Management Services Department?

A. I am responsible for depreciation calculations and studies of companies regulated by the Commission.

Q. Would you please state briefly your qualifications, educational background and experience?

A. I graduated from Prairie View A&M University of Texas in August of 1993, with a Bachelor of Science degree in Electrical Engineering. During my college years I was employed as an engineering intern with Allied Signal Aerospace Company, Missouri Public Service Company (now Aquila) and Sprint United Telephone Co. – Midwest Division (now Embarq). In 1994 I accepted my current position. I have received formal training from Depreciation Programs, Inc. and the Society of Depreciation Professionals. I have completed

the NARUC Annual Regulatory Studies Program, and attended numerous industry seminars in the electric, natural gas, water, sewer, and telecommunications areas.

Q. Have you previously testified before the Commission?

A. Attached as Schedule JLM 1 to my direct testimony is a list of cases in which I have previously filed testimony.

EXECUTIVE SUMMARY

Q. Would you please summarize your direct testimony?

A. I conducted Staff's depreciation study of Ameren UE utility plant at December 31, 2005. Based on that study the Staff is recommending to the Commission depreciation rates which, when applied to the test year plant-in-service ending June 30, 2006, decrease the currently ordered annual depreciation expense from $331 million to $288 million, a reduction of approximately $43 million.

I used the straight line method, broad group procedure and whole life technique in performing this Staff depreciation study. The straight line method is a depreciation method by which the service value of plant is charged to depreciation expense and credited to the accumulated depreciation account through equal annual charges over its service life. Under the broad group procedure, all units of plant within a particular depreciation category are considered to be one group, usually a plant account or sub-account. The whole life technique bases the depreciation rate on the estimated average service life of the plant. The Staff used the following formula to determine the depreciation rates to be applied to the original cost of plant:

Depreciation Rate = (100% - Net Salvage %) / Average Service Life

I also did a theoretical reserve study where I compared the actual accumulated reserve for depreciation to the reserve I calculated using the newly proposed life and salvage estimates I employed in the Staff's depreciation study. I used December 31, 2005, plant balances in the Staff's theoretical reserve study.

DEPRECIATION STUDY

Q. When was the last time the Staff performed a depreciation study of AmerenUE's electric plant?

A. Staff last performed a depreciation study in Case No. EC-2002-1.

Q. Did the Commission order depreciation rates in that case?

A. No. The Commission authorized Ameren UE to book effective April 1, 2002, an annual negative amortization of $20 million.

Q. When was the last time the Commission ordered depreciation rates for AmerenUE's electric plant?

A. The Commission last ordered depreciation rates in Case No. ER-83-163 on July 6th, 1983. In its Report and Order, the Commission, among other things, directed that "Union Electric shall implement and book new depreciation rates as of August 1, 1983, as specified in paragraph 4 of the stipulation and agreement".

Q. Did the Staff perform a depreciation study of AmerenUE's electric utility property for purposes of this rate case?

A. Yes. I performed a depreciation study based on Company records reflecting data up to December 31, 2005.

Q. Are you familiar with AmerenUE's electric facilities?

A. Yes. The Staff has previously conducted field inspections and discussed plant operations with local AmerenUE operators at all the major generating facilities; Callaway, Labadie, Rush Island, Meramec, Sioux, Osage and Taum Sauk.

Q. You have used the term "depreciation study." What is the "depreciation" you are studying?

A. The National Association of Railroad and Utilities Commissioners in 1958 approved this definition of depreciation:

> "Depreciation," as applied to depreciable utility plant, means the loss in service value not restored by current maintenance, incurred in connection with the consumption or prospective retirement of utility plant in the course of service from causes which are known to be in current operation and against which the utility is not protected by insurance. Among the cause to be given consideration are wear and tear, decay, action of the elements, inadequacy, obsolescence, changes in the art, changes in demand, and requirements of public authorities. [Source: Public Utility Depreciation Practices, August 1996, Published by the National Association of Regulatory Utility Commissioners]

Q. What ramifications does this definition have on the customer rates the Commission sets?

A. This definition means that depreciation is a cost of providing service and that a public utility should recover the capital invested in equipment needed to provide the required service over the property's used and useful life. Since customer rates are based on a 12-month "test year," it is necessary to determine the depreciation that accrues during that same 12-month "test year."

Q. How did you determine the annual accrual in this case?

A. I used the formula:

Depreciation Rate = (100% - Net Salvage %) / Average Service Life

Q. What is "average service life"?

A. The average service life (ASL), in years, is the average expected life of all units of a group of property regardless of the placement date. The ASL is determined by actuarial analysis of records of annual additions, retirements by vintage and balances, as well as information provided by engineering and operations personnel. Survivor curve estimates from other electric companies are also considered.

Q. How did you determine the average service lives you used in Staff's depreciation study?

A. I used the retirement rate method.

Q. What is the retirement rate method?

A. The retirement rate method of life analysis is an actuarial method of developing survivor curves using the average rate at which property is retired from each experienced age group. Using the Gannett Fleming Software, AmerenUE historical mortality data for an account is plotted and the stub curve (curve representing dollars surviving that does not reach 0%) is compared to the known shape of a set of Iowa curves. Survivor curve models, such as the Iowa curves, are widely used to simplify life analysis and forecasting. These curves were developed at the Iowa State College's Iowa Engineering Experiment Station 65 years ago. Three of the four families of curves include a base group of 176 industrial property mortality curves, and 18 types, published in Bulletin 125 of Iowa State University's Engineering Research Institute, entitled "Statistical Analysis of Industrial Property Retirements".

The classification of the survivor curves was made according to whether the mode (highest point) of the frequency curves was to the left, to the right, or comparable with average service life. The result included six left modal (L0,L1,L2,L3,L4,L5); five right modal

(R1,R2,R3,R4,R5); and seven symmetrical curves (S0,S1,S2,S3,S4, S5,S6). In 1957, a fourth family was presented, consisting of the four O type survivor curves (O1,O2,O3,O4). Today, these survivor curve types are used extensively in public utility depreciation studies.

Q. Sometimes a picture is worth a thousand words. Do you have an example of a plotted stub curve and of an Iowa curve that might aid someone in understanding what you just said?

A. Yes. Attached as Schedule JLM 4 is one of the survivor stub curves I plotted and, with it, a fitted Iowa curve.

Q. How are stub curves matched to Iowa curves?

A. Informed analyst judgment of which Iowa curve makes the best fit to the plotted stub curve.

Q. How do the Iowa curves provide you with the average service life?

A. The area under the chosen Iowa curve represents the average service life.

Q. What information is useful to the analyst in evaluating which type of Iowa curve, with its life parameter, most nearly matches the stub survivor curve?

A. The most useful criterion used in determining a good fit is the square root of the average difference squared between the percents surviving on the fitted smooth curve and the stub curve. The lower this number, the better the match.

Q. What is "net salvage"?

A. Net salvage is the gross salvage value of the property retired less the cost to remove it (cost of removal).

Q. What is gross salvage?

A. Gross salvage is the amount a utility records for the property when it is retired. Property is retired when it is sold, the utility is repaid for it by a third party, or it is reused.

Q. Is net salvage always a positive amount?

A. No. Negative net salvage occurs when the cost of removal exceeds gross salvage; this is also referred to as net cost of removal or as net salvage expense.

Q. What is "net salvage percent" as used in the deprecation rate formula you stated earlier?

A. The ratio of net salvage to original cost multiplied by 100%.

Q. How did you determine net salvage percentages in the Staff's depreciation study?

A. For each account, I took the actual net salvage for the past 5 years and divided it by the original cost of plant retired during those same 5 years. For a few accounts, an unusually high or low net salvage amount was excluded to eliminate a percentage amount that may cause the average to become skewed.

Q. Did the Staff determine net salvage for in this case consistent with the Commission's statements regarding net salvage in its Third Report and Order issued January 11, 2005, in Case No. GR-99-315 (Laclede) and in its March 10, 2005, Report and Order in Case No. ER-2004-0570 (Empire)?

A. Yes. At page 9, of its Third Report and Order, in Case No. GR-99-315 the Commission stated:

> The Commission finds that the fundamental goal of depreciation accounting is to allocate the full cost of an asset, including its net salvage cost, over its economic or service life so that utility customers will be charged for the cost of the asset in proportion to the benefit they receive from its consumption.

Here, the Staff determined the net salvage by using the traditional accrual method, where both gross salvage and cost of removal are reflected in the depreciation rates.

Q. How did the Staff determine depreciation rates for AmerenUE's Callaway nuclear generation plant?

A. The Staff assumed the NRC will extend AmerenUE's Callaway nuclear plant operating license for twenty years—from forty years to sixty years—therefore treating it as lifespan property, with an estimated retirement date of 2044.

Q. What are the characteristics of life-span property?

A. Public Utility Depreciation Practices, published in 1996 by the National Association of Regulatory Utility Commissioners states:

Life span property generally has the following characteristics:

i. Large individual units,

ii. Forecasted overall life or estimated retirement date,

iii. Units experience interim retirements, and

iv. Future additions are an integral part of initial installation.

Q. Would that not apply to other Steam Production plant such as Meramec, Sioux, Labadie and Rush Island?

A. Yes, but history has shown us that these units continue to remain in operation as long as it is economical and feasible to do so. A determination of the exact timing of the retirement of a particular facility can only be made relatively close to the time of its anticipated retirement date. Until that time, variables such as technology upgrades, regulatory requirements, and power supply change over time. Because of these factors, the final

retirement date for steam production is not certain, and it is inappropriate to truncate the survivor curve at this time.

Q. But is it appropriate to truncate the curve to the year 2044 for nuclear production plant?

A. Yes, because we have sufficient basis to assume that with a license extension of 20 years, all of nuclear production plant will be retired in the year 2044.

Q. What depreciation rates does the Staff recommend to the Commission?

A. Based on its depreciation study, the Staff recommends the Commission order the depreciation rates shown in attached Schedule JLM 2.

Q. What impact do these depreciation rates have on AmerenUE's test year depreciation expense?

A. Based on the test year ended June 30, 2006, AmerenUE's currently ordered annual depreciation expense should be decreased from $331 million to $288 million, a reduction of approximately $43 million.

THEORETICAL RESERVE

Q. What is "theoretical reserve"?

A. Theoretical reserve is the balance that would be in the accumulated depreciation account if recommended, rather than current, depreciation parameters are used in calculating accrued depreciation.

Q. Why is the theoretical reserve important?

A. The theoretical reserve is a deduction from rate base. It has to be as accurate as possible.

Q. How well have the depreciation rates performed with respect to the theoretical reserve accrual?

A. The Staff's theoretical reserve for 2005 is $3,559,684,994, which represents 33% of the original cost of AmerenUE's actual plant in service AmerenUE's actual 2005 reserve is $4,325,788,188, which represents 41% of the original cost of AmerenUE's actual plant-in-service. Based on the Staff's depreciation study, AmerenUE's depreciation reserve is over accrued by $766,103,194. The depreciation rates have been accruing at too high a level, and need to be slowed down.

Q. What are the main reasons for this reserve imbalance?

A. There are several factors that contribute to this reserve imbalance; the lengthening of average service lives since 1983, an increase in negative net salvage, and the expected extension of the Callaway operating license.

Q. What, if anything, should the Commission do because of this over accrual?

A. The Staff does not propose the Commission make any adjustment to the depreciation reserve at this time. Instead, the Commission should note the depreciation reserve imbalance and direct the Staff to continue to monitor the imbalance in future depreciation studies.

RECOMMENDATION

Q. What does the Staff recommend the Commission do based on the Staff's depreciation study?

A. The Staff recommends the Commission: (1) order the depreciation rates proposed in Schedule JLM 2, (2) order AmerenUE's electric depreciation expense to be $288 million and (3) note the accumulated depreciation reserve over-accrual shown in

Schedule JLM 3 and order the Staff to monitor the over accrual in future depreciation studies, but make no adjustment to the depreciation reserve at this time.

Q. Does this conclude your direct testimony?

A. Yes, it does.

JOLIE MATHIS
CASE PARTICIPATION

Date Filed	Issue	Case Number	Exhibit	Case Name
12/1/1995		TO96147	Direct	Alltel Missouri, Inc.
3/7/1996		GA96130	Rebuttal	Missouri Pipeline Company
3/7/1996		GA9711	Rebuttal	Missouri Pipeline Company
1/10/1997		GM9770	Rebuttal	Atmos Energy Corp. & United Cities Gas
6/26/1997		GR97272	Direct	Associated Natural Gas
5/13/1999	Depreciation of Plant	HR99245	Direct	St. Joseph Light & Power Company
6/25/1999	Depreciation	WR99326	Direct	United Water Missouri, Inc.
4/3/2000	Amortization of Premature Retirement	SR2000282	Direct	Missouri-American Water Company
4/3/2000	Amortization of Premature Retirement	WR2000281	Direct	Missouri-American Water Company
7/2/2001	Depreciation of Plant	EC20021	Direct	Union Electric Company d/b/a AmerenUE
12/6/2001	Depreciation of Plant	EC2002265	Direct	UtiliCorp United Inc. d/b/a Missouri Public Service
12/6/2001	Depreciation of Plant	ER2001672	Direct	UtiliCorp United Inc. d/b/a Missouri Public Service
1/22/2002	Depreciation of Plant	EC2002265	Surrebuttal	UtiliCorp United Inc. d/b/a Missouri Public Serivce
3/1/2002	Depreciation of Plant	EC20021	Direct	Union Electric Company d/b/a AmerenUE
6/24/2002	Depreciation - Net Salvage; Average Service Lives; Theoretical Reserve	EC20021	Surrebuttal	Union Electric Company d/b/a AmerenUE
4/15/2004	Depreciation	GR20040209	Direct	Missouri Gas Energy
6/14/2004	Depreciation Rates	GR20040209	Surrebuttal	Missouri Gas Energy
10/14/2004	Depreciation of Plant	HM20040618	Rebuttal	Trigen-Kansas City Energy Corp. and Thermal North America, Inc.

Union Electric Company, dba AmerenUE
Case No. ER-2007-0002

DEPRECIATION DETERMINATION SPREADSHEET

Account No.	Title	Plant Original Cost Jun-06	Ordered Life (Yr.)	Ordered Net Salvage (%)	Ordered Deprec. Rate (%)	Probable Retirement Year (Staff)	Staff's Proposal Life (Yr.)	Staff's Proposal Curve	Staff's Proposal Net Salvage (%)	Staff's Proposal Deprec. Rate (%)	Probable Retirement Year (Company)	Company's Proposal Life (Yr.)	Company's Proposal Curve	Company's Proposal Net Salvage (%)	Company's Proposal Deprec. Rate (%)	Ordered Annual Accrual	Staff's Annual Accrual	Increase / Decrease Accrual
	Meramec Steam Production Plant																	
311	Structures & Improvements	36,898,059	35	(1)	2.89%		115	R1.5	(21)	1.05%	2026	120	S0	(19)	3.16%	1,066,354	387,430	(678,924)
312	Boiler Plant Equipment	399,232,426	32	(2)	3.19%		60	L0.5	(29)	2.15%	2026	60	L0.5	(19)	4.53%	12,735,514	8,583,497	(4,152,017)
314	Turbogenerator Units	82,051,879	35	2	2.80%		63	L1	(7)	1.70%	2026	70	L0.5	(19)	3.95%	2,297,453	1,394,882	(902,571)
315	Acessory Electric Equipment	36,283,593	35	3	2.77%		90	R1	(9)	1.21%	2026	90	R1	(19)	3.83%	1,005,056	439,031	(566,024)
316	Misc. Power Plant Equipment	13,708,320	29	6	3.24%		60	O2	(6)	1.77%	2026	60	O1	(19)	4.56%	444,150	242,637	(201,512)
	Sioux Steam Production Plant																	
311	Structures & Improvements	25,295,269	35	(1)	2.89%		115	R1.5	(21)	1.05%	2026	120	S0	(21)	3.31%	731,033	265,600	(465,433)
312	Boiler Plant Equipment	328,617,174	32	(2)	3.19%		60	L0.5	(29)	2.15%	2026	60	L0.5	(21)	4.30%	10,482,888	7,065,269	(3,417,619)
314	Turbogenerator Units	91,440,550	35	2	2.80%		63	L1	(7)	1.70%	2026	70	L0.5	(21)	4.54%	2,560,335	1,554,489	(1,005,846)
315	Acessory Electric Equipment	34,642,484	35	3	2.77%		90	R1	(9)	1.21%	2026	90	R1	(21)	4.39%	959,597	419,174	(540,423)
316	Misc. Power Plant Equipment	7,962,301	29	6	3.24%		60	O2	(6)	1.77%	2026	60	O1	(21)	4.39%	257,979	140,933	(117,046)
	Labadie Steam Production Plant																	
311	Structures & Improvements	61,831,946	35	(1)	2.89%		115	R1.5	(21)	1.05%	2026	120	S0	(19)	3.19%	1,786,943	649,235	(1,137,708)
312	Boiler Plant Equipment	560,572,165	32	(2)	3.19%		60	L0.5	(29)	2.15%	2026	60	L0.5	(19)	3.73%	17,882,252	12,052,302	(5,829,951)
312.03	Aluminum Coal Cars	117,686,242	22	0	4.55%		22	R3	8	4.19%	2026	22	R3	30	3.18%	5,354,724	4,931,054	(423,670)
314	Turbogenerator Units	186,232,562	35	2	2.80%		63	L1	(7)	1.70%	2026	70	L0.5	(19)	4.13%	5,214,512	3,165,954	(2,048,558)
315	Acessory Electric Equipment	73,167,727	35	3	2.77%		90	R1	(9)	1.21%	2026	90	R1	(19)	3.47%	2,026,746	885,329	(1,141,417)
316	Misc. Power Plant Equipment	17,242,739	29	6	3.24%		60	O2	(6)	1.77%	2026	60	O1	(19)	4.24%	558,665	305,196	(253,468)
	Rush Island Steam Production Plant																	
311	Structures & Improvements	52,397,875	35	(1)	2.89%		115	R1.5	(21)	1.05%	2026	120	S0	(18)	3.09%	1,514,299	550,178	(964,121)
312	Boiler Plant Equipment	354,788,784	32	(2)	3.19%		60	L0.5	(29)	2.15%	2026	60	L0.5	(18)	3.77%	11,317,762	7,627,959	(3,689,803)
314	Turbogenerator Units	135,990,789	35	2	2.80%		63	L1	(7)	1.70%	2026	70	L0.5	(18)	4.03%	3,807,742	2,311,843	(1,495,899)
315	Acessory Electric Equipment	32,925,827	35	3	2.77%		90	R1	(9)	1.21%	2026	90	R1	(18)	3.62%	912,045	398,403	(513,643)
316	Misc. Power Plant Equipment	10,122,281	29	6	3.24%		60	O2	(6)	1.77%	2026	60	O1	(18)	4.37%	327,962	179,164	(148,798)
	Common Steam Production Plant																	
311	Structures & Improvements	1,959,206	35	(1)	2.89%		115	R1.5	(21)	1.05%	2026	120	S0	(5)	4.27%	56,621	20,572	(36,049)
312	Boiler Plant Equipment	37,071,156	32	(2)	3.19%		60	L0.5	(29)	2.15%	2026	60	L0.5	(5)	4.50%	1,182,570	797,030	(385,540)
315	Accessory Electrical Equipment	3,129,975	35	3	2.77%		90	R1	(9)	1.21%	2026	90	R1	(5)	4.38%	86,700	37,873	(48,828)
316	Misc. Power Plant Equipment	20,843	29	6	3.24%		60	O2	(6)	1.77%	2026	60	O1	(5)	4.75%	675	369	(306)
	Total Steam Production Plant	**2,701,272,172**														**84,570,576**	**54,405,403**	**(30,165,173)**

Schedule JLM - 2

Union Electric Company, dba AmerenUE
Case No. ER-2007-0002

DEPRECIATION DETERMINATION SPREADSHEET

Account No.	Title	Plant Original Cost Jun-06	Ordered Life (Yr.)	Ordered Net Salvage (%)	Ordered Deprec. Rate (%)	Probable Retirement Year (Staff)	Staff's Proposal Life (Yr.)	Staff's Proposal Curve	Staff's Proposal Net Salvage (%)	Staff's Proposal Deprec. Rate (%)	Probable Retirement Year (Company)	Company's Proposal Life (Yr.)	Company's Proposal Curve	Company's Proposal Net Salvage (%)	Company's Proposal Deprec. Rate (%)	Ordered Annual Accrual	Staff's Annual Accrual	Increase / Decrease Accrual
	Nuclear Production Plant																	
321	Structures and Improvements	893,268,025	40	0	2.60%	10-2044	100	R1	(3)	1.97%	10-2024	100	R1	0	2.82%	23,224,969	17,597,380	(5,627,589)
322	Reactor Plant Equipment	957,550,064	40	4	2.60%	10-2044	60	S0	(37)	3.10%	10-2024	60	S0	0	3.38%	24,896,302	29,684,052	4,787,750
323	Turbogenerator Units	494,453,935	40	0	2.60%	10-2044	100	S0	(3)	2.08%	10-2024	100	S0	0	3.18%	12,855,802	10,284,642	(2,571,160)
324	Accessory Electric Equipment	210,754,954	40	1	2.60%	10-2044	80	R2	(2)	1.91%	10-2024	80	R2	0	2.74%	5,479,629	4,025,420	(1,454,209)
325	Misc. Power Plant Equipment	165,413,219	40	2	2.60%	10-2044	60	O1	(1)	2.49%	10-2024	60	O1	0	3.70%	4,300,744	4,118,789	(181,955)
	Total Nuclear Production Plant	**2,721,440,197**														**70,757,445**	**65,710,283**	**(5,047,162)**
	Osage Hydraulic Production Plant																	
331	Structures and Improvements	3,860,732	91	0	1.10%		150	R1.5	(41)	0.94%	2036	150	R1.5	(10)	1.86%	42,468	36,291	(6,177)
332	Reservoirs, Dams, and Waterways	25,439,912	85	(1)	1.19%		180	R3	0	0.56%	2036	180	R3	(20)	1.74%	302,735	142,464	(160,271)
333	Water Wheels, Turbines, and Generators	19,301,223	96	0	1.04%		125	S0	(161)	2.09%	2036	130	S0	(10)	2.44%	200,733	403,396	202,663
334	Accessory Electric Equipment	4,112,456	90	(2)	1.13%		65	O1	(9)	1.68%	2036	65	O1	0	2.53%	46,471	69,089	22,619
335	Misc. Power Plant Equipment	1,773,982	74	5	1.28%		60	O1	0	1.67%	2036	60	O1	0	2.97%	22,707	29,625	6,919
336	Roads, Railroads, and Bridges	77,445	22	0	4.55%		60	SQ	0	1.63%	2036		SQ	0	1.25%	3,524	1,262	(2,261)
	Keokuk Hydraulic Production Plant																	
331	Structures and Improvements	4,117,339	91	0	1.10%		150	R1.5	(41)	0.94%	2036	150	R1.5	(10)	2.10%	45,291	38,703	(6,588)
332	Reservoirs, Dams, and Waterways	12,367,195	85	(1)	1.19%		180	R3	0	0.56%	2036	180	R3	(20)	2.00%	147,170	69,256	(77,913)
333	Water Wheels, Turbines, and Generators	59,194,802	96	0	1.04%		125	S0	(161)	2.09%	2036	130	S0	(10)	3.05%	615,626	1,237,171	621,545
334	Accessory Electric Equipment	9,167,068	90	(2)	1.13%		65	O1	(9)	1.68%	2036	65	O1	0	2.98%	103,588	154,007	50,419
335	Misc. Power Plant Equipment	2,631,559	74	5	1.28%		60	O1	0	1.67%	2036	60	O1	0	2.98%	33,684	43,947	10,263
336	Roads, Railroads, and Bridges	114,926	22	0	4.55%		60	SQ	0	1.63%	2036		SQ	0	1.98%	5,229	1,873	(3,356)
	Taum Sauk Hydraulic Production Plant																	
331	Structures and Improvements	5,503,349	91	0	1.10%		150	R1.5	(41)	0.94%	2036	150	R1.5	(10)	1.80%	60,537	51,731	(8,805)
332	Reservoirs, Dams, and Waterways	27,586,615	85	(1)	1.19%		180	R3	0	0.56%	2036	180	R3	(20)	2.10%	328,281	154,485	(173,796)
333	Water Wheels, Turbines, and Generators	37,356,989	96	0	1.04%		125	S0	(161)	2.09%	2036	130	S0	(10)	2.52%	388,513	780,761	392,248
334	Accessory Electric Equipment	4,188,185	90	(2)	1.13%		65	O1	(9)	1.68%	2036	65	O1	0	2.58%	47,326	70,362	23,035
335	Misc. Power Plant Equipment	1,630,658	74	5	1.28%		60	O1	0	1.67%	2036	60	O1	0	3.11%	20,872	27,232	6,360
336	Roads, Railroads, and Bridges	45,570	22	0	4.55%		60	SQ	0	1.63%	2036		SQ	0	1.50%	2,073	743	(1,331)
	Total Hydraulic Production Plant	**218,470,005**														**2,416,827**	**3,312,399**	**895,572**

Schedule JLM - 2

Union Electric Company, dba AmerenUE
Case No. ER-2007-0002

DEPRECIATION DETERMINATION SPREADSHEET

Account No.	Title	Plant Original Cost Jun-06	Ordered Life (Yr.)	Ordered Net Salvage (%)	Ordered Deprec. Rate (%)	Probable Retirement Year (Staff)	Staff's Proposal Life (Yr.)	Staff's Proposal Curve	Staff's Proposal Net Salvage (%)	Staff's Proposal Deprec. Rate (%)	Probable Retirement Year (Company)	Company's Proposal Life (Yr.)	Company's Proposal Curve	Company's Proposal Net Salvage (%)	Company's Proposal Deprec. Rate (%)	Ordered Annual Accrual	Staff's Annual Accrual	Increase / Decrease Accrual
	Other Production Plant																	
341	Structures and Improvements	15,382,120	25	0	4.00%		60	S0.5	0	1.67%		35	SQ	(5)	2.86%	615,285	256,881	(358,403)
342	Fuel Holders, Products, and Accessories	12,264,732	25	0	4.00%		40	R4	0	2.50%		35	SQ	(5)	2.97%	490,589	306,618	(183,971)
344	Generators	583,616,964	25	0	4.00%		45	R4	0	2.22%		35	SQ	(5)	2.96%	23,344,679	12,956,297	(10,388,382)
345	Accessory Electric Equipment	26,793,140	25	0	4.00%		53	R2.5	0	1.89%		35	SQ	(5)	2.89%	1,071,726	506,390	(565,335)
346	Misc. Power Plant Equipment	5,665,300	25	0	4.00%		25	L0.5	0	4.00%		35	SQ	(5)	2.83%	226,612	226,612	0
	Total Other Production Plant	**643,722,256**														**25,748,890**	**14,252,799**	**(11,496,092)**
	Transmission Plant																	
352	Structures and Improvements	6,219,706	79	(5)	1.33%		60	R2	0	1.67%		60	R2	(5)	1.75%	82,722	103,869	21,147
353	Station Equipment	181,457,965	50	0	2.00%		64	R2.5	(6)	1.56%		55	R2.5	0	1.82%	3,629,159	2,830,744	(798,415)
354	Tower and Fixtures	70,903,822	50	7	1.86%		65	R4	(22)	1.88%		65	R4	(10)	1.69%	1,318,811	1,332,992	14,181
355	Poles and Fixtures	113,204,654	43	(20)	2.79%		52	R4	(24)	2.38%		52	R4	(90)	3.65%	3,158,410	2,694,271	(464,139)
356	Overhead Conductors and Devices	118,782,726	60	13	1.45%		55	R4	(2)	1.85%		55	R4	(25)	2.27%	1,722,350	2,197,480	475,131
359	Roads and Trails	71,788	50	0	2.00%		50	SQ	0	0.00%		50	SQ	0	1.20%	1,436	0	(1,436)
	Total Transmission Plant	**490,640,661**														**9,912,888**	**9,159,356**	**(753,531)**
	Distribution Plant																	
361	Structures and Improvements	15,759,384	61	10	1.48%		60	R2.5	0	1.67%		60	R2.5	(5)	1.75%	233,239	263,182	29,943
362	Station Equipment	531,174,647	44	(5)	2.39%		63	R2	(2)	1.62%		55	R2.5	(5)	1.82%	12,695,074	8,605,029	(4,090,045)
364	Poles, Towers, and Fixtures	657,866,888	34	(127)	6.68%		43	R3	(154)	5.92%		43	R3	(135)	5.47%	43,945,508	38,945,720	(4,999,788)
365	Overhead Conductors and Devices	725,041,472	36	(15)	3.19%		46	R1.5	(52)	3.30%		47	R1	(50)	3.19%	23,128,823	23,926,369	797,546
366	Underground Conduit	172,578,086	84	(45)	1.73%		65	R3	0	1.54%		65	R3	(50)	2.31%	2,985,601	2,657,703	(327,898)
367	Underground Conductors and Devices	459,391,695	45	22	1.73%		54	R2	(40)	2.59%		53	R2	(25)	2.36%	7,947,476	11,898,245	3,950,769
368	Line Transformers	353,005,804	40	17	2.08%		42	R2.5	(1)	2.40%		45	L2	0	2.22%	7,342,521	8,472,139	1,129,619
369.001	Overhead Services	126,844,186	36	(197)	8.25%		37	R2.5	(303)	10.86%		37	R2.5	(200)	8.09%	10,464,645	13,775,279	3,310,633
369.002	Underground Services	121,695,103	45	(17)	2.60%		45	R3	(98)	4.39%		45	R3	(80)	3.99%	3,164,073	5,342,415	2,178,342
370	Meters	103,953,475	36	1	2.75%		28	L2.5	2	3.50%		28	L2.5	0	3.57%	2,858,721	3,638,372	779,651
371	Installations on Customer Premises	164,856	46	(1)	2.20%		28	O1	0	3.55%		20	O1	0	3.74%	3,627	5,852	2,226
373.00	Street Lighting and Signal Systems	101,695,076	23	(36)	5.91%		37	L0.5	(58)	4.27%		33	L1	(45)	4.39%	6,010,179	4,342,380	(1,667,799)
	Total Distribution Plant	**3,369,170,672**														**120,779,486**	**121,872,683**	**1,093,197**

Schedule JLM - 2

Union Electric Company, dba AmerenUE
Case No. ER-2007-0002

DEPRECIATION DETERMINATION SPREADSHEET

Account No.	Title	Plant Original Cost Jun-06	Ordered Life (Yr.)	Ordered Net Salvage (%)	Ordered Deprec. Rate (%)	Probable Retirement Year (Staff)	Staff's Proposal Life (Yr.)	Staff's Proposal Curve	Staff's Proposal Net Salvage (%)	Staff's Proposal Deprec. Rate (%)	Probable Retirement Year (Company)	Company's Proposal Life (Yr.)	Company's Proposal Curve	Company's Proposal Net Salvage (%)	Company's Proposal Deprec. Rate (%)	Ordered Annual Accrual	Staff's Annual Accrual	Increase / Decrease Accrual
	General Plant																	
390.0	Structures and Improvements	171,487,901	41	6	2.29%		45	S0	(11)	2.46%		45	S0	(5)	2.33%	3,927,073	4,218,602	291,529
391.0	Office Furniture and Equipment	44,289,607	28	8	3.29%		20	L0	0	5.00%		15	SQ	0	4.77%	1,457,128	2,214,480	757,352
391.1	Mainframe Computers	422,014	*	*	3.29%		6	L0	0	16.67%		5	SQ	0	0.00%	13,884	70,350	56,465
391.2	Personal Computers	1,796,928	*	*	3.29%		9	L2	0	11.11%		5	SQ	0	19.42%	59,119	199,639	140,520
392.0	Transportation Equipment	83,429,052	11	12	8.00%		11	S0	7	8.41%		11	S0	9	8.23%	6,674,324	7,016,383	342,059
393.0	Stores Equipment	2,104,840	32	12	2.75%		25	L0	4	3.84%		20	SQ	0	3.71%	57,883	80,826	22,943
394.00	Tools, Shop and Garage Equipment	10,972,846	45	18	1.82%		30	L0.5	4	3.20%		20	SQ	0	4.34%	199,706	351,131	151,425
395.00	Laboratory Equipment	6,650,033	52	2	1.88%		26	L0	0	3.85%		20	SQ	0	4.48%	125,021	256,026	131,006
396.00	Power Operated Equipment	9,843,387	18	23	4.28%		15	L2	13	5.80%		15	L2	15	5.67%	421,297	570,916	149,619
397.00	Communication Equipment	128,018,518	30	(5)	3.50%		27	L1	0	3.70%		15	SQ	0	4.80%	4,480,648	4,736,685	256,037
398.00	Miscellaneous Equipment	641,398	20	5	4.75%		23	O2	2	4.26%		20	SQ	0	4.84%	30,466	27,324	(3,143)
	Total General Plant	**459,656,524**														**17,446,549**	**19,742,363**	**2,295,813**
Analyzed Totals																		
Column Totals		**10,604,372,487**														**331,632,662**	**288,455,286**	**(43,177,376)**

* Sub-account did not exist when the last depreciation rates were ordered in 1983

Schedule JLM - 2

Union Electric Company, dba AmerenUE
Case No. ER-2007-0002

Account No.	Title	Book Reserve Balance Dec 31 2005	Theoretical Reserve Balance Dec 31 2005	Difference	Under or OverAccrual
	Steam Production Plant				
	Meramec Steam Production Plant				
311	Structures & Improvements	25,263,302	8,394,417	16,868,885	Over
312	Boiler Plant Equipment	106,475,863	69,353,208	37,122,655	Over
314	Turbogenerator Units	48,578,106	17,419,607	31,158,499	Over
315	Acessory Electric Equipment	20,649,350	6,346,626	14,302,724	Over
316	Misc. Power Plant Equipment	4,171,242	1,217,186	2,954,056	Over
	Sioux Steam Production Plant				
311	Structures & Improvements	14,050,331	4,733,268	9,317,063	Over
312	Boiler Plant Equipment	102,713,609	64,137,771	38,575,838	Over
314	Turbogenerator Units	28,261,696	12,190,819	16,070,877	Over
315	Acessory Electric Equipment	11,833,776	4,083,579	7,750,197	Over
316	Misc. Power Plant Equipment	2,339,741	808,867	1,530,874	Over
	Labadie Steam Production Plant				
311	Structures & Improvements	34,038,755	11,381,888	22,656,867	Over
312	Boiler Plant Equipment	301,066,755	151,323,766	149,742,989	Over
312.03	Aluminum Coal Cars	38,100,712	47,259,725	-9,159,013	Under
314	Turbogenerator Units	67,328,387	31,720,942	35,607,445	Over
315	Acessory Electric Equipment	38,251,100	12,910,881	25,340,219	Over
316	Misc. Power Plant Equipment	7,341,846	1,941,374	5,400,472	Over
	Rush Island Steam Production Plant				
311	Structures & Improvements	31,645,884	10,041,911	21,603,973	Over
312	Boiler Plant Equipment	196,980,361	93,006,339	103,974,022	Over
314	Turbogenerator Units	53,484,413	24,219,734	29,264,679	Over
315	Acessory Electric Equipment	16,492,597	5,322,043	11,170,554	Over
316	Misc. Power Plant Equipment	4,266,116	1,057,750	3,208,366	Over
	Common Steam Production Plant				
311	Structures & Improvements	219,563	75,488	144,075	Over
312	Boiler Plant Equipment	4,537,148	2,992,835	1,544,313	Over
315	Accessory Electrical Equipment	342,692	125,433	217,259	Over
316	Misc. Power Plant Equipment	2,438	674	1,764	Over
	Total Steam Production Plant	**1,158,435,783**	**582,066,131**	**576,369,652**	**Over**
	Nuclear Production Plant				
321	Structures and Improvements	440,030,469	291,000,765	149,029,704	Over
322	Reactor Plant Equipment	284,736,650	364,569,355	-79,832,705	Under
323	Turbogenerator Units	185,853,221	142,815,618	43,037,603	Over
324	Accessory Electric Equipment	108,252,859	71,730,417	36,522,442	Over
325	Misc. Power Plant Equipment	32,314,189	36,449,694	-4,135,505	Under
	Total Nuclear Production Plant	**1,051,187,388**	**906,565,849**	**144,621,539**	**Over**

Union Electric Company, dba AmerenUE
Case No. ER-2007-0002

Account No.	Title	Book Reserve Balance Dec 31 2005	Theoretical Reserve Balance Dec 31 2005	Difference	Under or OverAccrual
	Osage Hydraulic Production Plant				
331	Structures and Improvements	1,323,513	1,252,090	71,423	Over
332	Reservoirs, Dams, and Waterways	13,601,792	6,841,613	6,760,179	Over
333	Water Wheels, Turbines, and Generators	6,980,750	8,133,720	-1,152,970	Under
334	Accessory Electric Equipment	1,373,647	1,059,095	314,552	Over
335	Misc. Power Plant Equipment	364,885	201,228	163,657	Over
336	Roads, Railroads, and Bridges	115,104	63,923	51,181	Over
	Keokuk Hydraulic Production Plant				
331	Structures and Improvements	1,354,660	1,099,249	255,411	Over
332	Reservoirs, Dams, and Waterways	5,716,963	2,919,957	2,797,006	Over
333	Water Wheels, Turbines, and Generators	5,533,101	10,394,544	-4,861,443	Under
334	Accessory Electric Equipment	788,470	1,211,779	-423,309	Under
335	Misc. Power Plant Equipment	660,867	284,061	376,806	Over
336	Roads, Railroads, and Bridges	54,102	50,972	3,130	Over
	Taum Sauk Hydraulic Production Plant				
331	Structures and Improvements	1,645,912	1,518,917	126,995	Over
332	Reservoirs, Dams, and Waterways	9,785,917	4,972,983	4,812,934	Over
333	Water Wheels, Turbines, and Generators	7,479,328	12,424,960	-4,945,632	Under
334	Accessory Electric Equipment	1,129,100	879,083	250,017	Over
335	Misc. Power Plant Equipment	509,509	146,641	362,868	Over
336	Roads, Railroads, and Bridges	56,387	28,093	28,294	Over
	Total Hydraulic Production Plant	**58,474,007**	**53,482,908**	**4,991,099**	**Over**
	Other Production Plant				
341	Structures and Improvements	5,265,826	1,764,093	3,501,733	Over
342	Fuel Holders, Products, and Accessories	3,014,438	2,278,845	735,593	Over
344	Generators	109,426,490	64,394,095	45,032,395	Over
345	Accessory Electric Equipment	7,644,957	4,045,656	3,599,301	Over
346	Misc. Power Plant Equipment	959,166	627,723	331,443	Over
	Total Other Production Plant	**126,310,877**	**73,110,412**	**53,200,465**	**Over**
	Transmission Plant				
352	Structures and Improvements	2,050,542	2,028,938	21,604	Over
353	Station Equipment	57,763,437	41,663,321	16,100,116	Over
354	Tower and Fixtures	41,274,010	38,811,021	2,462,989	Over
355	Poles and Fixtures	42,267,580	35,464,879	6,802,701	Over
356	Overhead Conductors and Devices	43,131,874	48,694,261	-5,562,387	Under
359	Roads and Trails	76,265	71,789	4,476	Over
	Total Transmission Plant	**186,563,708**	**166,734,209**	**19,829,499**	**Over**
	Distribution Plant				
361	Structures and Improvements	4,953,060	4,929,789	23,271	Over
362	Station Equipment	159,407,965	136,303,235	23,104,730	Over
364	Poles, Towers, and Fixtures	520,097,324	559,313,888	-39,216,564	Under
365	Overhead Conductors and Devices	254,733,135	286,794,089	-32,060,954	Under
366	Underground Conduit	57,721,787	38,287,196	19,434,591	Over
367	Underground Conductors and Devices	134,015,952	146,862,338	-12,846,386	Under
368	Line Transformers	107,491,678	120,822,423	-13,330,745	Under
369.001	Overhead Services	145,720,361	194,764,214	-49,043,853	Under
369.002	Underground Services	73,486,852	80,428,040	-6,941,188	Under
370	Meters	33,417,869	32,584,418	833,451	Over
371	Installations on Customer Premises	120,584	88,893	31,691	Over
373.00	Street Lighting and Signal Systems	42,562,921	37,587,356	4,975,565	Over
	Total Distribution Plant	**1,533,729,488**	**1,638,765,879**	**-105,036,391**	**Under**

Union Electric Company, dba AmerenUE
Case No. ER-2007-0002

Account No.	Title	Book Reserve Balance Dec 31 2005	Theoretical Reserve Balance Dec 31 2005	Difference	Under or OverAccrual
	General Plant				
390.0	Structures and Improvements	46,077,375	48,464,812	-2,387,437	Under
391.0	Office Furniture and Equipment	24,084,713	9,767,710	14,317,003	Over
391.1	Mainframe Computers	422,014	168,806	253,208	Over
391.2	Personal Computers	584,257	296,183	288,074	Over
392.0	Transportation Equipment	30,127,187	30,364,111	-236,924	Under
393.0	Stores Equipment	1,324,092	566,778	757,314	Over
394.00	Tools, Shop and Garage Equipment	5,996,285	2,487,982	3,508,303	Over
395.00	Laboratory Equipment	3,347,588	1,372,192	1,975,396	Over
396.00	Power Operated Equipment	4,232,262	4,310,009	-77,747	Under
397.00	Communication Equipment	94,611,692	41,058,146	53,553,546	Over
398.00	Miscellaneous Equipment	279,472	102,877	176,595	Over
	Total General Plant	**211,086,937**	**138,959,606**	**72,127,331**	**Over**

Column Totals	**4,325,788,188**	**3,559,684,994**	**766,103,194**	**Over**

Schedule JLM 4