

**BEFORE THE CORPORATION COMMISSION OF THE STATE OF OKLAHOMA**

APPLICATION OF THE EMPIRE DISTRICT )  
ELECTRIC COMPANY, A KANSAS )  
CORPORATION, FOR AN ADJUSTMENT IN ITS )  
RATES AND CHARGES FOR ELECTRIC SERVICE )  
IN THE STATE OF OKLAHOMA )

CAUSE NO. PUD 202100163

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OF OKLAHOMA

**Direct Testimony**

**of**

**Dane A. Watson**

**Submitted on behalf of**

**The Empire District Electric Company**

**February 28, 2022**



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THE EMPIRE DISTRICT ELECTRIC COMPANY  
BEFORE THE CORPORATION COMMISSION OF THE STATE OF OKLAHOMA  
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**LIST OF EXHIBITS IN SUPPORT OF DIRECT TESTIMONY**

1.	Direct Exhibit DAW-1 - List of proceedings with previous testimony provided
2.	Direct Exhibit DAW-2 - Depreciation Study

DIRECT TESTIMONY OF DANE A. WATSON  
THE EMPIRE DISTRICT ELECTRIC COMPANY  
BEFORE THE CORPORATION COMMISSION OF THE STATE OF OKLAHOMA  
CAUSE NO. PUD 202100163

1 **I. INTRODUCTION**

2 **Q. Please state your name and business address.**

3 A. My name is Dane A. Watson. My business address is 101 E. Park Blvd, Suite 220,  
4 Plano, TX, 75074.

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

6 A. I am a Partner of Alliance Consulting Group. Alliance Consulting Group provides  
7 consulting and expert service to the utility industry.

8 **Q. On whose behalf are you testifying in this proceeding?**

9 A. I am testifying on behalf of The Empire District Electric Company (“Liberty-Empire”  
10 or “Company”).

11 **Q. Please describe your educational background.**

12 A. I hold a Bachelor of Science degree in Electrical Engineering from the University of  
13 Arkansas at Fayetteville and a Master’s Degree in Business Administration from  
14 Amberton University.

15 **Q. Please describe your professional background.**

16 A. Since graduation from college in 1985, I have worked in the area of depreciation and  
17 valuation. I founded Alliance Consulting Group in 2004 and am responsible for  
18 conducting depreciation, valuation, and certain accounting-related studies for clients in  
19 various industries. My duties related to depreciation studies include the assembly and  
20 analysis of historical and simulated data, conducting field reviews, determining service

1 life and net salvage estimates, calculating annual depreciation, presenting  
2 recommended depreciation rates to utility management for its consideration, and  
3 supporting such rates before regulatory bodies.

4 My prior employment from 1985 to 2004 was with Texas Utilities Electric  
5 Company and successor companies (“TXU”). During my tenure with TXU, I was  
6 responsible for, among other things, conducting valuation and depreciation studies for  
7 the domestic TXU companies. During that time, I served as Manager of Property  
8 Accounting Services and Records Management in addition to my depreciation  
9 responsibilities.

10 I have twice been Chair of the Edison Electric Institute (“EEI”) Property  
11 Accounting and Valuation Committee and have been Chairman of EEI’s Depreciation  
12 and Economic Issues Subcommittee. I am a Registered Professional Engineer in the  
13 State of Texas and a Certified Depreciation Professional. I am a Senior Member of the  
14 Institute of Electrical and Electronics Engineers (“IEEE”) and served for several years  
15 as an officer of the Executive Board of the Dallas Section of IEEE as well as national  
16 and global IEEE offices. I served as President of the Society of Depreciation  
17 Professionals twice, most recently in 2015.

18 **Q. Do you hold any special certification as a depreciation expert?**

19 A. Yes. The Society of Depreciation Professionals (“SDP”) has established national  
20 standards for depreciation professionals. The SDP administers an examination and has  
21 certain required qualifications to become certified in this field. I met all requirements  
22 and hold a Certified Depreciation Professional certification.

1 **Q. Have you previously testified before the Oklahoma Corporation Service**  
2 **Commission (“Commission”) or any other regulatory agency?**

3 A. Yes. I have conducted more than 280 depreciation studies and filed testimony or  
4 testified on depreciation and valuation issues before more than thirty-five utility  
5 commissions across the United States, including FERC. I have appeared before the  
6 commissions in every state that Liberty-Empire operates. I appeared before this  
7 Commission in PUD 201700471 and PUD 201700078 on behalf of Liberty-Empire and  
8 CenterPoint Oklahoma, respectively. A list of proceedings in which I have provided  
9 testimony is provided in Direct Exhibit DAW-1.

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

11 A. The purpose of my testimony is to:

- 12 • discuss the recent Liberty-Empire Depreciation Accrual Rate Study at  
13 December 31, 2019, completed for Liberty-Empire (“Depreciation Study” or  
14 the “Study”) and included in this filing; and
- 15 • support and justify the recommended depreciation rate changes for Liberty-  
16 Empire, based on the results of the Depreciation Study.

17 **Q. Please summarize your conclusions regarding the depreciation rate changes for**  
18 **Liberty-Empire assets based on the results of the Depreciation Study.**

19 A. The Depreciation Study and analysis performed under my supervision fully supports  
20 Liberty-Empire’s proposed depreciation rates applied to December 31, 2019  
21 depreciable plant balances for Production, Hydro, Other Production Transmission  
22 plant, Distribution plant, and General Property plant, which were adjusted for known  
23 and measurable changes as described below. The Company operates in four different

1 retail jurisdictions with different depreciation systems, life parameters, and net salvage  
2 parameters. The Study proposes a common depreciation system, life, and net salvage  
3 parameters for its assets in each retail jurisdiction.

4 **II. SUMMARY OF RESULTS**

5 **Q. What property is included in the depreciation study?**

6 A. There are four general groups of depreciable property that are analyzed in the Study:  
7 (1) Production Plant, (2) Transmission Plant, (3) Distribution Plant, and (4) General  
8 Plant property.

9 Under Production Plant there are three different functions of property: Steam,  
10 Hydro, and Other. Steam consists of generating units which use fossil fuels to produce  
11 steam used for the generation of electricity. Hydro consists of generating facilities  
12 using hydraulic power. Other consists of generating units (combustion turbines) that  
13 use natural gas to produce electricity without the production of steam. Wind consists  
14 of wind turbines, which is a renewable source of generation; and Solar consists of solar  
15 panels, which is a renewable source of generation.

16 Transmission Plant functional group primarily consists of lines and associated  
17 facilities used to move power from power plants and outside areas into the distribution  
18 system.

19 Distribution Plant functional group primarily consists of lines and associated  
20 facilities used to distribute electricity to customers of Liberty-Empire.

21 General Plant property is not location specific, but is plant used to support the  
22 Company's overall operations; for example, office buildings and computer equipment.

23 **Q. What time period did you use to develop the proposed depreciation rates?**

1 A. The depreciation rates were developed based on the depreciable property recorded on  
2 the Company's books at December 31, 2019. The study was submitted to the Missouri  
3 Public Service Commission in May 2021 and is now being filed in Oklahoma.

4 **Q. Did you make any adjustments to the Company's data at year end 2019?**

5 A. Yes, I did. The Company retired the Asbury generating unit in March of 2020. My  
6 study uses pro-forma data to reflect the retirement of Asbury and transfer of assets to  
7 other locations for items that are still used and useful. The Company also retired certain  
8 meters that are being replaced with advanced metering infrastructure ("AMI") meters.  
9 My study uses pro-forma data to reflect the retirement of the existing meters and  
10 recommended a depreciation rate both for the remaining non-AMI meters and for the  
11 AMI meters to be added. These adjustments are discussed in Section V of my  
12 testimony. Since the wind and solar generation was not completed at the study end  
13 date of December 31, 2019, I did not pro forma an investment for those assets into the  
14 Study.

15 **Q. Please describe how you conducted the Depreciation Study for Liberty-Empire.**

16 A. I undertook a comprehensive analysis for Liberty-Empire that is based on its electric  
17 depreciable plant in service as of December 31, 2019. The Depreciation Study  
18 combined the electric utility property of Missouri, Kansas, Oklahoma, and Arkansas.  
19 After the data was combined, I analyzed the property characteristics of Liberty-  
20 Empire's Production, Hydro, Other Production, Transmission, Distribution, and  
21 General plant. After developing common life and net salvage parameters, I computed  
22 depreciation rates for the Company's assets. The Study is provided as Direct Exhibit  
23 DAW-2. A comparison of the proposed rates with the existing rates is found in Direct  
24 Exhibit DAW-2, Appendix B.



1 **Q. What depreciation rates are you recommending in this proceeding?**

2 A. My recommended depreciation rates for the Company’s assets are provided in  
3 Appendix B of the Depreciation Study, based upon updated service life and net salvage  
4 rates for depreciable plant in-service as of December 31, 2019 and as adjusted for  
5 known and measurable changes as set forth in my testimony. Below is a table  
6 summarizing the results of the functional depreciation rates for Production, Hydro,  
7 Other Production, Transmission plant, Distribution plant, and General plant.

8

**TABLE 1**

**THE EMPIRE DISTRICT ELECTRIC COMPANY**

**Comparison of Existing versus Proposed Depreciation Rates**

**As of December 31, 2019**

<b>Acct</b>	<b>Depreciable Plant at 12/31/19</b>	<b>Current Annual Expense</b>	<b>Proposed Annual Expense</b>	<b>Expense Change</b>
Production	506,915,355	9,012,142	13,178,387	4,166,255
Hydro	12,250,897	199,009	343,199	144,190
Other				
Production	582,396,976	15,065,204	18,222,765	3,157,561
Transmission	399,899,913	9,641,085	10,208,510	567,425
Distribution	1,036,726,567	26,590,062	31,706,266	5,116,204
General	89,578,931	5,013,634	5,983,667	970,032
<b>Total</b>	<b>2,624,768,639</b>	<b>65,521,136</b>	<b>79,642,795</b>	<b>14,121,659</b>

9

1 **III. DEPRECIATION ANALYSIS PHILOSOPHY**

2 **Q. Please describe the depreciation analysis philosophy reflected in the Depreciation**  
3 **Study.**

4 A. The objective of any sound depreciation philosophy should be the matching of expense  
5 or utilization of the assets with the recovery or revenue over the life of the asset. In  
6 general, the life of the asset is determined by several factors including the rate of  
7 physical deterioration, obsolescence, weather, maintenance, or (in some cases) the  
8 economic usefulness of an entire operating unit. The function of depreciation is to  
9 recognize the cost of an asset spread over its useful life. Book depreciation techniques  
10 should not accelerate or defer the recovery of an asset in comparison to its appropriate  
11 useful life.

12 **Q. What objective should the Commission strive to achieve in setting depreciation**  
13 **rates?**

14 A. The objective of computing depreciation is to ensure that all customers using the assets  
15 pay their pro rata share for the investment, including the cost of retirement of individual  
16 assets. This objective is achieved by allocating the cost or depreciable base of a group  
17 of assets over the service life of those assets, on a straight-line basis, by charging a  
18 portion of the consumption of the assets to each accounting period.

19 **Q. Is the cost of retirement of individual assets the same as dismantlement or**  
20 **decommissioning costs?**

21 A. No. Dismantling (or decommissioning) cost is a term used for the full removal of  
22 production facilities at the end of their lives. However, during the life of the plant  
23 (while it is operating), periodic replacement of individual assets to allow the continued  
24 operation of the plant will also generate removal cost related to the individual asset

1 being replaced. While dismantling costs for production facilities is not factored into  
2 the Depreciation Study, this second concept (interim removal cost) is part of the  
3 depreciation rate calculations.

4 **IV. OVERVIEW OF THE DEPRECIATION STUDY METHOD**

5 **Q. What definition of depreciation did you use in preparing your depreciation study**  
6 **and testimony?**

7 A. The term “depreciation,” as I use it, is a system of accounting that distributes the cost  
8 of assets, less net salvage (if any), over the estimated useful life of the assets in a  
9 systematic and rational manner. It is a process of allocation, not valuation.  
10 Depreciation expense is systematically allocated to accounting periods over the life of  
11 the assets. The amount allocated to an accounting period does not necessarily represent  
12 the loss or decrease in value that will occur during that particular period. Thus,  
13 depreciation is considered an expense or cost, rather than a loss or decrease in value.  
14 Liberty-Empire accrues depreciation expense based on the original cost of all property  
15 included in each depreciable plant account. On retirement, the full cost of depreciable  
16 property, less any net salvage amount, is charged to the depreciation reserve.

17 **Q. Please describe your approach to conducting the Depreciation Study.**

18 A. I conducted the Depreciation Study in four phases, as shown in Direct Exhibit DAW-  
19 2. The four phases are: Data Collection, Analysis, Evaluation, and Calculation. I began  
20 by collecting the historical data to be used in the analysis. After the data has been  
21 assembled, I performed analyses to determine the life and net salvage percentage for  
22 the different property groups being studied. As part of the process for the study, I  
23 conferred with field personnel, engineers, and managers responsible for the installation,  
24 operation, and removal of the assets to gain their input into the operation, maintenance,

1 and salvage of the assets. The information obtained from field personnel, engineers,  
2 and managerial personnel, combined with the study results is then evaluated to  
3 determine how the results of the historical asset activity analysis, in conjunction with  
4 Liberty-Empire's expected future plans, should be applied. Using all these resources,  
5 I then calculated the depreciation rate for each function.

6 **Q. What factors influence the depreciation rates for an account?**

7 A. The primary factors that influence the depreciation rate for an account are: the  
8 remaining investment to be recovered in the account, the depreciable life of the account,  
9 and the net salvage for the account. The change in depreciation rates is being  
10 influenced by all three of these factors.

11 **V. SUMMARY RESULTS BY FUNCTION**

12 **A. PRODUCTION AND OTHER PRODUCTION PLANT**

13 *1. Life of Assets*

14 **Q. Please describe the methodology used to determine life for Steam, Hydro, and**  
15 **Other Production plant.**

16 A. For Steam, Hydro, and Other Production plant, most components are expected to have  
17 a retirement date concurrent with the planned retirement date of the generating unit.  
18 The terminal retirement date refers to the year that each facility will cease operations.  
19 The terminal retirement date establishes the pattern of retirement of the assets that  
20 comprise a generating unit. The estimated terminal retirement dates for the various  
21 generating units were determined based on consultation with Liberty-Empire  
22 management, financial, and engineering staff and are shown in Direct Exhibit DAW-  
23 2, Appendix D. Interim retirement curves were used to model the retirement of

1 individual assets within primary plant accounts for each generating unit prior to the  
2 terminal retirement of the facility for all steam and other generating units.

3 **Q. What are interim retirement characteristics?**

4 A. An interim retirement curve projects how many of the assets or units within a facility  
5 that are currently in-service will retire each year prior to the final retirement of the  
6 whole facility, using historical analysis and judgment. The life span procedure assumes  
7 all assets are depreciated (straight-line) for the same number of periods and retire at the  
8 same time (the terminal retirement date). Adding interim retirement curves to the  
9 procedure reflects the fact that some of the assets at a power plant will not survive to  
10 the end of the life of the facility, but will be retired earlier than the terminal life of the  
11 facility and should be depreciated (straight-line) over a shorter time frame to match  
12 their projected lives.

13 **Q. Are you using the same type of computations to develop production interim  
14 retirement experience rates as used in the last case?**

15 A. No. The Company's last depreciation study used interim retirement ratios (retirements  
16 over a period of time as a percentage of plant) to project the retirements between study  
17 date and the retirement of a generating unit. That computation is a simple historical  
18 average approach to estimating retirements and removal cost. The Company's current  
19 rates use interim retirement ratios, approved retirement dates for each facility, and no  
20 interim addition to plant. My recommendation is to use an Iowa curve to model future  
21 retirements rather than the interim retirement ratio. The Iowa curve takes into account  
22 the age of all vintages and determines the needed capital recovery for each vintage

1 group. Both Oklahoma Gas and Electric<sup>1</sup> and Public Service of Oklahoma<sup>2</sup> use Iowa  
2 curves to project interim retirements, and I propose to move Liberty-Empire to that  
3 same method of computing depreciation accrual rates. Using a projected retirement  
4 pattern based on historical indications and actuarial analysis modeling is a more  
5 accurate way to project the future pattern of retirements than a simple historical  
6 average. I analyzed each account separately to estimate an interim retirement curve for  
7 FERC Accounts 311-316, 331-335, and 341-346.

8 **Q. Did the Depreciation Study incorporate any changes to the service lives of Steam**  
9 **Production, Hydro and Other Production plant?**

10 A. Yes. Based on my discussions with the Company's staff, we reviewed the retirement  
11 dates used in the Company's Integrated Resource Plan. There are two changes in  
12 service lives, Steam Production Unit Asbury 1, which was retired in 2020 and Other  
13 Production Unit Energy Center 1, which had a three-year life extension to 2026. The  
14 last depreciation study factored in the Company's plans to renew the FERC operating  
15 license for Ozark Beach for an additional 30 years to 2053. That extension was  
16 granted in 2021 and is utilized in computing the proposed depreciation rates. The  
17 Study also recommended the continued acceptance of the approved depreciation rate  
18 for Wind assets and recommended a depreciation rate for Solar assets under  
19 construction at the study end date.

20 *2. Net Salvage of Steam, Hydro, and Other Production Assets*

21 **Q. Please describe what you mean by “net salvage” as it relates to production**  
22 **facilities.**

---

<sup>1</sup> Oklahoma Gas and Electric, See testimony of John Spanos, PUD 201800140

<sup>2</sup> Public Service of Oklahoma. See testimony of Jason Cash, PUD 202100055.

1 A. When a capital asset is retired and physically removed from service, terminal retirement  
2 is said to have occurred. Retirements of assets smaller than the generating unit (such  
3 as pumps and motors) are referred to as interim retirements and the average service life  
4 and Iowa survivor curve that described the pattern of retirement over the life is referred  
5 to as the Interim Retirement Factor in this case. The residual value of a terminal or  
6 interim retirement is called gross salvage. Net salvage is the difference between the  
7 gross salvage (what the residual asset or scrap was sold for) and the removal cost (cost  
8 to remove and dispose of the asset, as necessary).

9 The concept behind the net salvage cost component of depreciation rates for  
10 power plants is different from that of Transmission, Distribution or General Plant  
11 assets. Power plants are discrete units that will have retirements during the life of the  
12 units and need to be secured and possibly dismantled after the end of their useful lives.  
13 Because of this, three types of analysis are required: The first is related to interim  
14 removal and salvage activity, or interim net salvage (which relates to the replacement  
15 of components during the life of the generating unit), the second is related to the  
16 retirement closure costs needed to secure the plant when it ceases operation (based on  
17 engineering studies conducted to determine the necessary cost to safely and legally shut  
18 down the unit), and the third is the dismantlement costs needed to dismantle the plant  
19 in the future after it has ceased operation (also based on engineering studies conducted  
20 to determine the costs needed to dismantle the plant). The Depreciation Study has  
21 included the first type described above; interim retirement net salvage costs but  
22 excludes terminal retirement closure removal costs and dismantling costs.

23 **Q. Did you conduct an interim net salvage analysis for Liberty-Empire's Steam,**  
24 **Hydro and Other Production Plants?**

1 A. Yes. As part of the Depreciation Study, I analyzed the historical interim net salvage  
2 experienced by the Company in relation to replacing components at power plants. For  
3 Liberty-Empire's steam, hydro and other production plants, we analyzed Company  
4 specific activity to develop the interim net salvage cost amounts included in the study.  
5 We utilized the industry standard process as discussed in the Depreciation Study. A  
6 summary of the interim retirement net salvage cost percentages is shown on Appendix  
7 C-1 of Direct Exhibit DAW-2. That analysis and resulting recommendations are  
8 discussed in the Depreciation Study net salvage analysis section.

9 *3. Depreciation rate for Steam, Hydro, and Other Production Assets*

10 **Q. What depreciation system are you recommending in this case for Production,**  
11 **Hydro, and Other Production assets?**

12 A. For all jurisdictions and plant accounts in accounts 311-346, I recommend the broad  
13 group, average life group, remaining life depreciation system. All the Company's  
14 generation assets are located in Missouri, Kansas and Arkansas and existing rates are  
15 based on remaining life (life span). In this case, the Company seeks retention of  
16 remaining life depreciation rates for these asset groups. Utilizing the December 31,  
17 2019 balances the total change in annual depreciation expense for all production  
18 facilities is an increase of \$7.5 million.

19 **Q. Please summarize the Depreciation Study results with respect to depreciation**  
20 **rates for Steam Production facilities.**

21 A. Utilizing the December 31, 2019 balances for Steam Production facilities, depreciation  
22 expense changed primarily due to the increased investment for the generating units.  
23 The overall depreciation rates for steam production is an increase of \$4.2 million.



1 **Q. Please summarize the depreciation study results with respect to depreciation rates**  
2 **for Hydro facilities.**

3 A. Utilizing the December 31, 2019 balances for Hydro facilities, depreciation expense  
4 changed primarily due to the increased investment for the generating units. The overall  
5 depreciation rates for Hydro production increased depreciation expense by  
6 approximately \$144 thousand.

7 **Q. Please summarize the Depreciation Study results with respect to depreciation**  
8 **rates for other production facilities.**

9 A. Utilizing the December 31, 2019 balances for Other Production facilities, depreciation  
10 expense changed primarily due to the increased investment for the generating units. in  
11 this function experienced a mix of decreases and increases in the Unit and account  
12 depreciation rates, but overall, there was an increase of \$3.2 million. As noted earlier,  
13 even though this study does not reflect any investment in Wind or Solar, this study also  
14 recommends the continued acceptance of the approved depreciation rate for Wind  
15 assets and recommends a depreciation rate for Solar assets under construction at the  
16 study end date.

17 **B. TRANSMISSION, DISTRIBUTION, AND GENERAL PROPERTY**

18 *1. Life of Transmission, Distribution, and General Assets*

19 **Q. What is the significance of an asset's useful life for Transmission, Distribution,**  
20 **and General Property, in your Depreciation Study?**

21 A. An asset's useful life is used to determine the remaining life over which the remaining  
22 cost (original cost plus or minus net salvage, minus accumulated depreciation) can be  
23 allocated to normalize the asset's cost and spread it ratably over future periods to the  
24 customers receiving the benefit of those assets.

1 **Q. How did you determine the average service lives for each account?**

2 A. The establishment of appropriate average service lives for each account within each  
3 functional group was determined by using actuarial analysis. Graphs and tables  
4 supporting the actuarial analysis and the chosen Iowa Curves (which represent the  
5 percentage of property remaining in service at various age intervals) used to determine  
6 the average service lives for analyzed accounts are found in the Depreciation Study  
7 (Direct Exhibit DAW-2). As detailed in the study, I relied on my judgment to  
8 incorporate any differences in the expected future life characteristics of the assets into  
9 the selection of lives. The objective of life selection is to estimate the future life  
10 characteristics of assets, not simply measure the historical life characteristics. More  
11 detailed information can be found in the life analysis section of the Depreciation Study  
12 in Direct Exhibit DAW-2.

13 The National Association of Regulatory Utility Commissioners (“NARUC”)  
14 recognizes the importance of judgment in its 1996 publication Public Utility  
15 Depreciation Practices (referred to as the “NARUC Manual”) on page 128. The  
16 NARUC Manual has an entire section dedicated to “informed judgment.” NARUC  
17 defines “informed judgment” as: [A] term used to define the subjective portion of the  
18 depreciation study process. It is based on a combination of general experience,  
19 knowledge of the properties and a physical inspection, information gathered throughout  
20 the industry, and other factors which assist the analyst in making a knowledgeable  
21 estimate. NARUC also notes that “the use of informed judgment can be a major factor  
22 in forecasting” and explains that “[t]he analyst’s judgment, comprised of a combination  
23 of experience and knowledge, will determine the most reasonable estimate.” More

1 discussion on the use of judgment can be found in the Judgment portion of the General  
2 Discussion section of Direct Exhibit DAW-2.

3 **Q. What average services lives for Transmission, Distribution, and General Function**  
4 **assets do you recommend?**

5 A. The results are shown in Appendix C-2 of Direct Exhibit DAW-2.

6 **Q. Does your Depreciation Study reflect any changes in the useful lives of the**  
7 **Transmission, Distribution, and General function assets compared to the lives**  
8 **used to develop existing depreciation rates?**

9 A. Yes. I would point out here that the existing lives are shown by each state jurisdiction  
10 and the study proposed was based on a combined analysis. A comparison is shown in  
11 Appendix C-2 of Direct Exhibit DAW-2. In order to streamline the comparison results,  
12 we took the existing account life, for each state, and calculated an average life to  
13 compare to the life proposed in the study. Based on those account comparisons we find  
14 that nine accounts have increases in life. The largest increase in service life was an  
15 increase of 12 years for assets in FERC Account 352, Transmission Structures and  
16 Improvements. There are 17 accounts with a decrease in life. The greatest decrease  
17 was a decrease of 23 years for FERC Account 395, General Plant Laboratory  
18 Equipment. The reasons for these and other changes are addressed in the study. The  
19 lives for the other 3 accounts remained unchanged or no comparison was possible.

20 *2. Net Salvage Rates Transmission, Distribution, and General*

21 **Q. How did you determine the net salvage rates you used in your study for**  
22 **Transmission, Distribution, and General property?**

23 A. I examined the experience realized by the Company by observing the average net  
24 salvage rates for various bands (or combinations) of years. The use of averages (such

1 as the 5-year or 10-year average band) allows the smoothing of timing differences  
2 between when retirements, removal cost, and salvage are booked. By looking at  
3 successive average bands, or “rolling bands,” an analyst can see trends in the data that  
4 would signal the future net salvage in the account. In addition, I evaluated feedback  
5 from Liberty-Empire personnel regarding changes in operations or maintenance  
6 activities that will affect the future net salvage of these assets.

7 **Q. Is this a reasonable method for determining net salvage rates?**

8 A. Yes. This Commission evaluated and approved rates based on the use of this  
9 methodology in the Company’s prior depreciation studies, most recently in Missouri  
10 Case No. ER-2016-0023. This same methodology was used and approved in the  
11 Company’s other state jurisdictions as well. This Commission has used the same  
12 method of computing net salvage rates for other electric utilities: Oklahoma Gas and  
13 Electric in PUD 201800140 and Public Service of Oklahoma in PUD 202100055. In  
14 addition, this methodology is commonly employed throughout the industry and is the  
15 method recommended in authoritative texts.<sup>3</sup>

16 **Q. Does the Depreciation Study reflect any changes in the net salvage percentages of**  
17 **the Transmission, Distribution, and General function assets from the net salvage**  
18 **percentages embedded in the current depreciation rates?**

19 A. Yes. For purposes of this testimony, we applied the same average method discussed  
20 above and used for life comparisons to the net salvage account comparisons. Based on  
21 those account comparisons, we find that two accounts have increased net salvage (less

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<sup>3</sup> *Introduction to Depreciation for Public Utilities and Other Industries*, EEI AGA, 2013; *Public Utility Depreciation Practices*, NARUC, 1996; *Depreciation Systems*, by Drs. W. C. Fitch and F.K. Wolf, Iowa State Press, 1994.

1 negative/more positive); 19 accounts have more negative net salvage rates; and the  
2 remaining eight accounts have no change or no comparison could be made. The  
3 existing lives are shown by each state jurisdiction and the study proposed, based on a  
4 combined analysis, in Direct Exhibit DAW-2, Appendix C-2.

5 **Q. What are your net salvage recommendations for Liberty-Empire?**

6 A. My net salvage recommendations are found in Appendix C-1 and C-2 of Direct Exhibit  
7 DAW-2 and each account is discussed in the body of the report. Detailed history for  
8 each account is shown in Appendix E of Direct Exhibit DAW-2.

9 *3. Depreciation System Change for Transmission, Distribution, and General*

10 **Q. What depreciation system are you recommending in this case?**

11 A. For all jurisdictions and plant accounts, with exception of FERC Accounts 391, 393-  
12 395, and 397-398, I recommend the broad group, average life group, remaining life  
13 depreciation system. Currently, the Company has different systems depending on the  
14 decisions reached in the Company's last depreciation study in the individual state  
15 jurisdictions. Kansas and Arkansas adopted rates using broad group, average life,  
16 remaining life for all plant accounts. Missouri and Oklahoma rates are based on  
17 remaining life (life span) for steam production, hydro and other production assets.  
18 Transmission, Distribution and General plant assets for Missouri and Oklahoma are  
19 based on broad group, average life group, whole life rates. In this case, the Company  
20 seeks approval to consistently apply remaining life depreciation rates. Oklahoma has  
21 adopted remaining life rates for two other electric utilities for all functional groups.<sup>4</sup>  
22 For FERC Accounts 391, 393-395, and 397-398, I recommend general plant

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<sup>4</sup> Oklahoma Gas and Electric in PUD 201800140 and Public Service of Oklahoma in PUD 202100055.

1 amortization based upon FERC's Accounting Release 15 where assets are  
2 automatically retired when they reach the age of the average service life of the group.

3 **Q. What is the difference between a remaining life and whole life depreciation**  
4 **system?**

5 A. In performing a depreciation study, it is necessary to test how the book accumulated  
6 depreciation (reserve) compares to what is called the theoretical depreciation reserve.  
7 The book depreciation reserve is derived from Company records. The theoretical  
8 reserve models prospective capital recovery future retirement and accrual patterns for  
9 property, given the study proposed life and net salvage estimates. The theoretical  
10 reserve of a group is developed from the estimated remaining life, total life of the  
11 property group (account), and estimated net salvage. The theoretical reserve represents  
12 the portion of the group cost that would have been accrued if current (study proposed)  
13 forecasts were used throughout the life of the group for future depreciation accruals.  
14 The computation involves multiplying the vintage balances within the group by the  
15 theoretical reserve ratio for each vintage. The average life group method requires an  
16 estimate of dispersion and service life to establish how much of each vintage is  
17 expected to be retired in each year until all property within the group is retired.

18 If a difference exists, then any under- or over-amounts can be recovered over  
19 either an arbitrary period determined by the regulatory body or over the remaining life  
20 of the group. The current whole-life system rates the Company is using in Missouri  
21 and Oklahoma have had no adjustment amount made to bring the book and theoretical  
22 reserves in alignment.

23 **Q. Why do you recommend a switch to the remaining life depreciation system in this**  
24 **case?**

1 A. First, in my experience as a consultant and expert witness across the United States, the  
2 remaining life depreciation system is the predominant one I have seen used in  
3 regulatory settings, and the Oklahoma Corporation Commission has adopted this  
4 approach for other utilities, as referenced above. The only cases in which I have not  
5 recommended remaining life depreciation rates are in cases where the state commission  
6 has indicated a clear preference for whole life in prior decisions<sup>5</sup> or when there is  
7 insufficient information to calculate a remaining life depreciation rate. In instances  
8 where an entity is installing a new asset with no similar plant in services, such as a new  
9 generating unit, or a start-up utility such as a wind or solar transmission entity, the  
10 whole life and remaining life approach are technically the same approach since the  
11 assets are at the beginning of their lives. Second, the whole life depreciation system  
12 currently used by Liberty-Empire in Missouri and Oklahoma does not have any built-  
13 in mechanism to recover any difference between the book reserve and the theoretical  
14 depreciation reserve. In viewing the Company's last depreciation filings, I do not see  
15 any true-up mechanism or period for its transmission, distribution, and general plant.  
16 The remaining life depreciation system has a built-in self-correcting mechanism that  
17 makes it the most widely used depreciation system in my experience.

18 **Q. Are there other activities regarding the depreciation reserve you address in your**  
19 **study?**

20 A. Yes. We have performed what is referred to as a reserve reallocation, which will be  
21 discussed in more detail in a separate section later in my testimony.

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<sup>5</sup> In nearly 300 cases, I have recommended remaining life in all proceedings except for those where there is insufficient information to calculate remaining life rates, where the client used item depreciation or where there was a long-standing Commission precedent to use whole-life depreciation rates (i.e., New Hampshire Public Utilities Commission).

1                   4. *Depreciation Rates for Transmission, Distribution, and General Property*

2   **Q.   Please summarize the depreciation study results with respect to depreciation**  
3   **rates for Transmission facilities.**

4   A.   Utilizing the December 31, 2019 balances for Transmission assets, asset group  
5   depreciation rates using composite depreciation rates for all sates resulted in an overall  
6   increase in annual depreciation expense of \$567 thousand for the function. Using  
7   Oklahoma only rates the increase in depreciation expense is \$2.0 million for the  
8   function.   Based upon the comparison of existing Oklahoma parameters using the  
9   averages, as discussed above, to the study proposed, the change is primarily due to a  
10   mix of adjustments to lives (both higher and lower), net salvage adjustments (both  
11   higher and lower), and a change to remaining life depreciation rates.  The increased  
12   level of investment and the reserve position compared to the theoretical reserve is also  
13   a contributing factor to the change seen in Transmission plant.  A comparison of the  
14   rates and resulting depreciation expense, by account for Transmission plant, are shown  
15   in Appendix B-2 of Direct Exhibit DAW-2.  A detailed description, by account, of the  
16   life and net salvage recommendations can be found in Direct Exhibit DAW-2.  A  
17   comparison of the book, theoretical, and reallocated reserves can be found in Direct  
18   Exhibit DAW-2, Appendix F.

19   **Q.   Please summarize the depreciation study results with respect to depreciation**  
20   **rates for Distribution facilities.**

21   A.   Utilizing the December 31, 2019 balances for Distribution assets, asset group  
22   depreciation rates using composite rates for all states resulted in an overall increase in  
23   annual indepreciation expense of \$5.1 million for the function.  Using Oklahoma only  
24   rates the increase in depreciation expense is \$4.5 million for the function.  Based upon



1 the comparison of existing Oklahoma parameters (using the averages as discussed  
2 above) to the study proposed, the increase is attributable to the mix of adjustments in  
3 lives and net salvage factors (both higher and lower), and a change to remaining life  
4 depreciation rates. The increased level of investment is also a contributing factor.  
5 However, in the Distribution function, the reserve position serves to partially offset  
6 some of the increase. A comparison of the rates and resulting depreciation expense, by  
7 account for Distribution plant, are shown in Appendix B of Direct Exhibit DAW-2. A  
8 detailed description, by account, of the life and net salvage recommendations can be  
9 found in Direct Exhibit DAW-2. A comparison of the book, theoretical, and reallocated  
10 reserves can be found in Direct Exhibit DAW-2, Appendix F.

11 **Q. Please summarize the Depreciation Study results with respect to depreciation**  
12 **rates for General plant.**

13 A. Utilizing the December 31, 2019 balances for General plant, asset group depreciation  
14 rates using composite depreciation rates for all states resulted in an increase of annual  
15 depreciation expense of \$970 thousand, after retirements for General Plant  
16 Amortization and the Reserve Amortization, for designated accounts, in this function.  
17 Using Oklahoma only rates the increase in depreciation expense is \$949 thousand for  
18 the function. Based on the historical life and net salvage analysis, my recommendations  
19 result in shorter lives for some asset groups as compared to the approved Oklahoma  
20 parameters based on the Company's historical experience and a change to remaining  
21 life depreciation rates, resulting in the primary driver for the increase. This increase is  
22 partially offset by the reserve position. Rates by account for General plant are shown  
23 in Appendix B of Direct Exhibit DAW-2. A detailed description, by account, of the  
24 life and net salvage recommendations can be found in Direct Exhibit DAW-2. A

1 comparison of the book, theoretical, and reallocated reserves can be found in Direct  
2 Exhibit DAW-2, Appendix F.

3 **C. RESERVE REALLOCATION**

4 **Q. What is reserve reallocation?**

5 A. Reserve reallocation occurs when the book reserve is re-spread within a functional  
6 group based on the theoretical reserve within each function.

7 **Q. As part of your depreciation analysis have you taken any action to properly align**  
8 **the Company's depreciation reserve with the life and net salvage characteristics**  
9 **of the various functions?**

10 A. Yes. In the process of analyzing the Company's depreciation reserve, I observed that  
11 the depreciation reserve positions of the accounts were generally not in line with the  
12 life characteristics found in the analysis of the Company's assets. To allow the relative  
13 reserve positions of each account within a function to mirror the life characteristics of  
14 the underlying assets, I reallocated the depreciation reserves for all accounts within  
15 each function. Since the basis of the current depreciation rates vary between entities  
16 and jurisdictions, I believe reserve reallocation is the best solution in developing one  
17 rate.

18 **Q. Does the reallocation of the depreciation reserve change the total reserve?**

19 A. No. The depreciation reserve represents the amounts that customers have contributed  
20 to the return of the investment. The reallocation process does not change the total  
21 reserve for each function; it simply reallocates the reserve between accounts in the  
22 function.

23 **Q. Is depreciation reserve reallocation a sound depreciation practice?**

1 A. Yes. The practice of depreciation reserve allocation is endorsed in the 1968 publication  
2 of “Public Utility Depreciation Practices”, National Association of Regulatory Utility  
3 Commissioners (“NARUC”), which explains that reallocation of the depreciation  
4 reserve is appropriate “...where the change in the view concerning the life of property  
5 is so drastic as to indicate a serious difference between the theoretical and the book  
6 reserve.” Additionally, the 1996 edition of the NARUC publication states that  
7 “theoretical reserve studies also have been conducted for the purpose of allocating an  
8 existing reserve among operating units or accounts.” The Depreciation Study  
9 demonstrates that there have been significant changes in the life of the property since  
10 the approved accrual rates were authorized. These changes have created a significant  
11 difference between the theoretical and the book reserve in each functional group that  
12 make the reallocation of the depreciation reserve appropriate in this instance.

13 **Q. Why is it important for the depreciation reserve to conform to the theoretical**  
14 **reserve?**

15 A. This is important because it sets the reserve at a level necessary to sustain the regulatory  
16 concept of intergenerational equity among Liberty-Empire’s customers, as well as set  
17 the depreciation rates at the appropriate level based on the study’s proposed parameters  
18 and expectations.

19 **Q. How will the Company implement the reallocation of its depreciation reserve if its**  
20 **proposed rates are approved?**

1 A. When the proposed depreciation rates are approved, the Company will reallocate the  
2 reserves on its books using the approved parameters to match the allocation process  
3 performed in this study.

4 **D. VINTAGE YEAR DEPRECIATION OF GENERAL PLANT ASSETS,**  
5 **FERC ACCOUNTS 391, 393-395, AND 397-398**

6 **Q. Please describe the Vintage Group (General Plant Amortization) methodology.**

7 A. For general plant assets in accounts 391, 393-395, and 397-398, the Company is  
8 requesting to use a vintage year accounting method approved by the FERC in  
9 Accounting Release Number 15 (“AR-15”), *Vintage Year Accounting For General*  
10 *Plant Accounts*, dated January 1, 1997. AR-15 allowed utilities to use a simplified  
11 method of accounting for general plant assets, excluding Accounts 390, 392 and 396,  
12 (referred to as “general plant”). The AR-15 release allows high-volume, low-cost  
13 assets to be amortized over the associated useful life, eliminating the need to track  
14 individual assets, and allows a retirement to be booked at the end of the depreciable  
15 life. This method is often referred to as “amortization of general plant or general plant  
16 amortization.”

17 Adopting the method of accounting allowed in AR-15 changes the level of  
18 detail maintained in the asset records and performs the depreciation calculation at a  
19 vintage level rather than at a total account level. The plant asset balances will be  
20 maintained by vintage installed with the retirement being recorded when the approved  
21 useful life and book depreciation has been reached. The empirical retirement data for  
22 actuarial or semi-actuarial analysis will no longer be reliable; however, the  
23 determination of useful life can be made appropriately with the use of market forces,

1 manufacturer expected life, technological obsolescence, business planning, known  
2 causes of retirement, and changes in expected future utilization of the assets in each of  
3 the accounts.

4 The depreciation calculation uses a useful life applied to a vintage versus the  
5 entire account. The depreciation recovery is complete when the vintage accumulated  
6 depreciation is equal to the vintage plant adjusted for estimated salvage and removal  
7 costs. Both Oklahoma Gas and Electric and Public Service of Oklahoma have received  
8 Commission approval to use vintage group amortization, and I propose to move Liberty-  
9 Empire to that same method of system of computing depreciation accrual rates.<sup>6</sup>

10 **Q. Please describe the methodology or technique employed in analyzing the life of**  
11 **Vintage Group Property.**

12 A. Actuarial life analysis was performed on each account. Those results, along with  
13 Company discussions, and judgment formed the basis of the proposed life for these  
14 accounts. The lives being proposed reflect more recent experience and Liberty-  
15 Empire's specific information to set an appropriate recovery period for the assets going  
16 forward.

17 **Q. Please describe the results of the Vintage Group Property.**

18 A. Liberty-Empire's present depreciation rates were compared to the Depreciation Study  
19 recommendations in Appendix B of Direct Exhibit DAW-2. The rates proposed for  
20 Vintage Group property are an increase of \$1.1 million offset by a credit of \$185  
21 thousand calculated as the difference between book and theoretical reserves for this

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<sup>6</sup> Oklahoma Gas and Electric in PUD 201800140 and Public Service of Oklahoma in PUD 202100055.

1 group. The net increase is \$970 thousand for the General Plant function based on plant  
2 balances as of December 31, 2019. The computations and comparisons are shown in  
3 Appendix A-1 and Appendix B, respectively, of Direct Exhibit DAW-2.

4 **VI. WIND AND SOLAR PROJECTS; AMI METERS; ASBURY RETRIEMENT**

5 **Q. Are there other depreciation-related items for Liberty-Empire that have not**  
6 **been previously discussed?**

7 A. Yes. Below, I will address Liberty-Empire's installation of new generation in Wind  
8 and Solar. A second item relates to the Company's replacement of existing meters with  
9 AMI meters for Oklahoma and the impact on the Account 370 – Meters account.  
10 Finally, I will discuss the retirement of the Asbury generating unit.

11 **Q. What depreciation rate is the Company utilizing for the Wind assets?**

12 A. In Case No. PUD 201700471, the Joint Settlement agreement reached by the Parties  
13 indicated a 3.33% depreciation rate for the Company's then proposed wind projects.  
14 In the Joint Settlement agreement, the Parties stated the: "Commission should allow  
15 Empire to use a composite 3.33% depreciation rate for the Wind Project. FERC  
16 accounts. Beginning with such time as the assets are placed in service subject to future  
17 review and approval by the Commission of the Wind Projects.." <sup>7</sup> At the time of the  
18 study, the wind assets were not in service and this study is recommending continued  
19 acceptance of the recommended depreciation rate outlined in the Joint Settlement  
20 agreement.

21 **Q. What depreciation rate is proposed for Solar assets?**

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<sup>7</sup> Case No. PUD 201700471 Joint Stipulation and Settlement Agreement, April 2, 2018, p. 2.

1 A. Liberty-Empire constructed a small 2.5 MW facility, which was placed in service in  
2 early 2021. Based on information from other equivalent solar units, a 5.00%  
3 depreciation accrual rate is proposed. This rate is based on a 20-year life with 0 percent  
4 net salvage.

5 **Q. Please describe the AMI program and the effect on Account 370.**

6 A. Beginning in June 2020, the Company began deploying AMI meters across its system.  
7 Most of the existing non-AMI meters will be retired more quickly than previously  
8 projected due to the deployment. This will result in unrecovered net cost of  
9 approximately \$265 thousand for Oklahoma. The remaining life reflected in the  
10 depreciation study at December 31, 2019 for the meters in Oklahoma 18.34 years. A  
11 full discussion of the regulatory treatment for the remaining non-AMI meter investment  
12 is addressed in the Direct Testimony of Liberty-Empire witness Charlotte T. Emery.

13 **Q. Please describe the depreciation-related item related to the retirement of the**  
14 **Asbury facility.**

15 A. Liberty-Empire retired the Asbury steam electric station in March 2020. Therefore, I  
16 did not include the Asbury plant net book value in the Depreciation Study for  
17 generating units. A full discussion of regulatory treatment for the remaining investment  
18 related to the Asbury Unit is addressed in Ms. Emery's Direct Testimony and the Direct  
19 Testimony of Liberty-Empire witness Frank Graves.

20 **VII. CONCLUSION**

21 **Q. Does this conclude your direct testimony?**

22 A. Yes.

## Dane Watson Appearance Listing

Asset Location	Commission	Docket (If Applicable)	Company	Year	Description
Michigan	Michigan Public Service Commission	U-21176	Consumers Gas	2021	Gas Depreciation Study
New Jersey	New Jersey Board of Public Utilities	GR21121254	Elizabethtown Natural Gas	2021	Gas Depreciation Study
Ontario Canada	Ontario Energy Board	EB-2021-0110	Hydro One	2021	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	TA116-118, TA115-97, TA160-37 and TA110-290	Fairbanks Water and Wastewater	2021	Water and Waste Water Depreciation Study
Colorado	Public Utilities Commission of Colorado	21AL-0317E	Public Service of Colorado	2021	Electric and Common Depreciation Study
Alaska	Regulatory Commission of Alaska	U-21-025	Golden Valley Electric Association	2021	Electric Depreciation Study
Wisconsin	Public Service Commission of Wisconsin	5-DU-103	WE Energies	2021	Electric and Gas Depreciation Study
Kentucky	Public Service Commission of Kentucky	2021-00214	Atmos Kentucky	2021	Gas Depreciation Study
Missouri	Missouri Public Service Commission	ER-2021-0312	Empire District Electric Company	2021	Electric Depreciation Study
Wisconsin	Public Service Commission of Wisconsin	4220-DU-111	Northern States Power Wisconsin	2021	Transmission, Distribution General and Common Depreciation Study
Louisiana	Louisiana Public Service Commission	U-35951	Atmos Energy	2021	Statewide Gas Depreciation Study
Minnesota	Minnesota Public Utilities Commission	E015-D-21-229	Allete Minnesota Power	2021	Intangible, Transmission, Distribution, and General Depreciation Study
Michigan	Michigan Public Service Commission	U-20849	Consumers Energy	2021	Electric and Common Depreciation Study
Texas	Texas Public Utility Commission	51802	Southwestern Public Service Company	2021	Electric Technical Update
MultiState	FERC	RP21-441-000	Florida Gas Transmission	2021	Gas Depreciation Study
New Mexico	New Mexico Public Regulation Commission	20-00238-UT	Southwestern Public Service Company	2021	Electric Technical Update



## Dane Watson Appearance Listing

Asset Location	Commission	Docket (If Applicable)	Company	Year	Description
Yukon Territory Canada	Yukon Energy Board	2021 General Rate Application	Yukon Energy	2020	Electric Depreciation Study
MultiState	FERC	ER21-709-000	American Transmission Company	2020	Electric Depreciation Study
Texas	Texas Public Utility Commission	51611	Sharyland Utilities	2020	Electric Depreciation Study
Texas	Texas Public Utility Commission	51536	Brownsville Public Utilities Board	2020	Electric Depreciation Study
New Jersey	New Jersey Board of Public Utilities	WR20110729	Suez Water New Jersey	2020	Water and Waste Water Depreciation Study
Idaho	Idaho Public Service Commission	SUZ-W-20-02	Suez Water Idaho	2020	Water Depreciation Study
Texas	Texas Public Utility Commission	50944	Monarch Utilities	2020	Water and Waste Water Depreciation Study
Michigan	Michigan Public Service Commission	U-20844	Consumers Energy/DTE Electric	2020	Ludington Pumped Storage Depreciation Study
Mexico	Comision Reguladora de Energia	G/352/TRA/2015 UH-250/125738/2019	Arguelles Depreciation Study	2020	Gas Depreciation Study
Tennessee	Tennessee Public Utility Commission	2000086	Piedmont Natural Gas	2020	Gas Depreciation Study
Texas	Railroad Commission of Texas	OS-00005136	CoServ Gas	2020	Gas Depreciation Study
Texas	Railroad Commission of Texas	GUD 10988	EPCOR Gas Texas	2020	Gas Depreciation Study
Florida	Florida Public Service Commission	20200166-GU	People Gas System	2020	Gas Depreciation Study
Mississippi	Federal Energy Regulatory Commission	ER20-1660-000	Mississippi Power Company	2020	Electric Depreciation Study
Texas	Public Utility Commission of Texas	50557	Corix Utilities	2020	Water and Waste Water Depreciation Study
Georgia	Georgia Public Service Commission	42959	Liberty Utilities Peach State Natural Gas	2020	Gas Depreciation Study
Texas	Public Utility Commission of Texas	50734	Oncor Electric Delivery	2020	Life of Intangible Plant
New Jersey	New Jersey Board of Public Utilities	GR20030243	South Jersey Gas	2020	Gas Depreciation Study
Kentucky	Kentucky Public Service Commission	2020-00064	Big Rivers	2020	Electric Depreciation Study
Colorado	Colorado Public Utilities Commission	20AL-0049G	Public Service of Colorado	2020	Gas Depreciation Study

## Dane Watson Appearance Listing

Asset Location	Commission	Docket (If Applicable)	Company	Year	Description
Texas	NA	NA	Pedernales Electric Coop	2019	Electric Depreciation Study
New York	Federal Energy Regulatory Commission	ER20-716-000	LS Power Grid New York, Corp.	2019	Electric Transmission Depreciation Study
Mississippi	Mississippi Public Service Commission	2019-UN-219	Mississippi Power Company	2019	Electric Depreciation Study
Texas	Public Utility Commission of Texas	50288	Kerrville Public Utility District	2019	Electric Depreciation Study
Texas	Railroad Commission of Texas	GUD 10920	CenterPoint Gas	2019	Gas Depreciation Study and Propane Air Study
Texas, New Mexico	Federal Energy Regulatory Commission	ER20-277-000	Southwestern Public Service Company	2019	Electric Production and General Plant Depreciation Study
New Mexico	New Mexico Public Regulation Commission		New Mexico Gas	2019	Gas Depreciation Study
Alaska	Regulatory Commission of Alaska	U-19-086	Alaska Electric Light and Power	2019	Electric Depreciation Study
Texas	Railroad Commission of Texas	GUD 10900	Atmos Energy West Texas Division - Triangle	2019	Depreciation Rates for Natural Gas Property
Delaware	Delaware Public Service Commission	19-0615	Suez Water Delaware	2019	Water Depreciation Study
California	California Public Utilities Commission	A.19-08-015	Southwest Gas Northern California	2019	Gas Depreciation Study
California	California Public Utilities Commission	A.19-08-015	Southwest Gas Southern California	2019	Gas Depreciation Study
Texas	Railroad Commission of Texas	GUD 10895	CenterPoint Propane Air	2019	Depreciation Rates for Propane Air Assets
Texas	Public Utility Commission of Texas	49831	Southwestern Public Service Company	2019	Electric Depreciation Study
New Mexico	New Mexico Public Regulation Commission	19-00170-UT	Southwestern Public Service Company	2019	Electric Depreciation Study
Georgia	Georgia Public Service Commission	42516	Georgia Power Company	2019	Electric Depreciation Study
Georgia	Georgia Public Service Commission	42315	Atlanta Gas Light	2019	Gas Depreciation Study
Arizona	Arizona Corporation Commission	G-01551A-19-0055	Southwest Gas Corporation	2019	Gas Removal Cost Study
New Hampshire	New Hampshire Public Service Commission	DE 19-064	Liberty Utilities	2019	Electric Distribution and General
New Jersey	New Jersey Board of Public Utilities	GR19040486	Elizabethtown Natural Gas	2019	Gas Depreciation Study
Texas	Public Utility Commission of Texas	49421	CenterPoint Houston Electric LLC	2019	Electric Depreciation Study

## Dane Watson Appearance Listing

Asset Location	Commission	Docket (If Applicable)	Company	Year	Description
North Carolina	North Carolina Utilities Commission	Docket No. G-9, Sub 743	Piedmont Natural Gas	2019	Gas Depreciation Study
Minnesota	Minnesota Public Utilities Commission	E-015/D-18-226	Allete Minnesota Power	2018	Electric Compliance Filing
Colorado	Colorado Public Utilities Commission	19AL-0063ST	Public Service of Colorado	2019	Steam Depreciation Study
Texas	NA	NA	CenterPoint Texas	2019	Propane Air Depreciation Study
Various	NA	NA	Enable Midstream Partners	2019	Gas Depreciation Study
Alaska	Regulatory Commission of Alaska	U-18-121	Municipal Power and Light City of Anchorage	2018	Electric Depreciation Study
Various	NA	NA	Pattern Energy	2018	Renewable Asset Capital Accounting
New York	NA	NA	Long Island Electric Utility Servco LLC	2018	Electric Depreciation Study
Various	FERC	RP19-352-000	Sea Robin	2018	Gas Depreciation Study
Texas New Mexico	Federal Energy Regulatory Commission	ER19-404-000	Southwestern Public Service Company	2018	Electric Transmission Depreciation Study
California	Federal Energy Regulatory Commission	ER19-221-000	San Diego Gas and Electric	2018	Electric Transmission Depreciation Study
Kentucky	Kentucky Public Service Commission	2018-00281	Atmos Kentucky	2018	Gas Depreciation Study
Texas	Public Utility Commission of Texas	48500	Golden Spread Electric Coop	2018	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-18-054	Matanuska Electric Coop	2018	Electric Generation Depreciation Study
California	California Public Utilities Commission	A17-10-007	San Diego Gas and Electric	2018	Electric and Gas Depreciation Study
Texas	NA	NA	Lower Colorado River Authority	2018	Electric Transmission and General Study
Texas	Public Utility Commission of Texas	48401	Texas New Mexico Power	2018	Electric Depreciation Study
Nevada	Public Utility Commission of Nevada	18-05031	Southwest Gas	2018	Gas Depreciation Study
Texas	Public Utility Commission of Texas	48231	Oncor Electric Delivery	2018	Depreciation Rates
Texas	Public Utility Commission of Texas	48371	Entergy Texas	2018	Electric Depreciation Study
Kansas	Kansas Corporation Commission	18-KCPE-480-RTS	Kansas City Power and Light	2018	Electric Depreciation Study
Louisiana	Louisiana Public Service Commission	U-34803	Atmos LGS	2018	Gas Depreciation Study
Arkansas	Arkansas Public Service Commission	18-027-U	Liberty Pine Bluff Water	2018	Water Depreciation Study

## Dane Watson Appearance Listing

Asset Location	Commission	Docket (If Applicable)	Company	Year	Description
Minnesota	Minnesota Public Utilities Commission	E-015/D-18-226	Allete Minnesota Power	2018	Electric Depreciation Rate
Kentucky	Kentucky Public Service Commission	2017-00349	Atmos KY	2018	Gas Depreciation Rates
Tennessee	Tennessee Public Utility Commission	18-00017	Chattanooga Gas	2018	Gas Depreciation Study
Texas	Railroad Commission of Texas	10679	Si Energy	2018	Gas Depreciation Study
Texas	City of Dallas Statement of Intent	NA	Atmos Mid-Tex	2017-2018	Gas Depreciation Study
Alaska	Regulatory Commission of Alaska	U-17-104	Anchorage Water and Wastewater	2017	Water and Waste Water Depreciation Study
Michigan	Michigan Public Service Commission	U-18488	Michigan Gas Utilities Corporation	2017	Gas Depreciation Study
New Mexico	FERC	ER18-228-000	Southwestern Public Service Company	2017	Electric Production Depreciation Study
Texas	Railroad Commission of Texas	10669	CenterPoint South Texas	2017	Gas Depreciation Study
New Mexico	New Mexico Public Regulation Commission	17-00255-UT	Southwestern Public Service Company	2017	Electric Production Depreciation Study
Arkansas	Arkansas Public Service Commission	17-061-U	Empire District Electric Company	2017	Depreciation Rates for New Wind Generation
Kansas	Kansas Corporation Commission	18-EPDE-184-PRE	Empire District Electric Company	2017	Depreciation Rates for New Wind Generation
Oklahoma	Oklahoma Corporation Commission	PUD 201700471	Empire District Electric Company	2017	Depreciation Rates for New Wind Generation
Missouri	Missouri Public Service Commission	EO-2018-0092	Empire District Electric Company	2017	Depreciation Rates for New Wind Generation
Michigan	Michigan Public Service Commission	U-18457	Upper Peninsula Power Company	2017	Electric Depreciation Study
Florida	Florida Public Service Commission	20170179-GU	Florida City Gas	2017	Gas Depreciation Study
Iowa	NA		Cedar Falls Utility	2017	Telecommunications, Water, and Cable Utility
Michigan	FERC	ER18-56-000	Consumers Energy	2017	Electric Depreciation Study
Missouri	Missouri Public Service Commission	GR-2018-0013	Liberty Utilities	2017	Gas Depreciation Study
Michigan	Michigan Public Service Commission	U-18452	SEMCO	2017	Gas Depreciation Study

## Dane Watson Appearance Listing

Asset Location	Commission	Docket (If Applicable)	Company	Year	Description
Texas	Public Utility Commission of Texas	47527	Southwestern Public Service Company	2017	Electric Production Depreciation Study
Minnesota	Minnesota Public Utilities Commission	17-581	Minnesota Northern States Power	2017	Electric, Gas and Common Transmission, Distribution and General
Colorado	Colorado Public Utilities Commission	17AL-0363G	Public Service of Colorado-Gas	2017	Gas Depreciation Study
MultiState	FERC	ER17-1664	American Transmission Company	2017	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-17-008	Municipal Power and Light City of Anchorage	2017	Generating Unit Depreciation Study
Louisiana	Louisiana Public Service Commission	U-34343	Atmos Trans Louisiana	2017	Gas Depreciation Study
Mississippi	Mississippi Public Service Commission	2017-UN-041	Atmos Energy	2017	Gas Depreciation Study
New York	FERC	ER17-1010-000	New York Power Authority	2017	Electric Depreciation Study
Oklahoma	Oklahoma Corporation Commission	PUD 201700078	CenterPoint Oklahoma	2017	Gas Depreciation Study
Texas	Railroad Commission of Texas	GUD 10580	Atmos Pipeline Texas	2017	Gas Depreciation Study
Texas	Public Utility Commission of Texas	46957	Oncor Electric Delivery	2017	Electric Depreciation Study
Alabama	FERC	ER16-2312-000	Alabama Power Company	2016	Electric Depreciation Study
Alabama	FERC	ER16-2313-000	SEGCO	2016	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-16-067	Alaska Electric Light and Power	2016	Generating Unit Depreciation Study
Arizona	Arizona Corporation Commission	G-01551A-16-0107	Southwest Gas	2016	Gas Depreciation Study
California	California Public Utilities Commission	A 16-07-002	California American Water	2016	Water and Waste Water Depreciation Study
Colorado	Colorado Public Utilities Commission	16A-0231E	Public Service Company of Colorado	2016	Electric Depreciation Study
Mississippi	Mississippi Public Service Commission	2016 UN 267	Willmut Gas	2016	Gas Depreciation Study
Florida	Florida Public Service Commission	160170-EI	Gulf Power	2016	Electric Depreciation Study
Georgia	N/A	N/A	Dalton Utilities	2016	Electric, Gas, Water, Wastewater & Fiber Depreciation Study

## Dane Watson Appearance Listing

Asset Location	Commission	Docket (If Applicable)	Company	Year	Description
Georgia	NA	NA	Oglethorpe Power	2016	Electric Depreciation Study
Illinois	Illinois Commerce Commission	GRM #16-208	Liberty-Illinois	2016	Natural Gas Depreciation Study
Iowa	Iowa Utilities Board	RPU-2016-0003	Liberty-Iowa	2016	Natural Gas Depreciation Study
Kentucky	FERC	RP16-097-000	KOT	2016	Natural Gas Depreciation Study
Michigan	Michigan Public Service Commission	U-18195	Consumers Energy/DTE Electric	2016	Ludington Pumped Storage Depreciation Study
Michigan	Michigan Public Service Commission	U-18127	Consumers Energy	2016	Natural Gas Depreciation Study
MultiState	FERC	ER17-191-000	American Transmission Company	2016	Electric Depreciation Study
Hawaii			Hawaii American Water	2015	Wastewater and Water Depreciation Study
New Jersey	New Jersey Board of Public Utilities	GR16090826	Elizabethtown Natural Gas	2016	Gas Depreciation Study
New York	NA		New York Power Authority	2016	Electric Transmission and General Study
North Carolina	North Carolina Utilities Commission	Docket G-9 Sub 77H	Piedmont Natural Gas	2016	Gas Depreciation Study
Texas	Railroad Commission of Texas	GUD 10567	CenterPoint Texas	2016	Gas Depreciation Study
Texas	Public Utility Commission of Texas	45414	Sharyland	2016	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-15-089	Fairbanks Water and Wastewater	2015	Water and Waste Water Depreciation Study
Arkansas	Arkansas Public Service Commission	15-098-U	CenterPoint Arkansas	2015	Gas Depreciation Study and Cost of Removal Study
Arkansas	Arkansas Public Service Commission	15-031-U	Source Gas Arkansas	2015	Underground Storage Gas Depreciation Study
Hawaii			Hawaii American Water	2015	Wastewater and Water Depreciation Study
Arkansas	Arkansas Public Service Commission	15-011-U	Source Gas Arkansas	2015	Gas Depreciation Study
Atmos Energy Corporation	Tennessee Regulatory Authority	14-00146	Atmos Tennessee	2015	Natural Gas Depreciation Study
Colorado	Colorado Public Utilities Commission	15-AL-0299G	Atmos Colorado	2015	Gas Depreciation Study
Kansas	Kansas Corporation Commission	16-ATMG-079-RTS	Atmos Kansas	2015	Gas Depreciation Study

## Dane Watson Appearance Listing

Asset Location	Commission	Docket (If Applicable)	Company	Year	Description
Kansas	Kansas Corporation Commission	15-KCPE-116-RTS	Kansas City Power and Light	2015	Electric Depreciation Study
Montana	NA	NA	Energy Keepers	2015	Property Units/ Depreciation Rates Hydro Facility
Multi-State NE US	FERC	16-453-000	Northeast Transmission Development, LLC	2015	Electric Depreciation Study
New Mexico	New Mexico Public Regulation Commission	15-00261-UT	Public Service Company of New Mexico	2015	Electric Depreciation Study
New Mexico	New Mexico Public Regulation Commission	15-00296-UT	Southwestern Public Service Company	2015	Electric Depreciation Study
New Mexico	New Mexico Public Regulation Commission	15-00139-UT	Southwestern Public Service Company	2015	Electric Depreciation Study
Texas	Railroad Commission of Texas	GUD 10432	CenterPoint- Texas Coast Division	2015	Gas Depreciation Study
Texas	Public Utility Commission of Texas	44704	Entergy Texas	2015	Electric Depreciation Study
Texas	Public Utility Commission of Texas	44746	Wind Energy Transmission Texas	2015	Electric Depreciation Study
Texas, New Mexico	FERC	ER15-949-000	Southwestern Public Service Company	2015	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-14-120	Alaska Electric Light and Power	2014-2015	Electric Depreciation Study
Alabama	State of Alabama Public Service Commission	U-5115	Mobile Gas	2014	Gas Depreciation Study
Alaska	Regulatory Commission of Alaska	U-14-045	Matanuska Electric Coop	2014	Electric Generation Depreciation Study
Alaska	Regulatory Commission of Alaska	U-14-054	Sand Point Generating LLC	2014	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-14-055	TDX North Slope Generating	2014	Electric Depreciation Study
California	California Public Utilities Commission	A.14-07-006	Golden State Water	2014	Water and Waste Water Depreciation Study
Colorado	Public Utilities Commission of Colorado	14AL-0660E	Public Service Company of Colorado	2014	Electric Depreciation Study
Louisiana	Louisiana Public Service Commission	U-28814	Atmos Energy Corporation	2014	Gas Depreciation Study
Michigan	Michigan Public Service Commission	U-17653	Consumers Energy Company	2014	Electric and Common Depreciation Study
Multi State – SE US	FERC	RP15-101	Florida Gas Transmission	2014	Gas Transmission Depreciation Study

## Dane Watson Appearance Listing

Asset Location	Commission	Docket (If Applicable)	Company	Year	Description
Nebraska	Nebraska Public Service Commission	NG-0079	Source Gas Nebraska	2014	Gas Depreciation Study
New Mexico	New Mexico Public Regulation Commission	14-00332-UT	Public Service of New Mexico	2014	Electric Depreciation Study
Texas	Public Utility Commission of Texas	43950	Cross Texas Transmission	2014	Electric Depreciation Study
Texas	NA	NA	Hughes Natural Gas	2014	Gas Depreciation Study
Texas	Public Utility Commission of Texas	42469	Lone Star Transmission	2014	Electric Depreciation Study
Texas	Public Utility Commission of Texas	43695	Southwestern Public Service Company	2014	Electric Depreciation Study
Wisconsin	Wisconsin	05-DU-102	WE Energies	2014	Electric, Gas, Steam and Common Depreciation Studies
Texas, New Mexico	Public Utility Commission of Texas	42004	Southwestern Public Service Company	2013-2014	Electric Production, Transmission, Distribution and General Plant Depreciation Study
Virginia	Virginia Corporation Commission	PUE-2013-00124	Atmos Energy Corporation	2013-2014	Gas Depreciation Study
Arkansas	Arkansas Public Service Commission	13-078-U	Arkansas Oklahoma Gas	2013	Gas Depreciation Study
Arkansas	Arkansas Public Service Commission	13-079-U	Source Gas Arkansas	2013	Gas Depreciation Study
California	California Public Utilities Commission	Proceeding No.: A.13-11-003	Southern California Edison	2013	Electric Depreciation Study
Kentucky	Kentucky Public Service Commission	2013-00148	Atmos Energy Corporation	2013	Gas Depreciation Study
Minnesota	Minnesota Public Utilities Commission	13-252	Allete Minnesota Power	2013	Electric Depreciation Study
New Hampshire	New Hampshire Public Service Commission	DE 13-063	Liberty Utilities	2013	Electric Distribution and General
New Jersey	New Jersey Board of Public Utilities	GR13111137	South Jersey Gas	2013	Gas Depreciation Study
North Carolina/South Carolina	FERC	ER13-1313	Progress Energy Carolina	2013	Electric Depreciation Study
Oklahoma and TX Panhandle	NA	NA	Enable Midstream Partners	2013	Gas Depreciation Study
Texas	Public Utility Commission of Texas	41474	Sharyland	2013	Electric Depreciation Study
Texas	Railroad Commission of Texas	10235	West Texas Gas	2013	Gas Depreciation Study
Various	FERC	RP14-247-000	Sea Robin	2013	Gas Depreciation Study



## Dane Watson Apperance Listing

Asset Location	Commission	Docket (If Applicable)	Company	Year	Description
Wisconsin	Public Service Commission of Wisconsin	4220-DU-108	Northern States Power Company - Wisconsin	2013	Electric, Gas and Common Transmission, Distribution and General
Alaska	Regulatory Commission of Alaska	U-12-154	Alaska Telephone Company	2012	Telecommunications Utility
Alaska	Regulatory Commission of Alaska	U-12-141	Interior Telephone Company	2012	Telecommunications Utility
Alaska	Regulatory Commission of Alaska	U-12-149	Municipal Power and Light City of Anchorage	2012	Electric Depreciation Study
Colorado	Colorado Public Utilities Commission	12AL-1269ST	Public Service Company of Colorado	2012	Gas and Steam Depreciation Study
Colorado	Colorado Public Utilities Commission	12AL-1268G	Public Service Company of Colorado	2012	Gas and Steam Depreciation Study
Kansas	Kansas Corporation Commission	12-ATMG-564-RTS	Atmos Kansas	2012	Gas Depreciation Study
Kansas	Kansas Corporation Commission	12-KCPE-764-RTS	Kansas City Power and Light	2012	Electric Depreciation Study
Michigan	Michigan Public Service Commission	U-17104	Michigan Gas Utilities Corporation	2012	Gas Depreciation Study
Minnesota	Minnesota Public Utilities Commission	12-858	Northern States Power Company - Minnesota	2012	Electric, Gas and Common Transmission, Distribution and General
Nevada	Public Utility Commission of Nevada	12-04005	Southwest Gas	2012	Gas Depreciation Study
New Mexico	New Mexico Public Regulation Commission	12-00350-UT	Southwestern Public Service Company	2012	Electric Depreciation Study
North Carolina	North Carolina Utilities Commission	E-2 Sub 1025	Progress Energy Carolina	2012	Electric Depreciation Study
North Dakota	North Dakota Public Service Commission	PU-12-0813	Northern States Power	2012	Electric, Gas and Common Transmission, Distribution and General
South Carolina	Public Service Commission of South Carolina	Docket 2012-384-E	Progress Energy Carolina	2012	Electric Depreciation Study
Texas	Railroad Commission of Texas	10170	Atmos Mid-Tex	2012	Gas Depreciation Study
Texas	Railroad Commission of Texas	10147, 10170	Atmos Mid-Tex	2012	Gas Depreciation Study

## Dane Watson Apperance Listing

Asset Location	Commission	Docket (If Applicable)	Company	Year	Description
Texas	Railroad Commission of Texas	10174	Atmos West Texas	2012	Gas Depreciation Study
Texas	Railroad Commission of Texas	10182	CenterPoint Beaumont/ East Texas	2012	Gas Depreciation Study
Texas	Texas Public Utility Commission	40604	Cross Texas Transmission	2012	Electric Depreciation Study
Texas	Texas Public Utility Commission	40020	Lone Star Transmission	2012	Electric Depreciation Study
Texas	Texas Public Utility Commission	40606	Wind Energy Transmission Texas	2012	Electric Depreciation Study
Texas	Texas Public Utility Commission	40824	Xcel Energy	2012	Electric Depreciation Study
California	California Public Utilities Commission	A1011015	Southern California Edison	2011	Electric Depreciation Study
Colorado	Public Utilities Commission of Colorado	11AL-947E	Public Service Company of Colorado	2011	Electric Depreciation Study
Michigan	Michigan Public Service Commission	U-16938	Consumers Energy Company	2011	Gas Depreciation Study
Michigan	Michigan Public Service Commission	U-16536	Consumers Energy Company	2011	Wind Depreciation Rate Study
Mississippi	Mississippi Public Service Commission	2011-UN-184	Atmos Energy	2011	Gas Depreciation Study
MultiState	FERC	ER12-212	American Transmission Company	2011	Electric Depreciation Study
MultiState			Atmos Energy	2011	Shared Services Depreciation Study
MultiState			CenterPoint	2011	Shared Services Study
MultiState			CenterPoint	2011	Depreciation Reserve Study (SAP)
Pennsylvania	NA	NA	Safe Harbor	2011	Hydro Depreciation Study
Texas	Texas Public Utility Commission	39896	Entergy Texas	2011	Electric Depreciation Study
Texas	Public Utility Commission of Texas	38929	Oncor	2011	Electric Depreciation Study
Texas	Texas Commission on Environmental Quality	Matter 37050-R	Southwest Water Company	2011	Waste Water Depreciation Study
Texas	Texas Commission on Environmental Quality	Matter 37049-R	Southwest Water Company	2011	Water Depreciation Study
Alaska	Regulatory Commission of Alaska	U-10-070	Inside Passage Electric Cooperative	2010	Electric Depreciation Study
Georgia	Georgia Public Service Commission	31647	Atlanta Gas Light	2010	Gas Depreciation Study

## Dane Watson Appearance Listing

Asset Location	Commission	Docket (If Applicable)	Company	Year	Description
Maine/ New Hampshire	FERC	10-896	Granite State Gas Transmission	2010	Gas Depreciation Study
Multi State – SE US	FERC	RP10-21-000	Florida Gas Transmission	2010	Gas Depreciation Study
Multistate	NA	NA	Constellation Energy	2010	Fossil Generation Depreciation Study
Multistate	NA	NA	Constellation Energy Nuclear	2010	Nuclear Generation Depreciation Study
Texas	Texas Railroad Commission	10041	Atmos Amarillo	2010	Gas Depreciation Study
Texas	Texas Railroad Commission	10000	Atmos Pipeline Texas	2010	Gas Depreciation Study
Texas	Railroad Commission of Texas	10038	CenterPoint South TX	2010	Gas Depreciation Study
Texas	Public Utility Commission of Texas	36633	City Public Service of San Antonio	2010	Electric Depreciation Study
Texas	Public Utility Commission of Texas	38339	CenterPoint Electric	2010	Electric Depreciation Study
Texas	Public Utility Commission of Texas	38147	Southwestern Public Service Company	2010	Electric Technical Update
Texas	Public Utility Commission of Texas	38480	Texas New Mexico Power	2010	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-09-015	Alaska Electric Light and Power	2009-2010	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-10-043	Utility Services of Alaska	2009-2010	Water Depreciation Study
California	California Public Utility Commission	A10071007	California American Water	2009-2010	Water and Waste Water Depreciation Study
Michigan	Michigan Public Service Commission	U-16054	Consumers Energy	2009-2010	Electric Depreciation Study
Michigan	Michigan Public Service Commission	U-16055	Consumers Energy/DTE Energy	2009-2010	Ludington Pumped Storage Depreciation Study
Wyoming	Wyoming Public Service Commission	30022-148-GR10	Source Gas	2009-2010	Gas Depreciation Study
Colorado	Colorado Public Utilities Commission	09AL-299E	Public Service of Colorado	2009	Electric Depreciation Study
Iowa	NA		Cedar Falls Utility	2009	Telecommunications, Water, and Cable Utility
Michigan	Michigan Public Service Commission	U-15963	Michigan Gas Utilities Corporation	2009	Gas Depreciation Study
Michigan	Michigan Public Service Commission	U-15989	Upper Peninsula Power Company	2009	Electric Depreciation Study
Michigan	Michigan Public Service Commission	In Progress	Edison Sault	2009	Electric Depreciation Study

## Dane Watson Appearance Listing

Asset Location	Commission	Docket (If Applicable)	Company	Year	Description
Mississippi	Mississippi Public Service Commission	09-UN-334	CenterPoint Energy Mississippi	2009	Gas Depreciation Study
New York	New York Public Service Commission		Key Span	2009	Generation Depreciation Study
North Carolina	North Carolina Utilities Commission		Piedmont Natural Gas	2009	Gas Depreciation Study
South Carolina	Public Service Commission of South Carolina		Piedmont Natural Gas	2009	Gas Depreciation Study
Tennessee	Tennessee Regulatory Authority	09-000183	AGL – Chattanooga Gas	2009	Gas Depreciation Study
Tennessee	Tennessee Regulatory Authority	11-00144	Piedmont Natural Gas	2009	Gas Depreciation Study
Texas	Railroad Commission of Texas	9869	Atmos Energy	2009	Shared Services Depreciation Study
Texas	Railroad Commission of Texas	9902	CenterPoint Energy Houston	2009	Gas Depreciation Study
Arizona	NA	NA	Arizona Public Service	2008	Fixed Asset Consulting
Louisiana	Louisiana Public Service Commission	U-30689	Cleco	2008	Electric Depreciation Study
Multiple States	NA	NA	Constellation Energy	2008	Generation Depreciation Study
New Mexico	New Mexico Public Regulation Commission	07-00319-UT	Southwestern Public Service Company	2008	Testimony – Depreciation
North Dakota	North Dakota Public Service Commission	PU-07-776	Northern States Power Company - Minnesota	2008	Net Salvage
Texas	Public Utility Commission of Texas	35717	Oncor	2008	Electric Depreciation Study
Texas	Public Utility Commission of Texas	35763	Southwestern Public Service Company	2008	Electric Production, Transmission, Distribution and General Plant Depreciation Study
Wisconsin	Wisconsin	05-DU-101	WE Energies	2008	Electric, Gas, Steam and Common Depreciation Studies
Colorado	Colorado Public Utilities Commission	Filed – no docket to date	Public Service Company of Colorado	2007-2008	Electric Depreciation Study
Colorado	Colorado Public Utilities Commission	10AL-963G	Public Service Company of Colorado	2007-2008	Gas Depreciation Study
Minnesota	Minnesota Public Utilities Commission	E015/D-08-422	Minnesota Power	2007-2008	Electric Depreciation Study
Multiple States	Railroad Commission of Texas	9762	Atmos Energy	2007-2008	Shared Services Depreciation Study

## Dane Watson Apperance Listing

Asset Location	Commission	Docket (If Applicable)	Company	Year	Description
Multiple States	None		Tennessee Valley Authority	2007-2008	Electric Generation and Transmission Depreciation Study
Michigan	Michigan Public Service Commission	U-15629	Consumers Energy	2006-2009	Gas Depreciation Study
Multiple States	NA	NA	Constellation Energy	2007	Generation Depreciation Study
Texas	Public Utility Commission of Texas	34040	Oncor	2007	Electric Depreciation Study
Arkansas	Arkansas Public Service Commission	06-161-U	CenterPoint Energy – Arkla Gas	2006	Gas Distribution Depreciation Study and Removal Cost Study
Colorado	Colorado Public Utilities Commission	06-234-EG	Public Service Company of Colorado	2006	Electric Depreciation Study
Multiple States	Multiple	NA	CenterPoint Energy	2006	Shared Services Depreciation Study
Nevada	NA	NA	Nevada Power/Sierra Pacific	2006	ARO Consulting

# **THE EMPIRE DISTRICT ELECTRIC COMPANY**

**ELECTRIC UTILITY PLANT  
DEPRECIATION RATE STUDY  
AT DECEMBER 31, 2019**



<http://www.utilityalliance.com>

**THE EMPIRE DISTRICT ELECTRIC COMPANY  
ELECTRIC UTILITY PLANT  
DEPRECIATION RATE STUDY  
EXECUTIVE SUMMARY**

The Empire District Electric Company (“EDE” or “Company”) engaged Alliance Consulting Group to conduct a depreciation study of the Company’s Electric utility plant depreciable assets as of December 31, 2019.

For Production accounts including Steam Production, Hydro, and Other Production, the lives of the generating units remained consistent with previous filings with the exception of a select few units. Steam Production unit Asbury 1 retired in early 2020, and Other Production unit Energy Center 1 is extending its estimated retirement date. The study results do not include any terminal dismantlement costs.

Transmission, Distribution and General plant accounts saw a mix of increasing and decreasing lives (depending on the account and jurisdiction) and a general increase in the experienced negative net salvage.

This study recommends an overall increase of approximately \$14.1 million in annual depreciation expense. This consists of an increase of \$7.3 million in annual depreciation expense for Production facilities compared to the depreciation rates currently in effect and an increase of approximately \$6.8 million in Transmission, Distribution, and General annual depreciation expense compared to the depreciation rates currently in effect. Appendix B demonstrates the change in depreciation expense for the various accounts.

**THE EMPIRE DISTRICT ELECTRIC COMPANY  
ELECTRIC UTILITY PLANT  
DEPRECIATION RATE STUDY  
AT DECEMBER 31, 2019**

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## PURPOSE

The purpose of this study is to develop depreciation rates for the depreciable property as recorded on EDE's books at December 31, 2019 for Arkansas, Kansas, Missouri, and Oklahoma. The account-based depreciation rates were designed to recover the total remaining undepreciated investment, adjusted for net salvage, over the remaining life of EDE's property on a straight-line basis. Non-depreciable property and property that is amortized, such as intangible software, were excluded from this study.

EDE is a regulated utility based in Joplin, Missouri that provides electric service to its customers. In 2017 The Empire District Electric Company was acquired by Liberty Utilities (Central) Corp., a subsidiary of Liberty Utilities Co., itself a U.S. subsidiary of Algonquin Power & Utilities Corp. EDE's electric operation generates, purchases, and distributes electricity to approximately 173,000 electric customers in parts of Missouri, Kansas, Oklahoma, and Arkansas. EDE's electric service territory encompasses approximately 10,000 square miles. EDE serves twelve counties in Missouri, three counties in Oklahoma, one county in Kansas, and one county in Arkansas. EDE serves its customers through an interconnected grid of transmission and distribution ("T&D") circuits and substations, which are diverse, and must serve the needs of both its urban customers (located in areas of high service density like Joplin) as well as customers located along rural "feeder" circuits, where loads are low and circuits are long.

## STUDY RESULTS

Overall depreciation rates for all EDE depreciable property are shown in Appendix A. These rates translate into an annual depreciation accrual of \$79.6 million based on EDE's depreciable investment at December 31, 2019. The annual equivalent depreciation expense calculated by the same method using the approved rates was \$65.5 million. These rates translate into an approximate annual depreciation accrual for Steam Production of \$13.2 million, Hydraulic Production of \$343 thousand, Other Production of \$18.2 million, Transmission of \$10.2 million, Distribution of \$31.7 million, and General Plant of \$6.2 million. Depreciation accrual rates are proposed for assets that will be added after December 31, 2019: Wind Production, Solar Production, and AMI meters. Those rates are shown in Appendix B. Appendix A demonstrates the development of the annual depreciation rates and accruals. Appendix B presents a comparison of approved rates versus proposed rates by account. Appendix C presents a summary of mortality and net salvage estimates by account. Appendix D presents the terminal retirement dates for production facilities. Appendix E presents the net salvage analysis for all accounts. Appendix F presents a summary of plant, per book depreciation reserve, allocated depreciation reserves, and theoretical depreciation reserves by depreciation group.

## GENERAL DISCUSSION

### **Definition**

The term "depreciation" as used in this study is considered in the accounting sense, that is, a system of accounting that distributes the cost of assets, less net salvage (if any), over the estimated useful life of the assets in a systematic and rational manner. It is a process of allocation, not valuation. This expense is systematically allocated to accounting periods over the life of the properties. The amount allocated to any one accounting period does not necessarily represent the loss or decrease in value that will occur during that particular period. The Company accrues depreciation on the basis of the original cost of all depreciable property included in each functional property group. On retirement, the full cost of depreciable property, less the net salvage value, is charged to the depreciation reserve.

### **Basis of Depreciation Estimates**

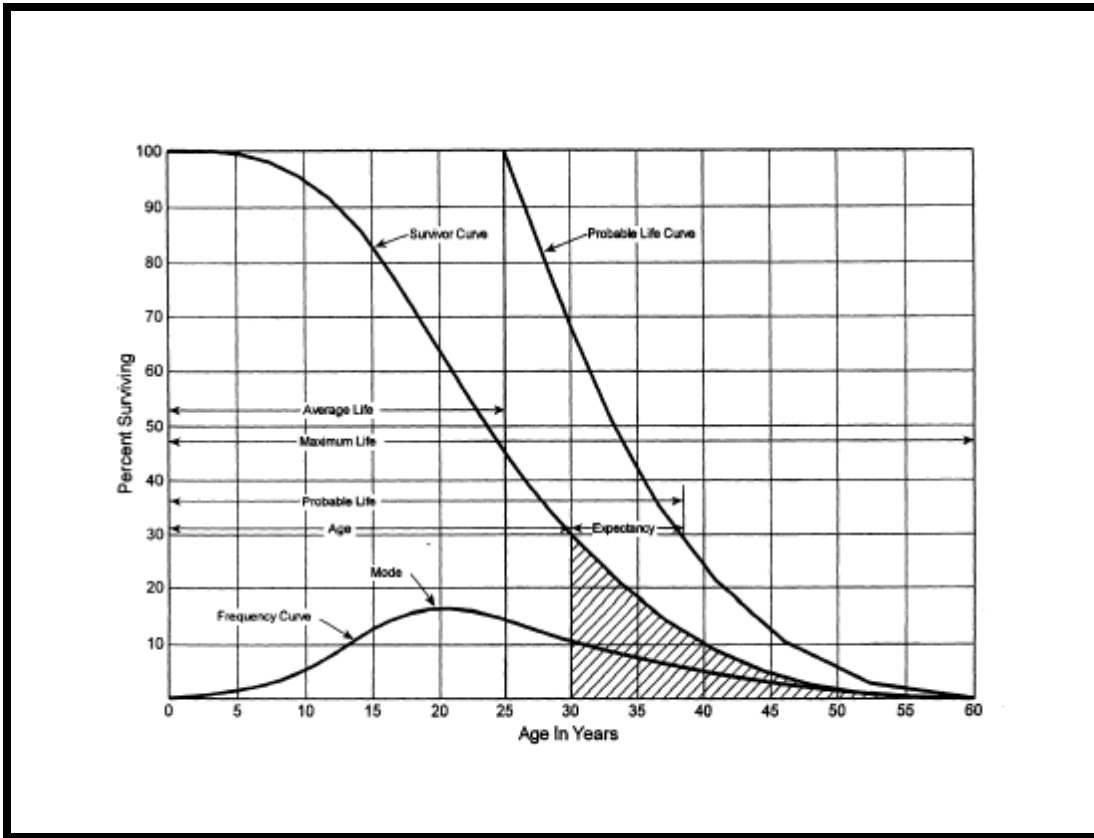
The straight-line, broad (average) life group, remaining-life depreciation system was employed to calculate annual and accrued depreciation in this study. In this system, the annual depreciation expense for each group is computed by dividing the original cost of the asset less allocated depreciation reserve less estimated net salvage by its respective average life group remaining life. The resulting annual accrual amounts of all depreciable property within a function were accumulated, and the total was divided by the original cost of all functional depreciable property to determine the depreciation rate. The calculated remaining lives and annual depreciation accrual rates were based on attained ages of plant in service and the estimated service life and salvage characteristics of each depreciable group. The computations of the annual functional depreciation rates are shown in Appendix A.

Actuarial analysis was used with each account within a function where sufficient data was available, and judgment was used to some degree on all

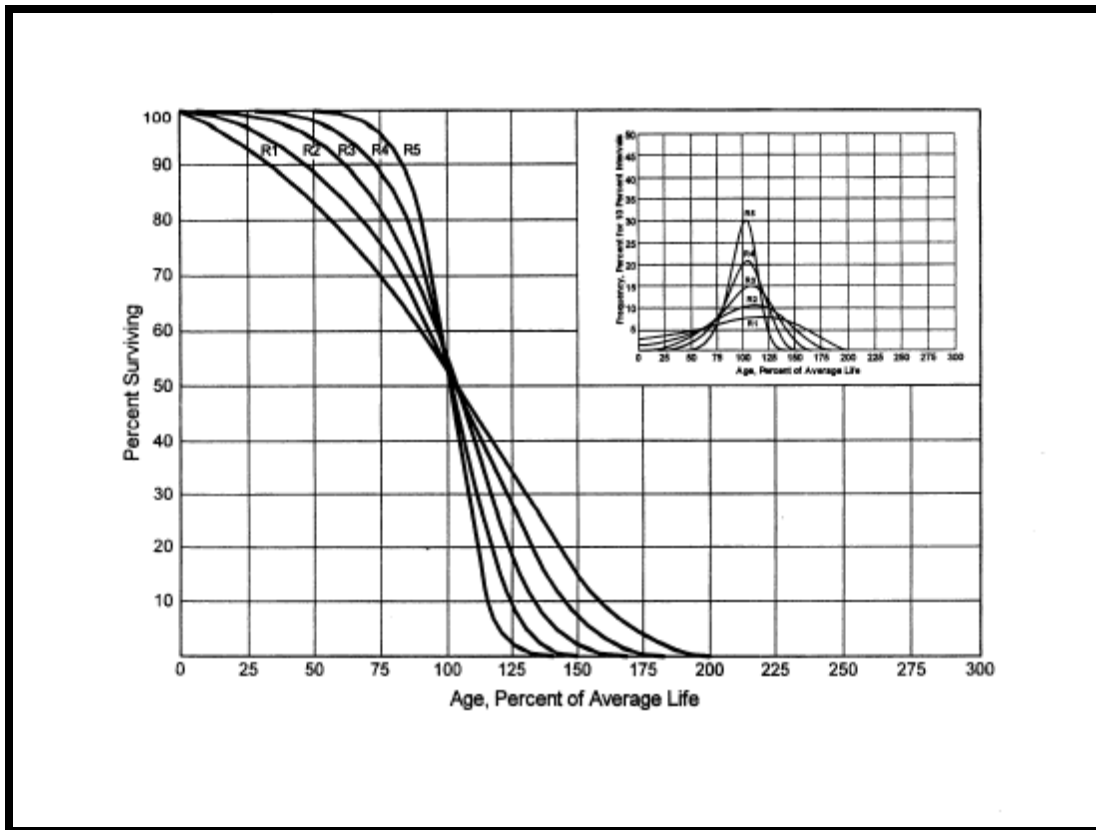
accounts.

### **Survivor Curves**

To fully understand depreciation projections in a regulated utility setting, there must be a basic understanding of survivor curves. Individual property units within a group do not normally have identical lives or investment amounts. The average life of a group can be determined by first constructing a survivor curve which is plotted as a percentage of the units surviving at each age. A survivor curve represents the percentage of property remaining in service at various age intervals. The Iowa Curves are the result of an extensive investigation of life characteristics of physical property made at Iowa State College Engineering Experiment Station in the first half of the prior century. Through common usage, revalidation and regulatory acceptance, these curves have become a descriptive standard for the life characteristics of industrial property. An example of an Iowa Curve is shown below.



There are four families in the Iowa Curves that are distinguished by the relation of the age at the retirement mode (largest annual retirement frequency) and the average life. For distributions with the mode age greater than the average life, an "R" designation (i.e., Right modal) is used. The family of "R" moded curves is shown below.



Similarly, an "S" designation (i.e., Symmetric modal) is used for the family whose mode age is symmetric about the average life. An "L" designation (i.e., Left modal) is used for the family whose mode age is less than the average life. A special case of left modal dispersion is the "O" or origin modal curve family. Within each curve family, numerical designations are used to describe the relative magnitude of the retirement frequencies at the mode. A "6" indicates that the retirements are not greatly dispersed from the mode (i.e., high mode frequency) while a "1" indicates a large dispersion about the mode (i.e., low mode frequency). For example, a curve with an average life of 30 years and an "L3" dispersion is a moderately dispersed, left modal curve that can be designated as a 30 L3 Curve. An SQ, or square, survivor curve occurs where no dispersion is present (i.e., units of common age retire simultaneously).

Most property groups can be closely fitted to one Iowa Curve with a unique average service life. The blending of judgment concerning current conditions and future trends along with the matching of historical data permits the depreciation analyst to make an informed selection of an account's average life and retirement dispersion pattern.

### **Life Span Procedure**

The life span procedure was used for production facilities for which most components are expected to have a retirement date concurrent with the planned retirement date of the generating unit. The terminal retirement date refers to the year that each unit will cease operations. The terminal retirement date, along with the interim retirement characteristics of the assets that will retire prior to the facility ceasing operation; describe the pattern of retirement of the assets that comprise a generating unit. The estimated terminal retirement dates for the various generating units were determined based on consultation with Company management, financial, and engineering staff. Those estimated terminal retirement dates are shown in Appendix D.

### **Interim Retirement Factors**

Interim retirement curves (or factors) were used to model the retirement of individual assets within primary plant accounts for each generating unit prior to the terminal retirement of the facility. The life span procedure assumes all assets are depreciated (straight-line) for the same number of periods and retire at the same time (the terminal retirement date). Adding interim retirement curves to the procedure reflects the fact that some of the assets at a power plant will not survive to the end of the life of the facility and should be depreciated (straight-line) more quickly and retired earlier than the terminal life of the facility. The goal of interim retirement curves is to project how many of the assets that are currently in service will retire each year in the future using historical analysis and judgment. These

curves were chosen based primarily on an analysis of the historical retirement pattern of the Generation assets and consultation with Company personnel. Interim retirements for each plant account were modeled using Iowa Curves discussed above. By applying interim retirements, recognition is given to the obvious fact that generating units will have retirements of depreciable property before the end of their lives.

Although interim retirements have been recognized in the study, interim additions (i.e. future additions) have been excluded from the study. The estimated amount of future additions might or might not occur. However, there is no uncertainty as to whether the full level of interim retirements will happen. The assets that are being modeled for retirement are already in rate base. Depreciation rates using interim retirements are known and measurable in the same way that setting depreciation rates for transmission or distribution property using Iowa Curves is known and measurable. There is no depreciable asset that is expected to live forever. All assets at a power plant will retire at some point. Interim retirements simply model when those retirements will occur in the same way that is done for transmission or distribution assets.

### **Actuarial Analysis**

Actuarial analysis (retirement rate method) was used in evaluating historical asset retirement experience where vintage data were available and sufficient retirement activity was present. In actuarial analysis, interval exposures (total property subject to retirement at the beginning of the age interval, regardless of vintage) and age interval retirements are calculated. The complement of the ratio of interval retirements to interval exposures establishes a survivor ratio. The survivor ratio is the fraction of property surviving to the end of the selected age interval, given that it has survived to the beginning of that age interval. Survivor ratios for all available age intervals were chained by successive multiplications to establish a series of survivor factors, collectively known as an observed life table.



The observed life table shows the experienced mortality characteristic of the account and may be compared to standard mortality curves such as the Iowa Curves. Where data was available, accounts were analyzed using this method. Placement bands were used to illustrate the composite history over a specific era, and experience bands were used to focus on retirement history for all vintages during a set period. The results from these analyses for those accounts which had data sufficient to be analyzed using this method are shown in the Life Analysis section of this report.

### **Judgment**

Any depreciation study requires informed judgment by the analyst conducting the study. A knowledge of the property being studied, company policies and procedures, general trends in technology and industry practice, and a sound basis of understanding depreciation theory are needed to apply this informed judgment. Judgment was used in areas such as survivor curve modeling and selection, depreciation method selection, simulated plant record method analysis, and actuarial analysis.

Judgment is not defined as being used in cases where there are specific, significant pieces of information that influence the choice of a life or curve. Those cases would simply be a reflection of specific facts into the analysis. Where there are multiple factors, activities, actions, property characteristics, statistical inconsistencies, implications of applying certain curves, property mix in accounts or a multitude of other considerations that impact the analysis (potentially in various directions), judgment is used to take all of these factors and synthesize them into a general direction or understanding of the characteristics of the property. Individually, no one factor in these cases may have a substantial impact on the analysis, but overall, may shed light on the utilization and characteristics of assets. Judgment may also be defined as deduction, inference, wisdom, common sense, or the ability to make sensible decisions. There is no single correct result

from statistical analysis; hence, there is no answer absent judgment. At the very least for example, any analysis requires choosing which bands to place more emphasis.

The establishment of appropriate average service lives and retirement dispersions for the Production interim retirements, Transmission, Distribution, Distribution, and General Plant accounts requires judgment to incorporate the understanding of the operation of the system with the available accounting information analyzed using the Retirement Rate actuarial methods. The appropriateness of lives and curves depends not only on statistical analyses, but also on how well future retirement patterns will match past retirements.

Current applications and trends in use of the equipment also need to be factored into life and survivor curve choices in order for appropriate mortality characteristics to be chosen.

### **Average Life Group Depreciation**

EDE is regulated by four different state commissions with facilities in the states of Missouri, Oklahoma, Kansas, and Arkansas. Each state has different existing parameters and depreciation systems in the current rates. All four states use straight line, average life group depreciation to establish depreciation rates. The following orders for each jurisdiction established depreciation rates: Missouri Public Service Commission Case No. ER-2016-0023, Corporation Commission of Oklahoma Case No. PUD 201600468, Kansas Corporation Commission Docket 19-EPDE-223-RTS, and Arkansas Public Service Commission Docket 13-111-U. In addition, the Federal Energy Regulatory Commission (“FERC”) regulates EDE’s formula rates for Generation and Transmission assets. At the request of EDE, this study continues to use the ALG depreciation procedure to group the assets within each account. After an average service life and dispersion were selected for each account, those parameters were used to estimate what portion of the surviving investment of each vintage was expected to retire. The depreciation of

the group continues until all investment in the vintage group is retired. An ALG is defined by the group's respective account dispersion, life, and salvage estimates. There are two ways of defining depreciation rates: a whole life approach or a remaining life approach. Production plant currently uses remaining life for all jurisdictions. Transmission, Distribution, and General Plant use different systems depending on the jurisdiction. Missouri and Oklahoma currently use whole life rates, while Arkansas and Kansas use remaining life rates. This depreciation study recommends remaining life depreciation rates for all plant groups.

A straight-line rate for each ALG is calculated by computing a composite remaining life for each group across all vintages within the group, dividing the remaining investment to be recovered by the remaining life to find the annual depreciation expense, and dividing the annual depreciation expense by the surviving investment. The resultant rate for each ALG group is designed to recover all retirements less net salvage when the last unit retires. The ALG procedure recovers net book cost over the life of each account by averaging many components.

### **Theoretical Depreciation Reserve**

The book depreciation reserve was derived from Company records and was reallocated from a functional level to individual accounts and to units for production plant. This study used a reserve model that relied on a prospective concept relating future retirement and accrual patterns for property, given current life and salvage estimates. The theoretical reserve of a group is developed from the estimated remaining life, total life of the property group, and estimated net salvage. The theoretical reserve represents the portion of the group cost that would have been accrued if current forecasts were used throughout the life of the group for future depreciation accruals. The computation involves multiplying the vintage balances within the group by the theoretical reserve ratio for each vintage. The average life group method requires an estimate of dispersion and service life to

establish how much of each vintage is expected to be retired in each year until all property within the group is retired. Estimated average service lives and dispersion determine the amount within each average life group. The straight-line remaining-life theoretical reserve ratio at any given age (RR) is calculated as:

$$RR = 1 - \frac{(\text{Average Remaining Life})}{(\text{Average Service Life})} * (1 - \text{Net Salvage Ratio})$$

## DETAILED DISCUSSION

### Depreciation Study Process

This depreciation study encompassed four distinct phases. The first phase involved data collection and field interviews. The second phase was where the initial data analysis occurred. The third phase was where the information and analysis were evaluated. Once the first three stages were complete, the fourth phase began. This phase involved the calculation of deprecation rates and the documenting of the corresponding recommendations.

During the Phase 1 data collection process, historical data was compiled from continuing property records and general ledger systems. Data was validated for accuracy by extracting and comparing to multiple financial system sources. Audit of this data was validated against historical data from prior periods, historical general ledger sources, and field personnel discussions. This data was reviewed extensively to put in the proper format for a depreciation study. Further discussion on data review and adjustment is found in the Salvage Considerations Section of this study. Numerous discussions were conducted with engineers and field operations personnel to obtain information that would assist in formulating life and salvage recommendations in this study. One of the most important elements of performing a proper depreciation study is to understand how the Company utilizes assets and the environment of those assets. Interviews with engineering and operations personnel are important data-gathering operations that allow the analyst to obtain information that is beneficial when evaluating the output from the life and net salvage programs in relation to the Company's actual asset utilization and environment. Information that was gleaned in these discussions is found in both the Detailed Discussion of this study in the life analysis and salvage analysis sections and in work papers.

Phase 2 is where the actuarial analysis is performed. Phase 2 and 3 overlap to a significant degree. The detailed property records information is used in Phase 2 to develop observed life tables for life analysis. These tables are visually

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Phase 2 is where the actuarial analysis is performed. Phase 2 and 3 overlap to a significant degree. The detailed property records information is used in Phase 2 to develop observed life tables for life analysis. These tables are visually

compared to industry standard tables to determine historical life characteristics. It is possible that the analyst would cycle back to this Phase based on the evaluation process performed in Phase 3. Net salvage analysis consists of compiling historical salvage and removal data by functional group to determine values and trends in gross salvage and removal cost. This information was then carried forward into Phase 3 for the evaluation process.

Phase 3 is the evaluation process which synthesizes analysis, interviews, and operational characteristics into a final selection of asset lives and net salvage parameters. The historical analysis from Phase 2 is further enhanced by the incorporation of recent or future changes in the characteristics or operations of assets that were revealed in Phase 1. Phases 2 and 3 allow the depreciation analyst to validate the asset characteristics as seen in the accounting transactions with actual Company operational experience.

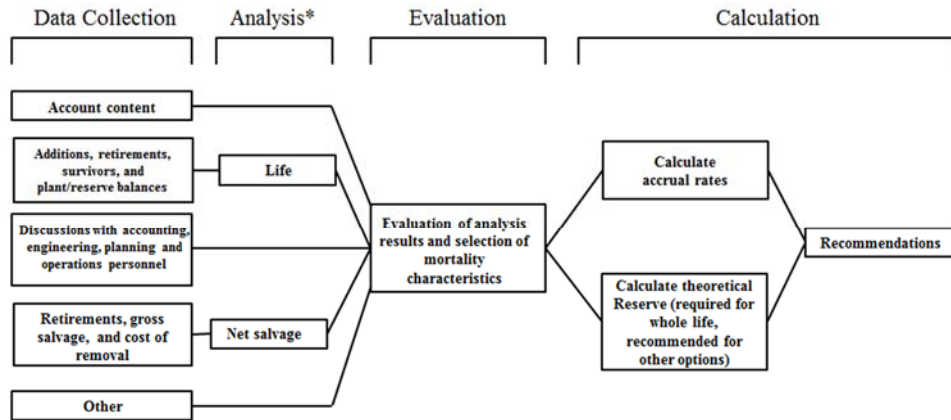
Finally, Phase 4 involves calculating accrual rates, making recommendations and documenting the conclusions in the Study. The calculation of accrual rates is found in Appendix A. Recommendations for the various accounts are contained within Section VI of this Study. The depreciation study flow diagram shown as Figure 1<sup>1</sup> below also documents the steps used in conducting this Study. DEPRECIATION SYSTEMS<sup>2</sup>, at page 289, documents the same basic processes in performing a depreciation study, which are: statistical analysis, evaluation of statistical analysis, discussions with management, forecast assumptions, and document recommendations.

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<sup>1</sup>INTRODUCTION TO DEPRECIATION FOR PUBLIC UTILITIES & OTHER INDUSTRIES, AGA EEI (2013).

<sup>2</sup> W. C. Fitch and F.K.Wolf, DEPRECIATION SYSTEMS, Iowa State Press, at page 289 (1994).

Book Depreciation Study Flow Diagram



Source: Introduction to Depreciation for Public Utilities and Other Industries, AGA EEI, 2013.

\*Although not specifically noted, the mathematical analysis may need some level of input from other sources (for example, to determine analysis bands for life and adjustments to data used in all analysis).

Figure 1

**EDE DEPRECIATION STUDY PROCESS**



### **Depreciation Rate Calculation**

Annual depreciation expense amounts for the depreciable accounts of EDE were calculated by the straight-line method, average life group procedure, and remaining-life technique. With this approach, remaining lives were calculated according to standard ALG expectancy techniques, using the Iowa Curves noted in the calculation. For each plant account, the difference between the surviving investment, adjusted for estimated net salvage, and the allocated book depreciation reserve was divided by the average remaining life to yield the annual depreciation expense. These calculations are shown in Appendix A.

### **Remaining Life Calculation**

The establishment of appropriate average service lives and retirement dispersions for each account within a functional group was based on engineering judgment that incorporated available accounting information analyzed using the Retirement Rate actuarial methods. After establishment of appropriate average service lives and retirement dispersion, remaining life was computed for each account. Theoretical depreciation reserve with zero net salvage was calculated using theoretical reserve ratios as defined in the theoretical reserve portion of the General Discussion section. The difference between plant balance and theoretical reserve was then spread over the ALG depreciation accruals. Remaining life computations are found for each account in work papers.

**Production Depreciation Calculation Process**

Annual depreciation expense amounts for the Steam, Hydro, and Other Production accounts were calculated by the straight line, remaining life procedure. In a whole life representation, the annual accrual rate is computed by the following equation,

$$AnnualAccrualRate = \frac{(100\% - NetSalvagePercent)}{AverageServiceLife}$$

In the case of steam production facilities with a terminal life and interim retirement curve, each vintage within the group has a unique average service life and remaining life determined by computing the area under the truncated Iowa Curve coupled with the group’s terminal life.

Use of the remaining life depreciation system adds a self-correcting mechanism, which accounts for any differences between theoretical and book depreciation reserve over the remaining life of the group. For each vintage modeled with an interim retirement curve and terminal life,

$$RemainingLife(i) = \frac{AreaUnderSurvivorCurve\ to\ the\ Right\ of\ Age(i)}{Survivors(i)}, \text{ and}$$

$$AverageServiceLife = \frac{AreaUnderSurvivorCurve}{Survivors\ at\ age\ zero}$$

With the straight line, remaining life, average life group system using Iowa Curves, composite remaining lives were calculated by computing a direct weighted average of each remaining life by vintage within the group. Within each group (plant account/unit) for each plant account, the difference between the surviving investment, adjusted for estimated net salvage, and the allocated book depreciation reserve was divided by the composite remaining life to yield the

annual depreciation expense as noted in this equation.

$$AnnualDepreciationExpense = \frac{OriginalCost - Book Reserve - (OriginalCost) * (1 - NetSalvage\%)}{RemainingLife}$$

where the net salvage percent represents future net salvage.

Within a group, the sum of the group annual depreciation expense amounts, as a percentage of the depreciable original cost investment summed, gives the annual depreciation rate depreciation rate as shown below:

$$AnnualDepreciationRate = \frac{\sum AnnualDepreciationExpense}{\sum OriginalCost}$$

These calculations are shown in Appendix A. The calculations of the theoretical depreciation reserve values and the corresponding remaining life calculations are shown in the work papers. Book depreciation reserves were reallocated from specific functional groups to a plant account/unit level basis within that specific functional group and theoretical reserve computations were used to compute remaining life for each group.

### **Other Accounts Calculation Process**

Annual depreciation expense amounts for accounts other than Production (Transmission, Distribution, and General) were calculated by the straight-line, remaining life procedure.

In a whole life representation, the annual accrual rate is computed by the following equation,

$$AnnualAccrualRate = \frac{(100\% - NetSalvagePercent)}{AverageServiceLife}$$

Use of the remaining life depreciation system adds a self-correcting mechanism, which accounts for any differences between theoretical and book depreciation reserve over the remaining life of the group. With the straight-line, remaining life, average life group system using Iowa Curves, composite remaining lives were calculated according to standard broad group expectancy techniques, noted in the formula below:

$$CompositeRemainingLife = \frac{\sum OriginalCost - Theoretical Reserve}{\sum WholeLifeAnnualAccrual}$$

For each plant account, the difference between the surviving investment, adjusted for estimated net salvage, and the allocated book depreciation reserve, was divided by the composite remaining life to yield the annual depreciation expense as noted in this equation:

$$AnnualDepreciationExpense = \frac{OriginalCost - Book Reserve - (OriginalCost) * (1 - NetSalvage\%)}{Composite RemainingLife}$$

where the net salvage percent represents future net salvage.

Within a group, the sum of the group annual depreciation expense amounts, as a percentage of the depreciable original cost investment summed, gives the annual depreciation rate as shown below:

$$AnnualDepreciationRate = \frac{\sum AnnualDepreciationExpense}{\sum OriginalCost}$$

These calculations are shown in Appendix A. The calculations of the theoretical depreciation reserve values and the corresponding remaining life calculations are shown in work papers. Book depreciation reserves were allocated from a functional level to individual accounts and the theoretical reserve computation was used to compute a composite remaining life for each account.

## **LIFE ANALYSIS**

The retirement rate actuarial analysis method was applied to all accounts for EDE. For each account, an actuarial retirement rate analysis was made with placement and experience bands of varying width. The historical observed life table was plotted and compared with various Iowa Curves to obtain the most appropriate match. A selected curve for each account is shown in the Life Analysis Section of this report. The observed life tables for all analyzed placement and experience bands are provided in work papers.

For each account on the overall band (i.e., placement from earliest vintage year, which varied for each account, through 2019), approved survivor curves from EDE's prior cases, modified by subsequent orders if applicable, were used as a starting point. Then, using the same average life, various dispersion curves were plotted. Frequently, visual matching would confirm one specific dispersion pattern (e.g. L, S, or R) as an obviously better match than others. The next step would be to determine the most appropriate life using that dispersion pattern. Then, after looking at the overall experience band, different experience bands were plotted and analyzed in increments, for instance 1970-2019, and 2000-2019. Next, placement bands of varying width were plotted with each experience band discussed above. Repeated matching usually pointed to a focus on one dispersion family and small range of service lives. The goal of visual matching was to minimize the differential between the observed life table and Iowa Curve in top and mid-range of the plots. These results are used in conjunction with all other factors that may influence asset lives.

### **Terminal Retirement Date**

The terminal retirement date refers to the year in which a generating unit will be retired from service. The retirement can be for a number of reasons such as the physical end of the generating unit but will generally be driven by economic

retirement of the unit. EDE personnel provided their estimated retirement dates for each generating unit. These dates are based on the current plans and investment in the generating units. Retirement dates for generating units can be found in Appendix D. As new investment is committed to these units or decisions made that units are not economically viable, these lives may change. At this time, these retirement dates are the best estimate of the current lives remaining in the generating assets.

### **Interim Retirement Curve**

Historical data used to develop interim retirement curves represent an aggregate of many property units in a group. Some of those assets may be long lived, and others may have a short life. The average of those is represented by an interim retirement curve for the group. A group can be a plant account or a functional group. The interim retirement curve is “truncated” (i.e., cut off) at the age the unit will retire. In other words, if one finds through the analysis that 10 percent of the property in an account will be retired and replaced prior to the end of the life of the unit, the interim retirement curve will model those retirements across the rest of the life of the unit. If a pump is only going to last 10 years but the unit is projected to last 20 years, the shorter life of the pump should affect the depreciation expense charged over the next 10 years. When analyzing a large pool of assets like power plant accounts, these shorter-lived items can be accurately modeled together statistically. Thus, given that interim retirements will occur, this statistical analysis enables one to measure the interim retirement curves applicable to property groups. Some examples of “long lived” property that are projected to last until the retirement of a unit are: roads, bridges, railroad track, structural steel (and misc. steel), cooling towers, buildings, cranes, ponds, basins, canals, foundations, stacking and reclaiming equipment, surge silos, crushers, transfer towers, fly ash and bottom ash systems, precipitators, bag houses, stack, turbine (except blades) and piping, generator cooling system, vacuum systems,

generator and main leads, station transformers, conduits and ducts, station grounding System, start-up diesel generators, and stores equipment.

Some examples of “shorter lived” property that are projected to retire prior to the retirement of the unit are: fences, signs, sprinkler systems, security systems, roofs, cooling fan units, air compressors, fuel oil heaters, heating, ventilation and air conditioners, piping, motors, pumps, conveyors, pulverizers, air preheaters, economizers, control equipment, feedwater heaters, boiler feedwater pumps, forced draft (FD) and induced draft (ID) fans, scrubbers, continuous emissions monitoring systems (CEM), turbine blades and buckets, turbine plant instruments, condensers, control equipment, station service switchgear, and universal power supply (UPS) batteries.

## **PRODUCTION PLANT**

### **Special Circumstances:**

In 2014-2017, Riverton steam generating facilities were retired. Asbury was retired in early 2020. The retirement of Asbury was treated as a known change and incorporated in the depreciation study. For Production facilities, all jurisdictions use the life span (remaining life) depreciation system. The current depreciation rates for production in Missouri, Oklahoma, and Kansas incorporated interim retirement ratios to estimate retirements that are projected to occur between the current date and the estimated retirement date of the generating facility. Arkansas' current production depreciation rates incorporate Iowa Curves to estimate retirement activity of each generating unit.

In modeling retirement activity for this study, Alliance Consulting recommends the use of Iowa Curves. In our experience, Iowa Curves are the more widely used of the two approaches and have the advantage of incorporating the age of each asset in the depreciation group. The Missouri Public Service Commission has approved the incorporation of Iowa Curves in computing depreciation rates for Ameren in case ER-2014-0258 and Kansas City Power and Light in Case ER 2014-0370 as well as life span remaining life depreciation. The Oklahoma Corporation Commission has approved the use of Iowa Curves in PUD Case 201700496 for Oklahoma Electric and Gas. The Kansas Corporation Commission approved the use of Iowa Curves for Kansas City Power and Light in Docket 18-KCPE-480-RTS.

In performing actuarial analysis on accounts 311-316, the initial data set included all retirements except life span retirements of Riverton and Asbury. After reviewing the results, the interim survivor curves showed a much shorter life than is usually seen in generation assets. We concluded that the retirements near the end of the economic life of those generating units were atypical of the existing steam generation plant at Iatan and Plum Point. It was not possible to remove all life data related to Riverton and Asbury in the history since no segregated source



data before 2005 was available. Thus, interim net salvage from 2005-2019 was used to estimate net salvage for accounts 311-316.

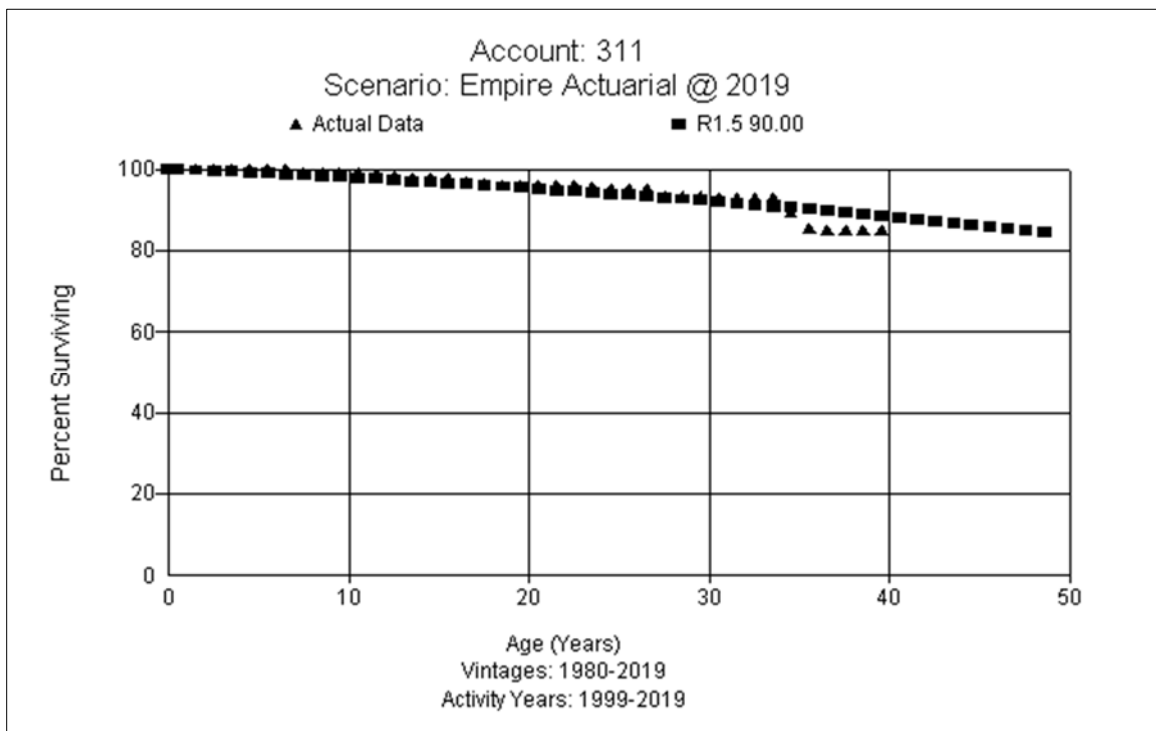
The Iatan Plant is located in Weston, MO and was placed in service in 1980. EDE owns a 12 percent share of Iatan 1 and Iatan 2, or approximately 85 MW and 105 MW respectively. At the end of 2019, the age of Iatan 1 was 39 years and the remaining life is estimated to be 21 years based on the forecast retirement of the unit in 2040. Iatan 2 began commercial operation in 2010 and has an estimated remaining life of 51 years based on the forecast retirement of the unit in 2070. The retirement dates used for Iatan 1 and Iatan 2 in our analysis is consistent with the lives used by the primary owner of the plants, Kansas City Power & Light Company.

The Plum Point Plant is located near Osceola, AR and was placed in service in 2010. EDE owns a 7.52 percent share of Plum Point, or approximately 50 MW. At the end of 2019, the age of the facility was 9 years and the remaining life is estimated to be 41 years based on the forecast retirement of the unit in 2060.

**Steam Production**

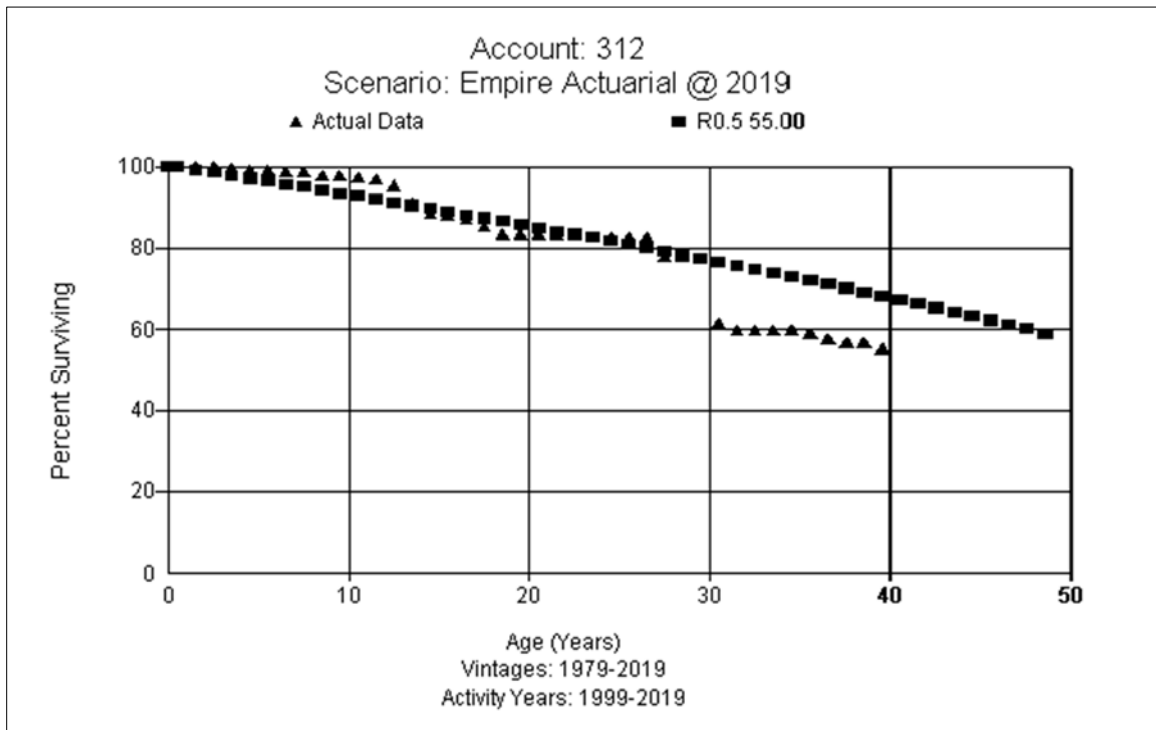
**FERC Account 311.00 Structures and Improvements 90 R1.5**

This account consists of buildings, structures, fences, lighting systems, railroad tracks, reservoirs, dams, waterways, and other related assets. The balance in this account is \$63.9 million. Retirement dates for each unit are found in Appendix D. This study recommends the 90 R1.5 dispersion curve for interim retirements, which is shown below.



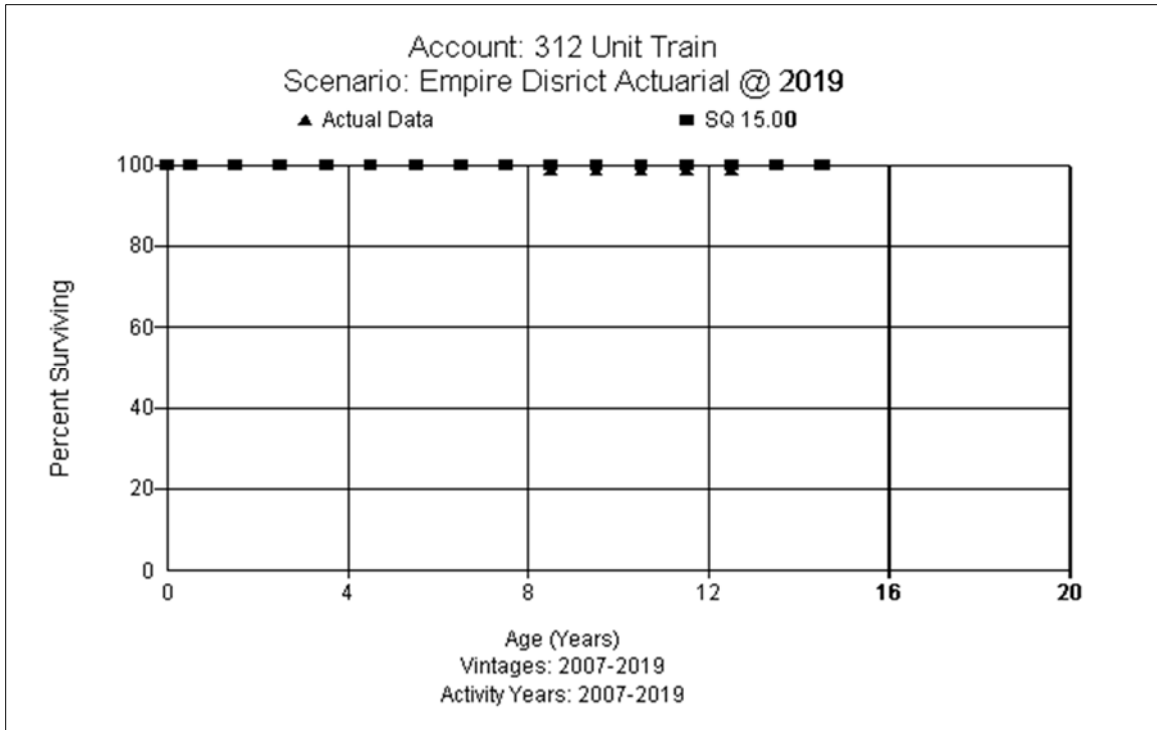
### FERC Account 312.00 Boiler Plant Equipment 55 R0.5

This account consists of boiler plant equipment, super heaters, water walls, fuel burning equipment, reheaters, and other related equipment. The balance in this account is \$317.9 million. Retirement dates for each unit are found in Appendix D. This study recommends the 55 R0.5 dispersion curve for interim retirements, which is shown below.



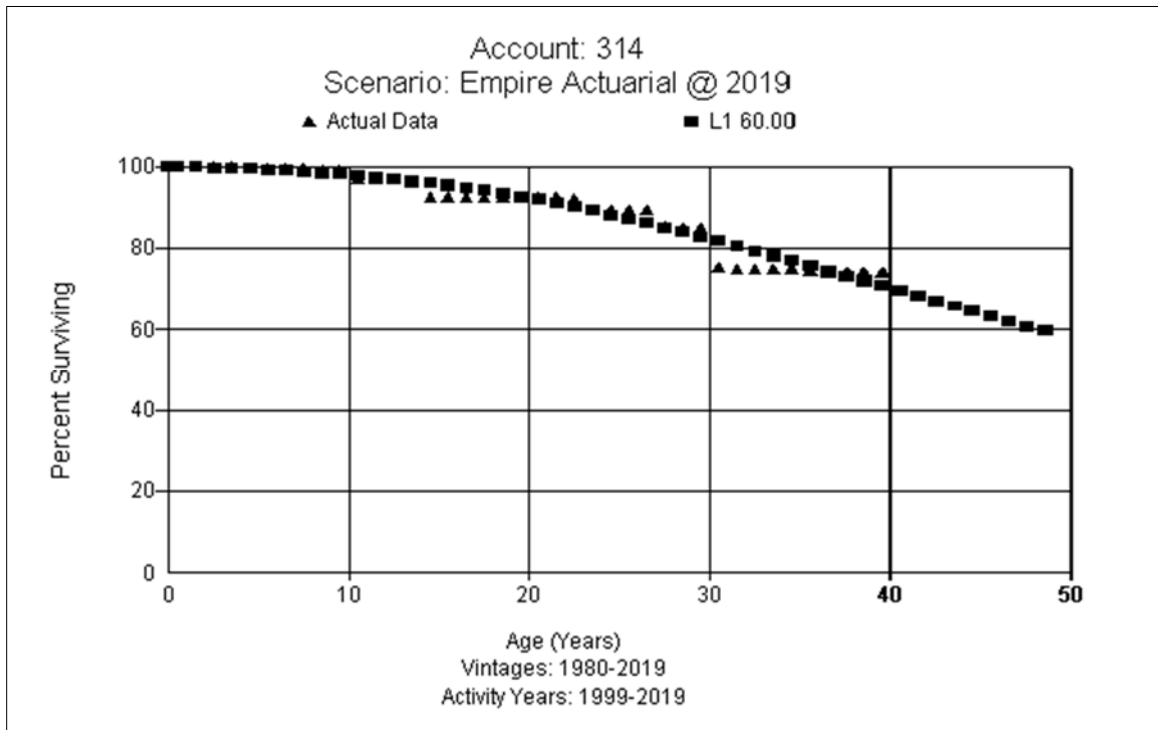
**FERC Account 312.01 Boiler Unit Train - Electric 15 SQ**

This account consists of unit train Gondola. The balance in this account is \$341.3 thousand. Retirement dates for each unit are found in Appendix D. The current approved life is 15 years with a dispersion curve of SQ and is retained.



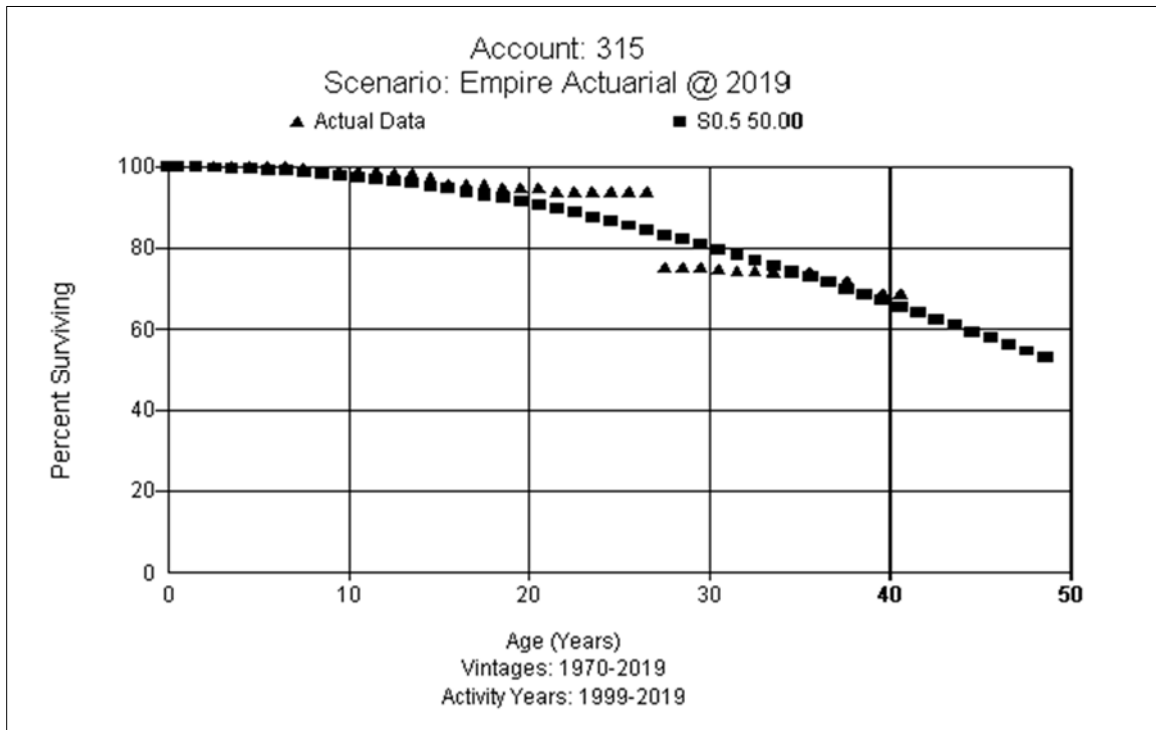
### FERC Account 314.00 Turbo-generator Equipment 60 L1

This account consists of turbo-generator main structures, pumps, condensers, rotating blades, and other related assets. The balance in this account is \$82.9 million. Retirement dates for each unit are found in Appendix D. The current depreciation study recommends increasing to 60 years and using an L1 dispersion curve for interim retirements, which is shown below.



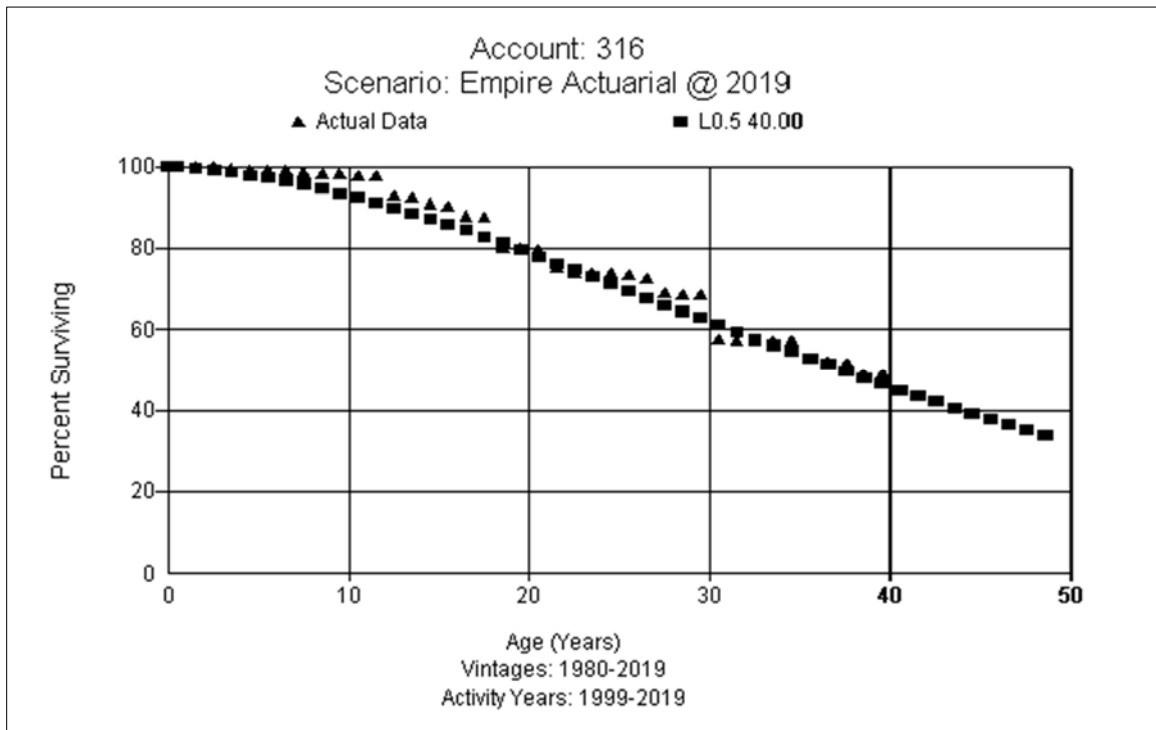
### FERC Account 315.00 Accessory Electric Equipment 50 S0.5

This account consists of control system cabinets, wiring, operator consoles, power transformer, regulators, and related assets. The balance in this account is \$31.2 million. Retirement dates for each unit are found in Appendix D. This study recommends moving to 50 years with an S0.5 dispersion curve for interim retirements, which is shown below.



**FERC Account 316.00 Miscellaneous Power Plant Equipment 40 L0.5**

This account consists of compressors, shop welding equipment, work equipment, and other related assets. The account balance is \$5.4 million. Retirement dates for each unit are found in Appendix D. This study recommends moving to a 40 year life with an L0.5 dispersion curve for interim retirements. The graph is shown below.



**Hydro Production, FERC Accounts 331.00-336.00**

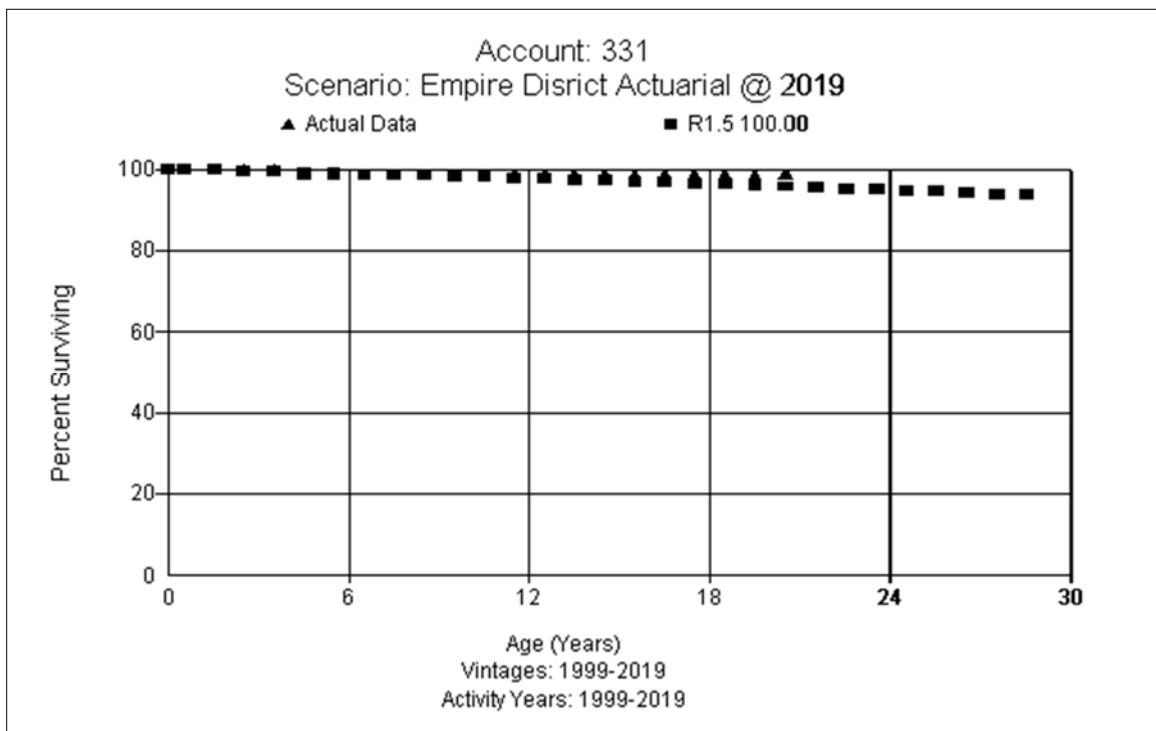
Hydroelectric power was once the principal source of power in the United States. EDE owns the Ozark Beach hydraulic production plant, which consists of four generating units installed in 1931. The current licensing period for Ozark Beach ends in 2053. The prior study used an estimated final retirement date of 2053, which corresponds to the expiration of the renewed licensing period. At the end of 2019, the age of the facility was 88 years and the remaining life is estimated to be 34 years based on the forecast retirement of the unit in 2053.

Since the last depreciation study, capital has been spent to keep the facility operating until the end of its forecast retirement date. Additional expenditures may be necessary, which are not captured in the proposed accrual rate for this function.



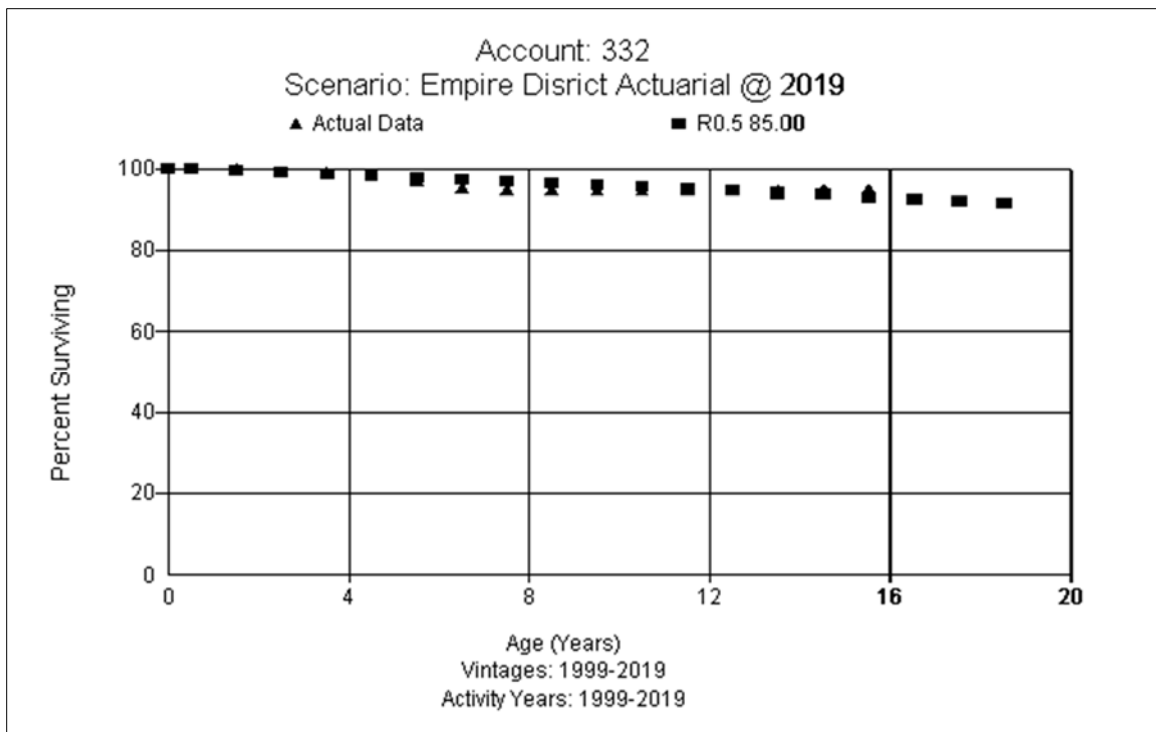
**FERC Account 331.00 Structures and Improvements (100 R1.5)**

This account consists of buildings, structures, fences, lighting systems, and other related assets. The balance in this account is \$1.7 million. Retirement dates for each unit are found in Appendix D. Structure upgrades occurred in 2019 which included HVAC equipment, roofs, and improvements to buildings and doors. The current depreciation study recommends a 100 R1.5 dispersion curve, which is shown below.



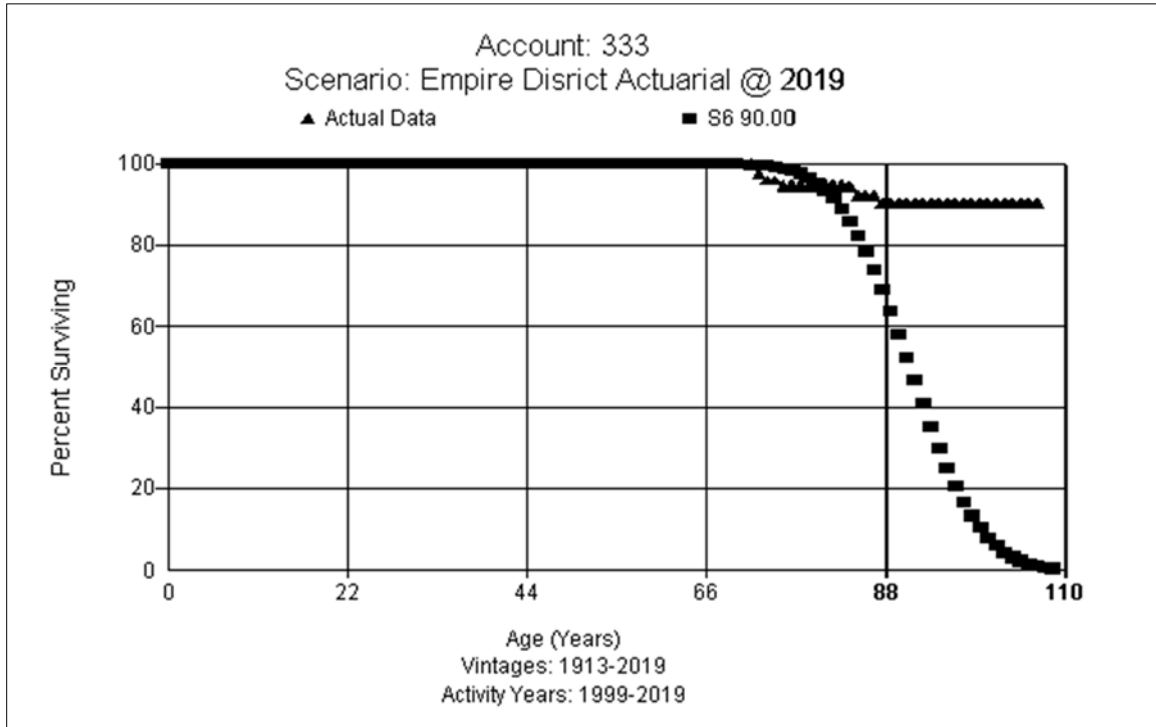
**FERC Account 332.00 Reservoirs, Dams, and Waterways (85 R0.5)**

This account consists of reservoirs, dams, waterways, and other related assets. The account balance is \$3.5 million. Retirement dates for each unit are found in Appendix D. The largest capital replacement in recent years for this account occurred in 2011 when the crest gate and flashboard were replaced. The current depreciation study recommends an 85 year life and an R0.5 dispersion curve, which is shown below.



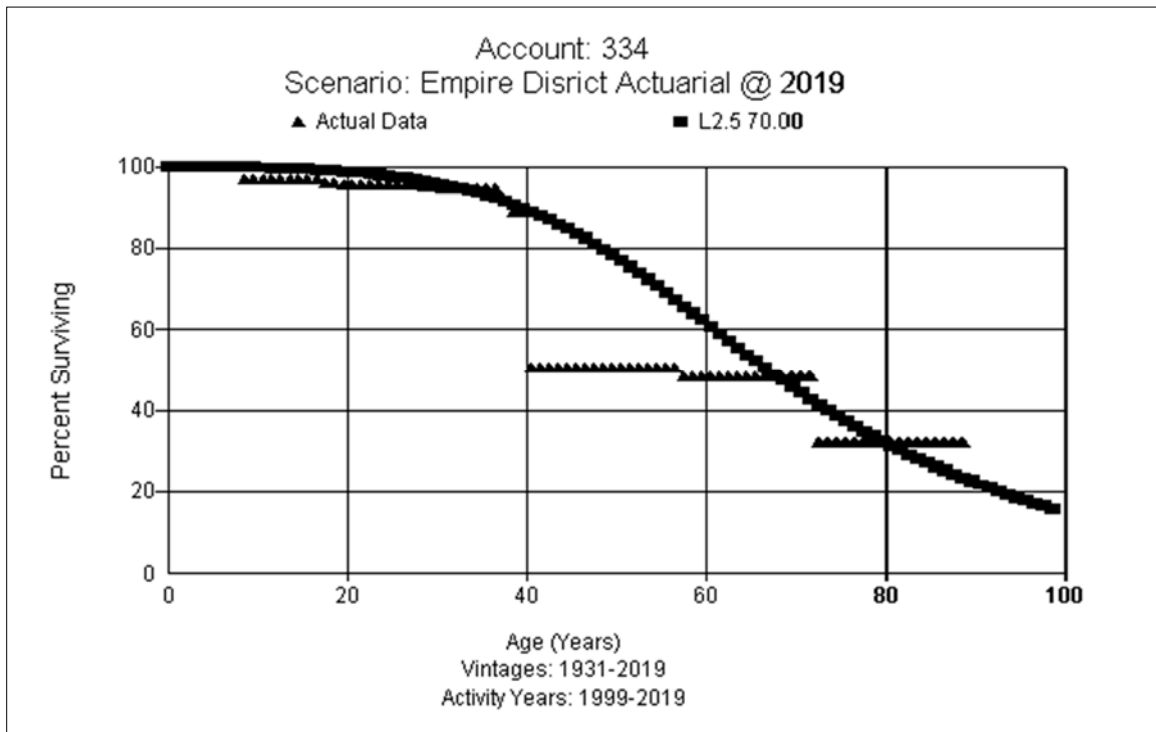
**FERC Account 333.00 Water Wheels, Turbines, and Generators (90 S6)**

This account consists of water wheels, turbines, and other related assets. The account balance is \$4.4 million. Retirement dates for each unit are found in Appendix D. The current depreciation study recommends a 90 year life and an S6 dispersion curve, which is shown below.



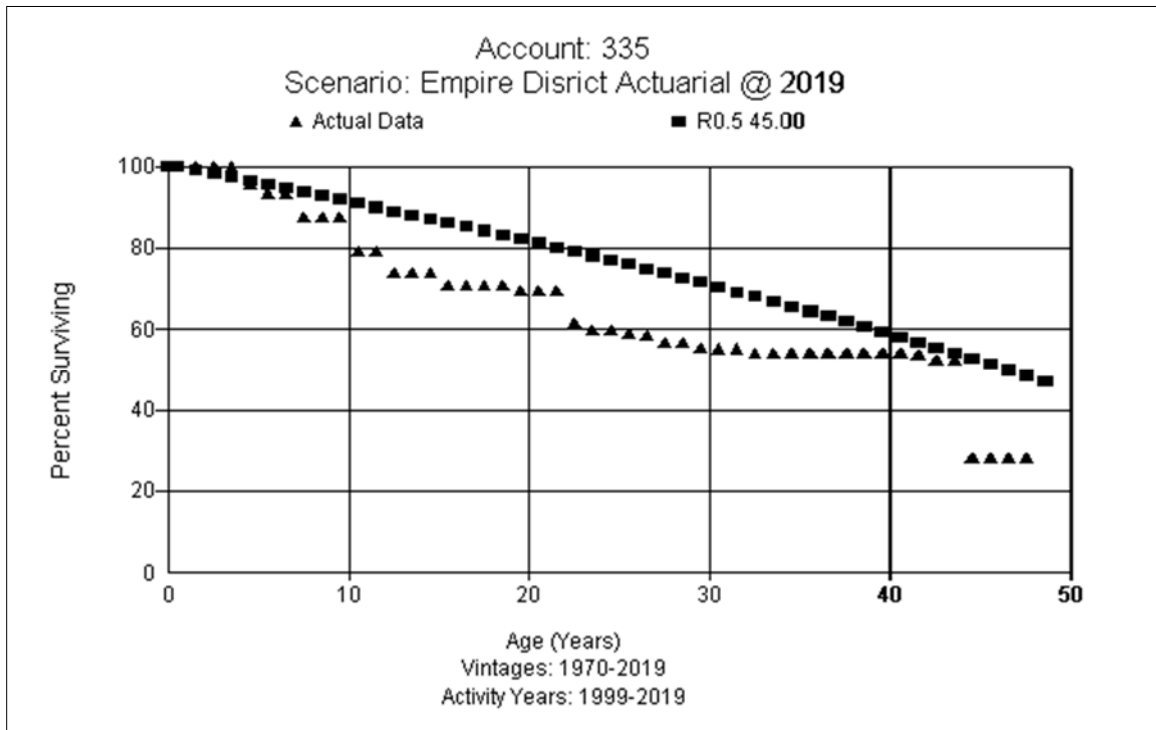
**FERC Account 334.00 Accessory Electric Equipment (70 L2.5)**

This account consists of generator controls, bus equipment, and other related assets. The account balance is \$1.5 million. Retirement dates for each unit are found in Appendix D. Placement and experience bands show a steeper dispersion with a slightly longer life. The current depreciation study recommends a 70 L2.5 dispersion curve, which is shown below.



**FERC Account 335.00 Miscellaneous Power Plant Equipment (45 R0.5)**

This account consists of storage tanks, boats, test equipment, and other related assets. The account balance is \$1.2 million. Retirement dates for each unit are found in Appendix D. In 2019, equipment such as barges, backhoes, security systems, and boats were replaced. A 45 R0.5 dispersion curve is recommended for this account, which is shown below.



### **Other Production**

The Other Production function consists of simple cycle and combined cycle generation. The various plant sites are described below.

### **Energy Center**

The Energy Center is located in LaRussell, MO. Units 1 and 2 are combustion turbines and were installed in 1978 and 1981, respectively, and are forecast to be in service for 45 years. Units 3 and 4 are FT8 combustion turbines. They were installed in 2003 and are forecast to be in service for 40 years. At the end of 2019, the age of Energy Center Units 1 and 2 was 41 and 38 years respectively. The remaining life of Energy Center 1 and 2 is estimated to be 7 years for both based on the forecast retirement of the unit in 2026. At the end of 2019, the age of Energy Center Units 3 and 4 (FT8) was 16 years. The remaining life of Energy Center FT8 is estimated to be 24 years for both units based on the forecast retirement of the unit in 2043.

### **Riverton**

The Riverton Plant is located in Riverton, KS. The existing simple cycle combustion turbines at Riverton were installed in 1988. Units 10 and 11 are forecast to be in service for 45 years. Riverton 12 was placed into service as a simple cycle combustion turbine in 2007 but was subsequently converted into a combined cycle plant in 2016. At the end of 2019, the age of Riverton Units 10 and 11 was 31 years and the remaining life is estimated to be 14 years based on the forecast retirement of the unit in 2033. At the end of 2019, Riverton 12 was 12 years old, and the remaining life is estimated to be 38 years based on the forecast retirement of the unit in 2057.

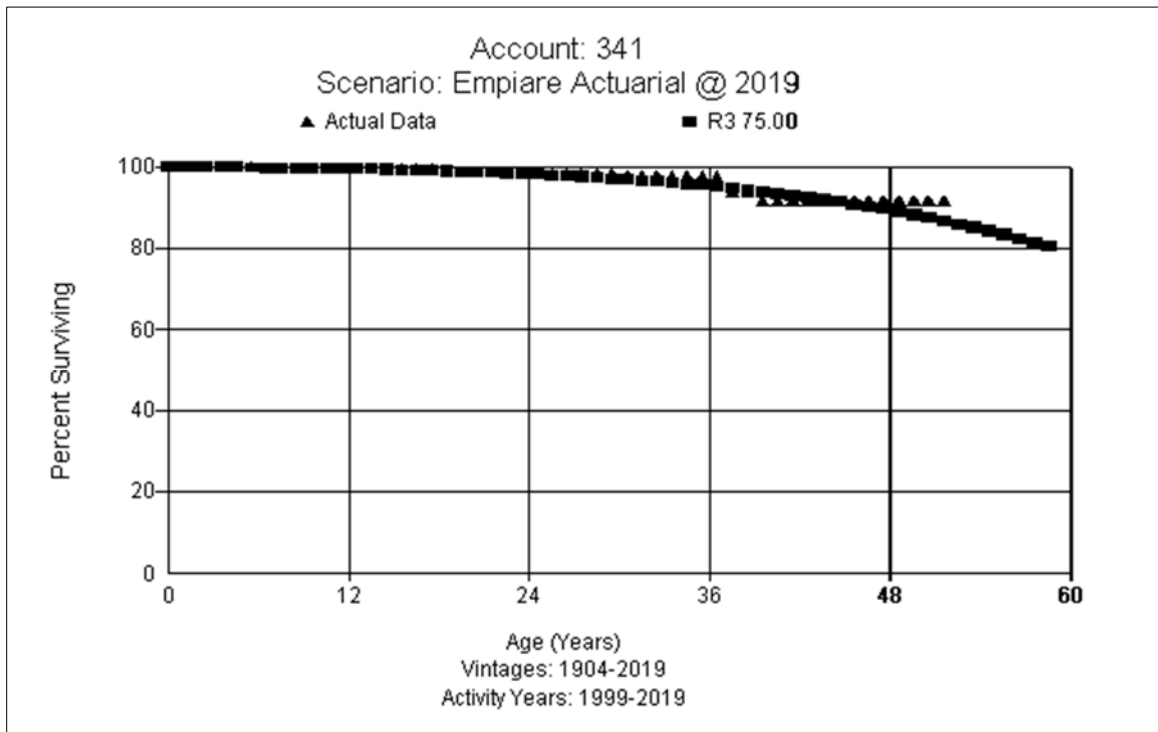
**State Line**

The State Line plant is located west of Joplin, MO and consists of a combustion turbine installed in 1995 and a combined cycle unit installed in 2001. of which EDE owns a 300MW share. The forecast lifespan for State Line combustion turbine is 45 years and the forecast lifespan for State Line combined cycle is 50 years. At the end of 2019, the age of State Line 1 CT is 24 years and the remaining life is estimated to be 21 years based on the forecast retirement of the unit in 2040. At the end of 2019, the State Line CC was 18 years old and the remaining life is estimated to be 32 years based on the forecast retirement of the unit in 2051.

Various replacement activities are occurring at the other production units. At State Line CC, the Company is replacing rotors and combustion assets as well as the stack damper with extra insulation on the lower stack. EDE has a long-term service agreement (“LTSA”) in place for its turbine assets. There are no LTSAs in Energy Center, Hydro, or Steam Production. Items not covered are peripheral components or components that fail due to abuse. Assets covered under the LTSA are retired and recapitalized. This methodology has been in place since inception of the LTP contract (2001) and is based on the philosophy at that time.

### FERC Account 341.00 Structures and Improvements 75 R3

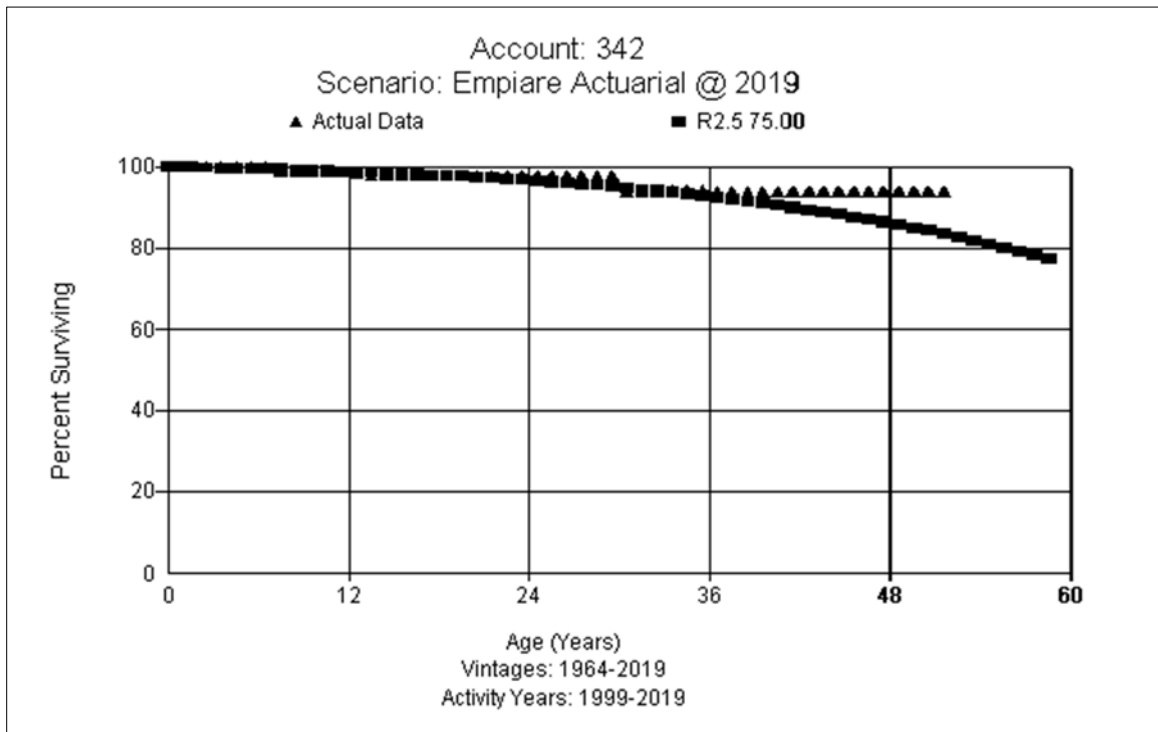
This account consists of buildings, structures, landscape, fences, lighting systems, and other related assets. The account balance is \$61.1 million. Retirement dates for each unit are found in Appendix D. This study recommends moving to the 75 R3 dispersion curve for interim retirements, which is shown below.





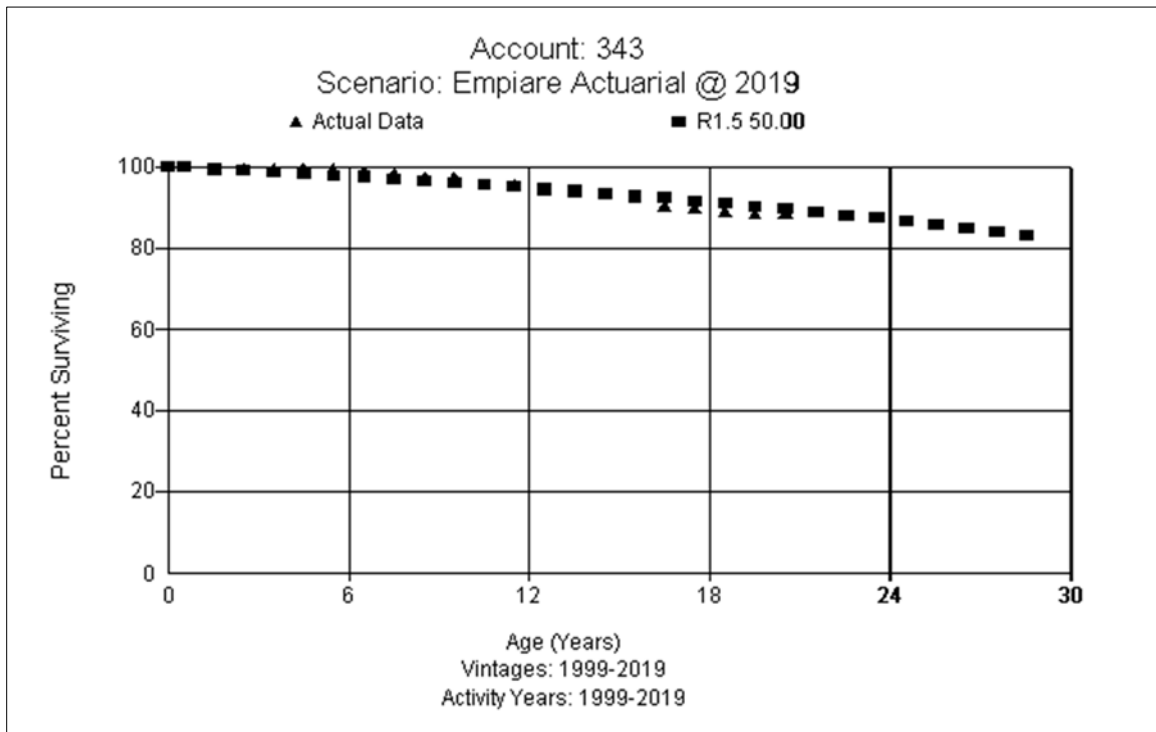
**FERC Account 342.00 Fuel Holders, Producers, and Accessories 75 R2.5**

This account consists of compressors, storage tanks, natural gas/fuel oil piping, and other related assets. The balance in this account is \$10.5 million. Retirement dates for each unit are found in Appendix D. This study recommends moving to the 75 R2.5 dispersion curve for interim retirements, which is shown below.



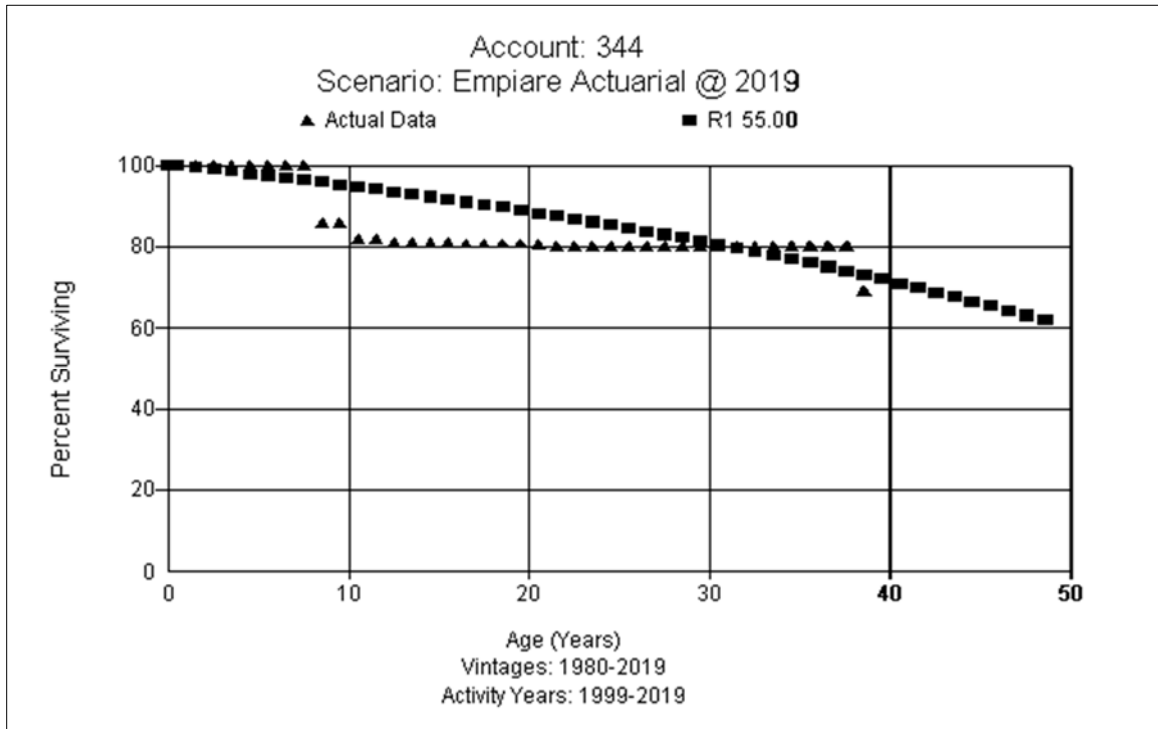
**FERC Account 343.00 Prime Movers 50 R1.5**

This account consists of foundations, chimneys, demineralizers, fire protection systems, and other related assets at each power plant. The balance in this account is \$376.1 million. Retirement dates for each unit are found in Appendix D. This study recommends moving to a 50-year life with an R1.5 dispersion curve for interim retirements, which is shown below.



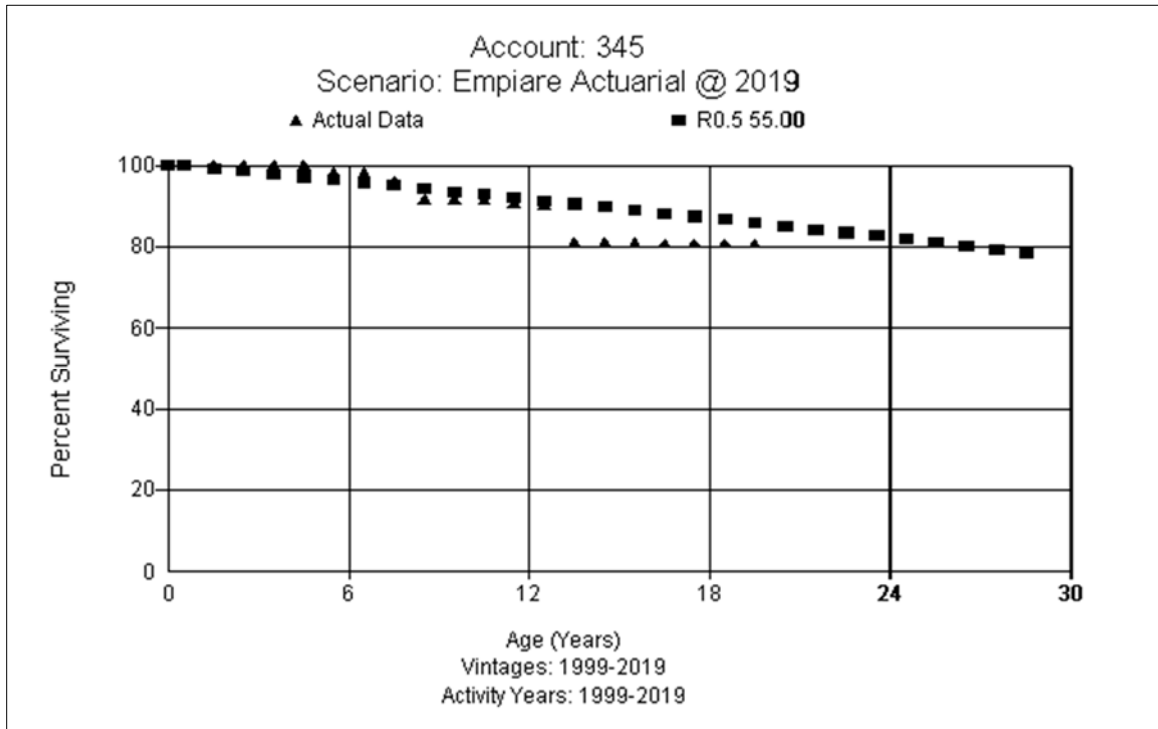
### FERC Account 344.00 Generators 55 R1

This account consists of generators, turbine equipment, and other related assets. The balance in this account is \$73.4 million. Retirement dates for each unit are found in Appendix D. This study recommends moving to a 55 year life and changing to the R1 dispersion curve for interim retirements, which is shown below.



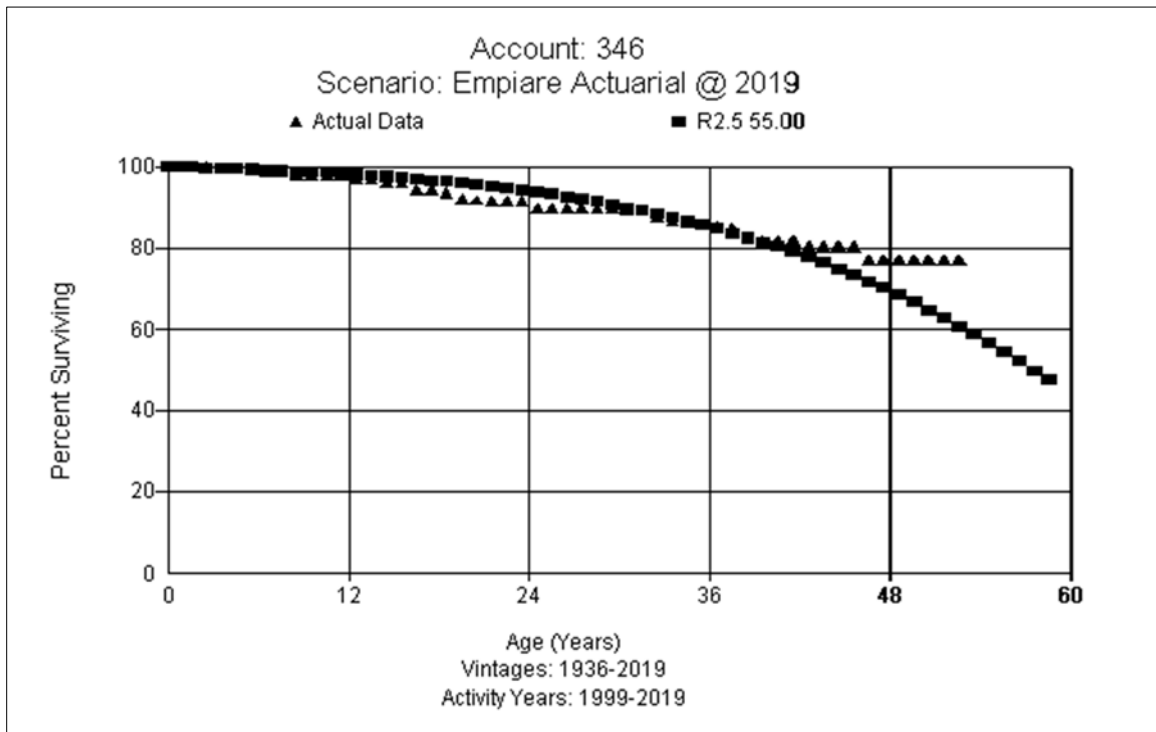
### FERC Account 345.00 Accessory Electrical Equipment 55 R0.5

This account consists of cubicles, grounding systems, batteries, and other related assets. The balance in this account is \$48.4 million. Retirement dates for each unit are found in Appendix D. This study recommends the 55 R0.5 dispersion curve for interim retirements, which is shown below.



**FERC Account 346.00 Miscellaneous Power Plant Equipment 55 R2.5**

This account consists of work equipment, pumps, work benches, and other related assets. The balance in this account is \$13 million. Retirement dates for each unit are found in Appendix D. Due to similarity of assets between this account and Account 316.00, the interim retirement curve for Account 316.00, 55 R2.5, is used here, which is shown below.

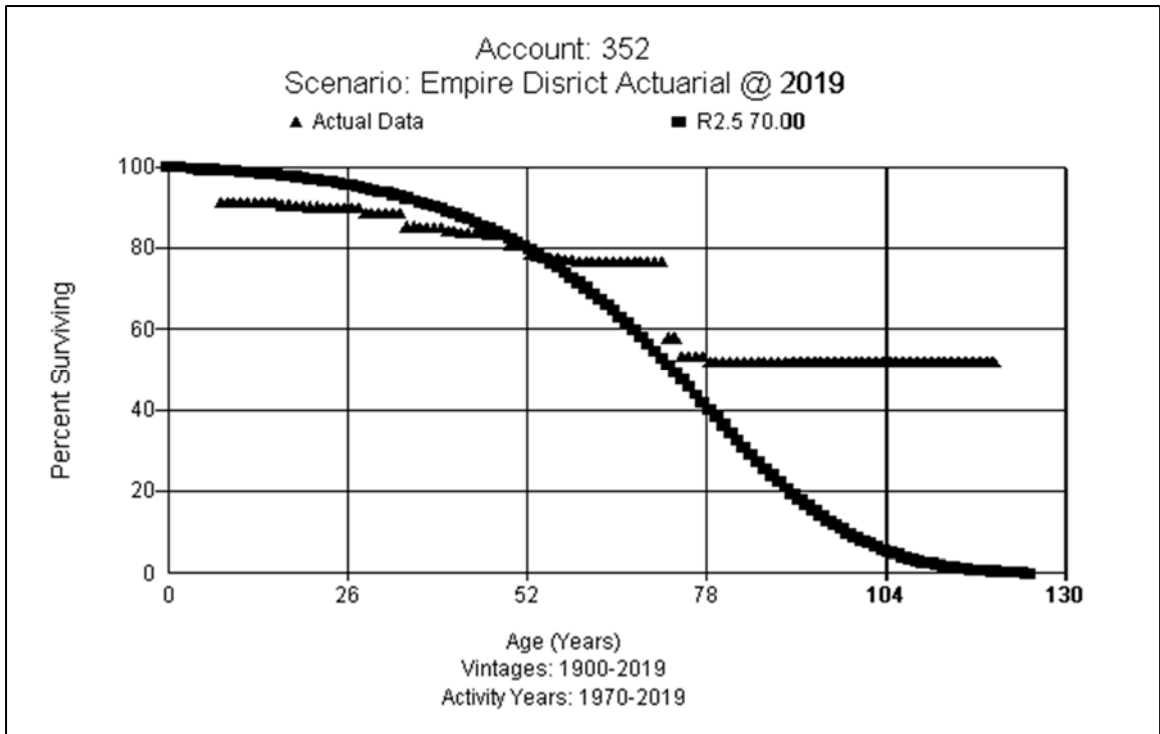


## **TRANSMISSION PLANT**

There are currently four different approved parameters, so in the Transmission, Distribution, and General Plant discussions that follow, we provide and explain the life and net salvage parameters that are being proposed. For a comparison of the proposed to the various existing parameters, refer to Appendix C of this report where the existing for each of the four jurisdictions is shown.

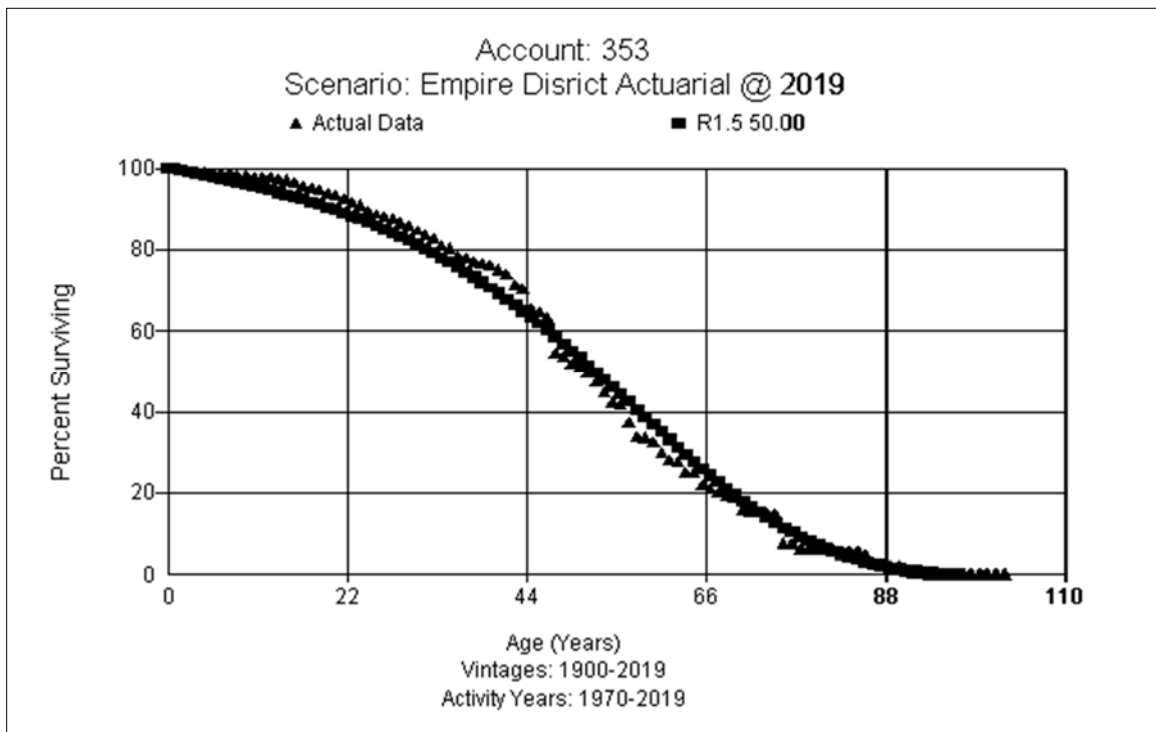
### **FERC Account 352.00 Structures and Improvements 70 R2.5**

This account consists of buildings, structures, fences, lighting systems, and other related assets related to Transmission Plant. The account balance is \$4.7 million. The expectation is that structures will live as long as or longer than the station equipment. The analysis in some bands indicates a life that is too long for the type of assets, even for steel buildings. Looking to the full placement band (1900-2019) and more recent (1970-2019) experience band, a 70-year life is a reasonable expectation going forward for structures. This study recommends moving to a 70-year life with an R2.5 dispersion, which is shown below.



**FERC Account 353.00 Station Equipment 50 R1.5**

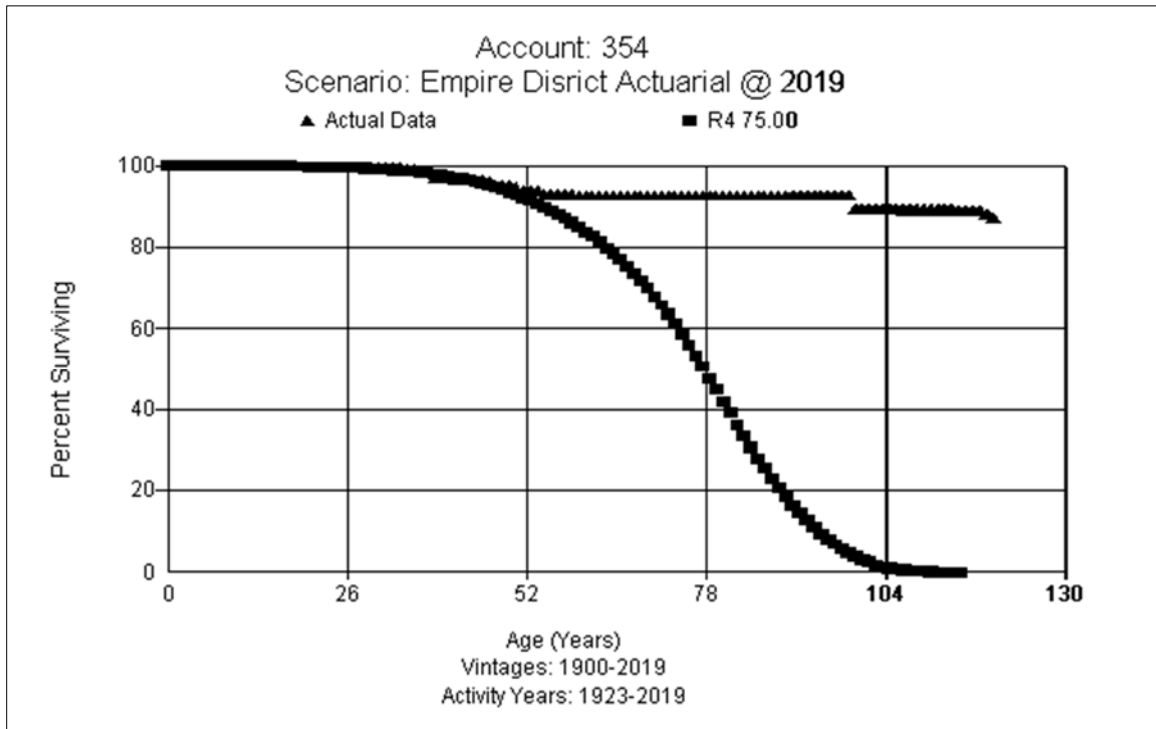
This account consists of conductors, switches, relays, grounding systems, panels, breakers, and other assets related to station equipment. The account balance is \$189.9 million. Discussions with Company personnel indicate they are moving to digital relays. They are in the process of changing out the SF6 with dry air relays. The Company is also moving away from oil breakers. There have not been any big changes related to transformers. In the analysis, the full bands and the full placement with more recent experience band provide an excellent fit with the 50 R1.5. Other bands and fits range from 49 to 52 years with some slight variation in the dispersion pattern. Considering Company input and the indications in the life analysis, and with an excellent curve fit as shown below, this study recommends moving to a 50-year life with an R1.5 dispersion curve.





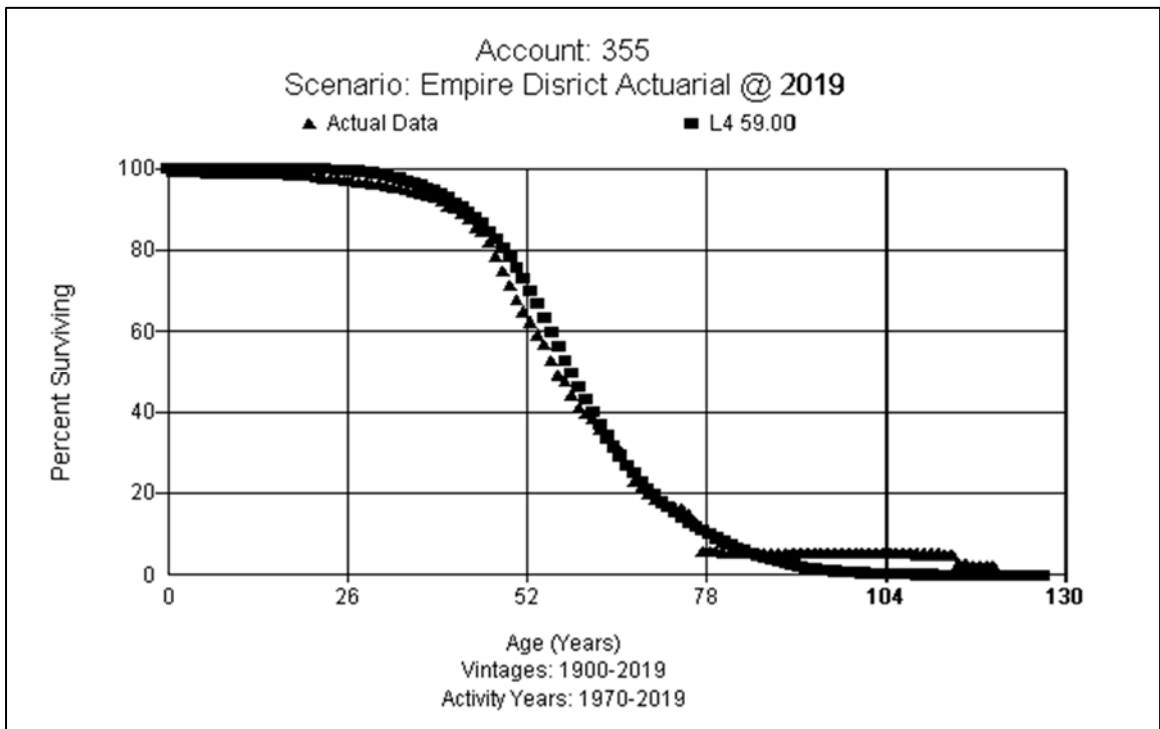
### FERC Account 354.00 Towers and Fixtures 75 R4

This account consists of towers, lighting systems, generators, and other related assets. The balance in this account is nearly \$2.9 million. Discussions with Company personnel indicated the towers are steel lattice. In some cases, the lattice can be repaired, which goes to O&M. The analysis shows the percent surviving above 80 percent, which indicates there has not been a lot of retirement activity. Giving consideration to the fact that the towers are steel and can be repaired in some cases, the analysis indications for a long life, and Company expectations, this study recommends moving to a 75-year life with an R4 dispersion, which is shown below.



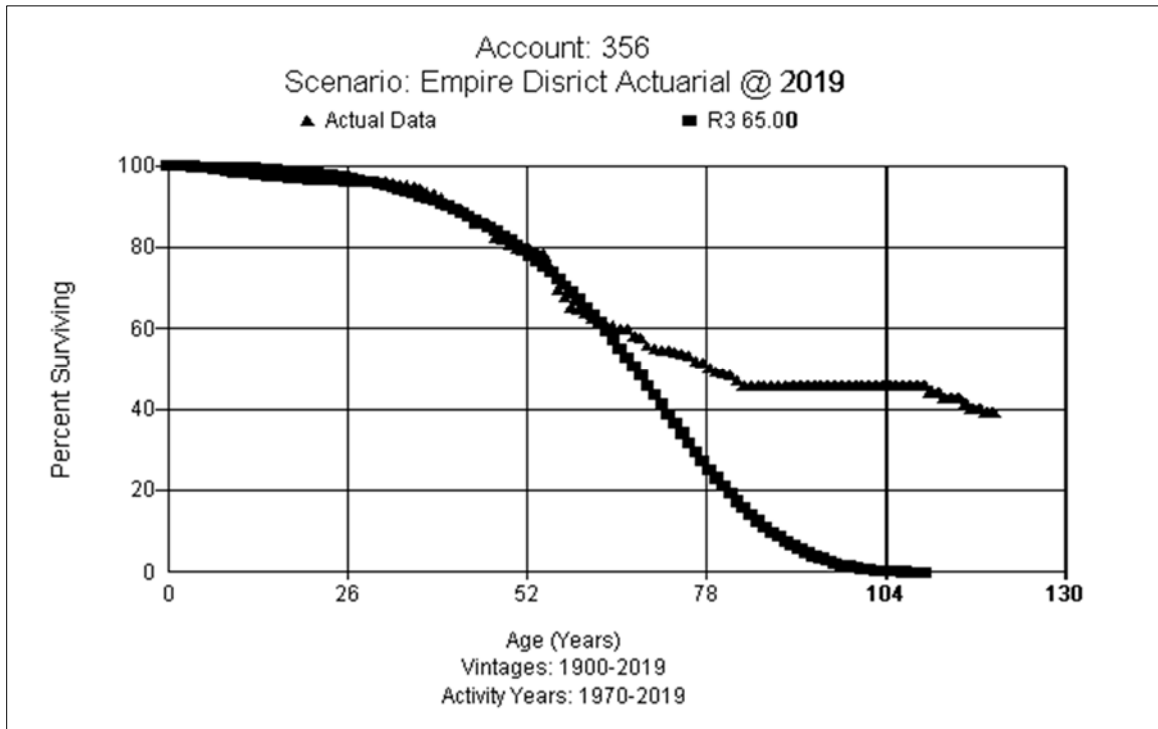
**FERC Account 355.00 Poles and Fixtures 59 L4**

This account consists of wood and steel poles, frames, wood cross arms, and other related fixtures. The balance in this account is \$102.2 million. Discussions with Company personnel indicated that many of the poles in transmission are wood poles, but they are moving from wood to steel. The replacement of 69 kV poles is beginning. The Company’s pole inspection program, which changed in 2010, is likely to identify poles for replacement sooner than in the past. The analysis suggests the life of poles is decreasing compared to the prior study, which supports Company input about the pole inspection program. In the full placement band (1900-2019) with a recent experience band (1970-2019), the 59 R4 is a good fit overall. Based on the analysis, discussions, replacement activity, and expectations of the Company, this study recommends moving to a 59-year life with L4 dispersion, which is shown below.



**FERC Account 356.00 Overhead Conductors and Devices 65 R3**

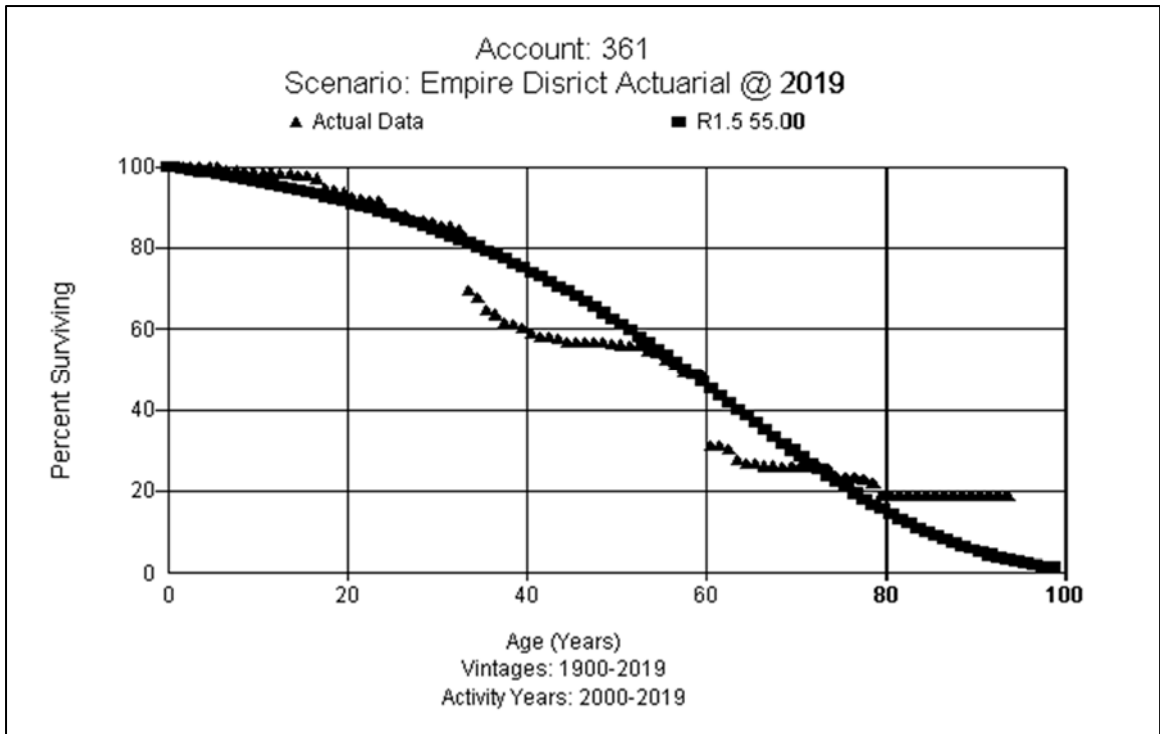
This account consists of conductors, arrestors, switches, and other related devices. The balance in this account is \$100.3 million. Discussions with Company personnel indicate that conductor should last longer than poles and as long as towers in some cases. However, overloads, lightning strikes, contact, and re-conductoring can be significant forces of retirement. The analysis has fits across the various bands that are 65 years and longer. In the full placement (1900-2019) and a more recent experience band (1970-2019) the 65 R3 is a good fit to 60 percent surviving. Based on the analysis and discussions with Company personnel, this study recommends moving the life to 65 R3, which is shown below.



## **DISTRIBUTION PLANT**

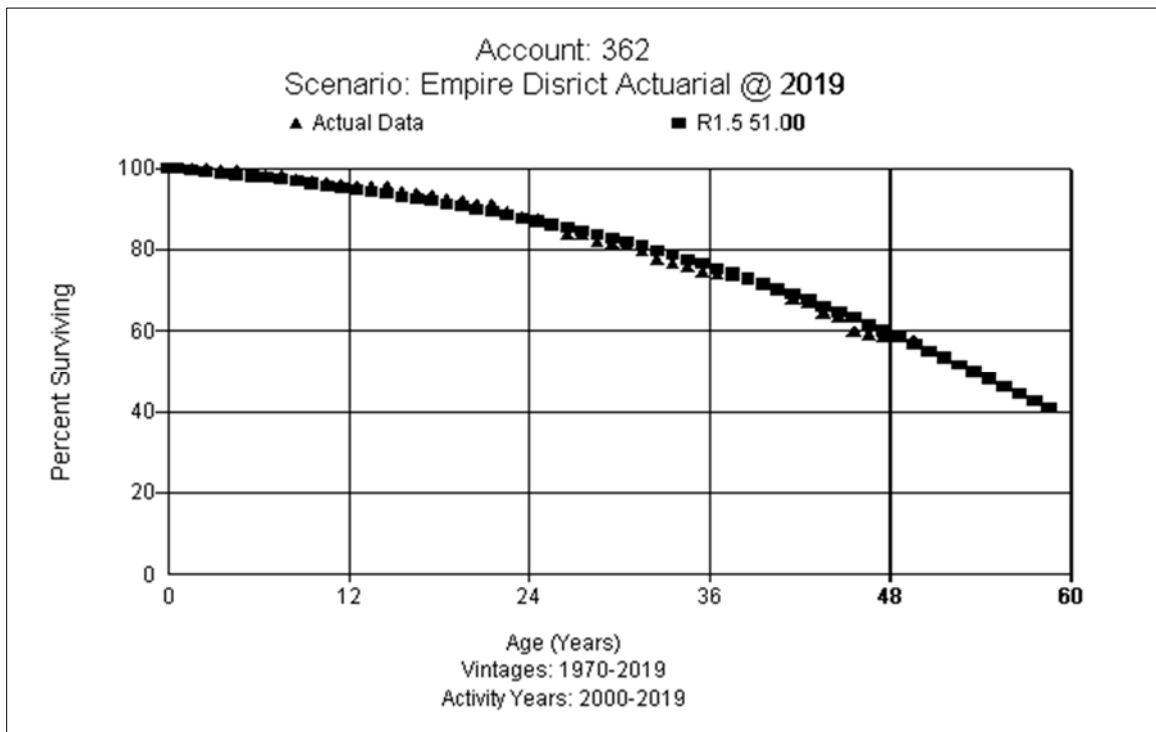
### **FERC Account 361.00 Structures & Improvements 55 R1.5**

This grouping contains facilities ranging from landscaping, main building structures, lighting systems, sewer systems, and other improvements. The current balance is \$33.9 million for this account. Discussions with Company personnel indicated that they are no longer using wood in distribution structures, and the change out to steel is ongoing as the Company is focusing on its aging infrastructure. There is a difference in life expectations between transmission and distribution structures, in that transmission structures are stronger and built to last longer. Also, more of these exist on the distribution system than on the transmission system. The majority of the fits are below any of the existing parameters for this account. In the mid-placement band (1970-2019) and experience band (1970-2019), the best fit curves indicate a life below 50 years with L or R dispersion patterns. Other good fits have a steeper R or S pattern with a 52-55 year life indicated. Based on the indications, Company discussion on current infrastructure replacements that are occurring, this study recommends moving the life to 55 years with an R1.5 dispersion, which is shown below.



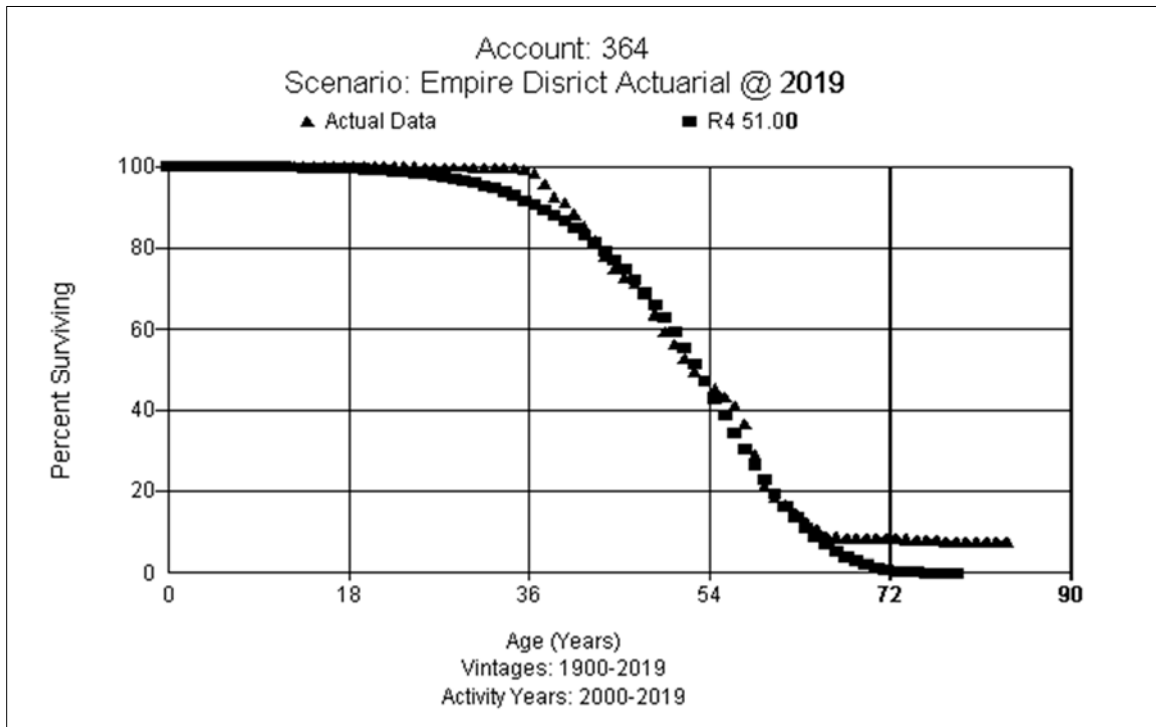
### FERC Account 362.00 Station Equipment 51 R1.5

This grouping contains switchboards, station wiring, transformers, and a wide variety of other equipment, from circuit breakers to switchgear. The current balance is \$157.4 million for this account. Similar to Account 353.00 Transmission Station Equipment, the discussions with Company personnel indicated that they are moving to digital relays and changing out the SF6 with dry air relays. The Company is also moving away from oil breakers. There have not been any big changes related to transformers. In the analysis, the life indications range from low 50s to 60 years, but the 51 R1.5 is a good fit across multiple bands. Based on the analysis fits and discussions with Company personnel, this study recommends moving the life to 51 years with an R1.5 dispersion, which is shown below.



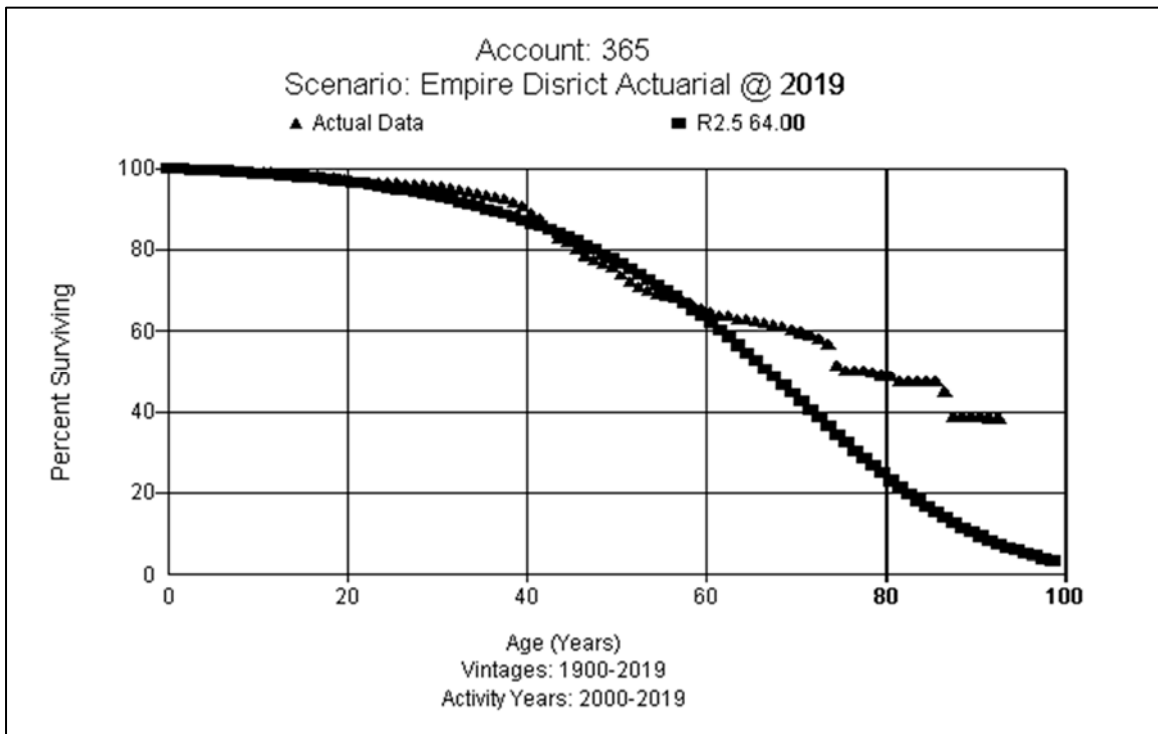
**FERC Account 364.00 Poles, Towers & Fixtures 51 R4**

This account contains wood and steel poles in various sizes, wood, fiberglass, and steel cross arms, pole tops, and frames. The current balance is \$226.6 million for this account. Discussions with Company personnel indicated that there have been changes to the pole inspections, which began in 2010, and the inspection program would likely identify poles for replacement sooner than in the past. Distribution is inspected at a greater level as they are primarily wood poles. The majority of the curve fits indicate the life range to be 49-54, with the best fits around 50 to 51 years with a steep dispersion. The full placement band (1900-2019) with the most recent experience band (2000-2019) indicates an excellent overall fit with 51 R4. Considering the analysis and Company information, the study recommends moving to 51 years with an R4 dispersion, which is shown below.



**FERC Account 365.00 Overhead Conductor 64 R2.5**

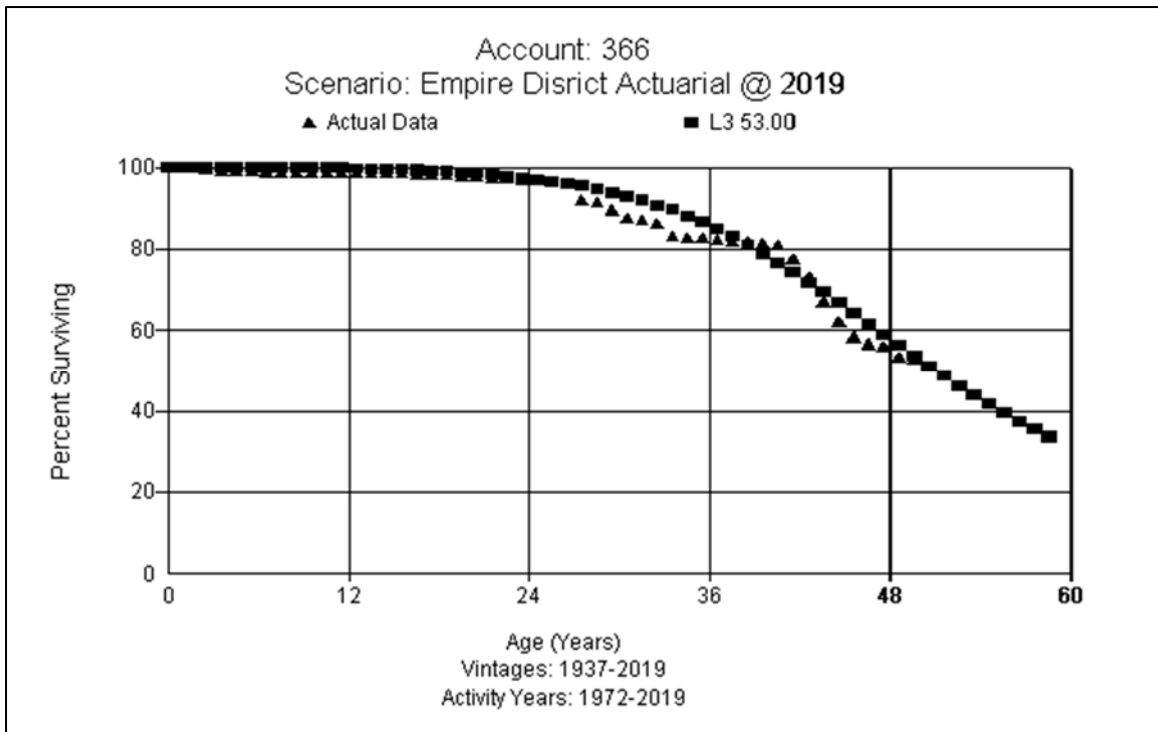
This account consists of overhead conductor cables and arrestors. The current account balance is \$221.0 million for this account. Discussions with Company personnel indicated that the distribution system sees more faults, lines going down, capacity changes, and relocations of lines, which are forces of retirement. Most upgrades are due to distribution loading requirements. Conductor is placed on right of ways. The analysis produces fits with lives in excess of 55 years and higher. Slightly flatter dispersion fits indicate a longer life. The full placement band (1900-2019) and recent experience band (2000-2019) indicates a great fit approaching 60 percent surviving with a 64-year life and an R2.5 dispersion. Considering the analysis and discussions with Company personnel, the study recommends moving the life to 64 years with an R2.5 dispersion, which is shown below.





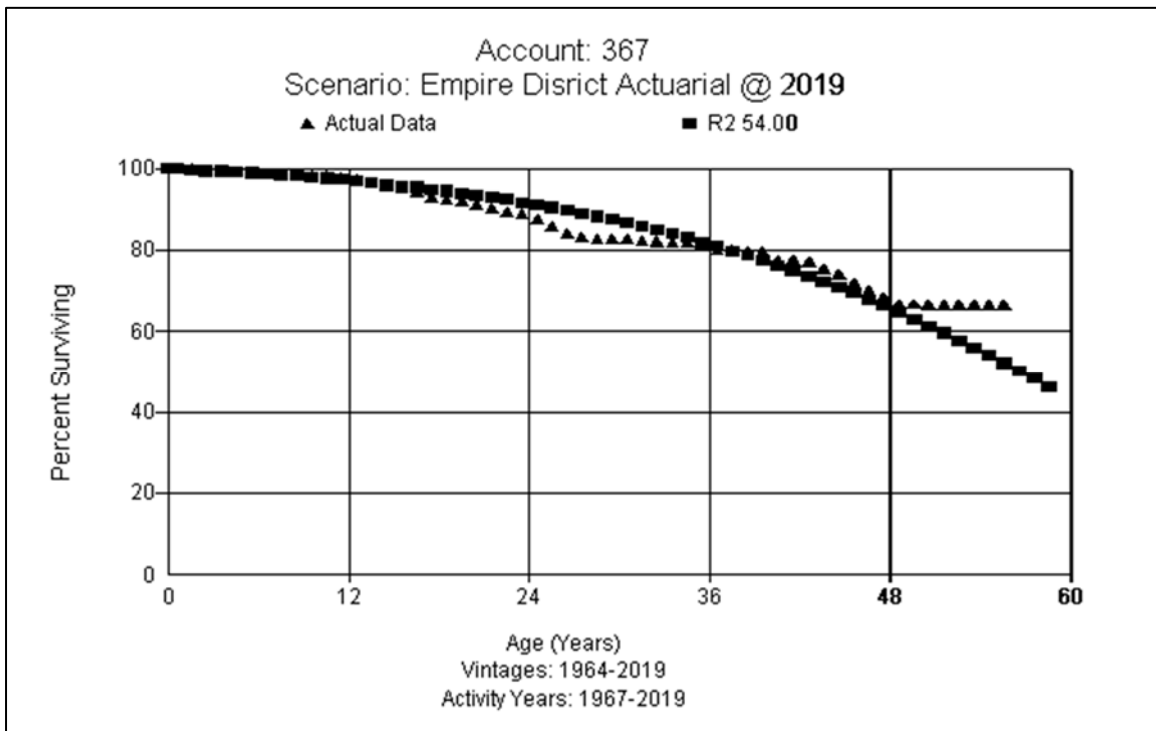
**FERC Account 366.00 Underground Conduit 53 L3**

This account consists of underground conduit, direct burials of various sizes, ducts, manholes, and foundations. The account balance is \$51.2 million for this account. Discussions with Company personnel indicated that they made a shift to using conduit about 30 years ago, and that they no longer direct bury conductor. They expect that conduit will have a little longer life, but that they may have to replace both conduit and conductor with a dig in or other event. Generally, they try not to splice. They have lots of 3 phase primary underground. Based on the analysis and discussions with the Company, this study recommends moving to 53 years with an L3 dispersion, which is shown below.



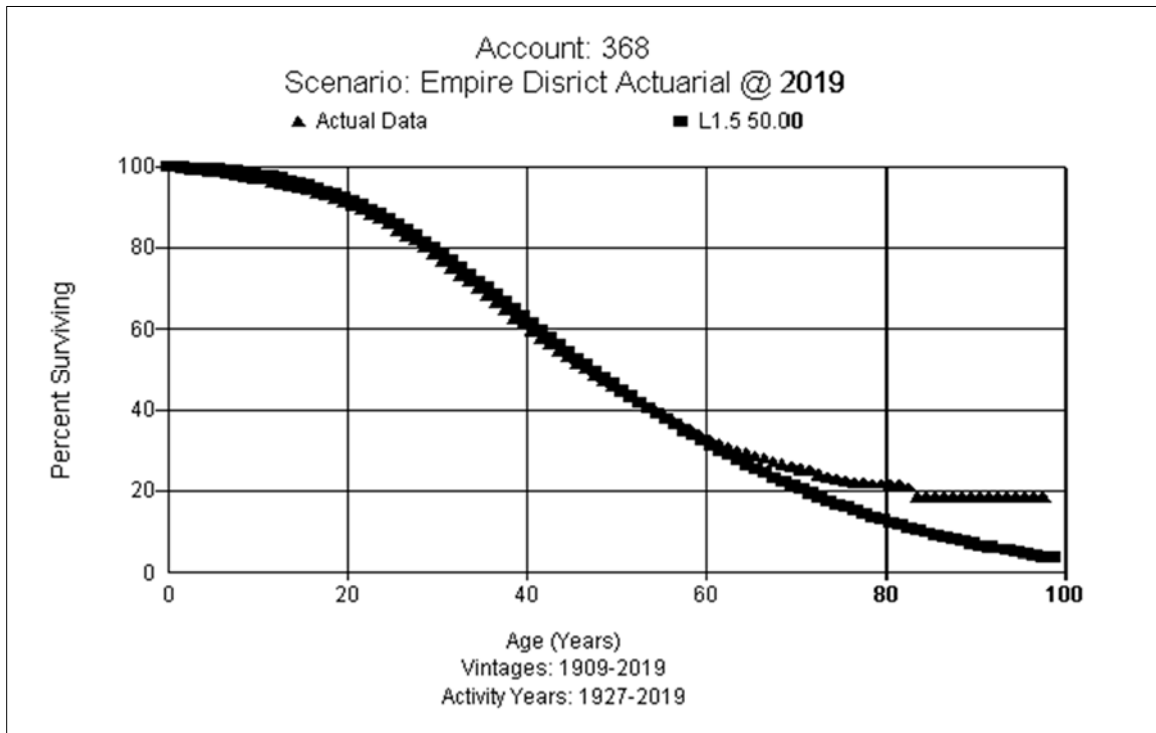
**FERC Account 367.00 Underground Conductor & Devices 54 R2**

This account consists of underground conductor, switches, and switchgear. The account balance is \$72.2 million for this account. Discussions with Company personnel indicated that this account has much more cable that has been in the ground longer than conduit, and as a result they would expect that the average age of cable is older than conduit. Direct buried cable is vulnerable to lightning. The life analysis indicates there have been only \$5.4 million in retirements or less than 8 percent of the existing balance. The full placement and experience band drop to around 67 percent. In more recent bands, the 54 R2 is a good fit with 65 percent surviving. Based on the analysis, discussions with the Company, and judgment, this study recommends moving to 54 years with an R2 dispersion, which is shown below.



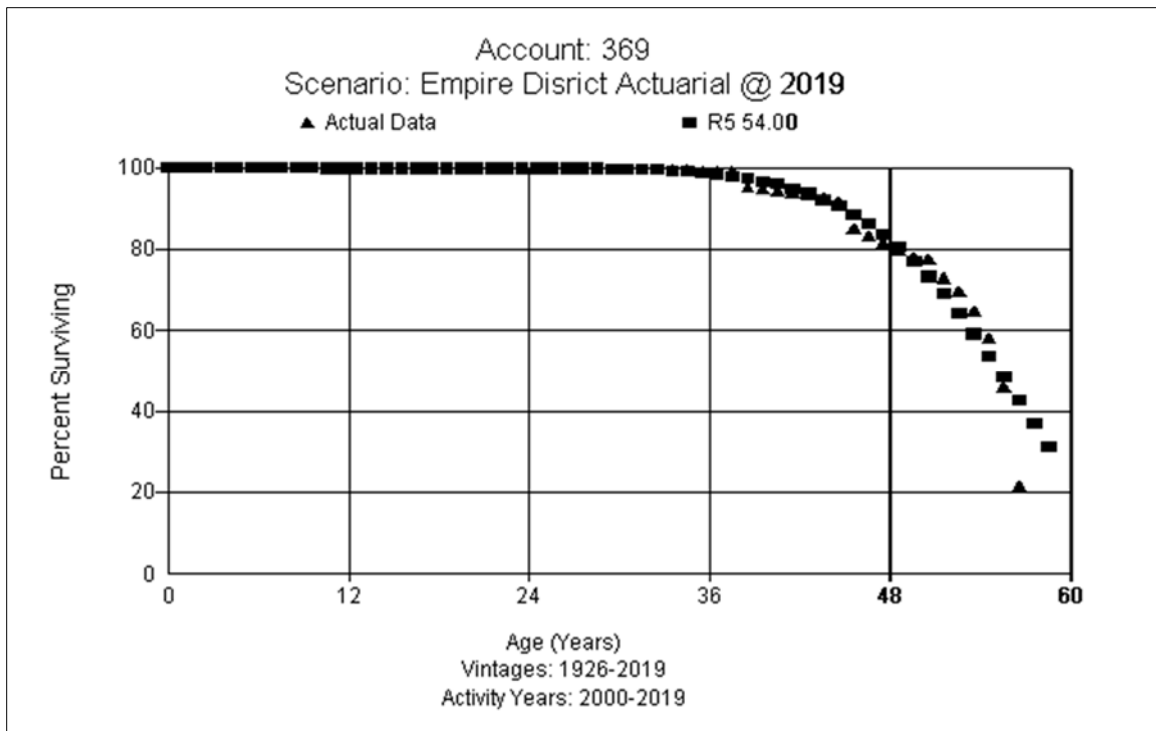
**FERC Account 368.00 Line Transformers 50 L1.5**

This account consists of line transformers, regulators, and capacitors. The account balance is \$132.5 million for this account. Discussions with Company personnel indicated that the Company is no longer repairing transformers. The life analysis indicates a life around 50 years. The 50 L1.5 is an excellent fit across multiple bands. Based on the analysis, the excellent curve fit as shown below, and discussions with Company personnel, this study recommends moving the life to 50 years with a L1.5 dispersion, which is shown below.



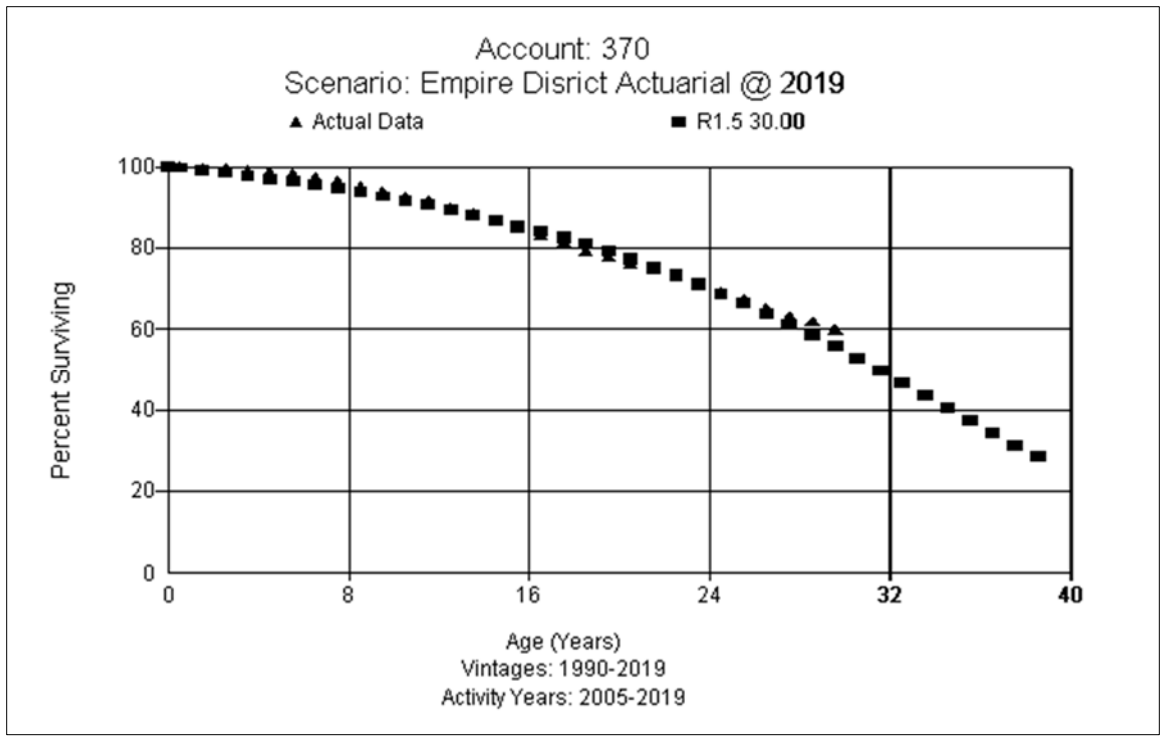
**FERC Account 369.00 Services 54 R5**

This account includes overhead and underground services with a balance of \$94.1 million. Discussions with Company personnel indicated that the split between overhead and underground is close to 50/50. There are lots of rural areas that still use overhead. About 30 years ago, underground services were direct buried, but are now placed in conduit. Consequently, recent underground services are expected to last longer than the underground services put in 30 years ago. Overhead services have weather related forces of retirement, such as frequent ice storms and tornadoes. When new services are being installed, the choice is to put in underground. The life analysis clearly indicates a steep dispersion pattern. The full placement band (1926-2019) and a more recent experience band (2000-2019) produce an excellent fit with the 54 R5. Other fits, a little flatter dispersion, are indicating 53-55 years as well. Based on the analysis and input from Company personnel, this study recommends moving the life to 54 years with an R5 dispersion, which is shown below.



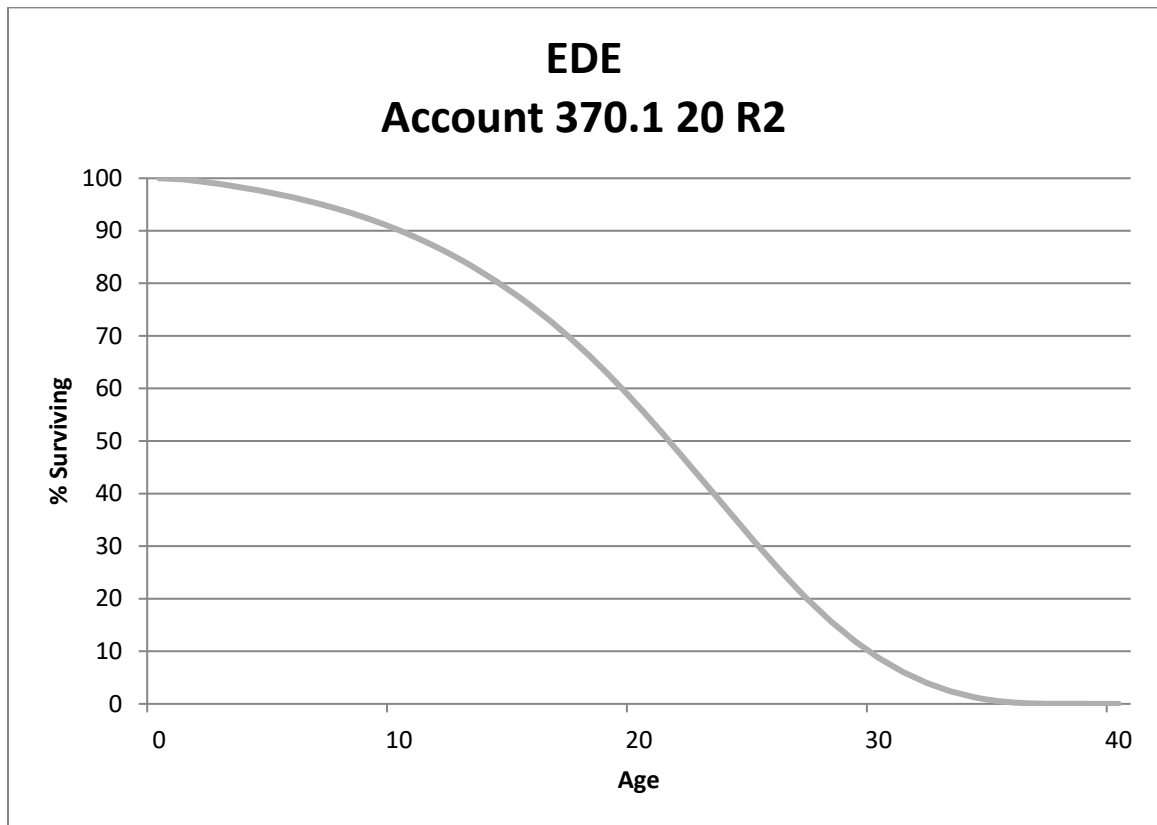
**FERC Account 370.00 Meters 30 R1.5**

This account includes all distribution meters and has a current balance of \$8.9 million, after reflecting necessary retirements related to the implementation of AMI meters. Discussion with Company personnel indicated that in the late 90s, the Company moved to more digital meters, with some of those having radio capability. The Company is now transitioning to remote meter reading (AMI). There remains a mix of electro-mechanical and digital meters. The vast majority of Missouri will convert to AMI by the end of 2021. The Company plans to segregate the new AMI meters into a separate subaccount. The life analysis reflects all the investment, which indicates a longer life in the full bands and a shorter life in the more recent bands. The more recent bands indicate a life around 30-31 years with a R1.5 dispersion, which becomes steeper with more recent placement and experience bands. Considering the increasing levels of newer technology meters, Company plans, and the actuarial analysis, this study recommends moving to a 30-year life with an R1.5 dispersion, which is shown below.



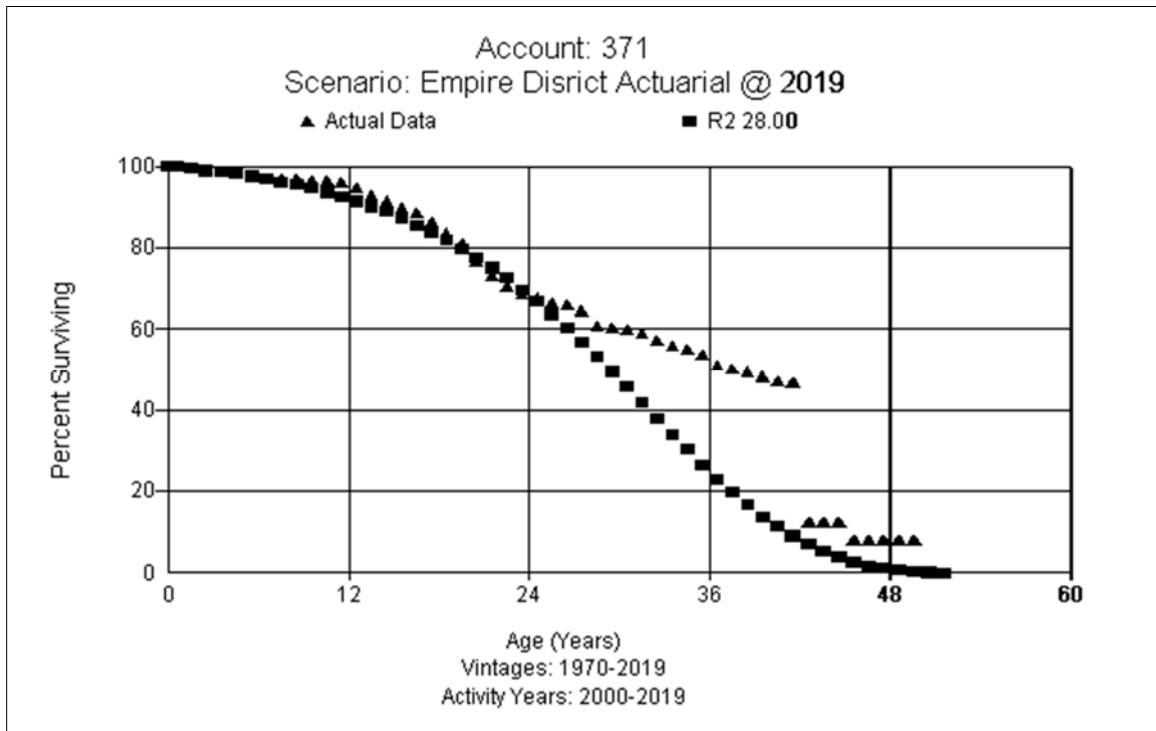
**FERC Account 370.1 AMI Meters 20 R2**

This account includes distribution meters with advanced metering technology. There is currently no plant in this account. EDE plans to install AMI meters, beginning in June 2020. The majority of Missouri will complete the transition to AMI in 2021. Discussions with Company personnel indicated they would expect up to a 20-year life. The Company is planning to complete its entire service territory by 2022. This study recommends a 20-year life and the R2 dispersion based on estimated battery life. A representative curve shape is shown below.



**FERC Account 371.00 Installation on Customer Premises 28 R2**

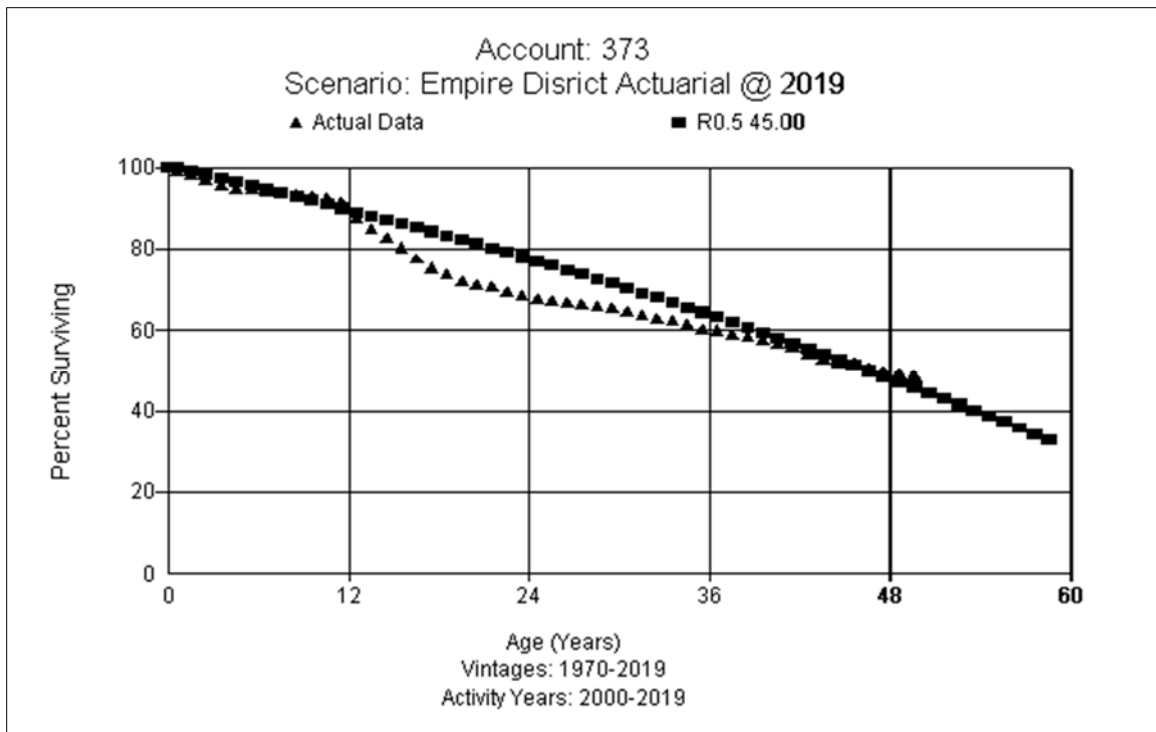
This account consists of guard lights and guard light standards. The current account balance is \$18 million for this account. Discussion with Company personnel indicated private light decisions change as property changes ownership. The current analysis indicates most of the fits are at or below 30 years. Based primarily on the more recent indications in the analysis and Company information, this study recommends a 28-year life with an R2 dispersion, which is shown below.





**FERC Account 373.00 Street Lighting and Traffic Signal 45 R0.5**

This account includes all distribution streetlights, conductor, conduit, luminaire, and standards. The current account balance is \$20.7 million for this account. Company personnel stated that they are beginning to move to LED, but that do not see municipalities requesting the change. The analysis indicates a flat dispersion with lives of 45-50 years. The 45 R0.5 is a consistent good fit across multiple bands. Based on the analysis and input from Company personnel, this study recommendation is to move to a 45-year life with an R0.5 dispersion, which is shown below.

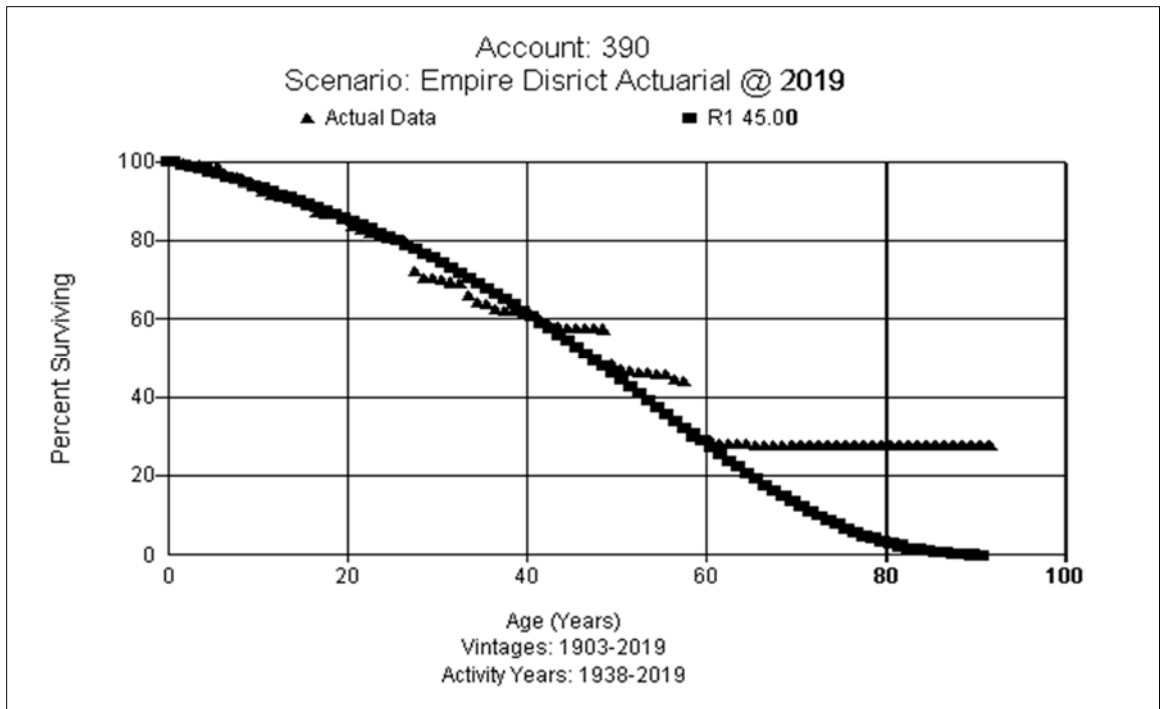


**FERC Account 375 Electric Vehicle Charging Station 20 SQ**

This account includes all distribution charging stations for electric vehicles and has a current balance of \$161.6 thousand. This study recommends a 20-year life with an SQ dispersion. No graph is provided.

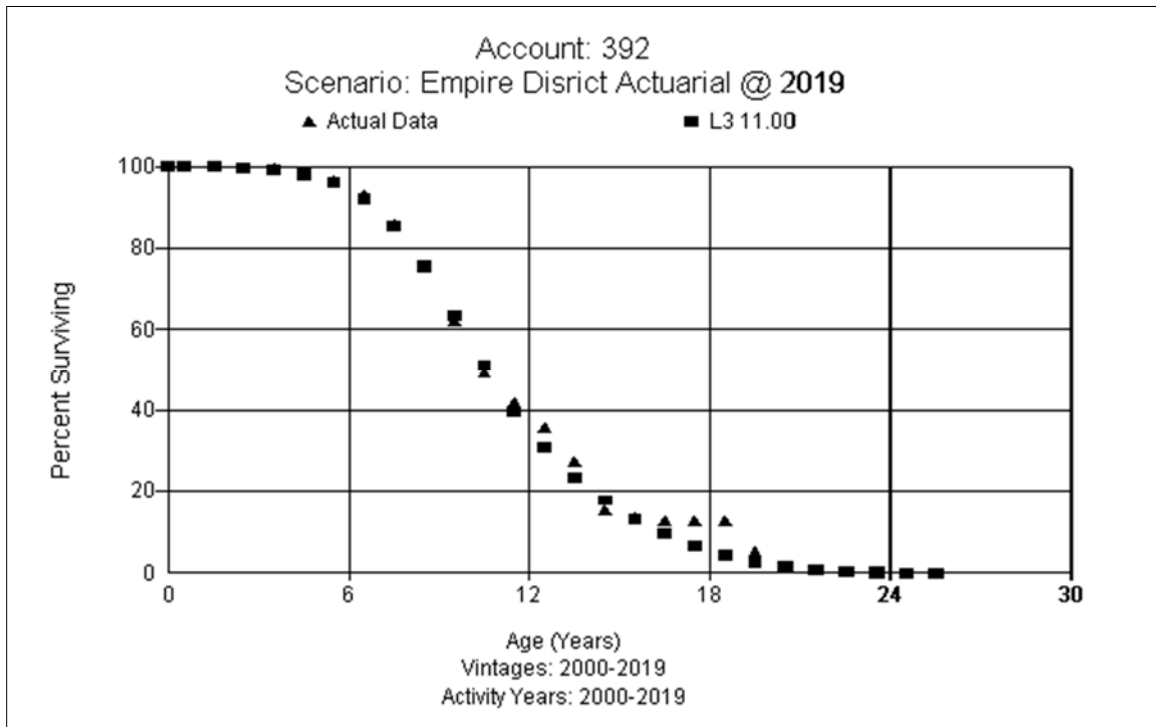
**GENERAL PLANT****FERC Account 390.00 Structures & Improvements 45 R1**

This account includes the cost of general structures and improvements used for utility service. There is approximately \$15.8 million in this account. Discussion with Company personnel indicated there is about \$16 million in buildings and service centers. The Company has added a new building since 2014 and is focusing on structural integrity improvements. Some buildings have been sold but a few old ones still exist and are in service. Two new service centers were added and a new one is in process. The Corporate Headquarters is old (1940s and 1950s). If a complete roof is replaced, it is capital. HVAC was maintained or repaired for 30+ years. The Company will recapitalize building improvements as components are replaced. The actual building shell will last longer. Other replacements that are capital items include security, lighting fixtures, windows, flooring, and other components. The analysis for the full placement and experience band show an excellent fit with the 45 R1. Other fits in more recent bands show some decrease in life. Based on the analysis, recent activity, and plans, this study recommends moving to a 45-year life with an R1 dispersion, which is shown below.



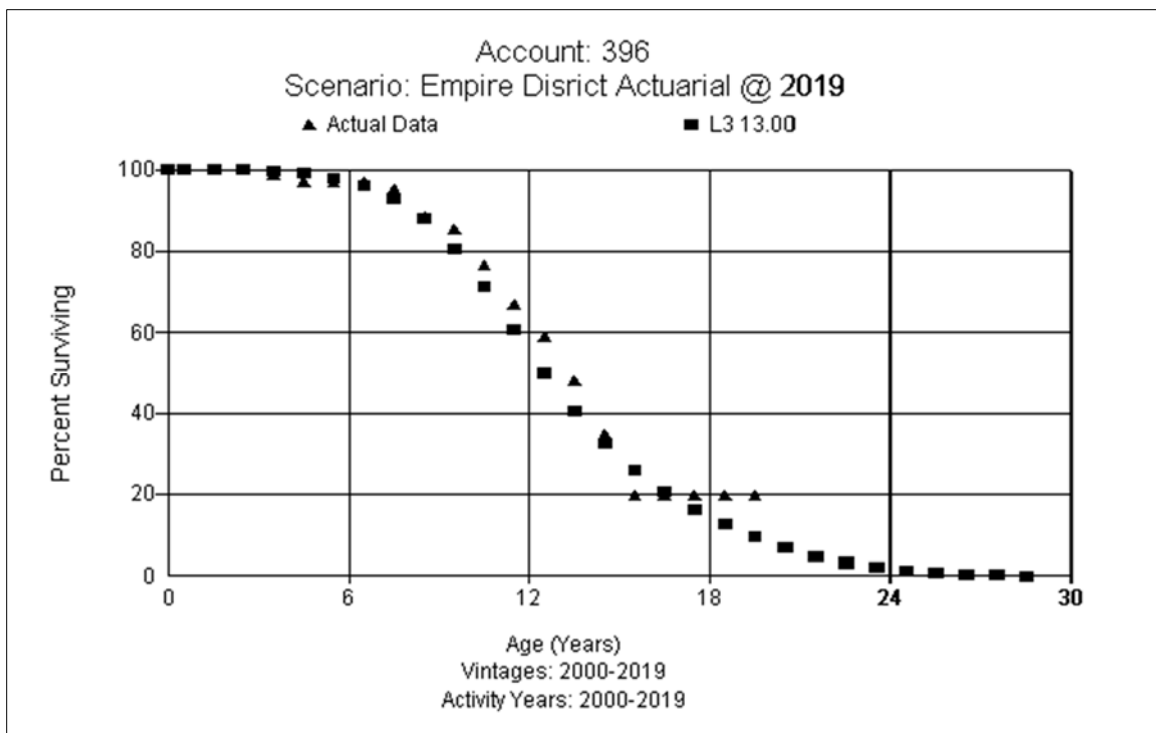
**FERC Account 392.00 Transportation Equipment 11 L3**

This account includes the cost of automobiles used for utility service. There is approximately \$20.9 million in this account. Discussions with Company personnel indicated the refresh cycles are based on usage (hours) and mileage. Small vehicles will turn quicker than a digger derrick truck. Bigger trucks will probably have less mileage but large number of hours. The Company provided the following breakdown: cars (5-7 years), small trucks (7-11 years), heavy trucks (10-15 years), and trailers (15 or more years). They have retired old vehicles in recent years, due to fleet modernization plan. The majority of the best fits in the analysis are 10-11 years. The recent placement and experience band (2000-2019) provides an excellent fit with the 11 L3. Based on the analysis and Company information, this study recommends moving to an 11-year life with an L3 dispersion, which is shown below.



**FERC Account 396.00 Power Operated Equipment 13 L3**

This account consists of bulldozers, forklifts, trenchers, and other power operated equipment that cannot be licensed on roadways. There is approximately \$22.7 million in equipment in this account. Discussions with Company personnel indicate power operated equipment are part of the fleet modernization that has been occurring over the past 2 years. Technology changes in equipment are occurring. The backyard machines are being changed out frequently, as they don't last as long as a digger/derrick. Backyard machines are relatively new assets. The account contains a large variety of assets with different life expectations. The analysis best fits are in the range of 13-15 years with the L and R dispersion patterns across the bands analyzed. The 13 L3 is an excellent fit in the most recent placement and experience band (2000-2019). Based on the current type and mix of assets in the account and Company input, this study recommends the 13-year life with an L3 dispersion, which is shown below.



**General Plant - Amortized (Accounts 391.00-398.00)**

**Adoption of Vintage Group Amortization**

This study recommends the adoption of vintage group amortization for certain General plant accounts. FERC adopted Accounting Release 15 (“AR15”) in 1997 using the following criteria:

1. The individual classes of assets for which vintage year accounting is followed are high volume, low value items;
2. There is no change in existing retirement unit designations, for purposes of determining when expenditures are capital or expense;
3. The cost of the vintage groups is amortized to depreciation expense over their useful lives and there is no change in depreciation rates resulting from the adoption of the vintage year accounting;
4. Interim retirements are not recognized;
5. Salvage and removal cost relative to items in the vintage categories are included in the accumulated depreciation account and assigned to the oldest vintage first; and
6. Properties are retired from the affected accounts that, at the date of the adoption of vintage year accounting, meet or exceed the average service life of properties in that account.

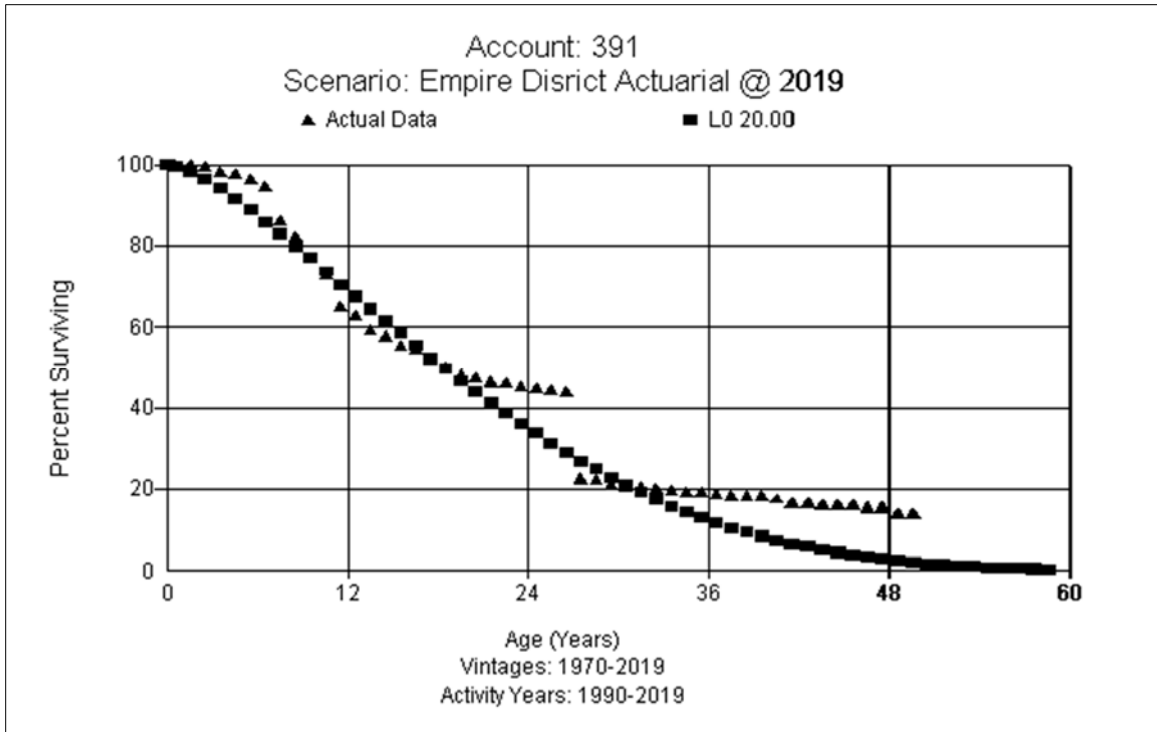
A vintage year method of accounting for the general plant accounts that meets all of the foregoing requirements may be implemented without obtaining specific authorization from the Commission to do so.

With the adoption of vintage group amortization, it is no longer necessary to keep track of the location and retirement of specific assets. Annually, assets are retired after reaching the average service life for that account. The retirement amounts for fully accrued assets are shown for each account in Appendix A-1. After those assets are retired, the remaining plant in service for each account will be amortized using the amortization rates shown in Appendix A-1. An additional accrual is necessary for each plant account to make up the difference between the book depreciation reserve and the theoretical depreciation reserve. For EDE, there is a

small difference between the book and theoretical reserve that needs to be amortized over the remaining life of each plant account. This amount is shown for each account in Appendix A-2. Slight changes in life for the amortized plant accounts are discussed below. EDE will use caution in implementation of AR15 accounting and will perform physical inspections in addition to determine if assets should retire.

**Account 391.00 Office Furniture and Equipment 20 L0**

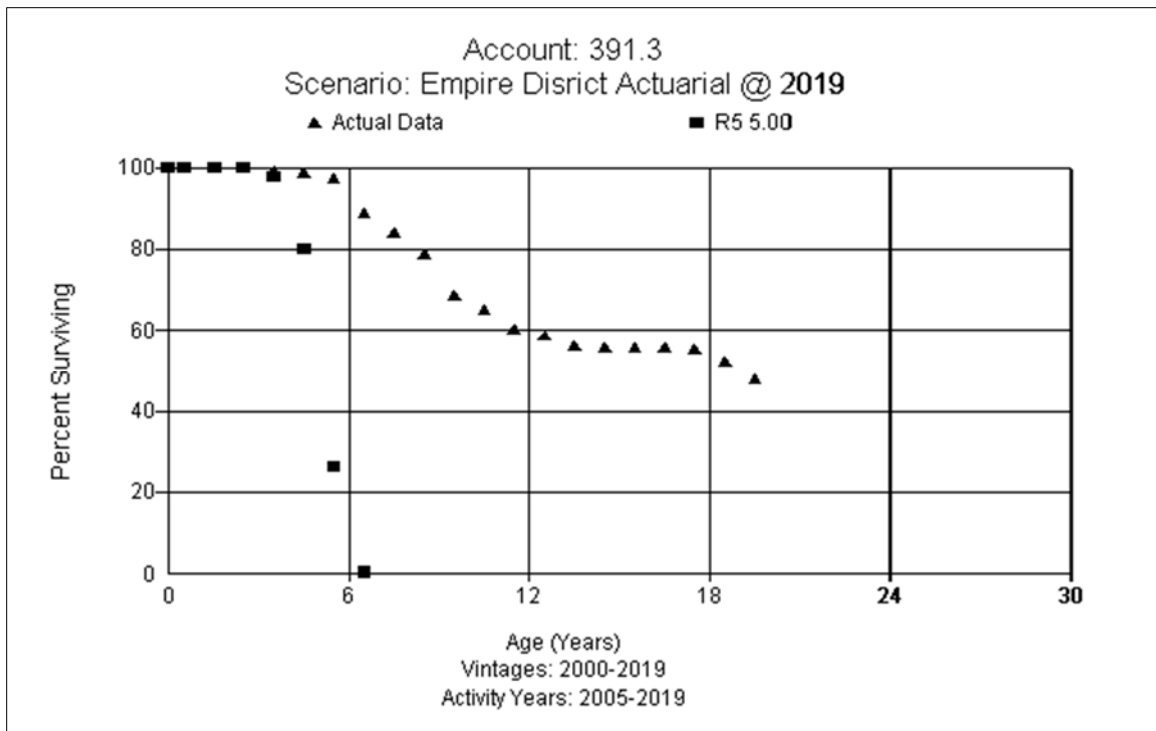
This account consists of office furniture and equipment such as desks, chairs, projectors, or other similar equipment. The account balance is \$6.6 million for this account. After the retirement of fully accrued assets, there will be \$5.1 million in plant. After reviewing the actuarial analysis and considering Company input, the best fit is the 20 L0. Adoption of general plant amortization will use the SQ dispersion pattern for the rate calculations. The proposed curve and observed life table for this account are shown below.





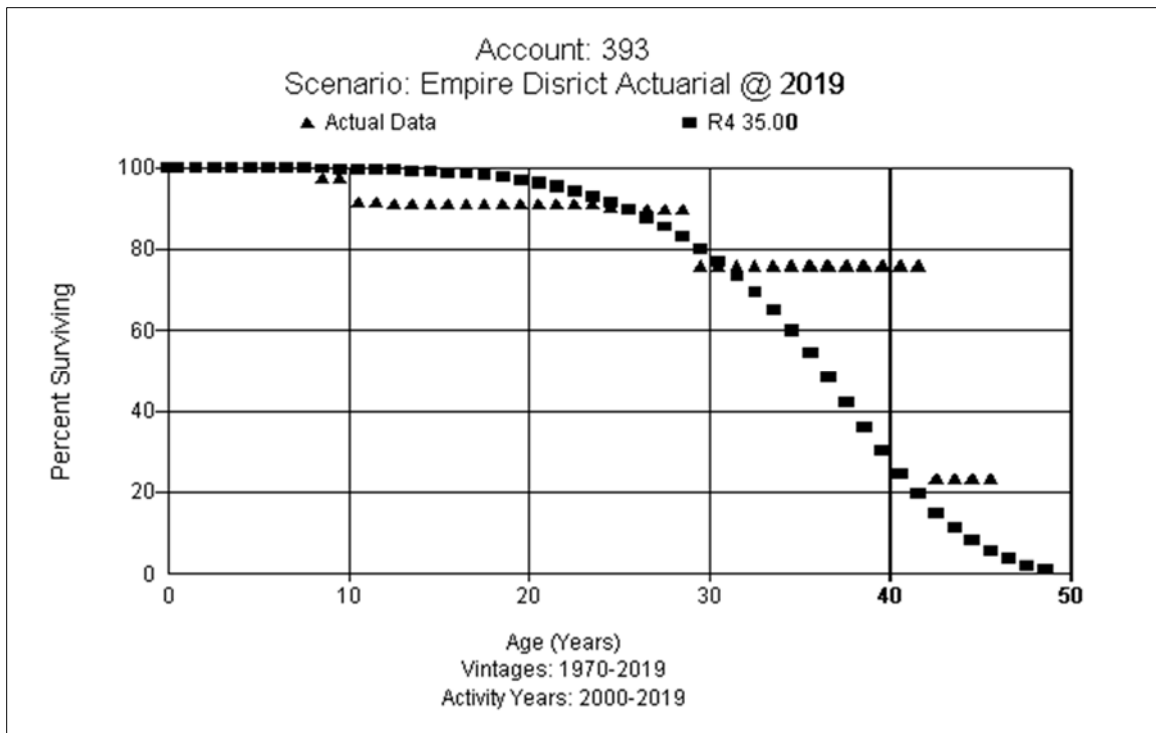
**Account 391.30 Computer Equipment 5 R5**

This account consists of various types of computer hardware such as servers. The account balance is \$17.1 million for this account. After the retirement of fully accrued assets, there will be \$7.4 million in plant. Discussions with Company personnel indicated there is one consistent refresh cycle for the entire Liberty organization since merger, and that they are also doing technology upgrades. The Company expects computer and computer related assets to last between 3-5 years and printers and copiers 5-7 years. The analysis indications show lives much longer than what is reasonable for this type of equipment. Considering the analysis, type and mix of assets, Company input, and judgment, this study recommends a life of 5 years with an R5 dispersion as the life choice for this account. Adoption of general plant amortization will use the SQ dispersion pattern for the rate calculations. The proposed curve and observed life table for this account are shown below.



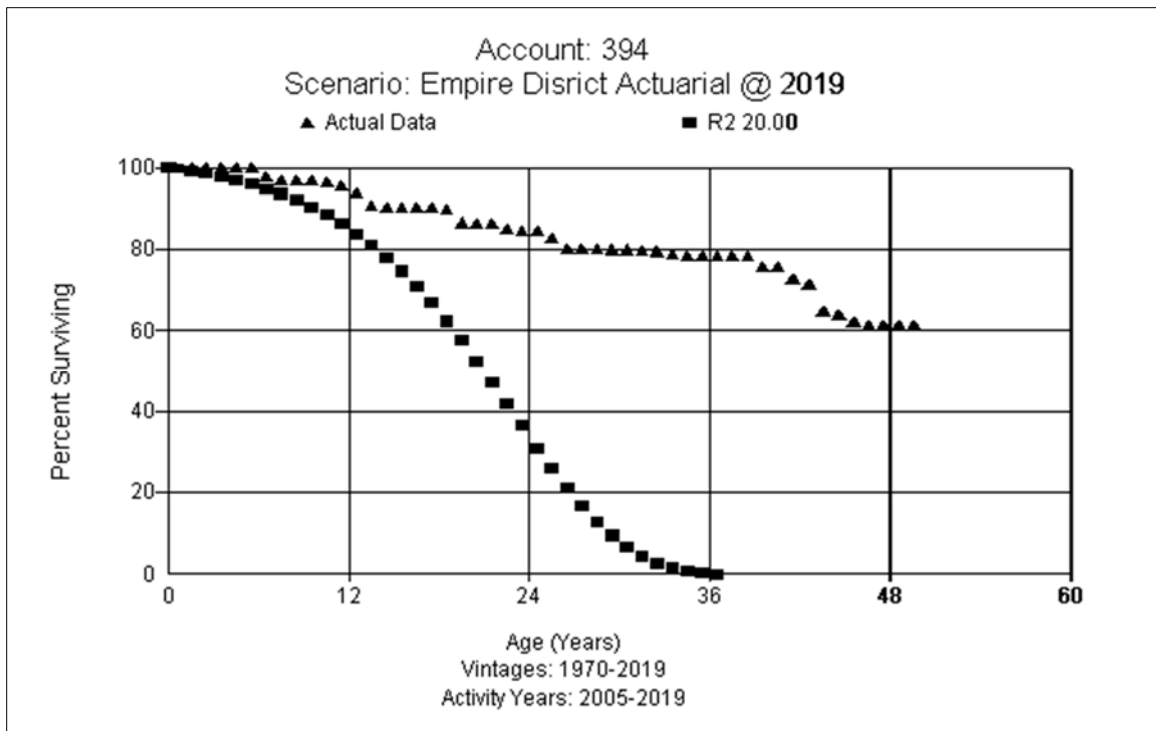
**Account 393.00 Stores Equipment 35 R4**

This account consists of stores equipment such as cantilever shelving, forklift, wire reel machines, and other miscellaneous equipment and tools. The account balance is \$2.1 million for this account. After the retirement of fully accrued assets, there will be \$2 million in plant. Discussions with Company personnel indicated the equipment is old, and they have not added much new equipment other than forklifts. The actuarial analysis supports Company information that some of the assets are old, and the Company expects the assets recorded to the account to have a fairly long life. However, many of the fits indicate lives longer than what would be reasonable. Based upon the analysis, type of assets, Company input, and judgment, the study proposes the 35 R4. Adoption of general plant amortization will use the SQ dispersion pattern for the rate calculations. The proposed curve and observed life table for this account are shown below.



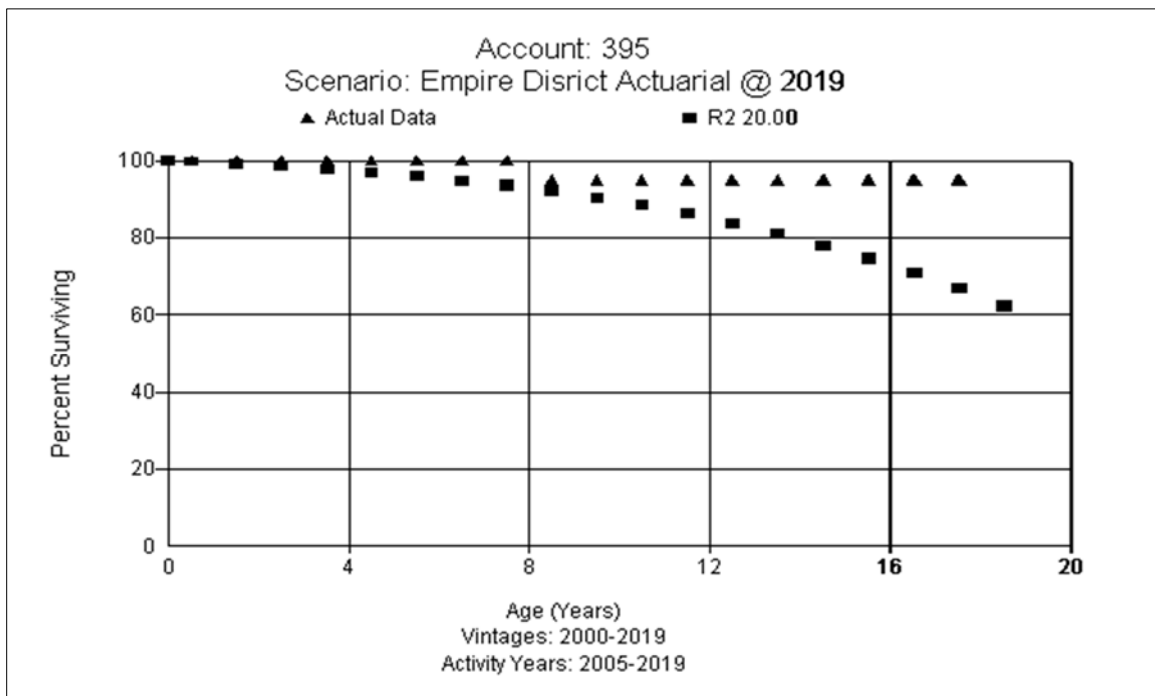
**Account 394.00 Tools, Shop, and Garage Equipment 20 R2**

This account consists of tools, shop, and garage equipment, such as miscellaneous tools, electric equipment, or pumps. The account balance is \$8.4 million for this account. After the retirement of fully accrued assets, there will be \$6.5 million in plant. Discussions with Company personnel indicated that a long life does not make sense, and that many of the small tools may be thrown away and not reported as retired from the books, which makes it appear like the assets are living longer. The life analysis fits indicate lives far beyond what is reasonable and outside of the range in the industry, which supports Company discussion that items are not getting retired at end of life. After reviewing the actuarial analysis, considering the type of assets, and information from the Company, the 20 R2 is a reasonable estimate at this time. Adoption of general plant amortization will use the SQ dispersion pattern for the rate calculations. The proposed curve and observed life table for this account are shown below.



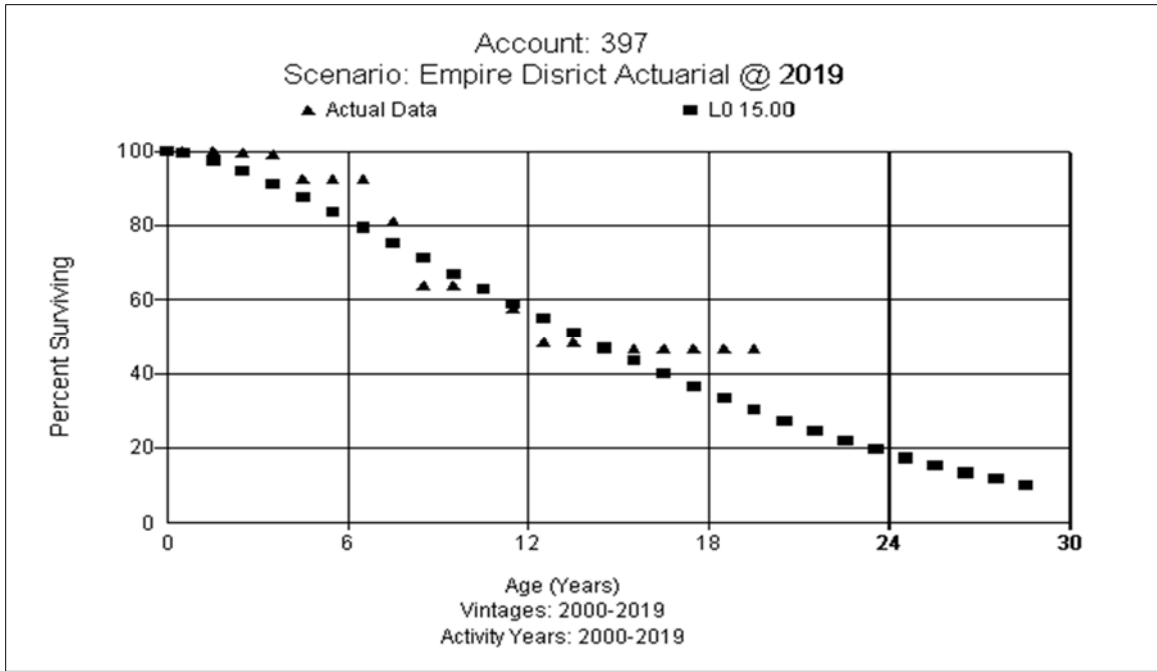
**Account 395.00 Laboratory Equipment 20 R2**

This account consists of various testing panels and other miscellaneous laboratory equipment. The account balance is \$3.1 million for this account. After the retirement of fully accrued assets, there will be \$2.3 million in plant. Discussions with Company personnel indicated that small items may be thrown away and not reported as retired at end of useful life. Similar to Account 394 Tools, Shop, and Garage Equipment, this will incorrectly lengthen the life for the account. The Company indicated that it had recently replaced testing panels. Other assets will be retired more quickly since they are software driven. The analysis indicates best fits, such as 52 R3 in the full placement band (1913-2019) with the mid experience band (1970-2019), with lives far beyond the range of reasonable for the assets and what is typically experienced in the industry. Considering the analysis, Company input, and judgment, the 20-year life with an R2 dispersion is the study recommendation at this time. Adoption of general plant amortization will use the SQ dispersion pattern for the rate calculations. The proposed curve and observed life table for this account are shown below.



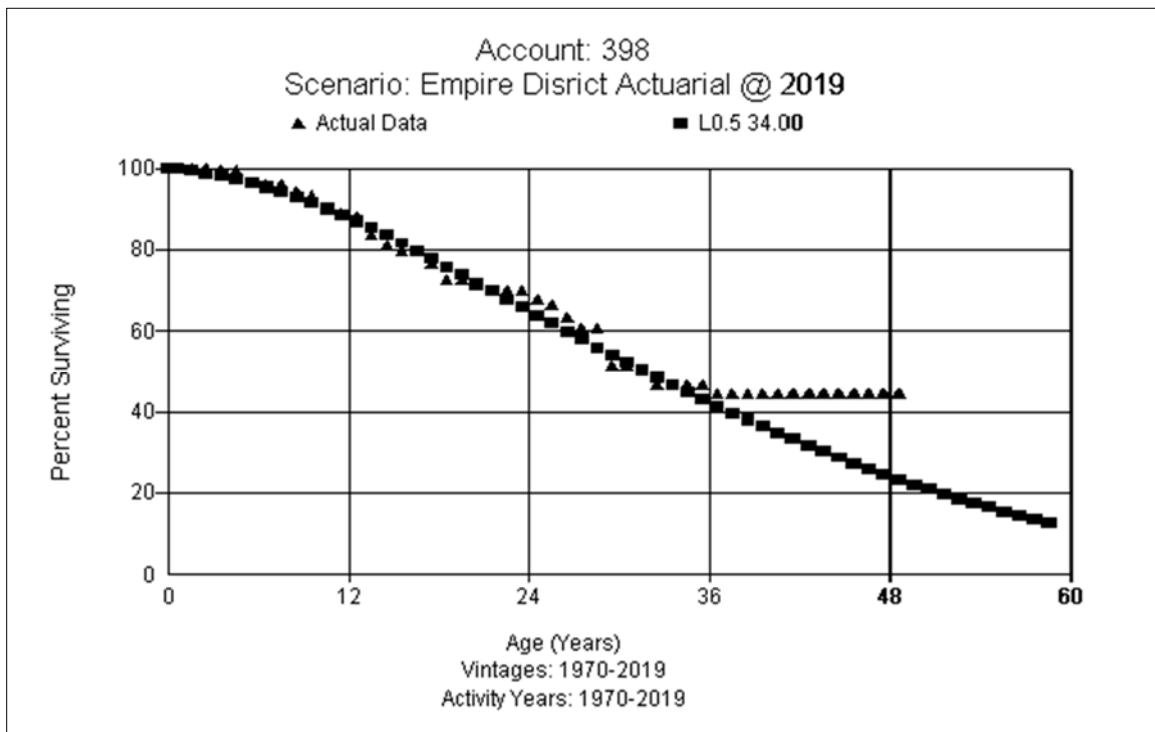
**Account 397.00 Communication Equipment 15 L0**

This account consists of communication equipment such as control equipment, radios, telephone systems, microwave system, and similar assets. The account balance is \$11.4 million for this account. After the retirement of fully accrued assets, there will be \$6.7 million in plant. Discussions with Company personnel indicated that there is diverse equipment recorded in this account. Typically, the retirements are driven by old technology that is no longer supported and does not have the new functionality. The Company does not expect the new assets to last as long due to continuing technology changes. The Company is currently reviewing upgrades of microwave and replacement with fiber. The life analysis in the fuller bands indicates a longer life of around 21 years. However, in more recent bands the life becomes shorter, which supports the Company position that technology changes are causing retirements and newer assets are not lasting as long either. This study recommends moving to a 15-year life and using an L0 dispersion curve for this account. Adoption of general plant amortization will use the SQ dispersion pattern for the rate calculations. The proposed curve and observed life table for this account are shown below.



**Account 398.00 Miscellaneous Equipment 34 L0.5**

This account consists of signs, A/V equipment, breakroom (kitchen) equipment, display booth, safety equipment, lockers, miscellaneous tools, and other equipment that may not fit in any other general plant account. The account balance is \$286 thousand for this account. After the retirement of fully accrued assets, there will be \$257 thousand in plant. There is a mix of assets with varying lives recorded to this account. The analysis indicates a life range of 30-35 years. In the mid placement and experience band (1970-2019) the 34 L0.5 is an excellent fit to around 40 percent surviving. This study recommends the 34 L0.5 for this account at this time. Adoption of general plant amortization will use the SQ dispersion pattern for the rate calculations. The proposed curve and observed life table for this account are shown below.



## SALVAGE ANALYSIS

When a capital asset is retired, physically removed from service and finally disposed of, terminal retirement is said to have occurred. The residual value of a terminal retirement is called gross salvage. Net salvage is the difference between the gross salvage (what the asset was sold for) and the removal cost (cost to remove and dispose of the asset). Salvage and removal cost percentages are calculated by dividing the current cost of salvage or removal by the original installed cost of the asset. Some plant assets can experience significant negative removal cost percentages due to the timing of the original addition versus the retirement. The net salvage analysis uses the history of the individual accounts to estimate the future net salvage that EDE can expect in its operations. As a result, the analysis not only looks at the historical experience of EDE, but also takes into account recent and expected changes in operations that could reasonably lead to different future expectations for net salvage than were experienced in the past.

Net salvage data by plant account for Transmission, Distribution, and General Plant is shown in Appendix D. Removal cost percentages are calculated by dividing the current cost of removal by the original installed cost of the asset. Some plant assets can experience significant negative removal cost percentages due to the timing of the addition versus the retirement. For example, a Distribution asset in FERC Account 365 with a current installed cost of \$500 (2019) would have had an installed cost of \$27.34<sup>3</sup> in 1957. A removal cost of \$50 for the asset calculated (incorrectly) on current installed cost would only have a negative 10 percent removal cost ( $\$50/\$500$ ). However, a correct removal cost calculation would show a negative 182.88 percent removal cost for that asset ( $\$50/\$27.34$ ). Inflation from the time of installation of the asset until the time of its removal must be taken into account in the calculation of the removal cost percentage because the depreciation rate, which includes the removal cost percentage, will be applied

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<sup>3</sup> Using the Handy-Whitman Bulletin No. 191, E-3, line 45,  $\$27.34 = \$500 \times 49/896$ .



to the original installed cost of assets.

### **Salvage Characteristics**

For Production facilities, this study has analyzed interim net salvage by account. The interim net salvage amounts were used to derive a total net salvage factor for each Steam, Hydro and Other Production accounts. EDE has not included terminal dismantlement cost estimates in this study.

For each account in Transmission, Distribution, and General Plant, data for retirements, gross salvage, and cost of removal for the majority of the accounts were derived from 2000-2019, depending on the available history. Moving averages, which remove timing differences between retirement and salvage and removal cost, were analyzed over periods varying from one to 10 years.

### **Steam Production, Hydro, and Other Production, FERC Accounts 311.00-346.00**

The concept behind the net salvage cost component of depreciation rates for power plants is different from that of Transmission, Distribution, or General Plant assets. Power plants are discrete units that will need to be dismantled after the end of their useful lives. Because of this, there are two types of analysis required, one for the interim activity and the other based on engineering studies conducted to determine the retirement closure costs needed to secure the plant when it ceases operation. Per Missouri precedent, no dismantling costs are included in the proposed accrual rates.

The list of the individual account net salvage percentages is shown in Appendix C. These percentages are derived by the combined amounts for interim retirement and retirement closure net salvage amounts and are shown in Appendix E-1. The unit specific dismantling costs have not been included in the calculation of the depreciation rates in the study at this time.

## **PRODUCTION PLANT**

### **Steam Production**

The net salvage percentages shown below are the proposed interim net salvage percentages for each plant account. Life analysis data was adjusted to remove activity for the Riverton and Asbury generating units between the years 2005-2019, and a similar adjustment was made for net salvage analysis. No data prior to 2004 was available to make such an adjustment. No dismantling cost is included. Since there are parameters from four states, no current net salvage will be listed here, but that information can be found on Appendix D in this report along with a composite net salvage by Unit and Account.

#### **FERC Account 311.00 Structures and Improvements (-7% Net Salvage)**

This account includes any salvage and removal cost related to structures and improvements used for steam utility operations. The 5-year and 10-year moving average for this account are negative 8.35 and negative 7.29 percent, respectively. Based on judgment and Company history, this study recommends negative 7 percent interim net salvage.

#### **FERC Account 312.00 Boiler Plant Equipment (-10% Net Salvage)**

This account includes any salvage and removal cost related to boiler plant used for steam utility operations. The 5-year and 10-year moving average for this account are negative 11.88 and negative 9.72 percent, respectively. Based on judgment and Company history, this study recommends negative 10 percent interim net salvage.

#### **FERC Account 312.01 Boiler Unit Train - Electric (0% Net Salvage)**

This account includes any salvage and removal cost related to boiler unit train used for steam utility operations. Little retirement activity has occurred in this account. The 5-year and 10-year moving average for this account in both periods

is 0 percent. Based on judgment and Company history, this study recommends 0 percent interim net salvage.

**FERC Account 314.00 Turbo-generator Equipment (-15% Net Salvage)**

This account includes any salvage and removal cost related to turbo-generator equipment used for steam utility operations. The 5-year and 10-year moving average for this account are negative 25.06 and negative 17.42 percent, respectively. Based on judgment and Company history, this study recommends negative 15 percent interim net salvage.

**FERC Account 315.00 Accessory Electric Equipment (-8% Net Salvage)**

This account includes any salvage and removal cost related to accessory electric equipment used for steam utility operations. The 5-year and 10-year moving average for this account are negative 8.51 and negative 8.04 percent, respectively. Based on judgment and Company history, this study recommends negative 8 percent interim net salvage.

**FERC Accounts 316.00 Miscellaneous Power Plant Equipment (-4% Net Salvage)**

This account includes any salvage and removal cost related to power plant equipment used for steam utility operations. The 5-year and 10-year moving average for this account are negative 3.65 and negative 2.25 percent, respectively. The averages from years 5-9 are all approximately negative 4 percent. Based on judgment and Company history, this study recommends negative 4 percent interim net salvage.

**Hydraulic (Hydro) Production Interim Net Salvage, FERC Accounts 331-335**

The Hydro Production interim net salvage rate used to set depreciation rates in this study is a negative 10 percent for all accounts except Account 335

Miscellaneous Equipment, which is 0 percent. There is currently no investment in Account 336. No dismantling cost is included. Since there are multiple state parameters, no current net salvage will be listed here, but that information can be found on Appendix D in this report along with a composite net salvage by Unit and Account.

#### **FERC Account 331.00 Structures and Improvements (-10% Net Salvage)**

This account includes any salvage and removal cost related to structures and improvements used for hydro production utility operations. The 5-year and 10-year moving average for this account are negative 34.95 and negative 33.83 percent, respectively. This study recommends a negative 10 percent interim net salvage. The study recommends a composite negative 1.05 percent net salvage for this account, which combines a negative 10 percent interim net salvage.

#### **FERC Account 332.00 Dams (-10% Net Salvage)**

This account includes any salvage and removal cost related to dams used for hydro production utility operations. The 5-year and 10-year moving average for this account are negative 23.02 and negative 17.80 percent, respectively. This study recommends a negative 10 percent interim net salvage. The study recommends a composite negative 1.89 percent net salvage for this account, which combines a negative 10 percent interim net salvage.

#### **FERC Account 333.00 Turbogenerators (-10% Net Salvage)**

This account includes any salvage and removal cost related to generators used for hydro production utility operations. The 5-year and 10-year moving average for this account are negative 158.66 and negative 158.39 percent, respectively. This study recommends a negative 10 percent interim net salvage. The study recommends a composite negative 2.38 percent net salvage for this account, which combines a negative 10 percent interim net salvage.

**FERC Account 334.00 Accessory Electrical Equipment (-10% Net Salvage)**

This account includes any salvage and removal cost related to accessory electrical equipment used for hydro production utility operations. The 5-year and 10-year moving average for this account are negative 44.87 and negative 47.09 percent, respectively. This study recommends a negative 10 percent interim net salvage. The study recommends a composite negative 2.82 percent net salvage for this account, which combines a negative 10 percent interim net salvage.

**FERC Account 335.00 Miscellaneous Plant Equipment (0% Net Salvage)**

This account includes any salvage and removal cost related to miscellaneous plant equipment used for hydro production utility operations. The 5-year and 10-year moving average for this account are negative 3.97 and positive 1.13 percent, respectively. This study recommends a 0 percent interim net salvage. The study recommends a composite 0 percent net salvage for this account, which combines a 0 percent interim net.

**Other Production Interim Net Salvage, FERC Accounts 341-346**

The Other Production interim net salvage rate used to set depreciation rates in this study is negative 2 percent. No dismantling cost is included. Since there are multiple state parameters, no current net salvage will be listed here, but, that information can be found on Appendix D in this report along with a composite net salvage by Unit and Account.

**FERC Account 341.00 Structures and Improvements (-2% Net Salvage)**

This account includes any salvage and removal cost related to structures and improvements used for other production utility operations. The 5-year and 10-year moving average for this account are negative 2.55 and negative 2.74 percent, respectively. This study recommends a negative 2 percent interim net salvage.

**FERC Account 342.00 Fuel Holders, Producers, and Accessories (-2% Net Salvage)**

This account includes any salvage and removal cost related to fuel holders, producers and accessories used for other production utility operations. The 5-year and 10-year moving average for this account are 0 and negative 10.30 percent, respectively. This study recommends a negative 2 percent interim net salvage.

**FERC Account 343.00 Prime Movers (-2% Net Salvage)**

This account includes any salvage and removal cost related to generators used for other production utility operations. The 5-year and 10-year moving average for this account are negative 2.30 and negative 2.39 percent, respectively. This study recommends a negative 2 percent interim net salvage.

**FERC Account 344.00 Generators (-1% Net Salvage)**

This account includes any salvage and removal cost related to generators used for other production utility operations. The 5-year and 10-year moving average for this account are negative 1.40 and negative 1.34 percent, respectively. This study recommends a negative 1 percent interim net salvage.

**FERC Account 345.00 Accessory Electrical Equipment (0% Net Salvage)**

This account includes any salvage and removal cost related to accessory electrical equipment used for other production utility operations. The 5-year and 10-year moving average for this account are negative 0.21 and negative 0.19 percent, respectively. This study recommends a 0 percent interim net salvage.

**FERC Account 346.00 Miscellaneous Power Plant Equipment (-5% Net Salvage)**

This account includes any salvage and removal cost related to

miscellaneous power plant equipment used for other production utility operations. The 5-year and 10-year moving average for this account are negative 5.17 and negative 4.15 percent, respectively. This study recommends a negative 5 percent interim net salvage.

## **TRANSMISSION PLANT**

### **FERC Account 352.00 Structures and Improvements (-10% Net Salvage)**

This account includes any salvage and removal cost related to structures and improvements used for transmission utility operations. The 3-10 year moving average net salvage percentages in 2019 range from negative 75.71 percent to a negative 137.62 percent. The averages in 2019 are impacted by high cost of removal recorded in that year, which occurred as a result of timing differences. Prior years indicate at least a negative 30 percent, and this study recommends moving toward those indications with a negative 10 percent net salvage at this time.

### **FERC Account 353.00 Station Equipment (-20% Net Salvage)**

This account includes any salvage and removal cost related to station equipment used for transmission utility operations. The most recent 5-year and 10-year moving average is a negative 33.73 and a negative 30.91 percent. Based on recent experience, there is some indication of timing differences. Giving consideration to all the information, the study recommends negative 20 percent net salvage for this account.

### **FERC Account 354.00 Towers and Fixtures (-10% Net Salvage)**

This account includes any salvage and removal cost related to poles and fixtures used for transmission utility operations. There have been few retirements over the 10-year period being analyzed and only two years have any cost of removal recorded. The most recent 5-year and 10-year moving average is a

negative 194.17 and a negative 175.32 percent, respectively. There is an indication of timing differences, but overall there is no salvage and a reasonable expectation for some cost of removal in the future. Based on discussions with the Company, the analysis, and judgment, this study recommends a negative 10 percent net salvage at this time.

**FERC Account 355.00 Poles and Fixtures (-100% Net Salvage)**

This account includes any salvage and removal cost related to poles and fixtures used for transmission utility operations. The analysis contains consistent recording of retirements, salvage and cost of removal. Overall cost of removal will exceed salvage and is indicated in the 5-year and 10-year moving average of negative 469.72 and negative 338.05 percent, respectively. The most recent 1 to 10 year moving averages are negative 300 or higher. Considering the possibility of some timing differences in the data, discussions with Company, the analysis, and judgment, this study recommends a negative 100 percent net salvage at this time.

**FERC Account 356.00 Overhead Conductors and Devices (-25% Net Salvage)**

This account includes any salvage and removal cost related to overhead conductors and devices used for transmission utility operations. The most recent experience is being influenced by the last 6 years of activity, most specifically the cost of removal in 2019. Timing differences could also be influencing the analysis. Considering all the information, the recommendation is to move to negative 25 percent net salvage for this account.



## **DISTRIBUTION PLANT**

### **FERC Account 361.00 Structures & Improvements (-10% Net Salvage)**

This account includes any salvage and removal cost related to structures and improvements used for distribution utility operations. Analysis indicates cost of removal has exceeded salvage in all but two years. The cost of removal recorded in 2017 compared to the retirements is influencing the numbers. The study has looked to the moving average indications in earlier years as well as judgment on the types of assets and retirement activities for the basis of the recommendation. This study recommends a negative 10 percent net salvage at this time.

### **FERC Account 362.00 Station Equipment (-15% Net Salvage)**

This account includes any salvage and removal cost related to station equipment used for distribution utility operations. Historical indications suggest that some salvage continues to be recorded. In the 2019 moving averages, years 2-10, it ranges from a low of negative 30.82 to a high of negative 55.54 percent. Both, salvage and cost of removal in 2019 are influencing the numbers. Looking to the moving averages in earlier years indicates a range from negative 10.88 to negative 16.06 percent in 2016, which is fairly consistent in 2017 and 2018. Considering these indications in the analysis, the study recommendation is negative 15 percent net salvage for this account.

### **FERC Account 364.00 Poles, Towers & Fixtures (-125% Net Salvage)**

This account includes any salvage and removal cost related to poles, towers and fixtures used for distribution utility operations. The study indicates consistent recording of retirements, salvage and cost of removal every year in the analysis. However, from 2014 to 2019, the individual years and moving averages indicate negative net salvage moving significantly more negative than in previous years. Giving consideration to the analysis indications and potential timing differences,

this study recommends a very conservative, less than 25 percent of the recent (2019 10 year moving average), negative 125 percent net salvage.

**FERC Account 365.00 Overhead Conductor (-100% Net Salvage)**

This account includes any salvage and removal cost related to overhead conductors used for distribution utility operations. Historical activity suggests salvage has been in decline since 2012, but even as far back as 2000 cost of removal has exceeded the salvage. The most recent 5-year and 10-year moving average is a negative 162.11 and a negative 147.97 percent, respectively. Giving consideration to timing differences along with the indications, this study recommends a negative 100 percent net salvage.

**FERC Account 366.00 Underground Conduit (-20% Net Salvage)**

This account includes any salvage and removal cost related to underground circuits used for distribution utility operations. The analysis indicates salvage exceeds cost of removal between 2005 and 2011. Since then, cost of removal has exceeded salvage becoming more negative. The most recent 5-year and 10-year moving average is a negative 88.35 and a negative 77.78 percent, respectively. Giving consideration to timing differences along with the indications, this study recommends a negative 20 percent net salvage.

**FERC Account 367.00 Underground Conductor & Devices (-25% Net Salvage)**

This account includes any salvage and removal cost related to underground conductor and devices used for distribution utility operations. The analysis indicates only four of the last 20 years has had a positive net salvage. Beginning in 2011, and each subsequent year, cost of removal exceeded salvage. The most recent 5-year and 10-year moving average is a negative 36.49 and a negative 37.04 percent, respectively. Cost of removal is expected to continue to exceed any salvage recorded. Based on the moving averages in the last several years,

this study recommends negative 25 percent net salvage for this account.

**FERC Account 368.00 Line Transformers (-10% Net Salvage)**

This account includes any salvage and removal cost related to line transformers used for distribution utility operations. In the full 20-year analysis, there have been five years where salvage has exceeded cost of removal. From 2012-2019 cost of removal has exceeded salvage. The most recent 5-year and 10-year moving average is a negative 21.04 and a negative 5.21 percent, respectively. Based on these indications and reliance on more recent moving averages, this study recommends a negative 10 percent net salvage for this account.

**FERC Account 369.00 Services (-100% Net Salvage)**

This account includes any salvage and removal cost related to services used for distribution utility operations. The analysis indicates continued negative net salvage with salvage continuing its decline and cost of removal increasing. The most recent 5-year and 10-year moving average is a negative 1,161.17 and a negative 318.93 percent, respectively. Cost of removal from 2015 has increased significantly while retirements amounts have not. Based on discussions with Company personnel, indications in the analysis, and judgment, this study recommends negative 100 percent net salvage.

**FERC Account 370.00 Meters (-2% Net Salvage)**

This account includes any salvage and removal cost related to meters used for distribution utility operations. Some salvage continues to be recorded but is much lower than cost of removal. Two years, 2017 and 2019 are influencing the analysis. The most recent 5-year and 10-year moving average is a negative 50.98 and a negative 38.02 percent, respectively. Looking to years prior to 2017, the moving averages were between a negative 2 or negative 3 percent. Based on the

analysis, with reliance on the moving average indications in the years prior to 2017, the study recommends a negative 2 percent net salvage.

**FERC Account 370.10 AMI Meters (0% Net Salvage)**

This account includes any salvage and removal cost related to AMI meters used for distribution utility operations. This is a new account. This study recommends a 0 percent net salvage at this time.

**FERC Account 371.00 Customer Premises Installation (-40% Net Salvage)**

This account includes any salvage and removal cost related to installations on customer premises. There has been some salvage recorded every year, but the amount has declined. Significant amounts of cost of removal are recorded from 2014 to 2019. The most recent 5-year and 10-year moving average is a negative 53.60 and a negative 39.53 percent, respectively. Expectations going forward are salvage will continue its decline while cost of removal continues to increase. Based on the consistent 2019 2-4 year moving averages, this study recommends negative 40 percent net salvage.

**FERC Account 371.01 Electric Vehicle Charging Station (0% Net Salvage)**

This account includes any salvage and removal cost related to electric vehicle charging stations. This is a new account. The study recommends a 0 percent net salvage.

**FERC Account 373.00 Street Lighting and Traffic Signal (-60% Net Salvage)**

This account includes any salvage and removal cost related to street lighting and traffic signals used for distribution utility operations. Beginning in 2014 cost of removal increases significantly compared to prior years. Some salvage continues to be recorded. The most recent 5-year and 10-year moving average is a negative 77.08 and a negative 65.93 percent, respectively. Considering the

consistent indication throughout time, this study recommends a negative 60 percent net salvage for this account.

**GENERAL PLANT - Depreciated**

**FERC Account 390.00 Structures & Improvements (-5% Net Salvage)**

This account includes any salvage and removal cost related to structures and improvements used for general utility operations. Historical experience indicates positive net salvage in the first eight years and then in 2014 little to no salvage was recorded but higher cost of removal. The most recent 5-year and 10-year moving average is a negative 12.26 and a negative 6.70 percent, respectively. The expectation going forward is that cost of removal will exceed any salvage. Based on the analysis indications, this study recommends a negative 5 percent net salvage.

**FERC Account 392.00 Transportation Equipment (10% Net Salvage)**

This account includes any salvage and removal cost related to automobiles used in general operations. Salvage has been and is expected to continue, which has varied over the 20-year analysis. Some costs to retire and sell the assets are being recorded, but it is a small amount. The most recent 5-year and 10-year moving average is a positive 11.27 and a positive 8.97 percent, respectively. Moderating the more recent experience, this study recommends positive 10 percent net salvage for this account.

**FERC Account 396.00 Power Operated Equipment (5% Net Salvage)**

This account includes any salvage and removal cost related to bulldozers, forklifts, trenchers, and other power operated equipment that cannot be licensed on roadways. The analysis has consistent salvage being recorded and some costs at retirement. However, salvage is always expected to exceed cost of removal. The most recent 5-year and 10-year moving average is a positive 5.78 and a

positive 5.07 percent, respectively. Based on the consistent positive net salvage indications across the analysis, this study recommends positive 5 percent net salvage for this account.

### **GENERAL PLANT - Amortized**

#### **FERC Account 391.00 Office Furniture & Equipment (0% Net Salvage)**

This account includes any salvage and removal cost related to desks, workstations, bookcases, furniture, and other miscellaneous furniture and equipment used for general utility operations. Some salvage is still being recorded and very little cost of removal. The 2019 10-year moving average is 0.37%, which is less than one percent. This study recommends moving to a 0 percent net salvage.

#### **FERC Account 391.30 Computer Equipment (0% Net Salvage)**

This account includes any salvage and removal cost related to computers, printers, servers and other miscellaneous computer related equipment used for general utility operations. Historically in the analysis, minimal salvage has been recorded and it is not likely to see any for this type of equipment at the end of its life. There is some cost of removal being recorded since 2014, which is reflective of requirements for proper disposal of computer related components. However, the 2019 10-year moving average is negative 0.51 percent, which is less than one percent. This study recommends a 0 percent net salvage.

#### **FERC Account 393.00 Stores Equipment (0% Net Salvage)**

This account includes any salvage and removal cost related to shelving, bins, forklifts, and other miscellaneous equipment used in general operations. Only one year has both salvage and cost of removal recorded, with cost of removal exceeding the salvage. Based on a 35-year life, salvage is not expected in the future and cost of removal is expected to be negligible. This study recommends 0

percent net salvage for this account.

**FERC Account 394.00 Tools, Shop & Garage Equipment (0% Net Salvage)**

This account includes any salvage and removal cost related to small tools, electric equipment, pumps, and other miscellaneous tools used to support general operations. Salvage has been recorded in the past, with minimal cost of removal associated. The overall 10-year net salvage percentage in 2019 is positive 8.28 percent, which is being influenced by the 2018 salvage. Considering a 20-year life and type of assets in the account, salvage is not expected to be realized at end of life. Considering the historical data and future expectations, this study recommends 0 percent net salvage for this account.

**FERC Account 395.00 Laboratory Equipment (0% Net Salvage)**

This account includes any salvage and removal cost related to various types of laboratory equipment. Historical activity is minimal, and no salvage or cost of removal is expected at retirement. This study recommends 0 percent net salvage for this account.

**FERC Account 397.00 Communication Equipment (0% Net Salvage)**

This account includes any salvage and removal cost related to telephones, mobile radios, microwave systems, and other communication related equipment. Both salvage and cost of removal have been recorded over the past 20 years. In 2010 and 2011 large salvage and cost of removal was recorded and is influencing the overall indications. The most recent 5-year and 10-year moving average is a negative 2.97 and a positive 46.36 percent, respectively. Expectations going forward are that any salvage would be offset by cost of removal, so this study recommends 0 percent net salvage for this account.

**FERC Account 398.00 Miscellaneous Equipment (0% Net Salvage)**

This account includes any salvage and removal cost related to signage, breakroom (kitchen) equipment, A/A equipment, and other miscellaneous equipment used to support general operations. Only one year had both salvage and cost of removal record but both amounts are negligible and nearly offset. The overall 2019 10-year moving average is a negative 0.13 percent. Future expectations are for no salvage and little, if any, cost of removal. This study recommends moving to 0 percent net salvage for this account.



**APPENDIX A**  
**Depreciation Rate Calculations**

**EMPIRE DISTRICT ELECTRIC  
COMPUTATION OF PROPOSED DEPRECIATION RATES  
AT DECEMBER 31, 2019**

Acct	Description	Plant Balance	Allocated Reserve	Net Salvage %	Net Salvage Amount	Unaccrued Balance	Remaining Life	Annual Accrual \$	Annual Accrual %
Iatan 1									
311	Structures and Improvements	4,100,102.72	2,371,902.77	-0.63%	(26,013.79)	1,754,213.73	19.49	90,025.95	2.20%
312	Boiler Plant Equipment	77,454,486.18	28,811,007.13	-1.72%	(1,334,517.27)	49,977,996.32	18.39	2,718,108.33	3.51%
312 Train	Unit Train	329,004.61	271,005.51	0.00%	0.00	57,999.10	2.50	23,199.64	7.05%
314	Turbogenerator Equipment	15,311,357.84	6,162,467.79	-2.56%	(392,672.26)	9,541,562.31	18.37	519,481.12	3.39%
315	Accessory Electric Equipment	8,401,393.24	3,642,515.95	-1.75%	(146,701.68)	4,905,578.97	17.76	276,186.78	3.29%
316	Miscellaneous Power Plant Equipme	1,350,362.17	570,935.72	-1.20%	(16,183.42)	795,609.88	16.29	48,830.36	3.62%
	Total Iatan 1	106,946,706.76	41,829,834.87		(1,916,088.41)	67,032,960.30		3,675,832.18	
Iatan 2									
311	Structures and Improvements	20,954,482.45	3,212,275.23	-1.36%	(285,083.48)	18,027,290.70	46.14	390,718.61	1.86%
312	Boiler Plant Equipment	146,505,299.87	21,137,176.64	-4.62%	(6,766,021.93)	132,134,145.15	38.80	3,405,910.42	2.32%
314	Turbogenerator Equipment	49,060,461.15	9,617,079.54	-7.62%	(3,740,020.61)	43,183,402.22	38.60	1,118,682.87	2.28%
315	Accessory Electric Equipment	12,340,510.71	2,457,063.89	-4.91%	(605,771.49)	10,489,218.31	36.72	285,673.89	2.31%
316	Miscellaneous Power Plant Equipme	350,002.35	54,438.03	-2.88%	(10,090.89)	305,655.21	31.02	9,853.47	2.82%
	Total Iatan 2	229,210,756.53	36,478,033.34		(11,406,988.40)	204,139,711.60		5,210,839.26	
Iatan Common									
311	Structures and Improvements	18,326,823.78	2,430,393.01	-1.33%	(243,713.33)	16,140,144.10	46.25	348,997.68	1.90%
312	Boiler Plant Equipment	40,075,479.05	6,338,348.75	-4.66%	(1,867,477.00)	35,604,607.30	38.59	922,640.79	2.30%
314	Turbogenerator Equipment	1,290,680.16	271,743.71	-7.72%	(99,668.89)	1,118,605.34	38.27	29,229.97	2.26%
315	Accessory Electric Equipment	5,085,098.24	1,063,770.27	-4.96%	(252,192.26)	4,273,520.23	36.41	117,370.36	2.31%
316	Miscellaneous Power Plant Equipme	728,527.34	123,986.97	-2.89%	(21,027.36)	625,567.73	30.63	20,420.34	2.80%
	Total Iatan Common	65,506,608.57	10,228,242.70		(2,484,078.84)	57,762,444.72		1,438,659.13	
Plum Point									
311	Structures and Improvements	20,567,779.14	3,824,038.03	-0.98%	(201,247.41)	16,944,988.52	37.88	447,293.31	2.17%
312	Boiler Plant Equipment	53,845,333.11	9,600,402.34	-3.53%	(1,899,529.95)	46,144,460.72	33.17	1,391,294.69	2.58%
Train Lease	Train Lease	5,196,477.55	3,417,472.51	0.00%	0.00	1,779,005.04	5.02	354,382.34	6.82%
312 Train	Unit Train	12,311.20	5,273.27	0.00%	0.00	7,037.93	8.50	827.99	6.73%
314	Turbogenerator Equipment	17,270,335.62	3,790,341.36	-5.88%	(1,015,278.68)	14,495,272.94	33.31	435,114.46	2.52%
315	Accessory Electric Equipment	5,390,590.54	1,175,963.42	-3.64%	(196,405.10)	4,411,032.22	32.37	136,261.53	2.53%
316	Miscellaneous Power Plant Equipme	2,968,455.81	669,089.10	-2.44%	(72,537.38)	2,371,904.09	26.99	87,882.71	2.96%
	Total Plum Point	105,251,282.97	22,482,580.02		(3,384,998.52)	86,153,701.47		2,853,057.03	
Ozark Beach									
331	Structures and Improvements	1,667,685.61	220,076.62	-1.05%	(17,478.93)	1,465,087.92	31.40	46,654.34	2.80%
332	Dams	3,488,976.39	991,098.81	-1.89%	(65,909.73)	2,563,787.31	27.94	91,749.15	2.63%
333	Turbogenerators	4,407,908.46	1,557,957.92	-2.38%	(104,958.95)	2,954,909.49	23.13	127,750.08	2.90%
334	Access. Electric	1,507,678.70	470,450.51	-2.82%	(42,459.54)	1,079,687.73	28.87	37,400.59	2.48%
335	Misc. Equipment	1,178,647.52	129,602.34	0.00%	0.00	1,049,045.18	26.46	39,644.53	3.36%
	Total Ozark Beach	12,250,896.68	3,369,186.21		(230,807.15)	9,112,517.62		343,198.69	

**EMPIRE DISTRICT ELECTRIC  
COMPUTATION OF PROPOSED DEPRECIATION RATES  
AT DECEMBER 31, 2019**

Acct	Description	Plant Balance	Allocated Reserve	Net Salvage %	Net Salvage Amount	Unaccrued Balance	Remaining Life	Annual Accrual \$	Annual Accrual %
Energy Center									
341	Structures and Improvements	3,218,722.19	1,613,688.66	-0.04%	(1,158.30)	1,606,191.83	6.43	249,722.91	7.76%
342	Fuel Holders	1,362,770.49	907,256.41	-0.05%	(740.83)	456,254.91	6.39	71,350.65	5.24%
343	Prime Movers	26,745,015.20	18,006,388.54	-0.14%	(36,688.40)	8,775,315.05	6.25	1,404,967.73	5.25%
344	Generators	6,595,022.27	3,429,136.20	-0.05%	(3,373.35)	3,169,259.42	6.20	511,125.26	7.75%
345	Access. Electric	2,376,137.17	1,446,451.27	0.00%	0.00	929,685.90	6.25	148,646.06	6.26%
346	Misc. Equipment	2,055,148.89	1,154,281.07	-0.22%	(4,543.46)	905,411.27	6.31	143,387.50	6.98%
	Total Energy Center	42,352,816.21	26,557,202.15		(46,504.33)	15,842,118.39		2,529,200.12	
Energy Center FT8									
341	Structures and Improvements	1,124,305.87	402,453.97	-0.10%	(1,155.50)	723,007.40	22.99	31,450.91	2.80%
342	Fuel Holders	1,453,119.42	500,450.08	-0.13%	(1,960.62)	954,629.96	22.78	41,906.86	2.88%
343	Prime Movers	50,019,595.81	16,072,039.20	-0.41%	(203,006.37)	34,150,562.98	21.12	1,617,115.88	3.23%
344	Generators	5,123,304.91	277,906.94	-0.15%	(7,512.87)	4,852,910.84	21.86	222,009.42	4.33%
345	Access. Electric	3,539,969.73	1,118,399.51	0.00%	0.00	2,421,570.22	20.91	115,815.34	3.27%
346	Misc. Equipment	1,038,754.62	373,005.76	-0.73%	(7,589.53)	673,338.39	21.97	30,641.31	2.95%
	Total Energy FT8	62,299,050.36	18,744,255.46		(221,224.88)	43,776,019.79		2,058,939.73	
Energy Supply Common									
341	Structures and Improvements	14,617,752.35	4,137,686.03	-0.38%	(55,186.46)	10,535,252.79	34.67	303,855.49	2.08%
342	Fuel Holders	2,427,504.70	792,819.26	-0.43%	(10,453.87)	1,645,139.31	34.05	48,308.81	1.99%
345	Access. Electric	189,248.34	81,902.62	0.00%	0.00	107,345.72	25.89	4,146.96	2.19%
346	Misc. Equipment	863,528.67	224,098.91	-1.82%	(15,701.48)	655,131.24	31.29	20,934.38	2.42%
	Total Energy Supply Common	18,098,034.06	5,236,506.82		(81,341.82)	12,942,869.05		377,245.64	
Riverton 12									
341	Structures and Improvements	18,481,559.59	1,425,798.94	-0.13%	(23,613.12)	17,079,373.77	36.69	465,489.14	2.52%
342	Fuel Holders	945,601.29	209,424.41	-0.27%	(2,550.79)	738,727.67	35.48	20,821.56	2.20%
343	Prime Movers	151,665,736.80	13,628,873.32	-0.60%	(905,546.93)	138,942,410.42	32.72	4,246,899.16	2.80%
344	Generators	21,746,821.84	3,099,788.93	-0.30%	(64,923.57)	18,711,956.47	32.16	581,926.26	2.68%
345	Access. Electric	26,044,062.90	2,989,465.96	0.00%	0.00	23,054,596.94	31.54	730,987.21	2.81%
346	Misc. Equipment	2,825,893.79	439,533.54	-1.24%	(34,924.38)	2,421,284.63	34.05	71,114.21	2.52%
	Total Riverton 12	221,709,676.21	21,792,885.10		(1,031,558.79)	200,948,349.90		6,117,237.54	
Riverton 9, 10, 11									
341	Structures and Improvements	10,260,696.02	3,789,900.41	-0.03%	(3,339.28)	6,474,134.89	12.59	514,049.63	5.01%
342	Fuel Holders	604,025.37	295,833.46	-0.10%	(582.08)	308,773.99	13.16	23,464.07	3.88%
343	Prime Movers	8,571,371.87	3,732,014.38	-0.25%	(21,291.63)	4,860,649.12	12.45	390,401.89	4.55%
344	Generators	1,779,491.43	1,047,594.84	-0.13%	(2,293.28)	734,189.87	12.39	59,268.62	3.33%
345	Access. Electric	1,793,586.08	701,045.30	0.00%	0.00	1,092,540.78	12.65	86,400.60	4.82%
346	Misc. Equipment	1,822,821.56	375,124.91	-0.20%	(3,625.32)	1,451,321.97	13.22	109,752.75	6.02%
	Total Riverton 9, 10, 11	24,831,992.33	9,941,513.29		(31,131.59)	14,921,610.63		1,183,337.57	

**EMPIRE DISTRICT ELECTRIC  
COMPUTATION OF PROPOSED DEPRECIATION RATES  
AT DECEMBER 31, 2019**

Acct	Description	Plant Balance	Allocated Reserve	Net Salvage %	Net Salvage Amount	Unaccrued Balance	Remaining Life	Annual Accrual \$	Annual Accrual %
State Line 1									
341	Structures and Improvements	1,111,584.05	524,078.52	-0.13%	(1,446.31)	588,951.85	19.89	29,604.23	2.66%
342	Fuel Holders	3,244,381.79	1,491,880.56	-0.15%	(4,974.66)	1,757,475.89	19.75	88,994.97	2.74%
343	Prime Movers	26,906,444.17	11,493,732.61	-0.43%	(115,402.18)	15,528,113.74	18.10	857,753.88	3.19%
344	Generators	7,813,341.92	2,434,685.80	-0.16%	(12,538.78)	5,391,194.90	18.68	288,546.41	3.69%
345	Access. Electric	3,329,036.61	1,176,312.69	0.00%	0.00	2,152,723.92	18.40	116,974.73	3.51%
346	Misc. Equipment	363,651.27	43,970.75	-0.31%	(1,133.80)	320,814.33	19.93	16,094.28	4.43%
	Total State Line 1	42,768,439.81	17,164,660.93		(135,495.74)	25,739,274.62		1,397,968.50	
State Line CC									
341	Structures and Improvements	8,478,109.04	2,513,891.11	-0.19%	(16,450.55)	5,980,668.48	30.30	197,388.97	2.33%
342	Fuel Holders	204,374.20	60,335.19	-0.24%	(481.82)	144,520.83	29.91	4,831.43	2.36%
343	Prime Movers	111,386,515.08	33,803,748.57	-0.68%	(762,272.17)	78,345,038.69	26.25	2,984,432.38	2.68%
344	Generators	30,294,250.20	8,536,151.34	-0.28%	(83,433.39)	21,841,532.25	27.03	808,147.28	2.67%
345	Access. Electric	8,144,447.16	2,201,179.60	0.00%	0.00	5,943,267.56	26.56	223,739.25	2.75%
346	Misc. Equipment	2,979,886.57	343,167.13	-1.35%	(40,106.39)	2,676,825.83	27.98	95,669.79	3.21%
	Total State Line CC	161,487,582.25	47,458,472.94		(902,744.33)	114,931,853.65		4,314,209.10	
State Line Common									
341	Structures and Improvements	3,792,571.99	1,084,347.21	-0.22%	(8,444.89)	2,716,669.67	30.09	90,290.68	2.38%
342	Fuel Holders	226,749.40	77,897.36	-0.28%	(640.53)	149,492.57	29.56	5,056.60	2.23%
343	Prime Movers	843,733.15	54,186.00	-0.41%	(3,500.19)	793,047.34	28.61	27,716.19	3.28%
345	Access. Electric	2,933,782.98	556,888.60	0.00%	0.00	2,376,894.38	27.15	87,549.20	2.98%
346	Misc. Equipment	1,052,547.73	105,249.97	-1.25%	(13,161.05)	960,458.81	28.24	34,014.64	3.23%
	Total State Line Common	8,849,385.25	1,878,569.14		(25,746.66)	6,996,562.77		244,627.31	
Transmission									
352	Structures and Improvements	4,662,675.57	1,103,028.95	-10%	(466,267.56)	4,025,914.18	54.05	74,482.79	1.60%
353	Station Equipment	189,861,295.58	41,646,867.76	-20%	(37,972,259.12)	186,186,686.94	40.32	4,618,029.92	2.43%
354	Tower	2,945,557.99	662,769.27	-10%	(294,555.80)	2,577,344.52	58.75	43,871.65	1.49%
355	Poles and Fixtures	102,153,632.33	35,609,007.72	-100%	(102,153,632.33)	168,698,256.94	48.11	3,506,804.07	3.43%
356	Overhead Conductor	100,276,751.75	30,118,748.07	-25%	(25,069,187.94)	95,227,191.62	48.45	1,965,322.01	1.96%
	Total Transmission	399,899,913.22	109,140,421.77		(165,955,902.74)	456,715,394.19		10,208,510.44	

**EMPIRE DISTRICT ELECTRIC  
COMPUTATION OF PROPOSED DEPRECIATION RATES  
AT DECEMBER 31, 2019**

Acct	Description	Plant Balance	Allocated Reserve	Net Salvage %	Net Salvage Amount	Unaccrued Balance	Remaining Life	Annual Accrual \$	Annual Accrual %
Distribution									
361	Structures and Improvements	33,920,439.03	5,828,279.85	-10%	(3,392,043.90)	31,484,203.08	46.89	671,432.41	1.98%
362	Station Equipment	157,388,738.98	36,129,772.38	-15%	(23,608,310.85)	144,867,277.45	41.39	3,499,965.23	2.22%
364	Poles & Fixtures	226,564,820.49	151,214,087.65	-125%	(283,206,025.61)	358,556,758.45	36.72	9,764,515.12	4.31%
365	OH Conductor	221,006,696.53	114,790,294.14	-100%	(221,006,696.53)	327,223,098.92	48.31	6,773,285.16	3.06%
366	UG Conduit	51,186,997.90	14,332,943.77	-20%	(10,237,399.58)	47,091,453.71	41.33	1,139,482.05	2.23%
367	UG Conductor	72,210,458.31	23,039,266.55	-25%	(18,052,614.58)	67,223,806.33	40.99	1,639,986.50	2.27%
368	Line Transformers	132,533,159.07	37,148,816.28	-10%	(13,253,315.91)	108,637,658.69	37.97	2,860,814.16	2.16%
369	Services	94,079,049.53	62,606,583.90	-100%	(94,079,049.53)	125,551,515.16	37.04	3,389,528.77	3.60%
370	Meters (remaining after AMI deployment)								
	Arkansas	193,566.91	54,367.54	-2%	(3,871.34)	143,070.71	18.55	7,713.92	3.99%
	Kansas	606,085.77	177,757.95	-2%	(12,121.72)	440,449.54	18.27	24,102.99	3.98%
	Missouri	7,842,594.08	2,616,159.87	-2%	(156,851.88)	5,383,286.09	16.05	335,418.27	4.28%
	Oklahoma	270,608.19	111,843.69	-2%	(5,412.16)	164,176.66	18.34	8,952.94	3.31%
370.2	AMI Meters			0%			20.00	0.00	5.00%
371	Installation on Customer Premises	18,016,325.94	12,008,854.63	-40%	(7,206,530.38)	13,214,001.68	15.42	857,149.86	4.76%
373	Street Lighting & Signals	20,745,395.77	7,430,277.82	-60%	(12,447,237.46)	25,762,355.42	35.49	725,905.14	3.50%
375	Charging Stations	161,630.70	21,329.95	0%	0.00	140,300.75	17.51	8,013.15	4.96%
	Total Distribution	1,036,726,567.20	467,510,635.97		(686,667,481.42)	1,255,883,412.65		31,706,265.68	
General Depreciated									
390	Structures and Improvements	15,799,445.13	5,163,441.76	-5%	(789,972.26)	11,425,975.63	32.51	351,446.88	2.22%
392	Transportation Equipment	20,855,658.28	6,960,570.91	10%	2,085,565.83	11,809,521.54	7.35	1,606,717.52	7.70%
396	Power Operated Equipment	22,685,865.67	9,200,854.95	5%	1,134,293.28	12,350,717.44	8.06	1,532,327.18	6.75%
	Total General Depreciated	59,340,969.08	21,324,867.62		2,429,886.86	35,586,214.61		3,490,491.58	

## Empire District Electric Company

COMPUTATION OF AMORTIZATION RATE  
AT DECEMBER 31, 2019

Account	Description	Original Cost at 12/31/19	Allocated Book Reserve at 12/31/19	Theoretical Reserve \$	Reserve Difference \$	Asset > ASL	Remaining Life	Annual Amortization Reserve Difference
391	Office Furniture	6,651,789.30	3,509,573.95	3,311,394.41	(198,179.54)	1,557,006.53	13.11	(15,113.21)
391	Computer Equipment	17,179,126.20	12,679,488.18	12,369,103.50	(310,384.68)	9,814,564.22	3.27	(95,045.17)
393	Stores Equipment	2,131,056.51	404,742.85	370,562.28	(34,180.57)	82,634.47	30.08	(1,136.31)
394	Tools, Shop & Garage Equip	8,417,787.35	4,408,036.93	4,156,312.46	(251,724.47)	1,910,683.54	13.10	(19,218.67)
395	Laboratory Equipment	3,151,490.20	1,190,721.28	1,153,812.50	(36,908.78)	858,780.68	17.43	(2,117.99)
397	Communication Equipment	11,371,222.94	8,448,369.90	8,060,318.66	(388,051.24)	4,697,886.08	7.44	(52,142.79)
398	Miscellaneous Equipment	286,041.66	152,645.37	139,707.39	(12,937.99)	28,996.93	19.36	(668.42)
	Total	49,188,514.16	30,793,578.46	29,561,211.19	(1,232,367.27)	18,950,552.45		(185,442.55)

After Retirements of Assets with Age &gt; Average Service Life

Account	Description	Plant Balance	Allocated Reserve	Annual Amortization	Amortization Life Amount	Amortization Net Salvage	Annual Amortization %	Annual Amortization \$
391	Office Furniture	5,094,782.77	3,509,573.95	254,739.14	20	0%	5.00%	254,739.14
391	Computer Equipment	7,364,561.98	12,679,488.18	1,472,912.40	5	0%	20.00%	1,472,912.40
393	Stores Equipment	2,048,422.04	404,742.85	58,526.34	35	0%	2.86%	58,526.34
394	Tools, Shop & Garage Equip	6,507,103.81	4,408,036.93	325,355.19	20	0%	5.00%	325,355.19
395	Laboratory Equipment	2,292,709.52	1,190,721.28	114,635.48	20	0%	5.00%	114,635.48
397	Communication Equipment	6,673,336.86	8,448,369.90	444,889.12	15	0%	6.67%	444,889.12
398	Miscellaneous Equipment	257,044.73	152,645.37	7,560.14	34	0%	2.94%	7,560.14
		30,237,961.71	30,793,578.46	2,678,617.81				2,678,617.81

**APPENDIX B**  
**Depreciation Expense Comparison**

**EMPIRE DISTRICT ELECTRIC  
COMPARISON OF APPROVED VS. PROPOSED DEPRECIATION EXPENSE  
USING REMAINING LIFE DEPRECIATION RATES AND RESERVE REALLOCATION  
AT DECEMBER 31, 2019**

Acct	Description	Plant Balance	Current Depreciation Rate	Current Depreciation Expense	Proposed Depreciation Rate	Proposed Annual Accrual \$	Difference
latan 1							
311	Structures and Improvements	4,100,102.72	1.20%	49,201.23	2.20%	90,025.95	40,824.72
312	Boiler Plant Equipment	77,454,486.18	1.92%	1,487,126.13	3.51%	2,718,108.33	1,230,982.19
312 Train	Unit Train	329,004.61	1.92%	6,316.89	7.05%	23,199.64	16,882.75
314	Turbogenerator Equipment	15,311,357.84	1.63%	249,575.13	3.39%	519,481.12	269,905.99
315	Accessory Electric Equipment	8,401,393.24	1.85%	155,425.77	3.29%	276,186.78	120,761.01
316	Miscellaneous Power Plant Equipment	1,350,362.17	1.96%	26,467.10	3.62%	48,830.36	22,363.26
	Total latan 1	106,946,706.76		1,974,112.26		3,675,832.18	1,701,719.92
latan 2							
311	Structures and Improvements	20,954,482.45	1.20%	251,453.79	1.86%	390,718.61	139,264.82
312	Boiler Plant Equipment	146,505,299.87	1.92%	2,812,901.76	2.32%	3,405,910.42	593,008.66
314	Turbogenerator Equipment	49,060,461.15	1.63%	799,685.52	2.28%	1,118,682.87	318,997.35
315	Accessory Electric Equipment	12,340,510.71	1.85%	228,299.45	2.31%	285,673.89	57,374.44
316	Miscellaneous Power Plant Equipment	350,002.35	1.96%	6,860.05	2.82%	9,853.47	2,993.43
	Total latan 2	229,210,756.53		4,099,200.56		5,210,839.26	1,111,638.70
latan Common							
311	Structures and Improvements	18,326,823.78	1.20%	219,921.89	1.90%	348,997.68	129,075.79
312	Boiler Plant Equipment	40,075,479.05	1.92%	769,449.20	2.30%	922,640.79	153,191.59
314	Turbogenerator Equipment	1,290,680.16	1.63%	21,038.09	2.26%	29,229.97	8,191.88
315	Accessory Electric Equipment	5,085,098.24	1.85%	94,074.32	2.31%	117,370.36	23,296.04
316	Miscellaneous Power Plant Equipment	728,527.34	1.96%	14,279.14	2.80%	20,420.34	6,141.20
	Total latan Common	65,506,608.57		1,118,762.62		1,438,659.13	319,896.50
Plum Point							
311	Structures and Improvements	20,567,779.14	1.20%	246,813.35	2.17%	447,293.31	200,479.96
312	Boiler Plant Equipment	53,845,333.11	1.92%	1,033,830.40	2.58%	1,391,294.69	357,464.29
Train Lease	Train Lease	5,196,477.55	1.92%	99,772.37	6.82%	354,382.34	254,609.97
312 Train	Unit Train	12,311.20	1.92%	236.38	6.73%	827.99	591.62
314	Turbogenerator Equipment	17,270,335.62	1.63%	281,506.47	2.52%	435,114.46	153,607.99
315	Accessory Electric Equipment	5,390,590.54	1.85%	99,725.92	2.53%	136,261.53	36,535.60
316	Miscellaneous Power Plant Equipment	2,968,455.81	1.96%	58,181.73	2.96%	87,882.71	29,700.98
	Total Plum Point	105,251,282.97		1,820,066.62		2,853,057.03	1,032,990.42
	Total Production	506,915,354.83		9,012,142.06		13,178,387.60	4,166,245.54
Ozark Beach							
331	Structures and Improvements	1,667,685.61	1.65%	27,516.81	2.80%	46,654.34	19,137.53
332	Dams	3,488,976.39	1.63%	56,870.32	2.63%	91,749.15	34,878.83
333	Turbogenerators	4,407,908.46	1.46%	64,355.46	2.90%	127,750.08	63,394.61
334	Access. Electric	1,507,678.70	1.45%	21,861.34	2.48%	37,400.59	15,539.25
335	Misc. Equipment	1,178,647.52	2.41%	28,405.41	3.36%	39,644.53	11,239.12
	Total Ozark Beach	12,250,896.68		199,009.34		343,198.69	144,189.35



**EMPIRE DISTRICT ELECTRIC  
COMPARISON OF APPROVED VS. PROPOSED DEPRECIATION EXPENSE  
USING REMAINING LIFE DEPRECIATION RATES AND RESERVE REALLOCATION  
AT DECEMBER 31, 2019**

Acct	Description	Plant Balance	Current Depreciation Rate	Current Depreciation Expense	Proposed Depreciation Rate	Proposed Annual Accrual \$	Difference
<b>Energy Center</b>							
341	Structures and Improvements	3,218,722.19	1.81%	58,258.87	7.76%	249,722.91	191,464.04
342	Fuel Holders	1,362,770.49	3.78%	51,512.72	5.24%	71,350.65	19,837.93
343	Prime Movers	26,745,015.20	1.93%	516,178.79	5.25%	1,404,967.73	888,788.94
344	Generators	6,595,022.27	1.82%	120,029.41	7.75%	511,125.26	391,095.86
345	Access. Electric	2,376,137.17	3.54%	84,115.26	6.26%	148,646.06	64,530.81
346	Misc. Equipment	2,055,148.89	3.94%	80,972.87	6.98%	143,387.50	62,414.64
	<b>Total Energy Center</b>	<b>42,352,816.21</b>		<b>911,067.92</b>		<b>2,529,200.12</b>	<b>1,618,132.20</b>
<b>Energy Center FT8</b>							
341	Structures and Improvements	1,124,305.87	1.81%	20,349.94	2.80%	31,450.91	11,100.97
342	Fuel Holders	1,453,119.42	3.78%	54,927.91	2.88%	41,906.86	(13,021.05)
343	Prime Movers	50,019,595.81	1.93%	965,378.20	3.23%	1,617,115.88	651,737.69
344	Generators	5,123,304.91	1.82%	93,244.15	4.33%	222,009.42	128,765.27
345	Access. Electric	3,539,969.73	3.54%	125,314.93	3.27%	115,815.34	(9,499.59)
346	Misc. Equipment	1,038,754.62	3.94%	40,926.93	2.95%	30,641.31	(10,285.62)
	<b>Total Energy FT8</b>	<b>62,299,050.36</b>		<b>1,300,142.06</b>		<b>2,058,939.73</b>	<b>758,797.67</b>
<b>Energy Supply Common</b>							
341	Structures and Improvements	14,617,752.35	1.20%	175,413.03	2.08%	303,855.49	128,442.46
342	Fuel Holders	2,427,504.70	1.92%	46,608.09	1.99%	48,308.81	1,700.72
345	Access. Electric	189,248.34	1.85%	3,501.09	2.19%	4,146.96	645.87
346	Misc. Equipment	863,528.67	1.96%	16,925.16	2.42%	20,934.38	4,009.22
	<b>Total Energy Supply Common</b>	<b>18,098,034.06</b>		<b>242,447.37</b>		<b>377,245.64</b>	<b>134,798.26</b>
<b>Riverton 12</b>							
341	Structures and Improvements	18,481,559.59	2.84%	524,876.29	2.52%	465,489.14	(59,387.15)
342	Fuel Holders	945,601.29	2.84%	26,855.08	2.20%	20,821.56	(6,033.51)
343	Prime Movers	151,665,736.80	2.84%	4,307,306.93	2.80%	4,246,899.16	(60,407.77)
344	Generators	21,746,821.84	2.84%	617,609.74	2.68%	581,926.26	(35,683.48)
345	Access. Electric	26,044,062.90	2.84%	739,651.39	2.81%	730,987.21	(8,664.18)
346	Misc. Equipment	2,825,893.79	2.83%	79,972.79	2.52%	71,114.21	(8,858.58)
	<b>Total Riverton 12</b>	<b>221,709,676.21</b>		<b>6,296,272.21</b>		<b>6,117,237.54</b>	<b>(179,034.67)</b>
<b>Riverton 9, 10, 11</b>							
341	Structures and Improvements	10,260,696.02	1.81%	185,718.60	5.01%	514,049.63	328,331.04
342	Fuel Holders	604,025.37	3.78%	22,832.16	3.88%	23,464.07	631.91
343	Prime Movers	8,571,371.87	1.93%	165,427.48	4.55%	390,401.89	224,974.41
344	Generators	1,779,491.43	1.82%	32,386.74	3.33%	59,268.62	26,881.88
345	Access. Electric	1,793,586.08	3.54%	63,492.95	4.82%	86,400.60	22,907.65
346	Misc. Equipment	1,822,821.56	3.94%	71,819.17	6.02%	109,752.75	37,933.58
	<b>Total Riverton 9, 10, 11</b>	<b>24,831,992.33</b>		<b>541,677.09</b>		<b>1,183,337.57</b>	<b>641,660.47</b>

**EMPIRE DISTRICT ELECTRIC  
COMPARISON OF APPROVED VS. PROPOSED DEPRECIATION EXPENSE  
USING REMAINING LIFE DEPRECIATION RATES AND RESERVE REALLOCATION  
AT DECEMBER 31, 2019**

Acct	Description	Plant Balance	Current Depreciation Rate	Current Depreciation Expense	Proposed Depreciation Rate	Proposed Annual Accrual \$	Difference
State Line 1							
341	Structures and Improvements	1,111,584.05	1.81%	20,119.67	2.66%	29,604.23	9,484.56
342	Fuel Holders	3,244,381.79	3.78%	122,637.63	2.74%	88,994.97	(33,642.66)
343	Prime Movers	26,906,444.17	1.93%	519,294.37	3.19%	857,753.88	338,459.50
344	Generators	7,813,341.92	1.82%	142,202.82	3.69%	288,546.41	146,343.59
345	Access. Electric	3,329,036.61	3.54%	117,847.90	3.51%	116,974.73	(873.17)
346	Misc. Equipment	363,651.27	3.94%	14,327.86	4.43%	16,094.28	1,766.42
	Total State Line 1	42,768,439.81		936,430.25		1,397,968.50	461,538.24
State Line CC							
341	Structures and Improvements	8,478,109.04	2.84%	240,778.30	2.33%	197,388.97	(43,389.33)
342	Fuel Holders	204,374.20	2.84%	5,804.23	2.36%	4,831.43	(972.79)
343	Prime Movers	111,386,515.08	2.84%	3,163,377.03	2.68%	2,984,432.38	(178,944.65)
344	Generators	30,294,250.20	2.84%	860,356.71	2.67%	808,147.28	(52,209.43)
345	Access. Electric	8,144,447.16	2.84%	231,302.30	2.75%	223,739.25	(7,563.05)
346	Misc. Equipment	2,979,886.57	2.83%	84,330.79	3.21%	95,669.79	11,339.00
	Total State Line CC	161,487,582.25		4,585,949.35		4,314,209.10	(271,740.25)
State Line Common							
341	Structures and Improvements	3,792,571.99	2.84%	107,709.04	2.38%	90,290.68	(17,418.37)
342	Fuel Holders	226,749.40	2.84%	6,439.68	2.23%	5,056.60	(1,383.08)
343	Prime Movers	843,733.15	2.84%	23,962.02	3.28%	27,716.19	3,754.16
345	Access. Electric	2,933,782.98	2.84%	83,319.44	2.98%	87,549.20	4,229.77
346	Misc. Equipment	1,052,547.73	2.83%	29,787.10	3.23%	34,014.64	4,227.54
	Total State Line Common	8,849,385.25		251,217.29		244,627.31	(6,589.97)
	Total Other Production	582,396,976.48		15,065,203.55		18,222,765.50	3,157,561.95
Wind Plant		0.00	3.33%	0.00	3.33%	0.00	0.00
Solar Plant		0.00	0.00%	0.00	5.00%	0.00	0.00
Transmission							
352	Structures and Improvements	4,662,675.57	2.01%	93,719.78	1.60%	74,482.79	(19,236.99)
353	Station Equipment	189,861,295.58	2.18%	4,138,976.24	2.43%	4,618,029.92	479,053.68
354	Tower	2,945,557.99	1.83%	53,903.71	1.49%	43,871.65	(10,032.06)
355	Poles and Fixtures	102,153,632.33	3.19%	3,258,700.87	3.43%	3,506,804.07	248,103.20
356	Overhead Conductor	100,276,751.75	2.09%	2,095,784.11	1.96%	1,965,322.01	(130,462.10)
	Total Transmission	399,899,913.22		9,641,084.72		10,208,510.44	567,425.72

**EMPIRE DISTRICT ELECTRIC  
COMPARISON OF APPROVED VS. PROPOSED DEPRECIATION EXPENSE  
USING REMAINING LIFE DEPRECIATION RATES AND RESERVE REALLOCATION  
AT DECEMBER 31, 2019**

Acct	Description	Plant Balance	Current Depreciation Rate	Current Depreciation Expense	Proposed Depreciation Rate	Proposed Annual Accrual \$	Difference
Distribution							
361	Structures and Improvements	33,920,439.03	1.98%	671,624.69	1.98%	671,432.41	(192.28)
362	Station Equipment	157,388,738.98	2.44%	3,840,285.23	2.22%	3,499,965.23	(340,320.00)
364	Poles & Fixtures	226,564,820.49	2.43%	5,505,525.14	4.31%	9,764,515.12	4,258,989.98
365	OH Conductor	221,006,696.53	2.10%	4,641,140.63	3.06%	6,773,285.16	2,132,144.54
366	UG Conduit	51,186,997.90	2.97%	1,520,253.84	2.23%	1,139,482.05	(380,771.79)
367	UG Conductor	72,210,458.31	3.61%	2,606,797.54	2.27%	1,639,986.50	(966,811.04)
368	Line Transformers	132,533,159.07	2.51%	3,326,582.29	2.16%	2,860,814.16	(465,768.13)
369	Services	94,079,049.53	3.03%	2,850,595.20	3.60%	3,389,528.77	538,933.57
370	Meters Arkansas	193,566.91	1.94%	3,755.20	3.99%	7,713.92	3,958.73
370	Meters Kansas	606,085.77	2.28%	13,818.76	3.98%	24,102.99	10,284.24
370	Meters Missouri	7,842,594.08	2.27%	178,026.89	4.28%	335,418.27	157,391.39
370	Meters Oklahoma	270,608.19	2.27%	6,142.81	3.31%	8,952.94	2,810.13
370.1	AMI Meters	0.00	2.58%	0.00	5.00%	0.00	0.00
371	Installation on Customer Premises	18,016,325.94	5.15%	927,840.79	4.76%	857,149.86	(70,690.92)
373	Street Lighting & Signals	20,745,395.77	2.36%	489,591.34	3.50%	725,905.14	236,313.80
375	Charging Stations	161,630.70	5.00%	8,081.54	4.96%	8,013.15	(68.39)
	Total Distribution	1,036,726,567.20		26,590,061.87		31,706,265.68	5,116,203.81
	Storage Batteries	0.00	0.00%	0.00	5.00%	0.00	0.00
After retirement of assets > ASL for Account 391, 393-395, and 397-398							
General Plant							
390	Structures and Improvements	15,799,445.13	2.84%	448,704.24	2.22%	351,446.88	(97,257.36)
391	Office Furniture	5,094,782.77	4.96%	252,701.23	5.00%	254,739.14	2,037.91
391	Computer Equipment	7,364,561.98	10.09%	743,084.30	20.00%	1,472,912.40	729,828.09
392	Transportation Equipment	20,855,658.28	7.00%	1,459,896.08	7.70%	1,606,717.52	146,821.45
393	Stores Equipment	2,048,422.04	3.14%	64,320.45	2.86%	58,526.34	(5,794.11)
394	Tools, Shop & Garage Equip	6,507,103.81	4.34%	282,408.31	5.00%	325,355.19	42,946.89
395	Laboratory Equipment	2,292,709.52	2.58%	59,151.91	5.00%	114,635.48	55,483.57
396	Power Operated Equipment	22,685,865.67	6.27%	1,422,403.78	6.75%	1,532,327.18	109,923.40
397	Communication Equipment	6,673,336.86	4.04%	269,602.81	6.67%	444,889.12	175,286.31
398	Miscellaneous Equipment	257,044.73	4.42%	11,361.38	2.94%	7,560.14	(3,801.24)
	Total General	89,578,930.79		5,013,634.48		6,169,109.39	1,155,474.92
	General Plant Reserve Amortization					(185,442.55)	(185,442.55)
	Total	2,627,768,639.20		65,521,136.01		79,642,794.75	14,121,658.74

**APPENDIX C**  
**Depreciation Parameter Comparison**

**EMPIRE DISTRICT EXISTING AND PROPOSED DEPRECIATION PARAMETERS  
PRODUCTION PLANT  
AT DECEMBER 31, 2019**

KS Docket 19-EPDE-223-RTS	AR 10-052-U	OK PUD 201600468	MO ER-2016-0023	Proposed
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FERC CODE	FERC DESCR	Life	Curve	Net Salvage	Net Salvage			Net Salvage			Net Salvage			Interim Retirement	Interim Retirement	Interim Retirement
					Life	Curve	Net Salvage	Life	Curve	Net Salvage	Life	Curve	Net Salvage	Life	Curve	Net Salvage
Production																
311	Structures	NA	NA	-5.00%	NA	NA		NA	NA	-10.00%	NA	NA	-10.00%	90	R1.5	-7.00%
312	Boiler Plant	NA	NA	-5.00%	NA	NA		NA	NA	-10.00%	NA	NA	-10.00%	55	R0.5	-10.00%
312	(Unit Train)	NA	NA	0.00%	NA	NA		NA	NA	0.00%	NA	NA	0.00%	15	SQ	0.00%
314	Turbogenerators	NA	NA	-5.00%	NA	NA		NA	NA	-10.00%	NA	NA	-10.00%	60	L1	-15.00%
315	Access. Electric	NA	NA	-5.00%	NA	NA		NA	NA	-10.00%	NA	NA	-10.00%	50	S0.5	-8.00%
316	Misc. Equipment	NA	NA	-5.00%	NA	NA		NA	NA	-10.00%	NA	NA	-10.00%	40	L0.5	-4.00%
Hydro																
330	Land	NA	NA		NA	NA		NA	NA		NA	NA				
331	Structures	NA	NA	-5.00%	NA	NA		NA	NA	-10.00%	NA	NA	-10.00%	100	R1.5	-10.00%
332	Dams	NA	NA	-5.00%	NA	NA		NA	NA	-10.00%	NA	NA	-10.00%	85	R0.5	-10.00%
333	Turbogenerators	NA	NA	-5.00%	NA	NA		NA	NA	-10.00%	NA	NA	-10.00%	90	S6	-10.00%
334	Access. Electric	NA	NA	-5.00%	NA	NA		NA	NA	-10.00%	NA	NA	-10.00%	70	L2.5	-10.00%
335	Misc. Equipment	NA	NA	-5.00%	NA	NA		NA	NA	-10.00%	NA	NA	-10.00%	45	R0.5	0.00%
Other Production																
340	Land	NA	NA		NA	NA		NA	NA		NA	NA				
341	Structures	NA	NA	-2.00%	NA	NA		NA	NA	-5.00%	NA	NA	-5.00%	75	R3	-2.00%
342	Fuel Holders	NA	NA	-2.00%	NA	NA		NA	NA	-5.00%	NA	NA	-5.00%	75	R2.5	-2.00%
343	Prime Movers	NA	NA	5.00%	NA	NA		NA	NA	5.00%	NA	NA	5.00%	50	R1.5	-2.00%
344	Generators	NA	NA	5.00%	NA	NA		NA	NA	5.00%	NA	NA	5.00%	55	R1	-1.00%
345	Access. Electric	NA	NA	-2.00%	NA	NA		NA	NA	-5.00%	NA	NA	-5.00%	55	R0.5	0.00%
346	Misc. Equipment	NA	NA	-2.00%	NA	NA		NA	NA	-5.00%	NA	NA	-5.00%	55	R2.5	-5.00%
Wind Production														30	SQ	0.00%
Solar Production														20	SQ	0.00%

**EMPIRE DISTRICT EXISTING AND PROPOSED DEPRECIATION PARAMETERS  
TRANSMISSION, DISTRIBUTION, AND GENERAL PLANT  
AT DECEMBER 31, 2019**

Appendix C-2

Acct	Description	Kansas			Arkansas			Oklahoma			Missouri			Proposed		
		Life	Curve	Net Salvage	Life	Curve	Net Salvage	Life	Curve	Net Salvage	Life	Curve	Net Salvage	Life	Curve	Net Salvage
Transmission																
352	Structures and Improvements	55	R2	0%	68	R1	0.00%	55	R2	0%	55	-10%	70	R2.5	-10%	
353	Station Equipment	65	R2	-10%	52	R2	-3.00%	62	R2	-16%	60	-10%	50	R1.5	-20%	
354	Towers & Fixtures	65	R2	0%	71	S3.5	0.00%	65	R2	0%	65	-10%	75	R4	-10%	
355	Poles & Fixtures	57	S2.5	-75%	61	L3	-31.00%	70	R3	-100%	60	-100%	59	L4	-100%	
356	OH Conductor	65	R2	-11%	75	R1.5	-28.00%	69	R3	-11%	70	-25%	65	R3	-25%	
Distribution																
360	Land															
361	Structures and Improvements	64	S1	0%	65	R3	0.00%	80	R2	0%	60	-10%	52	R2	-10%	
362	Station Equipment	53	R1.5	-16%	52	L1	-11.00%	69	R1	-16%	50	-10%	55	R1.5	-15%	
364	Poles & Fixtures	50	R3	-100%	52	L3	-40.00%	59	R4	-100%	55	-100%	51	R4	-125%	
365	OH Conductor	59	R2.5	-70%	59	R3	-30.00%	73	R2.5	-100%	56	-100%	64	R2.5	-100%	
366	UG Conduit	47	R4	-10%	52	L2	0.00%	62	R2.5	-23%	40	-35%	53	L3	-20%	
367	UG Conductor	45	R2.5	-16%	50	L0.5	-8.00%	55	R1.5	-16%	32	-15%	54	R2	-25%	
368	Transformers	48	R2.5	0%	48	L1.5	-4.00%	51	R2	0%	45	-10%	50	L1.5	-10%	
369	Services	45	R4	-50%	43	R4	-55.00%	52	R5	-100%	45	-100%	54	R5	-100%	
370	Meters (after AMI Deployment)	43	S0	-2%	45	L0.5	-2.00%	43	S0	-2%	44	0%	30	R1.5	-2%	
370.1	AMI Meters												20	R2	0%	
371	Private Lights	30	R1	-33%	28	R1	-18.00%	30	R1	-33%	30	-40%	28	R2	-40%	
373	Street Lights	45	R1	-57%	48	R0.5	-10.00%	45	R1	-57%	45	-50%	45	R0.5	-60%	
375	Charging Stations			-	20	SQ	0.00%	20	SQ	-	20	-	20	SQ	0%	
	Storage Batteries												20	SQ	0%	
General																
389	Land															
390	Structures and Improvements	40	R1.5	-10%	26	L3	0.00%	40		-10%	42	-10%	45	R1	-5%	
391	Office Furniture and Fixtures	21	R1	0%	23	S0	0.00%	20		0%	24	0%	20	L0	0%	
391.3	Computer Equipment	10	S0	0%	15	L2	0.00%	10		0%	10	0%	5	R5	0%	
392	Transportation Equipment	13	L2	7%	15	L2.5	9.00%	12		15%	14	10%	11	L3	10%	
393	Stores Equipment	40	R2	0%	41	L1	0.00%	30		5%	35	0%	35	R4	0%	
394	Tools, Shop and Garage Equipment	20	R2	0%	27	S1	9.00%	20		10%	20	0%	20	R2	0%	
395	Laboratory Equipment	46	R3	0%	46	R2	0.00%	38		0%	42	0%	20	R2	0%	
396	Power Operated Equipment	17	R3	4%	17	L3.5	4.00%	15		5%	18	5%	13	L3	5%	
397	Communication Equipment	21	L1	0%	24	S0	0.00%	25		0%	22	0%	15	L0	0%	
398	Miscellaneous Equipment	32	S0	0%	32	L0	0.00%	22		0%	27	0%	34	L0.5	0%	

**APPENDIX D**  
**Production Retirement Dates and Terminal Removal Cost**

**Empire District Electric Company  
Proposed Generating Unit Retirement Dates**

Appendix D-1

Generation Type	Unit	Nameplate Rating	Date Installed	2016 Study		2020 Study	
				Estimated Retirement	Estimated Service Life (Yrs)	Estimated Retirement	Estimated Service Life (Yrs)
Steam	Asbury 1	198	1970	2035	65	2020	50
Steam	Iatan 1	85	1980	2040	60	2040	60
Steam	Iatan 2	105	2010	2070	60	2070	60
Steam	Plum Point	50	2010	2060	50	2060	50
Hydro	Ozark Beach 1	4	1931	2053	122	2053	122
Hydro	Ozark Beach 2	4	1931	2053	122	2053	122
Hydro	Ozark Beach 3	4	1931	2053	122	2053	122
Hydro	Ozark Beach 4	4	1931	2053	122	2053	122
Other	Energy Center 1	85	1978	2023	45	2026	48
Other	Energy Center 2	84	1981	2026	45	2026	45
Other	Energy Center 3 (FT8)	49	2003	2043	40	2043	40
Other	Energy Center 4 (FT 8)	49	2003	2043	40	2043	40
Other	Riverton 10	16	1988	2033	45	2033	45
Other	Riverton 11	16	1988	2033	45	2033	45
Other	Riverton 12	150	2007	2057	50	2057	50
Other	State Line 1, CT	96	1995	2040	45	2040	45
Other	State Line 2, CC	300	2001	2051	50	2051	50
	Wind						30
	Solar						20

EDE owns a 12% share of Iatan 1  
EDE owns a 12% share of Iatan 2  
EDE owns a 7.52% share of Plum Point

Riverton Steam all units retired  
Riverton 12 converted to Combined cycle plant in 2016  
Empire owns a 300 MW share of State Line 2 (Combined cycle)



**EMPIRE DISTRICT ELECTRIC  
COMPUTATION OF PRODUCTION COMPOSITE NET SALVAGE  
AT DECEMBER 31, 2019**

Acct	Description	Plant Balance	Interim Retirements	Interim Net Salvage %	Interim Removal Cost	Terminal Dismantling Cost	Total Removal Cost	Net Salvage %
<b>latan 1</b>								
311	Structures and Improvements	4,100,102.72	371,625.51	-7.00%	(26,013.79)	0.00	(26,013.79)	-0.63%
312	Boiler Plant Equipment	77,454,486.18	13,345,172.70	-10.00%	(1,334,517.27)	0.00	(1,334,517.27)	-1.72%
312 Train	Unit Train	329,004.61	0.00	0.00%	0.00	0.00	0.00	0.00%
314	Turbogenerator Equipment	15,311,357.84	2,617,815.04	-15.00%	(392,672.26)	0.00	(392,672.26)	-2.56%
315	Accessory Electric Equipment	8,401,393.24	1,833,770.98	-8.00%	(146,701.68)	0.00	(146,701.68)	-1.75%
316	Misc. Power Plant Equipment	1,350,362.17	404,585.60	-4.00%	(16,183.42)	0.00	(16,183.42)	-1.20%
	<b>Total latan 1</b>	<b>106,946,706.76</b>	<b>18,572,969.83</b>		<b>(1,916,088.41)</b>	<b>0.00</b>	<b>(1,916,088.41)</b>	
<b>latan 2</b>								
311	Structures and Improvements	20,954,482.45	4,072,621.10	-7.00%	(285,083.48)	0.00	(285,083.48)	-1.36%
312	Boiler Plant Equipment	146,505,299.87	67,660,219.28	-10.00%	(6,766,021.93)	0.00	(6,766,021.93)	-4.62%
314	Turbogenerator Equipment	49,060,461.15	24,933,470.74	-15.00%	(3,740,020.61)	0.00	(3,740,020.61)	-7.62%
315	Accessory Electric Equipment	12,340,510.71	7,572,143.67	-8.00%	(605,771.49)	0.00	(605,771.49)	-4.91%
316	Misc. Power Plant Equipment	350,002.35	252,272.36	-4.00%	(10,090.89)	0.00	(10,090.89)	-2.88%
	<b>Total latan 2</b>	<b>229,210,756.53</b>	<b>104,490,727.15</b>		<b>(11,406,988.40)</b>	<b>0.00</b>	<b>(11,406,988.40)</b>	
<b>latan Common</b>								
311	Structures and Improvements	18,326,823.78	3,481,619.02	-7.00%	(243,713.33)	0.00	(243,713.33)	-1.33%
312	Boiler Plant Equipment	40,075,479.05	18,674,769.98	-10.00%	(1,867,477.00)	0.00	(1,867,477.00)	-4.66%
314	Turbogenerator Equipment	1,290,680.16	664,459.29	-15.00%	(99,668.89)	0.00	(99,668.89)	-7.72%
315	Accessory Electric Equipment	5,085,098.24	3,152,403.23	-8.00%	(252,192.26)	0.00	(252,192.26)	-4.96%
316	Misc. Power Plant Equipment	728,527.34	525,684.03	-4.00%	(21,027.36)	0.00	(21,027.36)	-2.89%
	<b>Total latan Common</b>	<b>65,506,608.57</b>	<b>26,498,935.55</b>		<b>(2,484,078.84)</b>	<b>0.00</b>	<b>(2,484,078.84)</b>	
<b>Plum Point</b>								
311	Structures and Improvements	20,567,779.14	2,874,962.98	-7.00%	(201,247.41)	0.00	(201,247.41)	-0.98%
312	Boiler Plant Equipment	53,845,333.11	18,995,299.52	-10.00%	(1,899,529.95)	0.00	(1,899,529.95)	-3.53%
Train Lease	Train Lease	5,196,477.55	0.00	0.00%	0.00	0.00	0.00	0.00%
312 Train	Unit Train	12,311.20	0.00	-15.00%	0.00	0.00	0.00	0.00%
314	Turbogenerator Equipment	17,270,335.62	6,768,524.55	-15.00%	(1,015,278.68)	0.00	(1,015,278.68)	-5.88%
315	Accessory Electric Equipment	5,390,590.54	2,455,063.74	-8.00%	(196,405.10)	0.00	(196,405.10)	-3.64%
316	Misc. Power Plant Equipment	2,968,455.81	1,813,434.44	-4.00%	(72,537.38)	0.00	(72,537.38)	-2.44%
	<b>Total Plum Point</b>	<b>105,251,282.97</b>	<b>32,907,285.23</b>		<b>(3,384,998.52)</b>	<b>0.00</b>	<b>(3,384,998.52)</b>	
<b>Ozark Beach</b>								
331	Structures and Improvements	1,667,685.61	174,789.29	-10.00%	(17,478.93)	0.00	(17,478.93)	-1.05%
332	Dams	3,488,976.39	659,097.25	-10.00%	(65,909.73)	0.00	(65,909.73)	-1.89%
333	Turbogenerators	4,407,908.46	1,049,589.51	-10.00%	(104,958.95)	0.00	(104,958.95)	-2.38%
334	Access. Electric	1,507,678.70	424,595.44	-10.00%	(42,459.54)	0.00	(42,459.54)	-2.82%
335	Misc. Equipment	1,178,647.52	411,184.56	0.00%	0.00	0.00	0.00	0.00%
	<b>Total Ozark Beach</b>	<b>12,250,896.68</b>	<b>2,719,256.05</b>		<b>(230,807.15)</b>	<b>0.00</b>	<b>(230,807.15)</b>	
<b>Energy Center</b>								
341	Structures and Improvements	3,218,722.19	57,915.08	-2.00%	(1,158.30)	0.00	(1,158.30)	-0.04%
342	Fuel Holders	1,362,770.49	37,041.44	-2.00%	(740.83)	0.00	(740.83)	-0.05%
343	Prime Movers	26,745,015.20	1,834,419.81	-2.00%	(36,688.40)	0.00	(36,688.40)	-0.14%
344	Generators	6,595,022.27	337,334.58	-1.00%	(3,373.35)	0.00	(3,373.35)	-0.05%
345	Access. Electric	2,376,137.17	125,947.03	0.00%	0.00	0.00	0.00	0.00%
346	Misc. Equipment	2,055,148.89	90,869.13	-5.00%	(4,543.46)	0.00	(4,543.46)	-0.22%
	<b>Total Energy Center</b>	<b>42,352,816.21</b>	<b>2,483,527.07</b>		<b>(46,504.33)</b>	<b>0.00</b>	<b>(46,504.33)</b>	
<b>Energy Center FT8</b>								
341	Structures and Improvements	1,124,305.87	57,774.92	-2.00%	(1,155.50)	0.00	(1,155.50)	-0.10%
342	Fuel Holders	1,453,119.42	98,030.94	-2.00%	(1,960.62)	0.00	(1,960.62)	-0.13%
343	Prime Movers	50,019,595.81	10,150,318.36	-2.00%	(203,006.37)	0.00	(203,006.37)	-0.41%
344	Generators	5,123,304.91	751,287.11	-1.00%	(7,512.87)	0.00	(7,512.87)	-0.15%
345	Access. Electric	3,539,969.73	694,505.62	0.00%	0.00	0.00	0.00	0.00%
346	Misc. Equipment	1,038,754.62	151,790.55	-5.00%	(7,589.53)	0.00	(7,589.53)	-0.73%
	<b>Total Energy FT8</b>	<b>62,299,050.36</b>	<b>11,903,707.50</b>		<b>(221,224.88)</b>	<b>0.00</b>	<b>(221,224.88)</b>	
<b>Energy Supply Common</b>								
341	Structures and Improvements	14,617,752.35	2,759,323.17	-2.00%	(55,186.46)	0.00	(55,186.46)	-0.38%
342	Fuel Holders	2,427,504.70	522,693.47	-2.00%	(10,453.87)	0.00	(10,453.87)	-0.43%
345	Access. Electric	189,248.34	76,728.42	0.00%	0.00	0.00	0.00	0.00%
346	Misc. Equipment	863,528.67	314,029.66	-5.00%	(15,701.48)	0.00	(15,701.48)	-1.82%
	<b>Total Energy Supply Common</b>	<b>18,098,034.06</b>	<b>3,672,774.72</b>		<b>(81,341.82)</b>	<b>0.00</b>	<b>(81,341.82)</b>	

**EMPIRE DISTRICT ELECTRIC  
COMPUTATION OF PRODUCTION COMPOSITE NET SALVAGE  
AT DECEMBER 31, 2019**

Acct	Description	Plant Balance	Interim Retirements	Interim Net Salvage %	Interim Removal Cost	Terminal Dismantling Cost	Total Removal Cost	Net Salvage %
Riverton 12								
341	Structures and Improvements	18,481,559.59	1,180,656.08	-2.00%	(23,613.12)	0.00	(23,613.12)	-0.13%
342	Fuel Holders	945,601.29	127,539.58	-2.00%	(2,550.79)	0.00	(2,550.79)	-0.27%
343	Prime Movers	151,665,736.80	45,277,346.65	-2.00%	(905,546.93)	0.00	(905,546.93)	-0.60%
344	Generators	21,746,821.84	6,492,356.54	-1.00%	(64,923.57)	0.00	(64,923.57)	-0.30%
345	Access. Electric	26,044,062.90	8,153,022.42	0.00%	0.00	0.00	0.00	0.00%
346	Misc. Equipment	2,825,893.79	698,487.57	-5.00%	(34,924.38)	0.00	(34,924.38)	-1.24%
	Total Riverton 12	221,709,676.21	61,929,408.84		(1,031,558.79)	0.00	(1,031,558.79)	
Riverton 9, 10, 11								
341	Structures and Improvements	10,260,696.02	166,963.99	-2.00%	(3,339.28)	0.00	(3,339.28)	-0.03%
342	Fuel Holders	604,025.37	29,104.23	-2.00%	(582.08)	0.00	(582.08)	-0.10%
343	Prime Movers	8,571,371.87	1,064,581.28	-2.00%	(21,291.63)	0.00	(21,291.63)	-0.25%
344	Generators	1,779,491.43	229,328.44	-1.00%	(2,293.28)	0.00	(2,293.28)	-0.13%
345	Access. Electric	1,793,586.08	191,482.46	0.00%	0.00	0.00	0.00	0.00%
346	Misc. Equipment	1,822,821.56	72,506.35	-5.00%	(3,625.32)	0.00	(3,625.32)	-0.20%
	Total Riverton 9, 10, 11	24,831,992.33	1,753,966.75		(31,131.59)	0.00	(31,131.59)	
State Line 1								
341	Structures and Improvements	1,111,584.05	72,315.67	-2.00%	(1,446.31)	0.00	(1,446.31)	-0.13%
342	Fuel Holders	3,244,381.79	248,733.14	-2.00%	(4,974.66)	0.00	(4,974.66)	-0.15%
343	Prime Movers	26,906,444.17	5,770,108.98	-2.00%	(115,402.18)	0.00	(115,402.18)	-0.43%
344	Generators	7,813,341.92	1,253,877.87	-1.00%	(12,538.78)	0.00	(12,538.78)	-0.16%
345	Access. Electric	3,329,036.61	579,483.22	0.00%	0.00	0.00	0.00	0.00%
346	Misc. Equipment	363,651.27	22,676.07	-5.00%	(1,133.80)	0.00	(1,133.80)	-0.31%
	Total State Line 1	42,768,439.81	7,947,194.95		(135,495.74)	0.00	(135,495.74)	
State Line CC								
341	Structures and Improvements	8,478,109.04	822,527.66	-2.00%	(16,450.55)	0.00	(16,450.55)	-0.19%
342	Fuel Holders	204,374.20	24,091.18	-2.00%	(481.82)	0.00	(481.82)	-0.24%
343	Prime Movers	111,386,515.08	38,113,608.73	-2.00%	(762,272.17)	0.00	(762,272.17)	-0.68%
344	Generators	30,294,250.20	8,343,339.12	-1.00%	(83,433.39)	0.00	(83,433.39)	-0.28%
345	Access. Electric	8,144,447.16	2,282,227.50	0.00%	0.00	0.00	0.00	0.00%
346	Misc. Equipment	2,979,886.57	802,127.84	-5.00%	(40,106.39)	0.00	(40,106.39)	-1.35%
	Total State Line CC	161,487,582.25	50,387,922.03		(902,744.33)	0.00	(902,744.33)	
State Line Common								
341	Structures and Improvements	3,792,571.99	422,244.58	-2.00%	(8,444.89)	0.00	(8,444.89)	-0.22%
342	Fuel Holders	226,749.40	32,026.60	-2.00%	(640.53)	0.00	(640.53)	-0.28%
343	Prime Movers	843,733.15	175,009.57	-2.00%	(3,500.19)	0.00	(3,500.19)	-0.41%
345	Access. Electric	2,933,782.98	768,768.14	0.00%	0.00	0.00	0.00	0.00%
346	Misc. Equipment	1,052,547.73	263,220.99	-5.00%	(13,161.05)	0.00	(13,161.05)	-1.25%
	Total State Line Common	8,849,385.25	1,661,269.88		(25,746.66)	0.00	(25,746.66)	
Solar Generation				0.00%		0.00		0.00%

**APPENDIX E**  
**Net Salvage Analysis**

EMPIRE DISTRICT ELECTRIC COMPANY  
DATA THROUGH 2019 AS ADJUSTED  
RETIREMENTS REMOVAL COST AND NET SALVAGE ANALYSIS

FERC Account	Activity Year	Retirements	Salvage	Removal Cost	Net Salvage	Net Salv. %	2-yr Net Salv. %	3-yr Net Salv. %	4-yr Net Salv. %	5-yr Net Salv. %	6-yr Net Salv. %	7-yr Net Salv. %	8-yr Net Salv. %	9-yr Net Salv. %	10-yr Net Salv. %
311	2000	363,173.12	0.00	482,209.30	(482,209.30)	-132.78%									
311	2001	0.00	0.00	0.00	0.00	NA	-132.78%								
311	2002	0.00	0.00	0.00	0.00	NA	NA	-132.78%							
311	2003	52,220.19	0.00	8,324.36	(8,324.36)	-15.94%	-15.94%	-15.94%	-118.09%						
311	2004	10,235.14	55,289.63	(19,816.30)	75,105.93	733.80%	106.93%	106.93%	106.93%	-97.60%					
311	2005	0.00	0.00	0.00	0.00	NA	733.80%	106.93%	106.93%	106.93%	-97.60%				
311	2006	0.00	0.00	0.00	0.00	NA	NA	733.80%	106.93%	106.93%	106.93%	-97.60%			
311	2007	68,235.39	0.00	(31,730.49)	31,730.49	46.50%	46.50%	46.50%	136.15%	75.38%	75.38%	75.38%	-77.69%		
311	2008	0.00	0.00	0.00	0.00	NA	46.50%	46.50%	136.15%	75.38%	75.38%	75.38%	75.38%	-77.69%	
311	2009	0.00	0.00	0.00	0.00	NA	NA	46.50%	46.50%	136.15%	75.38%	75.38%	75.38%	75.38%	-77.69%
311	2010	11,158.38	0.00	1,112.70	(1,112.70)	-9.97%	-9.97%	-9.97%	38.56%	38.56%	38.56%	117.96%	68.66%	68.66%	68.66%
311	2011	0.00	0.00	0.00	0.00	NA	-9.97%	-9.97%	38.56%	38.56%	38.56%	117.96%	68.66%	68.66%	68.66%
311	2012	0.00	0.00	0.00	0.00	NA	NA	-9.97%	-9.97%	38.56%	38.56%	38.56%	117.96%	68.66%	68.66%
311	2013	0.00	0.00	0.00	0.00	NA	NA	-9.97%	-9.97%	38.56%	38.56%	38.56%	117.96%	68.66%	68.66%
311	2014	154,995.85	0.00	3,687.52	(3,687.52)	-2.38%	-2.38%	-2.38%	-2.38%	-2.89%	-2.89%	-2.89%	11.49%	11.49%	11.49%
311	2015	156,200.92	0.00	39,677.51	(39,677.51)	-25.40%	-13.93%	-13.93%	-13.93%	-13.93%	-13.80%	-13.80%	-13.80%	-3.26%	-3.26%
311	2016	421,997.57	0.00	14,968.42	(14,968.42)	-3.55%	-9.45%	-7.96%	-7.96%	-7.96%	-7.96%	-7.99%	-7.99%	-7.99%	-3.41%
311	2017	0.00	0.00	2,946.10	(2,946.10)	NA	-4.25%	-9.96%	-8.36%	-8.36%	-8.36%	-8.36%	-8.36%	-8.36%	-8.36%
311	2018	111,442.90	0.00	0.00	0.00	0.00%	-2.64%	-3.36%	-8.35%	-7.26%	-7.26%	-7.26%	-7.26%	-7.26%	-7.29%
311	2019	0.00	0.00	0.00	0.00	NA	0.00%	-2.64%	-3.36%	-8.35%	-7.26%	-7.26%	-7.26%	-7.26%	-7.29%
Note: Years 2000-2004 contain Riverton and Asbury retirements. Riverton and Asbury excluded 2005-2019															
312	2000	158,030.90	83,486.97	238,265.89	(154,778.92)	-97.94%									
312	2001	0.00	0.00	0.00	0.00	NA	-97.94%								
312	2002	0.00	0.00	0.00	0.00	NA	NA	-97.94%							
312	2003	574,372.20	1,281.56	629,284.25	(628,002.69)	-109.34%	-109.34%	-109.34%	-106.88%						
312	2004	1,952,727.00	468,828.06	72,440.82	396,387.24	20.30%	-9.17%	-9.17%	-9.17%	-14.39%					
312	2005	0.00	0.00	0.00	0.00	NA	20.30%	-9.17%	-9.17%	-9.17%	-14.39%				
312	2006	0.00	0.00	0.00	0.00	NA	NA	20.30%	-9.17%	-9.17%	-14.39%				
312	2007	1,803,878.00	2,651.81	114,736.81	(112,085.00)	-6.21%	-6.21%	-6.21%	7.57%	-7.94%	-7.94%	-7.94%	-11.10%		
312	2008	203,081.01	0.00	5,846.71	(5,846.71)	-2.88%	-5.88%	-5.88%	-5.88%	7.03%	-7.71%	-7.71%	-7.71%	-10.75%	
312	2009	0.00	0.00	0.00	0.00	NA	-2.88%	-5.88%	-5.88%	-5.88%	7.03%	-7.71%	-7.71%	-7.71%	-10.75%
312	2010	5,353,488.12	0.00	115,925.41	(115,925.41)	-2.17%	-2.19%	-3.18%	-3.18%	-3.18%	-3.18%	-3.18%	-3.18%	-4.71%	-4.71%
312	2011	797,351.22	0.00	317,071.21	(317,071.21)	-39.77%	-7.04%	-7.04%	-6.91%	-6.75%	-6.75%	-6.75%	-6.75%	-7.32%	-7.32%
312	2012	244.49	0.00	0.00	0.00	0.00%	-39.75%	-7.04%	-6.91%	-6.75%	-6.75%	-6.75%	-6.75%	-7.32%	-7.32%
312	2013	0.39	0.00	0.00	0.00	0.00%	0.00%	-39.75%	-7.04%	-6.91%	-6.75%	-6.75%	-6.75%	-7.32%	-7.32%
312	2014	470,018.82	23,168.98	69,924.63	(46,755.65)	-9.95%	-9.95%	-9.94%	-28.70%	-7.25%	-7.25%	-7.12%	-6.93%	-6.93%	-6.93%
312	2015	1,530,502.49	0.00	34,987.03	(34,987.03)	-2.29%	-4.09%	-4.09%	-4.09%	-14.25%	-6.31%	-6.31%	-6.23%	-6.23%	-6.23%
312	2016	693,895.79	11,130.60	159,651.58	(148,520.98)	-21.40%	-8.25%	-8.55%	-8.55%	-8.55%	-15.67%	-7.50%	-7.39%	-7.39%	-7.39%
312	2017	2,385,084.22	0.00	694,849.44	(694,849.44)	-29.13%	-27.39%	-19.06%	-18.21%	-18.21%	-18.21%	-21.14%	-12.09%	-12.09%	-11.93%
312	2018	2,178,867.54	9,745.15	33,521.86	(23,776.71)	-1.09%	-15.75%	-16.49%	-13.29%	-13.07%	-13.07%	-13.07%	-15.71%	-15.71%	-15.71%
312	2019	803,399.82	0.00	0.00	0.00	0.00%	-0.80%	-13.39%	-14.31%	-11.88%	-11.77%	-11.77%	-11.77%	-14.29%	-9.72%
Note: Years 2000-2004 contain Riverton and Asbury retirements. Riverton and Asbury excluded 2005-2019															
312 Train	2009	0.00	0.00	0.00	0.00	NA									
312 Train	2010	0.00	0.00	0.00	0.00	NA	NA								
312 Train	2011	0.00	0.00	0.00	0.00	NA	NA	NA							
312 Train	2012	0.00	0.00	0.00	0.00	NA	NA	NA	NA						
312 Train	2013	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA					
312 Train	2014	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA				
312 Train	2015	0.00	3,528.75	3,528.75	0.00	NA	NA	NA	NA	NA	NA	NA	NA		
312 Train	2016	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	NA	NA		
312 Train	2017	70,748.34	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
312 Train	2018	0.00	0.00	0.00	0.00	NA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
312 Train	2019	0.00	0.00	0.00	0.00	NA	NA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
314	2000	25,294.54	0.00	26,000.00	(26,000.00)	-102.79%									
314	2001	15,255.14	0.00	0.00	0.00	0.00%	-64.12%								
314	2002	0.00	0.00	36,886.33	(36,886.33)	NA	-241.80%	-155.08%							
314	2003	1,871.89	0.00	(88,549.84)	88,549.84	4730.50%	2759.97%	301.65%	60.50%						
314	2004	1,004,131.00	356,979.91	0.00	356,979.91	35.55%	44.29%	40.62%	40.01%	36.56%					
314	2005	0.00	0.00	0.00	0.00	NA	35.55%	44.29%	40.62%	40.01%	36.56%				
314	2006	0.00	0.00	0.00	0.00	NA	NA	35.55%	44.29%	40.62%	40.01%	36.56%			
314	2007	336,828.70	0.00	66,353.47	(66,353.47)	-19.70%	-19.70%	-19.70%	21.67%	28.24%	25.49%	25.20%	22.86%		
314	2008	68,713.50	0.00	(13,382.80)	13,382.80	19.48%	-13.06%	-13.06%	-13.06%	21.57%	27.81%	25.20%	24.93%	22.70%	
314	2009	0.00	0.00	0.00	0.00	NA	19.48%	-13.06%	-13.06%	-13.06%	21.57%	25.20%	24.93%	22.70%	22.70%
314	2010	785,054.37	0.00	102,957.35	(102,957.35)	-13.11%	-13.11%	-10.49%	-13.10%	-13.10%	-13.10%	9.16%	13.18%	11.50%	11.43%
314	2011	85,996.78	0.00	7,936.81	(7,936.81)	9.23%	-10.91%	-10.91%	-10.91%	-11.59%	-11.59%	-11.59%	9.16%	13.04%	11.42%
314	2012	0.00	0.00	0.00	0.00	NA	9.23%	-10.91%	-10.91%	-8.69%	-11.59%	-11.59%	-11.59%	9.16%	13.04%
314	2013	0.31	0.00	0.00	0.00	0.00%	0.00%	-10.91%	-10.91%	-8.69%	-11.59%	-11.59%	-11.59%	-11.59%	9.16%
314	2014	52,711.36	0.00	208.71	(208.71)	-0.40%	-0.40%	-0.40%	5.57%	-10.31%	-10.31%	-8.25%	-11.15%	-11.15%	-11.15%

EMPIRE DISTRICT ELECTRIC COMPANY  
DATA THROUGH 2019 AS ADJUSTED  
RETIREMENTS REMOVAL COST AND NET SALVAGE ANALYSIS

FERC Account	Activity Year	Retirements	Salvage	Removal Cost	Net Salvage	Net Salv. %	2-yr Net Salv. %	3-yr Net Salv. %	4-yr Net Salv. %	5-yr Net Salv. %	6-yr Net Salv. %	7-yr Net Salv. %	8-yr Net Salv. %	9-yr Net Salv. %	10-yr Net Salv. %
314	2015	610,870.82	3,000.00	182,183.36	(179,183.36)	-29.33%	-27.03%	-27.03%	-27.03%	-22.87%	-17.88%	-17.88%	-16.28%	-16.87%	-16.87%
314	2016	126,220.52	1,319.16	36,973.40	(35,654.24)	-28.25%	-29.15%	-27.23%	-27.23%	-27.23%	-23.65%	-18.67%	-18.67%	-17.15%	-17.57%
314	2017	51,375.70	0.00	(466.41)	466.41	0.91%	-19.81%	-27.19%	-25.51%	-25.51%	-25.51%	-22.29%	-18.08%	-18.08%	-16.63%
314	2018	49,594.44	0.00	1,081.30	(1,081.30)	-2.18%	-0.61%	-15.96%	-25.71%	-24.21%	-24.21%	-24.21%	-21.27%	-17.63%	-17.63%
314	2019	21,739.49	0.00	0.00	0.00	0.00%	-1.52%	-0.50%	-14.57%	-25.06%	-23.63%	-23.63%	-23.63%	-20.80%	-17.42%
Note: Years 2000-2004 contain Riverton and Asbury retirements. Riverton and Asbury excluded 2005-2019															
315	2000	0.00	0.00	0.00	0.00	NA									
315	2001	25,422.50	0.00	0.00	0.00	0.00%	0.00%								
315	2002	0.00	0.00	0.00	0.00	NA	0.00%	0.00%							
315	2003	1,064.07	0.00	346.12	(346.12)	-32.53%	-32.53%	-1.31%	-1.31%						
315	2004	0.01	67,169.43	(30,148.46)	97,317.89	973178900.00%	9113.20%	9113.20%	366.12%	366.12%					
315	2005	0.00	0.00	0.00	0.00	NA	973178900.00%	9113.20%	9113.20%	366.12%	366.12%				
315	2006	0.00	0.00	0.00	0.00	NA	NA	973178900.00%	9113.20%	9113.20%	366.12%	366.12%	366.12%		
315	2007	802,343.33	0.00	29,350.43	(29,350.43)	-3.66%	-3.66%	-3.66%	8.47%	8.42%	8.42%	8.16%	8.16%	8.16%	
315	2008	0.00	0.00	0.00	0.00	NA	-3.66%	-3.66%	8.47%	8.42%	8.42%	8.16%	8.16%	8.16%	
315	2009	0.00	0.00	0.00	0.00	NA	NA	-3.66%	-3.66%	8.47%	8.42%	8.42%	8.16%	8.16%	8.16%
315	2010	15,554.06	0.00	0.00	0.00	0.00%	0.00%	-3.59%	-3.59%	-3.59%	-3.59%	8.31%	8.26%	8.26%	8.01%
315	2011	11,081.49	0.00	(483.87)	483.87	4.37%	1.82%	1.82%	1.82%	-3.48%	-3.48%	-3.48%	8.26%	8.21%	8.21%
315	2012	0.00	0.00	0.00	0.00	NA	4.37%	1.82%	1.82%	-3.48%	-3.48%	-3.48%	-3.48%	8.26%	8.21%
315	2013	0.00	0.00	0.00	0.00	NA	NA	4.37%	1.82%	1.82%	-3.48%	-3.48%	-3.48%	-3.48%	8.26%
315	2014	0.00	0.00	0.00	0.00	NA	NA	4.37%	1.82%	1.82%	1.82%	-3.48%	-3.48%	-3.48%	-3.48%
315	2015	39,855.06	0.00	10,619.23	(10,619.23)	-26.64%	-26.64%	-26.64%	-26.64%	-19.90%	-15.24%	-15.24%	-15.24%	-4.54%	-4.54%
315	2016	107,718.69	0.00	8,607.64	(8,607.64)	-7.99%	-13.03%	-13.03%	-13.03%	-13.03%	-11.81%	-10.76%	-10.76%	-10.76%	-4.92%
315	2017	42,862.00	0.00	1,743.16	(1,743.16)	-4.07%	-6.87%	-11.01%	-11.01%	-11.01%	-11.01%	-10.17%	-9.44%	-9.44%	-9.44%
315	2018	334,814.40	0.00	25,989.62	(25,989.62)	-7.76%	-7.34%	-7.49%	-8.94%	-8.94%	-8.94%	-8.94%	-8.67%	-8.42%	-8.42%
315	2019	26,268.09	0.00	0.00	0.00	0.00%	-7.20%	-6.87%	-7.10%	-8.51%	-8.51%	-8.51%	-8.51%	-8.26%	-8.04%
Note: Years 2000-2004 contain Riverton and Asbury retirements. Riverton and Asbury excluded 2005-2019															
316	2000	4,093.97	0.00	0.00	0.00	0.00%									
316	2001	0.00	0.00	0.00	0.00	NA	0.00%								
316	2002	0.00	0.00	0.00	0.00	NA	NA	0.00%							
316	2003	15,210.00	5,490.00	0.00	5,490.00	36.09%	36.09%	36.09%	28.44%						
316	2004	53,041.87	11,447.99	(5,138.34)	16,586.33	31.27%	32.35%	32.35%	32.35%	30.51%					
316	2005	0.00	0.00	0.00	0.00	NA	31.27%	32.35%	32.35%		30.51%				
316	2006	0.00	0.00	0.00	0.00	NA	31.27%	32.35%	32.35%		30.51%				
316	2007	57,797.74	0.00	(24,704.51)	24,704.51	42.74%	42.74%	42.74%	37.25%	37.11%			35.95%		
316	2008	0.00	0.00	0.00	0.00	NA	42.74%	42.74%	42.74%	37.11%			37.11%	37.11%	35.95%
316	2009	0.00	0.00	0.00	0.00	NA	42.74%	42.74%	42.74%	37.11%			37.11%	37.11%	35.95%
316	2010	114,663.11	0.00	0.00	0.00	0.00%	0.00%	0.00%	14.32%	14.32%	14.32%	18.31%	19.43%	19.43%	19.43%
316	2011	3,574.08	0.00	0.00	0.00	0.00%	0.00%	0.00%	14.03%	14.03%	14.03%	18.02%	19.15%	19.15%	19.15%
316	2012	462.59	0.00	240.00	(240.00)	-51.88%	-5.95%	-0.20%	-0.20%	-0.20%	13.86%	13.86%	13.86%	17.88%	19.02%
316	2013	0.00	0.00	0.00	0.00	NA	-51.88%	-5.95%	-0.20%	-0.20%	13.86%	13.86%	13.86%	13.86%	17.88%
316	2014	157.41	0.00	0.00	0.00	0.00%	0.00%	-38.71%	-5.72%	-0.20%	-0.20%	-0.20%	13.85%	13.85%	13.85%
316	2015	30,735.34	237.00	1,012.56	(775.56)	-2.52%	-2.51%	-2.51%	-3.24%	-2.91%	-0.68%	-0.68%	11.42%	11.42%	11.42%
316	2016	53,392.64	0.00	1,724.59	(1,724.59)	-3.23%	-2.97%	-2.97%	-3.23%	-3.23%	-3.10%	-1.35%	-1.35%	-1.35%	8.42%
316	2017	65,540.04	0.00	(1,490.62)	1,490.62	2.27%	-0.20%	-0.67%	-0.67%	-0.67%	-0.83%	-0.81%	-0.47%	-0.47%	-0.47%
316	2018	22,500.57	0.00	5,299.54	(5,299.54)	-23.55%	-4.33%	-3.91%	-3.66%	-3.66%	-3.66%	-3.79%	-3.71%	-2.25%	-2.25%
316	2019	556.57	0.00	0.00	0.00	0.00%	-22.98%	-4.30%	-3.90%	-3.65%	-3.65%	-3.65%	-3.78%	-3.70%	-2.25%
Note: Years 2000-2004 contain Riverton and Asbury retirements. Riverton and Asbury excluded 2005-2019															
331	2000	5,980.00	0.00	0.00	0.00	0.00%									
331	2001	0.00	0.00	0.00	0.00	NA	0.00%								
331	2002	0.00	0.00	0.00	0.00	NA	NA	0.00%							
331	2003	8,526.00	0.00	(778.89)	778.89	9.14%	9.14%	9.14%	5.37%						
331	2004	0.00	0.00	0.00	0.00	NA	9.14%	9.14%	9.14%	5.37%					
331	2005	0.00	0.00	0.00	0.00	NA	NA	9.14%	9.14%	9.14%	5.37%				
331	2006	0.00	0.00	0.00	0.00	NA	NA	9.14%	9.14%	9.14%	5.37%				
331	2007	0.00	0.00	0.00	0.00	NA	NA	9.14%	9.14%	9.14%	5.37%				
331	2008	0.00	0.00	0.00	0.00	NA	NA	9.14%	9.14%	9.14%	5.37%				
331	2009	1,151.51	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	8.05%	8.05%	8.05%	4.97%
331	2010	0.01	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	8.05%	8.05%	8.05%	8.05%
331	2011	0.00	0.00	0.00	0.00	NA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	8.05%	8.05%
331	2012	0.00	0.00	0.00	0.00	NA	NA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	8.05%
331	2013	0.00	0.00	0.00	0.00	NA	NA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
331	2014	3,537.77	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
331	2015	662.75	0.00	5,080.91	(5,080.91)	-766.64%	-120.96%	-120.96%	-120.96%	-120.96%	-120.96%	-94.93%	-94.93%	-94.93%	-94.93%
331	2016	0.00	0.00	0.00	0.00	NA	-766.64%	-120.96%	-120.96%	-120.96%	-120.96%	-94.93%	-94.93%	-94.93%	-94.93%
331	2017	22,625.58	0.00	32,354.82	(32,354.82)	-143.00%	-143.00%	-160.75%	-139.55%	-139.55%	-139.55%	-139.55%	-139.55%	-133.81%	-133.81%
331	2018	129.85	0.00	0.00	0.00	0.00%	-142.19%	-142.19%	-138.88%	-138.88%	-138.88%	-138.88%	-138.88%	-133.19%	-133.19%
331	2019	83,707.76	0.00	0.00	0.00	0.00%	0.00%	-30.39%	-30.39%	-34.95%	-33.83%	-33.83%	-33.83%	-33.83%	-33.83%

EMPIRE DISTRICT ELECTRIC COMPANY  
DATA THROUGH 2019 AS ADJUSTED  
RETIREMENTS REMOVAL COST AND NET SALVAGE ANALYSIS

FERC Account	Activity Year	Retirements	Salvage	Removal Cost	Net Salvage	Net Salv. %	2-yr Net Salv. %	3-yr Net Salv. %	4-yr Net Salv. %	5-yr Net Salv. %	6-yr Net Salv. %	7-yr Net Salv. %	8-yr Net Salv. %	9-yr Net Salv. %	10-yr Net Salv. %
332	2000	0.00	0.00	0.00	0.00	NA									
332	2001	0.00	0.00	0.00	0.00	NA		NA							
332	2002	0.00	0.00	0.00	0.00	NA		NA							
332	2003	13,235.48	0.00	3,438.70	(3,438.70)	-25.98%	-25.98%	-25.98%	-25.98%						
332	2004	0.00	0.00	0.00	0.00	NA	-25.98%	-25.98%	-25.98%	-25.98%					
332	2005	15,000.00	0.00	0.00	0.00	0.00%	0.00%	-12.18%	-12.18%		-12.18%				
332	2006	19,547.00	0.00	6,373.88	(6,373.88)	-32.61%	-18.45%	-18.45%	-20.54%	-20.54%	-20.54%	-20.54%			
332	2007	0.00	0.00	0.00	0.00	NA	-32.61%	-18.45%	-18.45%	-20.54%	-20.54%	-20.54%	-20.54%		
332	2008	6,015.00	0.00	1,445.38	(1,445.38)	-24.03%	-24.03%	-30.59%	-19.28%	-19.28%	-20.93%	-20.93%	-20.93%		
332	2009	26,285.76	0.00	11,214.40	(11,214.40)	-42.66%	-39.19%	-39.19%	-36.71%	-28.47%	-28.47%	-28.06%	-28.06%	-28.06%	-28.06%
332	2010	18,541.52	0.00	4,408.19	(4,408.19)	-23.77%	-34.85%	-33.57%	-33.57%	-33.30%	-27.45%	-27.45%	-27.45%	-27.26%	-27.26%
332	2011	0.00	0.00	0.00	0.00	NA	-23.77%	-34.85%	-33.57%	-33.57%	-33.30%	-27.45%	-27.45%	-27.26%	-27.26%
332	2012	0.00	0.00	0.00	0.00	NA	NA	-23.77%	-34.85%	-33.57%	-33.30%	-27.45%	-27.45%	-27.26%	-27.26%
332	2013	89,026.94	0.00	20,222.29	(20,222.29)	-22.71%	-22.71%	-22.71%	-22.90%	-26.78%	-26.66%	-26.66%	-27.39%	-25.03%	-25.03%
332	2014	40,182.48	0.00	996.97	(996.97)	-2.48%	-16.42%	-16.42%	-16.42%	-17.35%	-21.17%	-21.17%	-21.26%	-22.38%	-20.81%
332	2015	0.00	0.00	0.00	0.00	NA	-2.48%	-16.42%	-16.42%	-16.42%	-17.35%	-21.17%	-21.26%	-21.26%	-22.38%
332	2016	0.00	0.00	0.00	0.00	NA	NA	-2.48%	-16.42%	-16.42%	-17.35%	-21.17%	-21.26%	-21.26%	-22.38%
332	2017	1,595.50	0.00	2,940.79	(2,940.79)	-184.32%	-184.32%	-184.32%	-9.43%	-18.47%	-18.47%	-18.47%	-19.13%	-22.65%	-22.70%
332	2018	11,180.38	0.00	0.00	0.00	0.00%	-23.02%	-23.02%	-23.02%	-7.44%	-17.02%	-17.02%	-17.02%	-17.80%	-21.30%
332	2019	0.00	0.00	0.00	0.00	NA	0.00%	-23.02%	-23.02%	-23.02%	-7.44%	-17.02%	-17.02%	-17.02%	-17.80%
333	2000	0.00	0.00	0.00	0.00	NA									
333	2001	0.00	0.00	0.00	0.00	NA		NA							
333	2002	0.00	0.00	0.00	0.00	NA		NA							
333	2003	47,896.00	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%						
333	2004	23,948.00	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%					
333	2005	0.00	0.00	0.00	0.00	NA	0.00%	0.00%	0.00%	0.00%	0.00%				
333	2006	23,948.00	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%				
333	2007	0.00	0.00	0.00	0.00	NA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%			
333	2008	0.00	0.00	0.00	0.00	NA	NA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%		
333	2009	0.00	0.00	0.00	0.00	NA	NA	NA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
333	2010	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
333	2011	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	0.00%	0.00%	0.00%	0.00%	0.00%
333	2012	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	0.00%	0.00%	0.00%	0.00%	0.00%
333	2013	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	0.00%	0.00%	0.00%	0.00%
333	2014	124.09	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
333	2015	41,427.56	0.00	113,807.96	(113,807.96)	-274.72%	-273.90%	-273.90%	-273.90%	-273.90%	-273.90%	-273.90%	-273.90%	-273.90%	-173.75%
333	2016	0.00	0.00	0.00	0.00	NA	-274.72%	-273.90%	-273.90%	-273.90%	-273.90%	-273.90%	-273.90%	-273.90%	-273.90%
333	2017	0.00	0.00	0.00	0.00	NA	NA	-274.72%	-273.90%	-273.90%	-273.90%	-273.90%	-273.90%	-273.90%	-273.90%
333	2018	30,302.91	0.00	0.00	0.00	0.00%	0.00%	0.00%	-158.66%	-158.39%	-158.39%	-158.39%	-158.39%	-158.39%	-158.39%
333	2019	0.00	0.00	0.00	0.00	NA	0.00%	0.00%	0.00%	-158.66%	-158.39%	-158.39%	-158.39%	-158.39%	-158.39%
334	2000	0.00	0.00	0.00	0.00	NA									
334	2001	0.00	0.00	0.00	0.00	NA		NA							
334	2002	0.00	0.00	0.00	0.00	NA		NA							
334	2003	70,478.00	0.00	10,183.04	(10,183.04)	-14.45%	-14.45%	-14.45%	-14.45%						
334	2004	0.00	0.00	0.00	0.00	NA	-14.45%	-14.45%	-14.45%	-14.45%					
334	2005	0.00	0.00	0.00	0.00	NA	NA	-14.45%	-14.45%	-14.45%	-14.45%				
334	2006	0.00	0.00	0.00	0.00	NA	NA	NA	-14.45%	-14.45%	-14.45%	-14.45%			
334	2007	0.00	0.00	0.00	0.00	NA	NA	NA	NA	-14.45%	-14.45%	-14.45%	-14.45%		
334	2008	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	-14.45%	-14.45%	-14.45%	-14.45%	
334	2009	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	-14.45%	-14.45%	-14.45%	-14.45%
334	2010	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	NA	-14.45%	-14.45%	-14.45%
334	2011	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	NA	NA	-14.45%	-14.45%
334	2012	9,285.68	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	-12.77%
334	2013	0.00	0.00	0.00	0.00	NA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
334	2014	6,766.01	0.00	7,614.58	(7,614.58)	-112.54%	-112.54%	-47.44%	-47.44%	-47.44%	-47.44%	-47.44%	-47.44%	-47.44%	-47.44%
334	2015	0.00	0.00	0.00	0.00	NA	-112.54%	-112.54%	-47.44%	-47.44%	-47.44%	-47.44%	-47.44%	-47.44%	-47.44%
334	2016	0.00	0.00	0.00	0.00	NA	NA	-112.54%	-47.44%	-47.44%	-47.44%	-47.44%	-47.44%	-47.44%	-47.44%
334	2017	857.76	0.00	1,131.21	(1,131.21)	-131.88%	-131.88%	-131.88%	-114.72%	-114.72%	-51.72%	-51.72%	-51.72%	-51.72%	-51.72%
334	2018	1,663.34	0.00	0.00	0.00	0.00%	-44.87%	-44.87%	-44.87%	-94.17%	-47.09%	-47.09%	-47.09%	-47.09%	-47.09%
334	2019	0.00	0.00	0.00	0.00	NA	0.00%	-44.87%	-44.87%	-44.87%	-94.17%	-47.09%	-47.09%	-47.09%	-47.09%
335	2000	0.00	0.00	0.00	0.00	NA									
335	2001	0.00	0.00	0.00	0.00	NA		NA							
335	2002	0.00	0.00	0.00	0.00	NA		NA							
335	2003	0.00	0.00	0.00	0.00	NA		NA		NA					



EMPIRE DISTRICT ELECTRIC COMPANY  
DATA THROUGH 2019 AS ADJUSTED  
RETIREMENTS REMOVAL COST AND NET SALVAGE ANALYSIS

FERC Account	Activity Year	Retirements	Salvage	Removal Cost	Net Salvage	Net Salv. %	2-yr Net Salv. %	3-yr Net Salv. %	4-yr Net Salv. %	5-yr Net Salv. %	6-yr Net Salv. %	7-yr Net Salv. %	8-yr Net Salv. %	9-yr Net Salv. %	10-yr Net Salv. %
342	2010	0.00	0.00	0.00	0.00	NA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
342	2011	120,027.80	0.00	16,565.13	(16,565.13)	-13.80%	-13.80%	-12.54%	-7.78%	-7.78%	-7.78%	-7.78%	-7.78%	-7.78%	-7.78%
342	2012	0.00	0.00	0.00	0.00	NA	-13.80%	-13.80%	-12.54%	-7.78%	-7.78%	-7.78%	-7.78%	-7.78%	-7.78%
342	2013	0.00	0.00	0.00	0.00	NA	NA	-13.80%	-12.54%	-7.78%	-7.78%	-7.78%	-7.78%	-7.78%	-7.78%
342	2014	1,057.61	0.00	514.92	(514.92)	-48.69%	-48.69%	-48.69%	-14.11%	-14.11%	-12.82%	-7.98%	-7.98%	-7.98%	-7.98%
342	2015	0.00	0.00	0.00	0.00	NA	NA	-48.69%	-48.69%	-48.69%	-14.11%	-12.82%	-7.98%	-7.98%	-7.98%
342	2016	0.00	0.00	0.00	0.00	NA	NA	-48.69%	-48.69%	-48.69%	-14.11%	-12.82%	-7.98%	-7.98%	-7.98%
342	2017	0.00	0.00	0.00	0.00	NA	NA	NA	-48.69%	-48.69%	-14.11%	-12.82%	-7.98%	-7.98%	-7.98%
342	2018	0.00	0.00	0.00	0.00	NA	NA	NA	NA	-48.69%	-48.69%	-14.11%	-14.11%	-12.82%	-7.98%
342	2019	44,767.76	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	-1.12%	-1.12%	-1.12%	-10.30%	-10.30%
343	2000	234,288.00	0.00	15,629.16	(15,629.16)	-6.67%	NA	NA	NA	NA	NA	NA	NA	NA	NA
343	2001	0.00	0.00	0.00	0.00	NA	-6.67%	NA	NA	NA	NA	NA	NA	NA	NA
343	2002	0.00	0.00	0.00	0.00	NA	NA	-6.67%	NA	NA	NA	NA	NA	NA	NA
343	2003	387,855.00	0.00	7,680.37	(7,680.37)	-1.98%	-1.98%	-1.98%	-3.75%	NA	NA	NA	NA	NA	NA
343	2004	0.00	0.00	0.00	0.00	NA	-1.98%	-1.98%	-1.98%	-3.75%	NA	NA	NA	NA	NA
343	2005	166,824.00	0.00	0.00	0.00	0.00%	0.00%	-1.38%	-1.38%	NA	-2.95%	NA	NA	NA	NA
343	2006	975,837.00	0.00	250,192.15	(250,192.15)	-25.64%	-21.90%	-21.90%	-16.85%	-16.85%	-16.85%	-15.50%	NA	NA	NA
343	2007	765,275.00	0.00	(69,450.38)	69,450.38	9.08%	-10.38%	-9.47%	-9.47%	-8.21%	-8.21%	-8.21%	-8.07%	NA	NA
343	2008	2,330,617.00	46.00	59,803.00	(59,757.00)	-2.56%	0.31%	-5.91%	-5.67%	-5.67%	-5.36%	-5.36%	-5.36%	-5.43%	NA
343	2009	392,945.79	0.00	0.00	0.00	0.00%	-2.19%	-2.19%	-5.39%	-5.19%	-5.19%	-4.94%	-4.94%	-4.94%	-5.02%
343	2010	3,075,634.00	0.00	0.00	0.00	0.00%	0.00%	-1.03%	0.15%	-3.19%	-3.12%	-3.12%	-3.07%	-3.07%	-3.07%
343	2011	1,817,360.00	612.00	114,217.46	(113,605.46)	-6.25%	-2.32%	-2.15%	-2.28%	-1.24%	-3.72%	-3.72%	-3.72%	-3.65%	-3.65%
343	2012	10,751.12	0.00	16,534.18	(16,534.18)	-153.79%	-7.12%	-2.65%	-2.46%	-2.49%	-1.44%	-3.96%	-3.89%	-3.89%	-3.81%
343	2013	887,079.00	0.00	0.00	0.00	0.00%	-1.84%	-4.79%	-2.25%	-2.10%	-2.23%	-1.30%	-3.61%	-3.56%	-3.56%
343	2014	68,786.72	0.00	22,049.85	(22,049.85)	-32.06%	-2.31%	-3.99%	-5.47%	-2.60%	-2.43%	-2.47%	-1.52%	-3.80%	-3.74%
343	2015	562,957.49	0.00	86,769.50	(86,769.50)	-15.41%	-17.23%	-7.16%	-8.20%	-7.14%	-3.72%	-3.51%	-3.27%	-2.31%	-4.40%
343	2016	2,482,717.00	0.00	166,781.15	(166,781.15)	-6.72%	-8.85%	-8.85%	-6.89%	-7.28%	-6.96%	-4.56%	-4.36%	-4.00%	-3.20%
343	2017	2,738,165.26	250.00	56,344.64	(56,094.64)	-2.05%	-4.27%	-5.35%	-5.67%	-4.92%	-5.16%	-5.39%	-3.97%	-3.84%	-3.63%
343	2018	1,571,618.82	0.00	0.00	0.00	0.00%	-1.30%	-3.28%	-4.47%	-4.47%	-4.18%	-4.18%	-4.55%	-3.49%	-3.39%
343	2019	6,082,046.00	0.00	0.00	0.00	0.00%	0.00%	-0.54%	-1.73%	-2.30%	-2.46%	-2.30%	-2.42%	-2.85%	-2.39%
344	2000	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
344	2001	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
344	2002	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
344	2003	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
344	2004	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
344	2005	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
344	2006	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
344	2007	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
344	2008	12,000.00	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
344	2009	0.19	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
344	2010	0.02	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
344	2011	43,687.62	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
344	2012	0.00	0.00	0.00	0.00	NA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
344	2013	0.00	0.00	0.00	0.00	NA	NA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
344	2014	0.00	0.00	0.00	0.00	NA	NA	NA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
344	2015	0.04	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
344	2016	95,767.26	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
344	2017	125,619.75	0.00	3,526.53	(3,526.53)	-2.81%	-1.59%	-1.59%	-1.59%	-1.59%	-1.59%	-1.33%	-1.33%	-1.33%	-1.27%
344	2018	17,296.97	1,912.10	2,719.86	(807.76)	-4.67%	-3.03%	-1.82%	-1.82%	-1.82%	-1.82%	-1.82%	-1.53%	-1.53%	-1.53%
344	2019	768,598.20	0.00	9,722.74	(9,722.74)	-1.26%	-1.34%	-1.54%	-1.40%	-1.40%	-1.40%	-1.40%	-1.40%	-1.40%	-1.34%
345	2000	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
345	2001	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
345	2002	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
345	2003	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
345	2004	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
345	2005	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
345	2006	32,082.00	0.00	2,229.58	(2,229.58)	-6.95%	-6.95%	-6.95%	-6.95%	-6.95%	-6.95%	-6.95%	-6.95%	-6.95%	-6.95%
345	2007	0.00	0.00	0.00	0.00	NA	-6.95%	-6.95%	-6.95%	-6.95%	-6.95%	-6.95%	-6.95%	-6.95%	-6.95%
345	2008	0.00	0.00	0.00	0.00	NA	NA	-6.95%	-6.95%	-6.95%	-6.95%	-6.95%	-6.95%	-6.95%	-6.95%
345	2009	0.01	0.00	(597.19)	597.19	5971900.00%	5971900.00%	5971900.00%	-5.09%	-5.09%	-5.09%	-5.09%	-5.09%	-5.09%	-5.09%
345	2010	62,247.29	0.00	0.00	0.00	0.00%	0.96%	0.96%	-1.73%	-1.73%	-1.73%	-1.73%	-1.73%	-1.73%	-1.73%
345	2011	86,883.76	0.00	0.00	0.00	0.00%	0.00%	0.40%	0.40%	0.40%	-0.90%	-0.90%	-0.90%	-0.90%	-0.90%
345	2012	0.00	0.00	0.00	0.00	NA	0.00%	0.00%	0.40%	0.40%	-0.90%	-0.90%	-0.90%	-0.90%	-0.90%
345	2013	0.00	0.00	0.00	0.00	NA	NA	0.00%	0.00%	0.40%	0.40%	-0.90%	-0.90%	-0.90%	-0.90%
345	2014	7,299.75	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.38%	0.38%	0.38%	-0.87%	-0.87%
345	2015	919,702.69	8,865.00	3,024.37	5,840.63	0.64%	0.63%	0.63%	0.63%	0.58%	0.54%	0.60%	0.60%	0.60%	0.38%



EMPIRE DISTRICT ELECTRIC COMPANY  
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RETIREMENTS REMOVAL COST AND NET SALVAGE ANALYSIS

FERC Account	Activity Year	Retirements	Salvage	Removal Cost	Net Salvage	Net Salv. %	2-yr Net Salv. %	3-yr Net Salv. %	4-yr Net Salv. %	5-yr Net Salv. %	6-yr Net Salv. %	7-yr Net Salv. %	8-yr Net Salv. %	9-yr Net Salv. %	10-yr Net Salv. %
345	2016	45,051.24	0.00	0.00	0.00	0.00%	0.61%	0.60%	0.60%	0.60%	0.55%	0.52%	0.57%	0.57%	0.57%
345	2017	1,868.93	0.00	2,929.71	(2,929.71)	-156.76%	-6.24%	0.30%	0.30%	0.30%	0.27%	0.26%	0.26%	0.31%	0.31%
345	2018	148,831.70	1,735.11	1,735.11	0.00	0.00%	-1.94%	-1.50%	0.26%	0.26%	0.26%	0.26%	0.24%	0.23%	0.28%
345	2019	1,134,274.00	0.00	7,533.18	(7,533.18)	-0.66%	-0.59%	-0.81%	-0.79%	-0.21%	-0.20%	-0.20%	-0.20%	-0.20%	-0.19%
346	2000	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
346	2001	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
346	2002	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
346	2003	17,157.00	0.00	(9,580.50)	9,580.50	55.84%	55.84%	55.84%	55.84%	55.84%	55.84%	55.84%	55.84%	55.84%	55.84%
346	2004	0.00	0.00	0.00	0.00	NA	55.84%	55.84%	55.84%	55.84%	55.84%	55.84%	55.84%	55.84%	55.84%
346	2005	0.00	0.00	0.00	0.00	NA	NA	55.84%	55.84%	55.84%	55.84%	55.84%	55.84%	55.84%	55.84%
346	2006	0.00	0.00	(965.92)	965.92	NA	NA	NA	61.47%	61.47%	61.47%	61.47%	61.47%	61.47%	61.47%
346	2007	0.00	0.00	0.00	0.00	NA	NA	NA	NA	61.47%	61.47%	61.47%	61.47%	61.47%	61.47%
346	2008	0.00	0.00	0.00	0.00	NA	NA	NA	NA	61.47%	61.47%	61.47%	61.47%	61.47%	61.47%
346	2009	25,081.83	0.00	5,353.75	(5,353.75)	-21.35%	-21.35%	-21.35%	-17.49%	-17.49%	-17.49%	-17.49%	-17.49%	-17.49%	-17.49%
346	2010	4,795.62	0.00	0.00	0.00	0.00%	-17.92%	-17.92%	-17.92%	-14.69%	-14.69%	-14.69%	-14.69%	-14.69%	-14.69%
346	2011	87,907.56	0.00	0.00	0.00	0.00%	0.00%	-4.55%	-4.55%	-4.55%	-4.55%	-4.55%	-4.55%	-4.55%	-4.55%
346	2012	0.00	0.00	0.00	0.00	NA	0.00%	0.00%	-4.55%	-4.55%	-4.55%	-4.55%	-4.55%	-4.55%	-4.55%
346	2013	0.00	0.00	0.00	0.00	NA	0.00%	0.00%	-4.55%	-4.55%	-4.55%	-4.55%	-4.55%	-4.55%	-4.55%
346	2014	4,079.68	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	-4.39%	-4.39%	-4.39%	-4.39%	-4.39%	-4.39%
346	2015	74,053.20	0.00	17,501.97	(17,501.97)	-23.63%	-22.40%	-22.40%	-22.40%	-10.54%	-10.24%	-11.67%	-11.67%	-11.67%	-11.67%
346	2016	16,739.94	0.00	0.00	0.00	0.00%	-19.28%	-18.45%	-18.45%	-18.45%	-9.58%	-9.33%	-10.75%	-10.75%	-10.75%
346	2017	94,024.49	0.00	129.47	(129.47)	-0.14%	-0.12%	-9.54%	-9.33%	-9.33%	-9.33%	-6.37%	-6.26%	-7.49%	-7.49%
346	2018	10,865.00	6,417.90	9,091.46	(2,673.56)	-25.07%	-2.68%	-2.31%	-10.39%	-10.17%	-10.17%	-10.17%	-7.06%	-6.95%	-8.09%
346	2019	197,332.10	0.00	0.00	0.00	0.00%	-1.29%	-0.93%	-0.88%	-5.17%	-5.12%	-5.12%	-5.12%	-4.19%	-4.15%
352	2000	5,071.00	13,640.00	0.00	13,640.00	268.98%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
352	2001	0.00	(13,640.00)	0.00	(13,640.00)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
352	2002	0.00	0.00	0.00	0.00	NA	NA	0.00%	NA	NA	NA	NA	NA	NA	NA
352	2003	0.00	0.00	0.00	0.00	NA	NA	NA	0.00%	NA	NA	NA	NA	NA	NA
352	2004	0.00	0.00	0.00	0.00	NA	NA	NA	NA	0.00%	NA	NA	NA	NA	NA
352	2005	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	0.00%	NA	NA	NA	NA
352	2006	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	0.00%	NA	NA	NA
352	2007	71.00	0.00	114.00	(114.00)	-160.56%	-160.56%	-160.56%	-160.56%	-160.56%	-160.56%	-19371.83%	-2.22%	-2.22%	-2.22%
352	2008	0.00	0.00	0.00	0.00	NA	-160.56%	-160.56%	-160.56%	-160.56%	-160.56%	-160.56%	-160.56%	-160.56%	-160.56%
352	2009	0.00	0.00	0.00	0.00	NA	NA	NA	-160.56%	-160.56%	-160.56%	-160.56%	-160.56%	-19371.83%	-2.22%
352	2010	1,510.00	0.00	9,977.00	(9,977.00)	-660.73%	-660.73%	-660.73%	-638.27%	-638.27%	-638.27%	-638.27%	-638.27%	-638.27%	-1501.01%
352	2011	21,750.00	0.00	2,444.00	(2,444.00)	-11.24%	-53.40%	-53.40%	-53.40%	-53.73%	-53.73%	-53.73%	-53.73%	-53.73%	-53.73%
352	2012	0.00	0.00	0.00	0.00	NA	-11.24%	-53.40%	-53.40%	-53.40%	-53.73%	-53.73%	-53.73%	-53.73%	-53.73%
352	2013	0.00	0.00	0.00	0.00	NA	NA	-11.24%	-53.40%	-53.40%	-53.40%	-53.73%	-53.73%	-53.73%	-53.73%
352	2014	0.00	0.00	0.00	0.00	NA	NA	NA	-11.24%	-53.40%	-53.40%	-53.40%	-53.73%	-53.73%	-53.73%
352	2015	13,031.46	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	-7.03%	-34.23%	-34.23%	-34.23%	-34.47%	-34.47%
352	2016	1,633.84	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	-6.71%	-32.75%	-32.75%	-32.75%	-32.99%	-32.99%
352	2017	12,598.23	0.00	16,534.72	(16,534.72)	-131.25%	-116.18%	-60.65%	-60.65%	-60.65%	-60.65%	-38.72%	-57.31%	-57.31%	-57.31%
352	2018	23,000.96	0.00	6,713.03	(6,713.03)	-29.19%	-65.30%	-62.44%	-46.25%	-46.25%	-46.25%	-46.25%	-35.68%	-48.51%	-48.51%
352	2019	4,983.59	0.00	32,601.87	(32,601.87)	-654.18%	-140.49%	-137.62%	-132.29%	-101.09%	-101.09%	-101.09%	-101.09%	-75.71%	-86.96%
353	2000	154,664.85	403,199.35	301.01	402,898.34	260.50%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
353	2001	0.08	(403,199.35)	0.00	(403,199.35)	-503999187.50%	-0.19%	-0.19%	-0.19%	-0.19%	-0.19%	-0.19%	-0.19%	-0.19%	-0.19%
353	2002	32,755.54	0.00	17,104.15	(17,104.15)	-52.22%	-1283.15%	-9.29%	-39.21%	-39.21%	-39.21%	-39.21%	-39.21%	-39.21%	-39.21%
353	2003	1,495,777.19	7,240.05	186,230.98	(178,990.93)	-11.97%	-12.83%	-11.97%	-11.67%	-11.67%	-11.67%	-11.67%	-11.67%	-11.67%	-11.67%
353	2004	493,932.82	183,284.16	66,896.61	116,387.55	23.56%	-3.15%	-3.94%	-23.88%	-3.67%	-3.67%	-3.67%	-3.67%	-3.67%	-3.67%
353	2005	237,220.78	146,228.93	18,792.83	127,436.10	53.72%	2.91%	33.35%	2.91%	2.11%	1.96%	1.96%	1.96%	1.96%	1.96%
353	2006	185,222.28	0.00	55,992.35	(55,992.35)	-30.23%	16.91%	20.50%	0.37%	-0.34%	-16.83%	-0.33%	-0.33%	-0.33%	-0.33%
353	2007	392,592.52	0.00	46,256.26	(46,256.26)	-11.78%	-17.70%	3.09%	10.82%	-1.33%	-1.33%	-1.33%	-1.33%	-1.33%	-1.33%
353	2008	151,725.83	941.50	12,736.90	(11,795.40)	-7.77%	-10.67%	-15.63%	1.39%	8.88%	-1.66%	-2.22%	-15.71%	-2.12%	-2.12%
353	2009	213,018.43	0.00	33,544.43	(33,544.43)	-15.75%	-12.43%	-12.09%	-15.66%	-1.71%	5.75%	-2.61%	-3.12%	-15.71%	-2.98%
353	2010	595,542.18	29,070.55	177,966.61	(148,896.06)	-25.00%	-22.56%	-20.23%	-17.78%	-19.28%	-9.52%	-2.32%	-6.15%	-6.55%	-17.17%
353	2011	104,727.24	1,946.66	37,123.18	(35,176.52)	-33.59%	-26.29%	-23.83%	-21.54%	-18.91%	-20.19%	-10.86%	-3.70%	-6.90%	-7.28%
353	2012	77,035.28	70,684.70	175,876.52	(105,191.82)	-136.55%	-77.23%	-37.21%	-32.60%	-29.30%	-24.82%	-25.40%	-15.81%	-7.88%	-9.43%
353	2013	392,813.76	0.00	6,343.28	(6,343.28)	-1.61%	-23.74%	-25.53%	-25.26%	-23.80%	-22.21%	-20.09%	-20.98%	-13.44%	-7.01%
353	2014	539,896.64	557.39	26,731.53	(26,174.14)	-4.85%	-3.49%	-13.64%	-15.51%	-18.82%	-18.48%	-17.69%	-16.75%	-17.69%	-11.83%
353	2015	1,023,524.69	0.00	10,782.66	(10,782.66)	-1.05%	-2.36%	-2.21%	-7.30%	-8.59%	-12.17%	-12.42%	-12.20%	-12.15%	-13.06%
353	2016	1,053,436.17	247.49	69,233.12	(68,985.63)	-6.55%	-3.84%	-4.05%	-3.73%	-7.05%	-7.92%	-10.60%	-10.88%	-10.76%	-10.85%
353	2017	1,706,501.06	63.51	431,217.94	(431,154.43)	-25.27%	-18.12%	-13.50%	-12.42%	-11.52%	-13.53%	-13.96%	-15.16%	-15.18%	-14.99%
353	2018	1,502,966.40	31,494.49	818,095.97	(786,601.48)	-52.34%	-37.94%	-30.18%	-24.54%	-22.72%	-21.39%	-22.80%	-22.97%	-23.14%	-22.93%
353	2019	2,042,703.68	8,785.53	1,183,577.73	(1,174,792.20)	-57.51%	-55.32%	-45.55%	-39.04%	-33.73%	-31.75%	-30.32%	-31.30%	-31.33%	-30.91%

EMPIRE DISTRICT ELECTRIC COMPANY  
DATA THROUGH 2019 AS ADJUSTED  
RETIREMENTS REMOVAL COST AND NET SALVAGE ANALYSIS

FERC Account	Activity Year	Retirements	Salvage	Removal Cost	Net Salvage	Net Salv. %	2-yr Net Salv. %	3-yr Net Salv. %	4-yr Net Salv. %	5-yr Net Salv. %	6-yr Net Salv. %	7-yr Net Salv. %	8-yr Net Salv. %	9-yr Net Salv. %	10-yr Net Salv. %
354	2000	0.00	0.00	0.00	0.00	NA									
354	2001	0.00	0.00	0.00	0.00	NA	NA								
354	2002	0.00	0.00	0.00	0.00	NA	NA	NA							
354	2003	0.00	0.00	0.00	0.00	NA	NA	NA	NA						
354	2004	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA					
354	2005	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA				
354	2006	1,000.00	0.00	1,324.56	(1,324.56)	-132.46%	-132.46%	-132.46%	-132.46%	-132.46%	-132.46%	-132.46%	-132.46%	-132.46%	-132.46%
354	2007	0.00	0.00	0.00	0.00	NA	-132.46%	-132.46%	-132.46%	-132.46%	-132.46%	-132.46%	-132.46%	-132.46%	-132.46%
354	2008	0.00	0.00	0.00	0.00	NA	NA	-132.46%	-132.46%	-132.46%	-132.46%	-132.46%	-132.46%	-132.46%	-132.46%
354	2009	0.00	0.00	0.00	0.00	NA	NA	NA	-132.46%	-132.46%	-132.46%	-132.46%	-132.46%	-132.46%	-132.46%
354	2010	0.00	0.00	0.00	0.00	NA	NA	NA	NA	-132.46%	-132.46%	-132.46%	-132.46%	-132.46%	-132.46%
354	2011	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	-132.46%	-132.46%	-132.46%	-132.46%	-132.46%
354	2012	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	-132.46%	-132.46%	-132.46%	-132.46%
354	2013	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	NA	-132.46%	-132.46%	-132.46%
354	2014	705.23	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	-77.68%
354	2015	431.22	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	-62.00%
354	2016	0.00	0.00	12,735.97	(12,735.97)	NA	-2953.47%	-1120.68%	-1120.68%	-1120.68%	-1120.68%	-1120.68%	-1120.68%	-1120.68%	-1120.68%
354	2017	0.00	0.00	0.00	0.00	NA	NA	-2953.47%	-1120.68%	-1120.68%	-1120.68%	-1120.68%	-1120.68%	-1120.68%	-1120.68%
354	2018	2,853.43	0.00	0.00	0.00	0.00%	0.00%	-446.34%	-387.74%	-319.21%	-319.21%	-319.21%	-319.21%	-319.21%	-319.21%
354	2019	3,274.46	0.00	0.00	0.00	0.00%	0.00%	0.00%	-207.84%	-194.17%	-175.32%	-175.32%	-175.32%	-175.32%	-175.32%
355	2000	5,590.14	23,004.44	95,581.36	(72,576.92)	-1298.30%									
355	2001	2,878.08	8,310.05	17,625.58	(9,315.53)	-323.67%	-967.06%								
355	2002	2,503.14	9,131.96	18,975.06	(9,843.10)	-393.23%	-356.03%	-836.14%							
355	2003	60,764.73	98,303.67	139,227.39	(40,923.72)	-67.35%	-80.24%	-90.83%	-184.93%						
355	2004	136,867.47	49,266.10	208,140.29	(158,874.19)	-116.08%	-101.10%	-104.75%	-107.85%	-139.75%					
355	2005	97,265.40	153,037.82	275,919.74	(122,881.92)	-126.34%	-120.34%	-109.42%	-111.81%	-113.84%	-135.49%				
355	2006	45,637.44	184,654.61	59,797.36	124,857.25	273.59%	1.38%	-56.08%	-58.09%	-60.54%	-62.73%	-82.38%			
355	2007	91,031.11	78,746.26	383,392.55	(304,646.29)	-334.66%	-131.55%	-129.38%	-124.47%	-116.43%	-118.03%	-119.38%	-134.27%		
355	2008	45,635.76	522,434.23	201,556.55	320,877.68	703.13%	11.88%	77.39%	6.51%	-33.78%	-38.05%	-39.91%		-55.99%	
355	2009	70,137.92	364,359.72	134,940.16	429,419.56	612.25%	648.07%	215.49%	226.00%	128.00%	59.34%	45.28%	43.28%	41.37%	27.96%
355	2010	31,168.42	326,334.11	129,519.60	196,814.51	631.45%	618.16%	644.55%	269.97%	270.55%	169.20%	93.79%	76.86%	74.83%	72.87%
355	2011	56,486.99	27,737.99	169,006.42	(141,268.43)	-250.09%	63.37%	307.34%	396.13%	170.21%	184.08%	115.05%	59.96%	47.78%	46.04%
355	2012	74,668.98	14,600.00	62,606.86	(48,006.86)	-64.29%	-144.31%	4.64%	187.97%	272.51%	122.77%	139.37%	88.89%	45.66%	35.98%
355	2013	123,639.07	12,727.01	96,172.50	(83,445.49)	-67.49%	-66.29%	-107.04%	-26.54%	99.27%	167.87%	75.03%	91.86%	58.48%	27.55%
355	2014	391,562.98	1,212.70	828,229.34	(827,016.64)	-211.21%	-176.72%	-162.49%	-170.14%	-133.27%	-63.33%	-19.24%	-51.71%	-35.74%	-44.32%
355	2015	295,963.48	42.15	461,336.77	(461,294.62)	-155.86%	-187.38%	-169.11%	-160.27%	-165.66%	-140.14%	-89.57%	-56.36%	-77.83%	-64.74%
355	2016	263,304.02	4,618.84	1,920,835.77	(1,916,216.93)	-727.76%	-425.11%	-337.02%	-306.01%	-290.30%	-288.42%	-265.24%	-218.15%	-187.06%	-196.37%
355	2017	156,024.28	(5,847.82)	405,144.05	(410,991.87)	-263.42%	-554.98%	-389.84%	-326.65%	-300.61%	-287.09%	-285.55%	-265.03%	-222.97%	-194.96%
355	2018	148,766.54	299.22	156,170.57	(155,871.35)	-104.78%	-185.98%	-437.09%	-340.76%	-300.36%	-279.49%	-268.43%	-267.75%	-249.57%	-212.06%
355	2019	189,628.00	70,237.96	2,075,245.78	(2,005,007.82)	-1057.34%	-638.57%	-520.18%	-592.31%	-469.72%	-399.68%	-373.50%	-359.46%	-355.82%	-358.05%
356	2000	2,623.22	1,436.36	2,754.59	(1,318.23)	-50.25%									
356	2001	2,976.34	7,507.74	(3,529.37)	11,037.11	370.83%	173.57%								
356	2002	2,383.98	4,675.84	1,876.38	2,799.46	117.43%	258.13%	156.80%							
356	2003	218,700.63	164,066.00	598,833.94	(434,767.94)	-198.80%	-195.39%	-187.86%	-186.27%						
356	2004	459,435.94	129,820.07	998,002.38	(868,182.31)	-188.97%	-192.14%	-191.05%	-188.61%	-188.08%					
356	2005	93,200.58	385,573.62	272,634.98	112,938.64	121.18%	-136.66%	-154.28%	-153.44%						
356	2006	201,866.46	360,223.16	150,269.18	209,953.98	104.01%	109.43%	-72.27%	-100.70%	-100.17%	-98.74%	-98.61%			
356	2007	103,446.74	244,712.20	267,024.11	(22,311.91)	-21.57%	61.46%	75.43%	-66.16%	-93.10%	-92.64%	-91.36%	-91.26%		
356	2008	230,859.20	465,598.43	155,380.08	310,218.35	134.38%	86.12%	92.85%	97.05%	-23.64%	-52.94%	-52.63%	-51.67%	-51.66%	
356	2009	52,201.77	298,955.67	62,445.98	236,509.69	453.07%	193.15%	135.68%	124.81%	124.32%	-1.83%	-33.25%	-33.51%	-32.25%	-32.40%
356	2010	80,850.66	323,476.20	334,815.32	(11,339.12)	-14.02%	169.23%	147.12%	109.78%	108.04%	109.65%	-2.64%	-32.42%	-32.17%	-31.34%
356	2011	67,061.02	61,984.32	77,931.26	(15,946.94)	-23.78%	-18.45%	104.55%	120.53%	93.02%	96.03%	98.86%	-3.74%	-32.03%	-31.80%
356	2012	280,917.87	126.22	86,148.08	(86,021.86)	-30.62%	-29.30%	-26.42%	25.61%	60.88%	50.42%	61.06%	66.10%	-8.55%	-31.81%
356	2013	152,819.57	647.18	24,130.33	(23,483.15)	-15.37%	-25.25%	-25.05%	-23.52%	15.73%	47.41%	40.04%	51.07%	56.25%	-9.15%
356	2014	329,993.99	34,910.78	566,536.90	(531,626.12)	-161.10%	-114.97%	-83.95%	-79.09%	-73.32%	-44.81%	-10.19%	-11.09%	4.40%	11.23%
356	2015	295,584.30	773.98	60,917.72	(60,143.74)	-20.35%	-94.60%	-79.04%	-66.20%	-63.68%	-60.35%	-39.07%	-12.20%	-12.81%	0.32%
356	2016	121,178.49	2,929.60	1,568,721.33	(1,565,791.73)	-1292.14%	-390.13%	-288.92%	-242.45%	-192.04%	-183.00%	-172.71%	-149.05%	-108.45%	-103.21%
356	2017	38,382.90	34,778.71	328,810.79	(294,032.08)	-766.05%	-1165.59%	-421.84%	-312.25%	-263.88%	-210.12%	-200.40%	-189.38%	-165.74%	-123.75%
356	2018	121,913.53	51.86	18,311.84	(18,259.98)	-14.98%	-194.82%	-667.23%	-335.88%	-272.29%	-235.25%	-192.38%	-184.35%	-175.10%	-153.81%
356	2019	130,432.18	22,556.87	783,469.75	(760,912.88)	-583.38%	-308.77%	-369.14%	-640.68%	-381.51%	-311.40%	-273.40%	-227.04%	-218.18%	-207.99%
361	2000	16,966.97	0.00	0.00	0.00	0.00%									
361	2001	0.01	0.00	875.00	(875.00)	-8750000.00%	-5.16%								
361	2002	3,532.77	0.00	0.00	0.00	0.00%	-24.77%	-4.27%							

EMPIRE DISTRICT ELECTRIC COMPANY  
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FERC Account	Activity Year	Retirements	Salvage	Removal Cost	Net Salvage	Net Salv. %	2-yr Net Salv. %	3-yr Net Salv. %	4-yr Net Salv. %	5-yr Net Salv. %	6-yr Net Salv. %	7-yr Net Salv. %	8-yr Net Salv. %	9-yr Net Salv. %	10-yr Net Salv. %
361	2003	31,917.63	0.00	32,935.94	(32,935.94)	-103.19%	-92.91%	-95.38%	-64.50%						
361	2004	20,291.18	44,000.00	5,219.53	38,780.47	191.12%	11.19%	10.49%	8.92%	6.83%					
361	2005	137,097.42	58,491.57	(117,030.62)	175,522.19	128.03%	136.16%	95.81%	94.05%	93.60%	86.03%				
361	2006	87,716.11	0.00	43,365.92	(43,365.92)	-49.44%	58.78%	69.74%	49.82%	49.19%	48.88%	46.09%			
361	2007	3,756.36	0.00	5,809.21	(5,809.21)	-154.65%	-53.76%	55.28%	66.35%	47.08%	46.50%	46.19%	43.59%		
361	2008	20,186.33	0.00	8,105.35	(8,105.35)	-40.15%	-58.12%	-51.30%	47.53%	58.36%	41.23%	40.46%	38.33%		
361	2009	0.00	0.00	0.00	0.00	NA	-40.15%	-58.12%	-51.30%	47.53%	58.36%	41.23%	40.75%	40.46%	38.33%
361	2010	8,841.20	0.00	6,000.84	(6,000.84)	-67.87%	-67.87%	-48.60%	-60.75%	-52.52%	43.57%	54.35%	38.12%	37.69%	37.41%
361	2011	50,145.22	0.00	55,324.35	(55,324.35)	-110.33%	-103.96%	-103.96%	-87.69%	-90.73%	-69.50%	18.49%	17.44%	17.27%	17.27%
361	2012	0.00	0.00	0.00	0.00	NA	-110.33%	-103.96%	-103.96%	-87.69%	-90.73%	-69.50%	18.49%	17.44%	17.27%
361	2013	14,697.12	0.00	5,000.00	(5,000.00)	-34.02%	-34.02%	-93.03%	-90.01%	-90.01%	-79.29%	-82.19%	-66.69%	16.10%	26.46%
361	2014	74,090.09	0.00	7,131.03	(7,131.03)	-9.62%	-13.66%	-13.66%	-48.55%	-49.71%	-49.71%	-48.56%	-50.88%	-50.39%	11.29%
361	2015	49,360.14	(60.06)	3,974.66	(4,034.72)	-8.17%	-9.04%	-11.70%	-11.70%	-37.97%	-39.31%	-39.31%	-41.35%	-43.64%	-43.64%
361	2016	1,123,650.03	0.00	7,496.06	(7,496.06)	-0.67%	-0.98%	-1.50%	-1.88%	-1.88%	-6.02%	-6.43%	-6.43%	-6.94%	-7.35%
361	2017	30,135.47	2,159.49	105,582.45	(103,422.96)	-343.19%	-9.61%	-9.55%	-9.84%	-9.84%	-13.59%	-13.59%	-13.95%	-14.33%	-14.33%
361	2018	75,845.12	26.87	7,386.83	(7,359.96)	-9.70%	-104.53%	-9.62%	-9.56%	-9.57%	-9.83%	-9.83%	-13.38%	-13.72%	-13.72%
361	2019	6,641.87	36.97	4,363.10	(4,326.13)	-65.13%	-14.17%	-102.21%	-9.92%	-9.85%	-9.84%	-10.10%	-10.10%	-13.62%	-13.96%
362	2000	134,677.09	0.00	16,308.94	(16,308.94)	-12.11%									
362	2001	38,334.41	0.00	1,870.00	(1,870.00)	-4.88%	-10.51%								
362	2002	4,042.83	0.00	1,123.60	(1,123.60)	-27.79%	-7.06%	-10.90%							
362	2003	658,274.37	427,261.82	232,493.05	194,768.77	29.59%	29.24%	27.37%	21.01%						
362	2004	371,844.19	964,902.95	240,938.76	723,964.19	194.70%	89.19%	88.73%	85.38%	74.51%					
362	2005	223,640.02	1,257,568.80	161,930.77	1,095,638.03	489.91%	305.57%	160.67%	160.06%	155.18%	139.44%				
362	2006	282,289.91	0.00	95,493.68	(95,493.68)	-33.83%	197.68%	196.42%	124.92%	124.52%	121.38%	110.89%			
362	2007	197,656.74	0.00	27,769.33	(27,769.33)	-14.05%	-25.68%	138.20%	157.74%	109.08%	108.76%	106.31%	97.96%		
362	2008	134,366.99	0.00	33,241.66	(33,241.66)	-24.74%	-18.38%	-25.48%	112.07%	137.47%	99.45%	99.18%	97.09%	89.90%	
362	2009	458,540.11	0.00	36,935.58	(36,935.58)	-8.06%	-11.84%	-12.39%	-18.03%	69.59%	97.47%	78.27%	78.08%	76.74%	71.96%
362	2010	273,221.06	0.00	23,499.30	(23,499.30)	-8.60%	-8.26%	-10.82%	-11.42%	-16.12%	55.98%	69.14%	68.99%	67.91%	67.91%
362	2011	526,380.92	38,559.99	308,300.22	(269,740.23)	-51.24%	-36.67%	-26.24%	-26.10%	-24.60%	-25.99%	29.05%	54.01%	48.87%	48.77%
362	2012	259,311.25	0.00	47,643.68	(47,643.68)	-18.37%	-40.40%	-32.19%	-24.90%	-24.89%	-23.73%	-25.06%	23.83%	47.13%	43.72%
362	2013	213,670.88	0.00	2,974.65	(2,974.65)	-1.39%	-10.70%	-32.06%	-27.02%	-22.00%	-21.41%	-22.19%	-21.41%	27.73%	43.60%
362	2014	1,437,760.59	710.04	147,168.77	(146,458.73)	-10.19%	-9.05%	-10.31%	-19.15%	-18.09%	-16.64%	-16.97%	-16.80%	-18.07%	10.28%
362	2015	544,124.06	612.50	30,139.09	(29,526.59)	-5.43%	-8.88%	-8.15%	-9.23%	-16.65%	-15.97%	-15.00%	-15.34%	-15.27%	-16.48%
362	2016	910,496.57	11,111.89	139,828.27	(128,716.38)	-14.14%	-10.88%	-10.53%	-9.91%	-10.56%	-16.06%	-15.57%	-14.83%	-15.11%	-15.06%
362	2017	860,819.16	6,788.22	170,845.13	(164,056.91)	-19.06%	-16.53%	-13.92%	-12.49%	-11.89%	-12.29%	-16.60%	-16.17%	-15.49%	-15.71%
362	2018	2,100,353.95	17,623.64	374,173.95	(356,550.31)	-16.98%	-17.58%	-16.77%	-15.37%	-14.10%	-13.65%	-13.85%	-16.72%	-16.41%	-15.90%
362	2019	1,066,494.34	30,376.17	1,432,656.55	(1,402,280.38)	-131.49%	-55.54%	-47.74%	-41.55%	-37.96%	-32.19%	-31.27%	-30.82%	-32.17%	-31.39%
364	2000	209,027.35	67,527.66	373,174.22	(305,646.56)	-146.22%									
364	2001	134,114.74	39,102.95	372,393.43	(333,290.48)	-248.51%	-186.20%								
364	2002	137,031.18	217,287.49	529,608.67	(312,321.18)	-227.92%	-238.10%	-198.11%							
364	2003	187,470.56	56,452.57	462,608.37	(406,155.80)	-166.65%	-221.41%	-229.33%	-203.31%						
364	2004	319,038.11	281,466.86	722,570.59	(441,103.73)	-138.26%	-167.27%	-180.19%	-191.97%	-182.28%					
364	2005	279,494.24	727,445.82	537,941.46	189,504.36	67.80%	-42.04%	-83.68%	-105.10%	-123.29%	-127.08%				
364	2006	262,229.66	174,501.45	603,143.97	(428,642.52)	-163.46%	-44.14%	-79.03%	-103.64%	-118.01%	-131.27%	-133.32%			
364	2007	275,511.14	301,726.56	1,316,255.13	(1,014,528.57)	-368.24%	-268.38%	-153.40%	-149.15%	-158.71%	-165.20%	-172.21%	-169.20%		
364	2008	301,514.37	123,460.94	563,055.89	(439,594.95)	-145.80%	-252.00%	-224.34%	-151.35%	-148.45%	-156.31%	-161.88%	-168.01%	-165.85%	
364	2009	442,184.77	272,004.48	1,409,917.77	(1,137,913.29)	-257.34%	-212.12%	-254.32%	-235.73%	-181.38%	-174.06%	-177.92%	-181.03%	-184.90%	-181.73%
364	2010	222,175.02	408,018.15	916,713.51	(508,695.36)	-228.96%	-247.85%	-219.99%	-249.78%	-183.73%	-179.86%	-187.31%	-182.87%	-188.72%	
364	2011	596,028.50	709,324.26	1,557,434.78	(848,110.52)	-142.29%	-165.83%	-197.93%	-187.87%	-214.91%	-208.49%	-176.03%	-171.56%	-174.49%	-176.91%
364	2012	198,714.71	71,173.37	1,354,622.90	(1,283,449.53)	-645.88%	-268.21%	-259.63%	-258.94%	-239.56%	-256.97%	-246.30%	-212.25%	-204.10%	-204.86%
364	2013	371,410.78	40,816.14	758,254.92	(717,438.78)	-193.17%	-350.96%	-244.31%	-241.85%	-245.59%	-231.48%	-247.13%	-238.91%	-209.84%	-202.86%
364	2014	508,893.78	278,509.87	3,947,028.73	(3,668,518.86)	-720.88%	-498.23%	-525.42%	-389.09%	-370.34%	-348.98%	-325.78%	-329.79%	-316.07%	-285.05%
364	2015	433,950.71	134,885.49	2,878,046.46	(2,743,160.97)	-632.14%	-680.04%	-542.45%	-556.03%	-439.10%	-419.08%	-393.29%	-369.02%	-368.96%	-354.04%
364	2016	429,757.76	106,452.42	3,218,029.74	(3,111,577.32)	-724.03%	-677.86%	-583.81%	-587.19%	-593.19%	-487.34%	-466.54%	-437.66%	-409.32%	-409.32%
364	2017	506,943.39	14,138.02	2,880,911.44	(2,866,773.42)	-565.50%	-638.23%	-636.30%	-659.20%	-582.31%	-587.46%	-500.35%	-481.90%	-455.13%	-431.88%
364	2018	358,835.18	76,095.27	2,584,317.77	(2,508,222.50)	-698.99%	-620.83%	-655.06%	-649.31%	-665.58%	-598.35%	-601.71%	-521.28%	-503.37%	-476.64%
364	2019	415,635.42	45,893.52	3,210,117.43	(3,164,223.91)	-761.30%	-732.43%	-666.39%	-680.87%	-671.01%	-680.57%	-620.74%	-622.29%	-547.40%	-529.89%
365	2000	138,914.50	61,554.21	305,426.13	(243,871.92)	-175.56%									
365	2001	80,642.54	25,442.61	193,593.32	(168,150.71)	-208.51%	-187.66%								
365	2002	78,550.34	27,346.14	297,376.53	(270,030.39)	-343.77%	-275.25%	-228.79%							
365	2003	188,477.65	122,878.59	659,468.71	(536,590.12)	-284.70%	-302.07%	-280.37%	-250.45%						
365	2004	334,388.70	234,207.79	861,962.82	(627,755.03)	-187.73%	-222.69%	-238.50%		-224.90%					
365	2005	194,152.82	501,896.06	516,809.26	(14,913.20)	-7.68%	-121.59%	-164.47%	-182.17%	-184.59%	-183.36%				
365	2006	252,394.09	289,863.40	480,634.04	(190,770.64)	-75.58%	-46.06%	-106.72%	-141.33%	-156.50%	-160.22%	-161.90%			
365	2007	174,316.13	420,886.22	911,478.44	(490,592.22)	-281.44%	-159.68%	-112.15%	-138.61%	-162.68%	-174.32%	-176.43%	-176.35%		

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FERC Account	Activity Year	Retirements	Salvage	Removal Cost	Net Salvage	Net Salv. %	2-yr Net Salv. %	3-yr Net Salv. %	4-yr Net Salv. %	5-yr Net Salv. %	6-yr Net Salv. %	7-yr Net Salv. %	8-yr Net Salv. %	9-yr Net Salv. %	10-yr Net Salv. %
365	2008	799,736.86	237,877.27	1,066,387.49	(828,510.22)	-103.60%	-135.42%	-123.11%	-107.33%	-122.65%	-138.37%	-146.35%	-148.73%	-150.39%	
365	2009	438,926.70	589,253.30	777,495.87	(188,242.57)	-42.89%	-82.08%	-101.97%	-101.97%	-92.12%	-106.69%	-120.78%	-127.89%	-130.45%	-132.79%
365	2010	342,447.59	288,704.80	603,844.62	(315,139.82)	-92.03%	-64.42%	-84.24%	-103.82%	-100.27%	-92.11%	-104.71%	-117.16%	-123.51%	-125.89%
365	2011	265,483.83	551,824.70	1,012,836.55	(461,011.85)	-173.65%	-127.67%	-92.12%	-97.09%	-112.99%	-108.84%	-111.25%	-122.18%	-127.85%	
365	2012	164,303.34	195,120.30	444,261.05	(249,140.75)	-151.63%	-165.23%	-132.77%	-100.20%	-101.55%	-115.90%	-111.72%	-104.05%	-113.48%	-123.71%
365	2013	443,183.11	5,289.54	162,191.73	(156,902.19)	-35.40%	-66.84%	-99.32%	-97.27%	-82.84%	-89.60%	-102.33%	-99.98%	-94.16%	-103.33%
365	2014	578,298.56	95,066.42	1,228,027.35	(1,132,960.93)	-195.91%	-126.27%	-129.79%	-137.81%	-129.07%	-112.13%	-109.88%	-119.20%	-116.02%	-110.26%
365	2015	462,893.98	36,553.98	1,223,656.60	(1,187,102.62)	-256.45%	-222.83%	-166.87%	-165.35%	-166.50%	-155.20%	-136.91%	-129.29%	-136.52%	-132.60%
365	2016	567,013.45	61,397.02	1,036,214.69	(974,817.67)	-171.92%	-209.91%	-204.88%	-168.27%	-167.03%	-167.74%	-158.56%	-143.00%	-135.24%	-141.26%
365	2017	552,617.63	23,601.06	647,199.66	(623,598.60)	-112.84%	-142.76%	-176.02%	-181.34%	-156.50%	-156.22%	-157.74%	-151.08%	-138.63%	-132.56%
365	2018	364,561.56	8,996.06	376,848.20	(367,852.14)	-100.90%	-108.10%	-132.48%	-161.95%	-169.73%	-149.68%	-149.78%	-146.19%	-135.34%	
365	2019	449,351.11	9,349.52	740,960.23	(731,610.71)	-162.81%	-135.08%	-126.09%	-139.53%	-162.11%	-168.69%	-151.40%	-151.41%	-152.95%	-147.97%
366	2000	15,279.59	702.95	4,603.85	(3,900.90)	-25.53%									
366	2001	11,109.98	3,485.67	5,335.23	(1,849.56)	-16.65%	-21.79%								
366	2002	13,572.57	1,826.12	10,569.91	(8,743.79)	-64.42%	-42.92%	-36.27%							
366	2003	15,514.31	277.88	9,279.61	(9,001.73)	-58.02%	-61.01%	-48.75%	-42.35%						
366	2004	9,289.99	903.64	11,290.07	(10,386.43)	-111.80%	-78.16%	-73.30%	-60.58%	-52.31%					
366	2005	35,398.42	26,405.92	16,474.54	9,931.38	28.06%	-1.02%	-15.71%	-24.67%	-23.62%	-23.91%				
366	2006	19,699.07	13,705.09	12,139.56	1,565.53	7.95%	20.87%	1.72%	-9.88%	-17.80%	-17.67%	-18.68%			
366	2007	2,621.98	3,115.49	2,356.54	758.95	28.95%	10.41%	21.23%	2.79%	-8.64%	-16.52%	-16.53%	-17.66%		
366	2008	195,418.44	179,247.10	16,301.87	162,945.23	83.38%	82.66%	75.90%	69.21%	62.80%	56.06%	50.45%	47.99%	44.45%	
366	2009	53,175.69	12,518.17	13,715.83	(2,225.66)	-4.25%	65.06%	64.69%	60.56%	56.81%	51.84%	46.69%	42.32%	40.48%	37.76%
366	2010	22,897.76	35,165.63	16,006.55	19,159.08	83.67%	23.61%	66.63%	66.27%	62.36%	58.67%	54.00%	49.09%	44.90%	43.09%
366	2011	11,061.57	14,105.32	9,552.62	4,552.70	41.16%	69.82%	25.84%	65.64%	65.30%	61.59%	58.10%	53.59%	48.85%	44.79%
366	2012	15,475.16	9,453.27	29,109.54	(19,656.27)	-127.02%	-56.92%	8.20%	2.79%	55.63%	55.40%	52.48%	50.05%	45.93%	41.69%
366	2013	30,497.55	126.26	3,076.56	(2,950.30)	-9.67%	-49.17%	-31.65%	1.38%	-0.07%	49.57%	49.41%	47.08%	45.34%	41.65%
366	2014	52,758.30	1,986.10	58,283.07	(56,296.97)	-106.71%	-71.16%	-79.92%	-67.72%	-41.59%	-30.34%	-27.95%	26.98%	27.06%	
366	2015	42,851.82	4,119.51	61,832.69	(57,713.18)	-134.68%	-119.24%	-92.75%	-96.49%	-86.52%	-64.32%	-49.89%	11.52%	11.62%	11.46%
366	2016	50,547.84	3,811.20	50,547.84	(46,736.64)	-92.46%	-111.83%	-109.98%	-92.66%	-95.43%	-88.00%	-70.61%	-57.59%	0.44%	0.60%
366	2017	134,939.07	2,612.64	87,686.33	(85,073.69)	-63.05%	-71.06%	-83.00%	-87.45%	-79.84%	-82.07%	-78.04%	-67.78%	-59.37%	-13.61%
366	2018	107,022.94	1,069.24	81,074.02	(80,004.78)	-74.75%	-68.22%	-72.41%	-80.37%	-83.95%	-62.53%	-78.54%	-80.27%	-69.38%	-62.53%
366	2019	118,676.54	2,086.60	133,698.50	(131,611.90)	-110.90%	-93.76%	-82.27%	-83.52%	-88.35%	-90.26%	-85.69%	-86.84%	-84.33%	-77.78%
367	2000	276,072.93	7,302.16	33,879.66	(26,577.50)	-9.63%									
367	2001	136,629.96	3,904.13	17,206.27	(13,302.14)	-9.74%	-9.66%								
367	2002	119,384.55	8,784.52	33,187.80	(24,403.28)	-20.44%	-14.73%	-12.08%							
367	2003	130,508.16	15,018.04	36,407.47	(21,389.43)	-16.39%	-18.32%	-15.29%	-12.93%						
367	2004	172,564.81	6,928.62	31,836.95	(24,908.33)	-14.43%	-15.28%	-16.74%	-15.03%	-13.24%					
367	2005	238,876.17	65,570.18	36,341.79	29,228.39	12.24%	1.05%	-3.15%	-6.27%	-6.86%	-7.57%				
367	2006	271,422.14	30,133.19	73,216.15	(43,082.96)	-15.87%	-2.71%	-5.68%	-7.40%	-9.07%	-9.15%	-9.25%			
367	2007	129,639.44	17,902.24	32,148.38	(14,246.14)	-10.99%	-14.29%	-4.39%	-6.52%	-7.89%	-9.30%	-9.35%	-9.40%		
367	2008	488,654.28	389,358.14	29,472.08	359,886.06	73.65%	55.90%	34.01%	29.40%	23.58%	19.94%	16.83%	14.68%	11.26%	
367	2009	371,502.61	71,014.38	51,655.01	19,359.37	5.21%	44.09%	36.88%	25.52%	23.41%	19.50%	16.91%	14.59%	12.97%	10.30%
367	2010	71,996.69	80,964.79	33,019.43	47,945.36	66.59%	15.18%	45.83%	38.89%	27.74%	25.39%	21.45%	18.81%	16.46%	14.78%
367	2011	37,642.56	0.00	13,915.00	(13,915.00)	-36.97%	31.04%	11.10%	36.29%	36.29%	25.97%	20.21%	18.21%	17.72%	15.47%
367	2012	74,881.49	17,864.36	55,280.01	(37,415.65)	-49.97%	-45.62%	-1.83%	2.87%	35.98%	30.79%	22.03%	20.64%	17.38%	15.17%
367	2013	91,310.96	328.09	4,966.72	(4,666.63)	-5.11%	-25.32%	-27.47%	-2.92%	1.75%	32.68%	28.20%	20.42%	19.32%	16.33%
367	2014	267,460.28	6,834.77	205,307.53	(198,472.76)	-74.21%	-56.62%	-55.47%	-53.99%	-38.01%	-20.46%	12.31%	10.34%	6.39%	7.08%
367	2015	220,679.12	14,250.67	90,879.21	(76,628.54)	-34.72%	-56.36%	-48.28%	-47.85%	-37.06%	-23.23%	-5.92%	4.67%	1.91%	
367	2016	200,758.97	5,804.69	104,970.51	(99,165.82)	-49.40%	-41.71%	-54.33%	-48.57%	-48.69%	-48.20%	-39.63%	-27.16%	-0.17%	-0.89%
367	2017	259,120.77	4,809.69	87,392.99	(82,583.30)	-31.87%	-39.52%	-37.97%	-48.19%	-44.41%	-44.52%	-37.99%	-27.93%	-4.11%	
367	2018	90,361.83	318.68	42,917.21	(42,598.53)	-47.14%	-35.82%	-40.77%	-39.04%	-48.10%	-44.62%	-44.96%	-44.71%	-38.62%	-28.96%
367	2019	196,290.06	71.71	52,057.91	(51,986.20)	-26.48%	-33.00%	-32.46%	-37.02%	-36.49%	-44.66%	-41.94%	-42.37%	-42.23%	-37.04%
368	2000	4,860.39	597.62	124,176.09	(123,578.47)	-2542.56%									
368	2001	916,810.32	2,813.66	(14,128.38)	16,942.04	1.85%	-11.57%								
368	2002	3,978.83	5,828.21	73,649.35	(67,821.14)	-1704.55%	-5.53%	-18.85%							
368	2003	16,475.44	726.76	90,053.47	(89,326.71)	-542.18%	-768.29%	-14.96%	-28.00%						
368	2004	12,906.69	14,759.15	23,358.79	(8,599.64)	-66.63%	-333.29%	-496.83%	-15.66%	-28.52%					
368	2005	1,267,974.87	46,513.39	29,528.64	16,984.75	1.34%	0.65%	6.24%	-11.43%	-5.94%	-11.49%				
368	2006	31,734.26	2,359.60	(88,487.64)	90,847.24	286.27%	8.30%	7.56%	0.75%	-4.34%	-1.82%	-7.30%			
368	2007	214,742.59	11,355.08	117,750.46	(106,395.38)	-49.55%	-6.31%	0.09%	-0.47%	-6.25%	-10.62%	-5.98%	-10.97%		
368	2008	1,303,777.10	176,060.25	(211,588.04)	387,648.29	29.73%	18.52%	24.00%	13.81%	13.44%	10.22%	7.83%	6.38%	3.09%	
368	2009	920,322.12	62,806.46	95,626.99	(32,820.53)	-3.57%	15.95%	10.19%	13.73%	9.53%	9.27%	6.86%	5.05%	4.42%	1.79%
368	2010	754,299.82	271,216.17	20,752.86	250,463.31	33.20%	13.00%	20.32%	15.62%	18.29%	13.50%	13.27%	11.25%	9.74%	8.41%
368	2011	1,876,153.31	487,709.99	115,251.84	372,458.15	19.85%	23.68%	16.62%	20.14%	17.19%	18.86%	15.37%	15.21%	13.77%	12.71%
368	2012	19,500.81	3,632.81	22,948.36	(19,315.55)	-99.05%	18.63%	22.78%	15.99%	19.66%	16.74%	18.41%	15.02%	14.86%	13.43%

EMPIRE DISTRICT ELECTRIC COMPANY  
DATA THROUGH 2019 AS ADJUSTED  
RETIREMENTS REMOVAL COST AND NET SALVAGE ANALYSIS

FERC Account	Activity Year	Retirements	Salvage	Removal Cost	Net Salvage	Net Salv. %	2-yr Net Salv. %	3-yr Net Salv. %	4-yr Net Salv. %	5-yr Net Salv. %	6-yr Net Salv. %	7-yr Net Salv. %	8-yr Net Salv. %	9-yr Net Salv. %	10-yr Net Salv. %
368	2013	39,294.52	574.04	37,184.24	(36,610.20)	-93.17%	-95.12%	16.36%	21.08%	14.80%	18.76%	15.90%	17.56%	14.36%	14.20%
368	2014	2,503,164.86	12,295.44	231,693.75	(219,398.31)	-8.76%	-10.07%	-10.75%	2.19%	6.69%	5.15%	9.47%	7.81%	8.96%	7.88%
368	2015	650,809.58	689,314.94	833,858.47	(144,543.53)	-22.21%	-11.54%	-12.54%	-13.07%	-0.93%	3.48%	2.52%	6.92%	5.45%	6.52%
368	2016	794,271.25	84,120.16	244,713.38	(160,593.22)	-20.22%	-21.12%	-13.29%	-14.49%	-14.49%	-3.54%	0.64%	0.13%	4.48%	3.20%
368	2017	1,020,770.08	69,920.26	291,687.57	(221,767.31)	-21.73%	-21.07%	-21.37%	-15.02%	-15.63%	-15.96%	-6.22%	-2.34%	-2.47%	1.78%
368	2018	677,261.60	123,584.35	240,135.28	(116,550.93)	-17.21%	-19.92%	-20.02%	-20.47%	-15.28%	-15.82%	-16.10%	-7.21%	-3.55%	-3.55%
368	2019	761,032.22	68,991.46	246,884.46	(177,893.00)	-23.38%	-20.47%	-20.99%	-20.80%	-21.04%	-16.24%	-16.71%	-16.96%	-8.68%	-5.21%
369	2000	18,419.84	2,903.26	67,355.31	(64,452.05)	-349.91%									
369	2001	20,449.40	3,832.24	92,938.14	(89,105.90)	-435.74%	-395.06%								
369	2002	26,024.07	4,716.60	179,827.46	(175,110.86)	-672.88%	-568.53%	-506.48%							
369	2003	20,761.45	3,927.94	151,981.33	(148,053.39)	-713.12%	-690.74%	-613.18%	-556.56%						
369	2004	21,796.44	3,939.82	143,673.20	(139,733.38)	-641.08%	-676.22%	-674.96%	-620.01%	-573.71%					
369	2005	15,197.10	5,621.79	109,754.90	(104,133.11)	-685.22%	-659.21%	-678.59%	-629.52%	-629.52%	-587.52%				
369	2006	28,198.29	8,062.18	122,129.65	(114,067.47)	-404.52%	-502.82%	-549.05%	-588.68%	-608.25%	-581.61%	-553.31%			
369	2007	50,038.17	6,155.90	233,200.04	(227,044.14)	-453.74%	-436.54%	-476.54%	-507.66%	-539.03%	-560.53%	-546.54%	-528.51%		
369	2008	96,376.89	59,049.38	84,620.07	(25,570.69)	-26.53%	-172.53%	-210.00%	-248.05%	-288.53%	-326.47%	-361.35%	-366.81%	-365.76%	
369	2009	104,199.23	55,158.82	255,100.75	(199,941.93)	-191.88%	-112.43%	-180.58%	-203.23%	-228.14%	-256.64%	-284.80%	-312.65%	-319.22%	-320.63%
369	2010	21,647.34	5,056.25	178,386.44	(173,330.19)	-800.70%	-296.61%	-179.48%	-229.88%	-246.27%	-267.41%	-291.54%	-315.98%	-340.15%	-344.98%
369	2011	410,239.73	11,931.43	478,358.31	(466,426.88)	-113.70%	-148.13%	-156.64%	-136.81%	-160.05%	-169.75%	-180.54%	-193.96%	-207.99%	-223.22%
369	2012	59,672.08	25,120.19	143,147.02	(118,026.83)	-197.79%	-124.38%	-154.16%	-160.76%	-142.07%	-163.08%	-171.92%	-181.85%	-194.25%	-207.25%
369	2013	1,316.17	0.00	0.00	0.00	0.00%	-193.52%	-124.03%	-153.75%	-160.40%	-141.80%	-162.79%	-171.62%	-181.54%	-193.93%
369	2014	39,569.46	33,171.84	156,866.19	(123,694.35)	-312.60%	-302.54%	-240.38%	-138.64%	-165.55%	-169.86%	-151.02%	-170.36%	-178.50%	-187.82%
369	2015	22,052.52	9,613.45	218,851.24	(209,237.79)	-948.82%	-948.82%	-540.28%	-528.98%	-367.80%	-172.17%	-196.70%	-174.32%	-191.68%	-198.89%
369	2016	17,847.01	7,348.38	202,330.06	(194,981.68)	-1092.52%	-1013.09%	-664.30%	-653.48%	-459.88%	-201.99%	-224.64%	-219.59%	-195.52%	-211.22%
369	2017	21,328.50	915.66	285,632.24	(284,716.58)	-1334.91%	-1224.49%	-1125.20%	-806.20%	-795.81%	-575.24%	-244.23%	-264.53%	-253.68%	-226.12%
369	2018	20,926.44	1,596.36	200,433.35	(198,836.99)	-950.17%	-1144.37%	-1128.97%	-1080.61%	-830.95%	-622.06%	-618.18%	-269.15%	-287.87%	-273.96%
369	2019	14,808.93	598.56	238,731.20	(238,132.64)	-1608.03%	-1222.79%	-1264.70%	-1223.68%	-1161.17%	-915.24%	-906.50%	-692.40%	-301.77%	-318.93%
370	2000	343.26	0.00	9,686.82	(9,686.82)	-2822.01%									
370	2001	249,202.71	0.00	1,602.19	(1,602.19)	-0.64%	-4.52%								
370	2002	0.03	0.00	7,368.40	(7,368.40)	-24561333.33%	-3.60%	-7.48%							
370	2003	167.45	0.00	13,625.40	(13,625.40)	-8137.00%	-12535.11%	-9.06%		-12.93%					
370	2004	684.16	77.16	3,184.09	(3,106.93)	-454.12%	-1964.79%	-2829.92%	-10.28%	-14.13%					
370	2005	804,352.45	327.40	9,174.73	(8,847.33)	-1.10%	-1.48%	-3.18%	-4.09%	-3.28%	-4.19%				
370	2006	0.03	0.00	6,765.77	(6,765.77)	-22552566.67%	-2.33%	-1.94%	-4.02%	-4.93%		-4.84%			
370	2007	0.02	0.00	1,619.84	(1,619.84)	-8099200.00%	-16771220.00%	-2.14%	-2.53%	-4.22%	-5.13%	-4.07%	-4.99%		
370	2008	0.06	190.21	10,358.86	(10,168.65)	-16947750.00%	-14735612.50%	-16867509.09%	-3.41%	-3.79%	-5.48%	-6.40%	-5.04%	-5.95%	
370	2009	1,038,064.74	(364.00)	11,564.05	(11,928.05)	-1.15%	-2.13%	-2.28%	-2.94%	-2.13%	-2.30%	-3.04%	-3.44%	-3.11%	-3.57%
370	2010	0.01	368.58	242.85	125.73	1257300.00%	-1.14%	-2.27%	-2.92%	-2.13%	-2.30%	-3.03%	-3.43%	-3.10%	
370	2011	784,617.84	(326.42)	11,842.64	(12,169.06)	-1.55%	-1.53%	-1.32%	-1.87%	-1.96%	-2.33%	-1.96%	-2.07%	-2.59%	-2.87%
370	2012	20,906.78	0.00	5,529.08	(5,529.08)	-26.45%	-2.20%	-2.18%	-1.60%	-2.15%	-2.24%	-2.15%	-2.27%	-2.78%	
370	2013	243.34	0.00	2,609.55	(2,609.55)	-1072.39%	-38.48%	-2.52%	-2.50%	-1.74%	-2.29%	-2.38%	-2.75%	-2.25%	-2.36%
370	2014	0.00	1.80	0.00	1.80	NA	-1071.65%	-38.47%	-2.52%	-2.50%	-1.74%	-2.29%	-2.38%	-2.75%	-2.25%
370	2015	21,899.50	820.90	6,611.12	(5,790.22)	-26.44%	-26.43%	-37.93%	-32.35%	-3.15%	-3.14%	-2.03%	-2.58%	-2.66%	-3.03%
370	2016	2,843.12	2.09	4,104.34	(4,102.25)	-144.29%	-39.98%	-39.97%	-50.03%	-39.29%	-3.64%	-3.62%	-2.25%	-2.79%	-2.88%
370	2017	1,250,383.02	2,230.13	533,238.69	(531,008.56)	-42.47%	-42.70%	-42.42%	-42.42%	-42.62%	-42.36%	-26.97%	-26.96%	-18.37%	-18.70%
370	2018	101,448.91	2,253.46	45,453.29	(43,199.83)	-42.58%	-42.48%	-42.69%	-42.43%	-42.43%	-42.61%	-42.37%	-27.70%	-27.69%	-19.13%
370	2019	831,157.49	1,684.62	542,988.48	(541,303.86)	-65.13%	-62.67%	-51.10%	-51.22%	-50.98%	-50.98%	-51.09%	-50.86%	-38.02%	-38.02%
371	2000	204,117.76	2,878.97	96,846.92	(93,967.95)	-46.04%									
371	2001	85,163.33	4,110.65	41,875.19	(37,764.54)	-44.34%	-45.54%								
371	2002	70,140.78	3,360.17	54,288.96	(50,928.79)	-72.61%	-57.11%	-50.82%							
371	2003	62,504.73	9,551.04	51,640.88	(42,089.64)	-67.34%	-70.13%	-60.04%	-53.27%						
371	2004	164,440.07	7,117.90	83,024.49	(75,906.59)	-46.16%	-51.99%	-56.86%	-54.07%	-51.27%					
371	2005	225,621.26	99,302.33	52,244.33	47,058.00	20.86%	-7.40%	-15.67%	-23.31%	-26.26%	-31.23%				
371	2006	77,897.23	5,389.21	48,579.68	(43,190.47)	-55.45%	1.27%	-15.39%	-21.51%	-27.48%	-29.58%	-33.35%			
371	2007	51,585.93	10,337.26	84,591.11	(74,253.85)	-143.94%	-90.70%	-19.82%	-28.16%	-32.37%	-36.69%	-37.58%	-39.41%		
371	2008	119,687.17	45,570.86	49,981.32	(4,410.46)	-3.68%	-45.93%	-48.90%	-15.75%	-23.58%	-27.47%	-31.58%	-32.84%	-35.38%	
371	2009	187,725.66	25,210.00	129,687.68	(104,477.68)	-55.65%	-35.42%	-51.01%	-51.80%	-50.86%	-30.86%	-33.42%	-36.29%	-36.94%	-38.43%
371	2010	226,766.42	15,381.56	84,516.18	(69,134.62)	-30.49%	-41.89%	-33.33%	-43.07%	-44.52%	-27.93%	-30.78%	-32.83%	-35.18%	-35.79%
371	2011	331,034.26	55,777.73	83,014.00	(27,236.27)	-8.23%	-17.28%	-26.94%	-33.72%	-30.49%	-32.44%	-22.59%	-22.39%	-27.20%	-29.30%
371	2012	146,636.70	9,154.34	87,153.61	(77,999.27)	-53.19%	-22.03%	-24.75%	-31.26%	-27.99%	-33.62%	-35.11%	-25.87%	-28.05%	-29.59%
371	2013	220,706.95	50.73	30,197.64	(30,146.91)	-13.66%	-29.44%	-19.38%	-22.11%	-27.76%	-25.43%	-30.19%	-31.63%	-24.17%	-26.24%
371	2014	769,706.90	9,437.77	289,605.30	(280,167.53)	-36.40%	-31.33%	-34.15%	-28.30%	-28.60%	-31.29%	-29.64%	-32.51%	-33.35%	-28.16%
371	2015	275,436.58	2,083.28	158,380.32	(156,297.04)	-56.75%	-41.76%	-36.86%	-32.80%	-32.80%	-32.53%	-34.54%	-32.92%	-35.38%	-36.03%
371	2016	354,200.49	988.80	134,006.47	(133,017.67)	-37.55%	-45.95%	-40.70%	-37.01%	-38.35%	-33.60%	-33.30%	-34.97%	-33.54%	-35.67%
371	2017	281,614.92	1,531.61	131,774.46	(130,242.85)	-46.25%	-41.41%	-46.04%	-41.63%	-38.38%	-39.44%	-35.10%	-34.70%	-36.10%	-34.77%
371	2018	183,093.68	1,197.17	144,363.51	(143,166.34)	-78.19%	-58.83%	-49.63%	-51.42%	-45.22%	-41.88%	-42.62%	-38.18%	-37.55%	-38.69%





EMPIRE DISTRICT ELECTRIC COMPANY  
DATA THROUGH 2019 AS ADJUSTED  
RETIREMENTS REMOVAL COST AND NET SALVAGE ANALYSIS

FERC Account	Activity Year	Retirements	Salvage	Removal Cost	Net Salvage	Net Salv. %	2-yr Net Salv. %	3-yr Net Salv. %	4-yr Net Salv. %	5-yr Net Salv. %	6-yr Net Salv. %	7-yr Net Salv. %	8-yr Net Salv. %	9-yr Net Salv. %	10-yr Net Salv. %
394	2001	0.00	0.00	0.00	0.00	NA	83170000.00%								
394	2002	177.65	0.00	0.00	0.00	0.00%	0.00%	4681.41%							
394	2003	0.01	0.00	534.84	(534.84)	-5348400.00%	-301.05%	-301.05%	4380.12%						
394	2004	0.00	0.00	0.00	0.00	NA	-5348400.00%	-301.05%	-301.05%	4380.12%					
394	2005	0.00	0.00	0.00	0.00	NA	NA	-5348400.00%	-301.05%	-301.05%	4380.12%				
394	2006	633.29	100.00	0.00	100.00	15.79%	15.79%	15.79%	-68.66%	-53.62%	-53.62%	971.95%			
394	2007	0.00	0.00	0.00	0.00	NA	15.79%	15.79%	15.79%	-68.66%	-53.62%	-53.62%	971.95%		
394	2008	0.00	0.00	0.00	0.00	NA	NA	15.79%	15.79%	-68.66%	-53.62%	-53.62%	971.95%		
394	2009	2,303.89	1,200.00	0.00	1,200.00	52.09%	52.09%	52.09%	44.26%	44.26%	44.26%	26.05%	24.56%	24.56%	291.58%
394	2010	7,215.20	1,781.00	0.00	1,781.00	24.68%	31.32%	31.32%	31.32%	30.35%	30.35%	30.35%	25.08%	24.65%	24.65%
394	2011	5,471.38	0.00	0.00	0.00	0.00%	14.04%	19.89%	19.89%	19.89%	19.72%	19.72%	19.72%	16.30%	16.11%
394	2012	0.00	0.00	0.00	0.00	NA	0.00%	14.04%	19.89%	19.89%	19.89%	19.72%	19.72%	19.72%	16.30%
394	2013	0.00	0.00	0.00	0.00	NA	NA	0.00%	14.04%	19.89%	19.89%	19.89%	19.89%	19.72%	19.72%
394	2014	62,420.70	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	2.37%	3.85%	3.85%	3.85%	3.95%	3.95%
394	2015	0.00	0.00	0.00	0.00	NA	0.00%	0.00%	0.00%	0.00%	2.37%	3.85%	3.85%	3.85%	3.95%
394	2016	40,011.95	11,964.01	0.00	11,964.01	29.90%	29.90%	11.68%	11.68%	11.68%	11.09%	11.94%	12.73%	12.73%	12.73%
394	2017	154,232.68	528.35	124.49	403.86	0.26%	6.37%	6.37%	4.82%	4.82%	4.72%	4.72%	5.25%	5.65%	5.65%
394	2018	16,131.99	27,100.00	0.00	27,100.00	167.99%	16.14%	18.76%	18.76%	14.47%	14.47%	14.47%	14.18%	14.45%	14.75%
394	2019	212,764.89	0.00	0.00	0.00	0.00%	11.84%	7.18%	9.33%	9.33%	8.13%	8.13%	8.13%	8.04%	8.28%
395	2000	0.00	0.00	0.00	0.00	NA									
395	2001	0.00	0.00	0.00	0.00	NA	NA								
395	2002	0.00	0.00	0.00	0.00	NA	NA	NA							
395	2003	0.01	0.00	(1,000.00)	1,000.00	10000000.00%	10000000.00%	10000000.00%	10000000.00%	10000000.00%					
395	2004	0.00	0.00	0.00	0.00	NA	10000000.00%	10000000.00%	10000000.00%	10000000.00%					
395	2005	0.00	0.00	0.00	0.00	NA	NA	10000000.00%	10000000.00%	10000000.00%	10000000.00%				
395	2006	0.00	0.00	0.00	0.00	NA	NA	NA	10000000.00%	10000000.00%	10000000.00%	10000000.00%			
395	2007	0.00	0.00	0.00	0.00	NA	NA	NA	10000000.00%	10000000.00%	10000000.00%	10000000.00%	10000000.00%		
395	2008	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	10000000.00%	10000000.00%	10000000.00%	10000000.00%	
395	2009	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	10000000.00%	10000000.00%	10000000.00%	10000000.00%	10000000.00%
395	2010	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	10000000.00%	10000000.00%	10000000.00%	10000000.00%
395	2011	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	10000000.00%	10000000.00%	10000000.00%	10000000.00%
395	2012	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	NA	NA	10000000.00%	10000000.00%
395	2013	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	10000000.00%
395	2014	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
395	2015	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
395	2016	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
395	2017	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
395	2018	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
395	2019	20,369.67	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
396	2000	271,102.27	22,113.00	0.00	22,113.00	8.16%									
396	2001	22,253.20	(1,110.00)	(1,110.00)	0.00	0.00%	7.54%								
396	2002	746,783.36	64,612.09	7,248.58	57,363.51	7.68%	7.46%	7.64%							
396	2003	475,395.42	12,402.28	0.00	12,402.28	2.61%	5.71%	5.61%	6.06%						
396	2004	0.05	94.51	(6,025.67)	6,120.18	12240360.00%	3.90%	6.21%	6.10%	6.47%					
396	2005	532,471.12	5,356.75	3,094.77	2,261.98	0.42%	1.57%	2.06%	4.45%	4.40%	4.90%				
396	2006	318,260.86	0.00	(7,004.23)	7,004.23	2.20%	1.09%	1.81%	2.10%	4.11%	4.06%	4.53%			
396	2007	197,647.61	8,074.00	0.00	8,074.00	4.09%	2.92%	1.65%	2.24%	2.35%	4.11%	4.07%	4.50%		
396	2008	428,572.27	18,000.00	0.00	18,000.00	4.20%	4.16%	3.50%	2.39%	2.81%	2.76%	4.12%	4.09%	4.46%	
396	2009	47,581.53	0.00	0.00	0.00	0.00%	3.78%	3.87%	3.33%	2.32%	2.72%	2.69%	4.05%	4.02%	4.39%
396	2010	469,466.62	19,728.00	3,200.00	16,528.00	3.52%	3.20%	3.65%	3.73%	3.39%	2.60%	2.91%	2.85%	3.97%	3.94%
396	2011	563,564.46	16,812.00	900.00	15,912.00	2.82%	3.14%	3.00%	3.34%	3.43%	3.24%	2.65%	2.89%	2.85%	3.80%
396	2012	0.00	0.00	0.00	0.00	NA	2.82%	3.14%	3.00%	3.34%	3.43%	3.24%	2.65%	2.89%	2.85%
396	2013	630,983.16	33,009.36	0.00	33,009.36	5.23%	5.23%	4.10%	3.93%	3.82%	3.90%	3.91%	3.71%	3.16%	3.35%
396	2014	2,396,463.23	107,155.84	2,800.00	104,355.84	4.35%	4.54%	4.54%	4.27%	4.18%	4.13%	4.14%	4.14%	4.02%	3.67%
396	2015	1,702,398.72	42,732.01	1,100.00	41,632.01	2.45%	3.56%	3.78%	3.78%	3.68%	3.67%	3.64%	3.68%	3.69%	3.62%
396	2016	1,668,974.24	248,182.80	(222.23)	248,405.03	14.88%	8.60%	6.84%	6.68%	6.68%	6.37%	6.19%	6.15%	6.04%	5.99%
396	2017	140,690.35	0.00	0.00	0.00	0.00%	13.73%	8.26%	6.67%	6.54%	6.54%	6.24%	6.07%	6.03%	5.94%
396	2018	502,418.34	2,800.00	0.00	2,800.00	0.56%	0.44%	10.86%	7.29%	6.20%	6.11%	6.11%	5.87%	5.73%	5.70%
396	2019	1,034,966.33	0.00	765.21	(765.21)	-0.07%	0.13%	0.12%	7.48%	5.78%	5.32%	5.32%	5.32%	5.15%	5.07%
397	2000	0.00	0.00	0.00	0.00	NA									
397	2001	25,759.29	0.00	107.18	(107.18)	-0.42%	-0.42%								
397	2002	34,267.50	0.00	0.00	0.00	0.00%	-0.18%	-0.18%							
397	2003	215,001.12	13,069.82	6,678.23	6,391.59	2.97%	2.56%	2.29%	2.29%						
397	2004	0.00	0.00	0.00	0.00	NA	2.97%	2.56%	2.29%	2.29%					
397	2005	2,783,909.73	0.00	0.00	0.00	0.00%	0.00%	0.21%	0.21%	0.21%	0.21%				
397	2006	0.02	0.00	(71,979.05)	71,979.05	359895250.00%	2.59%	2.59%	2.61%	2.58%	2.56%	2.56%			



EMPIRE DISTRICT ELECTRIC COMPANY  
DATA THROUGH 2019 AS ADJUSTED  
RETIREMENTS REMOVAL COST AND NET SALVAGE ANALYSIS

FERC Account	Activity Year	Retirements	Salvage	Removal Cost	Net Salvage	Net Salv. %	2-yr Net Salv. %	3-yr Net Salv. %	4-yr Net Salv. %	5-yr Net Salv. %	6-yr Net Salv. %	7-yr Net Salv. %	8-yr Net Salv. %	9-yr Net Salv. %	10-yr Net Salv. %
397	2007	3,771.47	0.00	216.00	(216.00)	-5.73%	1902.78%	2.57%	2.57%	2.60%	2.57%	2.55%			
397	2008	123,484.30	0.00	0.00	0.00	0.00%	-0.17%	56.39%	2.47%	2.47%	2.50%	2.47%	2.45%	2.45%	
397	2009	0.00	0.00	0.00	0.00	NA	0.00%	-0.17%	56.39%	2.47%	2.47%	2.50%	2.47%	2.45%	2.45%
397	2010	184,616.33	1,704,386.84	45,514.70	1,658,872.14	898.55%	898.55%	538.42%	531.84%	554.92%	55.90%	52.47%	51.93%	51.53%	
397	2011	1,235,925.20	999,934.33	125,354.21	874,580.12	70.76%	178.34%	178.34%	164.08%	163.67%	168.32%	60.14%	60.14%	57.44%	57.01%
397	2012	0.00	0.00	0.00	0.00	NA	70.76%	178.34%	178.34%	164.08%	163.67%	168.32%	60.14%	60.14%	57.44%
397	2013	1,958,194.98	0.00	0.00	0.00	0.00%	0.00%	27.38%	74.98%	74.98%	72.34%	72.25%	74.31%	41.42%	41.42%
397	2014	456,953.25	0.00	5,578.83	(5,578.83)	-1.22%	-0.23%	-0.23%	23.80%	65.90%	65.90%	63.85%	63.78%	65.60%	38.53%
397	2015	14,280.48	0.00	630.39	(630.39)	-4.41%	-1.32%	-0.26%	-0.26%	23.69%	65.64%	65.64%	63.60%	63.54%	65.35%
397	2016	575,433.32	226.05	13,699.10	(13,473.05)	-2.34%	-2.39%	-1.88%	-0.66%	-0.66%	20.16%	56.80%	56.80%	55.26%	55.21%
397	2017	3,280.04	1,322.13	26,227.59	(24,905.46)	-759.30%	-6.63%	-6.58%	-4.25%	-1.48%	-1.48%	19.56%	56.20%	54.67%	54.67%
397	2018	21,870.39	0.00	248.71	(248.71)	-1.14%	-100.01%	-6.43%	-6.38%	-4.18%	-1.48%	-1.48%	19.45%	55.92%	55.92%
397	2019	905,204.37	90.50	5,916.70	(5,826.20)	-0.64%	-0.66%	-3.33%	-2.95%	-2.97%	-2.56%	-1.29%	-1.29%	15.93%	46.36%
398	2000	10,968.06	0.00	0.00	0.00	0.00%									
398	2001	0.00	0.00	0.00	0.00	NA	0.00%								
398	2002	6,870.89	0.00	0.00	0.00	0.00%	0.00%	0.00%							
398	2003	0.00	0.00	0.00	0.00	NA	0.00%	0.00%	0.00%						
398	2004	2,385.92	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%					
398	2005	0.00	0.00	0.00	0.00	NA	0.00%	0.00%	0.00%	0.00%	0.00%				
398	2006	1,388.36	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%			
398	2007	0.00	0.00	0.00	0.00	NA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%		
398	2008	0.00	0.00	0.00	0.00	NA	NA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
398	2009	0.00	0.00	0.00	0.00	NA	NA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
398	2010	2,792.50	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
398	2011	2,855.02	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
398	2012	0.00	0.00	0.00	0.00	NA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
398	2013	0.00	0.00	0.00	0.00	NA	NA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
398	2014	697.79	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
398	2015	0.00	0.00	0.00	0.00	NA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
398	2016	509.94	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
398	2017	6,181.91	0.97	36.08	(35.11)	-0.57%	-0.52%	-0.52%	-0.48%	-0.48%	-0.48%	-0.34%	-0.27%	-0.27%	-0.27%
398	2018	8,438.31	0.00	0.00	0.00	0.00%	-0.24%	-0.23%	-0.23%	-0.22%	-0.22%	-0.19%	-0.19%	-0.16%	-0.16%
398	2019	5,062.79	0.00	0.00	0.00	0.00%	0.00%	-0.18%	-0.17%	-0.17%	-0.17%	-0.17%	-0.17%	-0.15%	-0.13%

**APPENDIX F**  
**Comparison of Book Reserve, Allocated Reserve,**  
**and Theoretical Reserve**

**EMPIRE DISTRICT ELECTRIC**  
**COMPARISON OF BOOK, THEORETICAL, AND ALLOCATED RESERVE**  
**INCLUDING KNOWN CHANGE RETIREMENTS OF ASBURY**  
**AT DECEMBER 31, 2019**

<b>Acct</b>	<b>Unit</b>	<b>Plant Balance</b>	<b>Book Reserve</b>	<b>Theoretical Reserve</b>	<b>Allocated Reserve</b>	<b>Book - Allocated Difference</b>
311	latan 1	4,100,102.72	2,829,681.56	2,399,603.53	2,371,902.77	457,778.79
312	latan 1	77,454,486.18	36,613,782.55	29,147,482.48	28,811,007.13	7,802,775.42
312 Train	latan 1	329,004.61	181,824.47	274,170.51	271,005.51	(89,181.04)
314	latan 1	15,311,357.84	6,123,314.39	6,234,437.45	6,162,467.79	(39,153.40)
315	latan 1	8,401,393.24	3,832,201.25	3,685,055.83	3,642,515.95	189,685.30
316	latan 1	1,350,362.17	728,085.59	577,603.51	570,935.72	157,149.87
<b>Total</b>	latan 1	<b>106,946,706.76</b>	<b>50,308,889.81</b>	<b>42,318,353.31</b>	<b>41,829,834.87</b>	<b>8,479,054.94</b>
311	latan 2	20,954,482.45	3,130,770.82	3,249,790.46	3,212,275.23	(81,504.41)
312	latan 2	146,505,299.87	19,326,932.47	21,384,031.56	21,137,176.64	(1,810,244.17)
314	latan 2	49,060,461.15	7,177,182.41	9,729,394.60	9,617,079.54	(2,439,897.13)
315	latan 2	12,340,510.71	1,664,473.59	2,485,759.22	2,457,063.89	(792,590.30)
316	latan 2	350,002.35	481,662.78	55,073.80	54,438.03	427,224.75
<b>Total</b>	latan 2	<b>229,210,756.53</b>	<b>31,781,022.07</b>	<b>36,904,049.64</b>	<b>36,478,033.34</b>	<b>(4,697,011.27)</b>
311	latan Common	18,326,823.78	1,470,328.03	2,458,776.86	2,430,393.01	(960,064.98)
312	latan Common	40,075,479.05	5,958,724.44	6,412,372.47	6,338,348.75	(379,624.31)
314	latan Common	1,290,680.16	158,101.62	274,917.33	271,743.71	(113,642.09)
315	latan Common	5,085,098.24	615,657.94	1,076,193.73	1,063,770.27	(448,112.33)
316	latan Common	728,527.34	51,875.73	125,434.97	123,986.97	(72,111.24)
<b>Total</b>	latan Common	<b>65,506,608.57</b>	<b>8,254,687.76</b>	<b>10,347,695.36</b>	<b>10,228,242.70</b>	<b>(1,973,554.94)</b>
311	Plum Point	20,567,779.14	3,525,951.26	3,868,697.85	3,824,038.03	(298,086.77)
312	Plum Point	53,845,333.11	9,368,115.42	9,712,522.64	9,600,402.34	(232,286.92)
312 Train Lease	Plum Point	5,196,477.55	3,120,608.93	\$3,417,472.51	\$3,417,472.51	(296,863.58)
312 Train Lease	Plum Point	\$12,311.20	3,467.22	\$5,273.27	\$5,273.27	(1,806.05)
314	Plum Point	17,270,335.62	2,964,634.73	3,834,607.65	3,790,341.36	(825,706.63)
315	Plum Point	5,390,590.54	1,031,121.53	1,189,697.15	1,175,963.42	(144,841.89)
316	Plum Point	2,968,455.81	660,192.20	676,903.19	669,089.10	(8,896.90)
<b>Total</b>	Plum Point	<b>105,251,282.97</b>	<b>20,674,091.29</b>	<b>22,705,174.26</b>	<b>22,482,580.02</b>	<b>(1,808,488.73)</b>
	<b>Total Steam Generation</b>	<b>506,915,354.83</b>	<b>111,018,690.93</b>	<b>112,275,272.57</b>	<b>111,018,690.93</b>	<b>(0.00)</b>

**EMPIRE DISTRICT ELECTRIC  
COMPARISON OF BOOK, THEORETICAL, AND ALLOCATED RESERVE  
INCLUDING KNOWN CHANGE RETIREMENTS OF ASBURY  
AT DECEMBER 31, 2019**

Acct	Unit	Plant Balance	Book Reserve	Theoretical Reserve	Allocated Reserve	Book - Allocated Difference
<b>Hydro Production</b>						
331	Ozark Beach	1,667,685.61	260647.48	299585.7928	220076.6229	40,570.86
333	Ozark Beach	3,488,976.39	1612721.71	1349162.482	991098.8097	621,622.90
333	Ozark Beach	4,407,908.46	858659.16	2120816.166	1557957.923	(699,298.76)
334	Ozark Beach	1,507,678.70	459427.37	640414.6321	470450.5116	(11,023.14)
335	Ozark Beach	1,178,647.52	177730.49	176425.0108	129602.3427	48,128.15
Total	Total Hydro	<u>12,250,896.68</u>	<u>3,369,186.21</u>	<u>4,586,404.08</u>	<u>3,369,186.21</u>	<u>(0.00)</u>
<b>Other Production</b>						
341	Energy Center FT8	1,124,305.87	290,553.02	461,901.69	402,453.97	(111,900.95)
342	Energy Center FT8	1,453,119.42	529,295.16	574,373.09	500,450.08	28,845.08
343	Energy Center FT8	50,019,595.81	8,341,889.19	18,446,089.48	16,072,039.20	(7,730,150.01)
344	Energy Center FT8	5,123,304.91	167,000.63	318,957.42	277,906.94	(110,906.31)
345	Energy Center FT8	3,539,969.73	1,115,514.93	1,283,601.74	1,118,399.51	(2,884.58)
346	Energy Center FT8	1,038,754.62	335,877.86	428,103.58	373,005.76	(37,127.90)
Total	Energy Center FT8	<u>62,299,050.36</u>	<u>10,780,130.79</u>	<u>21,513,027.01</u>	<u>18,744,255.46</u>	<u>(7,964,124.67)</u>
341	Energy Center	3,218,722.19	1,738,415.88	1,852,051.57	1,613,688.66	124,727.22
342	Energy Center	1,362,770.49	1,453,847.69	1,041,270.04	907,256.41	546,591.28
343	Energy Center	26,745,015.20	18,568,994.71	20,666,167.51	18,006,388.54	562,606.17
344	Energy Center	6,595,022.27	4,329,529.51	3,935,664.44	3,429,136.20	900,393.31
345	Energy Center	2,376,137.17	1,585,439.63	1,660,111.03	1,446,451.27	138,988.36
346	Energy Center	2,055,148.89	2,094,454.38	1,324,783.48	1,154,281.07	940,173.31
Total	Energy Center	<u>42,352,816.21</u>	<u>29,770,681.80</u>	<u>30,480,048.07</u>	<u>26,557,202.15</u>	<u>3,213,479.65</u>
341	Energy Supply Common	14,617,752.35	4,657,191.48	4,748,876.34	4,137,686.03	519,505.45
342	Energy Supply Common	2,427,504.70	1,455,888.44	909,929.03	792,819.26	663,069.18
345	Energy Supply Common	189,248.34	166,448.83	94,000.71	81,902.62	84,546.21
346	Energy Supply Common	863,528.67	332,904.90	257,201.25	224,098.91	108,805.99
Total	Energy Supply Common	<u>18,098,034.06</u>	<u>6,612,433.65</u>	<u>6,010,007.33</u>	<u>5,236,506.82</u>	<u>1,375,926.83</u>

**EMPIRE DISTRICT ELECTRIC  
COMPARISON OF BOOK, THEORETICAL, AND ALLOCATED RESERVE  
INCLUDING KNOWN CHANGE RETIREMENTS OF ASBURY  
AT DECEMBER 31, 2019**

<b>Acct</b>	<b>Unit</b>	<b>Plant Balance</b>	<b>Book Reserve</b>	<b>Theoretical Reserve</b>	<b>Allocated Reserve</b>	<b>Book - Allocated Difference</b>
341	Riverton 12	18,481,559.59	1,737,427.19	1,636,408.08	1,425,798.94	311,628.25
342	Riverton 12	945,601.29	246,959.04	240,359.14	209,424.41	37,534.63
343	Riverton 12	151,665,736.80	13,471,033.64	15,642,036.06	13,628,873.32	(157,839.68)
344	Riverton 12	21,746,821.84	3,119,255.01	3,557,668.28	3,099,788.93	19,466.08
345	Riverton 12	26,044,062.90	3,154,357.80	3,431,049.16	2,989,465.96	164,891.84
346	Riverton 12	2,825,893.79	590,081.59	504,458.39	439,533.54	150,548.05
<b>Total</b>		<b>221,709,676.21</b>	<b>22,319,114.27</b>	<b>25,011,979.11</b>	<b>21,792,885.10</b>	<b>526,229.17</b>
341	Riverton 9, 10, 11	10,260,696.02	2,746,167.53	4,349,718.24	3,789,900.41	(1,043,732.88)
342	Riverton 9, 10, 11	604,025.37	289,155.51	339,531.93	295,833.46	(6,677.95)
343	Riverton 9, 10, 11	8,571,371.87	2,593,247.84	4,283,281.69	3,732,014.38	(1,138,766.54)
344	Riverton 9, 10, 11	1,779,491.43	930,371.02	1,202,338.30	1,047,594.84	(117,223.82)
345	Riverton 9, 10, 11	1,793,586.08	601,798.65	804,598.85	701,045.30	(99,246.65)
346	Riverton 9, 10, 11	1,822,821.56	336,809.65	430,535.76	375,124.91	(38,315.26)
<b>Total</b>	<b>Riverton 9, 10, 11</b>	<b>24,831,992.33</b>	<b>7,497,550.20</b>	<b>11,410,004.76</b>	<b>9,941,513.29</b>	<b>(2,443,963.09)</b>
341	State Line 1	1,111,584.05	1,001,170.09	601,491.77	524,078.52	477,091.57
342	State Line 1	3,244,381.79	2,412,625.32	1,712,250.82	1,491,880.56	920,744.76
343	State Line 1	26,906,444.17	13,587,453.74	13,191,507.16	11,493,732.61	2,093,721.13
344	State Line 1	7,813,341.92	2,755,314.58	2,794,320.72	2,434,685.80	320,628.78
345	State Line 1	3,329,036.61	1,625,310.28	1,350,069.46	1,176,312.69	448,997.59
346	State Line 1	363,651.27	113,723.87	50,465.80	43,970.75	69,753.12
<b>Total</b>	<b>State Line 1</b>	<b>42,768,439.81</b>	<b>21,495,597.88</b>	<b>19,700,105.72</b>	<b>17,164,660.93</b>	<b>4,330,936.95</b>
341	State Line CC	8,478,109.04	2,743,237.03	2,885,225.69	2,513,891.11	229,345.92
342	State Line CC	204,374.20	214,282.64	69,247.49	60,335.19	153,947.45
343	State Line CC	111,386,515.08	33,309,048.91	38,797,004.11	33,803,748.57	(494,699.66)
344	State Line CC	30,294,250.20	7,991,765.91	9,797,052.47	8,536,151.34	(544,385.43)
345	State Line CC	8,144,447.16	2,880,910.53	2,526,322.60	2,201,179.60	679,730.93
346	State Line CC	2,979,886.57	695,581.63	393,857.40	343,167.13	352,414.50
<b>Total</b>	<b>State Line CC</b>	<b>161,487,582.25</b>	<b>47,834,826.65</b>	<b>54,468,709.77</b>	<b>47,458,472.94</b>	<b>376,353.71</b>
341	State Line Common	3,792,571.99	1,290,088.24	1,244,519.46	1,084,347.21	205,741.03
342	State Line Common	226,749.40	240,462.15	89,403.82	77,897.36	162,564.79
343	State Line Common	843,733.15	40,947.77	62,189.99	54,186.00	(13,238.23)
345	State Line Common	2,933,782.98	666,451.90	639,148.33	556,888.60	109,563.30
346	State Line Common	1,052,547.73	225,780.53	120,796.76	105,249.97	120,530.56
<b>Total</b>	<b>State Line Common</b>	<b>8,849,385.25</b>	<b>2,463,730.59</b>	<b>2,156,058.36</b>	<b>1,878,569.14</b>	<b>585,161.45</b>
<b>Total</b>	<b>Other Production</b>	<b>582,396,976.48</b>	<b>148,774,065.83</b>	<b>170,749,940.13</b>	<b>148,774,065.83</b>	<b>0.00</b>

**EMPIRE DISTRICT ELECTRIC  
COMPARISON OF BOOK, THEORETICAL, AND ALLOCATED RESERVE  
INCLUDING KNOWN CHANGE RETIREMENTS OF ASBURY  
AT DECEMBER 31, 2019**

Acct	Unit	Plant Balance	Book Reserve	Theoretical Reserve	Allocated Reserve	Book - Allocated Difference
<b>Transmission</b>						
352	Structures and Improvements	4,662,675.57	1,564,794.18	1,168,548.89	1,103,028.95	461,765.23
353	Station Equipment	189,861,295.58	46,920,845.79	44,120,692.49	41,646,867.76	5,273,978.03
354	Tower	2,945,557.99	1,029,092.34	702,137.78	662,769.27	366,323.07
355	Poles and Fixtures	102,153,632.33	30,726,339.42	37,724,183.45	35,609,007.72	(4,882,668.30)
356	Overhead Conductor	100,276,751.75	28,899,350.04	31,907,802.27	30,118,748.07	(1,219,398.03)
Total Transmission		<u>399,899,913.22</u>	<u>109,140,421.77</u>	<u>115,623,364.87</u>	<u>109,140,421.77</u>	<u>(0.00)</u>
<b>Distribution</b>						
361	Structures and Improvements	33,920,439.03	6,133,800.86	5,501,150.28	5,828,279.85	305,521.01
362	Station Equipment	157,388,738.98	40,283,977.75	34,101,753.92	36,129,772.38	4,154,205.37
364	Poles & Fixtures	226,564,820.49	110,854,925.73	142,731,984.57	151,214,087.65	(40,359,161.92)
365	OH Conductor	221,006,696.53	110,667,480.62	108,356,541.26	114,790,294.14	(4,122,813.52)
366	UG Conduit	51,186,997.90	21,815,237.55	13,528,353.37	14,332,943.77	7,482,293.78
367	UG Conductor	72,210,458.31	39,804,899.90	21,745,940.28	23,039,266.55	16,765,633.35
368	Line Transformers	132,533,159.07	48,312,973.74	35,063,440.00	37,148,816.28	11,164,157.46
369	Services	94,079,049.53	67,347,956.56	59,092,117.00	62,606,583.90	4,741,372.66
370	Meters (after AMI deployment)	25,036,228.41	6,990,610.01	6,990,610.01	6,990,610.01	0.00
	Arkansas	193,566.91	54,367.54	75,374.87	54,367.54	0.00
	Kansas	606,085.77	177,757.95	241,644.02	177,757.95	0.00
	Missouri	7,842,593.67	2,616,159.87	3,719,883.23	2,616,159.87	0.00
	Oklahoma	270,608.19	111,843.69	25,513.60	111,843.69	0.00
371	Installation on Customer Premises	18,016,325.94	14,134,369.18	11,335,683.76	12,008,854.63	2,125,514.55
373	Street Lighting & Signals	20,745,395.77	5,176,103.37	7,014,727.95	7,430,277.82	(2,254,174.45)
375	Charging Stations	161,630.70	18,781.66	20,132.57	21,329.95	(2,548.29)
Total Distribution		<u>1,061,762,795.20</u>	<u>474,501,245.98</u>	<u>449,544,850.69</u>	<u>474,501,245.98</u>	<u>(0.00)</u>
<b>General</b>						
390	Structures and Improvements	15,799,445.13	7,588,460.32	4,604,026.08	5,163,441.76	2,425,018.56
391	Office Furniture and Fixtures	6,651,789.30	3,103,483.40	3,311,394.41	3,509,573.95	(406,090.55)
391.3	Computer Equipment	17,179,126.20	12,436,171.89	12,369,103.50	12,679,488.18	(243,316.29)
392	Transportation. Equipment	20,855,658.28	7,604,982.94	6,228,101.05	6,960,570.91	644,412.03
393	Stores Equipment	2,131,056.51	419,696.44	370,562.28	404,742.85	14,953.59
394	Tools, Shop and Garage Equipment	8,417,787.35	4,475,421.21	4,156,312.46	4,408,036.93	67,384.28
395	Lab Equipment	3,151,490.20	1,018,298.21	1,153,812.50	1,190,721.28	(172,423.07)
396	Power Operated. Equipment	22,685,865.67	8,391,226.53	8,189,423.98	9,200,854.95	(809,628.42)
397	Communication Equipment	11,371,222.94	6,875,750.93	8,060,318.66	8,448,369.90	(1,572,618.97)
398	Miscellaneous Equipment	286,041.66	204,954.21	139,707.39	152,645.37	52,308.84
Total General		<u>108,529,483.24</u>	<u>52,118,446.08</u>	<u>48,582,762.30</u>	<u>52,118,446.08</u>	<u>(0.00)</u>
Total		<u>2,671,755,419.65</u>	<u>898,922,056.80</u>	<u>901,362,594.65</u>	<u>898,922,056.80</u>	<u>(0.00)</u>

**CERTIFICATION**

The undersigned, Dane Watson, deposes and states that he is a partner of Alliance Consulting Group, that he has personal knowledge of the matters set forth in the foregoing responses and the information contained therein is true and accurate to the best of his information, knowledge and belief after reasonable inquiry.

*/s/ Dane A. Watson* \_\_\_\_\_

Dane A. Watson