BEFORE THE

MISSOURI PUBLIC SERVICE COMMISSION

Case No. ER-2011-0004

The Empire District Electric Company

Rebuttal Testimony of

Thomas J. Sullivan

Issues:

Depreciation Rates

REBUTTAL TESTIMONY
OF THOMAS J. SULLIVAN
BEFORE THE
MISSOURI PUBLIC SERVICE COMMISSION
CASE NO. ER-2011-0004

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. Thomas J. Sullivan, 11401 Lamar, Overland Park, Kansas 66211.

Q. Are you the same Thomas J. Sullivan who filed direct testimony in this matter before the Missouri Public Service Commission ("Commission") on behalf of The Empire District Electric Company ("Empire" or "Company")?

Yes, I am.

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A. I will address the depreciation recommendations of the Missouri Public Service Commission Staff ("Staff") contained on Pages 58 through 66 of the Staff Report – Cost of Service dated February 23, 2011 ("Staff Report").

Q. DO YOU SPONSOR ANY SCHEDULES WITH YOUR TESTIMONY?

A. Yes. I sponsor the following schedules in addition to the schedules I filed with my direct testimony:

Schedule TJS-3 – Missouri Public Service Commission Staff Response to Empire Data Request No. 231

Schedule TJS-4 – Empire District Electric Generating Facilities Statistics

Schedule TJS-5 – Depreciation Study – General Ledger and Advanced Assets Tie-out

Q. PLEASE SUMMARIZE YOUR REBUTTAL TESTIMONY.

A. There are three primary issues that I discuss in my rebuttal testimony.

First, I strongly disagree with the Staff's characterization that Empire's steam and combustion turbines should be treated as mass property accounts. Staff's derivation of depreciation rates based on the assumption that Empire's generating facilities are mass property accounts results in depreciation rates which fail to recover plant investment over the useful life span of the plant. Staff's treatment will result in today's customers receiving the benefit of existing generating facilities while forcing future customers to pay a portion of the cost of generating facilities from which they receive no benefit. The Commission clearly indicated in Case No. ER-2010-0036 that treating power plants as mass accounts is inappropriate and that the life span (unit property) approach should be used.

Second, Staff's distinction that latan 2 should be treated as unit property highlights the inconsistency in their recommended approach to determining depreciation rates for Empire's generation assets.

Third, Staff's recommendation that the Company use the database Staff created for their study in this case is unreasonable.

Q. PLEASE EXPLAIN THE DIFFERENCE BETWEEN MASS PROPERTY AND UNIT PROPERTY.

A. Mass property generally refers to a group of assets that are relatively homogeneous and interchangeable and in some cases fungible. Mass property units within a given account lose their individual identity once they are placed into service. The retirements and replacement of mass property are typically common and routine. For example, distribution poles (Account 364) are

generally considered a mass property account. While poles may be made of different materials and come in various lengths, all poles essentially provide the same function in the same way. Furthermore, once a pole is placed into service, it is virtually indistinguishable from the thousands of other poles in service. Importantly, the life of a pole is not directly linked to the life of other poles or other assets such as conductor. A pole can be retired or replaced without having to retire or replace the conductor connected to the pole and visa versa.

Unit property, on the other hand, generally refers to assets that are non-homogeneous, relatively unique, and are not interchangeable. Unit properties maintain their individual identity once they are placed in service and retirements are infrequent, if not rare, occurrences. The components (even when they might consist of several FERC accounts) of a unit property are integrally connected. For example, power plants are generally considered a unit property. The retirement and replacement of a power plant is relatively rare and is never routine. While smaller components of a power plant may be replaced during the life span of a unit, the overall life of the power plant is largely a function of the obsolescence of the entire plant and the life of key large components (the boiler and turbine, for example) of the plant.

Q. IS IT REASONABLE TO CONCLUDE THAT EMPIRE'S GENERATION ASSETS OPERATE AS A FLEET AND ARE THEREFORE MASS PROPERTY UNITS?

A. The issue as to whether Empire's generation assets are a fleet is largely semantic and has no relevance as to whether they should be treated as unit

properties for depreciation purposes. While all of the plants are generating electricity, each plant does so with different components, different usage characteristics, and significant cost differences. Even at a given site (Riverton, for example), the individual units were put into service at different times and serve significantly different functions.

Q. IS THERE ANOTHER DISTINCTION BETWEEN HOW DEPRECIATION RATES ARE DETERMINED FOR MASS PROPERTY ACCOUNTS AND UNIT PROPERTIES THAT IS IMPORTANT?

A. Yes. For mass property accounts, the preferable approach to determine average service life is to perform actuarial analyses on historical retirements. For this analysis to be meaningful, there needs to be a history of retirements that are reflective of how the group would be retired over its entire useful life. For example, some poles (Account 364) are retired virtually every year and the retirement of one pole is very similar to the retirement of any other pole, so it is reasonable to expect that the historical experience is reflective of future experience.

However, for generating facilities, the interim historical retirements are typically for either smaller components of the plant or for major plant overhauls or upgrades that occur very infrequently. This infrequency provides relatively few consistent data points upon which to base a reasonable actuarial analysis. Furthermore, the activities at one plant or unit are not necessarily reflective of what the activities would be on other plants or units or even the same unit in the future. Of key importance is that the service lives of the property components

that make up a plant or unit are dependent on the overall life of the facility (i.e. life span). Therefore, it is more reasonable to treat generating facilities as unit properties.

Q. DID THE STAFF PERFORM ACTUARIAL ANALYSIS TREATING EMPIRE'S GENERATING FACILITIES AS MASS ACCOUNTS?

A. Yes. In their workpapers, Staff filed a document with a file name of "RETRATE.PRN". This file presumably constitutes Staff's "study". This study contains the output from Staff's actuarial analyses by FERC account using the Staff's version of the Company's continuing property record.

Q HOW WOULD YOU CHARACTERIZE THE RESULTS OF THE STAFF'S ACTUARIAL ANALYSES OF THE COMPANY'S GENERATING ASSETS?

A. Unreasonable.

Q PLEASE EXPLAIN?

A. Of the 16 FERC accounts shown in Staff's Schedule JAR(DEP)-5, only one (Account 343) of the Staff's recommended average service lives and Iowa curves match the results in the Staff's actuarial analyses. This single occurrence is probably a coincidence because this average service life also matches what the Staff indicates is the currently approved average service life.

Close examination of the Staff's reported actuarial analysis results show that 9 of the 16 accounts could not be fitted to any Iowa curve. For six of the 16 accounts where results are shown, the results are not even close to the average service lives that the Staff ultimately recommends. In other words, for 15 of the 16 FERC accounts associated with generating assets, the actuarial analyses

performed by Staff in this case do not appear to form the basis for their recommended depreciation rates. For example, Staff recommends an R2-54 year life for Account 312, Boiler Equipment. Staff's study doesn't even show a result for an R2 Iowa curve, presumably because it could not be statistically fitted. What is shown in the Staff study are average service lives that range from 64 years to 189 years. For Account 316, the Staff's study recommends an R2-51 year life, whereas the Staff study shows a 79 year life for an R2 Iowa curve. These were the only two accounts for Steam Production Plant where the staff obtained fits using actuarial analysis.

The other four accounts (in Hydraulic Production Plant) where the results are not close to the average service lives the Staff recommends are Account 331 (61 years versus 94 years), Account 332 (60 years versus 80 years), Account 333 (70 years versus 107) years, and Account 334 (70 years versus 78 years). In the Other Production Accounts, the Staff's study matches one recommendation as indicated above; however, the Staff obtained no fits for any of the other accounts.

In general, the results shown by Staff are symptomatic of an underlying data set that does not have sufficient experience to provide reasonable statistical results, as would be expected when a mass property treatment is applied to unit (or lifespan) property.

Q. IS THERE ANOTHER PROBLEM WITH THE STAFF'S STUDY?

A. Yes. As discussed later in my rebuttal testimony, the Staff is asking the Commission to order the Company to adopt and maintain the Staff's depreciation

database. In Staff's response to Company Data Request 231, which is attached to my testimony as Schedule TJS-3, the Staff indicated that the data provided was "not able to be curve fit using the depreciation software from Gannett Fleming for the production accounts" using the data the Company provided in this case. This statement is highly misleading because as indicated above, the Staff was not able to obtain curve fits using the database they recommend either. The inability to obtain curve fits has little if anything to do with the databases, but is the result of attempting to run actuarial analyses on plant accounts where such analyses are not suitable.

Q. DO YOU HAVE INFORMATION THAT HIGHLIGHTS THE SIGNIFICANT DIFFERENCES BETWEEN EMPIRE'S GENERATION ASSETS?

A. Yes. Schedule TJS-4 consists of a two pages that show the differences in components, usage characteristics, and cost.

On Page 1 of 2, I show each of Empire's generating units, the unit's in-service date, its rated capacity, primary function, primary fuel, boiler design, boiler pressure, cooling systems, and generator type. On Page 2 of 2, I additionally show each unit's environmental controls, 2010 fuel cost, 2010 number of starts, amount of electricity generated, unit fuel cost, 2010 capacity factor, and 2010 heat rate. Capacity factor is defined as the units average output divided by its rated capacity.

Q. HOW HAS THE STAFF AGGREGATED THESE UNIT PROPERTIES INTO MASS PROPERTY GROUPS?

A. The Staff considered the steam generating units - Asbury 1 and 2, Iatan 1, Plum Point, and Riverton 7 and 8, as one mass property group. As discussed below, Staff considers Iatan 2 as a unit property. Staff considers the hydraulic plants - Ozark Beach 1 through 4, as one mass property group. Staff considers the other production plant - Energy Center 1 through 4, Riverton 9 through 12, and State Line 1 and 2 (also referred to as State Line Combustion Turbine and State Line Combined Cycle, respectively), as another mass property group. The Staff's groups coincide with the way the FERC Uniform System of Accounts are grouped.

Q. PLEASE DISCUSS THE REASONABLENESS OF ASSUMING THAT THE HYDRAULIC PLANTS SHOULD BE TREATED AS MASS PROPERTY.

A. While Ozark Beach Units 1 through 4 were all put in service at the same time and are all of similar design, and the Company could retire individual turbines at this plant without retiring the entire facility; it is most likely that the units would be retired at the same time because they are all part of the same dam structure and are covered under the same permit. Further, as discussed earlier, treating these units as a mass property group and then relying upon actuarial analysis to determine average service life is problematic, and doesn't provide reasonable results.

While both the Staff and I recommend that the same depreciation rate(s) apply to all four units, the primary issue in regard to Ozark Beach Units 1 through 4 is that the Staff has purportedly based their recommended depreciation rates on actuarial analysis of historical retirement activity, whereas I base my

recommended depreciation rates on the Company's expected retirement date (the date the units' current license expires). As discussed earlier in my testimony, actuarial analysis performed on facilities that have infrequent or rare retirements and where the retirements are not reflective of the whole or the future is unreliable.

Q. IS IT REASONABLE TO CONSIDER ASBURY 1 AND 2, IATAN 1, PLUM POINT, AND RIVERTON 7 AND 8 AS ONE MASS PROPERTY GROUP?

A. No. Each of these plants has different physical components, different usage characteristics and differences in cost. There is very little these facilities have in common with mass property units, such as poles.

Asbury 1 was built in 1970 and has a capacity of 189 Megawatts ("MW"). Pollution control equipment was added to this plant in 2007 and additional equipment will need to be added to extend the life of this unit beyond 2015. This plant operated at a 76 percent capacity factor in 2010 with an average fuel cost of $20.03 per Megawatt-hour (MWh). Asbury 2 was built in 1986 and has a capacity of 18 MW and was primarily built to utilize excess steam capacity from Asbury Unit 1. Asbury Unit 2 can only be run if Unit 1 is also running.

Iatan 1 was placed in service in 1978 with a capacity of 708 MW (Empire's share is 85 MW). This plant already includes adequate pollution control equipment based on current standards. This plant operated at an 83 percent capacity factor in 2010 with an average fuel cost of $12.29 per MWh. Even though this plant and Asbury have comparable heat rates, Iatan 1 is much larger

and incorporates newer technology. Iatan 1 produces electricity at a significantly lower unit cost than Asbury 1.

Plum Point was placed in service in 2010 with a capacity of 665 MW (Empire's share is 50 MW). Plum Point was operated at a lower capacity factor in 2010 compared to Asbury 1 and Iatan 1, primarily due to only being in service for part of the year. Plum Point's average fuel cost in 2010 was $19.14 per MWh. Plum Point incorporates the latest turbine, boiler, and pollution control technologies. Asbury 1's boiler and turbine are over 40 years old.

Riverton 7 and 8 were placed in service in 1950 and 1954, respectively, and have rated capacities of 38 MW and 54 MW, respectively. These two units operate at higher heat rates and subsequently higher unit fuel costs, $27.00 per MWh and $24.67 per MWh, respectively, than the other three large coal-fired units. The Company expects to retire both of these units in 2018 primarily due to their age and it would not be economical to install the equipment necessary to extend their lives.

Even though Asbury 1, Iatan 1, Plum Point, and Riverton are all operated as base load facilities, their technologies and costs are very different. Even though all of these units burn coal as their primary fuel, they can't burn the same coal because boilers and pollution control equipment are designed based on the specific type of coal that fuels the plant. Their components are not interchangeable and their lives are not interrelated. Each represents a different era in coal-fired power plant technology. The new plants, Iatan 1 and Plum Point

are much more efficient and can generate electricity at much lower cost than the older units.

Q. IS IT REASONABLE TO CONSIDER ENERGY CENTER 1 THROUGH 4, RIVERTON 9 THROUGH 12, AND STATE LINE 1 AND 2 AS ONE MASS PROPERTY GROUP?

A. No. These facilities have no more in common with each other than the coal-fired plants discussed above. The primary characteristic that these plants have is that they all burn natural gas. Energy Center Unit 1 (85 MW) and Unit 2 (84 MW) are similar in design, usage characteristics and unit fuel cost. Energy Center Unit 3 (49 MW) and Unit 4 (49 MW) are similar to each other but very different from Units 1 and 2. All four are considered peaking units, but Units 1 and 2 operate very infrequently, as demonstrated by the relatively few starts shown in Schedule TJS-4. Units 3 and 4 have quick start capabilities that enhance their utility and they have significantly lower heat rates than Units 1 and 2; therefore, their capacity factors (reflecting how often the plants are run) are much higher than Units 1 and 2.

Riverton Units 9 through 11 are small combustion turbines (12 MW, 12 MW, and 16MW, respectively) that are run very infrequently. These three units have the highest heat rates of any of Empire's generating facilities. Riverton Unit 12 is a large (150 MW) combustion turbine. While it has similar cost and utilization to Energy Center Units 3 and 4, the equipment is not the same and is in no way interchangeable.

State Line Unit 1 is a 96 MW combustion turbine that ran infrequently during 2010. State Line Unit 2 is very different from any of the units discussed in this answer. State Line Unit 2 is a combined-cycle unit that operates like a hybrid of the peaking units and base load coal units. This plant therefore operates as an intermediate unit. Like the coal fired plants, this unit has a steam generator (boiler). This plant has a rated capacity of 500 MW (Empire's share is 300 MW). It had an average fuel cost that was the lowest of the natural gas fired units, but substantially more than the coal-fired units.

Q. WHAT DOES THE STAFF'S STUDY INDICATE FOR THE STEAM AND OTHER PRODUCTION PLANTS?

A. The Staff's reported results for the plant accounts for these facilities is baffling. As indicated previously, their reported study results do not appear to have any correlation to the actuarial analyses they performed in this case (with the possible exception of Account 343). However, for every account, Staff's reported study results in their 2011 Report indicate exactly the same average service lives as were ordered in the 2004 Empire rate case in Docket No. ER-2004-0570. This can hardly be the result of a "Study". In fact, it appears as though the Staff did not use the actuarial analyses they performed for this rate case, but rather simply set the average service lives equal to what was ordered in the prior case.

Q. WHAT DOES THE STAFF'S STUDY INDICATE FOR THE HYDRAULIC PRODUCTION PLANT?

A. As indicated previously, the Staff's study recommendations do no match their actuarial analyses. For the hydraulic production plant, the Staff's reported study

results indicate average service lives that do not match those ordered in the 2004 Case, but rather are substantially greater than those ordered in the 2004 case. It is unclear from the Staff's study how these numbers were determined. However, the fact that the Staff's reported study results differ from the 2004 Order doesn't matter because the Staff ultimately recommends no change from the existing depreciation rates, which are based on the 2004 case.

Q. HAS THE COMMISSION ADDRESSED THE ISSUE AS TO WHETHER GENERATING PLANTS ARE MASS PROPERTY OR UNIT PROPERTY?

A. Yes, it has. I discussed in my direct testimony how, in Case No. ER-2010-0036, the Commission found that "The problem with treating power plant equipment as mass property is that retirements of large electric power plants are rare events."[1] The Commission concluded "that it is appropriate to use a life span approach to determine depreciation rate..."[2]. The Commission has clearly demonstrated an understanding of this issue, yet Staff continues to attempt to raise and confuse the issue. My depreciation recommendations provided in direct testimony are consistent with these Commission findings and conclusions and should be adopted in this case.

Q. DO YOU HAVE ANY OTHER CONCERNS ABOUT THE STAFF'S USE OF THE MASS PROPERTY APPROACH FOR LIFE SPAN PROPERTY?

[1] File No. ER-2010-0036, In the Matter of Union Electric Company, d/b/a AmerenUE's Tariffs to Increase Its Annual Revenues for Electric Service, Report and Order, Page 29.
[2] File No. ER-2010-0036, In the Matter of Union Electric Company, d/b/a AmerenUE's Tariffs to Increase Its Annual Revenues for Electric Service, Report and Order, Page 35.

A. Yes. My concern is that the use of the mass property approach for life span property will always result in the failure to recover plant investment over the life of the plant. Applying the mass property approach to life span property shifts the recovery of a portion of the investment in plants used to serve today's customers into the future, to be paid by customers who are then not taking service from the plant (and thus are deriving no benefit from it) and at a time when those same future customers will have to begin paying for replacement plants. This means customers today under-pay for the use of plants that serve them, by shifting costs associated with those plants to future generations.

Q. DOES THE STAFF CONSIDER IATAN 2 TO BE PART OF THE STREAM GENERATION MASS ACCOUNT?

A. No. The Staff recommends "segregating Iatan 2 steam plant accounts as separate sub accounts from the remainder of the steam generation production fleet accounts. Staff recommended depreciation rates...have been adjusted to account for these additional reserves over a life span selected for depreciation purposes." (Page 63 of Staff Report). In other words, the Staff is recommending that a life span (unit property) approach be used for Iatan 2. Furthermore, Staff states "depreciation rates for the Iatan 2 generating unit only are calculated on a remaining life basis". (Page 63 of Staff Report). The only apparent reason for the Staff recommending that Iatan 2 be treated as a unit property (based on a life span approach) and for remaining life rates to be used is because of the existence of a regulatory plan for Iatan 2 and Staff wants the ability to track Iatan 2's costs separately.

Q. HOW DO YOU CHARACTIZE THE STAFF'S DISTINCTION?

A. It is unreasonable.

Q. WHY?

A. Staff is willing to ignore the significant physical and operational differences between all of Empire's generation facilities except when a regulatory plan exists. This is clearly a misplaced set of priorities. The Staff is suggesting that accounting convenience matters more than engineering principles and practices, or how the facilities are actually operated and ultimately retired.

Q. DOES THE COMPANY MAINTAIN SEPARATE ACCOUNTING RECORDS FOR EACH GENERATING FACILITY?

A. Yes they do. This is reflected in the analyses contained in Schedule TJS-2 ("B&V Report") that was filed with my direct testimony. Therefore, accounting treatment and accounting records do not differentiate latan 2 from the Company's other generating assets. The approach Staff is recommending for latan 2 can just as easily be done for the Company's other generating assets.

Q. PLEASE EXPLAIN THE CONTINUING PROPERTY RECORD YOU USED IN PREPARING THE B&V REPORT.

A. In a letter to Empire's counsel, Jim Swearengen, dated October 28, 2009, Staff's Chief Litigation Attorney expressed concern that Staff and Public Counsel had "significant doubts about the validity of Empire's depreciation study" in case ER-2008-0093. As a direct result of this communication, Empire undertook the substantial task of correcting its continuing property record in preparation for this rate case. Empire went to great effort to compile the best available data into a

representative depreciation database. After much discussion and careful consideration, Empire determined that it would be most prudent to use the best available retirement activity (aged data) and apply that to the plant in service brought forward into its current accounting system. Doing this provided a depreciation database that retained the best available historical information as well as reconciling with the account balances retained in Empire's accounting system. This reconstructed depreciation database rectifies the problems created by the rollup of plant activity in Empire's current accounting system, and eliminates the extraneous transactions associated with Empire's practice of advancing additions and retirements prior to unitization.

Q. WAS THIS DATA PROVIDED TO THE STAFF?

A. Yes. It was contained in the workpapers I filed in this case and provided to the Staff in its preferred/requested format.

Q. DID YOU AND COMPANY PERSONNEL HAVE DISCUSSIONS WITH THE STAFF REGARDING THE DATA THE COMPANY PROVIDED BEFORE AND AFTER THE COMPANY'S FILING IN THIS CASE?

A. Yes. Staff was included from the inception of this concept and informed of Empire's plan to reconstruct the continuing property record data and its intention to utilize and maintain this continuing property record for all future depreciation studies. Staff's decision to ignore Empire's depreciation database is incomprehensible, especially given the fact that the Staff has chosen instead to rely on data that they were highly critical of and had "significant doubts" about in the previous proceeding.

Q. WHAT DATA DID THE STAFF USE FOR THE STAFF REPORT?

A. According to the Staff's response to Data Request 0231, 2a (attached as Schedule TJS-3), Staff claims to have used the Company's database for transactions that occurred in 2004 through 2009 merged with a database maintained by Staff from Case ER-2004-0570 ("2004 Data Set"). Staff further states in this response that "Staff noticed and brought the issue to the attention of the Company that the plant balances of the data provided did not match the Company's study plant balances." This statement is at best incomplete. Staff fails to mention that the Company subsequently explained to Staff that the reason the balances were different was because the depreciation database did not contain transactions for plant that had not been unitized, and directed the Staff to the reconciliation provided in my workpapers and also included as Schedule TJS-5. It would not be appropriate to include non-unitized plant in the actuarial analysis, and these transactions are typically booked to Account 106. Empire however does not utilize Account 106 and instead books "advances" of non-unitized plant to plant accounts. These "advances" should be omitted from depreciation analysis as they are merely estimates booked to approximate accounts and not the unitized plant entries taken from work orders. Ironically, if Staff added the transactions from the Company's database to the 2004 Data Set, as they claim to have done, the balances would still not match as the "advances" were omitted from the Company's database.

Q. DID STAFF PROVIDE A COPY OF THE DATA USED BY THE STAFF IN THE ER-2004-0570 CASE AS REQUESTED IN DATA REQUEST 0231, 2B?

A. No. Staff infers that one could produce the 2004 Data Set by extracting all activity prior to 2003 in the current Staff database provided in Staff workpapers. The current Staff database was, however, provided in an unusable, non-standard format as well as in a report generated by the depreciation software. The database provided is wrought with errors, as demonstrated by the Staff's "Post Audit Report of Accounting Entries", also provided in Staff's workpapers. For example, 29 accounts are reported as having "Developed Credit Surviving Balances", meaning that for certain vintages, the Staff's data retires more dollars than were placed, transferred or adjusted into the account.

Q. ARE THERE OTHER EXAMPLES OF ERRORS IN THE CURRENT STAFF DATABASE?

A. Yes. The Staff's actuarial run for Account 353 shows dollars (representing the capital investment in plant) exposed to retirement of negative $266,251, this result is nonsensical. Staff's data also contains an unknown transaction code of "#".

Q. IN THE DISCUSSION WITH STAFF PRIOR TO THE COMPANY'S FILING DID THE STAFF INDICATE A PREFERENCE THAT THE COMPANY USE THIS "2004 DATA SET"?

A. No, they did not.

Q. WHICH DATA SET DO YOU BELIEVE TO BE SUPERIOR AND WHY?

A. The Company's database is clearly superior for the following reasons previously stated above:

1) The database contains the best available aged transactional activity and reconciles with the balances reported on Empire's books and accounting system.

2) The database omits the erroneous entries caused by advancing additions and retirements prior to being unitized.

3) The database does not contain vintages of plant with more retirements than dollars of plant addition.

4) The database recommended by the Staff contains numerous errors and is therefore unusable.

Q. WHAT DEPRECIATION RATES ARE YOU RECOMMENDING?

A. I recommend that the Commission approve the depreciation rates contained in Schedule TJS-2.

Q. WHAT DATA SHOULD BE USED FOR THE COMPANY'S FUTURE DEPRECIATION RATE STUDIES?

A. The Company should use the data in its current continuing property record, on which Schedule TJS-2 is based, as appended for future activity after December 31, 2009.

Q. DOES THIS COMPLETE YOUR PREPARED REBUTTAL TESTIMONY?

A. Yes, it does.

Missouri Public Service Commission

Respond Data Request

Data Request No.	0231
Company Name	MO PSC Staff-(All)
Case/Tracking No.	ER-2011-0004
Date Requested	3/7/2011
Issue	Other - Other
Requested From	John Robinett
Requested By	Angela Cloven
Brief Description	Staff's Study ER-2011-0004
Description	1. Schedule JAR(DEP)-1 Columns E, F, and I (among other places) reference a "Staff's Study ER-2011-0004". Please provide a copy of this study and all supporting analyses and workpapers. 2. On Page 66 of the Staff Report – Cost of Service, in Staff recommendation number 6, the "Staff requests that the Company adopt the data used by Staff for the depreciation study it undertook in this proceeding". a. Did Staff did use the Empire's continuing property record which was provided in the workpapers of Thomas J. Sullivan in the file titled "EDE CPR – Format.xls". If not, why? b. Please provide a copy of the data used by the Staff in the ER-2004-0570 case. c. Please identify and explain the difference between the data used by Staff in this proceeding and Empire's continuing property record identified in Part a. above. d. How was the data provided for the ER-2004-0570 case updated for the years 2004 through 2009? e. Was the data provided by the Company for ER-2004-0570 the same data used for the Staff's depreciation study in ER-2004-0570? If not, why? f. Identify and explain the differences or modifications that Staff made to the data.
Response	See attachment "response to dr0231.docx" for Staff's reponse to DR 0231
Objections	NA

The attached information provided to **Missouri Public Service Commission** Staff in response to the above data information request is accurate and complete, and contains no material misrepresentations or omissions, based upon present facts of which the undersigned has knowledge, information or belief. The undersigned agrees to immediately inform the **Missouri Public Service Commission** if, during the pendency of Case No. **ER-2011-0004** before the Commission, any matters are discovered which would materially affect the accuracy or completeness of the attached information. If these

data are voluminous, please (1) identify the relevant documents and their location (2) make arrangements with requestor to have documents available for inspection in the **MO PSC Staff-(All)** office, or other location mutually agreeable. Where identification of a document is requested, briefly describe the document (e.g. book, letter, memorandum, report) and state the following information as applicable for the particular document: name, title number, author, date of publication and publisher, addresses, date written, and the name and address of the person(s) having possession of the document. As used in this data request the term "document(s)" includes publication of any format, workpapers, letters, memoranda, notes, reports, analyses, computer analyses, test results, studies or data, recordings, transcriptions and printed, typed or written materials of every kind in your possession, custody or control or within your knowledge. The pronoun "you" or "your" refers to **MO PSC Staff-(All)** and its employees, contractors, agents or others employed by or acting in its behalf.

Security : Public

Rationale : NA

Staff's Response to DR 0231

1. A copy of my work papers, analysis, and the study were provided with the Staff work papers for the direct testimony filing.

2a. Staff did a study using the data that was provided in the file titled "EDE CPR – Format.xls" for the case with file number ER-2011-0004. Upon receiving the data Staff had to reformat the data so that it was able to be used in the Gannett Fleming software that Staff uses to perform their study. Upon the initial run of the data provided by the Company, Staff noticed and brought the issue to the attention of the Company that the plant balances of the data provided did not match the Company's study plant balances. Furthermore the data that was provided was not able to be curve fit using the depreciation software from Gannett Fleming for the production accounts. The data in the file also lost any sense of aging when company switched software all of the early transaction dates are 1999, not the original dates when items of plant were placed into service. With Staff's initial study yielding no fitting for the production plant accounts Staff took the data provided by the Company in case with file number ER-2004-0570 as a starting point for the data of Staff's study. Staff then took the data provided for case with file number ER-2011-0004 and sorted the data by transaction year and installation year. Any data with a transaction or installation year of 2004 through 2009 was then merged with the data from ER-2004-0570 case to develop Staff's data that was studied.

2b. A copy of the data that Staff used was provided in the Staff work papers for the direct testimony filing.

2c. The case with file number ER-2004-0570 included data through 2003. That data was used in this case with the addition of the data from the Company file titled "EDE CPR – Format.xls" that was sorted based on the year of transactions. Staff placed all transactions from the Company's file that were for 2004 and forward through 2009 and placed them into the file with data from the previous case to create a merged data set. Also the data set that the company provided had transaction codes of 1999 and stripped the historical aspect of the transactions with the conversion of software. Staff made the transaction years the same as the experience/install year to put some aging into the data.

2d. The data from the case with file number ER-2004-0570 had data through 2003. That data was used in this case was the data set from the ER-2004-0570 case with the addition of the data from the Company file titled "EDE CPR – Format.xls" that was sorted based on the year of transactions. Staff placed all transactions from the Company's file that were for 2004 and forward through 2009 and placed them into the file with data from the previous case to create a merged data set.

2e. I have been informed by other staff members that the data provided in the case with file number ER-2004-0570 was the data that was used for Staff's depreciation study.

2f. The data from the case with file number ER-2004-0570 had data through 2003. That data was used in this case with the addition of the data from the Company file titled "EDE CPR – Format.xls" that was sorted based on the year of transactions. Staff placed all transactions from the Company's file that were for 2004 and forward through 2009 and placed them into the file with data from the previous case to create a merged data set. Also the data set that the company provided had transaction codes of 1999

and stripped the historical aspect of the transactions with the conversion of software. Staff made the transaction years the same the experience year to put some aged since into the data.

Schedule TJS-4
Page 1 of 2
The Empire District Electric Company
2010 Production Statistics

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]
Plant / Unit	In-Service	Rated Capacity MW	Utilization	Primary Fuel	Boiler Design	Turbine Trottle Pressure	Cooling/ Condensing	Generator Type
Asbury Unit 1	1970	189	Base Load	Crushed Blend - 88% Subbituminous Coal / 12% Bituminous Coal	Babcock & Wilcox Cyclone	1850 psi	Cooling Tower utilizing well water	Westinghouse Steam TG
Asbury Unit 2	1986	18	Peaking	Crushed Blend - 88% Subbituminous Coal / 12% Bituminous Coal	excess capacity of Unit 1 boiler	750 psi	Cooling lake	Westinghouse Steam TG
Energy Center 1	1978	85	Peaking	Natural Gas	N/A	N/A		Westinghouse Combustion TG
Energy Center 2	2003	84	Peaking	Natural Gas	N/A	N/A		Westinghouse Combustion TG
Energy Center 3	2003	49	Quick Start Peaking	Natural Gas	N/A	N/A		Pratt-Whitney Combustion TG
Energy Center 4	1978	49	Quick Start Peaking	Natural Gas	N/A	N/A		Pratt-Whitney Combustion TG
Iatan 1	1980	708	Base Load	Pulverized Coal	Babcock & Wilcox Drum-Type	2400 psi	Once-through cooling system utilizing river	Westinghouse Steam TG
Iatan 2	2010	850	Base Load	Pulverized Coal	Alstom Supercritical	3600 psi	Closed system with cooling tower	Toshiba Steam TG
Ozark Beach 5	1930	4	Intermittent	Hydro	N/A	N/A		
Ozark Beach 6	1930	4	Intermittent	Hydro	N/A	N/A		
Ozark Beach 7	1930	4	Intermittent	Hydro	N/A	N/A		
Ozark Beach 8	1930	4	Intermittent	Hydro	N/A	N/A		
Plum Point	2010	665	Base Load	Pulverized Coal	IHI Drum-Type	2500 psi	Cooling Tower utilizing river water	Toshiba Steam TG
Riverton 7	1949	38	Base Load	Pulverized Blend - 83% Subbituminous Coal / 17% Petroleum Coke	Foster-Wheeler Drum Type Front Fired	960 psi	Once-through cooling system utilizing river	Westinghouse Steam TG
Riverton 8	1954	54	Base Load	Pulverized Blend - 83% Subbituminous Coal / 17% Petroleum Coke	Combustion Engineering Drum Type Tangentially Fired	960 psi	Once-through cooling system utilizing river	Westinghouse Steam TG
Riverton 9	1963	12	Peaking	Natural Gas	N/A	N/A		Westinghouse Combustion TG
Riverton 10	1989	16	Peaking	Natural Gas	N/A	N/A		Westinghouse Combustion TG
Riverton 11	1989	16	Peaking	Natural Gas	N/A	N/A		Westinghouse Combustion TG
Riverton 12	2008	150	Peaking	Natural Gas	N/A	N/A		Siemens Combustion TG
State Line 1	1995	96	Peaking	Natural Gas	N/A	N/A		Siemens Combustion TG
State Line CC	1995/2000	500	Intermediate/ Peaking	Natural Gas	Nooter Heat Recovery Steam Generators (HRSG)	N/A	Cooling tower utilizing well water	Combined Cycle: 2 CTG + 2 HRSG

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The Empire District Electric Company
2010 Production Statistics

[J] Plant / Unit	[K] Generator Cooling	[L] Environmental Controls	[M] 2010 EDE Fuel Cost ($)	[N] 2010 Total Fuel Cost ($)	[O] 2010 Unit Starts	[P] 2010 Hours	[Q] 2010 MWh Generated	[R] 2010 Fuel $/MWh	[S] 2010 Capacity Factor	[T] Total Fuel mmBtu	[U] 2010 Heat Rate
Asbury Unit 1	Hydrogen	SCR, Electrostatic Precipitator, Overfire Air	25,346,151	25,346,151	10	7,494	1,265,722	20.03	76.45%	13,436,207	10,615
Asbury Unit 2	Hydrogen		-	-	1		-				
Energy Center 1	Hydrogen	Water injection	177,752	177,752	3	24	589	301.79	0.08%	17,151	29,119
Energy Center 2	Hydrogen	Water injection	466,569	466,569	10	85	3,577	130.44	0.49%	60,315	16,862
Energy Center 3	Air	Water injection, oxidation catalyst	3,866,195	3,866,195	212	1,743	46,931	82.38	10.93%	558,479	11,900
Energy Center 4	Air	Water injection, oxidation catalyst	3,640,642	3,640,642	196	1,610	46,352	78.54	10.80%	537,021	11,586
Iatan 1	Hydrogen	Overfire Air, Fabric Filter, SCR, Wet Scrubber utilizing crushed	7,647,164	63,726,367	21	7,876	5,184,217	12.29	83.59%	51,878,142	10,007
Iatan 2	Hydrogen	Overfire Air, Fabric Filter, SCR, Wet Scrubber utilizing crushed	2,201,917	18,349,308	9 (Note 1)	1,881	1,472,083	12.46	19.77%	13,553,283	9,207
Ozark Beach 5*	Air				N/A	6,447	19,183		54.75%		
Ozark Beach 6*	Air				N/A	6,447	19,183		54.75%		
Ozark Beach 7*	Air				N/A	6,447	19,183		54.75%		
Ozark Beach 8*	Air				N/A	6,447	19,183		54.75%		
Plum Point	Hydrogen	Overfire Air, SCR, SDA utilizing quick lime, Fabric Filter, Carbon	2,534,404	33,702,181	9 (Note 2)	3,306	1,760,731	19.14	30.23%	18,280,173	10,382
Riverton 7	Hydrogen	Electrostatic precipitator	3,484,011	3,484,011	5	6,905	129,033	27.00	38.76%	1,847,910	14,321
Riverton 8	Hydrogen	Electrostatic precipitator	7,997,631	7,997,631	4	8,323	324,124	24.67	68.52%	4,115,566	12,698
Riverton 9	Air	None	17,327	17,327	3		140		0.13%		
Riverton 10	Air	Water injection	56,331	56,331	9		548		0.39%		
Riverton 11	Air	Water injection	11,947	11,947	4		147		0.10%		
Riverton 12	Air	Dry Low-NOx burners	12,324,100	12,324,100	125	1,559	182,548	67.51	13.89%	1,991,258	10,908
State Line 1	Air	Water injection, Dry Low-NOx burners	2,244,848	2,244,848	21	276	18,860	119.03	2.24%	239,785	12,714
State Line CC	CTG 2-1 Air; CTG 2-2 Hydrogen; STG Air	SCR; Dry Low-NOx burners	53,390,307	53,390,307	14	5,894	1,248,268	42.77	28.50%	9,115,090	7,302

* Ozark Beach units reported together on FERC Form 1
Note 1 - From August 26, 2010 through December 31, 2010
Note 2 - From August 13, 2010 through December 31, 2010

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The Empire District Electric Co.
Depreciation Study
Assets as of 12/31/2009

msheffield:
This spreadsheet is a product of the Depreciation Study Crystal Report. It was obtained by setting the supporting query to be Transaction Date < 1/1/2010. This provides a tie to the GL for 12/31/09 and also provides a tie to the Advanced Asset List for 2009. This provides a starting point to show the depreciation data distribution by Vintage Year. See Depreciation Data 2 for the breakout of Unitized Assets by Vintage Year / Transaction Year for 1/1/200 to 12/31/2009.

msheffield:
Taken from Year End Book 12/31/09. "Advanced Asset" Balances.

msheffield:
Taken from GL 12/31/2009

FERC_CD	Advance Amt	Adv Rev Amt	Final Asset Amt	Ret Amt	Other	Total Cost (GL Bal)	Final Asset	As per 12-31-09 Report	Difference	GL Balnce	Difference
3110	15,244,884.43	-14,827,635.72	29,949,907.97	-995,736.02	0.00	29,371,420.66	28,954,171.95	417,248.71	(0.00)	29,371,420.66	0.00
3120	215,444,299.13	-93,782,699.96	135,532,056.63	-15,394,146.18	0.00	241,799,509.62	120,137,910.45	121,661,599.17	-	241,799,509.62	0.00
3140	16,769,357.35	-13,514,131.59	38,944,127.03	-3,308,748.04	0.00	38,890,604.75	35,635,378.99	3,255,225.76	-	38,890,604.75	0.00
3150	8,962,901.74	-5,576,188.05	11,987,353.44	-992,129.62	0.00	14,381,937.51	10,995,223.82	3,386,713.69	-	14,381,937.51	0.00
3160	6,041,944.47	-4,264,975.94	3,589,337.10	-165,647.02	0.00	5,200,658.61	3,423,690.08	1,776,968.53	-	5,200,658.61	0.00
3310	400,242.63	-400,242.63	692,673.71	-14,913.73	0.00	677,759.98	677,759.98	0.00	-	677,759.98	0.00
3320	175,547.82	-161,041.47	1,583,833.24	-80,083.02	0.00	1,518,256.57	1,503,750.22	14,506.35	-	1,518,256.57	0.00
3330	1,418,999.80	-1,418,999.80	1,715,248.84	-95,791.34	0.00	1,619,457.50	1,619,457.50	0.00	-	1,619,457.50	0.00
3340	798,897.61	-767,468.61	1,276,629.21	-70,475.21	0.00	1,237,583.00	1,206,154.00	31,429.00	-	1,237,583.00	0.00
3350	264,101.04	-176,995.77	376,694.50	-7,585.59	0.00	456,214.18	369,108.91	87,105.27	-	456,214.18	0.00
3410	44,195,054.17	-44,187,832.95	17,227,205.00	-1,559,639.90	0.00	15,674,786.32	15,667,565.10	7,221.22	(0.00)	15,674,786.32	0.00
3420	50,002,044.28	-47,575,112.07	7,937,752.77	-238,308.93	0.00	10,126,376.05	7,699,443.84	2,426,932.21	-	10,126,376.05	0.00
3430	515,733,527.32	-517,858,721.90	259,974,668.87	-26,621,739.93	0.00	231,227,734.36	233,352,928.94	-2,125,194.58	(0.00)	231,227,734.36	0.00
3440	197,851,676.51	-191,209,172.06	58,802,607.49	-11,292,070.74	0.00	54,153,041.20	47,510,536.75	6,642,504.45	(0.00)	54,153,041.20	0.00
3450	56,302,107.76	-52,122,305.96	27,472,562.36	-1,013,357.66	0.00	30,639,006.50	26,459,204.70	4,179,801.80	-	30,639,006.50	0.00
3460	15,372,621.04	-15,164,049.51	7,820,218.45	-85,517.53	0.00	7,943,272.45	7,734,700.92	208,571.53	0.00	7,943,272.45	0.00
3520	27,142.80	-13,736.70	2,883,382.19	-5,142.40	0.00	2,891,645.89	2,878,239.79	13,406.10	-	2,891,645.89	0.00
3530	57,742,660.61	-55,308,497.94	90,606,604.78	-3,481,011.75	0.00	89,559,755.70	87,125,593.03	2,434,162.67	-	89,559,755.70	0.00
3540	0.00	0.00	811,837.76	-12,329.58	0.00	799,508.18	799,508.18		-	799,508.18	0.00
3550	34,306,550.39	-31,675,254.08	37,709,965.82	-592,509.97	0.00	39,748,752.16	37,117,455.85	2,631,296.31	-	39,748,752.16	0.00
3560	13,411,693.35	-13,243,425.47	62,772,941.09	-1,491,355.43	0.00	61,449,853.54	61,281,585.66	168,267.88	(0.00)	61,449,853.54	0.00
3610	2,263,472.64	-2,184,450.55	9,999,768.82	-322,464.78	0.00	9,756,326.13	9,677,304.04	79,022.09	0.00	9,756,326.13	0.00
3620	33,997,643.32	-33,209,175.93	74,884,513.08	-2,662,721.97	0.00	73,010,258.50	72,221,791.11	786,532.35	1,935.04	73,010,258.50	0.00
3640	163,176,952.74	-156,630,009.30	133,213,724.29	-2,777,906.18	0.00	136,982,761.55	130,435,818.11	6,546,943.44	-	136,982,761.55	0.00
3650	36,249,632.78	-35,973,915.27	148,276,390.81	-2,867,447.48	0.00	145,684,660.84	145,408,943.33	275,717.51	(0.00)	145,684,660.84	0.00
3660	9,053,272.00	-8,995,382.81	28,892,603.00	-385,086.94	0.00	28,565,405.25	28,507,516.06	59,824.23	(1,935.04)	28,565,405.25	0.00
3670	52,121,763.46	-49,852,054.11	52,842,416.41	-2,517,196.57	0.00	52,594,929.19	50,325,219.84	2,269,709.35	-	52,594,929.19	0.00
3680	56,177,762.01	-55,526,616.90	93,022,719.19	-4,908,760.19	0.00	88,765,104.11	88,113,959.00	651,145.11	-	88,765,104.11	0.00
3690	34,485,047.90	-34,057,820.66	65,451,577.74	-459,073.99	0.00	65,419,730.99	64,992,503.75	427,227.24	(0.00)	65,419,730.99	0.00
3700	11,232,135.97	-10,613,833.74	19,920,459.27	-2,226,717.81	0.00	18,312,043.69	17,693,741.46	618,302.23	-	18,312,043.69	0.00
3710	8,482,309.34	-8,352,169.03	16,962,098.82	-1,406,359.77	0.00	15,685,879.36	15,555,739.05	130,140.31	(0.00)	15,685,879.36	0.00
3730	7,268,105.92	-6,977,270.49	14,940,029.19	-811,938.45	0.00	14,418,926.17	14,128,090.74	290,835.43	-	14,418,926.17	0.00
3900	1,384,202.58	-1,190,942.70	9,906,438.02	-610,519.53	0.00	9,489,178.37	9,295,918.49	193,259.88	-	9,489,178.37	0.00
3910	14,281,923.58	-13,575,133.20	18,694,962.76	-4,188,379.96	0.00	15,213,373.18	14,506,582.80	706,790.38	(0.00)	15,213,373.18	0.00
3920	7,790,888.83	-7,743,563.14	10,762,473.34	-2,863,027.86	0.00	7,946,771.17	7,899,445.48	47,325.69	(0.00)	7,946,771.17	0.00
3930	92,664.30	-81,378.50	434,605.65	-885.60	0.00	445,005.85	433,720.05	11,285.80	-	445,005.85	0.00
3940	2,775,891.88	-2,706,497.72	3,757,291.45	-3,114.85	0.00	3,823,570.76	3,754,176.60	69,394.16	(0.00)	3,823,570.76	0.00
3950	167,537.22	-167,537.22	946,905.02	-0.01	0.00	946,905.01	946,905.01		-	946,905.01	0.00
3960	3,952,218.35	-3,952,218.35	14,566,186.22	-3,040,067.69	0.00	11,526,118.53	11,526,118.53		-	11,526,118.53	0.00
3970	3,803,026.41	-3,325,699.19	11,337,728.75	-2,922,696.59	0.00	8,892,359.38	8,415,032.16	477,327.22	-	8,892,359.37	0.01
3980	188,677.38	-188,677.38	210,858.02	-22,353.19	0.00	188,504.83	188,504.83		-	188,504.83	0.00
	1,699,411,382.86	-1,538,552,834.37	1,528,691,358.10	-102,514,959.00	0.00	1,587,034,947.59	1,426,176,399.10	160,858,548.49	0.00	1,587,034,947.58	0.01

msheffield:
Amounts removed on accounts 312, 391, and 397 for leased assets.

AFFIDAVIT OF THOMAS J. SULLIVAN

STATE OF MISSOURI)
) **ss**
COUNTY OF RAY)

On the 13 day of April 2011, before me appeared Thomas J. Sullivan, to me personally known, who, being by me first duly sworn, states that he is a Managing Director in the Enterprise Management Solutions Division of Black & Veatch Corporation and acknowledged that he has read the above and foregoing document and believes that the statements therein are true and correct to the best of his information, knowledge and belief.

Thomas J. Sullivan

Subscribed and sworn to before me this 13 day of April, 2011

Notary Public

CARRIE R MUELLER
Notary Public-Notary Seal
State of Missouri, Ray County
Commission # 09843250
My Commission Expires Jul 27, 2013

My commission expires: 7-27-13