

Exhibit No.:
Issue: Depreciation
Witness: Gregory E. Macias
Sponsoring Party: MoPSC Staff
Type of Exhibit: Direct Testimony
Case No.: ER-2004-0570
Date Testimony Prepared: September 20, 2004

MISSOURI PUBLIC SERVICE COMMISSION

UTILITY SERVICES DIVISION

DIRECT TESTIMONY

OF

GREGORY E. MACIAS

EMPIRE DISTRICT ELECTRIC COMPANY

CASE NO. ER-2004-0570

Jefferson City, Missouri
September 2004

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In The Matter of the Tariff Filing of The Empire)
District Electric Company to Implement a)
General Rate Increase for Retail Electric)
Service Provided to Customers in its Missouri)
Service Area.)
Case No. ER-2004-0570

AFFIDAVIT OF GREGORY E. MACIAS

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

Gregory E. Macias, being of lawful age, on his oath states: that he has participated in the preparation of the following direct testimony in question and answer form, consisting of 5 pages to be presented in the above case; that the answers in the following direct testimony were given by him; that he has knowledge of the matters set forth in such answers; and that such matters are true and correct to the best of his knowledge and belief.



Gregory E. Macias

Subscribed and sworn to before me this 17th day of September 2004.





Notary

TONI M. CHARLTON
NOTARY PUBLIC STATE OF MISSOURI
COUNTY OF COLE
My Commission Expires December 28, 2004

DIRECT TESTIMONY

OF

GREGORY E. MACIAS

EMPIRE DISTRICT ELECTRIC COMPANY

CASE NO. ER-2004-0570

Q. Please state your name and business address.

A. Gregory E. Macias, P.O. Box 360, Jefferson City, MO 65102.

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

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

Q. Please describe your educational background.

A. I earned a Bachelor of Science degree in Civil Engineering from the University of Missouri - Columbia.

Q. Please describe your work background.

A. I began working for the Commission in September 1997 as an Engineering Specialist in the Gas Safety Department. In December 2001 I joined the Engineering and Management Services Department in my current position.

Q. Please describe your duties while employed by the Commission.

A. While working in the Gas Safety Department, I conducted safety inspections and incident investigations of natural gas local distribution companies and intrastate pipeline companies. I am currently responsible for depreciation calculations and studies of companies regulated by the Commission.

Q. Have you previously filed testimony before this Commission?

1 A. Yes. See Schedule 1 for a list of cases in which I have previously filed testimony.

2 Q. What matters will you address in your testimony?

3 A. I will address the Commission Staff's (Staff's) recommendation regarding
4 depreciation rates.

5 Q. What knowledge, skill, experience, training or education do you have in these
6 matters?

7 A. I have made on-site visits to several Missouri-regulated electric, natural gas,
8 telecommunications, water and sewer companies. I have gained work related experience and
9 training from the Engineering and Management Services Department's engineering staff
10 regarding concepts of depreciation. I have completed the National Association of Regulatory
11 Commissioners (NARUC) Utility Rate School administered by the University of Florida and the
12 NARUC Water Committee. I have also completed the New Mexico State University Basic
13 NARUC Course. I have reviewed prior Commission decisions and portions of the testimony
14 regarding this issue in previous cases.

15 Q. What is the purpose of your testimony?

16 A. The purpose of my testimony is to propose depreciation rates that will allow The
17 Empire District Electric Company (Empire or Company) to collect the original cost of capital
18 investments over the life of its assets. The proposed depreciation rates are presented in
19 Schedule 2.

20 Q. When were depreciation rates for the Company last adopted by a Commission
21 Order?

1 A. Depreciation rates were last adopted for the Company by Stipulation And
2 Agreement in Case No. ER-2002-424 effective December 1, 2002; and prior to that in Case No.
3 ER-2001-299 by Report And Order effective October 2, 2001.

4 Q. Has there been any change in the Staff's approach to determining depreciation
5 rates?

6 A. No. My recommendation in this case follows the approach that was used by Staff
7 and accepted by the Commission in the last two Empire rate cases.

8 Q. Did you conduct and complete a depreciation study of Empire's capital plant
9 accounts?

10 A. Yes. The recommended depreciation rates are presented in Schedule 2. A
11 description of the study and results of the analysis are presented in the report attached as
12 Schedule 3. The depreciation rates determined in this study would reduce the currently ordered
13 annual depreciation accrual from approximately \$28.8 million to approximately \$27 million, a
14 difference of approximately \$1.8 million, based on June 30, 2004 plant in service balances.

15 Q. Is this difference attributed to all plant accounts?

16 A. No. I am not recommending a change from the depreciation rates set in Case No.
17 ER-2002-424 for production plant accounts, with the exception of accounts that are fully
18 depreciated. The mortality data for production plant that is available at this time is insufficient to
19 justify changing the currently ordered average service lives.

20 Q. What is the condition of the production plant mortality data?

21 A. The Company has been working for several years to convert, maintain and update
22 mortality data on a new computer system. The database that the Company is building still lacks
23 the integrity required to conduct a reliable statistical analysis.

1 Q. Which production accounts are fully depreciated?

2 A. The following accounts have accrued their original cost and I am recommending
3 their depreciation rates be set to zero:

4 Account 315.00, Accessory Electric Equipment – Riverton

5 Account 342.00, Fuel Holders, Producers and Accessories – Energy Center CT

6 Account 346.00, Miscellaneous Power Plant Equipment – State Line CT

7 Q. Did you perform an analysis of the booked depreciation reserve?

8 A. Yes. I calculated a theoretical depreciation reserve for comparison to the booked
9 depreciation reserve for the transmission, distribution and general plant accounts. A theoretical
10 depreciation reserve for production plant was not calculated due to the condition of the
11 production plant data.

12 Q. What are the results of your analysis of the booked depreciation reserve?

13 A. My analysis indicates that the booked depreciation reserve is over accrued by
14 approximately \$61 million as of December 31, 2003 for the transmission, distribution and
15 general plant accounts.

16 Q. What caused the booked depreciation reserve to over accrue \$61 million?

17 A. In the last depreciation study of Empire's transmission, distribution and general
18 plant accounts performed by Staff, the depreciation reserve over accrual was approximately \$46
19 million. The \$46 million difference was partially due to changes in estimates of average service
20 lives and retirement dispersion, and partially due to Staff basing its depreciation rates solely on
21 recovery of original cost. Prior to the use of Staff's current method, depreciation rates were
22 influenced by other factors such as estimated future cost of removal.

1 The difference between the current depreciation study over accrual and the previous
2 study over accrual, approximately \$15 million, is the result of longer observed and estimated
3 average service lives and changes in retirement dispersion.

4 Q. What is Staff's criteria for an adjustment of an over accrual of depreciation
5 reserve?

6 A. The need for, magnitude of and timing of a reserve imbalance adjustment should
7 be based on consideration of several factors including the characteristics of the account, the
8 causes for the difference, the magnitude of the imbalance, and the year-to-year volatility of the
9 accumulated provision for depreciation.

10 Q. What is your recommendation for adjusting the depreciation reserve over accrual?

11 A. I do not propose an adjustment of the depreciation reserve at this time. I believe
12 that an adjustment is not appropriate at this time because the production plant reserve has not
13 been analyzed due to the condition of the data, and the relationship of the depreciation reserve
14 to the plant balance is not excessive. The depreciation reserve imbalance should be noted and
15 monitored in future depreciation studies.

16 Q. Please summarize Staff's proposal regarding depreciation in this case.

17 A. I recommend that the Commission order the depreciation rates proposed in
18 Schedule 2 based on the recovery of the original cost of plant investment.

19 Q. Does this conclude your direct testimony?

20 A. Yes it does.

CASE PROCEEDING PARTICIPATION
STAFF WITNESS GREGORY E. MACIAS

<u>Company Name</u>	<u>Case Number</u>	<u>Testimony Filed</u>	<u>Issue(s)</u>
Missouri American Water Company	WR-2003-0500	Direct, Rebuttal, Surrebuttal	Depreciation
Osage Water Company	ST-2003-0562 WT-2003-0563	Direct	Depreciation
Fidelity Telephone Company	IR-2004-272	Direct	Depreciation

ER-2004-0570
THE EMPIRE DISTRICT ELECTRIC COMPANY
SCHEDULE 2. Depreciation Rate Recommendation and Corresponding Annual Accrual

Account Number	Description	Original Cost 6/30/2004 (\$)	Depreciation Rate	Annual Accrual (\$)
<u>STEAM PRODUCTION PLANT</u>				
<u>RIVERTON</u>				
311.00	Structures and Improvements	8,467,460	1.05%	88,908
312.00	Boiler Plant Equipment	21,727,092	1.85%	401,951
314.00	Turbogenerator Units	6,514,048	1.59%	103,573
315.00	Accessory Electric Equipment	1,299,877	0.00%	-
316.00	Miscellaneous Power Plant Equipment	1,075,367	1.96%	21,077
<u>ASBURY</u>				
311.00	Structures and Improvements	9,169,966	1.05%	96,285
312.00	Boiler Plant Equipment	66,841,958	1.85%	1,236,576
312.70	Unit Train	5,580,296	6.67%	372,206
314.00	Turbogenerator Units	20,730,452	1.59%	329,614
315.00	Accessory Electric Equipment	6,348,259	1.79%	113,634
316.00	Miscellaneous Power Plant Equipment	1,623,435	1.96%	31,819
<u>IATAN</u>				
311.00	Structures and Improvements	3,997,069	1.05%	41,969
312.00	Boiler Plant Equipment	31,103,431	1.85%	575,413
314.00	Turbogenerator Units	8,252,043	1.59%	131,207
315.00	Accessory Electric Equipment	3,689,765	1.79%	66,047
316.00	Miscellaneous Power Plant Equipment	872,216	1.96%	17,095
<u>HYDRAULIC PRODUCTION PLANT</u>				
<u>OZARK BEACH</u>				
331.00	Structures and Improvements	556,389	1.64%	9,125
332.00	Reservoirs, Dams and Waterways	1,461,404	1.67%	24,405
333.00	Waterwheels, Turbines and Generators	1,305,038	1.47%	19,184
334.00	Accessory Electric Equipment	812,324	1.43%	11,616
335.00	Miscellaneous Power Plant Equipment	348,853	2.44%	8,512

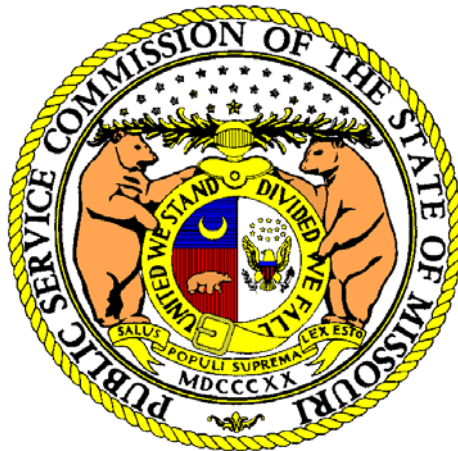
ER-2004-0570
THE EMPIRE DISTRICT ELECTRIC COMPANY
SCHEDULE 2. Depreciation Rate Recommendation and Corresponding Annual Accrual

Account Number	Description	Original Cost 6/30/2004	Depreciation Rate	Annual Accrual
<u>OTHER PRODUCTION PLANT</u>				
<u>RIVERTON CT</u>				
341.00	Structures and Improvements	193,357	1.82%	3,519
342.00	Fuel Holders, Producers and Access.	87,123	3.85%	3,354
343.00	Prime Movers	10,147,180	1.92%	194,826
344.00	Generators	926,850	1.82%	16,869
345.00	Accessory Electric Equipment	315,835	3.57%	11,275
346.00	Miscellaneous Power Plant Equipment	83,907	4.00%	3,356
<u>ENERGY CENTER</u>				
341.00	Structures and Improvements	2,999,174	1.82%	54,585
342.00	Fuel Holders, Producers and Access.	1,209,362	0.00%	-
343.00	Prime Movers	25,638,096	1.92%	492,251
344.00	Generators	44,338,097	1.82%	806,953
345.00	Accessory Electric Equipment	2,571,511	3.57%	91,803
346.00	Miscellaneous Power Plant Equipment	13,530,044	4.00%	541,202
<u>STATE LINE CT</u>				
341.00	Structures and Improvements	4,130,748	1.82%	75,180
342.00	Fuel Holders, Producers and Access.	3,380,804	3.85%	130,161
343.00	Prime Movers	42,664,185	1.92%	819,152
344.00	Generators	11,268,284	1.82%	205,083
345.00	Accessory Electric Equipment	3,710,093	3.57%	132,450
346.00	Miscellaneous Power Plant Equipment	123,435	0.00%	-
<u>STATE LINE CC</u>				
341.00	Structures and Improvements	7,045,752	2.86%	201,508
342.00	Fuel Holders, Producers and Access.	7,971,750	2.86%	227,992
343.00	Prime Movers	83,979,493	2.86%	2,401,814
344.00	Generators	23,328,557	2.86%	667,197
345.00	Accessory Electric Equipment	7,782,686	2.86%	222,585
346.00	Miscellaneous Power Plant Equipment	64,665	2.86%	1,849

ER-2004-0570
THE EMPIRE DISTRICT ELECTRIC COMPANY
SCHEDULE 2. Depreciation Rate Recommendation and Corresponding Annual Accrual

Account Number	Description	Original Cost 6/30/2004	Depreciation Rate	Annual Accrual
<u>TRANSMISSION PLANT</u>				
352.00	Structures and Improvements	2,335,614	1.37%	31,998
353.00	Station Equipment	81,102,639	2.13%	1,727,486
354.00	Towers and Fixtures	777,080	1.30%	10,102
355.00	Poles and Fixtures	26,709,864	1.82%	486,120
356.00	Overhead Conductors and Devices	50,847,710	1.59%	808,479
<u>DISTRIBUTION PLANT</u>				
361.00	Structures and Improvements	8,415,331	1.82%	153,159
362.00	Station Equipment	54,447,597	2.44%	1,328,521
364.00	Poles, Towers and Fixtures	75,481,042	2.33%	1,758,708
365.00	Overhead Conductors and Devices	94,509,876	1.92%	1,814,590
366.00	Underground Conduit	16,005,260	2.63%	420,938
367.00	Underground Conductors and Devices	33,575,290	3.03%	1,017,331
368.00	Line Transformers	61,194,572	2.33%	1,425,834
369.00	Services	42,710,443	2.63%	1,123,285
370.00	Meters	14,177,845	2.44%	345,939
371.00	I.O.C.P.	10,523,506	4.17%	438,830
373.00	Street Lighting and Signal Systems	9,520,690	2.13%	202,791
<u>GENERAL PLANT</u>				
390.00	Structures and Improvements	9,234,589	3.57%	329,675
391.10	Office Furniture and Equipment	3,271,691	4.55%	148,862
391.20	Computer Equipment	8,804,676	8.62%	758,963
392.00	Transportation Equipment	6,528,679	7.69%	502,055
393.00	Stores Equipment	343,778	3.57%	12,273
394.00	Tools, Shop and Garage Equipment	2,950,039	3.33%	98,236
395.00	Laboratory Equipment	886,386	2.44%	21,628
396.00	Power Operated Equipment	10,036,913	6.25%	627,307
397.00	Communication Equipment	10,137,348	4.35%	440,975
398.00	Miscellaneous Equipment	231,871	3.70%	8,579
398.00	TOTAL ANNUAL ACCRUAL (based on 6/30/04 plant in service)			27,047,848

**DEPRECIATION STUDY FOR
EMPIRE DISTRICT ELECTRIC COMPANY
CASE NO. ER-2004-0570**



**PRESENTED BY:
GREGORY E. MACIAS
UTILITY SERVICES DIVISION
ENGINEERING & MANAGEMENT SERVICES DEPARTMENT
SEPTEMBER 2004**

Depreciation

Regarding public utility regulation, depreciation is the loss, not restored by current maintenance, which is due to all factors causing the ultimate retirement of an asset.

The purpose of depreciation in a regulatory setting is to recover the original cost of capital assets from customers, allocated rationally over the useful life of the assets. This is achieved by allocating annual amounts of the original capital costs to expense that are equal to the loss that takes place in one year, or annual depreciation. Therefore, annual depreciation expense, distributed over the life of each asset, results in the full recovery of the original cost of capital assets.

Study

The method of allocating depreciation expense in equal amounts each year over the period of time that an asset renders service is called the straight line method of depreciation. The straight line method of depreciation was employed in the depreciation study conducted for this case. The period of time that an asset renders service, or the service life, must be estimated in order to determine the annual depreciation expense using the straight line method.

Depreciation expense is determined on an account-by-account basis. For this reason it is necessary to estimate the service life of each plant account as an aggregation of all of the account's individual asset's service lives to determine an average service life (ASL) for each account. The broad group procedure, where all units of plant within a particular depreciation category are considered to be one group, was used to analyze mortality data to determine average service lives for the individual plant accounts. The average service life, expressed in years, is the expected period of useful service of all units of the group, or account, regardless of placement date.

Service Life Estimation

Determination of an account's average service life begins with four primary steps. The first step is to collect and review the historical placement and retirement plant data. The mortality data is checked for reasonableness and to ensure that sufficient data exists to perform a statistical analysis. Another step is touring generating sites to gain familiarity with the facilities and to discuss with operations personnel, engineers, accountants and others, current trends and developments that may influence the useful life of plant in service. A third step is to perform a statistical analysis of the retirement experience of the utility plant accounts. The retirement rate method of analysis was used for this step and will be discussed further in the following section. The fourth primary step in the process of determining average service life is applying experience and informed judgment to the results of the statistical analysis to confirm that the results are reasonable for the type of plant in question.

Retirement Rate Method of Analysis

The retirement rate method analyzes historical plant data by calculating the ratio of retirements to exposures by age, then solving for the percent surviving by age, to develop a survivor curve for an account. The required data are plant additions in dollars by year, or vintage, and retirements from each vintage in dollars by year. The exposures at a given age are the dollars remaining from the various vintages that have lived to that age. The retirement ratio is the dollars retired during an age interval divided by the exposures at the beginning of that interval. The survivor ratio is then calculated by subtracting the retirement ratio from one. Multiplying each successive survivor ratio by the percent surviving of the previous age will generate a survivor curve. This original survivor curve can then be smoothed or fitted to an empirically developed statistical model known as the Iowa type curves.

Iowa Type Curves

The Iowa type curves are widely used models of the life characteristics of utility property. The system of Iowa curves is a family of curve shapes empirically derived from analyses of mortality

data of 176 types of utility and industrial property. The curves were developed at the Iowa Engineering Experiment Station at what is presently known as Iowa State University. The Iowa curves were first published in 1935 and reconfirmed in 1980.

Smoothing the original survivor curve by fitting it to an Iowa type curve eliminates irregularities and extrapolates stub curves to zero percent. The original survivor curve is mathematically and visually matched with various Iowa type curves to determine which is the most appropriate fit. Average service life of an account's original survivor curve is estimated as the area under the selected Iowa type curve.

Depreciation System

The depreciation system is comprised of a method, procedure and technique. The depreciation system for this study is the straight line method, broad group procedure and whole life technique. Estimation of service life, selection of appropriate depreciation system, experience and informed judgment are the key elements for developing an annual depreciation accrual rate.

Annual Depreciation Accrual Rate

Using the straight line, broad group, whole life depreciation system, the annual depreciation accrual rate for an account is 100 percent, or one, divided by the average service life (100%/ASL), where 100 percent represents the full recovery of assets. This depreciation rate is designed to recover 100 percent of the original cost of an account's assets over the useful average service life of the assets.

An account's annual depreciation accrual is calculated by multiplying the account's plant in service balance by its depreciation rate. The summation of all of the plant account's annual accruals as of the test year is the annual depreciation expense for cost of service revenue requirement.

Accumulated Provision for Depreciation

By their very nature, capital plant accounts are dynamic. There are assets constantly being added and retired, and the observed service lives are affected by technology changes, environmental regulations, accounting changes and regulatory requirements among other internal and external forces. It is therefore necessary not only to update an account's average service life, but also monitor the accumulated provision for depreciation.

The revised estimate of average service life and selected Iowa type curve are used to compute the calculated accumulated depreciation, or theoretical reserve. The theoretical reserve is the amount that would be in the accumulated provision for depreciation, or book reserve, if the depreciation rate corresponding to the revised estimates had been applied from the original placement of plant to the date of the study. The theoretical reserve can also be considered as the difference between the original cost of plant currently in service and the summation of annual depreciation expense that is to be collected from the study date until the date of final retirement of the account.

A comparison of the theoretical reserve and the accumulated provision for depreciation will show whether prior depreciation estimates differ significantly from currently observed experience. A significant difference between the two may warrant an adjustment to the accumulated reserve for depreciation. This adjustment would be allocated over an amortization period.

Results and Recommendations

The results of the depreciation study I conducted are contained in my workpapers, which have been distributed to all of the parties in this case. Gannett Fleming Depreciation Software was used as an engineering tool to automate calculations, generate graphs and format the presentation of the results.

The recommended annual depreciation accrual rates are provided in column 6 of Schedule 4, and the associated annual depreciation accrual based on June 30, 2004 plant in service is provided in column 7 of Schedule 4. The recommended annual depreciation accrual of approximately \$27 million is a reduction of approximately \$1.8 million from the annual depreciation accrual of approximately \$28.8 million generated from currently ordered depreciation rates.

The difference between the accumulated reserve for depreciation (book reserve) and the theoretical reserve is approximately \$61 million for the transmission, distribution, and general plant accounts. This over accrual should be noted and monitored, but not adjusted for at this time.

Schedule 5 is provided as a comparison between the Staff's depreciation recommendation, the Company's proposal and the depreciation rates that are currently ordered. The Company's proposal would generate approximately \$53 million in annual depreciation accrual. The difference between the Staff's proposal and the Company's proposal is approximately \$26 million, based on June 30, 2004 plant balances.

ER-2004-0570
THE EMPIRE DISTRICT ELECTRIC COMPANY
SCHEDULE 4. Depreciation Rate Determination, Corresponding Annual Accrual and Reserve for Depreciation

Account Number	Description	Original Cost 6/30/2004	Proposed Life (Years)	Iowa Curve	Proposed Depreciation Rate	Proposed Annual Accrual	Ordered Depreciation Rate	Ordered Annual Accrual	Theoretical Reserve 12/31/2003	Book Reserve 12/31/2003
(1)	(2)	(3)	(4)	(5)	(6)=100%/(4)	(7)=(6)X(3)	(8)	(9)=(8)X(3)	(11)	(10)
<u>STEAM PRODUCTION PLANT</u>										
<u>RIVERTON</u>										
311.00	Structures and Improvements	8,467,460	95		1.05%	88,908	1.05%	88,908		3,270,378
312.00	Boiler Plant Equipment	21,727,092	54		1.85%	401,951	1.85%	401,951		15,949,657
314.00	Turbogenerator Units	6,514,048	63		1.59%	103,573	1.59%	103,573		5,707,235
315.00	Accessory Electric Equipment	1,299,877	56		0.00%	-	1.79%	23,268		1,380,852
316.00	Miscellaneous Power Plant Equipment	1,075,367	51		1.96%	21,077	1.96%	21,077		620,727
	Total Riverton	39,083,843				615,510		638,778		26,928,848
<u>ASBURY</u>										
311.00	Structures and Improvements	9,169,966	95		1.05%	96,285	1.05%	96,285		3,238,566
312.00	Boiler Plant Equipment	66,841,958	54		1.85%	1,236,576	1.85%	1,236,576		19,160,896
312.70	Unit Train	5,580,296	15		6.67%	372,206	6.67%	372,206		4,375,059
314.00	Turbogenerator Units	20,730,452	63		1.59%	329,614	1.59%	329,614		8,923,170
315.00	Accessory Electric Equipment	6,348,259	56		1.79%	113,634	1.79%	113,634		1,678,166
316.00	Miscellaneous Power Plant Equipment	1,623,435	51		1.96%	31,819	1.96%	31,819		825,465
	Total Asbury	110,294,366				2,180,134		2,180,134		38,201,323
<u>IATAN</u>										
311.00	Structures and Improvements	3,997,069	95		1.05%	41,969	1.05%	41,969		2,212,979
312.00	Boiler Plant Equipment	31,103,431	54		1.85%	575,413	1.85%	575,413		23,427,557
314.00	Turbogenerator Units	8,252,043	63		1.59%	131,207	1.59%	131,207		4,948,704
315.00	Accessory Electric Equipment	3,689,765	56		1.79%	66,047	1.79%	66,047		2,309,337
316.00	Miscellaneous Power Plant Equipment	872,216	51		1.96%	17,095	1.96%	17,095		352,247
	Total Iatan	47,914,524				831,732		831,732		33,250,823
	Total Steam Production	197,292,733				3,627,376		3,650,644		98,380,994

ER-2004-0570
THE EMPIRE DISTRICT ELECTRIC COMPANY
SCHEDULE 4. Depreciation Rate Determination, Corresponding Annual Accrual and Reserve for Depreciation

Account Number	Description	Original Cost 6/30/2004	Proposed Life (Years)	Iowa Curve	Proposed Depreciation Rate	Proposed Annual Accrual	Ordered Depreciation Rate	Ordered Annual Accrual	Theoretical Reserve 12/31/2003	Book Reserve 12/31/2003
(1)	(2)	(3)	(4)	(5)	(6)=100%/(4)	(7)=(6)X(3)	(8)	(9)=(8)X(3)	(11)	(10)
<u>HYDRAULIC PRODUCTION PLANT</u>										
<u>OZARK BEACH</u>										
331.00	Structures and Improvements	556,389	61		1.64%	9,125	1.64%	9,125		211,345
332.00	Reservoirs, Dams and Waterways	1,461,404	60		1.67%	24,405	1.67%	24,405		1,289,756
333.00	Waterwheels, Turbines and Generators	1,305,038	68		1.47%	19,184	1.47%	19,184		369,679
334.00	Accessory Electric Equipment	812,324	70		1.43%	11,616	1.43%	11,616		152,811
335.00	Miscellaneous Power Plant Equipment	348,853	41		2.44%	8,512	2.44%	8,512		131,315
	Total Hydraulic Production	4,484,008				72,843		72,843		2,154,906
<u>OTHER PRODUCTION PLANT</u>										
<u>RIVERTON CT</u>										
341.00	Structures and Improvements	193,357	55		1.82%	3,519	1.82%	3,519		114,544
342.00	Fuel Holders, Producers and Access.	87,123	26		3.85%	3,354	3.85%	3,354		53,036
343.00	Prime Movers	10,147,180	52		1.92%	194,826	1.92%	194,826		4,967,746
344.00	Generators	926,850	55		1.82%	16,869	1.82%	16,869		557,349
345.00	Accessory Electric Equipment	315,835	28		3.57%	11,275	3.57%	11,275		178,096
346.00	Miscellaneous Power Plant Equipment	83,907	25		4.00%	3,356	4.00%	3,356		59,654
	Total Riverton CT	11,754,253				233,199		233,199		5,930,426
<u>ENERGY CENTER</u>										
341.00	Structures and Improvements	2,999,174	55		1.82%	54,585	1.82%	54,585		1,488,522
342.00	Fuel Holders, Producers and Access.	1,209,362	26		0.00%	-	3.85%	46,560		1,491,898
343.00	Prime Movers	25,638,096	52		1.92%	492,251	1.92%	492,251		13,535,384
344.00	Generators	44,338,097	55		1.82%	806,953	1.82%	806,953		3,708,257

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THE EMPIRE DISTRICT ELECTRIC COMPANY
SCHEDULE 4. Depreciation Rate Determination, Corresponding Annual Accrual and Reserve for Depreciation

Account Number	Description	Original Cost 6/30/2004	Proposed Life (Years)	Iowa Curve	Proposed Depreciation Rate	Proposed Annual Accrual	Ordered Depreciation Rate	Ordered Annual Accrual	Theoretical Reserve 12/31/2003	Book Reserve 12/31/2003
(1)	(2)	(3)	(4)	(5)	(6)=100%/(4)	(7)=(6)X(3)	(8)	(9)=(8)X(3)	(11)	(10)
345.00	Accessory Electric Equipment	2,571,511	28		3.57%	91,803	3.57%	91,803		422,810
346.00	Miscellaneous Power Plant Equipment	13,530,044	25		4.00%	541,202	4.00%	541,202		1,261,543
	Total Energy Center	90,286,284				1,986,794		2,033,355		21,908,414
	<u>STATE LINE CT</u>									
341.00	Structures and Improvements	4,130,748	55		1.82%	75,180	1.82%	75,180		847,015
342.00	Fuel Holders, Producers and Access.	3,380,804	26		3.85%	130,161	3.85%	130,161		665,022
343.00	Prime Movers	42,664,185	52		1.92%	819,152	1.92%	819,152		7,942,202
344.00	Generators	11,268,284	55		1.82%	205,083	1.82%	205,083		2,409,216
345.00	Accessory Electric Equipment	3,710,093	28		3.57%	132,450	3.57%	132,450		457,459
346.00	Miscellaneous Power Plant Equipment	123,435	25		0.00%	-	4.00%	4,937		153,380
	Total State Line CT	65,277,549				1,362,026		1,366,963		12,474,294
	<u>STATE LINE CC</u>									
341.00	Structures and Improvements	7,045,752	35		2.86%	201,508	2.86%	201,508		386,033
342.00	Fuel Holders, Producers and Access.	7,971,750	35		2.86%	227,992	2.86%	227,992		493,729
343.00	Prime Movers	83,979,493	35		2.86%	2,401,814	2.86%	2,401,814		5,262,082
344.00	Generators	23,328,557	35		2.86%	667,197	2.86%	667,197		1,470,726
345.00	Accessory Electric Equipment	7,782,686	35		2.86%	222,585	2.86%	222,585		490,634
346.00	Miscellaneous Power Plant Equipment	64,665	35		2.86%	1,849	2.86%	1,849		1,910
	Total State Line CC	130,172,902				3,722,945		3,722,945		8,105,113
	Total Other Production	297,490,987				7,304,965		7,356,463		48,418,247
	TOTAL PRODUCTION PLANT	499,267,729				11,005,184		11,079,950		148,954,147

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THE EMPIRE DISTRICT ELECTRIC COMPANY
SCHEDULE 4. Depreciation Rate Determination, Corresponding Annual Accrual and Reserve for Depreciation

Account Number	Description	Original Cost 6/30/2004	Proposed Life (Years)	Iowa Curve	Proposed Depreciation Rate	Proposed Annual Accrual	Ordered Depreciation Rate	Ordered Annual Accrual	Theoretical Reserve 12/31/2003	Book Reserve 12/31/2003
(1)	(2)	(3)	(4)	(5)	(6)=100%/(4)	(7)=(6)X(3)	(8)	(9)=(8)X(3)	(11)	(10)
TRANSMISSION PLANT										
352.00	Structures and Improvements	2,335,614	73	R1	1.37%	31,998	1.37%	31,998	462,765	835,182.64
353.00	Station Equipment	81,102,639	47	R2.5	2.13%	1,727,486	2.19%	1,776,148	19,468,180	23,689,135
354.00	Towers and Fixtures	777,080	77	R4	1.30%	10,102	1.30%	10,102	405,646	692,786
355.00	Poles and Fixtures	26,709,864	55	R2.5	1.82%	486,120	1.85%	494,132	6,360,789	10,461,171
356.00	Overhead Conductors and Devices	50,847,710	63	R2.5	1.59%	808,479	1.43%	727,122	10,780,776	13,260,955
TOTAL TRANSMISSION PLANT		161,772,907				3,064,184		3,039,502	37,478,156	48,939,229
DISTRIBUTION PLANT										
361.00	Structures and Improvements	8,415,331	55	R2.5	1.82%	153,159	1.98%	166,624	2,312,070	2,728,334
362.00	Station Equipment	54,447,597	41	R1.5	2.44%	1,328,521	2.44%	1,328,521	13,676,651	19,414,017
364.00	Poles, Towers and Fixtures	75,481,042	43	R4	2.33%	1,758,708	2.43%	1,834,189	27,190,931	39,711,597
365.00	Overhead Conductors and Devices	94,509,876	52	R3	1.92%	1,814,590	2.10%	1,984,707	24,540,229	32,191,247
366.00	Underground Conduit	16,005,260	38	R3	2.63%	420,938	2.97%	475,356	3,555,057	4,887,416
367.00	Underground Conductors and Devices	33,575,290	33	S1	3.03%	1,017,331	3.61%	1,212,068	8,185,926	10,723,748
368.00	Line Transformers	61,194,572	43	S1	2.33%	1,425,834	2.51%	1,535,984	17,631,849	21,644,294
369.00	Services	42,710,443	38	S3	2.63%	1,123,285	3.03%	1,294,126	13,498,644	19,571,576
370.00	Meters	14,177,845	41	S0.5	2.44%	345,939	2.58%	365,788	4,308,721	5,726,966
371.00	I.O.C.P.	10,523,506	24	L1.5	4.17%	438,830	5.15%	541,961	3,554,446	5,671,345
373.00	Street Lighting and Signal Systems	9,520,690	47	R1.5	2.13%	202,791	2.36%	224,688	2,386,954	3,949,088
Various	Other Jurisdiction's Distribution Plant	48,280,120								
TOTAL DISTRIBUTION PLANT		468,841,574				10,029,926		10,964,013	120,841,478	166,219,626

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THE EMPIRE DISTRICT ELECTRIC COMPANY
SCHEDULE 4. Depreciation Rate Determination, Corresponding Annual Accrual and Reserve for Depreciation

Account Number	Description	Original Cost 6/30/2004	Proposed Life (Years)	Iowa Curve	Proposed Depreciation Rate	Proposed Annual Accrual	Ordered Depreciation Rate	Ordered Annual Accrual	Theoretical Reserve 12/31/2003	Book Reserve 12/31/2003
(1)	(2)	(3)	(4)	(5)	(6)=100%/(4)	(7)=(6)X(3)	(8)	(9)=(8)X(3)	(11)	(10)
<u>GENERAL PLANT</u>										
390.00	Structures and Improvements	9,234,589	28	L1.5	3.57%	329,675	4.27%	394,317	3,866,002	4,454,944
391.10	Office Furniture and Equipment	3,271,691	22	L1	4.55%	148,862	4.81%	157,368	1,297,118	1,311,125
391.20	Computer Equipment	8,804,676	11.6	L2	8.62%	758,963	14.29%	1,258,188	1,520,709	436,398
392.00	Transportation Equipment	6,528,679	13	L2	7.69%	502,055	9.52%	621,530	2,645,900	5,233,374
393.00	Stores Equipment	343,778	28	R3	3.57%	12,273	3.95%	13,579	160,954	220,850
394.00	Tools, Shop and Garage Equipment	2,950,039	30	S1.5	3.33%	98,236	2.50%	73,751	899,876	1,419,727
395.00	Laboratory Equipment	886,386	41	R2.5	2.44%	21,628	2.66%	23,578	313,515	544,611
396.00	Power Operated Equipment	10,036,913	16	L3	6.25%	627,307	6.67%	669,462	4,081,803	4,732,795
397.00	Communication Equipment	10,137,348	23	R2.5	4.35%	440,975	4.95%	501,799	4,656,273	5,247,800
398.00	Miscellaneous Equipment	231,871	27	S1	3.70%	8,579	3.75%	8,695	62,549	72,016
TOTAL GENERAL PLANT		<u>52,425,967</u>				<u>2,948,553</u>		<u>3,722,268</u>	<u>19,504,699</u>	<u>23,673,640</u>
Total Depreciable Plant		1,182,308,177								
Intangible Plant		8,001,696								
Land and Land Rights		12,474,861								
Capital Leases		<u>815,081</u>								
Total Electric Plant in Service		<u>1,203,599,815</u>				<u>27,047,848</u>		<u>28,805,733</u>		<u>387,786,641</u>
Total Electric Transmission, Distribution and General Plant									<u>177,824,333</u>	<u>238,832,495</u>

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THE EMPIRE DISTRICT ELECTRIC COMPANY
SCHEDULE 5. Comparison of Staff's and Company's Depreciation Position

Account Number	Description	Original Cost 6/30/2004	Staff Proposal				Company Proposal				Existing Ordered		
			ASL (Years)	Iowa Curve	Depreciation Rate	Annual Accrual	ASL (Years)	Iowa Curve	Depreciation Rate	Annual Accrual	ASL (Years)	Depreciation Rate	Annual Accrual
STEAM PRODUCTION PLANT													
RIVERTON													
311.00	Structures and Improvements	8,467,460	95		1.05%	88,908			14.37%	1,216,774	95	1.05%	88,908
312.00	Boiler Plant Equipment	21,727,092	54		1.85%	401,951			7.22%	1,568,696	54	1.85%	401,951
314.00	Turbogenerator Units	6,514,048	63		1.59%	103,573			4.57%	297,692	63	1.59%	103,573
315.00	Accessory Electric Equipment	1,299,877	56		0.00%	-			0.79%	10,269	56	1.79%	23,268
316.00	Miscellaneous Power Plant Equipment	1,075,367	51		1.96%	21,077			10.52%	113,129	51	1.96%	21,077
	Total Riverton	39,083,843				615,510				3,206,560			638,778
ASBURY													
311.00	Structures and Improvements	9,169,966	95		1.05%	96,285			6.91%	633,645	95	1.05%	96,285
312.00	Boiler Plant Equipment	66,841,958	54		1.85%	1,236,576			7.71%	5,153,515	54	1.85%	1,236,576
312.70	Unit Train	5,580,296	15		6.67%	372,206			1.34%	74,776	15	6.67%	372,206
314.00	Turbogenerator Units	20,730,452	63		1.59%	329,614			6.36%	1,318,457	63	1.59%	329,614
315.00	Accessory Electric Equipment	6,348,259	56		1.79%	113,634			7.74%	491,355	56	1.79%	113,634
316.00	Miscellaneous Power Plant Equipment	1,623,435	51		1.96%	31,819			5.37%	87,178	51	1.96%	31,819
	Total Asbury	110,294,366				2,180,134				7,758,926			2,180,134
IATAN													
311.00	Structures and Improvements	3,997,069	95		1.05%	41,969			3.30%	131,903	95	1.05%	41,969
312.00	Boiler Plant Equipment	31,103,431	54		1.85%	575,413			2.21%	687,386	54	1.85%	575,413
314.00	Turbogenerator Units	8,252,043	63		1.59%	131,207			3.14%	259,114	63	1.59%	131,207
315.00	Accessory Electric Equipment	3,689,765	56		1.79%	66,047			2.88%	106,265	56	1.79%	66,047
316.00	Miscellaneous Power Plant Equipment	872,216	51		1.96%	17,095			4.16%	36,284	51	1.96%	17,095
	Total Iatan	47,914,524				831,732				1,220,953			831,732
	Total Steam Production	197,292,733				3,627,376				12,186,438			3,650,644
HYDRAULIC PRODUCTION PLANT													
OZARK BEACH													
331.00	Structures and Improvements	556,389	61		1.64%	9,125			4.06%	22,589	61	1.64%	9,125
332.00	Reservoirs, Dams and Waterways	1,461,404	60		1.67%	24,405			0.99%	14,468	60	1.67%	24,405
333.00	Waterwheels, Turbines and Generators	1,305,038	68		1.47%	19,184			4.06%	52,985	68	1.47%	19,184

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THE EMPIRE DISTRICT ELECTRIC COMPANY
SCHEDULE 5. Comparison of Staff's and Company's Depreciation Position

Account Number	Description	Original Cost 6/30/2004	Staff Proposal				Company Proposal				Existing Ordered		
			ASL (Years)	Iowa Curve	Depreciation Rate	Annual Accrual	ASL (Years)	Iowa Curve	Depreciation Rate	Annual Accrual	ASL (Years)	Depreciation Rate	Annual Accrual
334.00	Accessory Electric Equipment	812,324	70		1.43%	11,616			5.27%	42,809	70	1.43%	11,616
335.00	Miscellaneous Power Plant Equipment	348,853	41		2.44%	8,512			3.67%	12,803	41	2.44%	8,512
	Total Hydraulic Production	4,484,008				72,843				145,654			72,843
	OTHER PRODUCTION PLANT												
	<u>RIVERTON CT</u>												
341.00	Structures and Improvements	193,357	55		1.82%	3,519			4.97%	9,610	55	1.82%	3,519
342.00	Fuel Holders, Producers and Access.	87,123	26		3.85%	3,354			4.78%	4,164	26	3.85%	3,354
343.00	Prime Movers	10,147,180	52		1.92%	194,826			6.15%	624,052	52	1.92%	194,826
344.00	Generators	926,850	55		1.82%	16,869			4.87%	45,138	55	1.82%	16,869
345.00	Accessory Electric Equipment	315,835	28		3.57%	11,275			5.29%	16,708	28	3.57%	11,275
346.00	Miscellaneous Power Plant Equipment	83,907	25		4.00%	3,356			3.65%	3,063	25	4.00%	3,356
	Total Riverton CT	11,754,253				233,199				702,734			233,199
	<u>ENERGY CENTER CT</u>												
341.00	Structures and Improvements	1,883,126	55		1.82%	34,273			2.33%	43,877	55	1.82%	34,273
342.00	Fuel Holders, Producers and Access.	1,209,362	26		0.00%	-			-1.77%	(21,406)	26	3.85%	46,560
343.00	Prime Movers	25,638,096	52		1.92%	492,251			4.69%	1,202,427	52	1.92%	492,251
344.00	Generators	4,160,383	55		1.82%	75,719			2.57%	106,922	55	1.82%	75,719
345.00	Accessory Electric Equipment	339,416	28		3.57%	12,117			-0.46%	(1,561)	28	3.57%	12,117
346.00	Miscellaneous Power Plant Equipment	1,253,520	25		4.00%	50,141			2.67%	33,469	25	4.00%	50,141
	Total Energy Center CT	34,483,902				664,501				1,363,727			711,062
	<u>ENERGY CENTER AERO</u>												
341.00	Structures and Improvements	1,116,048	55		1.82%	20,312			3.45%	38,504	55	1.82%	20,312
344.00	Generators	40,177,715	55		1.82%	731,234			3.43%	1,378,096	55	1.82%	731,234
345.00	Accessory Electric Equipment	2,232,095	28		3.57%	79,686			3.40%	75,891	28	3.57%	79,686
346.00	Miscellaneous Power Plant Equipment	12,276,524	25		4.00%	491,061			3.40%	417,402	25	4.00%	491,061
	Total Energy Center Aero	55,802,382				1,322,293				1,909,892			1,322,293
	<u>STATE LINE CT</u>												
341.00	Structures and Improvements	4,130,748	55		1.82%	75,180			3.23%	133,423	55	1.82%	75,180
342.00	Fuel Holders, Producers and Access.	3,380,804	26		3.85%	130,161			3.24%	109,538	26	3.85%	130,161

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THE EMPIRE DISTRICT ELECTRIC COMPANY
SCHEDULE 5. Comparison of Staff's and Company's Depreciation Position

Account Number	Description	Original Cost 6/30/2004	Staff Proposal				Company Proposal				Existing Ordered		
			ASL (Years)	Iowa Curve	Depreciation Rate	Annual Accrual	ASL (Years)	Iowa Curve	Depreciation Rate	Annual Accrual	ASL (Years)	Depreciation Rate	Annual Accrual
343.00	Prime Movers	42,664,185	52		1.92%	819,152			3.39%	1,446,316	52	1.92%	819,152
344.00	Generators	11,268,284	55		1.82%	205,083			3.18%	358,331	55	1.82%	205,083
345.00	Accessory Electric Equipment	3,710,093	28		3.57%	132,450			3.54%	131,337	28	3.57%	132,450
346.00	Miscellaneous Power Plant Equipment	123,435	25		0.00%	-			-0.80%	(987)	25	4.00%	4,937
	Total State Line CT	65,277,549				1,362,026				2,177,958			1,366,963
STATE LINE CC													
341.00	Structures and Improvements	7,045,752	35		2.86%	201,508			3.54%	249,420	35	2.86%	201,508
342.00	Fuel Holders, Producers and Access.	7,971,750	35		2.86%	227,992			3.49%	278,214	35	2.86%	227,992
343.00	Prime Movers	83,979,493	35		2.86%	2,401,814			3.56%	2,989,670	35	2.86%	2,401,814
344.00	Generators	23,328,557	35		2.86%	667,197			3.49%	814,167	35	2.86%	667,197
345.00	Accessory Electric Equipment	7,782,686	35		2.86%	222,585			3.50%	272,394	35	2.86%	222,585
346.00	Miscellaneous Power Plant Equipment	64,665	35		2.86%	1,849			3.61%	2,334	35	2.86%	1,849
	Total State Line CC	130,172,902				3,722,945				4,606,199			3,722,945
	Total Other Production	297,490,987				7,304,965				10,760,510			7,356,463
	TOTAL PRODUCTION PLANT	499,267,729				11,005,184				23,092,603			11,079,950
TRANSMISSION PLANT													
352.00	Structures and Improvements	2,335,614	73	R1	1.37%	31,998	55	R1.5	1.95%	45,544	73	1.37%	31,998
353.00	Station Equipment	81,102,639	47	R2.5	2.13%	1,727,486	50	R2.5	2.04%	1,654,494	46	2.19%	1,776,148
354.00	Towers and Fixtures	777,080	77	R4	1.30%	10,102	65	R5	1.35%	10,491	77	1.30%	10,102
355.00	Poles and Fixtures	26,709,864	55	R2.5	1.82%	486,120	60	R4	4.21%	1,124,485	54	1.85%	494,132
356.00	Overhead Conductors and Devices	50,847,710	63	R2.5	1.59%	808,479	65	S1.5	2.19%	1,113,565	70	1.43%	727,122
	TOTAL TRANSMISSION PLANT	161,772,907				3,064,184				3,948,579			3,039,502
DISTRIBUTION PLANT													
361.00	Structures and Improvements	8,415,331	55	R2.5	1.82%	153,159	60	R3	2.10%	176,722	51	1.98%	166,624
362.00	Station Equipment	54,447,597	41	R1.5	2.44%	1,328,521	45	R2.5	1.53%	833,048	41	2.44%	1,328,521
364.00	Poles, Towers and Fixtures	75,481,042	43	R4	2.33%	1,758,708	46	L5	8.15%	6,151,705	41	2.43%	1,834,189
365.00	Overhead Conductors and Devices	94,509,876	52	R3	1.92%	1,814,590	53	R3	7.86%	7,428,476	48	2.10%	1,984,707
366.00	Underground Conduit	16,005,260	38	R3	2.63%	420,938	37	R3	4.01%	641,811	34	2.97%	475,356
367.00	Underground Conductors and Devices	33,575,290	33	S1	3.03%	1,017,331	32	S1	3.46%	1,161,705	28	3.61%	1,212,068

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THE EMPIRE DISTRICT ELECTRIC COMPANY
SCHEDULE 5. Comparison of Staff's and Company's Depreciation Position

Account Number	Description	Original Cost 6/30/2004	Staff Proposal				Company Proposal				Existing Ordered		
			ASL (Years)	Iowa Curve	Depreciation Rate	Annual Accrual	ASL (Years)	Iowa Curve	Depreciation Rate	Annual Accrual	ASL (Years)	Depreciation Rate	Annual Accrual
368.00	Line Transformers	61,194,572	43	S1	2.33%	1,425,834	45	S1	2.76%	1,688,970	40	2.51%	1,535,984
369.00	Services	42,710,443	38	S3	2.63%	1,123,285	40	S4	9.95%	4,249,689	33	3.03%	1,294,126
370.00	Meters	14,177,845	41	S0.5	2.44%	345,939	44	S0	1.88%	266,543	39	2.58%	365,788
371.00	I.O.C.P.	10,523,506	24	L1.5	4.17%	438,830	25	L1.5	5.50%	578,793	19	5.15%	541,961
373.00	Street Lighting and Signal Systems	9,520,690	47	R1.5	2.13%	202,791	48	R2	3.09%	294,189	42	2.36%	224,688
Various	Other Jurisdiction's Distribution Plant	48,280,120											
	TOTAL DISTRIBUTION PLANT	468,841,574				10,029,926				23,471,652			10,964,013
	GENERAL PLANT												
390.00	Structures and Improvements	9,234,589	28	L1.5	3.57%	329,675	40	R1.5	2.24%	206,855	23	4.27%	394,317
391.10	Office Furniture and Equipment	3,271,691	22	L1	4.55%	148,862	20	L0	3.85%	125,960	21	4.81%	157,368
391.20	Computer Equipment	8,804,676	11.6	L2	8.62%	758,963	10	L2	12.08%	1,063,605	7	14.29%	1,258,188
392.00	Transportation Equipment	6,528,679	13	L2	7.69%	502,055	12	L2	0.26%	16,975	11	9.52%	621,530
393.00	Stores Equipment	343,778	28	R3	3.57%	12,273	30	R2.5	1.77%	6,085	25	3.95%	13,579
394.00	Tools, Shop and Garage Equipment	2,950,039	30	S1.5	3.33%	98,236	20	R5	3.99%	117,707	40	2.50%	73,751
395.00	Laboratory Equipment	886,386	41	R2.5	2.44%	21,628	38	R2.5	1.63%	14,448	38	2.66%	23,578
396.00	Power Operated Equipment	10,036,913	16	L3	6.25%	627,307	15	L3	5.46%	548,015	15	6.67%	669,462
397.00	Communication Equipment	10,137,348	23	R2.5	4.35%	440,975	25	R2	3.31%	335,546	20	4.95%	501,799
398.00	Miscellaneous Equipment	231,871	27	S1	3.70%	8,579	22	L1.5	4.36%	10,110	27	3.75%	8,695
	TOTAL GENERAL PLANT	52,425,967				2,948,553				2,445,305			3,722,268
	Total Depreciable Plant	1,182,308,177											
	Intangible Plant	8,001,696											
	Land and Land Rights	12,474,861											
	Capital Leases	815,081											
	Total Electric Plant in Service	1,203,599,815				27,047,848				52,958,139			28,805,733