BEFORE THE CORPORATION COMMISSION OF OKLAHOMA

IN THE MATTER OF THE APPLICATION OF OKLAHOMA GAS AND ELECTRIC COMPANY FOR AN ORDER OF THE COMMISSION AUTHORIZING APPLICANT TO MODIFY ITS RATES, CHARGES AND TARIFFS FOR RETAIL ELECTRIC SERVICE IN OKLAHOMA	CAUSE NO. PUD 201700496

RESPONSIVE TESTIMONY OF

DAVID J. GARRETT

ON BEHALF OF

OKLAHOMA INDUSTRIAL ENERGY CONSUMERS
AND
OKLAHOMA ENERGY RESULTS

IN RESPONSE TO THE DIRECT TESTIMONIES OF
JOHN J. SPANOS AND JEFFREY T. KOPP

MAY 2, 2018

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I. INTRODUCTION

Q. State your name and occupation.

A. My name is David J. Garrett. I am a consultant specializing in public utility regulation. I am the managing member of Resolve Utility Consulting, PLLC. I focus my practice on the primary capital recovery mechanisms for public utility companies: cost of capital and depreciation.

Q. Summarize your educational background and professional experience.

A. I received a B.B.A. degree with a major in Finance, an M.B.A. degree, and a Juris Doctor degree from the University of Oklahoma. I worked in private legal practice for several years before accepting a position as assistant general counsel at the Oklahoma Corporation Commission ("Oklahoma Commission" or "Commission") in 2011. At the Oklahoma Commission, I worked in the Office of General Counsel in regulatory proceedings. In 2012, I began working for the Public Utility Division as a regulatory analyst providing testimony in regulatory proceedings. After leaving the Oklahoma Commission, I formed Resolve Utility Consulting, PLLC, where I have represented various consumer groups and state agencies in utility regulatory proceedings, primarily in the areas of cost of capital and depreciation. I am a Certified Depreciation Professional with the Society of Depreciation Professionals. I am also a Certified Rate of Return Analyst with the Society of Utility and Regulatory Financial Analysts. A more complete description of my qualifications and regulatory experience is included in my curriculum vitae.[1]

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[1] Direct Exhibit DJG-1.

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

A. I am testifying on behalf of Oklahoma Industrial Energy Consumers ("OIEC") and Oklahoma Energy Results ("OER").

Q. Describe the purpose and scope of your testimony in this proceeding.

A. In this case I am testifying in response to the direct testimonies of two witnesses for Oklahoma Gas and Electric Company ("OG&E" or the "Company"). I will address the depreciation rates proposed by Mr. John J. Spanos. I will also address the decommissioning costs proposed by Mr. Jeffrey T. Kopp.

II. EXECUTIVE SUMMARY

Q. Summarize the key points of your testimony.

A. In this case, OG&E is proposing a substantial increase to depreciation expense of more than $70 million. As demonstrated by the evidence presented in this testimony, it would not be reasonable to accept OG&E's filed position regarding depreciation expense. OG&E's proposed increase to depreciation expense is unreasonable and upwardly biased due to several factors, which are summarized as follows:

1. Mr. Spanos is proposing lifespans for several of OG&E's generating units that are shorter than the lifespans estimated in OG&E's most recent integrated resource plan ("IRP"). All else held constant, shorter lifespans result in higher depreciation expense. The lifespans I propose in this case conform with the Company's IRP.

2. The Company's proposed decommissioning costs are arbitrarily inflated by 20% using contingency factors. The Commission has been consistent in disallowing these types of contingency factors in decommissioning cost estimates. The depreciation rates I propose for the Company's production accounts do not include these contingency factors.

3. The Company's proposed decommissioning costs are escalated by more than $120 million. These escalation factors ignore the time value of money and seek to charge current ratepayers for inflated future values. The Commission has consistently disallowed these types of escalation factors. The depreciation rates I propose for the Company's production accounts do not include escalation factors.

4. In its proposed depreciation expense, OG&E has double counted certain costs. Specifically, OG&E has included certain costs associated with asset retirement obligations ("ARO") and included those same costs as part of its decommissioning cost estimate. In its recent rate case, Public Service Company of Oklahoma made a similar error and filed a revised decommissioning study to correct the mistake.

5. For several transmission, distribution, and general accounts, OG&E is proposing service lives that are shorter than those indicated by the Company's historical retirement data, which results in unreasonably high proposed depreciation rates for these accounts.

6. In his depreciation study, Mr. Spanos understated the Company's historical gross salvage calculations by failing to exclude certain transactions for the reimbursement and sale of assets. As a result, some of the net salvage rates proposed by Mr. Spanos are overstated and result in inflated depreciation expense proposals. The depreciation rates I propose consider the Company's actual net salvage experience.

For these reasons, it would not be reasonable to accept the Company's proposed increase to depreciation expense. The impact to depreciation expense resulting from OIEC and OER's proposed adjustments is summarized in the following table.

Figure 1:
OIEC / OER Proposed Depreciation Expense Adjustment

Plant Function	Plant Balance 3/31/2018	OGE Proposed DD&A Expense	OIEC Proposed DD&A Expense	OIEC/OER Adjustment
Intangible	$ 101,496,748	$ 6,376,489	$ 6,292,358	$ (84,131)
Production	3,963,862,515	138,384,255	113,325,649	(25,058,606)
Transmission	2,744,839,297	66,687,070	61,607,348	(5,079,722)
Distribution	4,066,992,331	119,371,883	95,051,896	(24,319,987)
General	401,421,534	19,859,431	16,583,322	(3,276,108)
Total	$ 11,278,612,425	$ 350,679,128	$ 292,860,574	**$ (57,818,554)**

If OIEC and OER's depreciation adjustments are adopted, it would result in a decrease of $58 million to OG&E's proposed depreciation expense. OG&E's pro forma depreciation expense is $276 million.[2] Thus, adopting OIEC and OER's proposed depreciation expense of $293 million would result in an increase of about $17 million to the Company's annual depreciation expense.

Q. Mr. Spanos suggests that some of the depreciation rates approved by the Commission in OG&E's last rate case are unreasonable. Do you have any response to those assertions?

A. Yes. In his direct testimony, Mr. Spanos states that some of the service lives approved by the Commission in OG&E's last rate case are "far outside the average and well beyond the reasonable life cycle expectation" for the types of assets in question.[3] last rate case exceed "the typical range of estimates for other utilities."[4] In support of this assertion, Mr. Spanos provides a table showing what he describes as an "industry range" for the accounts he discusses. However, these ranges provided by Mr. Spanos are based on recommendations made by Gannett Fleming in other cases, and they are not entirely based on service lives ordered or actually used in other jurisdictions.[5] Mr. Spanos then discusses the Commission's ordered services lives for several accounts and argues that they are unreasonably long.[6] However, instead of presenting objective evidence to support his arguments, Mr. Spanos appears to rely heavily on the supposed idea that certain periods of

[2] AG 12-3_Att 3, WP H2-21 Depreciation.

[3] Direct Testimony of John J. Spanos, p. 5, lines13-17.

[4] Direct Testimony of John J. Spanos, p. 7:3-4.

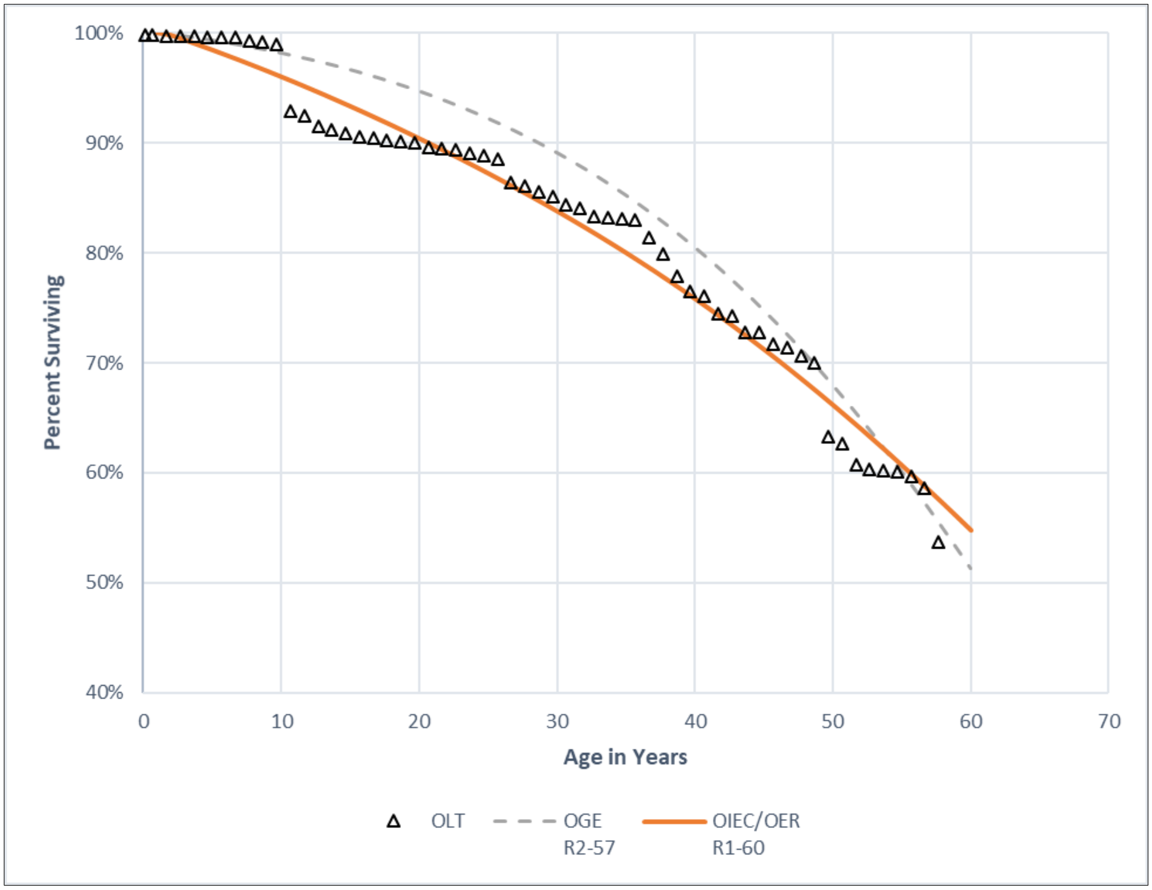
[5] *See* Direct Testimony of John J. Spanos, p. 9, Table 2; *see also* footnote 2.

[6] *See generally id*. at pp. 9-18.

time will simply sound like a long time to the Commission. Fortunately, depreciation analysis is not simply based on the idea that a particular period of time subjectively sounds too short or too long. Rather, when there is sufficient retirement data available (as is the case here for most of OG&E's accounts) proper service life estimates are primarily based on an analysis of actual historical retirement experience and the use of empirically-based survivor curves designed to estimate the remaining life of industrial property.

Another problem with Mr. Spanos's arguments is that they are essentially based on "straw man" fallacies. That is, Mr. Spanos is discussing and illustrating OG&E's depreciation data from <u>this case</u> in an attempt to show why my arguments (and the Commission's order) from OG&E's <u>previous case</u> are unreasonable. In other words, Mr. Spanos is not making an "apples-to-apples" comparison. For example, in Figure 3 on p. 14, Mr. Spanos displays the current observed survivor curve for Account 353 in this case (the black dots in the graph) and shows his selected Iowa curve in this case (R2-63) and also shows the R2-57 curve I selected from the last case. A visual inspection of this graph shows that the R2-63 curve is a closer fit to the observed data than the R2-63 curve. However, this is misleading because I am not proposing the R2-63 curve in <u>this case</u>. In fact, for Account 353, I am proposing the R1-60 curve, which as discussed later in detail, provides a closer fit to the current observed data than Mr. Spanos's curve. My selected Iowa curve for Account 353 in <u>this case</u>, along with the curve Mr. Spanos selected, is shown in the graph below.

Figure 2:
Survivor Curves for Account 353 in this Case



Thus, for this account and many other accounts, both Mr. Spanos and I agree that the currently-approved service life should change. The changes in the service life proposed in any case are generally driven by changes in the underlying retirement data. However, it is inappropriate for Mr. Spanos to use current plant data to support his assertions that the service lives approved by the Commission in OG&E's last rate case are unreasonable. Rather, the Commission based its decision in OG&E's last case on the information it had at the time, which was thoroughly analyzed by several depreciation experts, and in my opinion the decision was fair and reasonable. As with OG&E's last rate case, the service lives I recommend in this case are based on OG&E's current plant data, and they are more reasonable than the service lives proposed by Mr. Spanos, as further discussed below in the section on service lives.

Q. Describe why it is important not to overestimate depreciation rates.

A. The issue of depreciation is essentially one of timing. Under the rate base rate of return model, the utility is allowed to recover the original cost of its prudent investments required to provide service. Depreciation systems are designed to allocate those costs in a systematic and rational manner – specifically, over the service life of the utility's assets. If depreciation rates are overestimated (i.e., service lives are underestimated), it encourages economic inefficiency. Unlike competitive firms, regulated utility companies are not always incentivized by natural market forces to make the most economically efficient decisions. If a utility is allowed to recover the cost of an asset before the end of its useful life, this could incentivize the utility to unnecessarily replace the asset in order to increase rate base, which results in economic waste. Thus, from a public policy perspective, it is preferable for regulators to ensure that assets are not depreciated before the end of their true useful lives. While underestimating the useful lives of depreciable assets could financially harm current ratepayers and encourage economic waste, unintentionally overestimating depreciable lives (i.e., underestimating depreciation rates) does not harm the Company. This is because if an asset's life is overestimated, there are a variety of measures that regulators can use to ensure the utility is not financially harmed. One such measure would be the use of a regulatory asset account. In that case, the Company's original cost investment in these assets would remain in the Company's rate base until they are recovered. Thus, the process of depreciation strives for a perfect match between actual and estimated useful life. However, when these estimates are not exact, it is better that useful lives are overestimated rather than underestimated.

III. LEGAL STANDARDS

Q. Discuss the standard by which regulated utilities are allowed to recover depreciation expense.

A. In *Lindheimer v. Illinois Bell Telephone Co.*, the U.S. Supreme Court stated that "depreciation is the loss, not restored by current maintenance, which is due to all the factors causing the ultimate retirement of the property. These factors embrace wear and tear, decay, inadequacy, and obsolescence."[7] The *Lindheimer* Court also recognized that the original cost of plant assets, rather than present value or some other measure, is the proper basis for calculating depreciation expense.[8] Moreover, the *Lindheimer* Court found:

> <u>[T]he company has the burden of making a convincing showing that the amounts it has charged to operating expenses for depreciation have not been excessive</u>. That burden is not sustained by proof that its general accounting system has been correct. The calculations are mathematical, but the predictions underlying them are essentially matters of opinion.[9]

Thus, the Commission must ultimately determine if the Company has met its burden of proof by making a convincing showing that its proposed depreciation rates are not excessive.

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[7] *Lindheimer v. Illinois Bell Tel. Co.*, 292 U.S. 151, 167 (1934).

[8] *Id*. (Referring to the straight-line method, the *Lindheimer* Court stated that "[a]ccording to the principle of this accounting practice, the loss is computed upon the actual cost of the property as entered upon the books, less the expected salvage, and the amount charged each year is one year's pro rata share of the total amount."). The original cost standard was reaffirmed by the Court in *Federal Power Commission v. Hope Natural Gas Co.*, 320 U.S. 591, 606 (1944). The *Hope* Court stated: "Moreover, this Court recognized in [*Lindheimer*], supra, the propriety of basing annual depreciation on cost. By such a procedure the utility is made whole and the integrity of its investment maintained. No more is required."

[9] *Id*. at 169 (emphasis added).

Q. Should depreciation represent an allocated cost of capital to operation, rather than a mechanism to determine loss of value?

A. Yes. While the *Lindheimer* case and other early literature recognized depreciation as a necessary expense, the language indicated that depreciation was primarily a mechanism to determine loss of value.[10] Adoption of this "value concept" would require annual appraisals of extensive utility plant, and is thus not practical in this context. Rather, the "cost allocation concept" recognizes that depreciation is a cost of providing service, and that in addition to receiving a "return on" invested capital through the allowed rate of return, a utility should also receive a "return of" its invested capital in the form of recovered depreciation expense. The cost allocation concept also satisfies several fundamental accounting principles, including verifiability, neutrality, and the matching principle.[11] The definition of "depreciation accounting" published by the American Institute of Certified Public Accountants ("AICPA") properly reflects the cost allocation concept:

> Depreciation accounting is a system of accounting that aims to distribute cost or other basic value of tangible capital assets, less salvage (if any), over the estimated useful life of the unit (which may be a group of assets) in a systematic and rational manner. It is a process of allocation, not of valuation.[12]

Thus, the concept of depreciation as "the allocation of cost has proven to be the most useful and most widely used concept."[13]

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[10] *See* Frank K. Wolf & W. Chester Fitch, *Depreciation Systems* 71 (Iowa State University Press 1994).

[11] National Association of Regulatory Utility Commissioners, *Public Utility Depreciation Practices* 12 (NARUC 1996).

[12] American Institute of Accountants, *Accounting Terminology Bulletins Number 1: Review and Résumé* 25 (American Institute of Accountants 1953).

[13] Wolf *supra* n. 10, at 73.

IV. ANALYTIC METHODS

Q. Discuss the definition and purpose of a depreciation system, as well as the depreciation system you employed for this project.

A. The legal standards set forth above do not mandate a specific procedure for conducting depreciation analysis. These standards, however, direct that analysts use a system for estimating depreciation rates that will result in the "systematic and rational" allocation of capital recovery for the utility. Over the years, analysts have developed "depreciation systems" designed to analyze grouped property in accordance with this standard. A depreciation system may be defined by several primary parameters: 1) a method of allocation; 2) a procedure for applying the method of allocation; 3) a technique of applying the depreciation rate; and 4) a model for analyzing the characteristics of vintage property groups.[14] In this case, I used the straight-line method, the average life procedure, the remaining life technique, and the broad group model; this system would be denoted as an "SL-AL-RL-BG" system. This depreciation system conforms to the legal standards set forth above, and is commonly used by depreciation analysts in regulatory proceedings. I provide a more detailed discussion of depreciation system parameters, theories, and equations in Appendix A.

Q. Did Mr. Spanos use the same depreciation system that you used?

A. Yes. Therefore, the differences in our depreciation rate proposals are driven by different service life and other parameter assumptions, rather than by a difference in the depreciation system.

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[14] *See* Wolf *supra* n. 10, at 70, 140.

Q. Please describe the actuarial process you used to analyze the Company's depreciable property.

A. The study of retirement patterns of industrial property is derived from the actuarial process used to study human mortality. Just as actuarial scientists study historical human mortality data in order to predict how long a group of people will live, depreciation analysts study historical plant data in order to estimate the average lives of property groups. The most common actuarial method used by depreciation analysts is called the "retirement rate method." In the retirement rate method, original property data, including additions, retirements, transfers, and other transactions, are organized by vintage and transaction year.[15] The retirement rate method is ultimately used to develop an "observed life table," ("OLT") which shows the percentage of property surviving at each age interval. This pattern of property retirement is described as a "survivor curve." The survivor curve derived from the observed life table, however, must be fitted and smoothed with a complete curve in order to determine the ultimate average life of the group.[16] The most widely used survivor curves for this curve-fitting process were developed at Iowa State University in the early 1900s and are commonly known as the "Iowa curves."[17] A more detailed explanation of how the Iowa curves are used in the actuarial analysis of depreciable property is set forth in Appendix C.

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[15] The "vintage" year refers to the year that a group of property was placed in service (aka "placement" year). The "transaction" year refers to the accounting year in which a property transaction occurred, such as an addition, retirement, or transfer (aka "experience" year).

[16] See Appendix C for a more detailed discussion of the actuarial analysis used to determine the average lives of grouped industrial property.

[17] *See* Appendix B for a more detailed discussion of the Iowa curves.

Q. Please describe the Company's depreciable assets in this case.

A. The Company's depreciable assets can be divided into two main groups: life span property (i.e., production plant) and mass property (i.e., transmission and distribution plant). The analytical process is slightly different for each type of property, as discussed further below.

V. LIFE SPAN PROPERTY ANALYSIS

Q. Describe the approach to analyzing life span property.

A. For life span property, there are essentially three steps to the analytical process. First, I reviewed the Company's proposed life spans for each of its production units and compared them to life span estimates of other similar production units in other jurisdictions. Second, I examined the Company's proposed interim retirement curves for each account in order to assess the remaining lives and depreciation rates for each production unit. Finally, I analyzed the weighted net salvage for each account, which involved reviewing the Company's weighting of interim and terminal retirements for each production account, as well as analyzing the Company's proposed interim and terminal net salvage rates.

Q. Describe life span property.

A. "Life span" property accounts usually consist of property within a production plant. The assets within a production plant will be retired concurrently at the time the plant is retired, regardless of their individual ages or remaining economic lives. For example, a production plant will contain property from several accounts, such as structures, fuel holders, and generators. When the plant is ultimately retired, all of the property associated with the plant will be retired together, regardless of the age of each individual unit. Analysts often use the analogy of a car to explain the treatment of life span property. Throughout the life of a car, the owner will retire and replace various components, such as tires, belts, and brakes. When the car reaches the end of its useful life and is finally retired, all of the car's individual components are retired together. Some of the components may still have some useful life remaining, but they are nonetheless retired along with the car. Thus, the various accounts of life span property are scheduled to retire concurrently as of the production unit's probable retirement date.

Q. Are you proposing any adjustments to the lifespans proposed by Mr. Spanos for OG&E's generating units?

A. Yes. In the depreciation study, Mr. Spanos sets forth the probable retirement year and lifespan for each of OG&E's generating units.[18] However, it appears there was a mistake as to the probable retirement years for several of the Company's generating units. In OG&E's most recent Integrated Resource Plan ("IRP"), the Company lists retirement dates for its Horseshoe Lake and Seminole units.[19] The retirement dates provided in the IRP for these units are longer than the retirement dates provided in the depreciation study. It appears Mr. Spanos did not update these retirement dates from his previous depreciation study for OG&E to match the updated projections in the Company's IRP. In calculating my proposed depreciation rates for the OG&E's production accounts, I used the Company's estimated retirement dates provided in its IRP.

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[18] Direct Exhibit JJS-2, p. III-7.

[19] OG&E 2014 Integrated Resource Plan – Update, p. 29, attached to the Direct Testimony of Leon Howell.

A. <u>Interim Retirement Analysis</u>

Q. Discuss the concept of interim retirements.

A. The individual components within a generating unit are retired and replaced throughout the life of the unit. This retirement rate is measured by "interim" survivor curves. Thus, a production plant's remaining life and depreciation rate are not only affected by the terminal retirement date of the entire plant, but also by the retirement rate of the plant's individual components, which are retired during the "interim" of the plant's useful life.

Q. Did you make any adjustments to the Company's proposed interim retirements?

A. No. I accepted the Company's proposed interim retirement curves[20] as well as the Company's proposed weighting of interim and terminal retirements. I also accepted the Company's proposed interim net salvage rates.[21]

B. <u>Terminal Net Salvage Analysis (Decommissioning Costs)</u>

Q. Describe terminal net salvage.

A. When a production plant reaches the end of its useful life, a utility may decide to decommission the plant. In that case, the utility may sell some of the remaining assets. The proceeds from this transaction are called "gross salvage." The corresponding expense associated with decommissioning the plant is called "cost of removal." The term "net salvage" equates to gross salvage less the cost of removal. When net salvage refers to

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[20] I did not apply interim retirement curves to the adjusted lifespans of the Horseshoe Lake and Seminole units. If the Commission were to adopt these lifespan adjustments, the parties could apply OG&E's proposed interim retirement curve in order to calculate the exact remaining lives of each unit. However, the difference should not be material.

[21] *See* Exhibit DJG-6.

production plants, it is often called “terminal net salvage,” because the transaction will occur at the end of the plant’s life.

Q. Describe how utilities estimate and justify the proposal of terminal net salvage recovery.

A. Typically, when a utility is requesting the recovery of a substantial amount of terminal net salvage costs, it supports those costs with site-specific decommissioning studies. Terminal net salvage costs are unlike other costs requested in a rate case. Specifically, while other proposed costs might be based on a recent test year involving actual expenses incurred by the utility, decommissioning costs are often estimated to occur many years or decades in the future. Moreover, the utility may never even incur the decommissioning costs they are proposing. For example, a utility may seek to recover $10 million in a current rate case for the complete demolition of a production plant to occur 10 years in the future. Thus, the utility would be requesting an additional $1 million per year in rates in addition to the other depreciation costs associated with the plant. If instead, the utility decides to repower the plant at a much lesser cost than a complete demolition, the utility would have recovered millions of dollars from rate payers for costs that never occurred. Thus, decommissioning costs are not as “known and measurable” as other costs proposed in a rate case. Furthermore, decommissioning studies are often overestimated, as they usually do not contemplate less expensive alternatives to complete demolition and often include substantial contingency factors that arbitrarily increase the cost estimate, as is the case here. Nonetheless, decommissioning studies provide some measurable basis upon which to estimate the utility’s terminal net salvage, and should be viewed as a minimum prerequisite for any recovery of such costs.

Q. Did OG&E provide decommissioning studies in this case in support its proposed terminal net salvage costs?

A. Yes. The decommissioning studies were conducted by Burns and McDonnell and sponsored in the direct testimony of Mr. Kopp.

Q. Describe how the decommissioning costs estimated by Mr. Kopp affect the Company's depreciation rates for its production plants.

A. For each of the Company's generating units, Mr. Kopp provides estimates for certain direct cost estimates, such as material and labor. Mr. Kopp also estimates gross salvage that the Company would receive from selling any assets at the time of retirement (mostly scrap value). Mr. Kopp presents the total gross decommissioning cost for each plant, then applies a contingency factor, which increases the costs by 20%. Deducting the scrap value as a credit to the total project costs results in the total net project cost for each plant.[22] In calculating his proposed net salvage for each plant, Mr. Spanos took the project costs for each plant provided by Mr. Kopp and applied an annual growth factor to escalate the decommissioning costs for each to their future retirement dates. By applying these escalation factors, Mr. Spanos added more than $120 million of present value costs to Mr. Kopp's decommissioning cost estimates.[23] Mr. Spanos then used the escalated decommissioning costs as part of his terminal net salvage rate calculations for each plant.

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[22] See Burns & McDonnell Fleet Decommissioning Cost Estimate Study, attached to the Direct Testimony of Jeffrey T. Kopp.

[23] *See* Exhibit JJS-2, p. VIII-4 (the difference between total decommissioning costs and escalated decommissioning costs).

Q. Are you proposing any adjustments to OG&E's proposed decommissioning costs and terminal net salvage rates?

A. Yes. I am essentially proposing three adjustments to OG&E's proposed decommissioning costs and terminal net salvage: (1) removing cost estimates associated with asset retirement obligations ("ARO"); (2) removing the 20% contingency factors from the decommissioning cost estimates; and (3), removing the escalation factors applied to each decommissioning cost estimate. I will discuss each of these adjustments in more detail below.

1. <u>Asset Retirement Obligations</u>

Q. What is an asset retirement obligation?

A. An asset retirement obligation ("ARO") is a legal obligation associated with the retirement of an asset at some future date. OG&E has more than $55 million of production AROs included in its pro forma plant balance, which equates to more than $3 million of depreciation expense.[24] Thus, ratepayers are currently paying for the costs associated with the Company's AROs.

Q. Do the Company's AROs include costs for future asbestos remediation and the removal of wind structures at its production facilities?

A. Yes. The Company's AROs include costs for asbestos remediation and the removal of wind structures.[25]

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[24] *See* Exhibit DJG-3.

[25] *See* AG 21-1 and 21-2.

Q. Do the Company's decommissioning studies also include costs for future asbestos remediation and the removal of wind structures at its production facilities?

A. Yes. The Company's decommissioning studies include costs for asbestos remediation and the removal of wind structures.[26] Thus, OG&E has mistakenly proposed to double recover these costs – once through the ARO, and again in terminal net salvage through the decommissioning studies.

Q. Was there a similar error in Public Service Company of Oklahoma's recent rate case?

A. Yes. In PSO's recent rate case, the company filed a decommissioning study that included certain costs that were already being accounted for through AROs. In response, PSO acknowledged the mistake and filed a revised decommissioning study correcting the errors.[27]

Q. How did you correct for OG&E's error in your production net salvage proposal?

A. I do not propose adjusting any of the Company's AROs or the depreciation expense associated with the AROs. However, in order to avoid charging ratepayers more than once for these costs, I propose removing the costs of asbestos remediation and wind structure removal from the decommissioning study.[28]

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[26] *See generally* Burns & McDonnell Fleet Decommissioning Cost Estimate Study, attached to the Direct Testimony of Jeffrey T. Kopp.

[27] *See* Rebuttal Testimony of Thomas J. Meehan, p. 8, lines 15-22, filed October 11, 2017 in Cause No. PUD 201700151. In that case, PUD witness Carolyn Weber found that costs associated with retention ponds were included in the decommissioning studies as well as in PSO's AROs. Mr. Meehan agreed, and he filed updated demolition cost studies excluding the costs associated with the ponds.

[28] *See* Exhibit DJG-8 for detailed calculations by plant.

2. <u>Contingency Factor</u>

Q. Describe the contingency factor applied by Mr. Kopp.

A. OG&E's decommissioning studies include direct and indirect cost estimates to dismantle the Company's generating facilities, which include labor, material, and scrap value estimates. However, in addition to these cost estimates, Mr. Kopp applied a 20% contingency factor to all direct costs for each generating unit. According to the decommissioning study, a "20 percent contingency is included on the direct costs in the estimates prepared as part of the study to cover unknowns."[29]

Q. How much additional costs do these contingency factors add to the total decommissioning cost estimates?

A. The contingency factors applied by Mr. Kopp increase his decommissioning cost estimates by more than $40 million.

Q. Do you agree that contingency factors should be included in the decommissioning cost estimates?

A. No. Mr. Kopp argues that contingency costs are a standard industry practice.[30] However, the issue the Commission should consider is not whether contingency factors are standard industry practice among contractors, but rather whether contingency factors should be charged to ratepayers. Mr. Kopp's argument in favor of the use contingency factors among contractors highlights the exact reason why we should <u>not</u> include such contingency factors in ratemaking. According to Mr. Kopp, over $40 million was added to the

[29] Burns & McDonnell Fleet Decommissioning Cost Estimate Study, p. 4-5, attached to the Direct Testimony of Jeffrey T. Kopp.

[30] Direct Testimony of Jeffrey T. Kopp, p. 8, lines18-23.

decommissioning cost estimates to "cover unknowns."[31] In a ratemaking context, ratepayers should not be charged for costs that are entirely "unknown" by definition. Furthermore, these contingency factors fail to account for the possibility that OG&E's proposed decommissioning costs might be <u>overestimated</u> (i.e., a negative contingency factor). So, while it might not be unreasonable for contractors to inform their clients that the costs of a particular project <u>might</u> exceed the direct cost estimates, it is unreasonable to charge current ratepayers for more than $40 million of future costs that are speculative and uncertain.

Q. Do the depreciation rates you propose for OG&E's production accounts exclude the contingency factors?

A. Yes. OG&E's decommissioning costs affect the amounts of the net salvage and depreciation rates for the Company's production accounts. The rates I propose for these accounts have been calculated without the inclusion of the contingency factors.[32]

3. <u>Escalation Factor</u>

Q. Describe the cost escalation factor applied by Mr. Spanos.

A. To calculate his proposed net salvage rates for OG&E's production accounts, Mr. Spanos escalated the decommissioning cost estimates provided by Mr. Kopp by 2.5% each year until the estimated retirement year for each generating facility.[33]

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[31] Burns & McDonnell Fleet Decommissioning Cost Estimate Study, p. 4-5, attached to the Direct Testimony of Jeffrey T. Kopp.

[32] *See* Exhibits DJG-5 thru DJG-8.

[33] *See* Direct Testimony of John J. Spanos, p. 26, lines 4-16.

Q. How much additional costs would the escalation factor add to OG&E's proposed decommissioning costs if approved?

A. The escalation factor would add more than $120 million to OG&E's proposed decommissioning costs.[34]

Q. Do you agree with Mr. Spanos's proposal to escalate the proposed decommissioning costs?

A. No. There are two important reasons the Commission should disallow the cost escalation factor applied by Mr. Spanos. First, it is not appropriate to escalate a cost that is already too unknown and uncertain. We do not know the actual retirement dates for the Company's generating facilities, and we also do not know whether each facility will be completely dismantled at those retirement dates under the assumptions inherent in the decommissioning studies. Some plants might be sold, converted, or otherwise reused in such a way that would be less costly and not require a complete brownfield demolition. If we are to assume that OG&E is a going concern (and we should), then complete brownfield demolitions of each one of OG&E's generating facilities at their estimated retirement dates is highly unlikely. The second problem with the Company's cost escalation factor is more technical. In my opinion, it is not proper to charge current ratepayers for a future cost that has not been discounted to present value. The "time value of money" concept is a cornerstone of finance and valuation. For example, the Discounted Cash Flow Model, which is used to estimate the cost of equity, applies a growth rate to a company's dividends many years into the future. However, that dividend stream is then discounted back to the current year by a discount rate in order to arrive at the present value of an asset. Likewise,

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[34] *See* Exhibit JSS-2 (depreciation study), p. VIII-4.

accounting for AROs involves escalating the present value of an estimated future cost, but then the cost is discounted back to present value by a discount rate in order to calculate the depreciation expense to charge to current ratepayers. In contrast to these calculations, OG&E proposes to escalate the present value of its decommissioning costs decades into the future and expects current ratepayers to pay the future value of these costs with their present-day dollars. This proposal completely disregards the elemental "time value of money" principle. For these reasons, the Commission should exclude the escalation factor applied by Mr. Spanos when determining appropriate net salvage and depreciation rates for OG&E's production accounts.

Q. Do the depreciation rates you propose for OG&E's production accounts exclude the escalation factor?

A. Yes. OG&E's decommissioning costs affect the amounts of the net salvage and depreciation rates for the Company's production accounts. The rates I propose for these accounts have been calculated without inclusion of the escalation factor.[35]

Q. Has the Commission consistently rejected contingency and escalation factors in production net salvage rates.

A. Yes. For example, in a recent PSO rate case, the company proposed the inclusion of escalation and contingency factors in calculating PSO's terminal net salvage. In this case, Mr. Spanos and Mr. Kopp are essentially making the same proposals regarding the escalation and contingency factors for OG&E. In rejecting PSO's proposed escalation factor, the ALJ found as follows:

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[35] *See* Exhibits DJG-5 thru DJG-8.

> The ALJ adopts Staff witness Garrett's recommendation that the Commission should deny the proposed escalation of demolition costs in this case because (1) the escalated costs do not appear to be calculated in the same manner as other calculations; (2) the Company did not offer any testimony in support of the escalation factor; (3) an escalation factor that does not consider any improvements in technology or economic efficiencies likely overstates future costs; (4) it is inappropriate to apply an escalation factor to demolition costs that are likely overstated; (5) asking ratepayers to pay for future costs that may not occur, are not known and measurable changes within the meaning of 17 O.S. § 284; and (6) the Commission has not approved escalated demolition costs in previous cases.[36]

Likewise, in rejecting PSO's proposed contingency factors, the ALJ found as follows:

> In its demolition cost study, S&L applied a 15% contingency factor to its cost estimates, and a negative 15% contingency factor to its scrap metal value estimates. The Company provides little justification for this contingency factor other than the plants might experience uncertainties and unplanned occurrences. This reasoning fails to consider the fact that certain occurrences could reduce estimated costs.[37]

In this case, OG&E is essentially making the same arguments regarding the contingency and escalation factors as PSO did in its case. In my opinion, the Commission should not deviate from its precedent on these issues.

VI. <u>MASS PROPERTY SERVICE LIFE ANALYSIS</u>

Q. Describe mass property.

A. Unlike life span property accounts, "mass" property accounts usually contain a large number of small units that will not be retired concurrently. For example, poles, conductors, transformers, and other transmission and distribution plant are usually classified as mass property. Estimating the service life of any single unit contained in a mass account would

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[36] Report and Recommendation of the Administrative Law Judge p. 164, filed May 31, 2016 in Cause No. PUD 201500208.

[37] *Id.*

not require any actuarial analysis or curve-fitting techniques. Since we must develop a single rate for an entire group of assets, however, actuarial analysis is required to calculate the average remaining life of the group.

Q. How did you determine the depreciation rates for the mass property accounts?

A. To develop depreciation rates for the Company's mass property accounts, I obtained the Company's historical plant data to develop observed life tables for each account. I used Iowa curves to smooth and complete the observed data to calculate the average remaining life of each account. Finally, I analyzed the Company's proposed net salvage rates for each mass account by reviewing the historical salvage data. After estimating the remaining life and salvage rates for each account, I calculated the corresponding depreciation rates. Further details about the actuarial analysis and curve-fitting techniques involved in this process are presented in the attached appendices.

A. Service Life Estimates

Q. Please describe your approach in estimating the service lives of mass property.

A. I used all of the Company's property data and created an observed life table ("OLT") for each account. The data points on the OLT can be plotted to form a curve (the "OLT curve"). The OLT curve is not a theoretical curve, rather, it is actual observed data from the Company's records that indicate the rate of retirement for each property group. An OLT curve by itself, however, is rarely a smooth curve, and is often not a "complete" curve (i.e., it does not end at zero percent surviving). In order to calculate average life (the area under a curve), a complete survivor curve is needed. The Iowa curves are empirically-derived curves based on the extensive studies of the actual mortality patterns of many different types of industrial property. The curve-fitting process involves selecting the best Iowa curve to fit the OLT curve. This can be accomplished through a combination of visual and mathematical curve-fitting techniques, as well as professional judgment. The first step of my approach to curve-fitting involves visually inspecting the OLT curve for any irregularities. For example, if the "tail" end of the curve is erratic and shows a sharp decline over a short period of time, it may indicate that this portion of the data is less reliable, as further discussed below. After inspecting the OLT curve, I use a mathematical curve-fitting technique which essentially involves measuring the distance between the OLT curve and the selected Iowa curve in order to get an objective, mathematical assessment of how well the curve fits. After selecting an Iowa curve, I observe the OLT curve along with the Iowa curve on the same graph to determine how well the curve fits. I may repeat this process several times for any given account to ensure that the most reasonable Iowa curve is selected.

Q. Do you always select the mathematically best-fitting curve?

A. Not necessarily. Mathematical fitting is an important part of the curve-fitting process because it promotes objective, unbiased results. While mathematical curve fitting is important, however, it may not always yield the optimum result; therefore, it should not necessarily be adopted without further analysis. In fact, for some of the accounts in this case I selected Iowa curves that were not the mathematical best fit, and in every such instance, this decision resulted in shorter curves (higher depreciation rates) being chosen, as further illustrated below.

Q. Should every portion of the OLT curve be given equal weight?

A. Not necessarily. Many analysts have observed that the points comprising the "tail end" of the OLT curve may often have less analytical value than other portions of the curve. "Points at the end of the curve are often based on fewer exposures and may be given less weight than points based on larger samples. The weight placed on those points will depend on the size of the exposures."[38] In accordance with this standard, an analyst may decide to truncate the tail end of the OLT curve at a certain percent of initial exposures, such as one percent. Using this approach puts a greater emphasis on the most valuable portions of the curve. For my analysis in this case, I not only considered the entirety of the OLT curve, but also conducted further analyses that involved fitting Iowa curves to the most significant part of the OLT curve for certain accounts. In other words, to verify the accuracy of my curve selection, I narrowed the focus of my additional calculation to consider the top 99% of the "exposures" (i.e., dollars exposed to retirement) and to eliminate the tail end of the curve representing the bottom 1% of exposures.

B. <u>Detailed Analysis of Select Accounts</u>

Q. Discuss your analysis of material accounts.

A. My analysis in this case included a review of all the Company's depreciable accounts. I approached my analysis of all mass property accounts the same way using the methods described in this testimony. For several accounts, however, I conducted additional analysis. The selected accounts discussed in this section are those involving either a

[38] Wolf *supra* n. 10, at 46.

significant amount of depreciation expense, or those that provide particularly good illustrations of the differences in my curve selection process and the Company's process. For some of these accounts, I conducted additional analyses that included both visual and mathematical curve fitting techniques not only for the entirety of the OLT curve, but also for the most significant portion of the curve which includes the top 99% of the dollars exposed to retirement, when applicable. By conducting additional analysis on the most significant portions of the OLT, I ensured that the Iowa curves I selected provide a good fit to the Company's data.

Q. Discuss the general differences between your service life estimates and the Company's service life estimates for these accounts.

A. Mr. Spanos and I used similar curve-fitting approaches in this case. However, for each account to which I propose a service life adjustment, the Iowa curve I selected to calculate the depreciation rate for the account provides a closer mathematical fit to the observed data.[39] For each of the accounts to which I propose service life adjustments, the Company has selected a curve that underestimates the average service life of the assets in the account, which results in unreasonably high depreciation rates.

Q. Are you persuaded by the opinions of OG&E's employees and other contractors regarding their estimates of the future mortality characteristics of any of these accounts?

A. No. In his testimony, Mr. Spanos stated that he had discussions with Company management and incorporated the information he received from these discussions in the

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[39] *See* Exhibits DJG-9 thru DJG-21.

"interpretation and extrapolation of the statistical analyses."[40] This statement indicates that discussions with Company personnel affected Mr. Spanos's interpretation of the quantitative statistical analysis involved with remaining service live estimates. In discovery, OIEC / OER asked OG&E the following question:

> Please specifically identify and describe any information obtained from any plant tour, field trip, or discussion with Company personnel, that would indicate that the average service lives of any life span or mass property would be shorter or longer than what is indicated by the retirement rate described by the Company's plant data.[41]

In response, Mr. Spanos referred to OG&E's response to data request AG 3-3, which includes the information obtained from site visits and management meetings. However, this response did not specifically identify any information that would lead me to deviate from the results obtained through my statistical analysis. In other words, I did not see any information in Mr. Spanos's site visit notes that would persuade me to deviate from the remaining service lives indicated through analysis of OG&E's historical property data in combination with visual and mathematical Iowa curve-fitting techniques, especially for accounts with sufficient retirement history and reliable observed survivor curves. In other words, while I agree with Mr. Spanos that depreciation analysis is not strictly a mathematical exercise, I did not incorporate the information provided by Mr. Spanos that was obtained from discussions with Company personnel into my analysis for these reasons. Therefore, in my opinion, the Commission should give more weight to the statistical analysis provided by the depreciation experts in this case than subjective elements of

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[40] Direct Testimony of John J. Spanos, p. 24, lines 24-26.

[41] OIEC Data Request 11-14.

judgment, especially when there is sufficient data to conduct such statistical analysis. This approach will promote more objective, unbiased, and reasonable results.

Q. Has Mr. Spanos also acknowledged that his recommendations are based primarily on the plant data and statistics?

A. Yes. In discussing his approach to service life estimates in the depreciation study, Mr. Spanos states: "Generally, the information external to the statistics led to minimal or no significant departure from the [OLT curve]. . . ."[42] This means that despite the site tours, discussions with Company personnel, and statements emphasizing the importance of his informed judgment, Mr. Spanos ultimately appears to be relying primarily on the Company's historical plant data when conducting his service life analyses. This is similar to my approach. For this reason, the service life estimates for the Company's mass property accounts should be based primarily on objective statistical analysis, rather than "information external to the statistics," such as potentially-biased judgment or the subjective opinions of Company representatives. For the accounts discussed below, I demonstrate that the service lives I have proposed are based on statistically better-fitting Iowa curves.

1. Account 353 – Transmission Station Equipment

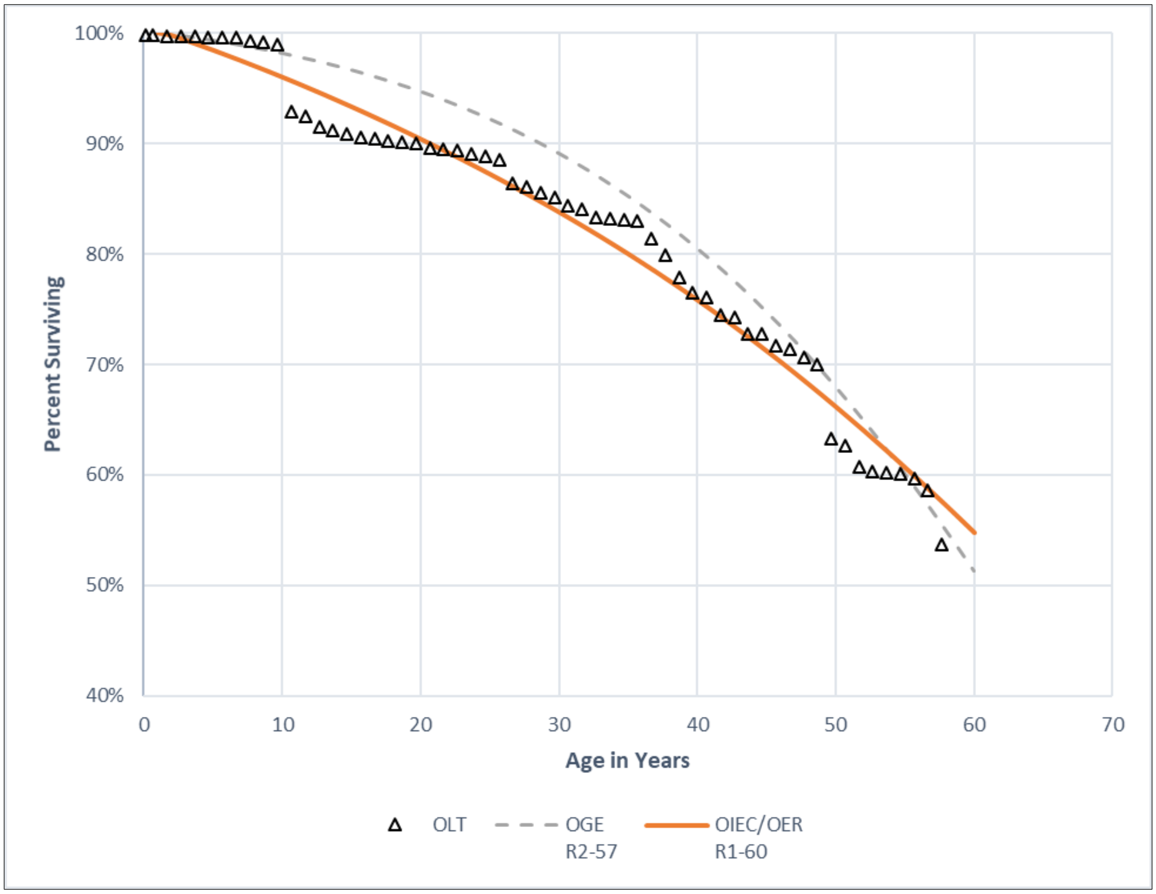
Q. Describe your service life estimate for this account and compare it with the Company's estimate.

A. The OLT curve derived from OG&E's historical property data for this account is well-suited for traditional Iowa curve fitting techniques because the OLT curve has a sufficient

[42] *See* Exhibit JSS-2 (depreciation study), p. III-3 (emphasis added).

amount of retirement history and the curve shape is relatively smooth and consistent. The Iowa curve I selected for this account is the R1-60 curve, and the curve the Company selected is the R2-57 curve. The graph below shows these two curves along with the OLT curve.

Figure 3:
Account 353 – Transmission Station Equipment



Both of the selected Iowa curves are similar in shape and average life. However, OG&E's R2.5-65 curve is slightly steeper and more rounded than the R1-60 curve, and as a result it does not provide a better fit to the OLT curve. It is visually apparent that the R2-68 curve provides a better fit through the majority of the OLT curve, however, we can also use mathematical curve-fitting techniques to measure which curve provides a better fit.

Q. Does your selected curve provide a better fit to the observed data?

A. Yes. The best mathematically-fitted curve is the one that minimizes the distance between the OLT curve and the Iowa curve, thus providing the closest fit. The "distance" between the curves is calculated using the "sum-of-squared differences" ("SSD") technique. The curve with the lower SSD represents the better mathematical fit. Specifically, the SSD for the Company's curve is 0.0469, while the SSD for the better-fitting R1-60 curve is only 0.0315. Thus, the curve I selected for this account provides a better fit to the OLT and results in a more reasonable depreciation rate.[43]

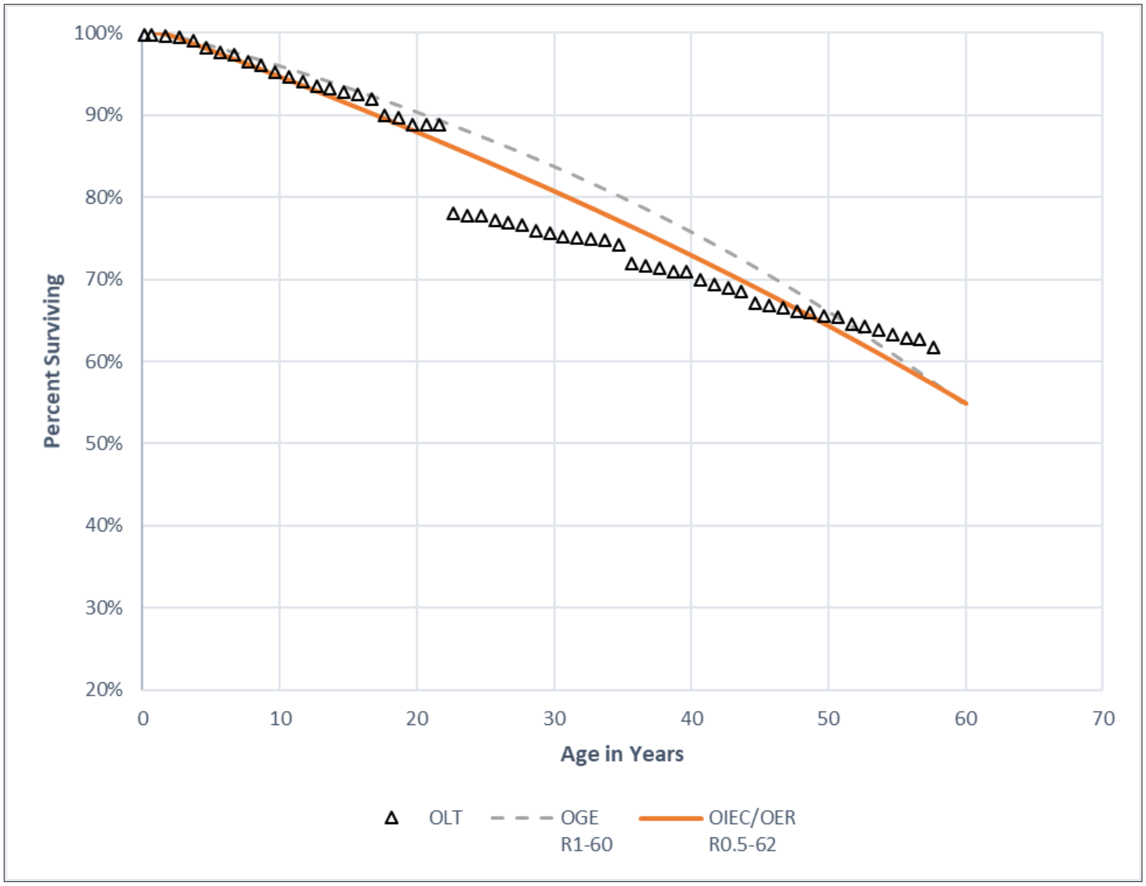
2. <u>Account 355 – Transmission Poles and Fixtures</u>

Q. Describe your service life estimate for this account and compare it with the Company's estimate.

A. For this account, I selected the R0.5-62 curve and the Company selected the R1-60 curve. The graph below shows these two curves along with the OLT curve.

[43] Exhibit DJG-9.

Figure 4:
Account 355 – Transmission Poles and Fixtures



As shown in the graph, both curves provide relatively close fits to the observed data. However, as with the previous account, the Company's curve would provide a better fit if it had a more "flattened" shape, which can be accomplished by using a lower modal curve shape. In this case, the R0.5 shape is better than the R1 shape in my opinion.

Q. Does your selected curve provide a better mathematical fit to the observed data than the Company's curve?

A. Yes. It is visually clear that the R0.5-62 provides a closer fit to the observed data than the R1-60 curve. Specifically, the R0.5-62 curve is closer to most of the OLT curve data points, especially between the age intervals of 20 -50, which represent the most statistically meaningful portions of the OLT curve. However, we can also confirm the best fit mathematically. Specifically, the SSD for the Company's curve is 0.1039, while the SSD for the better-fitting R0.5-62 curve is only 0.0569. Thus, the curve I selected for this account provides a better fit to the OLT and results in a more reasonable depreciation rate.[44]

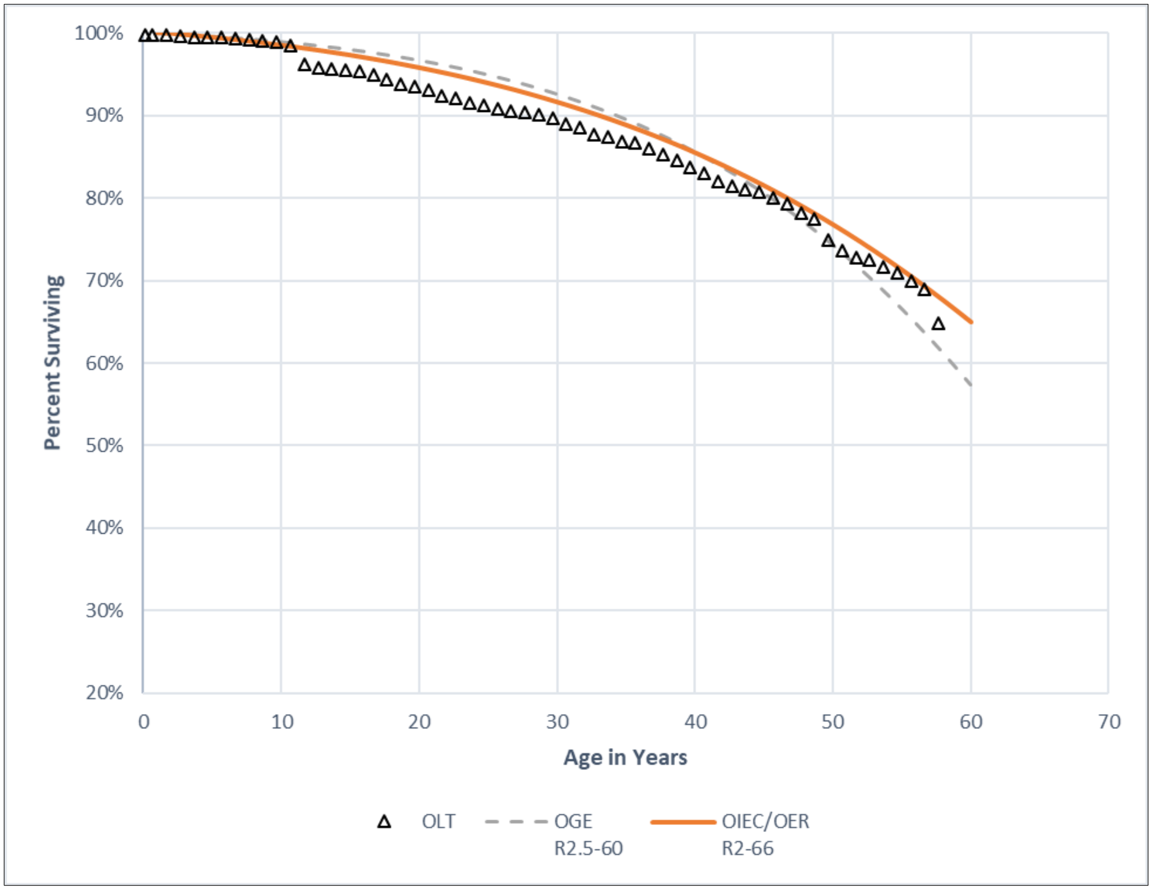
3. Account 362 – Station Equipment

Q. Describe your service life estimate for this account and compare it with the Company's estimate.

A. The OLT curve for this account is very well-suited for traditional Iowa curve-fitting techniques in that it is relatively smooth and contains sufficient retirement history. I selected the R2-66 curve for this account and the Company selected the R2.5-60 curve. The graph below shows these two Iowa curves juxtaposed with the OLT curve.

[44] Exhibit DJG-11.

Figure 5:
Account 362 – Station Equipment



Both curves are within a reasonable range for this account, but the R2-66 curve is better because it provides a closer fit to the observed data for this account, and therefore also provides a better estimate of the future retirement characteristics for this account.

Q. Does your selected curve provide a better mathematical fit to the observed data than the Company's curve?

A. Yes. The SSD for the Company's curve is 0.0437, while the SSD for the R2-66 curve is only 0.0076, which means it is a closer fit to the observed data.[45]

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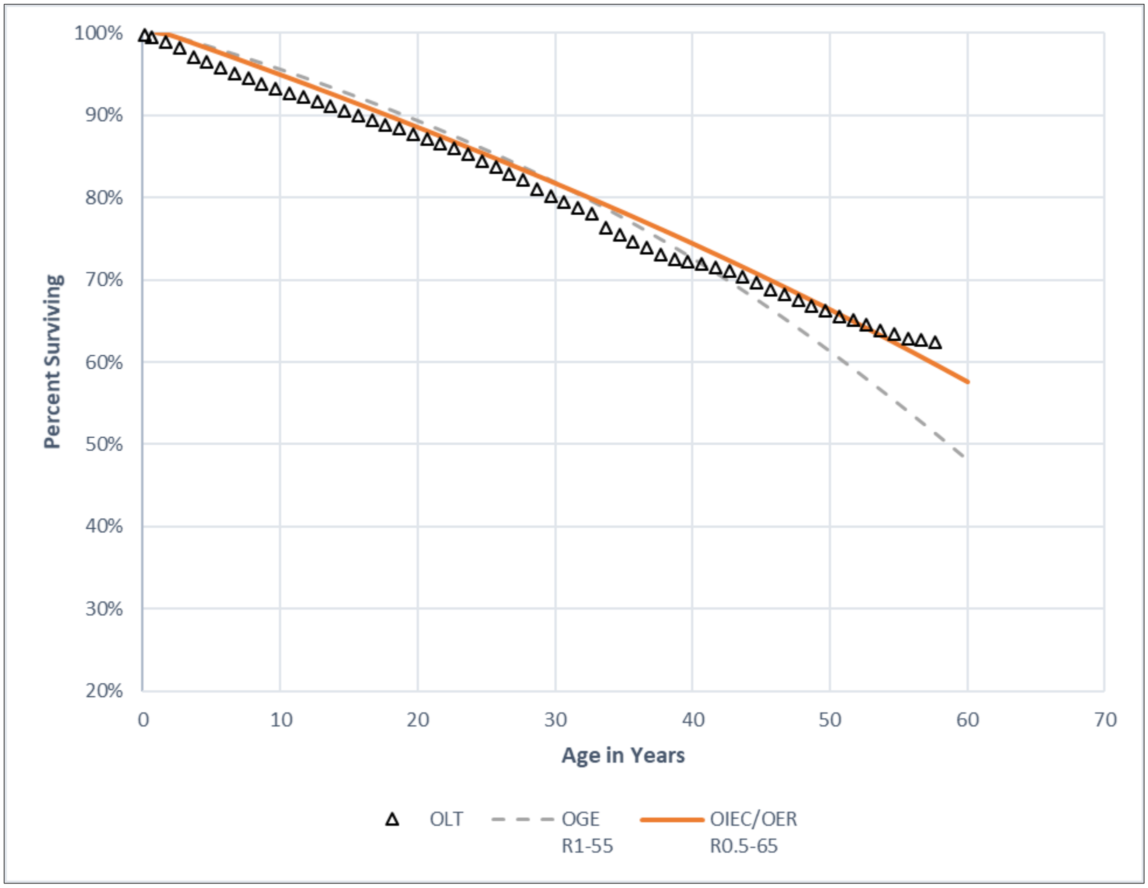
[45] Exhibit DJG-13.

4. Account 364 – Poles, Towers and Fixtures

Q. Describe your service life estimate for this account and compare it with the Company's estimate.

For this account I selected the R0.5-65 curve and the Company selected the R1-55 curve. It is visually apparent that the curve I selected provides a better fit to the OLT curve. The Company's selected curve appears to ignore relevant data from age interval 40 going forward. While sometimes the "tail" end of the OLT curve can be less reliable due to a limited number of exposures to retirement, this is not the case with this particular OLT curve. That is, the dollars exposed to retirement in the final age interval of the OLT curve are greater than 1% of the beginning dollars exposed to retirement. Therefore, it is appropriate in this instance to give more consideration to that portion of this OLT curve from a statistical standpoint.

Figure 6:
Account 364 – Poles, Towers and Fixtures



As shown in this graph, the Company's selected curve appears to decline unnecessarily starting at the 40-year age interval.

Q. Does your selected curve provide a better mathematical fit to the observed data than the Company's curve?

A. Yes. The SSD for the Company's curve is 0.1032, while the SSD for the R0.5-65 curve is 0.0086, which means it is a closer fit to the observed data and results in a more reasonable depreciation rate for this account.[46]

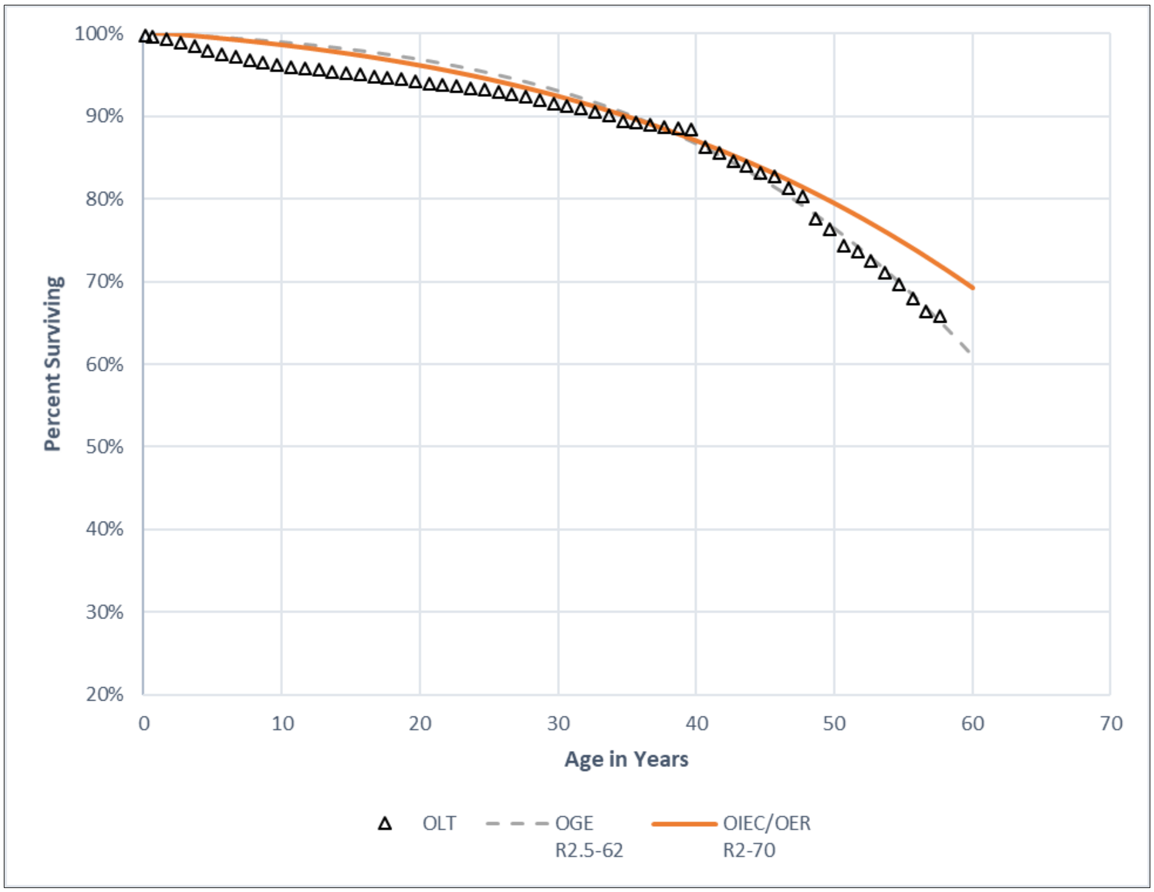
[46] Exhibit DJG-14.

5. <u>Account 367 – Underground Conductors and Devices</u>

Q. Describe your service life estimate for this account and compare it with the Company's estimate.

A. For this account I selected the R2-70 curve and the Company selected the R2.5-62 curve. The graph below shows these two curves along with the OLT curve.

Figure 7:
Account 367 – Underground Conductors and Devices



Unlike the previous account, the tail end of this OLT curve represents exposures that are not statistically significant. The final 1% of the OLT curve based on the amount of beginning dollars exposed to retirement occurs after age interval 45.[47] The Company's curve, however, appears to give this portion of the OLT curve the same statistical weight as the more-relevant upper and middle portions of the OLT curve. This is not appropriate from a statistical standpoint. In this particular OLT curve, the dollars exposed to retirement in the final age interval are $2.1 million, which the beginning dollars exposed to retirement are $579.6 million.[48] In other words, the tail end of this OLT curve is insignificant.

6. <u>Account 373 – Street Lighting and Signal Systems</u>

Q. Describe your service life estimate for this account and compare it with the Company's estimate.

A. The Iowa curve I selected for this account is the R2-45 curve and the curve the Company selected is the L1-27 curve. The graph below shows these two curves juxtaposed with the OLT curve.

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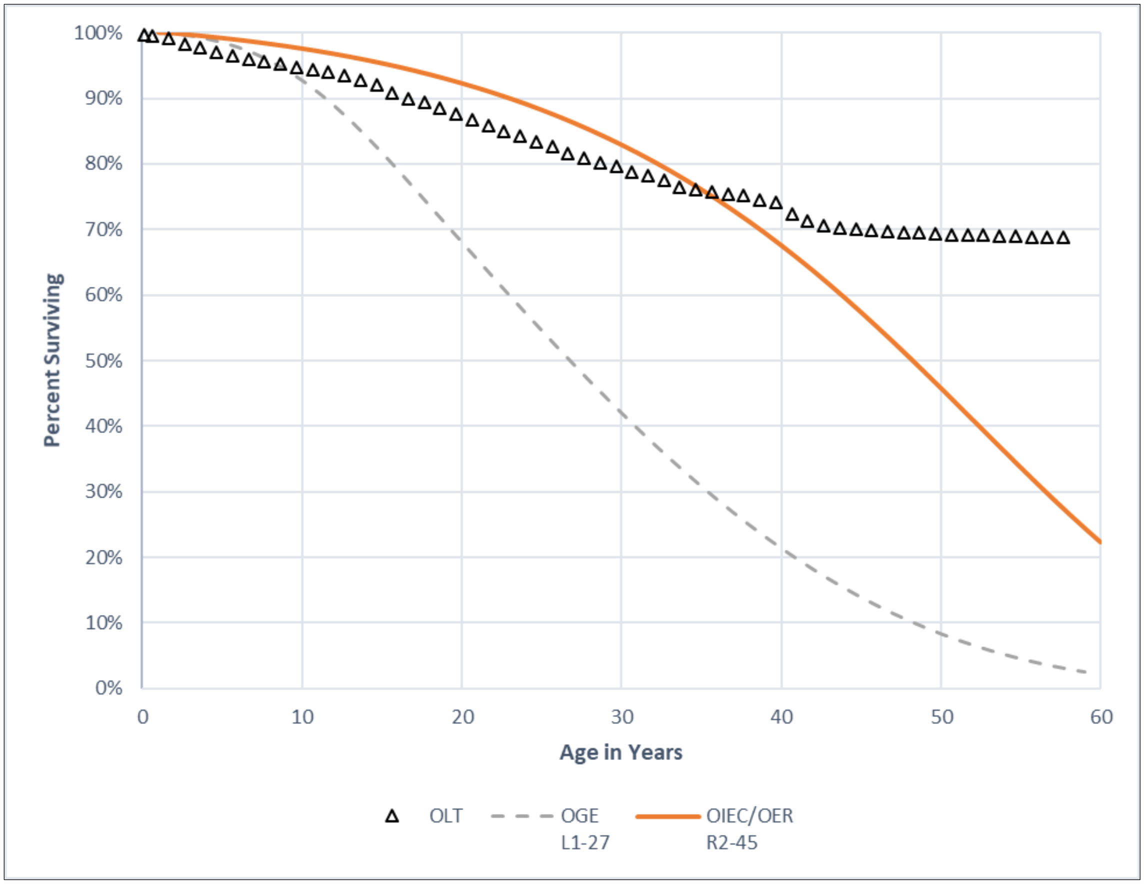
[47] *See* Exhibit DJG-17.

[48] *Id*.

Figure 8:
Account 373 – Street Lighting and Signal Systems



As shown in the graph, there is a very large discrepancy between the two Iowa curves, and the curve selected by Mr. Spanos does not provide a good fit to the OLT curve. Starting at age interval 10, the L1-27 curve selected by Mr. Spanos sharply declines relative to the OLT curve, which has a much flatter trajectory.

Q. Did Mr. Spanos propose a different OLT curve for this account based on the Company's future plans?

A. Yes. According to Mr. Spanos, the Company is planning a conversion to LED lighting in Account 373, which will take up to 10 years to implement.[49] Mr. Spanos provides his projected analysis for 2017 through 2028 and concludes that the L1-27 Iowa curve best represents the future mortality characteristics of this account.

Q. Do you agree with Mr. Spanos's projections?

A. No. The legal standards governing the issue of deprecation require the Company to make a "convincing showing" that its proposed depreciation rates are not excessive. Mr. Spanos did not make a convincing showing for this account regarding the appropriate level of depreciation expense. Instead, Mr. Spanos briefly concludes that a conversion of some of the assets in this account to LED lighting over the next ten years will somehow reduce the otherwise indicated service life by nearly 20 years. His projected survivor curve is not an OLT curve (because it would have to be actual, "observed" retirement experience to qualify) but rather his own subjective projection based on no empirical evidence. If in fact the LED conversion program has an impact on this account (whether increasing or reducing service life indications), we will be able to observe those impacts over time in the Company's future depreciation studies. At this time, however, it is better to analyze the service life of this account based on the actual data that is available, rather than Mr. Spanos's highly questionable and unsupported projections.

[49] Direct Testimony of John J. Spanos, p. 28, lines 25-30.

Q. Does your selected curve provide a better fit to the observed data?

A. Yes. When we use the actual, observed data provided by the Company, the SSD for the Company's curve is 10.4575, while the SSD for the better-fitting R2-45 curve is 1.4576.[50] Thus, the curve I selected for this account provides a better fit to the OLT and results in a more reasonable depreciation rate.

VII. MASS PROPERTY NET SALVAGE ANALYSIS

Q. Describe the process of estimating net salvage for mass property accounts and how it affects the overall depreciation rate for each account.

A. Net salvage rates for mass property accounts are typically estimated in part by analyzing a utility's historical gross salvage and removal costs. Net salvage refers to the difference between gross salvage and the cost of removal. Since the cost of removal for utility property often exceeds any positive proceeds received from the sale of retired assets, net salvage rates are often negative. The net salvage rates are applied to the plant balance in each account, either increasing or decreasing the total amount to be recovered over the average service life.

Q. Did you request that that Company provide the net salvage data used in the depreciation study?

A. Yes. In a data request, I asked: "Please provide all property data utilized in the depreciation study, including, but not limited to, additions, retirements, transfers, sales, adjustments, cost of removal, and salvage data."[51]

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[50] Exhibit DJG-20.

[51] Data Request OIEC 11-1.

Q. Did the Company provide the net salvage data?

A. In my opinion, the Company either made a mistake in responding to this data request or did not respond in good faith. My request asked for data "utilized in the depreciation study." It initially appeared that the Company provided the data requested. However, it was later discovered that the Company excluded significant transactions from the net salvage data it provided. Specifically, the Company excluded significant amounts of reimbursement of assets in several mass property accounts. These reimbursements, all else held constant, would have an increasing effect on the Company's historical net salvage experience and have the effect of reducing depreciation rate estimates. In AG 3-7(a), the Company was asked: "Were there any amounts that were booked and then excluded from the Net Salvage Statistics data shown in Part VIII of the 2016 Depreciation Study?" In response, the Company stated that there were "retirements and associated cost of removal and gross salvage that were booked but excluded from the Net Salvage Statistics data shown in Part VIII of the 2016 Depreciation Study." In other words, either Mr. Spanos or the Company chose to exclude certain booked transactions from the net salvage data used in the depreciation study. Sometimes, certain data might be excluded from statistical analysis if it represents an anomaly. However, the booked, raw property data should have been provided in the Company's response to my initial data request so that I could have seen the Company's adjustments to the raw data.

Q. Did you consider the initially-excluded net salvage data in your analysis?

A. Yes. After including the transactions initially excluded from the net salvage data, I recalculated the historical net salvage rates for the applicable accounts. The results show that these historical net salvage rates are significantly greater (i.e., less negative) than the calculations provided in the Company's depreciation study. For example, the Company had initially excluded a reimbursement of $1,229,974 from the gross salvage calculation in 2015.[52] The Company also excluded several other significant, positive transactions for almost every year from 1999 to 2016. In Exhibit DJG-22, I show the Company's revised historical net salvage calculations once these amounts are included. In the initial net salvage statistics provided by Mr. Spanos for Account 364, the net salvage rate totaled -65%.[53] As a result, Mr. Spanos proposed a net salvage rate for this account of exactly -65%. However, after adding back the transactions initially excluded from the Company's net salvage calculations, the net salvage rate for Account 364 is much higher (less negative) at -51%.[54] I performed a similar analysis with seven other mass property accounts – adding back the positive transactions that were initially excluded from the net salvage statistics provided by the Company and used in the depreciation study.[55] I based my proposed net salvage rates on these corrected calculations.[56]

VIII. <u>CONCLUSION AND RECOMMENDATION</u>

Q. Summarize the key points of your testimony.

A. In this case, OG&E is proposing an increase in depreciation expense in excess of $70 million. I recommend several adjustments to OG&E's proposed depreciation rates, which are broadly summarized in the following five categories:

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[52] *See* response to AG 11-12.

[53] *See* Exhibit JSS-2 (depreciation study), p. VIII-44.

[54] *See* Exhibit DJG-22.

[55] *See* Exhibit DJG-23.

[56] *See* Exhibit DJG-5.

(1) I used the Company's estimated lifespans as proposed in its most recent IRP (instead of Mr. Spanos's shorter lifespans) in calculating the remaining lives of OG&E's generating units;

(2) I removed the contingency and escalation factors from the Company's proposed decommissioning costs and terminal net salvage rates, which is consistent with the Commission's position on these issues;

(3) I removed the double counting of ARO costs by excluding them from the decommissioning cost estimates;

(4) I proposed adjustments to the service lives of several mass property accounts as supported through objective Iowa curve-fitting techniques; and

(5) I included historical transactions in my mass property net salvage estimates that had been excluded from the Company's depreciation study.

Given these issues, it would not be reasonable to accept OG&E's proposed depreciation expense without significant adjustments. My adjustment would reduce OG&E's proposed depreciation expense by about $58 million, but it would result in an increase of about $17 million from the Company's pro forma depreciation expense.

Q. What is OIEC and OER's recommendation to the Commission regarding OG&E's proposed depreciation rates?

A. OIEC and OER recommend the Commission adopt the proposed depreciation rates presented in Exhibit DJG-3.

Q. Does this conclude your testimony?

A. Yes, including any exhibits, appendices, and other items attached hereto. I reserve the right to supplement this testimony as needed with any additional information that has been requested from the Company but not yet provided.

Respectfully Submitted,

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APPENDIX A:

THE DEPRECIATION SYSTEM

A depreciation accounting system may be thought of as a dynamic system in which estimates of life and salvage are inputs to the system, and the accumulated depreciation account is a measure of the state of the system at any given time.[57] The primary objective of the depreciation system is the timely recovery of capital. The process for calculating the annual accruals is determined by the factors required to define the system. A depreciation system should be defined by four primary factors: 1) a method of allocation; 2) a procedure for applying the method of allocation to a group of property; 3) a technique for applying the depreciation rate; and 4) a model for analyzing the characteristics of vintage groups comprising a continuous property group.[58] The figure below illustrates the basic concept of a depreciation system and includes some of the available parameters.[59]

There are hundreds of potential combinations of methods, procedures, techniques, and models, but in practice, analysts use only a few combinations. Ultimately, the system selected must result in the systematic and rational allocation of capital recovery for the utility. Each of the four primary factors defining the parameters of a depreciation system is discussed further below.

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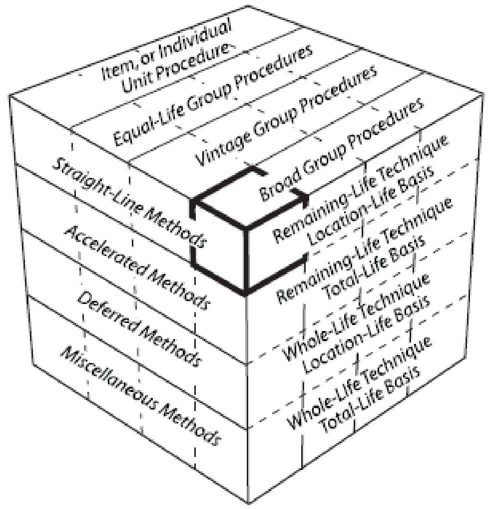
[57] Wolf *supra* n. 10, at 69-70.

[58] *Id.* at 70, 139-40.

[59] Edison Electric Institute, *Introduction to Depreciation* (inside cover) (EEI April 2013). Some definitions of the terms shown in this diagram are not consistent among depreciation practitioners and literature due to the fact that depreciation analysis is a relatively small and fragmented field. This diagram simply illustrates the some of the available parameters of a depreciation system.

Figure 9:
The Depreciation System Cube



1. <u>Allocation Methods</u>

The "method" refers to the pattern of depreciation in relation to the accounting periods. The method most commonly used in the regulatory context is the "straight-line method" – a type of age-life method in which the depreciable cost of plant is charged in equal amounts to each accounting period over the service life of plant.[60] Because group depreciation rates and plant balances often change, the amount of the annual accrual rarely remains the same, even when the straight-line method is employed.[61] The basic formula for the straight-line method is as follows:[62]

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[60] NARUC *supra* n. 11, at 56.

[61] *Id*.

[62] *Id*.

Equation 1:
Straight-Line Accrual

$$Annual\ Accrual = \frac{Gross\ Plant - Net\ Salvage}{Service\ Life}$$

Gross plant is a known amount from the utility's records, while both net salvage and service life must be estimated in order to calculate the annual accrual. The straight-line method differs from accelerated methods of recovery, such as the "sum-of-the-years-digits" method and the "declining balance" method. Accelerated methods are primarily used for tax purposes and are rarely used in the regulatory context for determining annual accruals.[63] In practice, the annual accrual is expressed as a rate which is applied to the original cost of plant in order to determine the annual accrual in dollars. The formula for determining the straight-line rate is as follows:[64]

Equation 2:
Straight-Line Rate

$$Depreciation\ Rate\ \% = \frac{100 - Net\ Salvage\ \%}{Service\ Life}$$

2. Grouping Procedures

The "procedure" refers to the way the allocation method is applied through subdividing the total property into groups.[65] While single units may be analyzed for depreciation, a group plan of depreciation is particularly adaptable to utility property. Employing a grouping procedure allows for a composite application of depreciation rates to groups of similar property, rather than

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[63] *Id*. at 57.

[64] *Id*. at 56.

[65] Wolf *supra* n. 10, at 74-75.

excessively conducting calculations for each unit. Whereas an individual unit of property has a single life, a group of property displays a dispersion of lives and the life characteristics of the group must be described statistically.[66] When analyzing mass property categories, it is important that each group contains homogenous units of plant that are used in the same general manner throughout the plant and operated under the same general conditions.[67]

The "average life" and "equal life" grouping procedures are the two most common. In the average life procedure, a constant annual accrual rate based on the average life of all property in the group is applied to the surviving property. While property having shorter lives than the group average will not be fully depreciated, and likewise, property having longer lives than the group average will be over-depreciated, the ultimate result is that the group will be fully depreciated by the time of the final retirement.[68] Thus, the average life procedure treats each unit as though its life is equal to the average life of the group. In contrast, the equal life procedure treats each unit in the group as though its life was known.[69] Under the equal life procedure the property is divided into subgroups that each has a common life.[70]

3. Application Techniques

The third factor of a depreciation system is the "technique" for applying the depreciation rate. There are two commonly used techniques: "whole life" and "remaining life." The whole life

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[66] *Id*. at 74.

[67] NARUC *supra* n. 11, at 61-62.

[68] *See* Wolf *supr*a n. 10, at 74-75.

[69] *Id*. at 75.

[70] *Id*.

technique applies the depreciation rate on the estimated average service life of a group, while the remaining life technique seeks to recover undepreciated costs over the remaining life of the plant.[71]

In choosing the application technique, consideration should be given to the proper level of the accumulated depreciation account. Depreciation accrual rates are calculated using estimates of service life and salvage. Periodically these estimates must be revised due to changing conditions, which cause the accumulated depreciation account to be higher or lower than necessary. Unless some corrective action is taken, the annual accruals will not equal the original cost of the plant at the time of final retirement.[72] Analysts can calculate the level of imbalance in the accumulated depreciation account by determining the "calculated accumulated depreciation," (a.k.a. "theoretical reserve" and referred to in these appendices as "CAD"). The CAD is the calculated balance that would be in the accumulated depreciation account at a point in time using current depreciation parameters.[73] An imbalance exists when the actual accumulated depreciation account does not equal the CAD. The choice of application technique will affect how the imbalance is dealt with.

Use of the whole life technique requires that an adjustment be made to accumulated depreciation after calculation of the CAD. The adjustment can be made in a lump sum or over a period of time. With use of the remaining life technique, however, adjustments to accumulated depreciation are amortized over the remaining life of the property and are automatically included

[71] NARUC *supra* n. 11, at 63-64.

[72] Wolf *supra* n. 10, at 83.

[73] NARUC *supra* n. 11, at 325.

in the annual accrual.[74] This is one reason that the remaining life technique is popular among practitioners and regulators. The basic formula for the remaining life technique is as follows:[75]

Equation 3:
Remaining Life Accrual

$$Annual\ Accrual = \frac{Gross\ Plant - Accumulated\ Depreciation - Net\ Salvage}{Average\ Remaining\ Life}$$

The remaining life accrual formula is similar to the basic straight-line accrual formula above with two notable exceptions. First, the numerator has an additional factor in the remaining life formula: the accumulated depreciation. Second, the denominator is "average remaining life" instead of "average life." Essentially, the future accrual of plant (gross plant less accumulated depreciation) is allocated over the remaining life of plant. Thus, the adjustment to accumulated depreciation is "automatic" in the sense that it is built into the remaining life calculation.[76]

4. Analysis Model

The fourth parameter of a depreciation system, the "model," relates to the way of viewing the life and salvage characteristics of the vintage groups that have been combined to form a continuous property group for depreciation purposes.[77] A continuous property group is created when vintage groups are combined to form a common group. Over time, the characteristics of the property may change, but the continuous property group will continue. The two analysis models

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[74] NARUC *supra* n. 11, at 65 ("The desirability of using the remaining life technique is that any necessary adjustments of [accumulated depreciation] . . . are accrued automatically over the remaining life of the property. Once commenced, adjustments to the depreciation reserve, outside of those inherent in the remaining life rate would require regulatory approval.").

[75] *Id*. at 64.

[76] Wolf *supra* n. 10, at 178.

[77] *See* Wolf *supra* n. 10, at 139 (I added the term "model" to distinguish this fourth depreciation system parameter from the other three parameters).

used among practitioners, the “broad group” and the “vintage group,” are two ways of viewing the life and salvage characteristics of the vintage groups that have been combined to from a continuous property group.

The broad group model views the continuous property group as a collection of vintage groups that each has the same life and salvage characteristics. Thus, a single survivor curve and a single salvage schedule are chosen to describe all the vintages in the continuous property group. In contrast, the vintage group model views the continuous property group as a collection of vintage groups that may have different life and salvage characteristics. Typically, there is not a significant difference between vintage group and broad group results unless vintages within the applicable property group experienced dramatically different retirement levels than anticipated in the overall estimated life for the group. For this reason, many analysts utilize the broad group procedure because it is more efficient.

APPENDIX B:

IOWA CURVES

Early work in the analysis of the service life of industrial property was based on models that described the life characteristics of human populations.[78] This explains why the word "mortality" is often used in the context of depreciation analysis. In fact, a group of property installed during the same accounting period is analogous to a group of humans born during the same calendar year. Each period the group will incur a certain fraction of deaths / retirements until there are no survivors. Describing this pattern of mortality is part of actuarial analysis and is regularly used by insurance companies to determine life insurance premiums. The pattern of mortality may be described by several mathematical functions, particularly the survivor curve and frequency curve. Each curve may be derived from the other so that if one curve is known, the other may be obtained. A survivor curve is a graph of the percent of units remaining in service expressed as a function of age.[79] A frequency curve is a graph of the frequency of retirements as a function of age. Several types of survivor and frequency curves are illustrated in the figures below.

1. <u>Development</u>

The survivor curves used by analysts today were developed over several decades from extensive analysis of utility and industrial property. In 1931 Edwin Kurtz and Robley Winfrey used extensive data from a range of 65 industrial property groups to create survivor curves representing the life characteristics of each group of property.[80] They generalized the 65 curves

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[78] Wolf *supra* n. 10, at 276.

[79] *Id*. at 23.

[80] *Id*. at 34.

into 13 survivor curve types and published their results in *Bulletin 103: Life Characteristics of Physical Property*. The 13 type curves were designed to be used as valuable aids in forecasting probable future service lives of industrial property. Over the next few years, Winfrey continued gathering additional data, particularly from public utility property, and expanded the examined property groups from 65 to 176.[81] This resulted in 5 additional survivor curve types for a total of 18 curves. In 1935, Winfrey published *Bulletin 125: Statistical Analysis of Industrial Property Retirements*. According to Winfrey, "[t]he 18 type curves are expected to represent quite well all survivor curves commonly encountered in utility and industrial practices."[82] These curves are known as the "Iowa curves" and are used extensively in depreciation analysis in order to obtain the average service lives of property groups. (Use of Iowa curves in actuarial analysis is further discussed in Appendix C.)

In 1942, Winfrey published *Bulletin 155: Depreciation of Group Properties*. In Bulletin 155, Winfrey made some slight revisions to a few of the 18 curve types, and published the equations, tables of the percent surviving, and probable life of each curve at five-percent intervals.[83] Rather than using the original formulas, analysts typically rely on the published tables containing the percentages surviving. This is because absent knowledge of the integration technique applied to each age interval, it is not possible to recreate the exact original published table values. In the 1970s, John Russo collected data from over 2,000 property accounts reflecting

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[81] *Id*.

[82] Robley Winfrey, *Bulletin 125: Statistical Analyses of Industrial Property Retirements* 85, Vol. XXXIV, No. 23 (Iowa State College of Agriculture and Mechanic Arts 1935).

[83] Robley Winfrey, Bulletin 155: Depreciation of Group Properties 121-28, Vol XLI, No. 1 (The Iowa State College Bulletin 1942); see also Wolf supra n. 10, at 305-38 (publishing the percent surviving for each Iowa curve, including "O" type curve, at one percent intervals).

observations during the period 1965 – 1975 as part of his Ph.D. dissertation at Iowa State. Russo essentially repeated Winfrey's data collection, testing, and analysis methods used to develop the original Iowa curves, except that Russo studied industrial property in service several decades after Winfrey published the original Iowa curves. Russo drew three major conclusions from his research:[84]

1. No evidence was found to conclude that the Iowa curve set, as it stands, is not a valid system of standard curves;
2. No evidence was found to conclude that new curve shapes could be produced at this time that would add to the validity of the Iowa curve set; and
3. No evidence was found to suggest that the number of curves within the Iowa curve set should be reduced.

Prior to Russo's study, some had criticized the Iowa curves as being potentially obsolete because their development was rooted in the study of industrial property in existence during the early 1900s. Russo's research, however, negated this criticism by confirming that the Iowa curves represent a sufficiently wide range of life patterns, and that though technology will change over time, the underlying patterns of retirements remain constant and can be adequately described by the Iowa curves.[85]

Over the years, several more curve types have been added to Winfrey's 18 Iowa curves. In 1967, Harold Cowles added four origin-modal curves. In addition, a square curve is sometimes used to depict retirements which are all planned to occur at a given age. Finally, analysts

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[84] *See* Wolf *supra* n. 10, at 37.

[85] *Id*.

commonly rely on several "half curves" derived from the original Iowa curves. Thus, the term "Iowa curves" could be said to describe up to 31 standardized survivor curves.

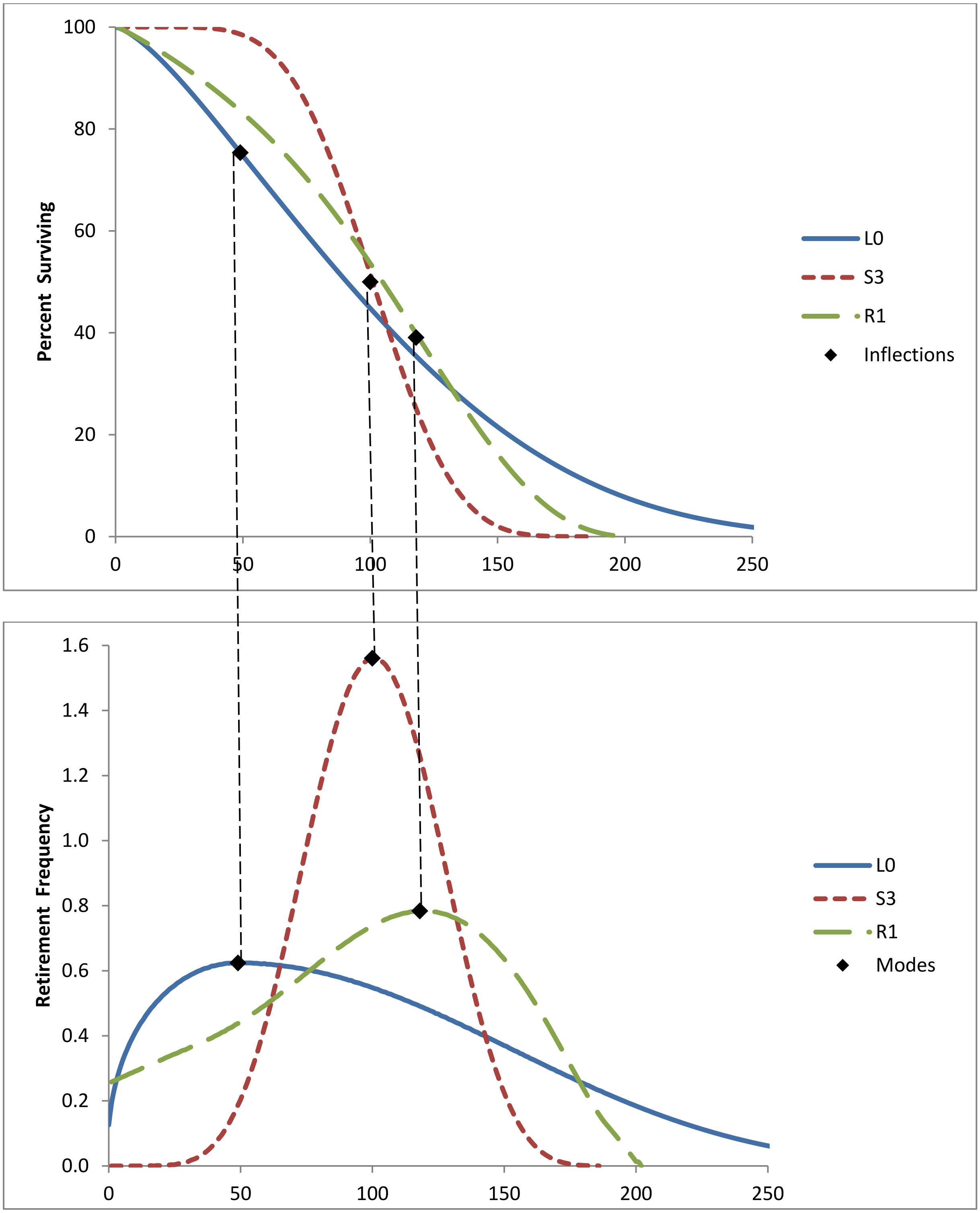
2. Classification

The Iowa curves are classified by three variables: modal location, average life, and variation of life. First, the mode is the percent life that results in the highest point of the frequency curve and the "inflection point" on the survivor curve. The modal age is the age at which the greatest rate of retirement occurs. As illustrated in the figure below, the modes appear at the steepest point of each survivor curve in the top graph, as well as the highest point of each corresponding frequency curve in the bottom graph.

The classification of the survivor curves was made according to whether the mode of the retirement frequency curves was to the left, to the right, or coincident with average service life. There are three modal "families" of curves: six left modal curves (L0, L1, L2, L3, L4, L5); five right modal curves (R1, R2, R3, R4, R5); and seven symmetrical curves (S0, S1, S2, S3, S4, S5, S6).[86] In the figure below, one curve from each family is shown: L0, S3 and R1, with average life at 100 on the x-axis. It is clear from the graphs that the modes for the L0 and R1 curves appear to the left and right of average life respectively, while the S3 mode is coincident with average life.

[86] In 1967, Harold A. Cowles added four origin-modal curves known as "O type" curves. There are also several "half" curves and a square curve, so the total amount of survivor curves commonly called "Iowa" curves is about 31 (see NARUC supra n. 11, at 68).

Figure 10:
Modal Age Illustration



The second Iowa curve classification variable is average life. The Iowa curves were designed using a single parameter of age expressed as a percent of average life instead of actual age. This was necessary in order for the curves to be of practical value. As Winfrey notes:

> Since the location of a particular survivor on a graph is affected by both its span in years and the shape of the curve, it is difficult to classify a group of curves unless one of these variables can be controlled. This is easily done by expressing the age in percent of average life."[87]

Because age is expressed in terms of percent of average life, any particular Iowa curve type can be modified to forecast property groups with various average lives.

The third variable, variation of life, is represented by the numbers next to each letter. A lower number (e.g., L1) indicates a relatively low mode, large variation, and large maximum life; a higher number (e.g., L5) indicates a relatively high mode, small variation, and small maximum life. All three classification variables – modal location, average life, and variation of life – are used to describe each Iowa curve. For example, a 13-L1 Iowa curve describes a group of property with a 13-year average life, with the greatest number of retirements occurring before (or to the left of) the average life, and a relatively low mode. The graphs below show these 18 survivor curves, organized by modal family.

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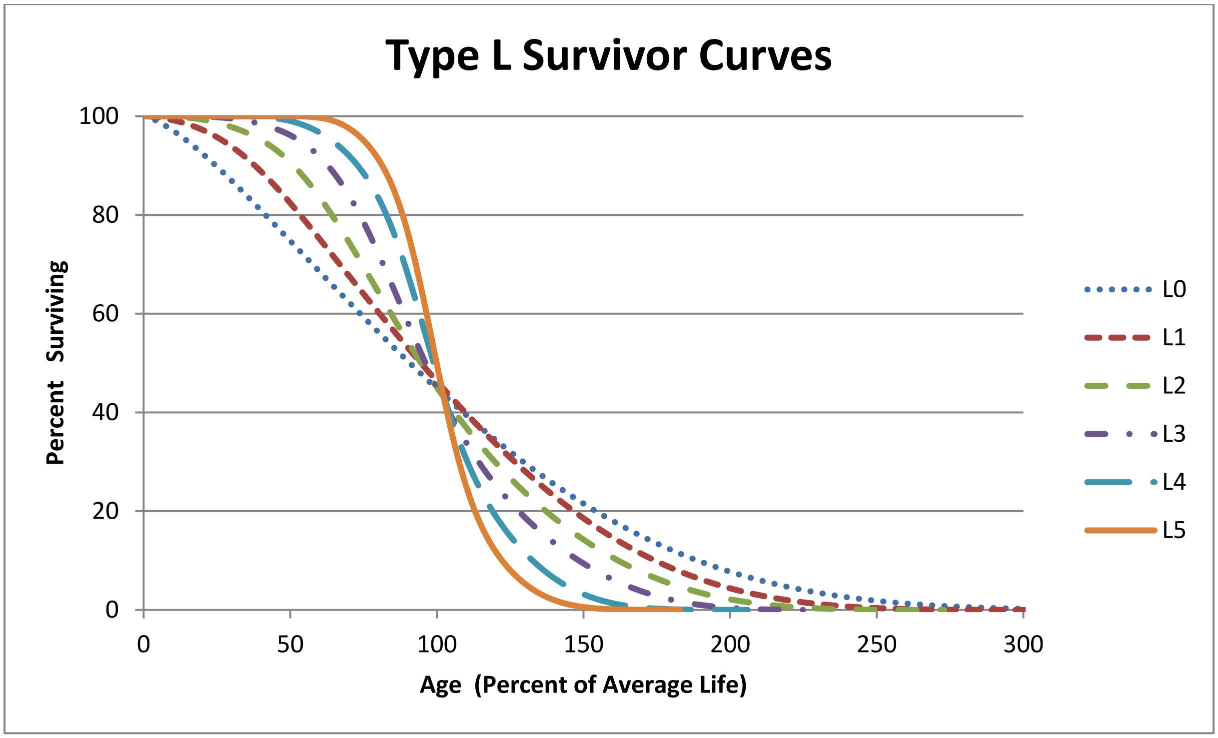
[87] Winfrey *supra* n. 166, at 60.

Figure 11:
Type L Survivor and Frequency Curves



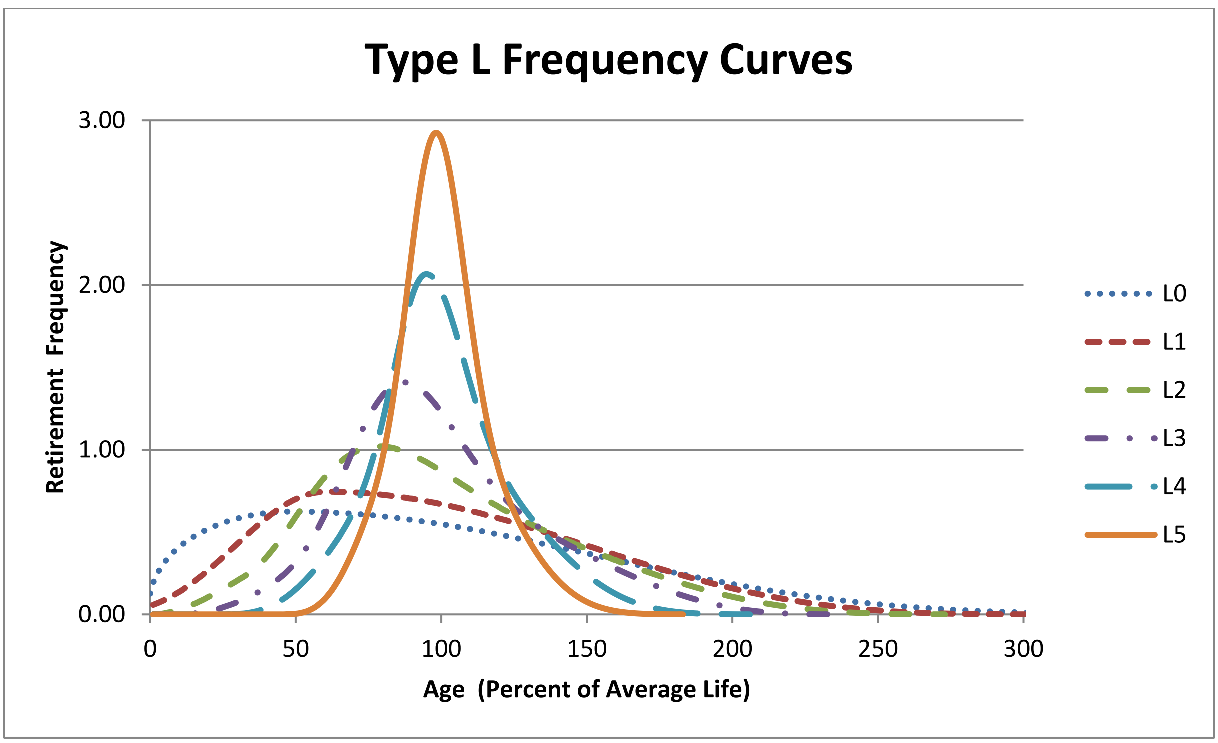
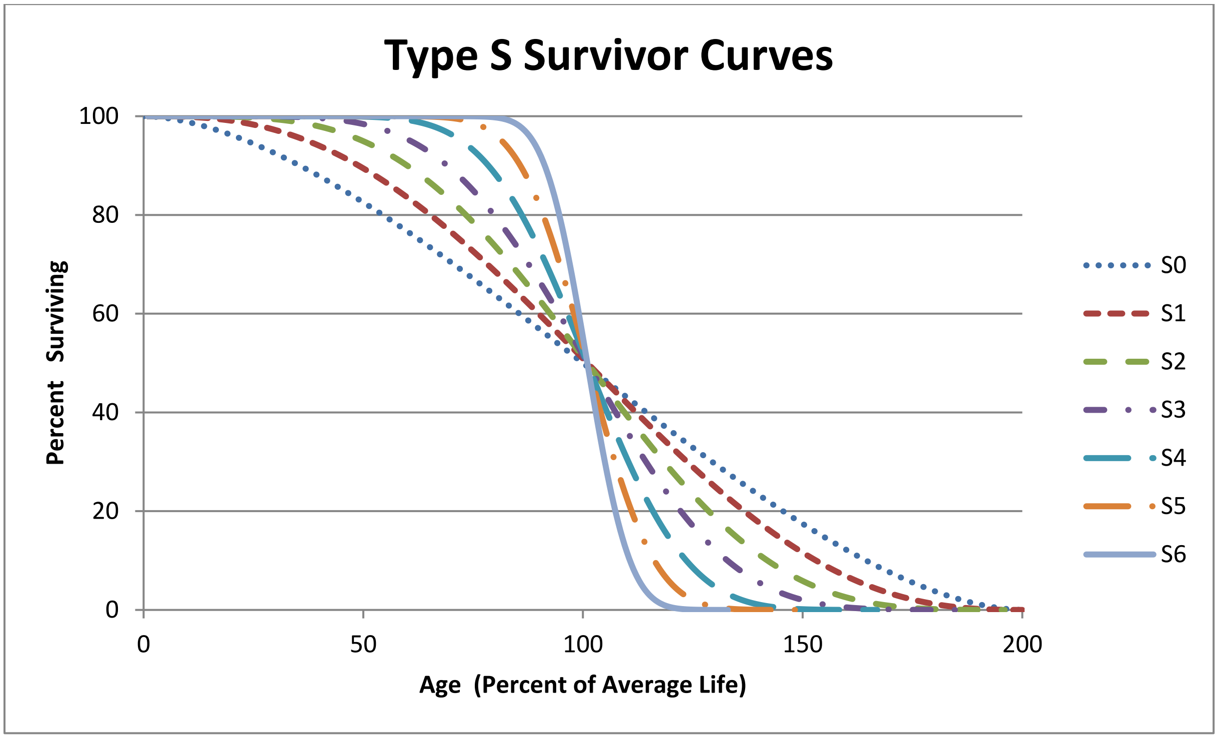


Figure 12:
Type S Survivor and Frequency Curves



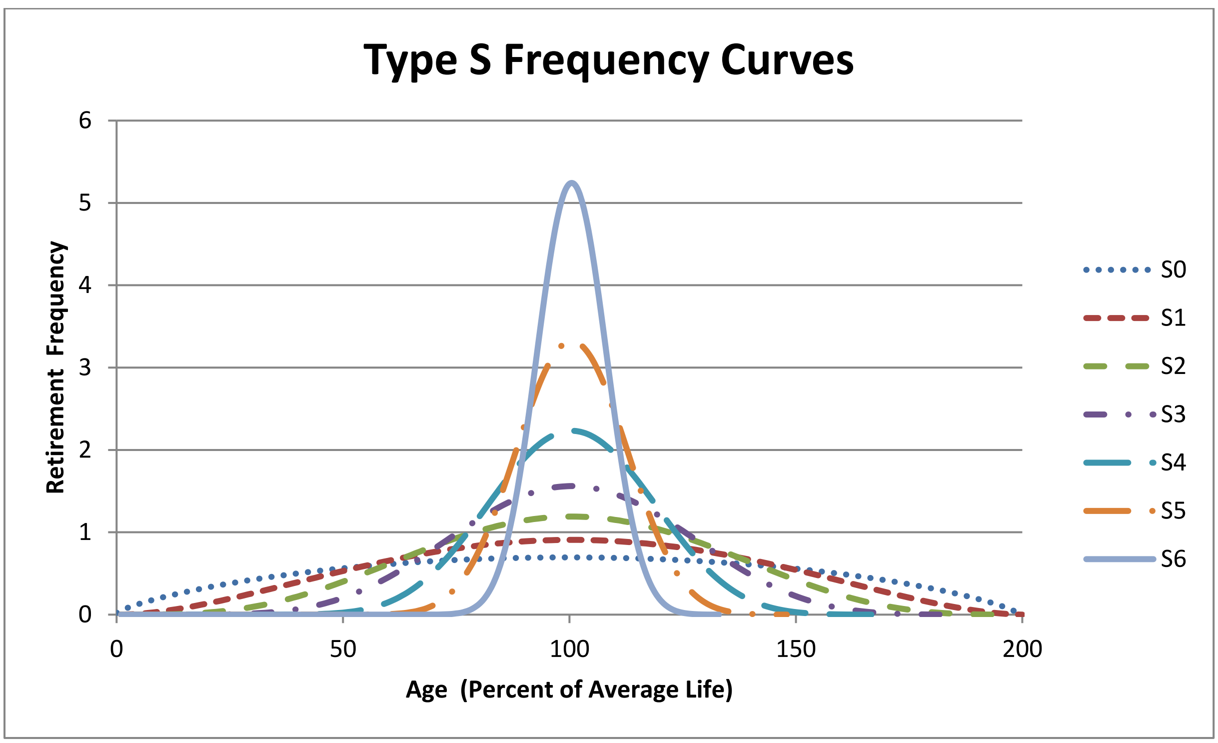
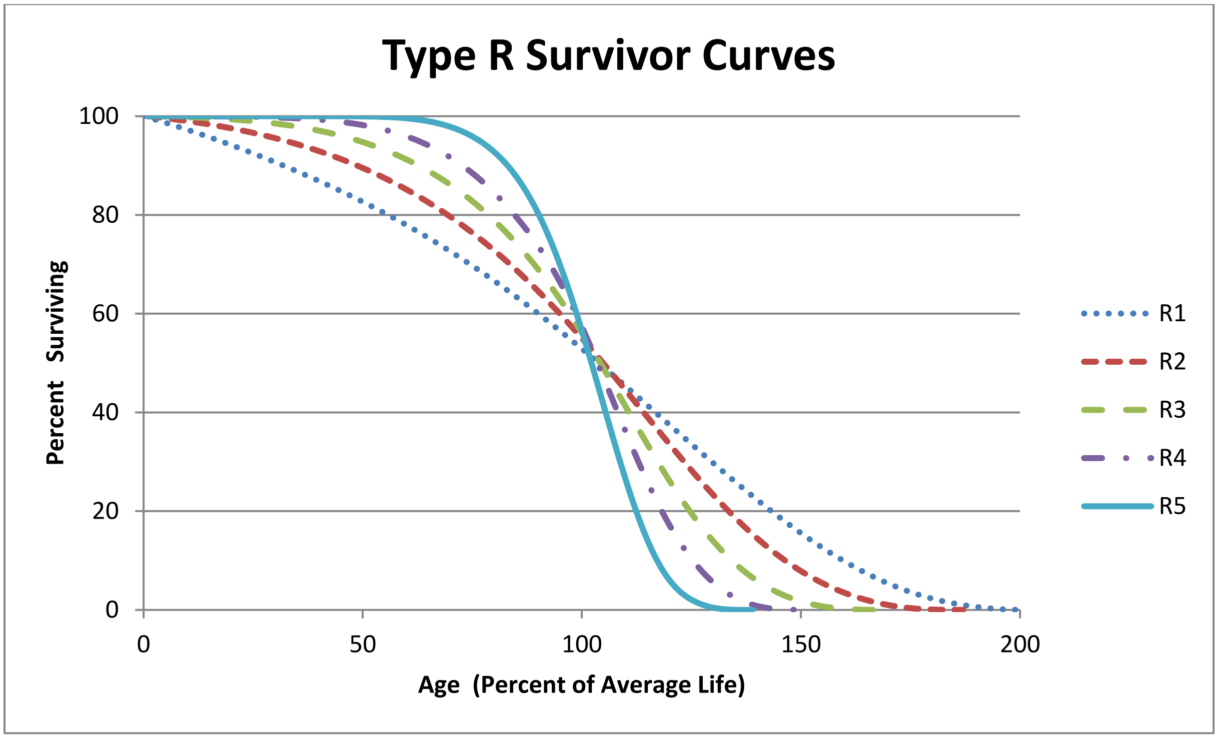
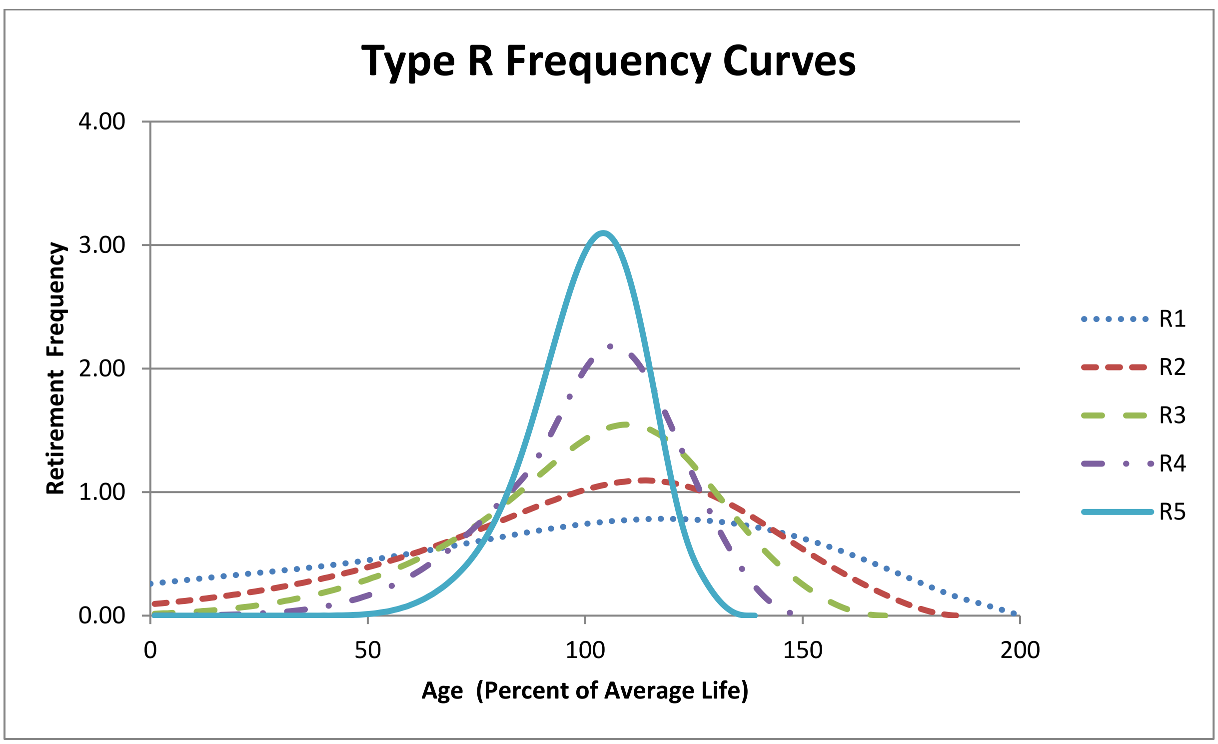


Figure 13:
Type R Survivor and Frequency Curves





As shown in the graphs above, the modes for the L family frequency curves occur to the left of average life (100% on the x-axis), while the S family modes occur at the average, and the R family modes occur after the average.

3. <u>Types of Lives</u>

Several other important statistical analyses and types of lives may be derived from an Iowa curve. These include: 1) average life; 2) realized life; 3) remaining life; and 4) probable life. The figure below illustrates these concepts. It shows the frequency curve, survivor curve, and probable life curve. Age M_x on the x-axis represents the modal age, while age AL_x represents the average age. Thus, this figure illustrates an "L type" Iowa curve since the mode occurs before the average.[88]

First, average life is the area under the survivor curve from age zero to maximum life. Because the survivor curve is measured in percent, the area under the curve must be divided by 100% to convert it from percent-years to years. The formula for average life is as follows:[89]

Equation 4:
Average Life

$$Average\ Life\ = \frac{Area\ Under\ Survivor\ Curve\ from\ Age\ 0\ to\ Max\ Life}{100\%}$$

Thus, average life may not be determined without a complete survivor curve. Many property groups being analyzed will not have experienced full retirement. This results in a "stub" survivor

[88] From age zero to age M_x on the survivor curve, it could be said that the percent surviving from this property group is decreasing at an increasing rate. Conversely, from point M_x to maximum on the survivor curve, the percent surviving is decreasing at a decreasing rate.

[89] *See* NARUC *supra* n. 11, at 71.

curve. Iowa curves are used to extend stub curves to maximum life in order for the average life calculation to be made (see Appendix C).

Realized life is similar to average life, except that realized life is the average years of service experienced to date from the vintage's original installations.[90] As shown in the figure below, realized life is the area under the survivor curve from zero to age RL_X. Likewise, unrealized life is the area under the survivor curve from age RL_X to maximum life. Thus, it could be said that average life equals realized life plus unrealized life.

Average remaining life represents the future years of service expected from the surviving property.[91] Remaining life is sometimes referred to as "average remaining life" and "life expectancy." To calculate average remaining life at age x, the area under the estimated future potion of the survivor curve is divided by the percent surviving at age x (denoted S_X). Thus, the average remaining life formula is:

Equation 5:
Average Remaining Life

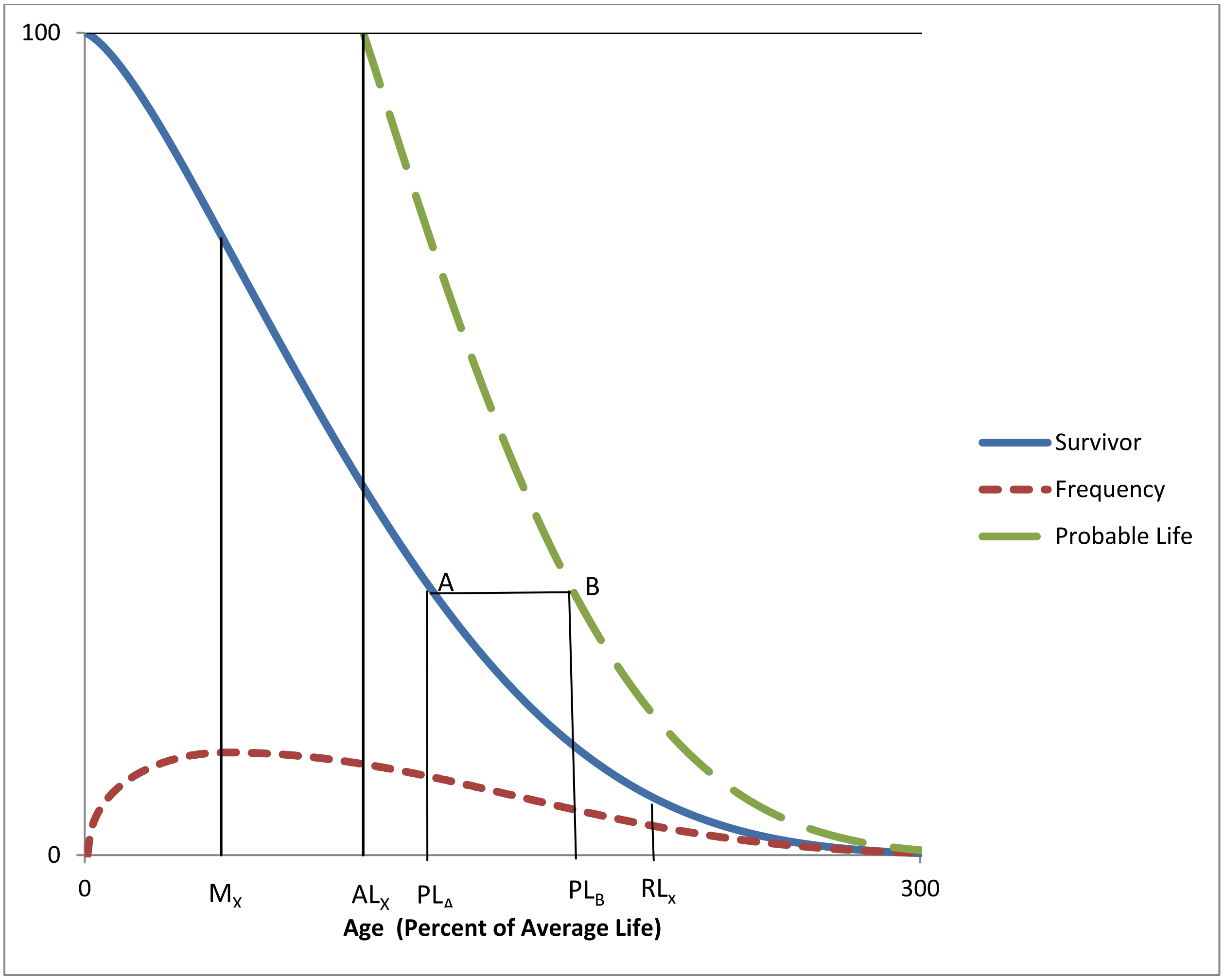
$$Average\ Remaining\ Life = \frac{Area\ Under\ Survivor\ Curve\ from\ Age\ x\ to\ Max\ Life}{S_X}$$

It is necessary to determine average remaining life in order to calculate the annual accrual under the remaining life technique.

[90] *Id*. at 73.

[91] *Id*. at 74.

Figure 14:
Iowa Curve Derivations



Finally, the probable life may also be determined from the Iowa curve. The probable life of a property group is the total life expectancy of the property surviving at any age and is equal to the remaining life plus the current age.[92] The probable life is also illustrated in this figure. The probable life at age PL_A is the age at point PL_B. Thus, to read the probable life at age PL_A, see the corresponding point on the survivor curve above at point "A," then horizontally to point "B" on

[92] Wolf *supra* n. 10, at 28.

the probable life curve, and back down to the age corresponding to point "B." It is no coincidence that the vertical line from AL_X connects at the top of the probable life curve. This is because at age zero, probable life equals average life.

APPENDIX C:

ACTUARIAL ANALYSIS

Actuarial science is a discipline that applies various statistical methods to assess risk probabilities and other related functions. Actuaries often study human mortality. The results from historical mortality data are used to predict how long similar groups of people who are alive will live today. Insurance companies rely of actuarial analysis in determining premiums for life insurance policies.

The study of human mortality is analogous to estimating service lives of industrial property groups. While some humans die solely from chance, most deaths are related to age; that is, death rates generally increase as age increases. Similarly, physical plant is also subject to forces of retirement. These forces include physical, functional, and contingent factors, as shown in the table below.[93]

Figure 15:
Forces of Retirement

Physical Factors	Functional Factors	Contingent Factors
Wear and tear Decay or deterioration Action of the elements	Inadequacy Obsolescence Changes in technology Regulations Managerial discretion	Casualties or disasters Extraordinary obsolescence

While actuaries study historical mortality data in order to predict how long a group of people will live, depreciation analysts must look at a utility's historical data in order to estimate the average lives of property groups. A utility's historical data is often contained in the Continuing Property Records ("CPR"). Generally, a CPR should contain 1) an inventory of property record

[93] NARUC *supra* n. 11, at 14-15.

units; 2) the association of costs with such units; and 3) the dates of installation and removal of plant. Since actuarial analysis includes the examination of historical data to forecast future retirements, the historical data used in the analysis should not contain events that are anomalous or unlikely to recur.[94] Historical data is used in the retirement rate actuarial method, which is discussed further below.

<u>The Retirement Rate Method</u>

There are several systematic actuarial methods that use historical data in order to calculating observed survivor curves for property groups. Of these methods, the retirement rate method is superior, and is widely employed by depreciation analysts.[95] The retirement rate method is ultimately used to develop an observed survivor curve, which can be fitted with an Iowa curve discussed in Appendix B in order to forecast average life. The observed survivor curve is calculated by using an observed life table ("OLT"). The figures below illustrate how the OLT is developed. First, historical property data are organized in a matrix format, with placement years on the left forming rows, and experience years on the top forming columns. The placement year (a.k.a. "vintage year" or "installation year") is the year of placement of a group of property. The experience year (a.k.a. "activity year") refers to the accounting data for a particular calendar year. The two matrices below use aged data – that is, data for which the dates of placements, retirements, transfers, and other transactions are known. Without aged data, the retirement rate actuarial method may not be employed. The first matrix is the exposure matrix, which shows the exposures

[94] *Id*. at 112-13.

[95] Anson Marston, Robley Winfrey & Jean C. Hempstead, *Engineering Valuation and Depreciation* 154 (2nd ed., McGraw-Hill Book Company, Inc. 1953).

at the beginning of each year.[96] An exposure is simply the depreciable property subject to retirement during a period. The second matrix is the retirement matrix, which shows the annual retirements during each year. Each matrix covers placement years 2003–2015, and experience years 2008-2015. In the exposure matrix, the number in the 2009 experience column and the 2003 placement row is $192,000. This means at the beginning of 2012, there was $192,000 still exposed to retirement from the vintage group placed in 2003. Likewise, in the retirement matrix, $19,000 of the dollars invested in 2003 was retired during 2012.

Figure 16:
Exposure Matrix

	Experience Years Exposures at January 1 of Each Year (Dollars in 000's)									
Placement Years	2008	2009	2010	2011	2012	2013	2014	2015	Total at Start of Age Interval	Age Interval
2003	261	245	228	211	**192**	173	152	131	131	11.5 - 12.5
2004	267	252	236	220	202	**184**	165	145	297	10.5 - 11.5
2005	304	291	277	263	248	232	**216**	198	536	9.5 - 10.5
2006	345	334	322	310	298	284	270	**255**	**847**	8.5 - 9.5
2007	367	357	347	335	324	312	299	286	1,201	7.5 - 8.5
2008	375	366	357	347	336	325	314	302	1,581	6.5 - 7.5
2009		377	366	356	346	336	327	319	1,986	5.5 - 6.5
2010			381	369	358	347	336	327	2,404	4.5 - 5.5
2011				386	372	359	346	334	2,559	3.5 - 4.5
2012					395	380	366	352	2,722	2.5 - 3.5
2013						401	385	370	2,866	1.5 - 2.5
2014							410	393	2,998	0.5 - 1.5
2015								416	3,141	0.0 - 0.5
Total	1919	2222	2514	2796	3070	3333	3586	3827	23,268	

[96] Technically, the last numbers in each column are "gross additions" rather than exposures. Gross additions do not include adjustments and transfers applicable to plant placed in a previous year. Once retirements, adjustments, and transfers are factored in, the balance at the beginning of the next account period is called an "exposure" rather than an addition.

Figure 17:
Retirement Matrix

Placement Years	Experience Years Retirments During the Year (Dollars in 000's) 2008	2009	2010	2011	2012	2013	2014	2015	Total During Age Interval	Age Interval
2003	16	17	18	19	**19**	20	21	23	23	11.5 - 12.5
2004	15	16	17	17	18	**19**	20	21	43	10.5 - 11.5
2005	13	14	14	15	16	17	**17**	18	59	9.5 - 10.5
2006	11	12	12	13	13	14	15	**15**	**71**	8.5 - 9.5
2007	10	11	11	12	12	13	13	14	82	7.5 - 8.5
2008	9	9	10	10	11	11	12	13	91	6.5 - 7.5
2009		11	10	10	9	9	9	8	95	5.5 - 6.5
2010			12	11	11	10	10	9	100	4.5 - 5.5
2011				14	13	13	12	11	93	3.5 - 4.5
2012					15	14	14	13	91	2.5 - 3.5
2013						16	15	14	93	1.5 - 2.5
2014							17	16	100	0.5 - 1.5
2015								18	112	0.0 - 0.5
Total	74	89	104	121	139	157	175	194	1,052	

These matrices help visualize how exposure and retirement data are calculated for each age interval. An age interval is typically one year. A common convention is to assume that any unit installed during the year is installed in the middle of the calendar year (i.e., July 1st). This convention is called the "half-year convention" and effectively assumes that all units are installed uniformly during the year.[97] Adoption of the half-year convention leads to age intervals of 0-0.5 years, 0.5-1.5 years, etc., as shown in the matrices.

The purpose of the matrices is to calculate the totals for each age interval, which are shown in the second column from the right in each matrix. This column is calculated by adding each number from the corresponding age interval in the matrix. For example, in the exposure matrix, the total amount of exposures at the beginning of the 8.5-9.5 age interval is $847,000. This number was calculated by adding the numbers shown on the "stairs" to the left (192+184+216+255=847).

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[97] Wolf *supra* n. 10, at 22.

The same calculation is applied to each number in the column. The amounts retired during the year in the retirements matrix affect the exposures at the beginning of each year in the exposures matrix. For example, the amount exposed to retirement in 2008 from the 2003 vintage is $261,000. The amount retired during 2008 from the 2003 vintage is $16,000. Thus, the amount exposed to retirement in 2009 from the 2003 vintage is $245,000 ($261,000 - $16,000). The company's property records may contain other transactions which affect the property, including sales, transfers, and adjusting entries. Although these transactions are not shown in the matrices above, they would nonetheless affect the amount exposed to retirement at the beginning of each year.

The totaled amounts for each age interval in both matrices are used to form the exposure and retirement columns in the OLT, as shown in the chart below. This chart also shows the retirement ratio and the survivor ratio for each age interval. The retirement ratio for an age interval is the ratio of retirements during the interval to the property exposed to retirement at the beginning of the interval. The retirement ratio represents the probability that the property surviving at the beginning of an age interval will be retired during the interval. The survivor ratio is simply the complement to the retirement ratio (1 – retirement ratio). The survivor ratio represents the probability that the property surviving at the beginning of an age interval will survive to the next age interval.

Figure 18:
Observed Life Table

Age at Start of Interval	Exposures at Start of Age Interval	Retirements During Age Interval	Retirement Ratio	Survivor Ratio	Percent Surviving at Start of Age Interval
A	B	C	D = C / B	E = 1 - D	F
0.0	3,141	112	0.036	0.964	**100.00**
0.5	2,998	100	0.033	0.967	**96.43**
1.5	2,866	93	0.032	0.968	**93.21**
2.5	2,722	91	0.033	0.967	**90.19**
3.5	2,559	93	0.037	0.963	**87.19**
4.5	2,404	100	0.042	0.958	**84.01**
5.5	1,986	95	0.048	0.952	**80.50**
6.5	1,581	91	0.058	0.942	**76.67**
7.5	1,201	82	0.068	0.932	**72.26**
8.5	847	71	0.084	0.916	**67.31**
9.5	536	59	0.110	0.890	**61.63**
10.5	297	43	0.143	0.857	**54.87**
11.5	131	23	0.172	0.828	**47.01**
					38.91
Total	23,268	1,052			

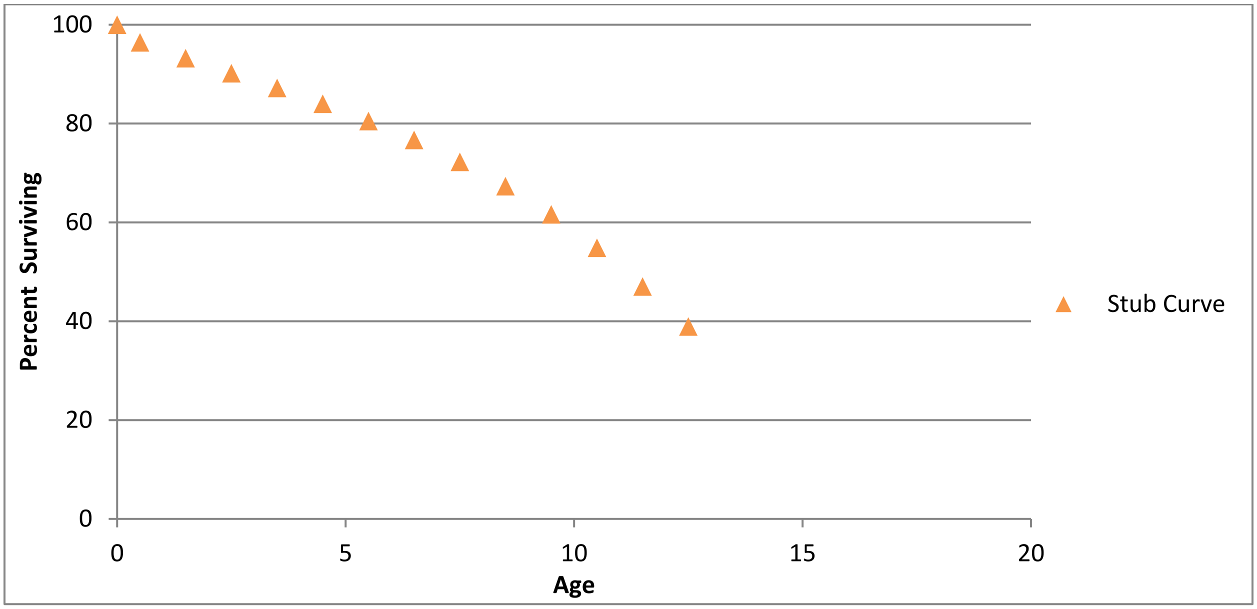
Column F on the right shows the percentages surviving at the beginning of each age interval. This column starts at 100% surviving. Each consecutive number below is calculated by multiplying the percent surviving from the previous age interval by the corresponding survivor ratio for that age interval. For example, the percent surviving at the start of age interval 1.5 is 93.21%, which was calculated by multiplying the percent surviving for age interval 0.5 (96.43%) by the survivor ratio for age interval 0.5 (0.967)[98].

The percentages surviving in Column F are the numbers that are used to form the original survivor curve. This particular curve starts at 100% surviving and ends at 38.91% surviving. An

[98] Multiplying 96.43 by 0.967 does not equal 93.21 exactly due to rounding.

observed survivor curve such as this that does not reach zero percent surviving is called a "stub" curve. The figure below illustrates the stub survivor curve derived from the OLT table above.

Figure 19:
Original "Stub" Survivor Curve



The matrices used to develop the basic OLT and stub survivor curve provide a basic illustration of the retirement rate method in that only a few placement and experience years were used. In reality, analysts may have several decades of aged property data to analyze. In that case, it may be useful to use a technique called "banding" in order to identify trends in the data.

<u>Banding</u>

The forces of retirement and characteristics of industrial property are constantly changing. A depreciation analyst may examine the magnitude of these changes. Analysts often use a technique called "banding" to assist with this process. Banding refers to the merging of several years of data into a single data set for further analysis, and it is a common technique associated with the retirement rate method.[99] There are three primary benefits of using bands in depreciation analysis:

1. Increasing the sample size. In statistical analyses, the larger the sample size in relation to the body of total data, the greater the reliability of the result;

2. Smooth the observed data. Generally, the data obtained from a single activity or vintage year will not produce an observed life table that can be easily fit; and

3. Identify trends. By looking at successive bands, the analyst may identify broad trends in the data that may be useful in projecting the future life characteristics of the property.[100]

Two common types of banding methods are the "placement band" method and the "experience band" method." A placement band, as the name implies, isolates selected placement years for analysis. The figure below illustrates the same exposure matrix shown above, except that only the placement years 2005-2008 are considered in calculating the total exposures at the beginning of each age interval.

[99] NARUC *supra* n. 11, at 113.

[100] *Id*.

Figure 20:
Placement Bands

Placement Years	2008	2009	2010	2011	2012	2013	2014	2015	Total at Start of Age Interval	Age Interval
	Experience Years Exposures at January 1 of Each Year (Dollars in 000's)									
2003	261	245	228	211	192	173	152	131		11.5 - 12.5
2004	267	252	236	220	202	184	165	145		10.5 - 11.5
2005	304	291	277	263	248	232	216	198	198	9.5 - 10.5
2006	345	334	322	310	298	284	270	255	471	8.5 - 9.5
2007	367	357	347	335	324	312	299	286	788	7.5 - 8.5
2008	375	366	357	347	336	325	314	302	1,133	6.5 - 7.5
2009		377	366	356	346	336	327	319	1,186	5.5 - 6.5
2010			381	369	358	347	336	327	1,237	4.5 - 5.5
2011				386	372	359	346	334	1,285	3.5 - 4.5
2012					395	380	366	352	1,331	2.5 - 3.5
2013						401	385	370	1,059	1.5 - 2.5
2014							410	393	733	0.5 - 1.5
2015								416	375	0.0 - 0.5
Total	1919	2222	2514	2796	3070	3333	3586	3827	9,796	

The shaded cells within the placement band equal the total exposures at the beginning of age interval 4.5–5.5 ($1,237). The same placement band would be used for the retirement matrix covering the same placement years of 2005 – 2008. This of course would result in a different OLT and original stub survivor curve than those that were calculated above without the restriction of a placement band.

Analysts often use placement bands for comparing the survivor characteristics of properties with different physical characteristics.[101] Placement bands allow analysts to isolate the effects of changes in technology and materials that occur in successive generations of plant. For example, if in 2005 an electric utility began placing transmission poles with a special chemical treatment that extended the service lives of the poles, an analyst could use placement bands to isolate and analyze the effect of that change in the property group's physical characteristics. While placement

[101] Wolf *supra* n. 10, at 182.

bands are very useful in depreciation analysis, they also possess an intrinsic dilemma. A fundamental characteristic of placement bands is that they yield fairly complete survivor curves for older vintages. However, with newer vintages, which are arguably more valuable for forecasting, placement bands yield shorter survivor curves. Longer "stub" curves are considered more valuable for forecasting average life. Thus, an analyst must select a band width broad enough to provide confidence in the reliability of the resulting curve fit yet narrow enough so that an emerging trend may be observed.[102]

Analysts also use "experience bands." Experience bands show the composite retirement history for all vintages during a select set of activity years. The figure below shows the same data presented in the previous exposure matrices, except that the experience band from 2011 – 2013 is isolated, resulting in different interval totals.

[102] NARUC *supra* n. 11, at 114.

Figure 21:
Experience Bands

Placement Years	Experience Years Exposures at January 1 of Each Year (Dollars in 000's) 2008	2009	2010	2011	2012	2013	2014	2015	Total at Start of Age Interval	Age Interval
2003	261	245	228	211	192	173	152	131		11.5 - 12.5
2004	267	252	236	220	202	184	165	145		10.5 - 11.5
2005	304	291	277	263	248	232	216	198	173	9.5 - 10.5
2006	345	334	322	310	298	284	270	255	376	8.5 - 9.5
2007	367	357	347	335	324	312	299	286	645	7.5 - 8.5
2008	375	366	357	347	336	325	314	302	752	6.5 - 7.5
2009		377	366	356	346	336	327	319	872	5.5 - 6.5
2010			381	369	358	347	336	327	959	4.5 - 5.5
2011				386	372	359	346	334	1,008	3.5 - 4.5
2012					395	380	366	352	1,039	2.5 - 3.5
2013						401	385	370	1,072	1.5 - 2.5
2014							410	393	1,121	0.5 - 1.5
2015								416	1,182	0.0 - 0.5
Total	1919	2222	2514	2796	3070	3333	3586	3827	9,199	

The shaded cells within the experience band equal the total exposures at the beginning of age interval 4.5–5.5 ($1,237). The same experience band would be used for the retirement matrix covering the same experience years of 2011 – 2013. This of course would result in a different OLT and original stub survivor than if the band had not been used. Analysts often use experience bands to isolate and analyze the effects of an operating environment over time.[103] Likewise, the use of experience bands allows analysis of the effects of an unusual environmental event. For example, if an unusually severe ice storm occurred in 2013, destruction from that storm would affect an electric utility's line transformers of all ages. That is, each of the line transformers from each placement year would be affected, including those recently installed in 2012, as well as those installed in 2003. Using experience bands, an analyst could isolate or even eliminate the 2013 experience year from the analysis. In contrast, a placement band would not effectively isolate the

[103] *Id.*

ice storm's effect on life characteristics. Rather, the placement band would show an unusually large rate of retirement during 2013, making it more difficult to accurately fit the data with a smooth Iowa curve. Experience bands tend to yield the most complete stub curves for recent bands because they have the greatest number of vintages included. Longer stub curves are better for forecasting. The experience bands, however, may also result in more erratic retirement dispersion making the curve fitting process more difficult.

Depreciation analysts must use professional judgment in determining the types of bands to use and the band widths. In practice, analysts may use various combinations of placement and experience bands in order to increase the data sample size, identify trends and changes in life characteristics, and isolate unusual events. Regardless of which bands are used, observed survivor curves in depreciation analysis rarely reach zero percent. This is because, as seen in the OLT above, relatively newer vintage groups have not yet been fully retired at the time the property is studied. An analyst could confine the analysis to older, fully retired vintage groups in order to get complete survivor curves, but such analysis would ignore some the property currently in service and would arguably not provide an accurate description of life characteristics for current plant in service. Because a complete curve is necessary to calculate the average life of the property group, however, curve fitting techniques using Iowa curves or other standardized curves may be employed in order to complete the stub curve.

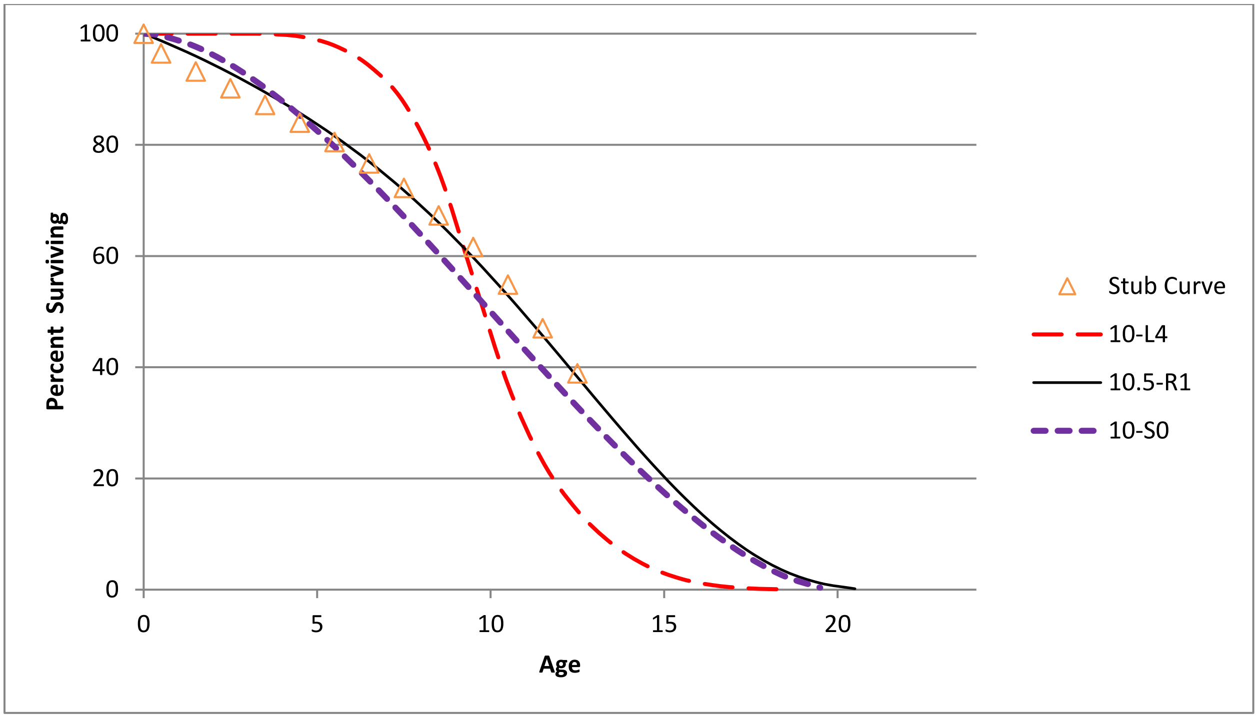
Curve Fitting

Depreciation analysts typically use the survivor curve rather than the frequency curve to fit the observed stub curves. The most commonly used generalized survivor curves used in the curve fitting process are the Iowa curves discussed above. As Wolf notes, if "the Iowa curves are adopted as a model, an underlying assumption is that the process describing the retirement pattern is one of the 22 [or more] processes described by the Iowa curves."[104]

Curve fitting may be done through visual matching or mathematical matching. In visual curve fitting, the analyst visually examines the plotted data to make an initial judgment about the Iowa curves that may be a good fit. The figure below illustrates the stub survivor curve shown above. It also shows three different Iowa curves: the 10-L4, the 10.5-R1, and the 10-S0. Visually, it is clear that the 10.5-R1 curve is a better fit than the other two curves.

[104] Wolf *supra* n. 10, at 46 (22 curves includes Winfrey's 18 original curves plus Cowles's four "O" type curves).

Figure 22:
Visual Curve Fitting



In mathematical fitting, the least squares method is used to calculate the best fit. This mathematical method would be excessively time consuming if done by hand. With the use of modern computer software however, mathematical fitting is an efficient and useful process. The typical logic for a computer program, as well as the software employed for the analysis in this testimony is as follows:

> First (an Iowa curve) curve is arbitrarily selected. . . . If the observed curve is a stub curve, . . . calculate the area under the curve and up to the age at final data point. Call this area the realized life. Then systematically vary the average life of the theoretical survivor curve and calculate its realized life at the age corresponding to the study date. This trial and error procedure ends when you find an average life such that the realized life of the theoretical curve equals the realized life of the observed curve. Call this the average life.
>
> Once the average life is found, calculate the difference between each percent surviving point on the observed survivor curve and the corresponding point on the Iowa curve. Square each difference and sum them. The sum of squares is used as a measure of goodness of fit for that particular Iowa type curve. This procedure is

> repeated for the remaining 21 Iowa type curves. The "best fit" is declared to be the type of curve that minimizes the sum of differences squared.[105]

Mathematical fitting requires less judgment from the analyst and is thus less subjective. Blind reliance on mathematical fitting, however, may lead to poor estimates. Thus, analysts should employ both mathematical and visual curve fitting in reaching their final estimates. This way, analysts may utilize the objective nature of mathematical fitting while still employing professional judgment. As Wolf notes: "The results of mathematical curve fitting serve as a guide for the analyst and speed the visual fitting process. But the results of the mathematical fitting should be checked visually and the final determination of the best fit be made by the analyst."[106]

In the graph above, visual fitting was sufficient to determine that the 10.5-R1 Iowa curve was a better fit than the 10-L4 and the 10-S0 curves. Using the sum of least squares method, mathematical fitting confirms the same result. In the chart below, the percentages surviving from the OLT that formed the original stub curve are shown in the left column, while the corresponding percentages surviving for each age interval are shown for the three Iowa curves. The right portion of the chart shows the differences between the points on each Iowa curve and the stub curve. These differences are summed at the bottom. Curve 10.5-R1 is the best fit because the sum of the squared differences for this curve is less than the same sum of the other two curves. Curve 10-L4 is the worst fit, which was also confirmed visually.

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[105] Wolf *supra* n. 10, at 47.

[106] *Id*. at 48.

Figure 23:
Mathematical Fitting

Age	Stub	Iowa Curves			Squared Differences		
Interval	Curve	10-L4	10-S0	10.5-R1	10-L4	10-S0	10.5-R1
0.0	100.0	100.0	100.0	100.0	0.0	0.0	0.0
0.5	96.4	100.0	99.7	98.7	12.7	10.3	5.3
1.5	93.2	100.0	97.7	96.0	46.1	19.8	7.6
2.5	90.2	100.0	94.4	92.9	96.2	18.0	7.2
3.5	87.2	100.0	90.2	89.5	162.9	9.3	5.2
4.5	84.0	99.5	85.3	85.7	239.9	1.6	2.9
5.5	80.5	97.9	79.7	81.6	301.1	0.7	1.2
6.5	76.7	94.2	73.6	77.0	308.5	9.5	0.1
7.5	72.3	87.6	67.1	71.8	235.2	26.5	0.2
8.5	67.3	75.2	60.4	66.1	62.7	48.2	1.6
9.5	61.6	56.0	53.5	59.7	31.4	66.6	3.6
10.5	54.9	36.8	46.5	52.9	325.4	69.6	3.9
11.5	47.0	23.1	39.6	45.7	572.6	54.4	1.8
12.5	38.9	14.2	32.9	38.2	609.6	36.2	0.4
SUM					**3004.2**	**371.0**	**41.0**

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EDUCATION

University of Oklahoma — Norman, OK
Master of Business Administration — 2014
Areas of Concentration: Finance, Energy

University of Oklahoma College of Law — Norman, OK
Juris Doctor — 2007
Member, American Indian Law Review

University of Oklahoma — Norman, OK
Bachelor of Business Administration — 2003
Major: Finance

PROFESSIONAL DESIGNATIONS

Society of Depreciation Professionals
Certified Depreciation Professional (CDP)

Society of Utility and Regulatory Financial Analysts
Certified Rate of Return Analyst (CRRA)

The Mediation Institute
Certified Civil / Commercial & Employment Mediator

WORK EXPERIENCE

Resolve Utility Consulting PLLC — Oklahoma City, OK
Managing Member — 2016 – Present
Provide expert analysis and testimony specializing in depreciation and cost of capital issues for clients in utility regulatory proceedings.

Oklahoma Corporation Commission — Oklahoma City, OK
Public Utility Regulatory Analyst — 2012 – 2016
Assistant General Counsel — 2011 – 2012
Represented commission staff in utility regulatory proceedings and provided legal opinions to commissioners. Provided expert analysis and testimony in depreciation, cost of capital, incentive compensation, payroll and other issues.

Perebus Counsel, PLLC — Oklahoma City, OK
Managing Member — 2009 – 2011
Represented clients in the areas of family law, estate planning, debt negotiations, business organization, and utility regulation.

Moricoli & Schovanec, P.C. — Oklahoma City, OK
Associate Attorney — 2007 – 2009
Represented clients in the areas of contracts, oil and gas, business structures and estate administration.

TEACHING EXPERIENCE

University of Oklahoma — Norman, OK
Adjunct Instructor – "Conflict Resolution" — 2014 – Present
Adjunct Instructor – "Ethics in Leadership"

Rose State College — Midwest City, OK
Adjunct Instructor – "Legal Research" — 2013 – 2015
Adjunct Instructor – "Oil & Gas Law"

PUBLICATIONS

American Indian Law Review — Norman, OK
"Vine of the Dead: Reviving Equal Protection Rites for Religious Drug Use" — 2006
(31 Am. Indian L. Rev. 143)

VOLUNTEER EXPERIENCE

Calm Waters — Oklahoma City, OK
Board Member — 2015 – Present
Participate in management of operations, attend meetings, review performance, compensation, and financial records. Assist in fundraising events.

Group Facilitator & Fundraiser — 2014 – Present
Facilitate group meetings designed to help children and families cope with divorce and tragic events. Assist in fundraising events.

St. Jude Children's Research Hospital — Oklahoma City, OK
Oklahoma Fundraising Committee — 2008 – 2010
Raised money for charity by organizing local fundraising events.

PROFESSIONAL ASSOCIATIONS

Oklahoma Bar Association — 2007 – Present

Society of Depreciation Professionals — 2014 – Present
Board Member – President — 2017
Participate in management of operations, attend meetings, review performance, organize presentation agenda.

Society of Utility Regulatory Financial Analysts — 2014 – Present

SELECTED CONTINUING PROFESSIONAL EDUCATION

Society of Depreciation Professionals — Austin, TX
"Life and Net Salvage Analysis" — 2015
Extensive instruction on utility depreciation, including actuarial and simulation life analysis modes, gross salvage, cost of removal, life cycle analysis, and technology forecasting.

Society of Depreciation Professionals — New Orleans, LA
"Introduction to Depreciation" and "Extended Training" — 2014
Extensive instruction on utility depreciation, including average lives and net salvage.

Society of Utility and Regulatory Financial Analysts — Indianapolis, IN
46th Financial Forum. "The Regulatory Compact: Is it Still Relevant?" — 2014
Forum discussions on current issues.

New Mexico State University, Center for Public Utilities — Santa Fe, NM
Current Issues 2012, "The Santa Fe Conference" — 2012
Forum discussions on various current issues in utility regulation.

Michigan State University, Institute of Public Utilities — Clearwater, FL
"39th Eastern NARUC Utility Rate School" — 2011
One-week, hands-on training emphasizing the fundamentals of the utility ratemaking process.

New Mexico State University, Center for Public Utilities — Albuquerque, NM
"The Basics: Practical Regulatory Training for the Changing Electric Industries" — 2010
One-week, hands-on training designed to provide a solid foundation in core areas of utility ratemaking.

The Mediation Institute — Oklahoma City, OK
"Civil / Commercial & Employment Mediation Training" — 2009
Extensive instruction and mock mediations designed to build foundations in conducting mediations in civil matters.

Utility Regulatory Proceedings

State	Regulatory Agency / Company-Applicant	Docket Number	Testimony / Analysis Issues	Type	Date
NM	New Mexico Public Regulation Commission Southwestern Public Service Company	17-00255-UT	Cost of capital, authorized ROE	Prefiled	4/13/2018
TX	Public Utility Commission of Texas Southwestern Public Service Company	PUC 47527	Depreciation rates	Prefiled	4/25/2018
MT	Public Service Commission of the State of Montana Montana-Dakota Utilities Co.	D2017.9.79	Depreciation rates, net salvage	Prefiled	2/6/2018
FL	Florida Public Service Commission Florida City Gas	20170179-GU	Cost of capital, authorized rate of return, and depreciation rates	Prefiled	2/1/2018
WA	Washington Utilities & Transportation Commission Avista Corporation	UE-170485 UG-170486	Cost of capital and authorized rate of return	Prefiled	10/27/2017
WY	Wyoming Public Services Commission Powder River Energy Corporation	PUD 201700151	Risk and credit analysis	Prefiled Live	8/28/2017 9/29/2017
OK	Oklahoma Corporation Commission Public Service Co. of Oklahoma	PUD 201700151	Depreciation rates, terminal salvage, risk analysis	Prefiled Live	9/21/2017 11/6/2017
TX	Public Utility Commission of Texas Oncor Electric Delivery Company	PUC 46957	Depreciation rates, simulated plant record analysis	Pending	
NV	Nevada Public Utilities Commission Nevada Power Company	17-06004 17-06006	Depreciation rates, net salvage	Prefiled	10/6/2017
TX	Public Utility Commission of Texas El Paso Electric Company	PUC 46831	Depreciation rates, interim retirements	Prefiled	6/23/2017
ID	Idaho Public Utilities Commission Idaho Power Company	IPC-E-16-24	Accelerated depreciation of North Valmy plant	Settled	5/31/2017
ID	Idaho Public Utilities Commission Idaho Power Company	IPC-E-16-23	Depreciation rates	Settled	5/31/2017
TX	Public Utility Commission of Texas	PUC 46449	Depreciation rates, decommissioning costs,	Prefiled	4/25/2017

Utility Regulatory Proceedings

State	Regulatory Agency / Company-Applicant	Docket Number	Testimony / Analysis Issues	Type	Date
	Southwestern Electric Power Company		terminal net salvage	Live	6/8/2017
MA	Massachusetts Department of Public Utilities Eversource Energy	D.P.U. 17-05	Cost of capital, capital structure, and rate of return	Prefiled	4/28/2017
TX	Railroad Commission of Texas Atmos Pipeline - Texas	GUD 10580	Depreciation rates, depreciation grouping procedure	Prefiled	3/22/2017
TX	Public Utility Commission of Texas Sharyland Utility Co.	PUC 45414	Depreciation rates, simulated and actuarial analysis	Prefiled	2/28/2017
OK	Oklahoma Corporation Commission Empire District Electric Co.	PUD 201600468	Cost of capital, depreciation rates, terminal salvage, lifespans	Prefiled Live	3/13/2017 5/11/2017
TX	Railroad Commission of Texas CenterPoint Energy Texas Gas	GUD 10567	Depreciation rates, simulated and actuarial analysis	Prefiled	2/21/2017
AR	Arkansas Public Service Commission Oklahoma Gas & Electric Co.	160-159-GU	Cost of capital, depreciation rates, terminal salvage, lifespans	Prefiled	1/31/2017
FL	Florida Public Service Commission Peoples Gas	16-159-GU	Depreciation rates	Report	11/4/2016
AZ	Arizona Corporation Commission Arizona Public Service Co.	E-01345A-16-0036	Cost of capital, depreciation rates, terminal salvage, lifespans	Pre-filed	12/28/2016
NV	Nevada Public Utilities Commission Sierra Pacific Power Co.	16-06008	Depreciation rates, terminal salvage, lifespans, theoretical reserve	Pre-filed	9/23/2016
OK	Oklahoma Corporation Commission Oklahoma Gas & Electric Co.	PUD 201500273	Cost of capital, depreciation rates, terminal salvage, lifespans	Pre-filed Live	3/21/2016 5/3/2016
OK	Oklahoma Corporation Commission Public Service Co. of Oklahoma	PUD 201500208	Cost of capital, depreciation rates, terminal salvage, lifespans	Pre-filed Live	10/14/2015 12/8/2015
OK	Oklahoma Corporation Commission Oklahoma Natural Gas Co.	PUD 201500213	Cost of capital and depreciation rates	Pre-filed	10/19/2015

Utility Regulatory Proceedings

State	Regulatory Agency / Company-Applicant	Docket Number	Testimony / Analysis: Issues	Type	Date
OK	Oklahoma Corporation Commission Oak Hills Water System	PUD 201500123	Cost of capital and depreciation rates	Pre-filed Live	7/8/2015 8/14/2015
OK	Oklahoma Corporation Commission CenterPoint Energy Oklahoma Gas	PUD 201400227	Fuel prudence review and fuel adjustment clause	Pre-filed Live	11/3/2014 2/10/2015
OK	Oklahoma Corporation Commission Public Service Co. of Oklahoma	PUD 201400233	Certificate of authority to issue new debt securities	Pre-filed Live	9/12/2014 9/25/2014
OK	Oklahoma Corporation Commission Empire District Electric Co.	PUD 201400226	Fuel prudence review and fuel adjustment clause	Pre-filed Live	12/9/2014 1/22/2015
OK	Oklahoma Corporation Commission Fort Cobb Fuel Authority	PUD 201400219	Fuel prudence review and fuel adjustment clause	Pre-filed Live	 1/29/2015
OK	Oklahoma Corporation Commission Fort Cobb Fuel Authority	PUD 201400140	Outside services, legislative advocacy, payroll expense, and insurance expense	Pre-filed	12/16/2014
OK	Oklahoma Corporation Commission Public Service Co. of Oklahoma	PUD 201300201	Authorization of standby and supplemental tariff	Pre-filed Live	12/9/2013 12/19/2013
OK	Oklahoma Corporation Commission Fort Cobb Fuel Authority	PUD 201300134	Fuel prudence review and fuel adjustment clause	Pre-filed Live	10/23/2013 1/30/2014
OK	Oklahoma Corporation Commission Empire District Electric Co.	PUD 201300131	Fuel prudence review and fuel adjustment clause	Pre-filed Live	11/21/2013 12/19/2013
OK	Oklahoma Corporation Commission CenterPoint Energy Oklahoma Gas	PUD 201300127	Fuel prudence review and fuel adjustment clause	Pre-filed Live	10/21/2013 1/23/2014
OK	Oklahoma Corporation Commission Oklahoma Gas & Electric Co.	PUD 201200185	Gas transportation contract extension	Pre-filed Live	9/20/2012 10/9/2012
OK	Oklahoma Corporation Commission Empire District Electric Co.	PUD 201200170	Fuel prudence review and fuel adjustment clause	Pre-filed Live	10/31/2012 12/13/2012

Utility Regulatory Proceedings

State	Regulatory Agency / Company-Applicant	Docket Number	Testimony / Analysis Issues	Type	Date
OK	Oklahoma Corporation Commission Oklahoma Gas & Electric Co.	PUD 201200169	Fuel prudence review and fuel adjustment clause	Pre-filed Live	12/19/2012 4/4/2013

Summary Expense Adjustment

Plant Function	Plant Balance 3/31/2018	OGE Proposed DD&A Expense	OIEC Proposed DD&A Expense	OIEC/OER Adjustment
Intangible	$ 101,496,748	$ 6,376,489	$ 6,292,358	$ (84,131)
Production	3,963,862,515	138,384,255	113,325,649	(25,058,606)
Transmission	2,744,839,297	66,687,070	61,607,348	(5,079,722)
Distribution	4,066,992,331	119,371,883	95,051,896	(24,319,987)
General	401,421,534	19,859,431	16,583,322	(3,276,108)
Total	$ 11,278,612,425	$ 350,679,128	$ 292,860,574	**$ (57,818,554)**

* See Exhibit DJG-3 for detailed calculations

Detailed Expense Adjustment

Account No.	Description	[1] Pro Forma Plant 3/31/2018	[2] OG&E Expense	[3] OIEC Proposal Rate	[3] OIEC Proposal Expense	[4] OIEC Adjustment
	INTANGIBLE PLANT					
301.00	Organization		-		-	-
302.00	Franchise and Consents	2,420,073	108,569	4.43%	107,177	(1,391)
303.00	Miscellaneous Intangible Plant	99,076,674	5,821,456	6.24%	6,185,181	363,725
	CWIP		446,464		-	(446,464)
	TOTAL INTANGIBLE PLANT	101,496,748	6,376,489		6,292,358	(84,131)
	STEAM PRODUCTION					
310.00	Land and Land Rights	940,063	28,459	3.16%	29,718	1,259
311.00	Structures and Improvements	262,126,816	7,072,112	1.51%	3,945,740	(3,126,372)
312.00	Boiler Plant Equipment	1,146,152,545	33,130,368	2.00%	22,950,607	(10,179,761)
313.00	Engines and Engine-Driven Generators		-		-	-
314.00	Turbogenerator Units	416,050,714	16,440,867	2.31%	9,590,350	(6,850,518)
315.00	Accessory Electric Equipment	143,830,592	3,906,032	1.85%	2,655,661	(1,250,371)
316.00	Miscellaneous Power Plant Equipment	34,046,372	1,340,260	2.25%	767,057	(573,203)
317.00	ARO Cost - Steam Production	11,527,007	1,223,015	10.61%	1,223,015	0
	TOTAL STEAM PRODUCTION	2,014,674,108	63,141,114		41,162,148	(21,978,966)
	OTHER PRODUCTION					
340.00	Land and Land Rights	10,816	-		-	
341.00	Structures and Improvements	97,635,838	1,919,376	2.81%	2,740,107	820,732
342.00	Fuel Holders, Producers and Accessories	22,442,293	356,744	2.22%	498,903	142,160
343.00	Prime movers	761,030,209	19,981,624	3.60%	27,375,599	7,393,975
344.00	Generators	876,277,499	35,226,894	4.01%	35,148,778	(78,116)
345.00	Accessory Electric Equipment	133,528,401	3,371,229	2.99%	3,991,890	620,662
346.00	Miscellaneous Power Plant Equipment	14,643,016	326,421	3.31%	484,566	158,145
347.00	ARO Cost - Other Production	43,620,335	1,923,657	4.41%	1,923,657	0
	TOTAL OTHER PRODUCTION	1,949,188,407	63,105,944		72,163,501	9,057,558
	CWIP		12,137,198		-	(12,137,198)
	TOTAL PRODUCTION PLANT	3,963,862,515	138,384,255		113,325,649	(25,058,606)

Detailed Expense Adjustment

		[1]	[2]	[3]		[4]
Account No.	Description	Pro Forma Plant 3/31/2018	OG&E Expense	OIEC Proposal Rate	OIEC Proposal Expense	OIEC Adjustment
	TRANSMISSION PLANT					
350.00	Land and Land Rights	123,741,943	1,580,999	1.35%	1,667,812	86,813
351.00	Clearing Land and Right of Ways		-		-	-
352.00	Structures and Improvements	6,707,757	107,240	1.60%	107,003	(238)
353.00	Station Equipment	800,618,716	17,286,870	2.10%	16,786,574	(500,295)
354.00	Towers and Fixtures	163,411,017	2,660,104	1.63%	2,658,104	(2,000)
355.00	Poles and Fixtures	1,010,510,905	25,558,875	2.66%	26,919,881	1,361,006
356.00	Overhead Conductors and Devices	639,153,408	14,854,165	2.10%	13,441,121	(1,413,045)
357.00	Underground Conduit		-		-	-
358.00	Underground Conductors and Devices	110,494	-		-	-
359.00	ARO Cost - Transmission	585,057	26,854	4.59%	26,854	(0)
	CWIP		4,611,963		-	(4,611,963)
	TOTAL TRANSMISSION PLANT	2,744,839,297	66,687,070		61,607,348	(5,079,722)
	DISTRIBUTION PLANT					
360.00	Land and Land Rights	5,484,854	71,949	1.34%	73,560	1,611
361.00	Structures and Improvements	7,429,586	105,563	1.42%	105,684	120
362.00	Station Equipment	641,824,278	13,680,021	1.90%	12,172,223	(1,507,798)
363.00	Storage Battery Equipment		-		-	-
364.00	Poles, Towers, and Fixtures	650,248,197	18,187,440	2.02%	13,106,405	(5,081,034)
365.00	Overhead Conductors and Devices	504,919,802	13,485,395	2.19%	11,054,205	
366.00	Underground Conduit	230,159,779	4,068,340	1.30%	3,001,316	
367.00	Underground Conductors and Devices	805,121,709	15,689,793	1.54%	12,376,117	(3,313,676)
368.00	Line Transformers	477,227,420	15,839,846	2.74%	13,060,508	(2,779,338)
369.00	Services	247,138,448	4,315,216	1.48%	3,664,541	(650,675)
370.00	Meters	191,461,749	13,447,921	7.11%	13,608,541	160,620
371.00	Installation on Customers' Premises	56,366,476	5,413,470	9.71%	5,475,038	61,568
372.00	Leased Property on Customer's Premises	-	-		-	-
373.00	Street Lighting and Signal Systems	249,610,034	13,380,137	2.95%	7,353,758	(6,026,379)
	CWIP		1,686,793		-	(1,686,793)

Detailed Expense Adjustment

Account No.	Description	[1] Pro Forma Plant 3/31/2018	[2] OG&E Expense	[3] OIEC Proposal Rate	[3] OIEC Proposal Expense	[4] OIEC Adjustment
	TOTAL DISTRIBUTION PLANT	4,066,992,331	119,371,883		95,051,896	(24,319,987)
	GENERAL PLANT					
389.00	Land and Land Rights	178,598	3,045	2.06%	3,671	625
390.00	Structures and Improvements	193,728,277	4,290,731	1.96%	3,790,153	(500,578)
391.00	Office Furniture and Equipment	45,868,166	5,539,501	6.70%	3,072,555	(2,466,946)
392.00	Transportation Equipment	89,313,602	4,795,711	5.51%	4,918,547	122,836
393.00	Stores Equipment	1,710,402	55,010	3.99%	68,247	13,237
394.00	Tools, Shop and Garage Equipment	11,813,177	470,350	4.01%	473,658	3,307
395.00	Laboratory Equipment	11,930,620	601,677	5.02%	598,392	(3,285)
396.00	Power Operated Equipment	12,751,042	575,682	4.58%	584,052	8,370
397.00	Communication Equipment	27,642,167	2,733,646	9.95%	2,749,036	15,390
398.00	Miscellaneous Equipment	6,485,483	319,104	5.01%	325,011	5,907
399.00	Other Tangible Property		-		-	-
	CWIP		474,972		-	(474,972)
	TOTAL GENERAL PLANT	401,421,534	19,859,431		16,583,322	(3,276,108)
						-
	TOTAL ELECTRIC PLANT IN SERVICE	**11,278,612,425**	**350,679,128**		**292,860,574**	**(57,818,554)**

[1] , [2] AG 12-3_Att 3, Sch I-1-1 and WP H2-21
[3] Rates from Exhibit DJG-5; expense = rate * plant
[4] = [3] - [2]

Detailed Rate Comparison

Account No.	Description	[1] Plant 12/31/2016	[2] OGE Proposal Rate	[2] OGE Proposal Annual Accrual	[3] OIEC Proposal Rate	[3] OIEC Proposal Annual Accrual	[4] OIEC Adjustment Rate	[4] OIEC Adjustment Annual Accrual
	Intangible Plant							
301.00	ORGANIZATION	80,900						
302.00	FRANCHISES AND CONSENTS	2,414,266	4.43%	107,032	4.43%	106,920	0.00%	-112
303.20	MISCELLANEOUS INTANGIBLE PLANT - SOFTWARE	78,991,152	6.24%	4,930,470	6.24%	4,931,277	0.00%	807
	TOTAL INTANGIBLE PLANT	81,486,318	6.18%	5,037,502	6.18%	5,038,198	0.00%	696
	Steam Production Plant							
310.10	LAND							
	HORSESHOE LAKE 6	116,199						
	MUSTANG 1	101,936						
	SEMINOLE 1	1,477,854						
	MUSKOGEE 4	1,880,432						
	SOONER 1	7,006,282						
	TOTAL LAND	10,582,703						
310.20	RIGHTS OF WAY							
	HORSESHOE LAKE 6	28,509	1.07%	304	2.00%	569	0.93%	265
	MUSTANG 4	27,941	0.00%	0	0.00%	0	0.00%	0
	SEMINOLE 1	78,916	2.11%	1,666	1.86%	1,465	-0.25%	-201
	MUSKOGEE 4	18,934	2.69%	510	2.94%	557	0.25%	47
	SOONER 1	813,704	3.19%	25,989	3.44%	28,010	0.25%	2,021
	TOTAL RIGHTS OF WAY	968,005	2.94%	28,469	3.16%	30,601	0.22%	2,132
311.00	STRUCTURES AND IMPROVEMENTS							
	HORSESHOE LAKE 6	15,801,688	8.43%	1,331,956	6.67%	1,053,454	-1.76%	-278,502
	HORSESHOE LAKE 7	2,757,683	1.76%	48,441	1.06%	29,222	-0.70%	-19,219
	HORSESHOE LAKE 8	4,972,755	2.07%	102,857	1.01%	50,222	-1.06%	-52,635
	MUSTANG 3	1,628,467	8.55%	139,238	-3.60%	-58,593	-12.15%	-197,831
	MUSTANG 4	11,263,217	4.31%	485,989	-7.83%	-882,299	-12.14%	-1,368,288
	SEMINOLE 1	19,334,385	3.56%	688,381	1.92%	371,686	-1.64%	-316,695
	SEMINOLE 2	2,515,483	3.70%	93,036	1.83%	46,156	-1.87%	-46,880

Detailed Rate Comparison

		[1]	[2]		[3]		[4]	
			OGE Proposal		OIEC Proposal		OIEC Adjustment	
Account No.	Description	Plant 12/31/2016	Rate	Annual Accrual	Rate	Annual Accrual	Rate	Annual Accrual
	SEMINOLE 3	7,193,504	2.96%	213,146	1.26%	90,973	-1.70%	-122,173
	MUSKOGEE 4	42,323,393	2.81%	1,190,805	2.51%	1,064,112	-0.30%	-126,693
	MUSKOGEE 5	7,062,478	2.29%	161,495	2.02%	142,609	-0.27%	-18,886
	MUSKOGEE 6	51,734,198	1.48%	766,680	1.25%	646,097	-0.23%	-120,583
	SOONER 1	92,130,299	1.76%	1,621,117	1.46%	1,344,910	-0.30%	-276,207
	SOONER 2	12,443,474	1.74%	216,757	1.47%	183,182	-0.27%	-33,575
	TOTAL STRUCTURES AND IMPROVEMENTS	271,161,023	2.60%	7,059,898	1.51%	4,081,731	-1.10%	-2,978,167
312.00	BOILER PLANT EQUIPMENT							
	HORSESHOE LAKE 6	17,172,926	4.41%	756,772	2.90%	498,191	-1.51%	-258,581
	HORSESHOE LAKE 7	14,425,034	2.26%	326,715	1.52%	219,581	-0.74%	-107,134
	HORSESHOE LAKE 8	18,937,831	3.20%	605,485	1.76%	332,920	-1.44%	-272,565
	MUSTANG 3	6,594,326	12.66%	834,552	0.51%	33,455	-12.15%	-801,097
	MUSTANG 4	17,554,423	10.39%	1,823,373	-1.76%	-309,193	-12.15%	-2,132,566
	SEMINOLE 1	51,896,789	5.93%	3,076,640	3.44%	1,786,804	-2.49%	-1,289,836
	SEMINOLE 2	42,764,010	5.56%	2,378,996	2.92%	1,250,716	-2.64%	-1,128,280
	SEMINOLE 3	48,100,089	3.55%	1,707,479	1.56%	747,971	-1.99%	-959,508
	MUSKOGEE 4	155,515,022	2.76%	4,287,449	2.45%	3,807,781	-0.31%	-479,668
	MUSKOGEE 5	127,323,629	2.53%	3,222,247	2.26%	2,871,559	-0.27%	-350,688
	MUSKOGEE 6	252,184,492	1.89%	4,766,683	1.65%	4,157,736	-0.24%	-608,947
	SOONER 1	230,629,199	2.31%	5,335,459	2.00%	4,618,900	-0.31%	-716,559
	SOONER 2	158,475,671	2.07%	3,280,169	1.79%	2,842,493	-0.28%	-437,676
	TOTAL BOILER PLANT EQUIPMENT	1,141,573,441	2.84%	32,402,019	2.00%	22,858,915	-0.84%	-9,543,104
314.00	TURBOGENERATOR UNITS							
	HORSESHOE LAKE 6	8,449,621	7.35%	621,147	5.35%	451,676	-2.00%	-169,471
	HORSESHOE LAKE 7	16,213,969	2.45%	397,596	1.55%	251,296	-0.90%	-146,300
	HORSESHOE LAKE 8	18,046,358	3.07%	553,811	1.60%	289,213	-1.47%	-264,598
	MUSTANG 3	9,011,273	10.20%	919,562	-1.94%	-175,154	-12.14%	-1,094,716
	MUSTANG 4	15,181,309	14.93%	2,266,363	2.78%	422,092	-12.15%	-1,844,271
	SEMINOLE 1	29,538,190	4.62%	1,365,593	2.50%	737,787	-2.12%	-627,806
	SEMINOLE 2	30,810,875	4.09%	1,259,513	1.95%	600,773	-2.14%	-658,740
	SEMINOLE 3	30,342,324	4.27%	1,294,643	1.91%	580,987	-2.36%	-713,656
	MUSKOGEE 4	65,638,797	3.83%	2,515,279	3.52%	2,308,380	-0.31%	-206,899
	MUSKOGEE 5	51,024,150	2.48%	1,264,489	2.19%	1,116,440	-0.29%	-148,049

Detailed Rate Comparison

		[1]	[2]		[3]		[4]	
			OGE Proposal		OIEC Proposal		OIEC Adjustment	
Account No.	Description	Plant 12/31/2016	Rate	Annual Accrual	Rate	Annual Accrual	Rate	Annual Accrual
	MUSKOGEE 6	89,914,590	2.72%	2,448,823	2.46%	2,215,442	-0.26%	-233,381
	SOONER 1	37,211,499	2.10%	783,093	1.78%	661,041	-0.32%	-122,052
	SOONER 2	41,787,368	2.11%	879,628	1.81%	755,508	-0.30%	-124,120
	TOTAL TURBOGENERATOR UNITS	443,170,321	3.74%	16,569,540	2.31%	10,215,481	-1.43%	-6,354,059
315.00	ACCESSORY ELECTRIC EQUIPMENT							
	HORSESHOE LAKE 6	3,007,723	8.07%	242,714	6.32%	190,176	-1.75%	-52,538
	HORSESHOE LAKE 7	2,213,598	3.48%	76,975	2.65%	58,732	-0.83%	-18,243
	HORSESHOE LAKE 8	2,542,690	3.43%	87,127	1.93%	49,153	-1.50%	-37,974
	MUSTANG 3	1,134,098	11.28%	127,883	-0.87%	-9,890	-12.15%	-137,773
	MUSTANG 4	3,011,442	9.10%	274,052	-3.05%	-91,788	-12.15%	-365,840
	SEMINOLE 1	3,652,325	4.43%	161,848	2.46%	89,985	-1.97%	-71,863
	SEMINOLE 2	2,058,361	3.53%	72,572	1.70%	35,059	-1.83%	-37,513
	SEMINOLE 3	5,153,154	3.23%	166,208	1.41%	72,406	-1.82%	-93,802
	MUSKOGEE 4	34,025,650	3.22%	1,094,083	2.92%	991,854	-0.30%	-102,229
	MUSKOGEE 5	11,579,336	2.06%	238,219	1.78%	205,537	-0.28%	-32,682
	MUSKOGEE 6	42,835,435	1.61%	690,684	1.37%	587,346	-0.24%	-103,338
	SOONER 1	23,980,815	1.78%	425,986	1.46%	349,341	-0.32%	-76,645
	SOONER 2	12,766,947	1.88%	240,443	1.60%	204,025	-0.28%	-36,418
	TOTAL ACCESSORY ELECTRIC EQUIPMENT	147,961,574	2.64%	3,898,794	1.85%	2,731,934	-0.79%	-1,166,860
316.00	MISCELLANEOUS POWER PLANT EQUIPMENT							
	HORSESHOE LAKE 6	1,929,002	7.70%	148,627	5.82%	112,237	-1.88%	-36,390
	HORSESHOE LAKE 7	1,039,114	2.02%	20,986	1.20%	12,475	-0.82%	-8,511
	HORSESHOE LAKE 8	2,197,415	2.49%	54,731	1.20%	26,451	-1.29%	-28,280
	MUSTANG 3	453,218	10.96%	49,687	-1.19%	-5,372	-12.15%	-55,059
	MUSTANG 4	1,953,391	8.24%	161,035	-3.90%	-76,269	-12.14%	-237,304
	SEMINOLE 1	3,832,690	4.06%	155,432	2.07%	79,215	-1.99%	-76,217
	SEMINOLE 2	39,168	7.63%	2,990	3.81%	1,493	-3.82%	-1,497
	SEMINOLE 3	401,384	3.91%	15,675	1.69%	6,767	-2.22%	-8,908
	MUSKOGEE 4	8,788,220	3.95%	347,014	3.61%	317,632	-0.34%	-29,382
	MUSKOGEE 5	835,596	1.85%	15,494	1.55%	12,910	-0.30%	-2,584
	MUSKOGEE 6	4,646,447	2.22%	102,976	1.94%	90,001	-0.28%	-12,975
	SOONER 1	5,614,583	2.91%	163,508	2.58%	144,579	-0.33%	-18,929
	SOONER 2	2,023,740	2.62%	53,113	2.30%	46,464	-0.32%	-6,649

Detailed Rate Comparison

Account No.	Description	[1] Plant 12/31/2016	[2] OGE Proposal Rate	[2] OGE Proposal Annual Accrual	[3] OIEC Proposal Rate	[3] OIEC Proposal Annual Accrual	[4] OIEC Adjustment Rate	[4] OIEC Adjustment Annual Accrual
	POWER SUPPLY SERVICES	1,448,198	1.69%	24,491	1.69%	24,514	0.00%	23
	TOTAL MISCELLANEOUS POWER PLANT EQUIPMENT	35,202,165	3.74%	1,315,759	2.25%	793,097	-1.48%	-522,662
	TOTAL STEAM PRODUCTION PLANT	2,050,619,232	2.99%	61,274,479	1.99%	40,711,759	-1.00%	-20,562,720
	Other Production Plant							
340.00	LAND							
	REDBUD 1	326,890						
	MCCLAIN GAS 1	527,699						
	TOTAL LAND	854,589						
341.00	STRUCTURES AND IMPROVEMENTS							
	REDBUD 1	32,437,692	2.40%	779,580	2.25%	729,564	-0.15%	-50,016
	REDBUD 2	154,023	3.14%	4,836	3.00%	4,619	-0.14%	-217
	REDBUD 3	137,828	3.13%	4,319	3.00%	4,135	-0.13%	-184
	REDBUD 4	169,811	3.07%	5,209	2.94%	4,992	-0.13%	-217
	HORSESHOE LAKE 9 AND 10	987,208	3.02%	29,770	2.88%	28,473	-0.14%	-1,297
	TINKER	972,164	1.40%	13,648	1.09%	10,569	-0.31%	-3,079
	MCCLAIN GAS 1	8,326,702	2.90%	241,251	2.79%	231,954	-0.11%	-9,297
	MCCLAIN GAS 2	959,632	2.40%	23,033	2.29%	21,941	-0.11%	-1,092
	MCCLAIN STEAM 1	528,864	2.39%	12,643	2.30%	12,158	-0.09%	-485
	MUSTANG SOLAR	700,769	4.20%	29,465	4.11%	28,792	-0.09%	-673
	TOTAL STRUCTURES AND IMPROVEMENTS	45,374,693	2.52%	1,143,754	2.37%	1,077,198	-0.15%	-66,556
341.00	STRUCTURES AND IMPROVEMENTS - WIND							
	CENTENNIAL WIND FARM	2,382,899	4.32%	102,969	4.04%	96,241	-0.28%	-6,728
	OU SPIRIT WIND FARM	5,209,833	4.08%	212,523	3.91%	203,862	-0.17%	-8,661
	CROSSROADS WIND FARM	11,586,653	3.94%	456,182	3.75%	434,381	-0.19%	-21,801
	TOTAL STRUCTURES AND IMPROVEMENTS - WIND	19,179,386	4.02%	771,674	3.83%	734,484	-0.19%	-37,190
342.00	FUEL HOLDERS, PRODUCERS AND ACCESSORIES							

Detailed Rate Comparison

		[1]	[2]		[3]		[4]	
			OGE Proposal		OIEC Proposal		OIEC Adjustment	
Account No.	Description	Plant 12/31/2016	Rate	Annual Accrual	Rate	Annual Accrual	Rate	Annual Accrual
	REDBUD 1	12,118,339	2.39%	289,637	2.21%	267,296	-0.18%	-22,341
	REDBUD 2	690,650	2.35%	16,210	2.16%	14,947	-0.19%	-1,263
	REDBUD 3	691,291	2.35%	16,226	2.16%	14,965	-0.19%	-1,261
	REDBUD 4	718,677	2.40%	17,221	2.22%	15,943	-0.18%	-1,278
	TINKER	167,150	4.30%	7,192	3.91%	6,539	-0.39%	-653
	MCCLAIN GAS 1	249,233	2.30%	5,737	2.15%	5,365	-0.15%	-372
	MCCLAIN GAS 2	166,187	2.39%	3,970	2.40%	3,990	0.01%	20
	TOTAL FUEL HOLDERS, PRODUCERS AND ACCESSORIES	14,801,529	2.41%	356,193	2.22%	329,045	-0.18%	-27,148
343.00	PRIME MOVERS							
	REDBUD 1	87,228,319	3.31%	2,890,874	3.08%	2,682,522	-0.23%	-208,352
	REDBUD 2	66,095,042	3.53%	2,336,362	3.28%	2,167,095	-0.25%	-169,267
	REDBUD 3	66,000,281	3.23%	2,129,256	2.96%	1,956,494	-0.27%	-172,762
	REDBUD 4	60,507,531	3.36%	2,033,786	3.10%	1,878,224	-0.26%	-155,562
	HORSESHOE LAKE 9 AND 10	5,529,837	3.85%	212,808	3.70%	204,487	-0.15%	-8,321
	TINKER	3,909,265	2.13%	83,126	1.80%	70,273	-0.33%	-12,853
	MCCLAIN GAS 1	81,288,521	3.80%	3,084,951	3.37%	2,742,286	-0.43%	-342,665
	MCCLAIN GAS 2	72,644,774	3.53%	2,565,685	3.32%	2,408,890	-0.21%	-156,795
	MCCLAIN STEAM 1	32,684,810	3.18%	1,039,658	3.10%	1,013,655	-0.08%	-26,003
343.10	LTSA 5-YEAR							
	REDBUD 1	2,129,176	18.96%	403,647	18.74%	398,996	-0.22%	-4,651
	REDBUD 2	1,786,505	22.51%	402,200	21.76%	388,662	-0.75%	-13,538
	REDBUD 3	1,908,402	17.20%	328,250	16.53%	315,405	-0.67%	-12,845
	REDBUD 4	2,141,159	19.70%	421,898	19.01%	407,001	-0.69%	-14,897
	MCCLAIN GAS 1	8,126,360	15.45%	1,255,893	7.58%	616,130	-7.87%	-639,763
	MCCLAIN GAS 2	7,601,183	3.94%	693,722	8.71%	661,703	4.77%	-32,019
343.20	LTSA 20-YEAR							
	REDBUD 1	1,490,678	4.57%	68,061	4.47%	66,704	-0.10%	-1,357
	REDBUD 2	1,490,678	6.05%	90,144	5.73%	85,437	-0.32%	-4,707
	REDBUD 3	1,490,678	3.83%	57,144	3.55%	52,964	-0.28%	-4,180
	REDBUD 4	1,490,678	4.88%	72,697	4.59%	68,375	-0.29%	-4,322
	TOTAL ACCOUNT 343	505,543,875	3.99%	20,170,162	3.60%	18,185,305	-0.39%	-1,984,857

Detailed Rate Comparison

		[1]	[2]		[3]		[4]	
			OGE Proposal		OIEC Proposal		OIEC Adjustment	
Account No.	Description	Plant 12/31/2016	Rate	Annual Accrual	Rate	Annual Accrual	Rate	Annual Accrual
344.00	GENERATORS							
	REDBUD 1	717,739	2.91%	20,901	3.03%	21,725	0.12%	824
	REDBUD 3	23,199	3.10%	719	2.95%	685	-0.15%	-34
	REDBUD 4	23,035	3.10%	714	2.95%	679	-0.15%	-35
	HORSESHOE LAKE 9 AND 10	34,611,185	3.70%	1,281,586	3.56%	1,232,544	-0.14%	-49,042
	TINKER	3,314,013	3.51%	116,407	3.20%	106,049	-0.31%	-10,358
	MUSTANG SOLAR	4,750,812	4.42%	209,903	4.30%	204,441	-0.12%	-5,462
	TOTAL GENERATORS	43,439,983	3.75%	1,630,230	3.61%	1,566,124	-0.15%	-64,106
344.00	GENERATORS - WIND							
	CENTENNIAL WIND FARM	186,823,660	4.34%	8,109,100	4.02%	7,510,782	-0.32%	-598,318
	OU SPIRIT WIND FARM	243,118,184	4.40%	10,693,114	4.23%	10,272,871	-0.17%	-420,243
	CROSSROADS WIND FARM	359,048,689	4.14%	14,880,455	3.91%	14,040,234	-0.23%	-840,221
	TOTAL GENERATORS - WIND	788,990,533	4.27%	33,682,669	4.03%	31,823,888	-0.24%	-1,858,781
345.00	ACCESSORY ELECTRIC EQUIPMENT							
	REDBUD 1	12,859,566	2.20%	282,777	2.05%	263,458	-0.15%	-19,319
	REDBUD 2	9,277,991	2.18%	201,908	2.03%	188,314	-0.15%	-13,594
	REDBUD 3	9,105,045	2.16%	196,729	2.02%	183,689	-0.14%	-13,040
	REDBUD 4	9,344,182	2.12%	198,198	1.97%	184,136	-0.15%	-14,062
	HORSESHOE LAKE 9 AND 10	4,302,451	3.04%	130,727	2.90%	124,574	-0.14%	-6,153
	TINKER	3,023,751	1.84%	55,619	1.51%	45,589	-0.33%	-10,030
	MCCLAIN GAS 1	4,116,839	2.72%	112,136	2.60%	107,120	-0.12%	-5,016
	MCCLAIN GAS 2	3,955,059	2.57%	101,775	2.45%	96,742	-0.12%	-5,033
	MCCLAIN STEAM 1	2,217,821	2.34%	52,002	2.25%	49,946	-0.09%	-2,056
	MUSTANG SOLAR	1,319,569	4.21%	55,546	4.13%	54,439	-0.08%	-1,107
	TOTAL ACCESSORY ELECTRIC EQUIPMENT	59,522,275	2.33%	1,387,417	2.18%	1,298,007	-0.15%	-89,410
345.00	ACCESSORY ELECTRIC EQUIPMENT - WIND							
	CENTENNIAL WIND FARM	1,036,194	4.91%	50,851	4.64%	48,028	-0.27%	-2,823
	OU SPIRIT WIND FARM	1,294,504	5.33%	69,005	5.18%	67,069	-0.15%	-1,936
	CROSSROADS WIND FARM	43,987,182	4.17%	1,834,964	3.98%	1,751,034	-0.19%	-83,930
	TOTAL ACCESSORY ELECTRIC EQUIPMENT - WIND	46,317,879	4.22%	1,954,820	4.03%	1,866,131	-0.19%	-88,689

Detailed Rate Comparison

Account No.	Description	[1] Plant 12/31/2016	[2] OGE Proposal Rate	OGE Proposal Annual Accrual	[3] OIEC Proposal Rate	OIEC Proposal Annual Accrual	[4] OIEC Adjustment Rate	OIEC Adjustment Annual Accrual
346.00	MISCELLANEOUS POWER PLANT EQUIPMENT							
	REDBUD 1	2,527,996	3.02%	76,370	2.86%	72,327	-0.16%	-4,043
	REDBUD 2	15,973	3.26%	521	3.11%	496	-0.15%	-25
	REDBUD 3	4,914	3.48%	171	3.33%	164	-0.15%	-7
	REDBUD 4	4,914	3.48%	171	3.33%	164	-0.15%	-7
	HORSESHOE LAKE 9 AND 10	941,452	3.15%	29,693	3.01%	28,334	-0.14%	-1,359
	TINKER	8,664	2.63%	228	2.29%	199	-0.34%	-29
	MCCLAIN GAS 1	4,254,965	3.05%	129,674	2.90%	123,281	-0.15%	-6,393
	TOTAL MISCELLANEOUS POWER PLANT EQUIPMENT	7,758,877	3.05%	236,828	2.90%	224,964	-0.15%	-11,864
346.00	MISCELLANEOUS POWER PLANT EQUIPMENT - WIND							
	CENTENNIAL WIND FARM	871,840	6.06%	52,815	5.79%	50,483	-0.27%	-2,332
	OU SPIRIT WIND FARM	307,018	5.44%	16,716	5.29%	16,246	-0.15%	-470
	CROSSROADS WIND FARM	316,686	4.79%	15,167	4.60%	14,554	-0.19%	-613
	TOTAL MISCELLANEOUS POWER PLANT EQUIPMENT - WIND	1,495,543	5.66%	84,698	5.44%	81,283	-0.23%	-3,415
	TOTAL OTHER PRODUCTION PLANT	1,533,279,164	4.01%	61,418,445	3.73%	57,186,429	-0.28%	-4,232,016
	Transmission Plant							
350.10	LAND	3,737,687						
350.20	LAND RIGHTS	113,308,500	1.35%	1,526,876	1.35%	1,527,188	0.00%	312
352.00	STRUCTURES AND IMPROVEMENTS	6,702,508	1.60%	106,993	1.60%	106,919	0.00%	-74
353.00	STATION EQUIPMENT	667,860,982	2.34%	15,619,120	2.11%	14,112,195	-0.23%	-1,506,925
353.10	STATION EQUIPMENT - STEP UP TRANSFORMERS	53,026,203	2.27%	1,203,074	1.89%	1,002,647	-0.38%	-200,427
354.00	TOWERS AND FIXTURES	161,794,747	1.63%	2,630,663	1.63%	2,631,813	0.00%	1,150
355.00	POLES AND FIXTURES	903,252,386	2.79%	25,185,996	2.66%	24,062,528	-0.13%	-1,123,468
356.00	OVERHEAD CONDUCTORS AND DEVICES	589,353,755	2.49%	14,650,645	2.10%	12,393,855	-0.39%	-2,256,790
358.00	UNDERGROUND CONDUCTORS AND DEVICES	110,494	0.00%	0	0.00%	0	0.00%	0
	TOTAL TRANSMISSION PLANT	2,499,147,261	2.44%	60,923,367	2.23%	55,837,146	-0.20%	-5,086,221

Detailed Rate Comparison

		[1]	[2]		[3]		[4]	
			OGE Proposal		OIEC Proposal		OIEC Adjustment	
Account No.	Description	Plant 12/31/2016	Rate	Annual Accrual	Rate	Annual Accrual	Rate	Annual Accrual
	Distribution Plant							
360.10	LAND	8,067,505						
360.20	LAND RIGHTS	5,107,131	1.34%	68,501	1.34%	68,495	0.00%	-6
361.00	STRUCTURES AND IMPROVEMENTS	7,281,947	1.42%	103,572	1.42%	103,583	0.00%	11
362.00	STATION EQUIPMENT	615,608,481	2.16%	13,310,342	1.90%	11,675,039	-0.26%	-1,635,303
364.00	POLES, TOWERS AND FIXTURES	616,505,091	2.85%	17,569,271	2.02%	12,426,279	-0.83%	-5,142,992
365.00	OVERHEAD CONDUCTORS AND DEVICES	484,430,648	2.69%	13,040,215	2.19%	10,605,636	-0.50%	-2,434,579
366.00	UNDERGROUND CONDUIT	218,229,722	1.80%	3,927,259	1.30%	2,845,746	-0.50%	-1,081,513
367.00	UNDERGROUND CONDUCTORS AND DEVICES	764,422,264	1.98%	15,107,139	1.54%	11,750,496	-0.44%	-3,356,643
368.00	LINE TRANSFORMERS	455,509,839	3.37%	15,337,358	2.74%	12,466,152	-0.63%	-2,871,206
369.00	SERVICES	244,430,624	1.76%	4,298,910	1.48%	3,624,390	-0.28%	-674,520
370.00	METERS - SMART METERS	143,337,370	7.11%	10,189,577	7.11%	10,188,001	0.00%	-1,576
370.10	METERS - METERING EQUIPMENT	37,150,057	7.31%	2,715,071	7.28%	2,705,144	-0.03%	-9,927
371.00	INSTALLATIONS ON CUSTOMERS' PREMISES	53,726,326	9.75%	5,236,668	9.71%	5,218,593	-0.04%	-18,075
373.00	STREET LIGHTING AND SIGNAL SYSTEMS	239,244,991	5.43%	12,981,879	2.95%	7,048,393	-2.48%	-5,933,486
	TOTAL DISTRIBUTION PLANT	3,893,051,995	2.93%	113,885,762	2.33%	90,725,948	-0.59%	-23,159,814
	General Plant							
389.10	LAND	3,002,965						
389.20	LAND RIGHTS	147,826	2.06%	3,038	2.06%	3,038	0.00%	0
390.00	STRUCTURES AND IMPROVEMENTS	178,876,850	2.33%	4,174,936	1.96%	3,499,596	-0.37%	-675,340
391.00	OFFICE FURNITURE AND EQUIPMENT	13,996,151	6.67%	933,878	6.70%	937,555	0.03%	3,677
391.10	COMPUTER EQUIPMENT	16,150,015	20.00%	3,230,541	19.92%	3,216,984	-0.08%	-13,557
392.10	CARS AND TRUCKS	22,222,369	6.08%	1,351,045	6.11%	1,357,876	0.03%	6,831
392.50	HEAVY TRUCKS	59,365,922	5.49%	3,256,893	5.49%	3,260,778	0.00%	3,885
392.60	TRAILERS	6,184,111	3.47%	214,760	3.48%	215,018	0.01%	258
393.00	STORES EQUIPMENT	1,386,202	4.00%	55,408	3.99%	55,311	-0.01%	-97
394.00	TOOLS, SHOP AND GARAGE EQUIPMENT	11,609,251	4.00%	464,079	4.01%	465,481	0.01%	1,402
395.00	LABORATORY EQUIPMENT	12,071,163	5.00%	603,434	5.02%	605,442	0.02%	2,008
396.00	POWER OPERATED EQUIPMENT	12,650,956	4.58%	579,926	4.58%	579,468	0.00%	-458
397.00	COMMUNICATION EQUIPMENT	26,562,653	10.00%	2,656,107	9.95%	2,641,677	-0.05%	-14,430
398.00	MISCELLANEOUS EQUIPMENT	6,239,362	5.00%	312,247	5.01%	312,677	0.01%	430

Detailed Rate Comparison

		[1]	[2]		[3]		[4]	
			OGE Proposal		OIEC Proposal		OIEC Adjustment	
Account No.	Description	Plant 12/31/2016	Rate	Annual Accrual	Rate	Annual Accrual	Rate	Annual Accrual
	TOTAL GENERAL PLANT	370,465,796	4.81%	17,836,292	4.63%	17,150,902	-0.19%	-685,390
	Unrecovered Reserve for Amortization							
391.00	OFFICE FURNITURE AND EQUIPMENT			843,600		843,600		
393.00	STORES EQUIPMENT			6,600		6,600		
394.00	TOOLS, SHOP AND GARAGE EQUIPMENT			117,000		117,000		
395.00	LABORATORY EQUIPMENT			338,600		338,600		
397.00	COMMUNICATION EQUIPMENT			102,000		102,000		
398.00	MISCELLANEOUS EQUIPMENT			-256,600		-256,600		
	TOTAL UNRECOVERED RESERVE FOR AMORTIZATION			1,151,200		1,151,200		
	Accounts Not Studied							
314.00	TURBOGENERATOR UNITS	0						
317.00	ARO FOR STEAM PRODUCTION	9,103,934						
347.00	ARO FOR OTHER PRODUCTION	43,620,335						
359.00	ARO FOR TRANSMISSION	585,057						
	TOTAL ACCOUNTS NOT STUDIED	53,309,326						
	TOTAL DEPRECIABLE PLANT	**10,481,359,092**	**3.07%**	**321,527,047**	**2.56%**	**267,801,581**	**-0.51%**	**-53,725,466**

[1], [2] Depreciation Study
[3] Exhibit DJG-5
[4] = [3] - [2]

Depreciation Rate Development

Account No.	Description	[1] Original Cost	[2] Iowa Curve Type	[2] Iowa Curve AL	[3] Net Salvage	[4] Depreciable Base	[5] Book Reserve	[6] Future Accruals	[7] Remaining Life	[8] Service Life Accrual	[9] Service Life Rate	[10] Net Salvage Accrual	[11] Net Salvage Rate	[12] Total Accrual	[13] Total Rate
	Intangible Plant														
301.00	ORGANIZATION	80,900													
302.00	FRANCHISES AND CONSENTS	2,414,266	SQ	25	0%	2,414,266	1,387,832	1,026,434	9.60	106,920	4.43%	0	0.00%	106,920	**4.43%**
303.20	MISCELLANEOUS INTANGIBLE PLANT - SOFTWARE	78,991,152	SQ	10	0%	78,991,152	42,499,699	36,491,453	7.40	4,931,277	6.24%	0	0.00%	4,931,277	**6.24%**
	TOTAL INTANGIBLE PLANT	81,486,318				81,405,418	43,887,531	37,517,887	7.45	5,038,198	6.18%	0	0.00%	5,038,198	**6.18%**
	Steam Production Plant														
310.10	LAND														
	HORSESHOE LAKE 6	116,199													
	MUSTANG 1	101,936													
	SEMINOLE 1	1,477,854													
	MUSKOGEE 4	1,880,432													
	SOONER 1	7,006,282													
	TOTAL LAND	10,582,703													
310.20	RIGHTS OF WAY														
	HORSESHOE LAKE 6	28,509	S4	100	-8%	30,652	26,384	4,268	7.50	283	0.99%	286	1.00%	569	**2.00%**
	MUSTANG 4	27,941	S4	100	-10%	30,694	27,941								
	SEMINOLE 1	78,916	S4	100	-9%	85,650	55,613	30,037	20.50	1,137	1.44%	328	0.42%	1,465	**1.86%**
	MUSKOGEE 4	18,934	S4	100	-6%	20,165	5,739	14,426	25.90	509	2.69%	48	0.25%	557	**2.94%**
	SOONER 1	813,704	S4	100	-7%	870,406	86,129	784,277	28.00	25,985	3.19%	2,025	0.25%	28,010	**3.44%**
	TOTAL RIGHTS OF WAY	968,005				1,037,567	201,806	833,008	27.22	27,914	2.88%	2,687	0.28%	30,601	**3.16%**
311.00	STRUCTURES AND IMPROVEMENTS														
	HORSESHOE LAKE 6	15,801,688	R1.5	105	-8%	16,989,490	9,088,582	7,900,908	7.50	895,081	5.66%	158,374	1.00%	1,053,454	**6.67%**
	HORSESHOE LAKE 7	2,757,683	R1.5	105	-9%	2,999,558	2,634,285	365,273	12.50	9,872	0.36%	19,350	0.70%	29,222	**1.06%**
	HORSESHOE LAKE 8	4,972,755	R1.5	105	-8%	5,394,152	4,465,046	929,106	18.50	27,444	0.55%	22,778	0.46%	50,222	**1.01%**
	MUSTANG 3	1,628,467	R1.5	105	-10%	1,788,899	1,847,492	-58,593	1.00	-219,025	-13.45%	160,432	9.85%	-58,593	**-3.60%**
	MUSTANG 4	11,263,217	R1.5	105	-10%	12,372,837	13,255,136	-882,299	1.00	-1,991,919	-17.69%	1,109,619	9.85%	-882,299	**-7.83%**
	SEMINOLE 1	19,334,385	R1.5	105	-9%	20,984,249	13,364,689	7,619,560	20.50	291,205	1.51%	80,481	0.42%	371,686	**1.92%**
	SEMINOLE 2	2,515,483	R1.5	105	-9%	2,738,018	1,699,503	1,038,515	22.50	36,266	1.44%	9,890	0.39%	46,156	**1.83%**
	SEMINOLE 3	7,193,504	R1.5	105	-9%	7,808,238	5,579,398	2,228,840	24.50	65,882	0.92%	25,091	0.35%	90,973	**1.26%**
	MUSKOGEE 4	42,323,393	R1.5	105	-6%	45,073,774	18,364,553	26,709,221	25.10	954,535	2.26%	109,577	0.26%	1,064,112	**2.51%**
	MUSKOGEE 5	7,062,478	R1.5	105	-7%	7,566,078	3,872,506	3,693,572	25.90	123,165	1.74%	19,444	0.28%	142,609	**2.02%**
	MUSKOGEE 6	51,734,198	R1.5	105	-8%	55,762,687	35,669,065	20,093,622	31.10	516,564	1.00%	129,533	0.25%	646,097	**1.25%**
	SOONER 1	92,130,299	R1.5	105	-7%	98,550,274	62,641,184	35,909,090	26.70	1,104,461	1.20%	240,449	0.26%	1,344,910	**1.46%**
	SOONER 2	12,443,474	R1.5	105	-8%	13,393,010	8,373,828	5,019,182	27.40	148,527	1.19%	34,655	0.28%	183,182	**1.47%**
	TOTAL STRUCTURES AND IMPROVEMENTS	271,161,023				291,421,263	180,855,267	110,565,996	27.09	1,962,057	0.72%	2,119,673	0.78%	4,081,731	**1.51%**
312.00	BOILER PLANT EQUIPMENT														
	HORSESHOE LAKE 6	17,172,926	R0.5	85	-8%	18,463,803	14,727,368	3,736,435	7.50	326,074	1.90%	172,117	1.00%	498,191	**2.90%**
	HORSESHOE LAKE 7	14,425,034	R0.5	85	-9%	15,690,244	12,945,476	2,744,768	12.50	118,365	0.82%	101,217	0.70%	219,581	**1.52%**
	HORSESHOE LAKE 8	18,937,831	R0.5	85	-8%	20,542,646	14,383,618	6,159,028	18.50	246,174	1.30%	86,747	0.46%	332,920	**1.76%**
	MUSTANG 3	6,594,326	R0.5	85	-10%	7,243,980	7,210,525	33,455	1.00	-616,199	-9.34%	649,654	9.85%	33,455	**0.51%**
	MUSTANG 4	17,554,423	R0.5	85	-10%	19,283,833	19,593,026	-309,193	1.00	-2,038,603	-11.61%	1,729,411	9.85%	-309,193	**-1.76%**
	SEMINOLE 1	51,896,789	R0.5	85	-9%	56,325,306	19,695,832	36,629,474	20.50	1,570,778	3.03%	216,025	0.42%	1,786,804	**3.44%**
	SEMINOLE 2	42,764,010	R0.5	85	-9%	46,547,185	18,406,076	28,141,109	22.50	1,082,575	2.53%	168,141	0.39%	1,250,716	**2.92%**
	SEMINOLE 3	48,100,089	R0.5	85	-9%	52,210,571	33,885,282	18,325,289	24.50	580,196	1.21%	167,775	0.35%	747,971	**1.56%**
	MUSKOGEE 4	155,515,022	R0.5	85	-6%	165,621,147	73,853,627	91,767,520	24.10	3,388,440	2.18%	419,341	0.27%	3,807,781	**2.45%**
	MUSKOGEE 5	127,323,629	R0.5	85	-7%	136,402,614	64,613,632	71,788,982	25.00	2,508,400	1.97%	363,159	0.29%	2,871,559	**2.26%**
	MUSKOGEE 6	252,184,492	R0.5	85	-8%	271,821,844	147,921,300	123,900,544	29.80	3,498,765	1.39%	658,972	0.26%	4,157,736	**1.65%**
	SOONER 1	230,629,199	R0.5	85	-7%	246,700,283	127,532,675	119,167,608	25.80	3,995,989	1.73%	622,910	0.27%	4,618,900	**2.00%**
	SOONER 2	158,475,671	R0.5	85	-8%	170,568,625	95,242,564	75,326,061	26.50	2,386,155	1.51%	456,338	0.29%	2,842,493	**1.79%**
	TOTAL BOILER PLANT EQUIPMENT	1,141,573,441				1,227,422,081	650,011,001	577,411,080	25.26	17,047,108	1.49%	5,811,806	0.51%	22,858,915	**2.00%**
314.00	TURBOGENERATOR UNITS														
	HORSESHOE LAKE 6	8,449,621	R1	55	-8%	9,084,773	5,697,207	3,387,566	7.50	366,989	4.34%	84,687	1.00%	451,676	**5.35%**
	HORSESHOE LAKE 7	16,213,969	R1	55	-9%	17,636,085	14,494,884	3,141,201	12.50	137,527	0.85%	113,769	0.70%	251,296	**1.55%**
	HORSESHOE LAKE 8	18,046,358	R1	55	-8%	19,575,628	14,225,179	5,350,449	18.50	206,550	1.14%	82,663	0.46%	289,213	**1.60%**

Depreciation Rate Development

		[1]	[2]		[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
			Iowa Curve							Service Life		Net Salvage		Total	
Account No.	Description	Original Cost	Type	AL	Net Salvage	Depreciable Base	Book Reserve	Future Accruals	Remaining Life	Accrual	Rate	Accrual	Rate	Accrual	Rate
	MUSTANG 3	9,011,273	R1	55	-10%	9,899,038	10,074,192	-175,154	1.00	-1,062,919	-11.80%	887,764	9.85%	-175,154	**-1.94%**
	MUSTANG 4	15,181,309	R1	55	-10%	16,676,927	16,254,835	422,092	1.00	-1,073,526	-7.07%	1,495,618	9.85%	422,092	**2.78%**
	SEMINOLE 1	29,538,190	R1	55	-9%	32,058,777	16,934,138	15,124,639	20.50	614,832	2.08%	122,955	0.42%	737,787	**2.50%**
	SEMINOLE 2	30,810,875	R1	55	-9%	33,536,601	20,019,208	13,517,393	22.50	479,630	1.56%	121,143	0.39%	600,773	**1.95%**
	SEMINOLE 3	30,342,324	R1	55	-9%	32,935,283	18,701,111	14,234,172	24.50	475,152	1.57%	105,835	0.35%	580,987	**1.91%**
	MUSKOGEE 4	65,638,797	R1	55	-6%	69,904,326	15,657,396	54,246,930	23.50	2,126,868	3.24%	181,512	0.28%	2,308,380	**3.52%**
	MUSKOGEE 5	51,024,150	R1	55	-7%	54,662,496	27,979,579	26,682,917	23.90	964,208	1.89%	152,232	0.30%	1,116,440	**2.19%**
	MUSKOGEE 6	89,914,590	R1	55	-8%	96,916,148	35,105,304	61,810,844	27.90	1,964,491	2.18%	250,952	0.28%	2,215,442	**2.46%**
	SOONER 1	37,211,499	R1	55	-7%	39,804,532	23,807,349	15,997,183	24.20	553,891	1.49%	107,150	0.29%	661,041	**1.78%**
	SOONER 2	41,787,368	R1	55	-8%	44,976,076	26,088,367	18,887,709	25.00	627,960	1.50%	127,548	0.31%	755,508	**1.81%**
	TOTAL TURBOGENERATOR UNITS	443,170,321				477,666,691	245,038,749	232,627,942	22.77	6,381,651	1.44%	3,833,831	0.87%	10,215,481	**2.31%**
315.00	ACCESSORY ELECTRIC EQUIPMENT														
	HORSESHOE LAKE 6	3,007,723	R2	75	-8%	3,233,811	1,807,495	1,426,316	7.50	160,030	5.32%	30,145	1.00%	190,176	**6.32%**
	HORSESHOE LAKE 7	2,213,598	R2	75	-9%	2,407,752	1,673,604	734,148	12.50	43,200	1.95%	15,532	0.70%	58,732	**2.65%**
	HORSESHOE LAKE 8	2,542,690	R2	75	-8%	2,758,161	1,848,836	909,325	18.50	37,506	1.48%	11,647	0.46%	49,153	**1.93%**
	MUSTANG 3	1,134,098	R2	75	-10%	1,245,826	1,255,716	-9,890	1.00	-121,618	-10.72%	111,728	9.85%	-9,890	**-0.87%**
	MUSTANG 4	3,011,442	R2	75	-10%	3,308,121	3,399,909	-91,788	1.00	-388,467	-12.90%	296,679	9.85%	-91,788	**-3.05%**
	SEMINOLE 1	3,652,325	R2	75	-9%	3,963,990	2,119,306	1,844,684	20.50	74,781	2.05%	15,203	0.42%	89,985	**2.46%**
	SEMINOLE 2	2,058,361	R2	75	-9%	2,240,457	1,451,621	788,836	22.50	26,966	1.31%	8,093	0.39%	35,059	**1.70%**
	SEMINOLE 3	5,153,154	R2	75	-9%	5,593,526	3,819,574	1,773,952	24.50	54,432	1.06%	17,974	0.35%	72,406	**1.41%**
	MUSKOGEE 4	34,025,650	R2	75	-6%	36,236,803	11,936,372	24,300,431	24.50	901,603	2.65%	90,251	0.27%	991,854	**2.92%**
	MUSKOGEE 5	11,579,336	R2	75	-7%	12,405,016	7,348,814	5,056,202	24.60	171,972	1.49%	33,564	0.29%	205,537	**1.78%**
	MUSKOGEE 6	42,835,435	R2	75	-8%	46,170,987	28,726,824	17,444,163	29.70	475,037	1.11%	112,308	0.26%	587,346	**1.37%**
	SOONER 1	23,980,815	R2	75	-7%	25,651,885	16,848,495	8,803,390	25.20	283,029	1.18%	66,312	0.28%	349,341	**1.46%**
	SOONER 2	12,766,947	R2	75	-8%	13,741,167	8,416,117	5,325,050	26.10	166,698	1.31%	37,326	0.29%	204,025	**1.60%**
	TOTAL ACCESSORY ELECTRIC EQUIPMENT	147,961,574				158,957,501	90,652,683	68,304,818	25.00	1,885,170	1.27%	846,764	0.57%	2,731,934	**1.85%**
316.00	MISCELLANEOUS POWER PLANT EQUIPMENT														
	HORSESHOE LAKE 6	1,929,002	R0.5	50	-8%	2,074,004	1,232,226	841,778	7.50	92,904	4.82%	19,334	1.00%	112,237	**5.82%**
	HORSESHOE LAKE 7	1,039,114	R0.5	50	-9%	1,130,254	974,318	155,936	12.50	5,184	0.50%	7,291	0.70%	12,475	**1.20%**
	HORSESHOE LAKE 8	2,197,415	R0.5	50	-8%	2,383,626	1,894,288	489,338	18.50	16,385	0.75%	10,065	0.46%	26,451	**1.20%**
	MUSTANG 3	453,218	R0.5	50	-10%	497,867	503,239	-5,372	1.00	-50,021	-11.04%	44,650	9.85%	-5,372	**-1.19%**
	MUSTANG 4	1,953,391	R0.5	50	-10%	2,145,834	2,222,103	-76,269	1.00	-268,712	-13.76%	192,442	9.85%	-76,269	**-3.90%**
	SEMINOLE 1	3,832,690	R0.5	50	-9%	4,159,746	2,535,838	1,623,908	20.50	63,261	1.65%	15,954	0.42%	79,215	**2.07%**
	SEMINOLE 2	39,168	R0.5	50	-9%	42,634	9,047	33,587	22.50	1,339	3.42%	154	0.39%	1,493	**3.81%**
	SEMINOLE 3	401,384	R0.5	50	-9%	435,685	269,886	165,799	24.50	5,367	1.34%	1,400	0.35%	6,767	**1.69%**
	MUSKOGEE 4	8,788,220	R0.5	50	-6%	9,359,321	2,180,836	7,178,485	22.60	292,362	3.33%	25,270	0.29%	317,632	**3.61%**
	MUSKOGEE 5	835,596	R0.5	50	-7%	895,179	604,694	290,485	22.50	10,262	1.23%	2,648	0.32%	12,910	**1.55%**
	MUSKOGEE 6	4,646,447	R0.5	50	-8%	5,008,261	2,677,241	2,331,020	25.90	76,031	1.64%	13,970	0.30%	90,001	**1.94%**
	SOONER 1	5,614,583	R0.5	50	-7%	6,005,828	2,521,464	3,484,364	24.10	128,345	2.29%	16,234	0.29%	144,579	**2.58%**
	SOONER 2	2,023,740	R0.5	50	-8%	2,178,167	1,132,737	1,045,430	22.50	39,600	1.96%	6,863	0.34%	46,464	**2.30%**
	POWER SUPPLY SERVICES	1,448,198	R0.5	50	-5%	1,520,607	407,685	1,112,922	45.40	22,919	1.58%	1,595	0.11%	24,514	**1.69%**
	TOTAL MISCELLANEOUS POWER PLANT EQUIPMENT	35,202,165				37,837,013	19,165,602	18,671,411	23.54	435,226	1.24%	357,871	1.02%	793,097	**2.25%**
	TOTAL STEAM PRODUCTION PLANT	2,050,619,232				2,194,342,116	1,185,925,108	1,008,414,255	24.77	27,739,127	1.35%	12,972,632	0.63%	40,711,759	**1.99%**
	Other Production Plant														
340.00	LAND														
	REDBUD 1	326,890													
	MCCLAIN GAS 1	527,699													
	TOTAL LAND	854,589													
341.00	STRUCTURES AND IMPROVEMENTS														
	REDBUD 1	32,437,692	R4	45	-5%	34,193,966	12,744,773	21,449,193	29.40	669,827	2.06%	59,737	0.18%	729,564	**2.25%**
	REDBUD 2	154,023	R4	45	-6%	162,526	15,180	147,346	31.90	4,352	2.83%	267	0.17%	4,619	**3.00%**
	REDBUD 3	137,828	R4	45	-6%	145,425	13,918	131,507	31.80	3,897	2.83%	239	0.17%	4,135	**3.00%**
	REDBUD 4	169,811	R4	45	-6%	179,161	20,412	158,749	31.80	4,698	2.77%	294	0.17%	4,992	**2.94%**
	HORSESHOE LAKE 9 AND 10	987,208	R4	45	-2%	1,002,339	486,971	515,368	18.10	27,637	2.80%	836	0.08%	28,473	**2.88%**
	TINKER	972,164	R4	45	-3%	1,002,487	908,421	94,066	8.90	7,162	0.74%	3,407	0.35%	10,569	**1.09%**
	MCCLAIN GAS 1	8,326,702	R4	45	-5%	8,761,560	2,127,680	6,633,880	28.60	216,749	2.60%	15,205	0.18%	231,954	**2.79%**

Depreciation Rate Development

		[1]	[2]		[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
			Iowa Curve							Service Life		Net Salvage		Total	
Account No.	Description	Original Cost	Type	AL	Net Salvage	Depreciable Base	Book Reserve	Future Accruals	Remaining Life	Accrual	Rate	Accrual	Rate	Accrual	Rate
	MCCLAIN GAS 2	959,632	R4	45	-5%	1,010,837	429,409	581,428	26.50	20,008	2.09%	1,932	0.20%	21,941	**2.29%**
	MCCLAIN STEAM 1	528,864	R4	45	-5%	557,762	231,920	325,842	26.80	11,080	2.10%	1,078	0.20%	12,158	**2.30%**
	MUSTANG SOLAR	700,769	R4	45	-2%	714,280	43,435	670,845	23.30	28,212	4.03%	580	0.08%	28,792	**4.11%**
	TOTAL STRUCTURES AND IMPROVEMENTS	45,374,693				47,730,344	17,022,119	30,708,225	28.51	993,623	2.19%	83,575	0.18%	1,077,198	**2.37%**
341.00	STRUCTURES AND IMPROVEMENTS - WIND														
	CENTENNIAL WIND FARM	2,382,899	S3	45	2%	2,332,091	898,101	1,433,990	14.90	99,651	4.18%	-3,410	-0.14%	96,241	**4.04%**
	OU SPIRIT WIND FARM	5,209,833	S3	45	1%	5,166,890	1,517,760	3,649,130	17.90	206,261	3.96%	-2,399	-0.05%	203,862	**3.91%**
	CROSSROADS WIND FARM	11,586,653	S3	45	1%	11,471,540	2,436,409	9,035,131	20.80	439,916	3.80%	-5,534	-0.05%	434,381	**3.75%**
	TOTAL STRUCTURES AND IMPROVEMENTS - WIND	19,179,386				18,970,521	4,852,270	14,118,251	19.22	745,828	3.89%	-11,343	-0.06%	734,484	**3.83%**
342.00	FUEL HOLDERS, PRODUCERS AND ACCESSORIES														
	REDBUD 1	12,118,339	R4	55	-5%	12,774,463	5,022,892	7,751,571	29.00	244,671	2.02%	22,625	0.19%	267,296	**2.21%**
	REDBUD 2	690,650	R4	55	-6%	728,778	295,311	433,467	29.00	13,632	1.97%	1,315	0.19%	14,947	**2.16%**
	REDBUD 3	691,291	R4	55	-6%	729,393	295,404	433,989	29.00	13,651	1.97%	1,314	0.19%	14,965	**2.16%**
	REDBUD 4	718,677	R4	55	-6%	758,248	295,892	462,356	29.00	14,579	2.03%	1,365	0.19%	15,943	**2.22%**
	TINKER	167,150	R4	55	-3%	172,364	113,509	58,855	9.00	5,960	3.57%	579	0.35%	6,539	**3.91%**
	MCCLAIN GAS 1	249,233	R4	55	-5%	262,250	106,662	155,588	29.00	4,916	1.97%	449	0.18%	5,365	**2.15%**
	MCCLAIN GAS 2	166,187	R4	55	-5%	175,055	60,151	114,904	28.80	3,682	2.22%	308	0.19%	3,990	**2.40%**
	TOTAL FUEL HOLDERS, PRODUCERS AND ACCESSORIES	14,801,529				15,600,551	6,189,821	9,410,730	28.60	301,091	2.03%	27,954	0.19%	329,045	**2.22%**
343.00	PRIME MOVERS														
	REDBUD 1	87,228,319	R2	35	-5%	91,951,122	27,034,084	64,917,038	24.20	2,487,365	2.85%	195,157	0.22%	2,682,522	**3.08%**
	REDBUD 2	66,095,042	R2	35	-6%	69,743,898	17,516,902	52,226,996	24.10	2,015,690	3.05%	151,405	0.23%	2,167,095	**3.28%**
	REDBUD 3	66,000,281	R2	35	-6%	69,638,037	21,899,581	47,738,456	24.40	1,807,406	2.74%	149,088	0.23%	1,956,494	**2.96%**
	REDBUD 4	60,507,531	R2	35	-6%	63,839,132	18,573,923	45,265,209	24.10	1,739,984	2.88%	138,241	0.23%	1,878,224	**3.10%**
	HORSESHOE LAKE 9 AND 10	5,529,837	R2	35	-2%	5,614,594	2,261,014	3,353,580	16.40	199,318	3.60%	5,168	0.09%	204,487	**3.70%**
	TINKER	3,909,265	R2	35	-3%	4,031,199	3,426,848	604,351	8.60	56,095	1.43%	14,178	0.36%	70,273	**1.80%**
	MCCLAIN GAS 1	81,288,521	R2	35	-5%	85,533,779	21,364,293	64,169,486	23.40	2,560,864	3.15%	181,421	0.22%	2,742,286	**3.37%**
	MCCLAIN GAS 2	72,644,774	R2	35	-5%	76,521,048	21,598,347	54,922,701	22.80	2,238,878	3.08%	170,012	0.23%	2,408,890	**3.32%**
	MCCLAIN STEAM 1	32,684,810	R2	35	-5%	34,470,757	12,879,902	21,590,855	21.30	929,808	2.84%	83,847	0.26%	1,013,655	**3.10%**
343.10	LTSA 5-YEAR														
	REDBUD 1	2,129,176	SQ	5	0%	2,129,176	1,131,686	997,490	2.50	398,996	18.74%	0	0.00%	398,996	**18.74%**
	REDBUD 2	1,786,505	SQ	5	0%	1,786,505	814,851	971,654	2.50	388,662	21.76%	0	0.00%	388,662	**21.76%**
	REDBUD 3	1,908,402	SQ	5	0%	1,908,402	1,119,889	788,513	2.50	315,405	16.53%	0	0.00%	315,405	**16.53%**
	REDBUD 4	2,141,159	SQ	5	0%	2,141,159	1,123,655	1,017,504	2.50	407,001	19.01%	0	0.00%	407,001	**19.01%**
	MCCLAIN GAS 1	8,126,360	SQ	5	0%	8,126,360	6,770,874	1,355,486	2.20	616,130	7.58%	0	0.00%	616,130	**7.58%**
	MCCLAIN GAS 2	7,601,183	SQ	5	0%	7,601,183	5,946,925	1,654,258	2.50	661,703	8.71%	0	0.00%	661,703	**8.71%**
343.20	LTSA 20-YEAR														
	REDBUD 1	1,490,678	SQ	20	0%	1,490,678	990,395	500,283	7.50	66,704	4.47%	0	0.00%	66,704	**4.47%**
	REDBUD 2	1,490,678	SQ	20	0%	1,490,678	849,899	640,779	7.50	85,437	5.73%	0	0.00%	85,437	**5.73%**
	REDBUD 3	1,490,678	SQ	20	0%	1,490,678	1,093,451	397,227	7.50	52,964	3.55%	0	0.00%	52,964	**3.55%**
	REDBUD 4	1,490,678	SQ	20	0%	1,490,678	977,864	512,814	7.50	68,375	4.59%	0	0.00%	68,375	**4.59%**
	TOTAL ACCOUNT 343	505,543,875				530,999,063	167,374,383	363,624,680	20.00	17,096,787	3.38%	1,088,518	0.22%	18,185,305	**3.60%**
344.00	GENERATORS														
	REDBUD 1	717,739	R2	50	-5%	756,600	109,183	647,417	29.80	20,421	2.85%	1,304	0.18%	21,725	**3.03%**
	REDBUD 3	23,199	R2	50	-6%	24,477	3,787	20,690	30.20	643	2.77%	42	0.18%	685	**2.95%**
	REDBUD 4	23,035	R2	50	-6%	24,303	3,795	20,508	30.20	637	2.77%	42	0.18%	679	**2.95%**
	HORSESHOE LAKE 9 AND 10	34,611,185	R2	50	-2%	35,141,679	13,202,403	21,939,276	17.80	1,202,741	3.48%	29,803	0.09%	1,232,544	**3.56%**
	TINKER	3,314,013	R2	50	-3%	3,417,381	2,484,146	933,235	8.80	94,303	2.85%	11,746	0.35%	106,049	**3.20%**
	MUSTANG SOLAR	4,750,812	S2.5	30	-2%	4,842,412	324,265	4,518,147	22.10	200,296	4.22%	4,145	0.09%	204,441	**4.30%**
	TOTAL GENERATORS	43,439,983				44,206,852	16,127,579	28,079,273	17.93	1,519,041	3.50%	47,083	0.11%	1,566,124	**3.61%**
344.00	GENERATORS - WIND														
	CENTENNIAL WIND FARM	186,823,660	R2.5	40	2%	182,840,161	75,435,982	107,404,179	14.30	7,789,348	4.17%	-278,566	-0.15%	7,510,782	**4.02%**
	OU SPIRIT WIND FARM	243,118,184	R2.5	40	1%	241,114,249	65,448,147	175,666,102	17.10	10,390,061	4.27%	-117,189	-0.05%	10,272,871	**4.23%**
	CROSSROADS WIND FARM	359,048,689	R2.5	40	1%	355,481,538	76,080,872	279,400,666	19.90	14,219,488	3.96%	-179,254	-0.05%	14,040,234	**3.91%**
	TOTAL GENERATORS - WIND	788,990,533				779,435,949	216,965,001	562,470,948	17.67	32,398,897	4.11%	-575,009	-0.07%	31,823,888	**4.03%**

Depreciation Rate Development

Account No.	Description	[1] Original Cost	[2] Iowa Curve Type	AL	[3] Net Salvage	[4] Depreciable Base	[5] Book Reserve	[6] Future Accruals	[7] Remaining Life	[8] Service Life Accrual	[9] Service Life Rate	[10] Net Salvage Accrual	[11] Net Salvage Rate	[12] Total Accrual	[13] Total Rate
345.00	ACCESSORY ELECTRIC EQUIPMENT														
	REDBUD 1	12,859,566	R2.5	50	-5%	13,555,822	5,862,856	7,692,966	29.20	239,613	1.86%	23,844	0.19%	263,458	**2.05%**
	REDBUD 2	9,277,991	R2.5	50	-6%	9,790,194	4,291,428	5,498,766	29.20	170,773	1.84%	17,541	0.19%	188,314	**2.03%**
	REDBUD 3	9,105,045	R2.5	50	-6%	9,606,890	4,261,535	5,345,355	29.10	166,444	1.83%	17,246	0.19%	183,689	**2.02%**
	REDBUD 4	9,344,182	R2.5	50	-6%	9,858,682	4,316,192	5,542,490	30.10	167,043	1.79%	17,093	0.18%	184,136	**1.97%**
	HORSESHOE LAKE 9 AND 10	4,302,451	R2.5	50	-2%	4,368,396	2,138,515	2,229,881	17.90	120,890	2.81%	3,684	0.09%	124,574	**2.90%**
	TINKER	3,023,751	R2.5	50	-3%	3,118,065	2,721,440	396,625	8.70	34,748	1.15%	10,841	0.36%	45,589	**1.51%**
	MCCLAIN GAS 1	4,116,839	R2.5	50	-5%	4,331,840	1,418,175	2,913,665	27.20	99,216	2.41%	7,904	0.19%	107,120	**2.60%**
	MCCLAIN GAS 2	3,955,059	R2.5	50	-5%	4,166,099	1,554,078	2,612,021	27.00	88,925	2.25%	7,816	0.20%	96,742	**2.45%**
	MCCLAIN STEAM 1	2,217,821	R2.5	50	-5%	2,339,006	1,015,431	1,323,575	26.50	45,373	2.05%	4,573	0.21%	49,946	**2.25%**
	MUSTANG SOLAR	1,319,569	R2.5	50	-2%	1,345,012	82,022	1,262,990	23.20	53,343	4.04%	1,097	0.08%	54,439	**4.13%**
	TOTAL ACCESSORY ELECTRIC EQUIPMENT	59,522,275				62,480,004	27,661,672	34,818,332	26.82	1,186,368	1.99%	111,639	0.19%	1,298,007	**2.18%**
345.00	ACCESSORY ELECTRIC EQUIPMENT - WIND														
	CENTENNIAL WIND FARM	1,036,194	R3	35	2%	1,014,100	312,894	701,206	14.60	49,541	4.78%	-1,513	-0.15%	48,028	**4.64%**
	OU SPIRIT WIND FARM	1,294,504	R3	35	1%	1,283,834	110,123	1,173,711	17.50	67,679	5.23%	-610	-0.05%	67,069	**5.18%**
	CROSSROADS WIND FARM	43,987,182	R3	35	1%	43,550,169	8,879,698	34,670,471	19.80	1,773,105	4.03%	-22,071	-0.05%	1,751,034	**3.98%**
	TOTAL ACCESSORY ELECTRIC EQUIPMENT - WIND	46,317,879				45,848,102	9,302,715	36,545,387	19.58	1,890,325	4.08%	-24,194	-0.05%	1,866,131	**4.03%**
346.00	MISCELLANEOUS POWER PLANT EQUIPMENT														
	REDBUD 1	2,527,996	R2	40	-5%	2,664,869	697,566	1,967,303	27.20	67,295	2.66%	5,032	0.20%	72,327	**2.86%**
	REDBUD 2	15,973	R2	40	-6%	16,854	2,769	14,085	28.40	465	2.91%	31	0.19%	496	**3.11%**
	REDBUD 3	4,914	R2	40	-6%	5,184	467	4,717	28.80	154	3.14%	9	0.19%	164	**3.33%**
	REDBUD 4	4,914	R2	40	-6%	5,184	473	4,711	28.80	154	3.14%	9	0.19%	164	**3.33%**
	HORSESHOE LAKE 9 AND 10	941,452	R2	40	-2%	955,882	482,705	473,177	16.70	27,470	2.92%	864	0.09%	28,334	**3.01%**
	TINKER	8,664	R2	40	-3%	8,935	7,227	1,708	8.60	167	1.93%	31	0.36%	199	**2.29%**
	MCCLAIN GAS 1	4,254,965	R2	40	-5%	4,477,179	1,518,439	2,958,740	24.00	114,022	2.68%	9,259	0.22%	123,281	**2.90%**
	TOTAL MISCELLANEOUS POWER PLANT EQUIPMENT	7,758,877				8,134,087	2,709,646	5,424,441	24.11	209,728	2.70%	15,236	0.20%	224,964	**2.90%**
346.00	MISCELLANEOUS POWER PLANT EQUIPMENT - WIND														
	CENTENNIAL WIND FARM	871,840	R2.5	35	2%	853,250	121,250	732,000	14.50	51,765	5.94%	-1,282	-0.15%	50,483	**5.79%**
	OU SPIRIT WIND FARM	307,018	R2.5	35	1%	304,487	23,423	281,064	17.30	16,393	5.34%	-146	-0.05%	16,246	**5.29%**
	CROSSROADS WIND FARM	316,686	R2.5	35	1%	313,540	22,468	291,072	20.00	14,711	4.65%	-157	-0.05%	14,554	**4.60%**
	TOTAL MISCELLANEOUS POWER PLANT EQUIPMENT - WIND	1,495,543				1,471,277	167,141	1,304,136	16.04	82,868	5.54%	-1,586	-0.11%	81,283	**5.44%**
	TOTAL OTHER PRODUCTION PLANT	1,533,279,164				1,554,876,749	468,372,347	1,086,504,402	19.00	56,424,556	3.68%	761,873	0.05%	57,186,429	**3.73%**
	Transmission Plant														
350.10	LAND	3,737,687													
350.20	LAND RIGHTS	113,308,500	S4	75	0%	113,308,500	19,080,992	94,227,508	61.70	1,527,188	1.35%	0	0.00%	1,527,188	**1.35%**
352.00	STRUCTURES AND IMPROVEMENTS	6,702,508	S4	65	-5%	7,037,634	1,435,089	5,602,545	52.40	100,523	1.50%	6,396	0.10%	106,919	**1.60%**
353.00	STATION EQUIPMENT	667,860,982	R1	60	-30%	868,219,276	138,901,014	729,318,262	51.68	10,235,293	1.53%	3,876,902	0.58%	14,112,195	**2.11%**
353.10	STATION EQUIPMENT - STEP UP TRANSFORMERS	53,026,203	R0.5	55	-10%	58,328,823	12,207,041	46,121,782	46.00	887,373	1.67%	115,274	0.22%	1,002,647	**1.89%**
354.00	TOWERS AND FIXTURES	161,794,747	R4	75	-25%	202,243,433	46,703,265	155,540,168	59.10	1,947,402	1.20%	684,411	0.42%	2,631,813	**1.63%**
355.00	POLES AND FIXTURES	903,252,386	R0.5	62	-70%	1,535,529,056	176,718,113	1,358,810,943	56.47	12,865,845	1.42%	11,196,683	1.24%	24,062,528	**2.66%**
356.00	OVERHEAD CONDUCTORS AND DEVICES	589,353,755	R2.5	70	-50%	884,030,632	147,835,617	736,195,015	59.40	7,432,965	1.26%	4,960,890	0.84%	12,393,855	**2.10%**
358.00	UNDERGROUND CONDUCTORS AND DEVICES	110,494	S2.5	45	0%	110,494	110,976	-482							
	TOTAL TRANSMISSION PLANT	2,499,147,261				3,668,807,848	542,992,107	3,125,815,741	55.98	34,996,591	1.40%	20,840,556	0.83%	55,837,146	**2.23%**
	Distribution Plant														
360.10	LAND	8,067,505													
360.20	LAND RIGHTS	5,107,131	S4	70	0%	5,107,131	1,518,013	3,589,118	52.40	68,495	1.34%	0	0.00%	68,495	**1.34%**
361.00	STRUCTURES AND IMPROVEMENTS	7,281,947	R2.5	65	-5%	7,646,045	2,011,103	5,634,942	54.40	96,891	1.33%	6,693	0.09%	103,583	**1.42%**
362.00	STATION EQUIPMENT	615,608,481	R2	66	-30%	800,291,025	180,346,440	619,944,585	53.10	8,197,025	1.33%	3,478,014	0.56%	11,675,039	**1.90%**
364.00	POLES, TOWERS AND FIXTURES	616,505,091	R0.5	65	-50%	924,757,636	239,324,082	685,433,554	55.16	6,837,944	1.11%	5,588,335	0.91%	12,426,279	**2.02%**
365.00	OVERHEAD CONDUCTORS AND DEVICES	484,430,648	R0.5	59	-40%	678,202,907	163,299,262	514,903,645	48.55	6,614,447	1.37%	3,991,190	0.82%	10,605,636	**2.19%**
366.00	UNDERGROUND CONDUIT	218,229,722	R1.5	68	-5%	229,141,209	65,340,052	163,801,157	57.56	2,656,179	1.22%	189,567	0.09%	2,845,746	**1.30%**

Depreciation Rate Development

		[1]	[2]		[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
Account No.	Description	Original Cost	Iowa Curve Type	AL	Net Salvage	Depreciable Base	Book Reserve	Future Accruals	Remaining Life	Service Life Accrual	Service Life Rate	Net Salvage Accrual	Net Salvage Rate	Total Accrual	Total Rate
367.00	UNDERGROUND CONDUCTORS AND DEVICES	764,422,264	R2	70	-20%	917,306,716	232,605,300	684,701,416	58.27	9,126,771	1.19%	2,623,725	0.34%	11,750,496	**1.54%**
368.00	LINE TRANSFORMERS	455,509,839	O2	47	-30%	592,162,791	90,898,800	501,263,991	40.21	9,067,671	1.99%	3,398,482	0.75%	12,466,152	**2.74%**
369.00	SERVICES	244,430,624	R4	65	-20%	293,316,748	124,565,148	168,751,600	46.56	2,574,430	1.05%	1,049,960	0.43%	3,624,390	**1.48%**
370.00	METERS - SMART METERS	143,337,370	S2.5	15	-10%	157,671,107	49,678,301	107,992,806	10.60	8,835,761	6.16%	1,352,239	0.94%	10,188,001	**7.11%**
370.10	METERS - METERING EQUIPMENT	37,150,057	L0	13	-10%	40,865,063	17,330,311	23,534,752	8.70	2,278,132	6.13%	427,012	1.15%	2,705,144	**7.28%**
371.00	INSTALLATIONS ON CUSTOMERS' PREMISES	53,726,326	R4	7	0%	53,726,326	29,720,800	24,005,526	4.60	5,218,593	9.71%	0	0.00%	5,218,593	**9.71%**
373.00	STREET LIGHTING AND SIGNAL SYSTEMS	239,244,991	R2	45	-40%	334,942,987	104,671,973	230,271,014	32.67	4,119,162	1.72%	2,929,232	1.22%	7,048,393	**2.95%**
	TOTAL DISTRIBUTION PLANT	3,893,051,995				5,035,137,691	1,301,309,585	3,733,828,106	41.16	65,691,500	1.69%	25,034,448	0.64%	90,725,948	**2.33%**
	General Plant														
389.10	LAND	3,002,965													
389.20	LAND RIGHTS	147,826	R4	50	0%	147,826	89,798	58,028	19.10	3,038	2.06%	0	0.00%	3,038	**2.06%**
390.00	STRUCTURES AND IMPROVEMENTS	178,876,850	L1.5	46	-5%	187,820,692	66,104,741	121,715,951	34.78	3,242,441	1.81%	257,155	0.14%	3,499,596	**1.96%**
391.00	OFFICE FURNITURE AND EQUIPMENT	13,996,151	SQ	15	0%	13,996,151	4,995,620	9,000,531	9.60	937,555	6.70%	0	0.00%	937,555	**6.70%**
391.10	COMPUTER EQUIPMENT	16,150,015	SQ	5	0%	16,150,015	2,638,683	13,511,332	4.20	3,216,984	19.92%	0	0.00%	3,216,984	**19.92%**
392.10	CARS AND TRUCKS	22,222,369	S2.5	10	10%	20,000,132	12,803,387	7,196,745	5.30	1,777,166	8.00%	-419,290	-1.89%	1,357,876	**6.11%**
392.50	HEAVY TRUCKS	59,365,922	L2.5	13	10%	53,429,330	28,321,338	25,107,992	7.70	4,031,764	6.79%	-770,986	-1.30%	3,260,778	**5.49%**
392.60	TRAILERS	6,184,111	S0.5	23	10%	5,565,700	1,673,874	3,891,826	18.10	249,184	4.03%	-34,166	-0.55%	215,018	**3.48%**
393.00	STORES EQUIPMENT	1,386,202	SQ	25	0%	1,386,202	440,380	945,822	17.10	55,311	3.99%	0	0.00%	55,311	**3.99%**
394.00	TOOLS, SHOP AND GARAGE EQUIPMENT	11,609,251	SQ	25	0%	11,609,251	4,580,487	7,028,764	15.10	465,481	4.01%	0	0.00%	465,481	**4.01%**
395.00	LABORATORY EQUIPMENT	12,071,163	SQ	20	0%	12,071,163	5,835,115	6,236,048	10.30	605,442	5.02%	0	0.00%	605,442	**5.02%**
396.00	POWER OPERATED EQUIPMENT	12,650,956	L2.5	18	15%	10,753,313	4,147,380	6,605,933	11.40	745,928	5.90%	-166,460	-1.32%	579,468	**4.58%**
397.00	COMMUNICATION EQUIPMENT	26,562,653	SQ	10	0%	26,562,653	12,033,427	14,529,226	5.50	2,641,677	9.95%	0	0.00%	2,641,677	**9.95%**
398.00	MISCELLANEOUS EQUIPMENT	6,239,362	SQ	20	0%	6,239,362	2,737,383	3,501,979	11.20	312,677	5.01%	0	0.00%	312,677	**5.01%**
	TOTAL GENERAL PLANT	370,465,796				365,731,790	146,401,613	219,330,177	12.79	18,284,649	4.94%	-1,133,748	-0.31%	17,150,902	**4.63%**
	Unrecovered Reserve for Amortization														
391.00	OFFICE FURNITURE AND EQUIPMENT						-4,218,000							843,600	
393.00	STORES EQUIPMENT						-33,000							6,600	
394.00	TOOLS, SHOP AND GARAGE EQUIPMENT						-585,000							117,000	
395.00	LABORATORY EQUIPMENT						-1,693,000							338,600	
397.00	COMMUNICATION EQUIPMENT						-510,000							102,000	
398.00	MISCELLANEOUS EQUIPMENT						1,283,000							-256,600	
	TOTAL UNRECOVERED RESERVE FOR AMORTIZATION						-5,756,000							1,151,200	
	Accounts Not Studied														
314.00	TURBOGENERATOR UNITS	0					79,097								
317.00	ARO FOR STEAM PRODUCTION	9,103,934					-5,034,744								
347.00	ARO FOR OTHER PRODUCTION	43,620,335					9,850,989								
359.00	ARO FOR TRANSMISSION	585,057					-155,183								
	TOTAL ACCOUNTS NOT STUDIED	53,309,326					4,740,159								
	TOTAL DEPRECIABLE PLANT	**10,481,359,092**				**12,900,301,611**	**3,687,872,450**	**9,211,410,567**	**34.40**	**208,174,621**	**1.99%**	**58,475,761**	**0.57%**	**267,801,581**	**2.56%**

[1] Company depreciation study
[2] Average life and Iowa curve shape developed through actuarial analysis and professional judgment
[3] Weighted net salvage for life span accounts from weighted net salvage exhibit; net salvage for mass accounts developed through statistical analysis and professional judgment
[4] = [1]*(1-[3])
[5] Company depreciation study
[6] = [4] - [5]
[7] Composite remaining life based on Iowa cuve in [2]; see remaining life exhibit for detailed calculations
[8] = ([1] - [5]) / [7]
[9] = [8] / [1]
[10] = [12] - [8]

Depreciation Rate Development

		[1]	[2]		[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
Account		Original	Iowa Curve		Net	Depreciable	Book	Future	Remaining	Service Life		Net Salvage		Total	
No.	Description	Cost	Type	AL	Salvage	Base	Reserve	Accruals	Life	Accrual	Rate	Accrual	Rate	Accrual	Rate

[11] = [13] - [9]
[12] = [6] / [7]
[13] = [12] / [1]

Weighted Net Salvage

Location	[1] Terminal Retirements: Retirements	[2] Terminal Retirements: Net Salvage	[3] Interim Retirements: Retirements	[4] Interim Retirements: Net Salvage	[5] Weighted Net Salvage
STEAM PRODUCTION					
HORSESHOE LAKE 6	95%	-6.8%	5%	-21%	-7.5%
HORSESHOE LAKE 7	86%	-6.8%	14%	-21%	-8.8%
HORSESHOE LAKE 8	88%	-6.8%	12%	-21%	-8.5%
MUSTANG 3	100%	-9.9%	0%	-21%	-9.9%
MUSTANG 4	100%	-9.9%	0%	-21%	-9.9%
SEMINOLE 1	91%	-7.3%	9%	-21%	-8.5%
SEMINOLE 2	88%	-7.3%	12%	-21%	-8.8%
SEMINOLE 3	91%	-7.3%	9%	-21%	-8.5%
MUSKOGEE 4	84%	-3.8%	16%	-21%	-6.5%
MUSKOGEE 5	81%	-3.8%	19%	-21%	-7.1%
MUSKOGEE 6	77%	-3.8%	23%	-21%	-7.8%
SOONER 1	83%	-4.0%	17%	-21%	-7.0%
SOONER 2	79%	-4.0%	21%	-21%	-7.6%
OTHER PRODUCTION					
REDBUD 1	47%	-4.7%	53%	-6%	-5.4%
REDBUD 2	38%	-4.7%	62%	-6%	-5.5%
REDBUD 3	39%	-4.7%	61%	-6%	-5.5%
REDBUD 4	39%	-4.7%	61%	-6%	-5.5%
HORSESHOE LAKE 9 AND 10	83%	-0.6%	17%	-6%	-1.5%
TINKER	93%	-2.9%	7%	-6%	-3.1%
MCCLAIN GAS 1	50%	-4.4%	50%	-6%	-5.2%
MCCLAIN GAS 2	43%	-4.4%	57%	-6%	-5.3%
MCCLAIN STEAM 1	35%	-4.4%	65%	-6%	-5.5%
WIND PRODUCTION					
CENTENNIAL	90%	2.9%	10%	-5%	2.1%
OU SPIRIT	89%	1.6%	11%	-5%	0.8%
CROSSROADS	87%	1.9%	13%	-5%	1.0%
SOLAR PRODUCTION					
MUSTANG	80%	-1.4%	20%	-4%	-1.9%

[1], [3] Accepted Company's proposed weighting of interim and terminal retirements (see depreciation study)
[2] From Exhibit DJG-7
[4] Company's proposed interim net salvage rates from depreciation study
[5] = [1]*[2] + [3]*[4]

Weighted Net Salvage

Unit	[1] Decommissioning Cost		[2] Terminal Retirements	[3] Terminal Net Salvage
STEAM PRODUCTION				
HORSESHOE LAKE	$ 7,939,741	*	$ (116,789,690)	-6.8%
MUSTANG	6,680,750		(67,813,105)	-9.9%
SEMINOLE	18,149,900		(250,065,255)	-7.3%
MUSKOGEE	28,529,800		(755,705,020)	-3.8%
SOONER	20,135,950		(501,567,471)	-4.0%
OTHER PRODUCTION				
REDBUD	7,400,500		(155,875,406)	-4.7%
HORSESHOE LAKE 9 AND 10	245,559	*	(38,619,883)	-0.6%
TINKER	309,150		(10,624,050)	-2.9%
MCCLAIN	4,211,450		(94,688,097)	-4.4%
WIND PRODUCTION				
OU SPIRIT	(3,468,600)		(221,773,284)	1.6%
CROSSROADS	(6,850,950)		(360,390,566)	1.9%
CENTENNIAL	(5,011,600)		(172,390,417)	2.9%
SOLAR PRODUCTION				
MUSTANG	76,300		(5,414,679)	-1.4%

[1] Adjusted decommissioning costs from Exhibit DJG-8

[2] Company's terminal retirement estimates

[3] = [1] / [2]

* Horseshoe Lake Total Decom Cost = $8,185,300 from Exhibit DJG-8. Units 9&10 allocated 3% of cost.

Weighted Net Salvage

Exhibit DJG-8

Unit	[1] OG&E Proposed Gross Decom Cost	[2] Adjust Asbestos Removal	[3] Adjust Wind Structure Removal	[4] Add Project Indirect Cost (5%)	[5] Scrap Value	[6] Total Adjusted Net Decom Cost
STEAM PRODUCTION						
HORSESHOE LAKE	$ 19,260,000	$ 2,094,000	$ -	$ 18,024,300	$ (9,839,000)	$ 8,185,300
MUSTANG	16,265,000 *	4,150,000	-	12,720,750	(6,040,000)	6,680,750
SEMINOLE	33,931,000	4,353,000	-	31,056,900	(12,907,000)	18,149,900
MUSKOGEE	48,455,000	3,039,000	-	47,686,800	(19,157,000)	28,529,800
SOONER	40,215,000	4,516,000	-	37,483,950	(17,348,000)	20,135,950
OTHER PRODUCTION						
REDBUD	14,950,000	-	-	15,697,500	(8,297,000)	7,400,500
HORSESHOE LAKE 9 AND 10	19,260,000	2,094,000	-	18,024,300	(9,839,000)	8,185,300
TINKER	789,000	6,000	-	822,150	(513,000)	309,150
MCCLAIN	7,149,000	-	-	7,506,450	(3,295,000)	4,211,450
WIND PRODUCTION						
OU SPIRIT	4,116,000	-	3,448,000	701,400	(4,170,000)	(3,468,600)
CROSSROADS	9,167,000	-	6,986,000	2,290,050	(9,141,000)	(6,850,950)
CENTENNIAL	6,655,000	-	5,667,000	1,037,400	(6,049,000)	(5,011,600)
SOLAR PRODUCTION						
MUSTANG	226,000	-	-	237,300	(161,000)	76,300

[1] Company's estimated decommissioning cost subtotal
[2] Removing asbestos costs to avoid double counting in ARO
[3] Removing wind structure removal cost to avoid double counting in ARO
[4] = ([1] - [2] - [3])*1.05. To add project indirect costs of 5% as proposed in the decommissioning study
[5] Adding scrap value as proposed in the decommissioning study
[6] = [4] + [5] ; Excludes all proposed contingency factors from the decommissioning study
*Excludes decommissioning costs for Units 1 and 2

Account 353 Curve Fitting

[1] Age (Years)	[2] Exposures (Dollars)	[3] Observed Life Table (OLT)	[4] OGE R2-57	[5] OIEC/OER R1-60	[6] OGE SSD	[7] OIEC SSD
0.0	524,509,727	100.00%	100.00%	100.00%	0.0000	0.0000
0.5	475,206,062	100.00%	99.92%	99.78%	0.0000	0.0000
1.5	446,737,026	99.97%	99.74%	99.35%	0.0000	0.0000
2.5	357,029,609	99.91%	99.56%	98.90%	0.0000	0.0001
3.5	320,490,259	99.87%	99.36%	98.44%	0.0000	0.0002
4.5	269,828,603	99.83%	99.16%	97.97%	0.0000	0.0003
5.5	221,538,116	99.81%	98.94%	97.50%	0.0001	0.0005
6.5	190,083,549	99.78%	98.71%	97.01%	0.0001	0.0008
7.5	190,393,637	99.51%	98.46%	96.51%	0.0001	0.0009
8.5	166,336,731	99.42%	98.21%	96.00%	0.0001	0.0012
9.5	233,433,055	99.18%	97.93%	95.49%	0.0002	0.0014
10.5	193,716,395	93.15%	97.64%	94.96%	0.0020	0.0003
11.5	160,342,937	92.65%	97.34%	94.42%	0.0022	0.0003
12.5	70,599,012	91.77%	97.02%	93.87%	0.0028	0.0004
13.5	62,380,071	91.42%	96.69%	93.32%	0.0028	0.0004
14.5	64,713,390	91.03%	96.33%	92.75%	0.0028	0.0003
15.5	65,531,545	90.81%	95.96%	92.17%	0.0027	0.0002
16.5	66,664,414	90.69%	95.57%	91.59%	0.0024	0.0001
17.5	66,445,258	90.40%	95.16%	90.99%	0.0023	0.0000
18.5	67,913,588	90.31%	94.73%	90.39%	0.0020	0.0000
19.5	68,397,298	90.22%	94.28%	89.77%	0.0016	0.0000
20.5	66,726,033	89.82%	93.81%	89.15%	0.0016	0.0000
21.5	62,622,499	89.67%	93.31%	88.52%	0.0013	0.0001
22.5	65,407,118	89.55%	92.79%	87.87%	0.0010	0.0003
23.5	71,991,413	89.23%	92.25%	87.22%	0.0009	0.0004
24.5	73,557,463	89.08%	91.68%	86.55%	0.0007	0.0006
25.5	76,355,211	88.77%	91.08%	85.87%	0.0005	0.0008
26.5	70,107,472	86.63%	90.46%	85.18%	0.0015	0.0002
27.5	66,943,229	86.27%	89.81%	84.48%	0.0013	0.0003
28.5	60,813,695	85.72%	89.13%	83.76%	0.0012	0.0004
29.5	62,062,379	85.38%	88.41%	83.03%	0.0009	0.0005
30.5	63,416,503	84.61%	87.67%	82.29%	0.0009	0.0005
31.5	59,168,825	84.23%	86.90%	81.53%	0.0007	0.0007
32.5	58,465,030	83.57%	86.10%	80.76%	0.0006	0.0008
33.5	59,616,760	83.38%	85.25%	79.97%	0.0004	0.0012
34.5	62,146,497	83.34%	84.38%	79.17%	0.0001	0.0017
35.5	65,911,825	83.16%	83.47%	78.35%	0.0000	0.0023
36.5	63,219,267	81.64%	82.52%	77.52%	0.0001	0.0017
37.5	64,345,827	80.08%	81.53%	76.66%	0.0002	0.0012
38.5	63,597,700	78.10%	80.51%	75.80%	0.0006	0.0005
39.5	59,399,670	76.71%	79.45%	74.91%	0.0007	0.0003
40.5	45,814, 046	76.25%	78.34%	74.00%	0.0004	0.0005
41.5	54,973,362	74.68%	77.20%	73.08%	0.0006	0.0003
42.5	50,673, 828	74.52%	76.01%	72.14%	0.0002	0.0006
43.5	46,733, 716	73.02%	74.78%	71.18%	0.0003	0.0003
44.5	38,287,467	72.99%	73.51%	70.21%	0.0000	0.0008
45.5	37,292,564	71.89%	72.19%	69.22%	0.0000	0.0007
46.5	35,387,571	71.62%	70.83%	68.20%	0.0001	0.0012
47.5	34,447,274	70.80%	69.43%	67.17%	0.0002	0.0013

Account 353 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**OGE R2-57**	**OIEC/OER R1-60**	**OGE SSD**	**OIEC SSD**
48.5	30,960,510	70.24%	67.98%	66.13%	0.0005	0.0017
49.5	29,378,010	63.45%	66.49%	65.06%	0.0009	0.0003
50.5	25,431,030	62.81%	64.95%	63.98%	0.0005	0.0001
51.5	24,240,572	60.92%	63.38%	62.88%	0.0006	0.0004
52.5	20,719,879	60.57%	61.76%	61.76%	0.0001	0.0001
53.5	20,341, 545	60.39%	60.11%	60.63%	0.0000	0.0000
54.5	19,943,463	60.27%	58.41%	59.48%	0.0003	0.0001
55.5	19,248,783	59.87%	56.68%	58.31%	0.0010	0.0002
56.5	18,245,700	58.83%	54.92%	57.13%	0.0015	0.0003
57.5	15,723,649	53.91%	53.12%	55.94%	0.0001	0.0004
58.5		53.85%	51.30%	54.73%		
Sum of Squared Differences				[8]	0.0469	0.0315

[1] Age in years using half-year convention

[2] Dollars exposed to retirement at the beginning of each age interval

[3] Observed life table based on the Company's property records. These numbers form the original survivor curve.

[4] The Company's selected Iowa curve to be fitted to the OLT.

[5] My selected Iowa curve to be fitted to the OLT.

[6] = ([4] - [3])^2. This is the squared difference between each point on the Company's curve and the observed survivor curve.

[7] = ([5] - [3])^2. This is the squared difference between each point on my curve and the observed survivor curve.

[8] = Sum of squared differences. The smallest SSD represents the best mathematical fit.

Account 353.10 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**OGE R1.5-50**	**OIEC/OER R0.5-55**	**OGE SSD**	**OIEC SSD**
0.0	35,800,340	100.00%	100.00%	100.00%	0.0000	0.0000
0.5	35,653,434	99.67%	99.82%	99.66%	0.0000	0.0000
1.5	35,753,500	99.67%	99.46%	98.96%	0.0000	0.0001
2.5	39,478,758	99.67%	99.08%	98.26%	0.0000	0.0002
3.5	39,160,038	99.67%	98.69%	97.56%	0.0001	0.0004
4.5	39,502,468	99.67%	98.28%	96.85%	0.0002	0.0008
5.5	27,048,678	99.67%	97.86%	96.13%	0.0003	0.0013
6.5	20,132 ,793	99.51%	97.42%	95.40%	0.0004	0.0017
7.5	15,366,540	99.51%	96.97%	94.67%	0.0006	0.0023
8.5	13,682,370	99.51%	96.50%	93.94%	0.0009	0.0031
9.5	11,925,260	99.51%	96.01%	93.20%	0.0012	0.0040
10.5	10,093,016	99.51%	95.51%	92.45%	0.0016	0.0050
11.5	10,093,016	99.51%	94.98%	91.70%	0.0020	0.0061
12.5	10,036,765	90.32%	94.44%	90.94%	0.0017	0.0000
13.5	9,270,881	86.89%	93.89%	90.17%	0.0049	0.0011
14.5	9,161,049	86.89%	93.31%	89.40%	0.0041	0.0006
15.5	5,209,543	86.89%	92.71%	88.63%	0.0034	0.0003
16.5	3,458,789	86.89%	92.09%	87.85%	0.0027	0.0001
17.5	3,458,789	86.89%	91.45%	87.06%	0.0021	0.0000
18.5	4,557,101	86.89%	90.79%	86.27%	0.0015	0.0000
19.5	6,209,788	86.89%	90.11%	85.47%	0.0010	0.0002
20.5	7,635,243	86.89%	89.40%	84.66%	0.0006	0.0005
21.5	8,834,300	86.89%	88.67%	83.85%	0.0003	0.0009
22.5	9,217,747	86.89%	87.91%	83.03%	0.0001	0.0015
23.5	10,758,772	85.98%	87.13%	82.21%	0.0001	0.0014
24.5	10,758,772	85.98%	86.31%	81.38%	0.0000	0.0021
25.5	8,240,119	85.98%	85.47%	80.54%	0.0000	0.0030
26.5	8,240,119	85.98%	84.60%	79.69%	0.0002	0.0040
27.5	8,993,558	85.98%	83.70%	78.83%	0.0005	0.0051
28.5	8,226,321	85.98%	82.76%	77.97%	0.0010	0.0064
29.5	8,979,760	85.98%	81.79%	77.10%	0.0018	0.0079
30.5	8, 979,760	85.98%	80.79%	76.21%	0.0027	0.0095
31.5	7,232,636	63.53%	79.75%	75.32%	0.0263	0.0139
32.5	6,134,323	63.53%	78.67%	74.42%	0.0229	0.0119
33.5	6,134,323	63.53%	77.56%	73.51%	0.0197	0.0100
34.5	6,134,323	63.53%	76.40%	72.59%	0.0166	0.0082
35.5	5,961,394	61.74%	75.21%	71.66%	0.0182	0.0098
36.5	4,288,700	61.53%	73.98%	70.72%	0.0155	0.0084
37.5	4,628,700	61.53%	72.71%	69.77%	0.0125	0.0068
38.5	3,404,937	61.20%	71.40%	68.81%	0.0104	0.0058
39.5	3,021,489	61.20%	70.05%	67.84%	0.0078	0.0044
40.5	3,021,489	61.20%	68.65%	66.85%	0.0056	0.0032
41.5	3,514,882	61.20%	67.22%	65.86%	0.0036	0.0022
42.5	2,972, 782	61.20%	65.74%	64.85%	0.0021	0.0013
43.5	2,972, 782	61.20%	64.23%	63.84%	0.0009	0.0007
44.5	2,556,419	61.20%	62.67%	62.81%	0.0002	0.0003
45.5	2,674, 822	61.20%	61.08%	61.78%	0.0000	0.0000
46.5	1,921,383	61.20%	59.44%	60.73%	0.0003	0.0000
47.5	1,921,383	61.20%	57.77%	59.67%	0.0012	0.0002

Account 353.10 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**OGE R1.5-50**	**OIEC/OER R0.5-55**	**OGE SSD**	**OIEC SSD**
48.5	1,546,282	61.20%	56.07%	58.60%	0.0026	0.0007
49.5	1,546,282	61.20%	54.34%	57.53%	0.0047	0.0013
50.5	1,546,282	61.20%	52.57%	56.44%	0.0074	0.0023
51.5	1,427,879	61.20%	50.78%	55.35%	0.0109	0.0034
52.5	1,427,879	61.20%	48.97%	54.24%	0.0150	0.0048
53.5	1,115,509	47.81%	47.13%	53.13%	0.0000	0.0028
54.5	772I892	47.70%	45.28%	52.01%	0.0006	0.0019
55.5	746,962	46.10%	43.42%	50.88%	0.0007	0.0023
56.5	743,lll	45.86%	41.55%	49.75%	0.0019	0.0015
57.5	743 I111	45.86%	39.67%	48.61%	0.0038	0.0008
58.5	590,636	45.86%	37.80%	47.46%	0.0065	0.0003
59.5	312,370	45.86%	35.93%	46.31%	0.0099	0.0000
60.5	312,370	45.86%	34.08%	45.16%		
61.5		45.86%	32.24%	44.00%		
Sum of Squared Differences				[8]	0.2641	0.1789

[1] Age in years using half-year convention

[2] Dollars exposed to retirement at the beginning of each age interval

[3] Observed life table based on the Company's property records. These numbers form the original survivor curve.

[4] The Company's selected Iowa curve to be fitted to the OLT.

[5] My selected Iowa curve to be fitted to the OLT.

[6] = ([4] - [3])^2. This is the squared difference between each point on the Company's curve and the observed survivor curve.

[7] = ([5] - [3])^2. This is the squared difference between each point on my curve and the observed survivor curve.

[8] = Sum of squared differences. The smallest SSD represents the best mathematical fit.

Account 355 Curve Fitting

[1] Age (Years)	[2] Exposures (Dollars)	[3] Observed Life Table (OLT)	[4] OGE R1-60	[5] OIEC/OER R0.5-62	[6] OGE SSD	[7] OIEC SSD
0.0	835,536,797	100.00%	100.00%	100.00%	0.0000	0.0000
0.5	767,085,800	99.99%	99.78%	99.69%	0.0000	0.0000
1.5	741,502,624	99.92%	99.35%	99.08%	0.0000	0.0001
2.5	468,883,981	99.76%	98.90%	98.46%	0.0001	0.0002
3.5	319,271,659	99.28%	98.44%	97.84%	0.0001	0.0002
4.5	187,988,212	98.53%	97.97%	97.21%	0.0000	0.0002
5.5	158,945,937	97.89%	97.50%	96.57%	0.0000	0.0002
6.5	138,081,707	97.58%	97.01%	95.94%	0.0000	0.0003
7.5	114,055,375	96.80%	96.51%	95.29%	0.0000	0.0002
8.5	96,051,457	96.37%	96.00%	94.65%	0.0000	0.0003
9.5	84,492,068	95.47%	95.49%	93.99%	0.0000	0.0002
10.5	69,931,697	94.95%	94.96%	93.34%	0.0000	0.0003
11.5	63,951,240	94.32%	94.42%	92.67%	0.0000	0.0003
12.5	59,534,936	93.73%	93.87%	92.01%	0.0000	0.0003
13.5	53,888,944	93.54%	93.32%	91.34%	0.0000	0.0005
14.5	28,763,759	93.09%	92.75%	90.66%	0.0000	0.0006
15.5	23,758,349	92.77%	92.17%	89.98%	0.0000	0.0008
16.5	22,997,708	92.21%	91.59%	89.30%	0.0000	0.0008
17.5	13,421,835	90.22%	90.99%	88.61%	0.0001	0.0003
18.5	11,688,208	89.93%	90.39%	87.92%	0.0000	0.0004
19.5	13,436,998	89.17%	89.77%	87.22%	0.0000	0.0004
20.5	14,108,112	89.17%	89.15%	86.52%	0.0000	0.0007
21.5	14,021,601	89.17%	88.52%	85.81%	0.0000	0.0011
22.5	15,906,761	78.31%	87.87%	85.10%	0.0091	0.0046
23.5	16,035,202	78.06%	87.22%	84.38%	0.0084	0.0040
24.5	19,446,384	78.06%	86.55%	83.66%	0.0072	0.0031
25.5	23,462,319	77.52%	85.87%	82.93%	0.0070	0.0029
26.5	26,573,053	77.11%	85.18%	82.20%	0.0065	0.0026
27.5	26,112,362	76.87%	84.48%	81.46%	0.0058	0.0021
28.5	31,079,195	76.16%	83.76%	80.72%	0.0058	0.0021
29.5	36,579,594	75.90%	83.03%	79.97%	0.0051	0.0017
30.5	39,207,772	75.42%	82.29%	79.21%	0.0047	0.0014
31.5	42,260,676	75.32%	81.53%	78.45%	0.0039	0.0010
32.5	40,694,432	75.18%	80.76%	77.68%	0.0031	0.0006
33.5	43,157,501	75.04%	79.97%	76.91%	0.0024	0.0003
34.5	45,997,953	74.45%	79.17%	76.12%	0.0022	0.0003
35.5	51,954,964	72.21%	78.35%	75.33%	0.0038	0.0010
36.5	52,341,579	71.97%	77.52%	74.53%	0.0031	0.0007
37.5	157,331,796	71.69%	76.66%	73.73%	0.0025	0.0004
38.5	158,820,024	71.21%	75.80%	72.91%	0.0021	0.0003
39.5	154,050,493	71.15%	74.91%	72.09%	0.0014	0.0001
40.5	47,610,517	70.23%	74.00%	71.26%	0.0014	0.0001
41.5	100,862,337	69.65%	73.08%	70.42%	0.0012	0.0001
42.5	94,676,703	69.27%	72.14%	69.58%	0.0008	0.0000
43.5	89,959,009	68.81%	71.18%	68.72%	0.0006	0.0000
44.5	68,945,925	67.31%	70.21%	67.86%	0.0008	0.0000
45.5	65,112,471	67.15%	69.22%	66.99%	0.0004	0.0000
46.5	63,576,348	66.84%	68.20%	66.11%	0.0002	0.0001
47.5	61,647,371	66.44%	67.17%	65.22%	0.0001	0.0001

Account 355 Curve Fitting

[1] Age (Years)	[2] Exposures (Dollars)	[3] Observed Life Table (OLT)	[4] OGE R1-60	[5] OIEC/OER R0.5-62	[6] OGE SSD	[7] OIEC SSD
48.5	57,911, 067	66.19%	66.13%	64.32%	0.0000	0.0003
49.5	55,728,965	65.84%	65.06%	63.42%	0.0001	0.0006
50.5	53,494,951	65.65%	63.98%	62.50%	0.0003	0.0010
51.5	50,591,709	64.86%	62.88%	61.58%	0.0004	0.0011
52.5	49,007,550	64.49%	61.76%	60.65%	0.0007	0.0015
53.5	47,098,797	64.11%	60.63%	59.71%	0.0012	0.0019
54.5	44,254,298	63.52%	59.48%	58.77%	0.0016	0.0023
55.5	36,924,496	63.18%	58.31%	57.82%	0.0024	0.0029
56.5	36,172,661	63.02%	57.13%	56.85%	0.0035	0.0038
57.5	35,356,936	61.98%	55.94%	55.89%	0.0036	0.0037
58.5		61.82%	54.73%	54.91%		
Sum of Squared Differences				[8]	0.1039	0.0569

[1] Age in years using half-year convention
[2] Dollars exposed to retirement at the beginning of each age interval
[3] Observed life table based on the Company's property records. These numbers form the original survivor curve.
[4] The Company's selected Iowa curve to be fitted to the OLT.
[5] My selected Iowa curve to be fitted to the OLT.
[6] = ([4] - [3])^2. This is the squared difference between each point on the Company's curve and the observed survivor curve.
[7] = ([5] - [3])^2. This is the squared difference between each point on my curve and the observed survivor curve.
[8] = Sum of squared differences. The smallest SSD represents the best mathematical fit.

Account 356 Curve Fitting

[1] Age (Years)	[2] Exposures (Dollars)	[3] Observed Life Table (OLT)	[4] OGE R2.5-65	[5] OIEC/OER R2.5-70	[6] OGE SSD	[7] OIEC SSD
0.0	489,141,859	100.00%	100.00%	100.00%	0.0000	0.0000
0.5	474,967,967	100.00%	99.96%	99.96%	0.0000	0.0000
1.5	470,895,721	99.95%	99.87%	99.88%	0.0000	0.0000
2.5	349,028,470	99.94%	99.78%	99.79%	0.0000	0.0000
3.5	270,698,040	99.87%	99.67%	99.70%	0.0000	0.0000
4.5	194,111,436	99.82%	99.57%	99.60%	0.0000	0.0000
5.5	175,163,460	99.48%	99.45%	99.50%	0.0000	0.0000
6.5	100,495,436	99.45%	99.33%	99.39%	0.0000	0.0000
7.5	85,679,880	98.68%	99.20%	99.27%	0.0000	0.0000
8.5	73,605,571	98.68%	99.07%	99.15%	0.0000	0.0000
9.5	64,898,283	98.65%	98.92%	99.02%	0.0000	0.0000
10.5	58,623,536	98.64%	98.77%	98.88%	0.0000	0.0000
11.5	54,691,609	98.64%	98.60%	98.74%	0.0000	0.0000
12.5	53,324,712	98.64%	98.43%	98.58%	0.0000	0.0000
13.5	51,093,967	98.59%	98.24%	98.42%	0.0000	0.0000
14.5	14,513,205	98.39%	98.05%	98.25%	0.0000	0.0000
15.5	12,647,162	98.37%	97.84%	98.07%	0.0000	0.0000
16.5	16,720,293	98.25%	97.62%	97.87%	0.0000	0.0000
17.5	16,406,752	98.25%	97.38%	97.67%	0.0001	0.0000
18.5	20,232,893	98.25%	97.13%	97.46%	0.0001	0.0001
19.5	22,297,136	98.20%	96.87%	97.23%	0.0002	0.0001
20.5	24,954,896	98.20%	96.59%	96.99%	0.0003	0.0001
21.5	24,875,358	98.20%	96.30%	96.74%	0.0004	0.0002
22.5	26,204,047	93.01%	95.99%	96.48%	0.0009	0.0012
23.5	27,966,808	93.00%	95.66%	96.20%	0.0007	0.0010
24.5	32,477,554	92.92%	95.32%	95.91%	0.0006	0.0009
25.5	42,097,931	92.92%	94.95%	95.60%	0.0004	0.0007
26.5	41,963,857	92.92%	94.57%	95.28%	0.0003	0.0006
27.5	41,513,458	92.92%	94.16%	94.94%	0.0002	0.0004
28.5	43,387,537	92.19%	93.74%	94.58%	0.0002	0.0006
29.5	49,780,048	92.19%	93.29%	94.21%	0.0001	0.0004
30.5	63,043,965	92.14%	92.81%	93.81%	0.0000	0.0003
31.5	64,151,188	92.14%	92.32%	93.40%	0.0000	0.0002
32.5	60,668,096	92.14%	91.80%	92.97%	0.0000	0.0001
33.5	62,340,031	92.12%	91.25%	92.52%	0.0001	0.0000
34.5	65,217,494	91.87%	90.67%	92.04%	0.0001	0.0000
35.5	68,271,197	89.97%	90.07%	91.54%	0.0000	0.0002
36.5	57,407,969	89.93%	89.44%	91.02%	0.0000	0.0001
37.5	158,094,738	89.88%	88.77%	90.48%	0.0001	0.0000
38.5	196,633,033	89.56%	88.08%	89.91%	0.0002	0.0000
39.5	190,327,871	89.56%	87.35%	89.32%	0.0005	0.0000
40.5	85,158,592	88.84%	86.59%	88.70%	0.0005	0.0000
41.5	82,645,592	88.33%	85.80%	88.06%	0.0006	0.0000
42.5	78,356,996	88.22%	84.97%	87.38%	0.0011	0.0001
43.5	73,840,829	87.64%	84.10%	86.68%	0.0013	0.0001
44.5	54,709,094	86.67%	83.20%	85.94%	0.0012	0.0001
45.5	46,965,412	86.66%	82.25%	85.18%	0.0019	0.0002
46.5	45,539,715	86.52%	81.26%	84.38%	0.0028	0.0005
47.5	44,161,541	86.10%	80.23%	83.56%	0.0034	0.0006

Account 356 Curve Fitting

[1] Age (Years)	[2] Exposures (Dollars)	[3] Observed Life Table (OLT)	[4] OGE R2.5-65	[5] OIEC/OER R2.5-70	[6] OGE SSD	[7] OIEC SSD
48.5	42,888,222	86.10%	79.16%	82.69%	0.0048	0.0012
49.5	40,909,375	86.04%	78.04%	81.80%	0.0064	0.0018
50.5	32,717,332	85.99%	76.88%	80.86%	0.0083	0.0026
51.5	31,606,701	85.10%	75.66%	79.89%	0.0089	0.0027
52.5	30,693,920	84.95%	74.40%	78.89%	0.0111	0.0037
53.5	29,670,062	84.89%	73.09%	77.84%	0.0139	0.0050
54.5	27,668,751	84.76%	71.73%	76.75%	0.0170	0.0064
55.5	23,036,525	84.47%	70.32%	75.62%	0.0200	0.0078
56.5	22,510,034	84.30%	68.85%	74.45%	0.0239	0.0097
57.5	21,892,659	83.44%	67.34%	73.24%	0.0259	0.0104
58.5		83.13%	65.77%	71.98%		
Sum of Squared Differences				[8]	0.1587	0.0603

[1] Age in years using half-year convention
[2] Dollars exposed to retirement at the beginning of each age interval
[3] Observed life table based on the Company's property records. These numbers form the original survivor curve.
[4] The Company's selected Iowa curve to be fitted to the OLT.
[5] My selected Iowa curve to be fitted to the OLT.
[6] = ([4] - [3])^2. This is the squared difference between each point on the Company's curve and the observed survivor curve.
[7] = ([5] - [3])^2. This is the squared difference between each point on my curve and the observed survivor curve.
[8] = Sum of squared differences. The smallest SSD represents the best mathematical fit.

Account 362 Curve Fitting

[1] Age (Years)	[2] Exposures (Dollars)	[3] Observed Life Table (OLT)	[4] OGE R2.5-60	[5] OIEC/OER R2-66	[6] OGE SSD	[7] OIEC SSD
0.0	463,431,948	100.00%	100.00%	100.00%	0.0000	0.0000
0.5	448,551,895	100.00%	99.95%	99.93%	0.0000	0.0000
1.5	436,756,826	99.97%	99.86%	99.78%	0.0000	0.0000
2.5	411,046,544	99.95%	99.75%	99.62%	0.0000	0.0000
3.5	383,081,188	99.77%	99.64%	99.46%	0.0000	0.0000
4.5	332,570,497	99.75%	99.53%	99.29%	0.0000	0.0000
5.5	304,687,537	99.72%	99.40%	99.10%	0.0000	0.0000
6.5	288,902,377	99.61%	99.26%	98.91%	0.0000	0.0000
7.5	266,839,315	99.47%	99.12%	98.71%	0.0000	0.0001
8.5	245,966,292	99.28%	98.96%	98.50%	0.0000	0.0001
9.5	217,633,690	99.22%	98.80%	98.28%	0.0000	0.0001
10.5	203,880,501	98.71%	98.62%	98.05%	0.0000	0.0000
11.5	178,615,819	96.49%	98.43%	97.81%	0.0004	0.0002
12.5	163,116,906	96.09%	98.23%	97.56%	0.0005	0.0002
13.5	141,221,024	95.97%	98.02%	97.29%	0.0004	0.0002
14.5	133,678,769	95.80%	97.79%	97.02%	0.0004	0.0001
15.5	126,097,458	95.69%	97.55%	96.73%	0.0003	0.0001
16.5	117,172,293	95.19%	97.29%	96.42%	0.0004	0.0002
17.5	106,985,872	94.59%	97.02%	96.11%	0.0006	0.0002
18.5	102,139,372	94.06%	96.72%	95.78%	0.0007	0.0003
19.5	103,524,893	93.78%	96.41%	95.43%	0.0007	0.0003
20.5	100,007,965	93.34%	96.08%	95.08%	0.0008	0.0003
21.5	98,812,555	92.58%	95.73%	94.70%	0.0010	0.0005
22.5	99,943,203	92.38%	95.36%	94.31%	0.0009	0.0004
23.5	102,004,224	91.82%	94.97%	93.91%	0.0010	0.0004
24.5	96,533,856	91.54%	94.55%	93.48%	0.0009	0.0004
25.5	94,337,387	91.15%	94.11%	93.04%	0.0009	0.0004
26.5	87,664,210	90.83%	93.64%	92.58%	0.0008	0.0003
27.5	76,938,894	90.60%	93.15%	92.11%	0.0007	0.0002
28.5	66,953,608	90.34%	92.63%	91.61%	0.0005	0.0002
29.5	68,729,875	89.92%	92.08%	91.09%	0.0005	0.0001
30.5	70,496,680	89.18%	91.50%	90.56%	0.0005	0.0002
31.5	72,689,811	88.77%	90.89%	90.00%	0.0004	0.0002
32.5	71,638,569	87.95%	90.25%	89.42%	0.0005	0.0002
33.5	73,602,694	87.64%	89.57%	88.82%	0.0004	0.0001
34.5	72,309,619	87.14%	88.86%	88.20%	0.0003	0.0001
35.5	72,065,532	86.98%	88.11%	87.55%	0.0001	0.0000
36.5	69,876,293	86.26%	87.32%	86.88%	0.0001	0.0000
37.5	67,621,153	85.56%	86.50%	86.19%	0.0001	0.0000
38.5	73,732,055	84.82%	85.63%	85.47%	0.0001	0.0000
39.5	71,572,146	83.98%	84.72%	84.72%	0.0001	0.0001
40.5	70,687,161	83.25%	83.77%	83.95%	0.0000	0.0000
41.5	76,636,524	82.35%	82.77%	83.15%	0.0000	0.0001
42.5	69,600,788	81.72%	81.72%	82.32%	0.0000	0.0000
43.5	61,949,281	81.35%	80.62%	81.47%	0.0001	0.0000
44.5	57,068,762	80.96%	79.48%	80.58%	0.0002	0.0000
45.5	49,179,258	80.32%	78.28%	79.67%	0.0004	0.0000
46.5	45,305,165	79.58%	77.02%	78.72%	0.0007	0.0001
47.5	40,805,435	78.40%	75.72%	77.75%	0.0007	0.0000

Account 362 Curve Fitting

[1] Age (Years)	[2] Exposures (Dollars)	[3] Observed Life Table (OLT)	[4] OGE R2.5-60	[5] OIEC/OER R2-66	[6] OGE SSD	[7] OIEC SSD
48.5	37,164,437	77.81%	74.35%	76.74%	0.0012	0.0001
49.5	27,680,636	75.20%	72.92%	75.71%	0.0005	0.0000
50.5	24,718,948	73.97%	71.44%	74.64%	0.0006	0.0000
51.5	22,336,943	73.09%	69.90%	73.54%	0.0010	0.0000
52.5	20,850,591	72.71%	68.29%	72.40%	0.0020	0.0000
53.5	18,876,983	71.92%	66.63%	71.24%	0.0028	0.0000
54.5	17,673,455	71.16%	64.90%	70.04%	0.0039	0.0001
55.5	16,799,527	70.21%	63.11%	68.81%	0.0050	0.0002
56.5	14,508,340	69.16%	61.27%	67.54%	0.0062	0.0003
57.5	11,325,093	65.14%	59.36%	66.25%	0.0033	0.0001
58.5		64.21%	57.41%	64.92%		
Sum of Squared Differences				[8]	0.0437	0.0076

[1] Age in years using half-year convention
[2] Dollars exposed to retirement at the beginning of each age interval
[3] Observed life table based on the Company's property records. These numbers form the original survivor curve.
[4] The Company's selected Iowa curve to be fitted to the OLT.
[5] My selected Iowa curve to be fitted to the OLT.
[6] = ([4] - [3])^2. This is the squared difference between each point on the Company's curve and the observed survivor curve.
[7] = ([5] - [3])^2. This is the squared difference between each point on my curve and the observed survivor curve.
[8] = Sum of squared differences. The smallest SSD represents the best mathematical fit.

Account 364 Curve Fitting

[1] Age (Years)	[2] Exposures (Dollars)	[3] Observed Life Table (OLT)	[4] OGE R1-55	[5] OIEC/OER R0.5-65	[6] OGE SSD	[7] OIEC SSD
0.0	440,365,602	100.00%	100.00%	100.00%	0.0000	0.0000
0.5	411,294,411	99.72%	99.77%	99.71%	0.0000	0.0000
1.5	375,318,328	99.21%	99.29%	99.12%	0.0000	0.0000
2.5	353,350,851	98.42%	98.80%	98.53%	0.0000	0.0000
3.5	313,579,758	97.39%	98.30%	97.94%	0.0001	0.0000
4.5	283,608,733	96.72%	97.78%	97.34%	0.0001	0.0000
5.5	265,705,577	95.99%	97.26%	96.74%	0.0002	0.0001
6.5	256,871,665	95.29%	96.72%	96.13%	0.0002	0.0001
7.5	243,439,958	94.72%	96.17%	95.52%	0.0002	0.0001
8.5	221,572,219	94.09%	95.61%	94.90%	0.0002	0.0001
9.5	209,151,673	93.48%	95.03%	94.28%	0.0002	0.0001
10.5	200,580,693	92.99%	94.45%	93.65%	0.0002	0.0000
11.5	193,823,372	92.49%	93.85%	93.03%	0.0002	0.0000
12.5	189,637,387	91.94%	93.24%	92.39%	0.0002	0.0000
13.5	187,997,272	91.39%	92.62%	91.76%	0.0002	0.0000
14.5	169,767,319	90.83%	91.99%	91.11%	0.0001	0.0000
15.5	163,698,085	90.30%	91.35%	90.47%	0.0001	0.0000
16.5	163,425,294	89.69%	90.69%	89.82%	0.0001	0.0000
17.5	159,897,337	89.14%	90.03%	89.17%	0.0001	0.0000
18.5	161,313,424	88.61%	89.35%	88.51%	0.0001	0.0000
19.5	151,318,379	88.01%	88.66%	87.85%	0.0000	0.0000
20.5	146,346,415	87.41%	87.96%	87.18%	0.0000	0.0000
21.5	141,040,643	86.81%	87.25%	86.51%	0.0000	0.0000
22.5	133,553,591	86.22%	86.52%	85.84%	0.0000	0.0000
23.5	126,333,369	85.56%	85.78%	85.16%	0.0000	0.0000
24.5	119,140,206	84.66%	85.02%	84.48%	0.0000	0.0000
25.5	110,784,975	83.92%	84.25%	83.79%	0.0000	0.0000
26.5	105,209,337	83.19%	83.47%	83.10%	0.0000	0.0000
27.5	98,815,140	82.46%	82.67%	82.40%	0.0000	0.0000
28.5	92,511,870	81.27%	81.85%	81.70%	0.0000	0.0000
29.5	84,731,547	80.50%	81.01%	80.99%	0.0000	0.0000
30.5	77,699,928	79.69%	80.15%	80.28%	0.0000	0.0000
31.5	70,203,197	79.03%	79.28%	79.56%	0.0000	0.0000
32.5	62,747,412	78.31%	78.39%	78.83%	0.0000	0.0000
33.5	55,009,503	76.55%	77.48%	78.10%	0.0001	0.0002
34.5	48,639,241	75.73%	76.55%	77.37%	0.0001	0.0003
35.5	43,416,645	74.96%	75.59%	76.62%	0.0000	0.0003
36.5	40,083,986	74.17%	74.62%	75.87%	0.0000	0.0003
37.5	112,955,805	73.36%	73.63%	75.12%	0.0000	0.0003
38.5	263,694,496	72.81%	72.62%	74.35%	0.0000	0.0002
39.5	260,816,888	72.53%	71.58%	73.58%	0.0001	0.0001
40.5	255,659,530	72.14%	70.52%	72.81%	0.0003	0.0000
41.5	181,603,006	71.73%	69.44%	72.02%	0.0005	0.0000
42.5	38,378,666	71.31%	68.34%	71.23%	0.0009	0.0000
43.5	35,246,603	70.67%	67.22%	70.43%	0.0012	0.0000
44.5	32,054,139	69.89%	66.08%	69.62%	0.0015	0.0000
45.5	29,626,839	69.14%	64.91%	68.81%	0.0018	0.0000
46.5	27,357,537	68.47%	63.73%	67.99%	0.0022	0.0000
47.5	26,131,367	67.74%	62.52%	67.16%	0.0027	0.0000

Account 364 Curve Fitting

[1] Age (Years)	[2] Exposures (Dollars)	[3] Observed Life Table (OLT)	[4] OGE R1-55	[5] OIEC/OER R0.5-65	[6] OGE SSD	[7] OIEC SSD
48.5	24,308,879	67.11%	61.30%	66.32%	0.0034	0.0001
49.5	22,701,647	66.56%	60.06%	65.47%	0.0042	0.0001
50.5	20,958,506	65.84%	58.79%	64.62%	0.0050	0.0001
51.5	19,265,994	65.32%	57.51%	63.76%	0.0061	0.0002
52.5	17,592,725	64.81%	56.21%	62.89%	0.0074	0.0004
53.5	15,677,345	64.17%	54.90%	62.02%	0.0086	0.0005
54.5	14,422,263	63.68%	53.57%	61.13%	0.0102	0.0006
55.5	13,320,886	63.19%	52.22%	60.24%	0.0120	0.0009
56.5	12,492,435	62.95%	50.86%	59.34%	0.0146	0.0013
57.5	11,926,586	62.75%	49.49%	58.44%	0.0176	0.0019
58.5		62.70%	48.10%	57.53%		
Sum of Squared Differences				[8]	0.1032	0.0086

[1] Age in years using half-year convention

[2] Dollars exposed to retirement at the beginning of each age interval

[3] Observed life table based on the Company's property records. These numbers form the original survivor curve.

[4] The Company's selected Iowa curve to be fitted to the OLT.

[5] My selected Iowa curve to be fitted to the OLT.

[6] = ([4] - [3])^2. This is the squared difference between each point on the Company's curve and the observed survivor curve.

[7] = ([5] - [3])^2. This is the squared difference between each point on my curve and the observed survivor curve.

[8] = Sum of squared differences. The smallest SSD represents the best mathematical fit.

Account 365 Curve Fitting

[1] Age (Years)	[2] Exposures (Dollars)	[3] Observed Life Table (OLT)	[4] OGE R0.5-55	[5] OIEC/OER R0.5-59	[6] OGE SSD	[7] OIEC SSD
0.0	322,091,842	100.00%	100.00%	100.00%	0.0000	0.0000
0.5	297,275,363	99.78%	99.66%	99.68%	0.0000	0.0000
1.5	260,653,370	99.27%	98.96%	99.03%	0.0000	0.0000
2.5	230,825,874	97.65%	98.26%	98.38%	0.0000	0.0001
3.5	202,299,342	96.80%	97.56%	97.72%	0.0001	0.0001
4.5	179,222,472	95.93%	96.85%	97.06%	0.0001	0.0001
5.5	169,238,446	94.79%	96.13%	96.40%	0.0002	0.0003
6.5	168,148,522	93.88%	95.40%	95.72%	0.0002	0.0003
7.5	163,562,386	93.12%	94.67%	95.05%	0.0002	0.0004
8.5	151,995,327	92.32%	93.94%	94.36%	0.0003	0.0004
9.5	146,237,616	90.09%	93.20%	93.68%	0.0010	0.0013
10.5	143,458,235	89.35%	92.45%	92.98%	0.0010	0.0013
11.5	140,006,715	88.62%	91.70%	92.29%	0.0009	0.0013
12.5	136,831,756	87.89%	90.94%	91.58%	0.0009	0.0014
13.5	139,318,133	87.14%	90.17%	90.87%	0.0009	0.0014
14.5	135,127,001	86.50%	89.40%	90.16%	0.0008	0.0013
15.5	134,546,672	85.47%	88.63%	89.44%	0.0010	0.0016
16.5	136,906,577	84.78%	87.85%	88.72%	0.0009	0.0016
17.5	135,127,042	84.21%	87.06%	87.99%	0.0008	0.0014
18.5	137,326,663	83.68%	86.27%	87.26%	0.0007	0.0013
19.5	138,080,414	82.95%	85.47%	86.52%	0.0006	0.0013
20.5	132,278,884	82.36%	84.66%	85.78%	0.0005	0.0012
21.5	125,649,013	81.84%	83.85%	85.03%	0.0004	0.0010
22.5	118,823,151	81.29%	83.03%	84.28%	0.0003	0.0009
23.5	109,672,111	80.59%	82.21%	83.52%	0.0003	0.0009
24.5	101,835,437	79.84%	81.38%	82.75%	0.0002	0.0008
25.5	93,884,265	79.30%	80.54%	81.98%	0.0002	0.0007
26.5	87,290,285	78.35%	79.69%	81.21%	0.0002	0.0008
27.5	82,036,238	77.83%	78.83%	80.42%	0.0001	0.0007
28.5	77,104,705	77.08%	77.97%	79.63%	0.0001	0.0007
29.5	70,968,728	76.43%	77.10%	78.83%	0.0000	0.0006
30.5	65,985,736	75.66%	76.21%	78.03%	0.0000	0.0006
31.5	59,814,333	74.78%	75.32%	77.21%	0.0000	0.0006
32.5	53,202,964	74.19%	74.42%	76.39%	0.0000	0.0005
33.5	47,444,054	72.78%	73.51%	75.57%	0.0001	0.0008
34.5	42,370,433	72.03%	72.59%	74.73%	0.0000	0.0007
35.5	37,392,126	71.35%	71.66%	73.88%	0.0000	0.0006
36.5	35,454,622	70.75%	70.72%	73.03%	0.0000	0.0005
37.5	54,026,710	70.11%	69.77%	72.17%	0.0000	0.0004
38.5	272,743,444	69.34%	68.81%	71.30%	0.0000	0.0004
39.5	270,157,268	68.93%	67.84%	70.42%	0.0001	0.0002
40.5	268,312,407	68.68%	66.85%	69.53%	0.0003	0.0001
41.5	245,424,662	68.28%	65.86%	68.63%	0.0006	0.0000
42.5	42,554,297	67.78%	64.85%	67.72%	0.0009	0.0000
43.5	39,847,539	67.17%	63.84%	66.80%	0.0011	0.0000
44.5	37,321,798	66.67%	62.81%	65.88%	0.0015	0.0001
45.5	35,048,123	66.23%	61.78%	64.94%	0.0020	0.0002
46.5	32,657,531	65.54%	60.73%	63.99%	0.0023	0.0002
47.5	30,711,736	64.51%	59.67%	63.04%	0.0023	0.0002

Account 365 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**OGE R0.5-55**	**OIEC/OER R0.5-59**	**OGE SSD**	**OIEC SSD**
48.5	28,899,811	64.03%	58.60%	62.08%	0.0029	0.0004
49.5	27,161,797	63.65%	57.53%	61.10%	0.0037	0.0006
50.5	25,537,570	63.17%	56.44%	60.12%	0.0045	0.0009
51.5	23,819,726	62.85%	55.35%	59.13%	0.0056	0.0014
52.5	22,088,871	62.43%	54.24%	58.13%	0.0067	0.0018
53.5	20,416,056	61.88%	53.13%	57.12%	0.0077	0.0023
54.5	19,131,543	61.55%	52.01%	56.11%	0.0091	0.0030
55.5	17,973,922	61.28%	50.88%	55.09%	0.0108	0.0038
56.5	17,224,375	61.09%	49.75%	54.06%	0.0129	0.0049
57.5	16,573,051	60.96%	48.61%	53.02%	0.0153	0.0063
58.5		60.95%	47.46%	51.97%		
Sum of Squared Differences				[8]	0.1036	0.0567

[1] Age in years using half-year convention
[2] Dollars exposed to retirement at the beginning of each age interval
[3] Observed life table based on the Company's property records. These numbers form the original survivor curve.
[4] The Company's selected Iowa curve to be fitted to the OLT.
[5] My selected Iowa curve to be fitted to the OLT.
[6] = ([4] - [3])^2. This is the squared difference between each point on the Company's curve and the observed survivor curve.
[7] = ([5] - [3])^2. This is the squared difference between each point on my curve and the observed survivor curve.
[8] = Sum of squared differences. The smallest SSD represents the best mathematical fit.

Account 366 Curve Fitting

[1] Age (Years)	[2] Exposures (Dollars)	[3] Observed Life Table (OLT)	[4] OGE R2-60	[5] OIEC/OER R1.5-68	[6] OGE SSD	[7] OIEC SSD
0.0	164,358,668	100.00%	100.00%	100.00%	0.0000	0.0000
0.5	153,230,808	99.98%	99.92%	99.87%	0.0000	0.0000
1.5	141,294,591	99.88%	99.76%	99.61%	0.0000	0.0000
2.5	129,077,646	99.61%	99.58%	99.33%	0.0000	0.0000
3.5	118,781,388	99.42%	99.40%	99.05%	0.0000	0.0000
4.5	102,043,154	99.20%	99.20%	98.77%	0.0000	0.0000
5.5	93,504,137	98.87%	99.00%	98.47%	0.0000	0.0000
6.5	86,072,709	95.24%	98.78%	98.17%	0.0013	0.0009
7.5	77,890,952	94.97%	98.56%	97.86%	0.0013	0.0008
8.5	67,778,457	94.80%	98.32%	97.53%	0.0012	0.0007
9.5	60,689,924	94.68%	98.06%	97.21%	0.0011	0.0006
10.5	52,639,006	94.58%	97.80%	96.87%	0.0010	0.0005
11.5	45,606,912	94.46%	97.52%	96.52%	0.0009	0.0004
12.5	40,801,316	94.36%	97.22%	96.16%	0.0008	0.0003
13.5	37,997,265	94.25%	96.92%	95.80%	0.0007	0.0002
14.5	38,303,609	94.14%	96.59%	95.42%	0.0006	0.0002
15.5	36,742,160	94.00%	96.25%	95.04%	0.0005	0.0001
16.5	40,049,950	93.67%	95.90%	94.64%	0.0005	0.0001
17.5	39,875,146	93.52%	95.52%	94.24%	0.0004	0.0001
18.5	37,799,588	93.42%	95.13%	93.83%	0.0003	0.0000
19.5	39,372,508	93.29%	94.72%	93.40%	0.0002	0.0000
20.5	36,039,338	93.16%	94.29%	92.97%	0.0001	0.0000
21.5	33,100,184	93.07%	93.84%	92.52%	0.0001	0.0000
22.5	32,492,323	92.20%	93.37%	92.06%	0.0001	0.0000
23.5	31,064,074	92.01%	92.88%	91.59%	0.0001	0.0000
24.5	29,014,284	91.86%	92.37%	91.12%	0.0000	0.0001
25.5	28,137,626	91.76%	91.83%	90.62%	0.0000	0.0001
26.5	26,451,462	91.52%	91.28%	90.12%	0.0000	0.0002
27.5	25,001,783	91.41%	90.69%	89.60%	0.0001	0.0003
28.5	23,748,873	90.35%	90.09%	89.07%	0.0000	0.0002
29.5	25,885,838	89.72%	89.45%	88.53%	0.0000	0.0001
30.5	27,025,533	89.60%	88.79%	87.97%	0.0001	0.0003
31.5	20,672,431	89.49%	88.10%	87.39%	0.0002	0.0004
32.5	20,057,335	89.21%	87.39%	86.81%	0.0003	0.0006
33.5	19,548,820	89.04%	86.64%	86.20%	0.0006	0.0008
34.5	67,807,406	88.80%	85.87%	85.58%	0.0009	0.0010
35.5	66,343,168	88.74%	85.06%	84.95%	0.0014	0.0014
36.5	65,801,845	88.59%	84.22%	84.30%	0.0019	0.0018
37.5	64,826,563	88.47%	83.35%	83.63%	0.0026	0.0023
38.5	65,672,913	88.24%	82.45%	82.94%	0.0034	0.0028
39.5	13,846,039	88.16%	81.51%	82.24%	0.0044	0.0035
40.5	13,685,561	87.61%	80.54%	81.51%	0.0050	0.0037
41.5	13,534,432	87.32%	79.53%	80.77%	0.0061	0.0043
42.5	11,777,143	87.06%	78.48%	80.01%	0.0074	0.0050
43.5	11,256,514	86.81%	77.40%	79.23%	0.0089	0.0057
44.5	4,722,355	86.65%	76.28%	78.43%	0.0108	0.0068
45.5	1,088,087	86.48%	75.12%	77.61%	0.0129	0.0079
46.5	1,077,812	86.00%	73.92%	76.76%	0.0146	0.0085
47.5	1,072,483	85.58%	72.69%	75.90%	0.0166	0.0094

Account 366 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**OGE R2-60**	**OIEC/OER R1.5-68**	**OGE SSD**	**OIEC SSD**
48.5	1,060,916	84.65%	71.41%	75.02%	0.0175	0.0093
49.5	1,051,945	83.94%	70.10%	74.11%	0.0192	0.0097
50.5	1,042,966	83.35%	68.74%	73.18%	0.0213	0.0103
51.5	1,041,767	83.26%	67.35%	72.23%	0.0253	0.0122
52.5	1,036,288	83.04%	65.92%	71.26%	0.0293	0.0139
53.5	1,023,723	82.04%	64.45%	70.27%	0.0309	0.0139
54.5	1,019,394	81.69%	62.94%	69.25%	0.0352	0.0155
55.5	1,018,249	81.60%	61.39%	68.21%	0.0408	0.0179
56.5	1,015,891	81.41%	59.81%	67.15%	0.0466	0.0203
57.5	1,014,601	81.31%	58.20%	66.07%	0.0534	0.0232
58.5		80.96%	56.55%	64.97%		
Sum of Squared Differences				[8]	0.4289	0.2186

[1] Age in years using half-year convention
[2] Dollars exposed to retirement at the beginning of each age interval
[3] Observed life table based on the Company's property records. These numbers form the original survivor curve.
[4] The Company's selected Iowa curve to be fitted to the OLT.
[5] My selected Iowa curve to be fitted to the OLT.
[6] = ([4] - [3])^2. This is the squared difference between each point on the Company's curve and the observed survivor curve.
[7] = ([5] - [3])^2. This is the squared difference between each point on my curve and the observed survivor curve.
[8] = Sum of squared differences. The smallest SSD represents the best mathematical fit.

Account 367 Curve Fitting

[1] Age (Years)	[2] Exposures (Dollars)	[3] Observed Life Table (OLT)	[4] OGE R2.5-62	[5] OIEC/OER R2-70	[6] OGE SSD	[7] OIEC SSD
0.0	579,602,631	100.00%	100.00%	100.00%	0.0000	0.0000
0.5	538,290,614	99.94%	99.96%	99.93%	0.0000	0.0000
1.5	497,495,362	99.65%	99.86%	99.79%	0.0000	0.0000
2.5	457,441,769	99.19%	99.76%	99.65%	0.0000	0.0000
3.5	425,450,488	98.74%	99.66%	99.49%	0.0001	0.0001
4.5	376,105,821	98.16%	99.54%	99.33%	0.0002	0.0001
5.5	361,690,846	97.74%	99.42%	99.16%	0.0003	0.0002
6.5	351,330,965	97.42%	99.29%	98.98%	0.0004	0.0002
7.5	331,302,713	97.02%	99.15%	98.80%	0.0005	0.0003
8.5	297,464,950	96.73%	99.01%	98.61%	0.0005	0.0004
9.5	271,348,829	96.50%	98.85%	98.40%	0.0006	0.0004
10.5	245,248,650	96.27%	98.68%	98.19%	0.0006	0.0004
11.5	224,596,075	96.06%	98.51%	97.97%	0.0006	0.0004
12.5	204,127,037	95.86%	98.32%	97.74%	0.0006	0.0004
13.5	193,621,684	95.65%	98.11%	97.50%	0.0006	0.0003
14.5	190,785,541	95.46%	97.90%	97.25%	0.0006	0.0003
15.5	181,874,120	95.31%	97.67%	96.98%	0.0006	0.0003
16.5	185,340,291	95.04%	97.43%	96.71%	0.0006	0.0003
17.5	175,761,193	94.88%	97.17%	96.42%	0.0005	0.0002
18.5	170,168,750	94.74%	96.90%	96.13%	0.0005	0.0002
19.5	167,967,031	94.45%	96.61%	95.82%	0.0005	0.0002
20.5	149,338,590	94.27%	96.30%	95.49%	0.0004	0.0001
21.5	133,212,823	94.12%	95.98%	95.16%	0.0003	0.0001
22.5	117,793,666	93.92%	95.63%	94.81%	0.0003	0.0001
23.5	107,881,585	93.71%	95.27%	94.45%	0.0002	0.0001
24.5	103,157,218	93.46%	94.88%	94.07%	0.0002	0.0000
25.5	93,497,624	93.20%	94.47%	93.68%	0.0002	0.0000
26.5	83,933,601	92.87%	94.04%	93.27%	0.0001	0.0000
27.5	75,026,324	92.66%	93.59%	92.85%	0.0001	0.0000
28.5	64,937,212	92.25%	93.11%	92.41%	0.0001	0.0000
29.5	67,244,633	91.86%	92.60%	91.95%	0.0001	0.0000
30.5	68,412,209	91.55%	92.07%	91.48%	0.0000	0.0000
31.5	48,427,726	91.28%	91.51%	90.99%	0.0000	0.0000
32.5	46,182,684	90.76%	90.92%	90.48%	0.0000	0.0000
33.5	44,692,321	90.31%	90.30%	89.95%	0.0000	0.0000
34.5	239,892,041	89.66%	89.65%	89.41%	0.0000	0.0000
35.5	238,649,810	89.52%	88.96%	88.84%	0.0000	0.0000
36.5	237,154,896	89.26%	88.25%	88.25%	0.0001	0.0001
37.5	235,317,344	88.98%	87.49%	87.65%	0.0002	0.0002
38.5	240,481,347	88.77%	86.70%	87.02%	0.0004	0.0003
39.5	39,175,759	88.63%	85.87%	86.37%	0.0008	0.0005
40.5	37,819,051	86.56%	85.00%	85.70%	0.0002	0.0001
41.5	37,463,101	85.80%	84.10%	85.00%	0.0003	0.0001
42.5	31,845,035	84.90%	83.14%	84.28%	0.0003	0.0000
43.5	30,514,959	84.26%	82.15%	83.54%	0.0004	0.0001
44.5	13,682,478	83.48%	81.11%	82.77%	0.0006	0.0000
45.5	3,116,690	82.96%	80.02%	81.98%	0.0009	0.0001
46.5	3,020,066	81.56%	78.89%	81.17%	0.0007	0.0000
47.5	2,948,555	80.59%	77.70%	80.32%	0.0008	0.0000

Account 367 Curve Fitting

[1] Age (Years)	[2] Exposures (Dollars)	[3] Observed Life Table (OLT)	[4] OGE R2.5-62	[5] OIEC/OER R2-70	[6] OGE SSD	[7] OIEC SSD
48.5	2,805,895	77.83%	76.46%	79.45%	0.0002	0.0003
49.5	2,714,821	76.56%	75.17%	78.56%	0.0002	0.0004
50.5	2,606,978	74.64%	73.83%	77.64%	0.0001	0.0009
51.5	2,550,698	73.86%	72.43%	76.68%	0.0002	0.0008
52.5	2,476,889	72.76%	70.97%	75.71%	0.0003	0.0009
53.5	2,393,968	71.38%	69.46%	74.70%	0.0004	0.0011
54.5	2,315,893	69.92%	67.89%	73.66%	0.0004	0.0014
55.5	2,228,912	68.24%	66.27%	72.60%	0.0004	0.0019
56.5	2,146,359	66.65%	64.59%	71.51%	0.0004	0.0024
57.5	2,100,456	66.06%	62.85%	70.38%	0.0010	0.0019
58.5		64.54%	61.05%	69.23%		
Sum of Squared Differences				[8]	0.0195	0.0185
Up to 1% of Beginning Exposures				[9]	0.0135	0.0065

[1] Age in years using half-year convention
[2] Dollars exposed to retirement at the beginning of each age interval
[3] Observed life table based on the Company's property records. These numbers form the original survivor curve.
[4] The Company's selected Iowa curve to be fitted to the OLT.
[5] My selected Iowa curve to be fitted to the OLT.
[6] = ([4] - [3])^2. This is the squared difference between each point on the Company's curve and the observed survivor curve.
[7] = ([5] - [3])^2. This is the squared difference between each point on my curve and the observed survivor curve.
[8] = Sum of squared differences. The smallest SSD represents the best mathematical fit.

Account 368 Curve Fitting

[1] Age (Years)	[2] Exposures (Dollars)	[3] Observed Life Table (OLT)	[4] OGE O1-42	[5] OIEC/OER O2-47	[6] OGE SSD	[7] OIEC SSD
0.0	360,307,528	100.00%	100.00%	100.00%	0.0000	0.0000
0.5	333,055,222	99.76%	99.40%	99.41%	0.0000	0.0000
1.5	303,357,624	98.35%	98.21%	98.21%	0.0000	0.0000
2.5	272,558,329	97.04%	97.02%	97.02%	0.0000	0.0000
3.5	242,946,861	95.59%	95.83%	95.83%	0.0000	0.0000
4.5	211,506,334	93.89%	94.64%	94.64%	0.0001	0.0001
5.5	176,633,565	92.28%	93.45%	93.45%	0.0001	0.0001
6.5	158,364,916	90.78%	92.26%	92.26%	0.0002	0.0002
7.5	136,322,220	89.31%	91.07%	91.06%	0.0003	0.0003
8.5	117,501,602	87.42%	89.88%	89.87%	0.0006	0.0006
9.5	98,001,967	85.58%	88.69%	88.68%	0.0010	0.0010
10.5	82,057,486	83.88%	87.50%	87.49%	0.0013	0.0013
11.5	69,277,767	82.14%	86.31%	86.30%	0.0017	0.0017
12.5	70,454,522	79.98%	85.12%	85.10%	0.0026	0.0026
13.5	80,422,916	77.97%	83.93%	83.91%	0.0036	0.0035
14.5	72,368,391	76.08%	82.74%	82.72%	0.0044	0.0044
15.5	74,041,117	74.61%	81.55%	81.53%	0.0048	0.0048
16.5	92,121,806	73.05%	80.36%	80.34%	0.0053	0.0053
17.5	84,431,202	72.25%	79.17%	79.14%	0.0048	0.0048
18.5	85,264,659	71.51%	77.98%	77.95%	0.0042	0.0041
19.5	92,874,942	70.68%	76.79%	76.76%	0.0037	0.0037
20.5	100,205,897	70.02%	75.60%	75.57%	0.0031	0.0031
21.5	100,393,285	69.42%	74.40%	74.37%	0.0025	0.0025
22.5	112,661,727	68.76%	73.21%	73.18%	0.0020	0.0020
23.5	116,101,669	68.20%	72.02%	71.99%	0.0015	0.0014
24.5	123,713,119	67.58%	70.83%	70.80%	0.0011	0.0010
25.5	126,869,820	67.06%	69.64%	69.60%	0.0007	0.0006
26.5	126,645,610	66.56%	68.45%	68.41%	0.0004	0.0003
27.5	127,587,945	66.06%	67.26%	67.22%	0.0001	0.0001
28.5	130,673,129	65.36%	66.07%	66.03%	0.0001	0.0000
29.5	129,966,028	64.75%	64.88%	64.84%	0.0000	0.0000
30.5	129,737,530	64.06%	63.69%	63.64%	0.0000	0.0000
31.5	130,454,167	63.38%	62.50%	62.45%	0.0001	0.0001
32.5	118,399,724	62.75%	61.31%	61.26%	0.0002	0.0002
33.5	101,791,363	61.93%	60.12%	60.07%	0.0003	0.0003
34.5	102,008,910	61.28%	58.93%	58.88%	0.0006	0.0006
35.5	93,171,054	60.66%	57.74%	57.69%	0.0009	0.0009
36.5	69,173,298	59.97%	56.55%	56.49%	0.0012	0.0012
37.5	71,966,330	58.88%	55.36%	55.30%	0.0012	0.0013
38.5	90,136,026	57.36%	54.17%	54.11%	0.0010	0.0011
39.5	75,244,005	56.50%	52.98%	52.93%	0.0012	0.0013
40.5	62,649,617	54.35%	51.79%	51.74%	0.0007	0.0007
41.5	61,023,647	52.71%	50.60%	50.55%	0.0004	0.0005
42.5	39,494,592	50.19%	49.40%	49.37%	0.0001	0.0001
43.5	35,540,787	48.99%	48.21%	48.19%	0.0001	0.0001
44.5	29,799,812	47.52%	47.02%	47.01%	0.0000	0.0000
45.5	26,431,087	45.98%	45.83%	45.84%	0.0000	0.0000
46.5	25,538,608	44.75%	44.64%	44.67%	0.0000	0.0000
47.5	23,955,373	43.27%	43.45%	43.51%	0.0000	0.0000

Account 368 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**OGE O1-42**	**OIEC/OER O2-47**	**OGE SSD**	**OIEC SSD**
48.5	19,762,353	42.12%	42.26%	42.35%	0.0000	0.0000
49.5	18,951,340	40.81%	41.07%	41.20%	0.0000	0.0000
50.5	18,007,298	39.66%	39.88%	40.06%	0.0000	0.0000
51.5	16,542,392	39.24%	38.69%	38.92%	0.0000	0.0000
52.5	16,107,573	39.13%	37.50%	37.80%	0.0003	0.0002
53.5	15,836,083	38.86%	36.31%	36.70%	0.0007	0.0005
54.5	15,269,407	38.71%	35.12%	35.60%	0.0013	0.0010
55.5	15,107,664	38.56%	33.93%	34.52%	0.0021	0.0016
56.5	14,863,118	38.40%	32.74%	33.46%	0.0032	0.0024
57.5	14,790,244	38.35%	31.55%	32.42%	0.0046	0.0035
58.5		38.27%	30.36%	31.39%		
Sum of Squared Differences				[8]	0.0703	0.0672

[1] Age in years using half-year convention
[2] Dollars exposed to retirement at the beginning of each age interval
[3] Observed life table based on the Company's property records. These numbers form the original survivor curve.
[4] The Company's selected Iowa curve to be fitted to the OLT.
[5] My selected Iowa curve to be fitted to the OLT.
[6] = ([4] - [3])^2. This is the squared difference between each point on the Company's curve and the observed survivor curve.
[7] = ([5] - [3])^2. This is the squared difference between each point on my curve and the observed survivor curve.
[8] = Sum of squared differences. The smallest SSD represents the best mathematical fit.

Account 369 Curve Fitting

[1] Age (Years)	[2] Exposures (Dollars)	[3] Observed Life Table (OLT)	[4] OGE R4-55	[5] OIEC/OER R4-65	[6] OGE SSD	[7] OIEC SSD
0.0	145,837,415	100.00%	100.00%	100.00%	0.0000	0.0000
0.5	147,509,906	99.64%	100.00%	100.00%	0.0000	0.0000
1.5	145,075,806	99.46%	100.00%	100.00%	0.0000	0.0000
2.5	144,974,519	99.38%	99.99%	100.00%	0.0000	0.0000
3.5	144,866,450	99.33%	99.99%	99.99%	0.0000	0.0000
4.5	127,561,442	99.30%	99.99%	99.99%	0.0000	0.0000
5.5	126,463,938	99.26%	99.98%	99.99%	0.0001	0.0001
6.5	129,270,868	99.23%	99.98%	99.98%	0.0001	0.0001
7.5	120,511,607	99.20%	99.97%	99.98%	0.0001	0.0001
8.5	109,013,321	99.17%	99.96%	99.97%	0.0001	0.0001
9.5	100,337,728	99.15%	99.95%	99.96%	0.0001	0.0001
10.5	93,442,032	99.12%	99.93%	99.95%	0.0001	0.0001
11.5	92,031,226	99.07%	99.91%	99.94%	0.0001	0.0001
12.5	88,211,391	99.03%	99.89%	99.93%	0.0001	0.0001
13.5	85,407,411	99.00%	99.86%	99.91%	0.0001	0.0001
14.5	82,265,691	98.96%	99.82%	99.89%	0.0001	0.0001
15.5	74,496,818	98.87%	99.78%	99.87%	0.0001	0.0001
16.5	73,517,462	98.81%	99.73%	99.84%	0.0001	0.0001
17.5	77,762,023	98.78%	99.67%	99.81%	0.0001	0.0001
18.5	77,558,773	98.75%	99.60%	99.77%	0.0001	0.0001
19.5	75,346,610	98.72%	99.51%	99.73%	0.0001	0.0001
20.5	72,895,262	98.69%	99.41%	99.68%	0.0001	0.0001
21.5	70,326,795	98.63%	99.29%	99.62%	0.0000	0.0001
22.5	66,840,276	98.57%	99.15%	99.55%	0.0000	0.0001
23.5	65,610,437	98.51%	98.99%	99.47%	0.0000	0.0001
24.5	64,096,272	98.44%	98.80%	99.38%	0.0000	0.0001
25.5	62,475,678	98.36%	98.58%	99.28%	0.0000	0.0001
26.5	60,969,658	98.28%	98.33%	99.16%	0.0000	0.0001
27.5	60,242,521	98.23%	98.04%	99.03%	0.0000	0.0001
28.5	58,627,393	98.18%	97.71%	98.87%	0.0000	0.0000
29.5	55,803,427	98.14%	97.33%	98.70%	0.0001	0.0000
30.5	51,289,299	98.10%	96.91%	98.51%	0.0001	0.0000
31.5	45,727,751	98.01%	96.43%	98.29%	0.0003	0.0000
32.5	98,917,879	97.91%	95.89%	98.04%	0.0004	0.0000
33.5	93,524,056	97.86%	95.28%	97.76%	0.0007	0.0000
34.5	88,941,539	97.77%	94.60%	97.46%	0.0010	0.0000
35.5	84,724,143	97.71%	93.85%	97.11%	0.0015	0.0000
36.5	21,770,239	97.57%	93.01%	96.73%	0.0021	0.0001
37.5	18,896,698	97.40%	92.09%	96.31%	0.0028	0.0001
38.5	58,573,606	96.04%	91.07%	95.84%	0.0025	0.0000
39.5	55,563,951	95.45%	89.96%	95.33%	0.0030	0.0000
40.5	52,593,980	95.11%	88.74%	94.77%	0.0041	0.0000
41.5	50,795,261	94.77%	87.41%	94.15%	0.0054	0.0000
42.5	7,322,186	94.44%	85.97%	93.47%	0.0072	0.0001
43.5	5,801,967	94.21%	84.42%	92.74%	0.0096	0.0002
44.5	4,298,889	93.93%	82.75%	91.94%	0.0125	0.0004
45.5	3,241,457	93.36%	80.96%	91.07%	0.0154	0.0005
46.5	2,335,448	90.62%	79.05%	90.13%	0.0134	0.0000
47.5	1,584,236	86.32%	77.00%	89.13%	0.0087	0.0008

Account 369 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**OGE R4-55**	**OIEC/OER R4-65**	**OGE SSD**	**OIEC SSD**
48.5	1,020,577	81.13%	74.80%	88.04%	0.0040	0.0048
49.5	555,818	73.83%	72.42%	86.87%	0.0002	0.0170
50.5	234,523	66.58%	69.82%	85.63%	0.0011	0.0363
51.5	62,921	57.03%	67.00%	84.30%	0.0099	0.0743
52.5	115	44.31%	63.96%	82.88%	0.0386	0.1488
53.5	38	14.77%	60.68%	81.38%	0.2108	0.4437
54.5			57.19%	79.80%		
Sum of Squared Differences Up to 1% of Beginning Exposures				[8]	0.0920	0.0045

[1] Age in years using half-year convention
[2] Dollars exposed to retirement at the beginning of each age interval
[3] Observed life table based on the Company's property records. These numbers form the original survivor curve.
[4] The Company's selected Iowa curve to be fitted to the OLT.
[5] My selected Iowa curve to be fitted to the OLT.
[6] = ([4] - [3])^2. This is the squared difference between each point on the Company's curve and the observed survivor curve.
[7] = ([5] - [3])^2. This is the squared difference between each point on my curve and the observed survivor curve.

Account 373 Curve Fitting

[1] Age (Years)	[2] Exposures (Dollars)	[3] Observed Life Table (OLT)	[4] OGE L1-27	[5] OIEC/OER R2-45	[6] OGE SSD	[7] OIEC SSD
0.0	185,725,089	100.00%	100.00%	100.00%	0.0000	0.0000
0.5	176,370,107	99.93%	99.89%	99.89%	0.0000	0.0000
1.5	164,647,815	99.55%	99.58%	99.67%	0.0000	0.0000
2.5	158,947,803	98.61%	99.16%	99.43%	0.0000	0.0001
3.5	151,523,864	98.01%	98.58%	99.17%	0.0000	0.0001
4.5	145,075,211	97.34%	97.83%	98.89%	0.0000	0.0002
5.5	139,469,839	96.82%	96.88%	98.59%	0.0000	0.0003
6.5	132,811,566	96.32%	95.73%	98.27%	0.0000	0.0004
7.5	124,718,863	95.89%	94.36%	97.93%	0.0002	0.0004
8.5	113,349,937	95.53%	92.76%	97.57%	0.0008	0.0004
9.5	101,095,635	95.16%	90.93%	97.17%	0.0018	0.0004
10.5	87,742,125	94.72%	88.90%	96.76%	0.0034	0.0004
11.5	81,029,046	94.30%	86.67%	96.31%	0.0058	0.0004
12.5	75,037,900	93.81%	84.26%	95.83%	0.0091	0.0004
13.5	69,739,965	93.16%	81.71%	95.33%	0.0131	0.0005
14.5	66,798,646	92.49%	79.06%	94.79%	0.0180	0.0005
15.5	60,978,490	91.08%	76.33%	94.22%	0.0218	0.0010
16.5	55,200,069	90.26%	73.57%	93.61%	0.0279	0.0011
17.5	49,358,574	89.72%	70.81%	92.97%	0.0357	0.0011
18.5	44,630,656	88.85%	68.06%	92.28%	0.0432	0.0012
19.5	38,812,881	88.02%	65.32%	91.56%	0.0515	0.0013
20.5	33,940,838	87.15%	62.60%	90.79%	0.0603	0.0013
21.5	31,212,773	86.20%	59.90%	89.98%	0.0692	0.0014
22.5	27,748,958	85.33%	57.23%	89.13%	0.0790	0.0014
23.5	24,850,681	84.67%	54.58%	88.22%	0.0905	0.0013
24.5	23,258,458	83.73%	51.98%	87.27%	0.1008	0.0012
25.5	22,053,465	82.94%	49.41%	86.26%	0.1124	0.0011
26.5	20,250,909	81.95%	46.89%	85.20%	0.1229	0.0011
27.5	19,552,541	81.27%	44.42%	84.08%	0.1358	0.0008
28.5	19,582,531	80.60%	42.00%	82.90%	0.1490	0.0005
29.5	18,014,384	79.90%	39.64%	81.67%	0.1621	0.0003
30.5	15,924,922	79.11%	37.33%	80.37%	0.1745	0.0002
31.5	12,003,598	78.57%	35.09%	79.01%	0.1890	0.0000
32.5	10,657,065	77.83%	32.92%	77.58%	0.2017	0.0000
33.5	20,561,081	76.84%	30.81%	76.09%	0.2118	0.0001
34.5	18,827,634	76.44%	28.78%	74.53%	0.2272	0.0004
35.5	18,137,714	76.00%	26.82%	72.90%	0.2419	0.0010
36.5	39,672,335	75.67%	24.93%	71.20%	0.2574	0.0020
37.5	23,514,666	75.49%	23.12%	69.43%	0.2743	0.0037
38.5	38,330,940	74.81%	21.39%	67.58%	0.2854	0.0052
39.5	16,113,939	74.50%	19.73%	65.68%	0.3000	0.0078
40.5	19,353,341	72.63%	18.16%	63.70%	0.2968	0.0080
41.5	18,610,137	71.65%	16.66%	61.65%	0.3024	0.0100
42.5	18,077,994	70.90%	15.24%	59.55%	0.3098	0.0129
43.5	17,605,622	70.65%	13.90%	57.38%	0.3221	0.0176
44.5	16,331,370	70.38%	12.63%	55.16%	0.3335	0.0232
45.5	15,613,801	70.22%	11.45%	52.88%	0.3454	0.0301
46.5	15,489,814	70.07%	10.34%	50.56%	0.3568	0.0381
47.5	15,440,669	69.95%	9.30%	48.20%	0.3679	0.0473

Account 373 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**OGE L1-27**	**OIEC/OER R2-45**	**OGE SSD**	**OIEC SSD**
48.5	15,391,906	69.82%	8.33%	45.81%	0.3781	0.0577
49.5	15,341,534	69.71%	7.44%	43.40%	0.3878	0.0692
50.5	15,284,945	69.59%	6.61%	40.97%	0.3966	0.0819
51.5	15,246,511	69.53%	5.85%	38.54%	0.4055	0.0961
52.5	15,196,551	69.47%	5.16%	36.11%	0.4136	0.1113
53.5	15,122,671	69.39%	4.52%	33.71%	0.4208	0.1273
54.5	15,079,053	69.32%	3.94%	31.33%	0.4274	0.1443
55.5	15,010,081	69.25%	3.42%	28.99%	0.4334	0.1621
56.5	14,962,542	69.16%	2.95%	26.70%	0.4384	0.1803
57.5	14,920,480	69.12%	2.53%	24.47%	0.4435	0.1993
58.5				22.32%		
Sum of Squared Differences				[8]	10.4575	1.4576

[1] Age in years using half-year convention

[2] Dollars exposed to retirement at the beginning of each age interval

[3] Observed life table based on the Company's property records. These numbers form the original survivor curve.

[4] The Company's selected Iowa curve to be fitted to the OLT.

[5] My selected Iowa curve to be fitted to the OLT.

[6] = ([4] - [3])^2. This is the squared difference between each point on the Company's curve and the observed survivor curve.

[7] = ([5] - [3])^2. This is the squared difference between each point on my curve and the observed survivor curve.

[8] = Sum of squared differences. The smallest SSD represents the best mathematical fit.

Account 390 Curve Fitting

[1] Age (Years)	[2] Exposures (Dollars)	[3] Observed Life Table (OLT)	[4] OGE R2.5-40	[5] OIEC/OER L1.5-46	[6] OGE SSD	[7] OIEC SSD
0.0	127,560,258	100.00%	100.00%	99.97%	0.0000	0.0000
0.5	128,899,185	100.00%	99.93%	99.89%	0.0000	0.0000
1.5	102,675,501	99.98%	99.78%	99.79%	0.0000	0.0000
2.5	100,241,826	99.87%	99.61%	99.66%	0.0000	0.0000
3.5	102,538,644	99.59%	99.43%	99.49%	0.0000	0.0000
4.5	83,132,987	99.51%	99.23%	99.28%	0.0000	0.0000
5.5	60,198,046	99.49%	99.00%	99.03%	0.0000	0.0000
6.5	65,277,128	99.05%	98.76%	98.73%	0.0000	0.0000
7.5	60,508,376	97.63%	98.48%	98.38%	0.0001	0.0001
8.5	67,236,167	96.51%	98.18%	97.97%	0.0003	0.0002
9.5	68,492,793	96.17%	97.85%	97.50%	0.0003	0.0002
10.5	79,033,111	95.33%	97.49%	96.97%	0.0005	0.0003
11.5	78,054,617	94.94%	97.09%	96.38%	0.0005	0.0002
12.5	79,924,079	94.75%	96.65%	95.73%	0.0004	0.0001
13.5	77,719,320	94.53%	96.17%	95.01%	0.0003	0.0000
14.5	78,494,748	93.55%	95.64%	94.23%	0.0004	0.0000
15.5	78,087,034	92.91%	95.07%	93.38%	0.0005	0.0000
16.5	77,934,894	92.25%	94.44%	92.45%	0.0005	0.0000
17.5	75,387,151	89.26%	93.76%	91.45%	0.0020	0.0005
18.5	73,487,960	88.84%	93.02%	90.36%	0.0017	0.0002
19.5	59,363,395	88.62%	92.22%	89.19%	0.0013	0.0000
20.5	57,317,695	87.98%	91.35%	87.94%	0.0011	0.0000
21.5	55,794,551	87.76%	90.41%	86.60%	0.0007	0.0001
22.5	55,183,975	87.75%	89.40%	85.17%	0.0003	0.0007
23.5	47,211,765	87.71%	88.30%	83.67%	0.0000	0.0016
24.5	46,792,218	87.49%	87.12%	82.10%	0.0000	0.0029
25.5	41,917,711	82.40%	85.85%	80.46%	0.0012	0.0004
26.5	36,623,837	82.00%	84.49%	78.76%	0.0006	0.0010
27.5	36,262,857	80.80%	83.02%	77.02%	0.0005	0.0014
28.5	29,468,556	79.08%	81.45%	75.23%	0.0006	0.0015
29.5	22,806,787	78.06%	79.77%	73.41%	0.0003	0.0022
30.5	8,176,638	77.91%	77.97%	71.56%	0.0000	0.0040
31.5	7,594,575	77.72%	76.05%	69.69%	0.0003	0.0065
32.5	6,789,243	74.41%	74.00%	67.80%	0.0000	0.0044
33.5	5,889,092	73.14%	71.82%	65.90%	0.0002	0.0052
34.5	5,908,046	72.43%	69.50%	64.00%	0.0009	0.0071
35.5	6,266,858	70.08%	67.05%	62.09%	0.0009	0.0064
36.5	5,277,960	66.27%	64.46%	60.20%	0.0003	0.0037
37.5	6,517,798	62.37%	61.73%	58.32%	0.0000	0.0016
38.5	11,959,624	62.07%	58.88%	56.45%	0.0010	0.0032
39.5	11,447,668	61.02%	55.91%	54.61%	0.0026	0.0041
40.5	9,022,201	48.80%	52.83%	52.79%	0.0016	0.0016
41.5	8,346,195	48.74%	49.66%	51.00%	0.0001	0.0005
42.5	7,420,845	48.71%	46.43%	49.23%	0.0005	0.0000
43.5	7,270,087	48.53%	43.15%	47.50%	0.0029	0.0001
44.5	6,877,712	48.45%	39.86%	45.80%	0.0074	0.0007
45.5	6,526,075	47.21%	36.58%	44.13%	0.0113	0.0009
46.5	6,441,130	47.20%	33.35%	42.50%	0.0192	0.0022
47.5	6,314,867	47.18%	30.19%	40.91%	0.0289	0.0039

Account 390 Curve Fitting

[1] Age (Years)	[2] Exposures (Dollars)	[3] Observed Life Table (OLT)	[4] OGE R2.5-40	[5] OIEC/OER L1.5-46	[6] OGE SSD	[7] OIEC SSD
48.5	6,267,674	47.18%	27.14%	39.35%	0.0402	0.0061
49.5	6,135,874	47.18%	24.22%	37.83%	0.0527	0.0087
50.5	5,878,846	47.18%	21.45%	36.35%	0.0662	0.0117
51.5	5,854,964	47.18%	18.85%	34.90%	0.0802	0.0151
52.5	5,808,918	47.17%	16.44%	33.49%	0.0944	0.0187
53.5	5,722,160	46.65%	14.23%	32.12%	0.1051	0.0211
54.5	5,585,875	46.32%	12.21%	30.78%	0.1164	0.0242
55.5	8,623,579	46.32%	10.38%	29.47%	0.1291	0.0284
56.5	4,643,833	44.71%	8.75%	28.21%	0.1293	0.0272
57.5		44.71%	7.29%			
Sum of Squared Differences				[8]	0.9058	0.2312

[1] Age in years using half-year convention
[2] Dollars exposed to retirement at the beginning of each age interval
[3] Observed life table based on the Company's property records. These numbers form the original survivor curve.
[4] The Company's selected Iowa curve to be fitted to the OLT.
[5] My selected Iowa curve to be fitted to the OLT.
[6] = ([4] - [3])^2. This is the squared difference between each point on the Company's curve and the observed survivor curve.
[7] = ([5] - [3])^2. This is the squared difference between each point on my curve and the observed survivor curve.
[8] = Sum of squared differences. The smallest SSD represents the best mathematical fit.

Account 364 Net Salvage Adjustment

	[1]	[2]		[3]		[4]		[5]	[6]	
	Regular	Cost of Removal		Gross Salvage		Spanos Net Salvage		Excluded	Actual Net Salvage	
Year	Retirements	$	%	$	%	$	%	Amounts	$	%
1991	$ 946,267	$ 411,214	43%	$ 138,760	15%	$ (272,454)	-29%	-	(272,454)	-29%
1992	2,156,070	1,385,900	64%	682,910	32%	(702,990)	-33%	-	(702,990)	-33%
1993	2,315,989	1,588,199	69%	741,715	32%	(846,484)	-37%	-	(846,484)	-37%
1994	1,956,519	1,213,949	62%	209,205	11%	(1,004,744)	-51%	-	(1,004,744)	-51%
1995	2,125,050	1,466,148	69%	309,232	15%	(1,156,916)	-54%	-	(1,156,916)	-54%
1996	1,596,961	375,293	24%	361,708	23%	(13,585)	-1%	-	(13,585)	-1%
1997	1,075,671	834,582	78%	1,122,766	104%	288,184	27%	-	288,184	27%
1998	806,164	488,261	61%	1,571,951	195%	1,083,690	134%	-	1,083,690	134%
1999	1,152,200	880,718	76%	508,119	44%	(372,599)	-32%	232,652	(139,947)	-12%
2000	1,847,854	586,419	32%	394,983	21%	(191,436)	-10%	102,246	(89,190)	-5%
2001	1,317,967	1,333,639	101%	433,028	33%	(900,611)	-68%	82,995	(817,616)	-62%
2002	3,839,897	3,276,095	85%	908,337	24%	(2,367,758)	-62%	311,208	(2,056,551)	-54%
2003	2,231,433	1,776,249	80%	613,779	28%	(1,162,470)	-52%	145,959	(1,016,511)	-46%
2004	2,604,783	2,230,116	86%	605,902	23%	(1,624,214)	-62%	299,977	(1,324,237)	-51%
2005	3,184,082	2,157,546	68%	466,512	15%	(1,691,034)	-53%	-	(1,691,034)	-53%
2006	3,716,298	3,326,662	90%	892,914	24%	(2,433,748)	-65%	-	(2,433,748)	-65%
2007	2,497,297	3,713,094	149%	3,843,351	154%	130,257	5%	833,994	964,251	39%
2008	3,403,343	4,815,931	142%	721,945	21%	(4,093,986)	-120%	597,835	(3,496,151)	-103%
2009	2,985,131	3,931,571	132%	905,996	30%	(3,025,575)	-101%	741,270	(2,284,305)	-77%
2010	3,393,766	4,059,213	120%	925,252	27%	(3,133,961)	-92%	757,024	(2,376,937)	-70%
2011	3,908,694	4,219,885	108%	887,857	23%	(3,332,028)	-85%	726,429	(2,605,599)	-67%
2012	3,229,999	4,463,263	138%	784,237	24%	(3,679,026)	-114%	641,649	(3,037,377)	-94%
2013	3,686,199	4,462,924	121%	760,184	21%	(3,702,740)	-100%	621,969	(3,080,771)	-84%
2014	4,926,088	2,925,858	59%	572,939	12%	(2,352,919)	-48%	859,408	(1,493,511)	-30%
2015	3,333,448	4,920,089	148%	819,983	25%	(4,100,106)	-123%	1,229,974	(2,870,132)	-86%
2016	3,508,903	3,723,475	106%	602,889	17%	(3,120,586)	-89%	904,334	(2,216,252)	-63%
Total	67,746,073	64,566,293	95%	20,786,454	31%	(43,779,839)	-65%	9,088,921	(34,690,918)	**-51%**

[1], [2], [3], [4] From depreciation study net salvage statistics

[5] Reimbursements and sales excluded from net salvage statistics; see AG-3-7_Att

[6] $ = [4] + [5] ; % = $ / [1]

Mass Property Net Salvage Adjustments

	[1]	[2]		[3]		[4]		[5]	[6]	
	Regular	Cost of Removal		Gross Salvage		Spanos Net Salvage		Excluded	Actual Net Salvage	
Acct	Retirements	$	%	$	%	$	%	Amounts	$	%
353	$ 53,605,086	$ 41,951,386	78%	$ 12,359,328	23%	$ (29,592,058)	-55%	3,119,246	(26,472,812)	**-49%**
355	32,959,786	45,693,885	139%	12,844,360	39%	(32,849,525)	-100%	9,459,445	(23,390,080)	**-71%**
356	12,318,538	11,468,907	93%	4,130,420	34%	(7,338,487)	-60%	817,618	(6,520,869)	**-53%**
365	63,872,950	56,072,831	88%	21,258,283	33%	(34,814,548)	-55%	7,837,993	(26,976,555)	**-42%**
366	8,421,112	7,018,567	83%	4,914,767	58%	(2,103,800)	-25%	1,735,964	(367,836)	**-4%**
367	32,396,237	19,897,549	61%	9,625,554	30%	(10,271,995)	-32%	3,665,045	(6,606,950)	**-20%**
373	19,971,012	29,021,515	145%	9,191,606	46%	(19,829,909)	-99%	4,785,408	(15,044,501)	**-75%**

[1], [2], [3], [4] From depreciation study net salvage statistics

[5] Reimbursements and sales excluded from net salvage statistics; see AG-3-7_Att

[6] $ = [4] + [5] ; % = $ / [1]

OGE

Electric Division

353.10 Station Equipment - Transformers

Observed Life Table

Retirement Expr. 1999 TO 2016
Placement Years 1955 TO 2014

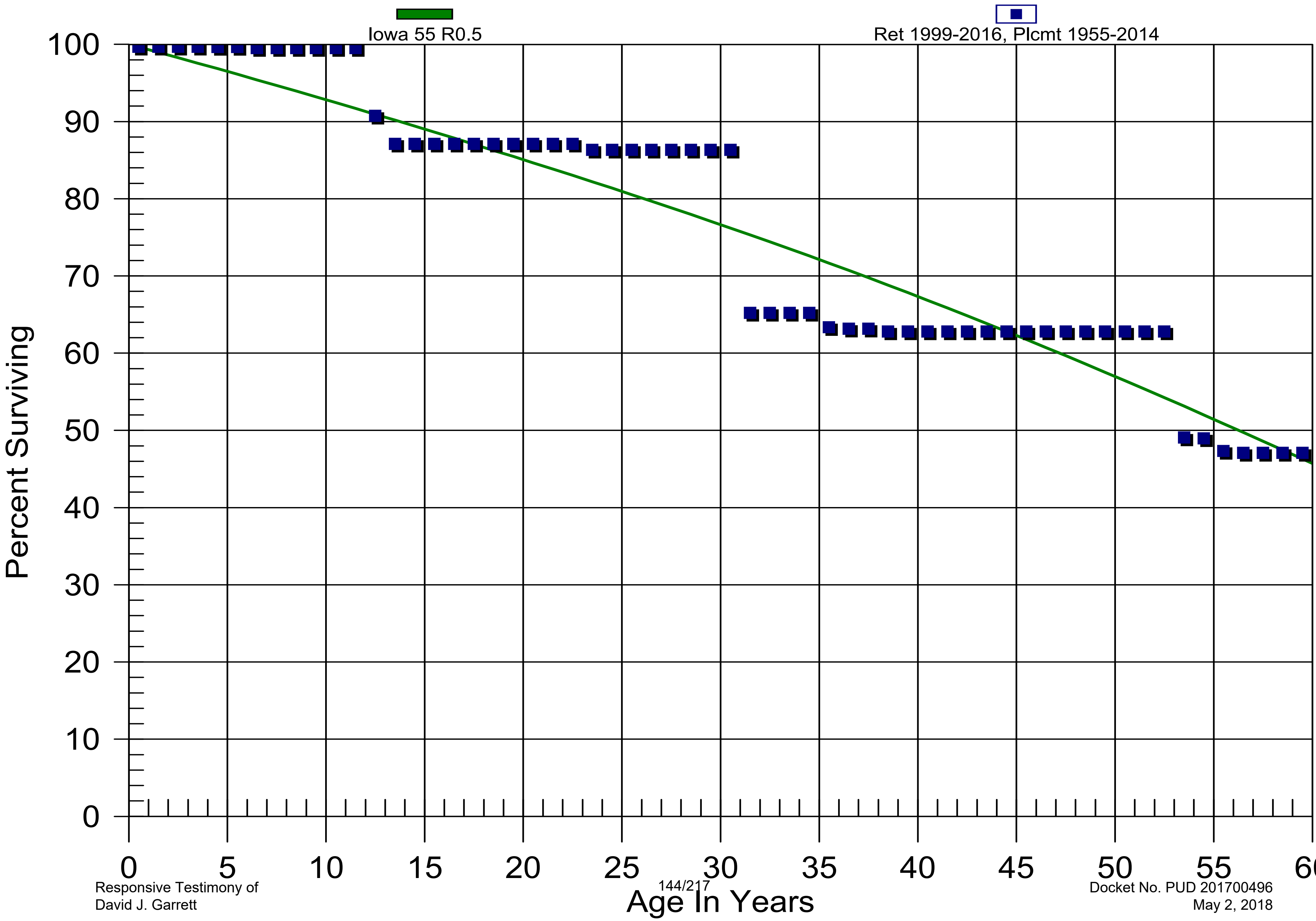
Age Interval	$ Surviving At Beginning of Age Interval	$ Retired During The Age Interval	Retirement Ratio	% Surviving At Beginning of Age Interval
0.0 - 0.5	$35,900,406.59	$118,403.32	0.00330	100.00
0.5 - 1.5	$35,782,534.67	$0.00	0.00000	99.67
1.5 - 2.5	$35,782,534.67	$0.00	0.00000	99.67
2.5 - 3.5	$40,995,277.02	$0.00	0.00000	99.67
3.5 - 4.5	$39,174,801.97	$1,500.00	0.00004	99.67
4.5 - 5.5	$38,000,712.86	$0.00	0.00000	99.67
5.5 - 6.5	$26,946,943.19	$42,381.82	0.00157	99.67
6.5 - 7.5	$20,031,057.89	$0.00	0.00000	99.51
7.5 - 8.5	$18,825,328.47	$0.00	0.00000	99.51
8.5 - 9.5	$15,546,304.53	$0.00	0.00000	99.51
9.5 - 10.5	$12,849,028.81	$0.00	0.00000	99.51
10.5 - 11.5	$10,587,062.29	$0.00	0.00000	99.51
11.5 - 12.5	$10,584,517.49	$931,967.25	0.08805	99.51
12.5 - 13.5	$9,542,718.32	$381,669.68	0.04000	90.75
13.5 - 14.5	$8,062,735.72	$0.00	0.00000	87.12
14.5 - 15.5	$9,161,048.64	$0.00	0.00000	87.12
15.5 - 16.5	$5,209,543.17	$0.00	0.00000	87.12
16.5 - 17.5	$4,557,101.44	$0.00	0.00000	87.12
17.5 - 18.5	$4,557,101.44	$0.00	0.00000	87.12
18.5 - 19.5	$5,986,745.32	$0.00	0.00000	87.12
19.5 - 20.5	$7,635,242.51	$0.00	0.00000	87.12
20.5 - 21.5	$8,834,300.21	$0.00	0.00000	87.12
21.5 - 22.5	$10,157,913.25	$0.00	0.00000	87.12
22.5 - 23.5	$10,854,683.25	$95,911.42	0.00884	87.12
23.5 - 24.5	$10,758,771.83	$0.00	0.00000	86.35
24.5 - 25.5	$11,602,995.83	$0.00	0.00000	86.35
25.5 - 26.5	$8,240,118.73	$0.00	0.00000	86.35
26.5 - 27.5	$8,993,557.73	$0.00	0.00000	86.35
27.5 - 28.5	$9,166,486.73	$0.00	0.00000	86.35
28.5 - 29.5	$8,979,759.73	$0.00	0.00000	86.35
29.5 - 30.5	$9,202,802.57	$0.00	0.00000	86.35
30.5 - 31.5	$9,577,903.57	$2,345,267.19	0.24486	86.35
31.5 - 32.5	$7,232,636.38	$0.00	0.00000	65.20
32.5 - 33.5	$6,015,920.14	$0.00	0.00000	65.20
33.5 - 34.5	$6,134,323.46	$0.00	0.00000	65.20
34.5 - 35.5	$6,134,323.46	$172,929.00	0.02819	65.20
35.5 - 36.5	$5,961,394.46	$20,007.52	0.00336	63.37

OGE
Electric Division
353.10 Station Equipment - Transformers
Observed Life Table
Retirement Expr. 1999 TO 2016
Placement Years 1955 TO 2014

Age Interval	$ Surviving At Beginning of Age Interval	$ Retired During The Age Interval	Retirement Ratio	% Surviving At Beginning of Age Interval
36.5 - 37.5	$4,628,700.22	$0.00	0.00000	63.15
37.5 - 38.5	$4,628,700.22	$24,706.00	0.00534	63.15
38.5 - 39.5	$3,404,936.52	$0.00	0.00000	62.82
39.5 - 40.5	$3,021,489.48	$0.00	0.00000	62.82
40.5 - 41.5	$3,514,881.80	$0.00	0.00000	62.82
41.5 - 42.5	$3,796,998.60	$0.00	0.00000	62.82
42.5 - 43.5	$2,972,782.12	$0.00	0.00000	62.82
43.5 - 44.5	$3,403,555.25	$0.00	0.00000	62.82
44.5 - 45.5	$2,674,822.25	$0.00	0.00000	62.82
45.5 - 46.5	$2,674,822.25	$0.00	0.00000	62.82
46.5 - 47.5	$1,921,383.25	$0.00	0.00000	62.82
47.5 - 48.5	$1,921,383.25	$0.00	0.00000	62.82
48.5 - 49.5	$1,546,282.25	$0.00	0.00000	62.82
49.5 - 50.5	$1,546,282.25	$0.00	0.00000	62.82
50.5 - 51.5	$1,546,282.25	$0.00	0.00000	62.82
51.5 - 52.5	$1,427,878.93	$0.00	0.00000	62.82
52.5 - 53.5	$1,427,878.93	$312,369.81	0.21876	62.82
53.5 - 54.5	$1,115,509.12	$2,617.00	0.00235	49.07
54.5 - 55.5	$772,892.12	$25,930.19	0.03355	48.96
55.5 - 56.5	$746,961.93	$3,850.60	0.00516	47.32
56.5 - 57.5	$743,111.33	$0.00	0.00000	47.07
57.5 - 58.5	$743,111.33	$0.00	0.00000	47.07
58.5 - 59.5	$590,636.01	$0.00	0.00000	47.07
59.5 - 60.5	$312,369.81	$0.00	0.00000	47.07
60.5 - 61.5	$312,369.81	$0.00	0.00000	47.07

OGE

Electric Division
353.10 Station Equipment - Transformers
Original And Smooth Survivor Curves



OGE

Electric Division

353.00 Station Equipment

Observed Life Table

Retirement Expr. 1997 TO 2016
Placement Years 1958 TO 2016

Age Interval	$ Surviving At Beginning of Age Interval	$ Retired During The Age Interval	Retirement Ratio	% Surviving At Beginning of Age Interval
0.0 - 0.5	$521,886,811.25	$20.00	0.00000	100.00
0.5 - 1.5	$477,045,017.11	$159,858.51	0.00034	100.00
1.5 - 2.5	$448,408,683.37	$246,809.98	0.00055	99.97
2.5 - 3.5	$360,088,733.98	$145,263.34	0.00040	99.91
3.5 - 4.5	$325,883,752.50	$131,665.99	0.00040	99.87
4.5 - 5.5	$270,765,919.16	$49,890.71	0.00018	99.83
5.5 - 6.5	$217,073,184.27	$75,224.81	0.00035	99.81
6.5 - 7.5	$190,278,483.53	$503,367.27	0.00265	99.78
7.5 - 8.5	$188,122,284.98	$169,546.52	0.00090	99.51
8.5 - 9.5	$234,153,653.95	$403,560.89	0.00172	99.42
9.5 - 10.5	$216,751,321.24	$14,197,715.52	0.06550	99.25
10.5 - 11.5	$100,626,941.88	$1,042,953.95	0.01036	92.75
11.5 - 12.5	$76,603,600.81	$1,516,529.26	0.01980	91.79
12.5 - 13.5	$74,735,142.47	$274,148.82	0.00367	89.97
13.5 - 14.5	$67,214,986.75	$264,186.82	0.00393	89.64
14.5 - 15.5	$67,666,395.15	$152,907.77	0.00226	89.29
15.5 - 16.5	$69,263,097.93	$87,063.64	0.00126	89.09
16.5 - 17.5	$67,555,331.85	$216,169.62	0.00320	88.98
17.5 - 18.5	$68,610,149.63	$65,772.81	0.00096	88.69
18.5 - 19.5	$65,658,331.27	$65,592.86	0.00100	88.61
19.5 - 20.5	$61,522,861.57	$305,033.52	0.00496	88.52
20.5 - 21.5	$69,930,273.50	$108,416.38	0.00155	88.08
21.5 - 22.5	$70,555,485.80	$90,307.73	0.00128	87.94
22.5 - 23.5	$71,783,796.84	$227,198.68	0.00317	87.83
23.5 - 24.5	$71,766,525.61	$127,735.15	0.00178	87.55
24.5 - 25.5	$77,192,586.54	$253,309.90	0.00328	87.40
25.5 - 26.5	$78,148,738.47	$1,841,217.45	0.02356	87.11
26.5 - 27.5	$73,548,139.87	$288,033.36	0.00392	85.06
27.5 - 28.5	$66,705,894.71	$430,156.49	0.00645	84.72
28.5 - 29.5	$57,103,023.29	$242,038.87	0.00424	84.18
29.5 - 30.5	$59,199,818.58	$561,169.44	0.00948	83.82
30.5 - 31.5	$67,329,676.94	$279,557.02	0.00415	83.03
31.5 - 32.5	$60,071,410.08	$468,267.14	0.00780	82.68
32.5 - 33.5	$61,167,650.16	$127,037.55	0.00208	82.04
33.5 - 34.5	$65,395,589.65	$29,316.96	0.00045	81.87
34.5 - 35.5	$67,031,663.91	$138,883.00	0.00207	81.83
35.5 - 36.5	$66,221,652.29	$1,202,290.09	0.01816	81.66

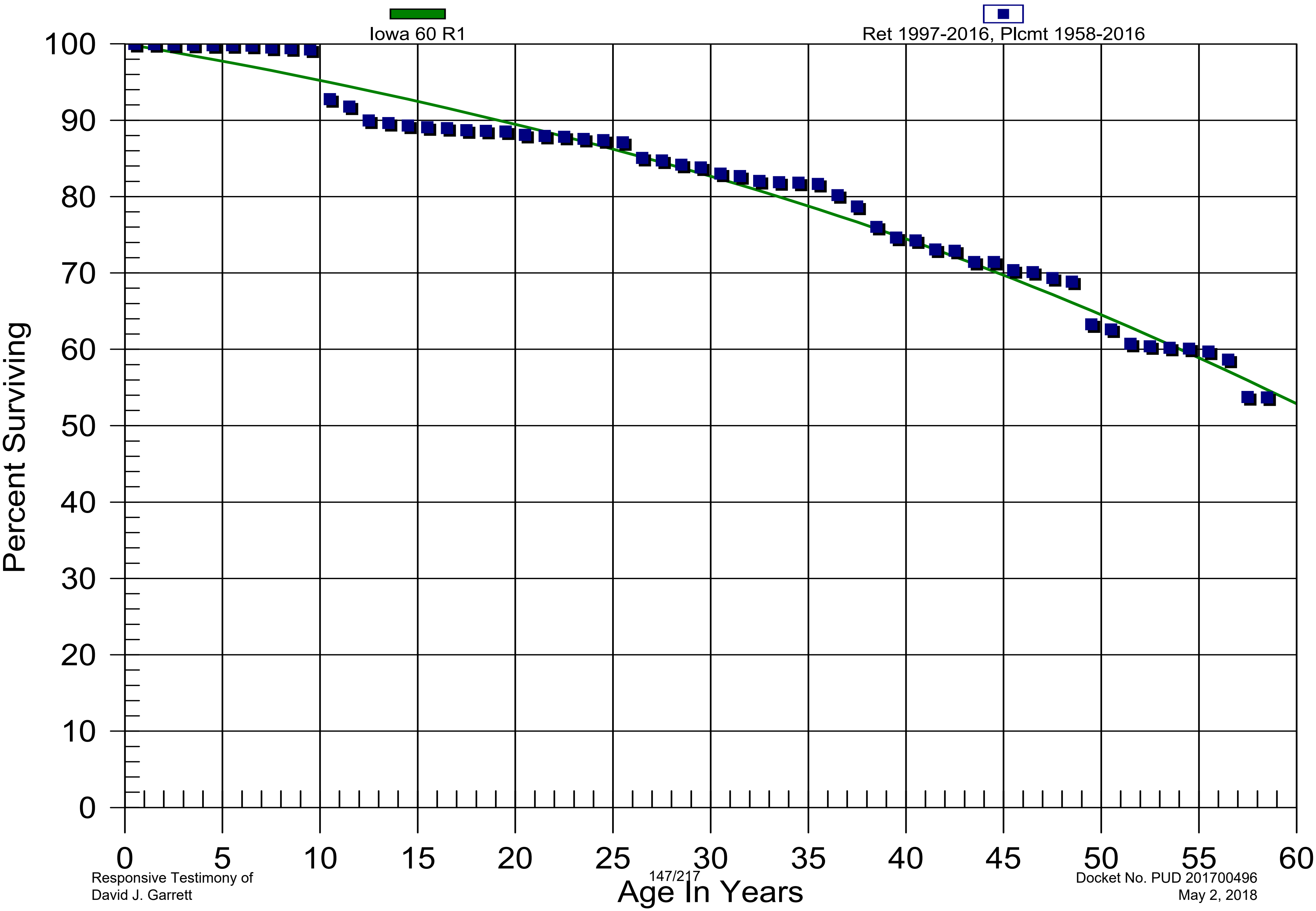
OGE
Electric Division
353.00 Station Equipment

Observed Life Table
Retirement Expr. 1997 TO 2016
Placement Years 1958 TO 2016

Age Interval	$ Surviving At Beginning of Age Interval	$ Retired During The Age Interval	Retirement Ratio	% Surviving At Beginning of Age Interval
36.5 - 37.5	$65,443,568.61	$1,208,085.77	0.01846	80.18
37.5 - 38.5	$47,098,646.72	$1,590,470.86	0.03377	78.70
38.5 - 39.5	$61,331,586.13	$1,131,898.72	0.01846	76.04
39.5 - 40.5	$69,847,445.98	$359,888.62	0.00515	74.64
40.5 - 41.5	$59,025,221.69	$938,965.03	0.01591	74.25
41.5 - 42.5	$55,451,499.68	$118,357.83	0.00213	73.07
42.5 - 43.5	$51,003,387.29	$1,024,600.29	0.02009	72.92
43.5 - 44.5	$47,134,196.44	$14,437.91	0.00031	71.45
44.5 - 45.5	$39,210,483.77	$577,752.81	0.01473	71.43
45.5 - 46.5	$38,447,494.00	$141,195.14	0.00367	70.38
46.5 - 47.5	$36,410,850.43	$404,355.15	0.01111	70.12
47.5 - 48.5	$40,695,283.84	$271,333.74	0.00667	69.34
48.5 - 49.5	$36,720,126.31	$2,992,322.90	0.08149	68.88
49.5 - 50.5	$29,375,767.45	$300,305.70	0.01022	63.26
50.5 - 51.5	$25,428,786.93	$763,881.99	0.03004	62.62
51.5 - 52.5	$24,240,572.08	$140,529.09	0.00580	60.74
52.5 - 53.5	$20,719,878.79	$58,762.26	0.00284	60.38
53.5 - 54.5	$20,390,457.59	$41,115.13	0.00202	60.21
54.5 - 55.5	$19,943,462.75	$133,332.01	0.00669	60.09
55.5 - 56.5	$19,199,870.36	$334,268.91	0.01741	59.69
56.5 - 57.5	$18,245,700.16	$1,526,652.66	0.08367	58.65
57.5 - 58.5	$15,723,649.15	$16,785.58	0.00107	53.74

OGE

Electric Division
353.00 Station Equipment
Original And Smooth Survivor Curves



OGE
Electric Division
355.00 Poles and Fixtures
Observed Life Table
Retirement Expr. 1997 TO 2016
Placement Years 1958 TO 2016

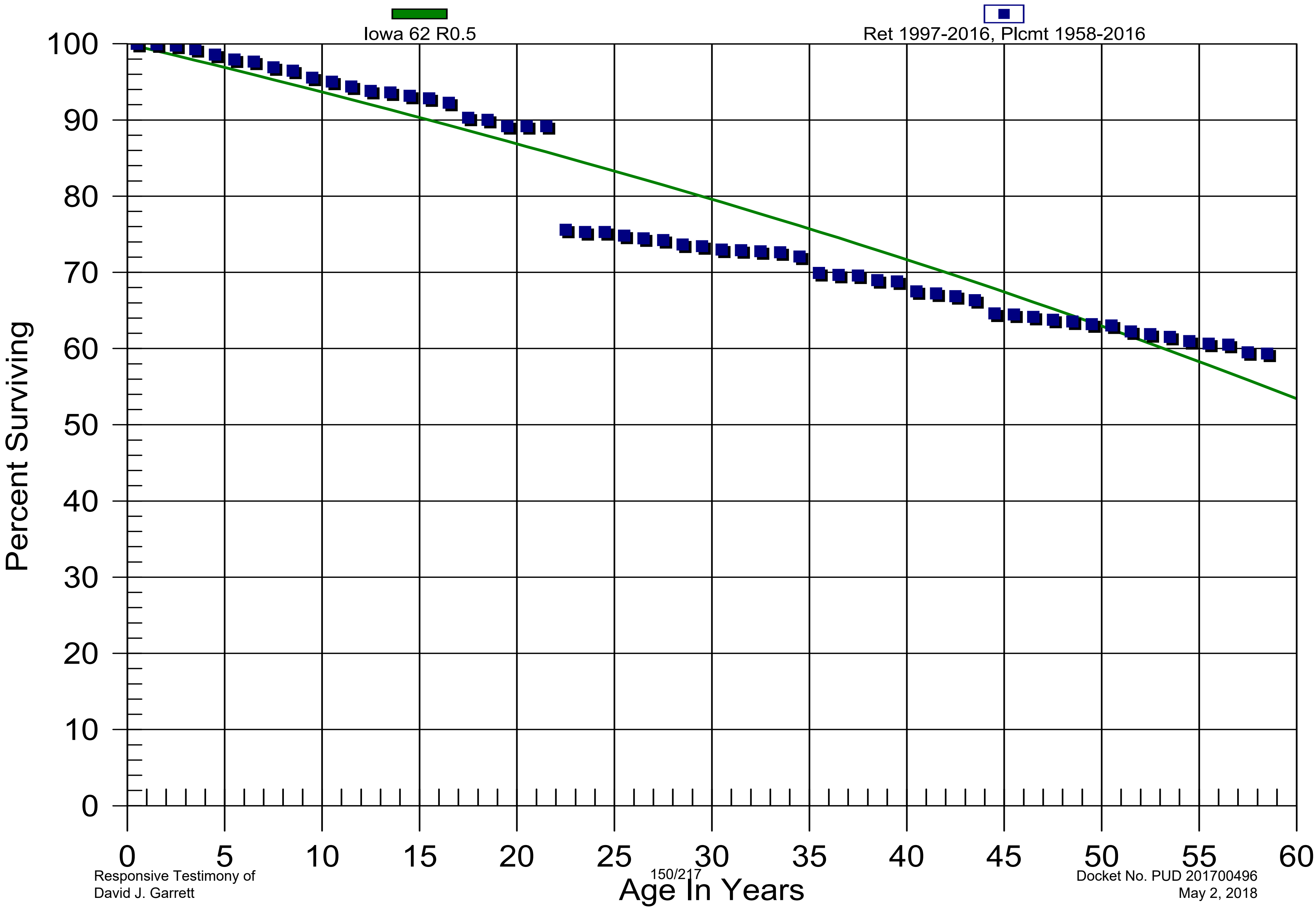
Age Interval	$ Surviving At Beginning of Age Interval	$ Retired During The Age Interval	Retirement Ratio	% Surviving At Beginning of Age Interval
0.0 - 0.5	$833,635,246.38	$103,558.60	0.00012	100.00
0.5 - 1.5	$771,970,491.09	$545,036.12	0.00071	99.99
1.5 - 2.5	$748,342,327.10	$1,139,129.23	0.00152	99.92
2.5 - 3.5	$476,247,070.89	$2,279,055.30	0.00479	99.76
3.5 - 4.5	$330,533,724.21	$2,403,833.13	0.00727	99.29
4.5 - 5.5	$196,436,748.96	$1,227,305.64	0.00625	98.57
5.5 - 6.5	$164,752,993.23	$491,541.21	0.00298	97.95
6.5 - 7.5	$144,092,069.76	$1,105,100.37	0.00767	97.66
7.5 - 8.5	$114,367,680.59	$507,298.96	0.00444	96.91
8.5 - 9.5	$93,780,222.86	$899,512.20	0.00959	96.48
9.5 - 10.5	$82,367,904.49	$461,229.45	0.00560	95.55
10.5 - 11.5	$71,417,744.62	$466,143.11	0.00653	95.02
11.5 - 12.5	$63,010,080.37	$397,525.05	0.00631	94.40
12.5 - 13.5	$60,137,000.36	$123,017.25	0.00205	93.80
13.5 - 14.5	$54,164,624.21	$254,890.33	0.00471	93.61
14.5 - 15.5	$28,657,108.38	$100,537.23	0.00351	93.17
15.5 - 16.5	$22,697,628.23	$144,065.85	0.00635	92.84
16.5 - 17.5	$23,359,262.79	$495,734.17	0.02122	92.25
17.5 - 18.5	$14,059,861.25	$42,533.18	0.00303	90.30
18.5 - 19.5	$10,624,172.16	$99,061.64	0.00932	90.02
19.5 - 20.5	$13,246,055.94	$0.00	0.00000	89.18
20.5 - 21.5	$13,771,502.80	$0.00	0.00000	89.18
21.5 - 22.5	$11,209,167.79	$1,707,385.48	0.15232	89.18
22.5 - 23.5	$12,081,374.23	$51,202.60	0.00424	75.60
23.5 - 24.5	$16,427,167.72	$0.00	0.00000	75.28
24.5 - 25.5	$21,848,904.24	$134,835.63	0.00617	75.28
25.5 - 26.5	$25,863,143.95	$123,140.79	0.00476	74.81
26.5 - 27.5	$28,321,360.64	$82,739.57	0.00292	74.46
27.5 - 28.5	$30,785,585.79	$241,983.57	0.00786	74.24
28.5 - 29.5	$35,334,229.55	$107,363.01	0.00304	73.66
29.5 - 30.5	$38,646,757.14	$231,421.23	0.00599	73.43
30.5 - 31.5	$41,142,143.05	$47,694.16	0.00116	72.99
31.5 - 32.5	$44,198,890.62	$80,103.22	0.00181	72.91
32.5 - 33.5	$42,754,078.48	$78,382.41	0.00183	72.78
33.5 - 34.5	$43,985,083.77	$339,639.44	0.00772	72.64
34.5 - 35.5	$45,886,251.10	$1,379,488.56	0.03006	72.08
35.5 - 36.5	$51,672,219.12	$175,765.88	0.00340	69.92

OGE
Electric Division
355.00 Poles and Fixtures

Observed Life Table
Retirement Expr. 1997 TO 2016
Placement Years 1958 TO 2016

Age Interval	$ Surviving At Beginning of Age Interval	$ Retired During The Age Interval	Retirement Ratio	% Surviving At Beginning of Age Interval
36.5 - 37.5	$155,877,093.75	$205,405.82	0.00132	69.68
37.5 - 38.5	$119,842,918.88	$1,049,268.41	0.00876	69.59
38.5 - 39.5	$56,151,508.95	$131,127.17	0.00234	68.98
39.5 - 40.5	$104,358,748.42	$1,989,542.41	0.01906	68.82
40.5 - 41.5	$101,775,213.97	$394,249.63	0.00387	67.50
41.5 - 42.5	$101,369,432.19	$555,725.80	0.00548	67.24
42.5 - 43.5	$79,953,420.47	$618,779.39	0.00774	66.87
43.5 - 44.5	$74,960,523.21	$1,968,977.11	0.02627	66.36
44.5 - 45.5	$68,925,878.33	$159,081.04	0.00231	64.61
45.5 - 46.5	$65,092,423.42	$303,491.69	0.00466	64.46
46.5 - 47.5	$63,585,979.61	$379,571.55	0.00597	64.16
47.5 - 48.5	$61,586,898.53	$232,067.49	0.00377	63.78
48.5 - 49.5	$57,840,962.92	$307,697.10	0.00532	63.54
49.5 - 50.5	$55,704,610.67	$159,816.97	0.00287	63.20
50.5 - 51.5	$53,470,596.33	$646,275.08	0.01209	63.02
51.5 - 52.5	$50,602,559.15	$288,523.11	0.00570	62.26
52.5 - 53.5	$49,018,400.04	$284,885.89	0.00581	61.90
53.5 - 54.5	$47,098,797.41	$432,077.96	0.00917	61.54
54.5 - 55.5	$44,294,346.65	$241,912.44	0.00546	60.98
55.5 - 56.5	$36,964,544.43	$92,808.14	0.00251	60.65
56.5 - 57.5	$36,172,660.50	$593,036.55	0.01639	60.49
57.5 - 58.5	$35,356,935.69	$95,244.84	0.00269	59.50

OGE
Electric Division
355.00 Poles and Fixtures
Original And Smooth Survivor Curves



OGE
Electric Division
356.00 Overhead Conductors and Devices
Observed Life Table
Retirement Expr. 1997 TO 2016
Placement Years 1956 TO 2016

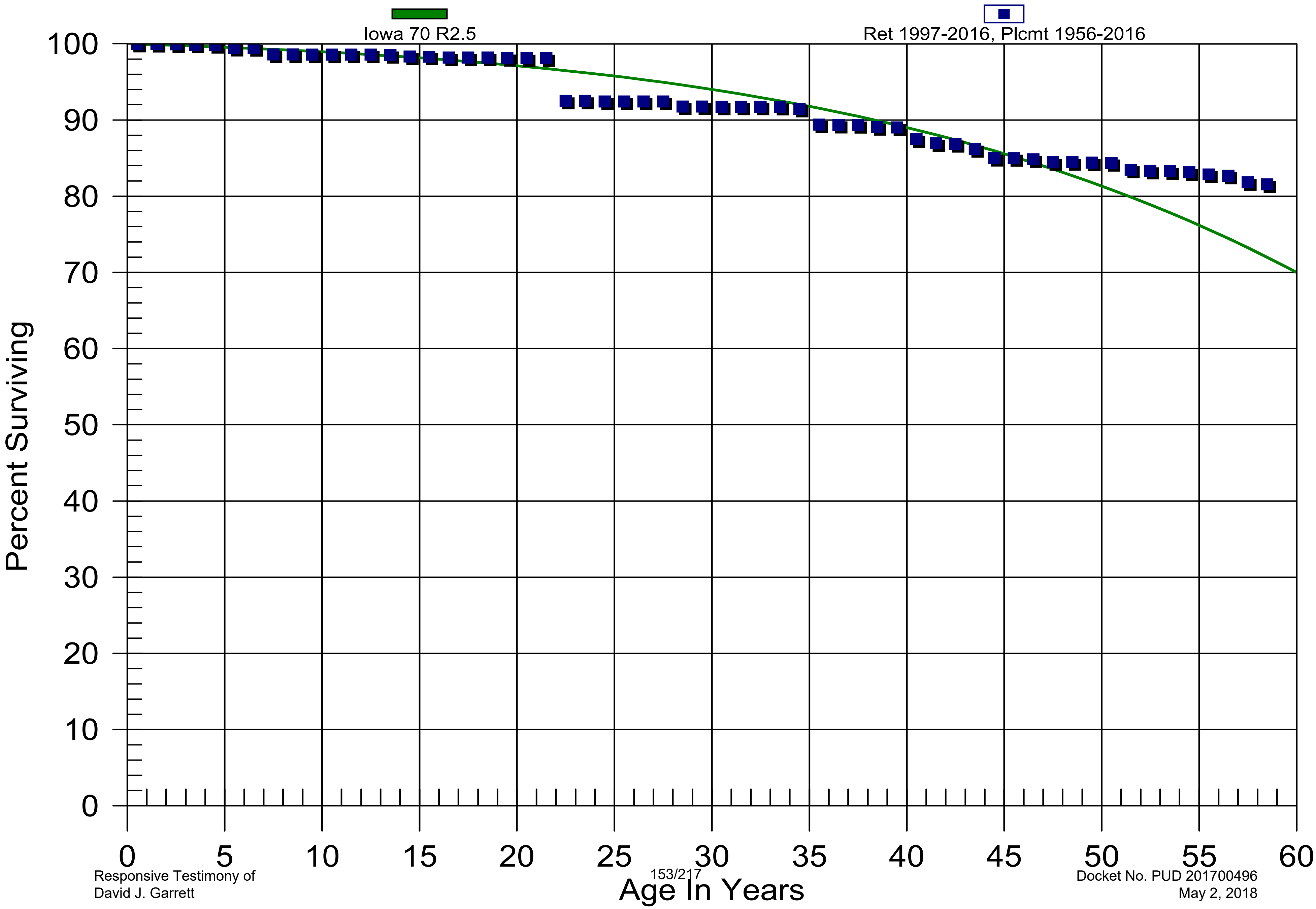
Age Interval	$ Surviving At Beginning of Age Interval	$ Retired During The Age Interval	Retirement Ratio	% Surviving At Beginning of Age Interval
0.0 - 0.5	$489,592,425.47	$0.00	0.00000	100.00
0.5 - 1.5	$468,198,656.25	$259,006.00	0.00055	100.00
1.5 - 2.5	$463,677,453.73	$33,783.21	0.00007	99.94
2.5 - 3.5	$340,775,480.30	$236,893.41	0.00070	99.94
3.5 - 4.5	$262,612,886.43	$132,906.57	0.00051	99.87
4.5 - 5.5	$186,053,077.90	$670,964.70	0.00361	99.82
5.5 - 6.5	$168,654,167.25	$47,719.13	0.00028	99.46
6.5 - 7.5	$94,827,421.66	$780,109.14	0.00823	99.43
7.5 - 8.5	$84,868,654.92	$0.00	0.00000	98.61
8.5 - 9.5	$73,118,339.10	$18,563.94	0.00025	98.61
9.5 - 10.5	$66,193,855.72	$8,766.80	0.00013	98.59
10.5 - 11.5	$57,658,900.85	$14.00	0.00000	98.57
11.5 - 12.5	$50,818,949.03	$0.00	0.00000	98.57
12.5 - 13.5	$53,185,972.13	$24,830.42	0.00047	98.57
13.5 - 14.5	$51,031,579.78	$106,566.31	0.00209	98.53
14.5 - 15.5	$12,512,808.95	$2,050.15	0.00016	98.32
15.5 - 16.5	$12,327,745.44	$15,335.59	0.00124	98.31
16.5 - 17.5	$22,337,163.05	$859.98	0.00004	98.18
17.5 - 18.5	$20,288,396.21	$0.00	0.00000	98.18
18.5 - 19.5	$17,510,767.91	$10,815.04	0.00062	98.18
19.5 - 20.5	$22,088,134.34	$278.80	0.00001	98.12
20.5 - 21.5	$24,754,089.81	$0.00	0.00000	98.12
21.5 - 22.5	$23,019,680.26	$1,313,808.65	0.05707	98.12
22.5 - 23.5	$24,109,113.48	$3,665.00	0.00015	92.52
23.5 - 24.5	$30,130,980.91	$21,603.05	0.00072	92.50
24.5 - 25.5	$34,555,572.18	$550.45	0.00002	92.44
25.5 - 26.5	$41,693,661.23	$0.00	0.00000	92.44
26.5 - 27.5	$43,108,438.74	$0.00	0.00000	92.44
27.5 - 28.5	$45,570,006.10	$325,723.44	0.00715	92.44
28.5 - 29.5	$47,997,003.17	$59.84	0.00000	91.77
29.5 - 30.5	$57,260,506.77	$28,988.14	0.00051	91.77
30.5 - 31.5	$66,027,501.27	$0.00	0.00000	91.73
31.5 - 32.5	$66,070,107.01	$0.00	0.00000	91.73
32.5 - 33.5	$62,331,408.99	$12,471.81	0.00020	91.73
33.5 - 34.5	$63,095,046.64	$170,245.31	0.00270	91.71
34.5 - 35.5	$59,444,277.23	$1,348,639.65	0.02269	91.46
35.5 - 36.5	$61,253,171.55	$30,531.41	0.00050	89.39

OGE
Electric Division
356.00 Overhead Conductors and Devices
Observed Life Table
Retirement Expr. 1997 TO 2016
Placement Years 1956 TO 2016

Age Interval	$ Surviving At Beginning of Age Interval	$ Retired During The Age Interval	Retirement Ratio	% Surviving At Beginning of Age Interval
36.5 - 37.5	$156,389,903.38	$30,538.39	0.00020	89.34
37.5 - 38.5	$173,477,284.47	$559,532.44	0.00323	89.33
38.5 - 39.5	$96,332,219.86	$1,380.20	0.00001	89.04
39.5 - 40.5	$87,008,210.82	$1,526,611.25	0.01755	89.04
40.5 - 41.5	$83,472,378.14	$490,635.24	0.00588	87.47
41.5 - 42.5	$83,197,723.83	$107,306.00	0.00129	86.96
42.5 - 43.5	$65,554,592.78	$510,916.99	0.00779	86.85
43.5 - 44.5	$60,629,381.52	$822,712.08	0.01357	86.17
44.5 - 45.5	$54,709,094.01	$6,950.02	0.00013	85.00
45.5 - 46.5	$46,965,411.53	$75,854.78	0.00162	84.99
46.5 - 47.5	$45,539,715.42	$217,240.14	0.00477	84.85
47.5 - 48.5	$44,161,540.98	$1,127.00	0.00003	84.45
48.5 - 49.5	$42,888,222.09	$28,845.55	0.00067	84.45
49.5 - 50.5	$40,909,375.00	$24,488.10	0.00060	84.39
50.5 - 51.5	$32,717,332.24	$340,450.73	0.01041	84.34
51.5 - 52.5	$31,606,701.42	$52,919.45	0.00167	83.46
52.5 - 53.5	$30,693,920.10	$24,192.27	0.00079	83.32
53.5 - 54.5	$29,670,061.70	$43,465.05	0.00146	83.26
54.5 - 55.5	$27,668,751.03	$96,154.58	0.00348	83.13
55.5 - 56.5	$23,036,525.27	$46,094.88	0.00200	82.85
56.5 - 57.5	$22,510,033.72	$229,963.48	0.01022	82.68
57.5 - 58.5	$22,614,074.13	$80,092.74	0.00354	81.83

OGE

Electric Division
356.00 Overhead Conductors and Devices
Original And Smooth Survivor Curves



OGE
Electric Division
362.00 Station Equipment

Observed Life Table

Retirement Expr. 1997 TO 2016
Placement Years 1958 TO 2016

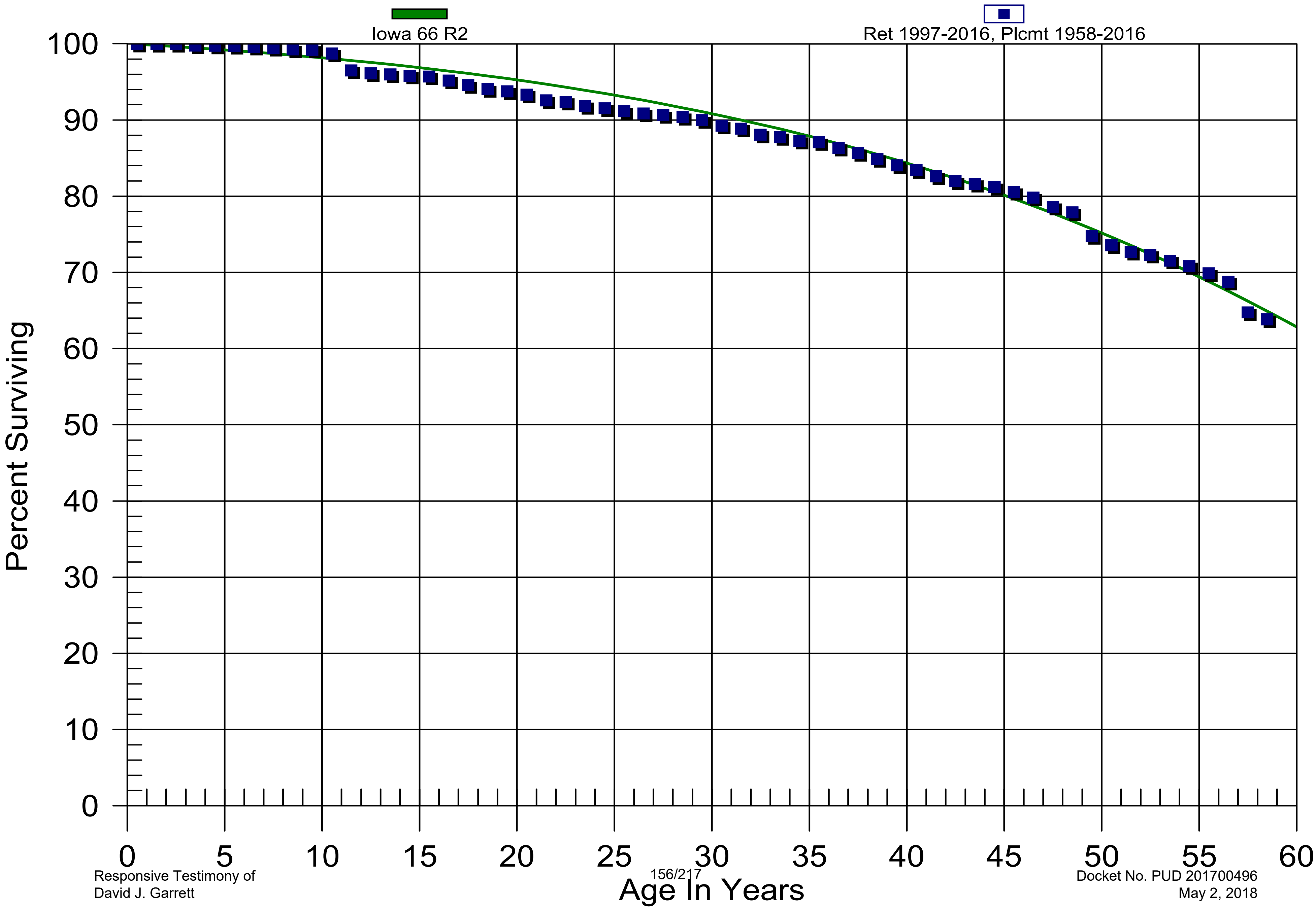
Age Interval	$ Surviving At Beginning of Age Interval	$ Retired During The Age Interval	Retirement Ratio	% Surviving At Beginning of Age Interval
0.0 - 0.5	$463,979,068.88	$20,006.50	0.00004	100.00
0.5 - 1.5	$447,016,760.71	$121,786.72	0.00027	100.00
1.5 - 2.5	$434,175,869.63	$79,925.03	0.00018	99.97
2.5 - 3.5	$406,228,851.87	$746,355.86	0.00184	99.95
3.5 - 4.5	$379,384,458.92	$68,480.59	0.00018	99.77
4.5 - 5.5	$330,810,712.56	$90,269.31	0.00027	99.75
5.5 - 6.5	$304,799,878.98	$362,528.42	0.00119	99.72
6.5 - 7.5	$280,971,735.72	$398,346.42	0.00142	99.60
7.5 - 8.5	$265,708,048.01	$504,350.55	0.00190	99.46
8.5 - 9.5	$258,114,558.18	$159,614.82	0.00062	99.27
9.5 - 10.5	$228,071,291.94	$1,114,401.90	0.00489	99.21
10.5 - 11.5	$204,104,848.50	$4,587,994.96	0.02248	98.73
11.5 - 12.5	$174,808,170.24	$736,845.59	0.00422	96.51
12.5 - 13.5	$160,260,253.19	$201,715.30	0.00126	96.10
13.5 - 14.5	$138,784,025.45	$245,511.98	0.00177	95.98
14.5 - 15.5	$131,074,438.17	$161,440.28	0.00123	95.81
15.5 - 16.5	$121,202,306.71	$650,514.76	0.00537	95.69
16.5 - 17.5	$114,004,901.81	$746,703.47	0.00655	95.18
17.5 - 18.5	$105,744,579.50	$595,435.73	0.00563	94.55
18.5 - 19.5	$105,413,400.91	$303,179.44	0.00288	94.02
19.5 - 20.5	$107,015,128.25	$489,034.67	0.00457	93.75
20.5 - 21.5	$101,332,343.90	$808,103.51	0.00797	93.32
21.5 - 22.5	$98,550,539.68	$216,892.85	0.00220	92.58
22.5 - 23.5	$101,607,520.00	$608,304.08	0.00599	92.38
23.5 - 24.5	$103,617,910.54	$308,146.48	0.00297	91.82
24.5 - 25.5	$98,107,528.23	$409,302.61	0.00417	91.55
25.5 - 26.5	$96,936,559.61	$329,275.32	0.00340	91.17
26.5 - 27.5	$89,674,370.05	$231,017.74	0.00258	90.86
27.5 - 28.5	$78,434,567.54	$218,206.25	0.00278	90.62
28.5 - 29.5	$68,681,163.96	$309,784.23	0.00451	90.37
29.5 - 30.5	$70,672,186.74	$562,611.73	0.00796	89.96
30.5 - 31.5	$72,309,672.34	$327,615.28	0.00453	89.25
31.5 - 32.5	$75,003,414.56	$674,257.73	0.00899	88.84
32.5 - 33.5	$72,325,312.77	$251,592.06	0.00348	88.04
33.5 - 34.5	$72,757,049.56	$415,341.38	0.00571	87.74
34.5 - 35.5	$71,310,984.53	$132,261.94	0.00185	87.24
35.5 - 36.5	$71,939,100.46	$603,028.86	0.00838	87.08

OGE
Electric Division
362.00 Station Equipment
Observed Life Table
Retirement Expr. 1997 TO 2016
Placement Years 1958 TO 2016

Age Interval	$ Surviving At Beginning of Age Interval	$ Retired During The Age Interval	Retirement Ratio	% Surviving At Beginning of Age Interval
36.5 - 37.5	$69,294,931.95	$567,481.86	0.00819	86.35
37.5 - 38.5	$64,602,738.74	$581,339.17	0.00900	85.64
38.5 - 39.5	$74,493,385.19	$728,443.69	0.00978	84.87
39.5 - 40.5	$81,909,668.79	$623,742.95	0.00762	84.04
40.5 - 41.5	$80,093,602.70	$761,867.86	0.00951	83.40
41.5 - 42.5	$76,235,364.25	$590,452.70	0.00775	82.60
42.5 - 43.5	$69,271,228.91	$317,402.34	0.00458	81.97
43.5 - 44.5	$61,430,396.84	$296,750.08	0.00483	81.59
44.5 - 45.5	$56,002,096.38	$448,430.08	0.00801	81.20
45.5 - 46.5	$47,999,082.43	$449,931.42	0.00937	80.55
46.5 - 47.5	$44,281,885.31	$674,987.34	0.01524	79.79
47.5 - 48.5	$34,508,512.02	$308,665.77	0.00894	78.57
48.5 - 49.5	$31,355,907.68	$1,246,195.12	0.03974	77.87
49.5 - 50.5	$27,682,878.97	$450,353.46	0.01627	74.78
50.5 - 51.5	$24,721,190.84	$295,973.43	0.01197	73.56
51.5 - 52.5	$22,297,001.36	$116,459.33	0.00522	72.68
52.5 - 53.5	$20,817,402.17	$225,654.17	0.01084	72.30
53.5 - 54.5	$19,942,354.90	$199,976.73	0.01003	71.52
54.5 - 55.5	$17,666,839.60	$235,280.26	0.01332	70.80
55.5 - 56.5	$15,734,293.50	$250,310.72	0.01591	69.86
56.5 - 57.5	$14,508,339.57	$843,632.69	0.05815	68.74
57.5 - 58.5	$11,325,093.09	$161,690.68	0.01428	64.75

OGE

Electric Division
362.00 Station Equipment
Original And Smooth Survivor Curves



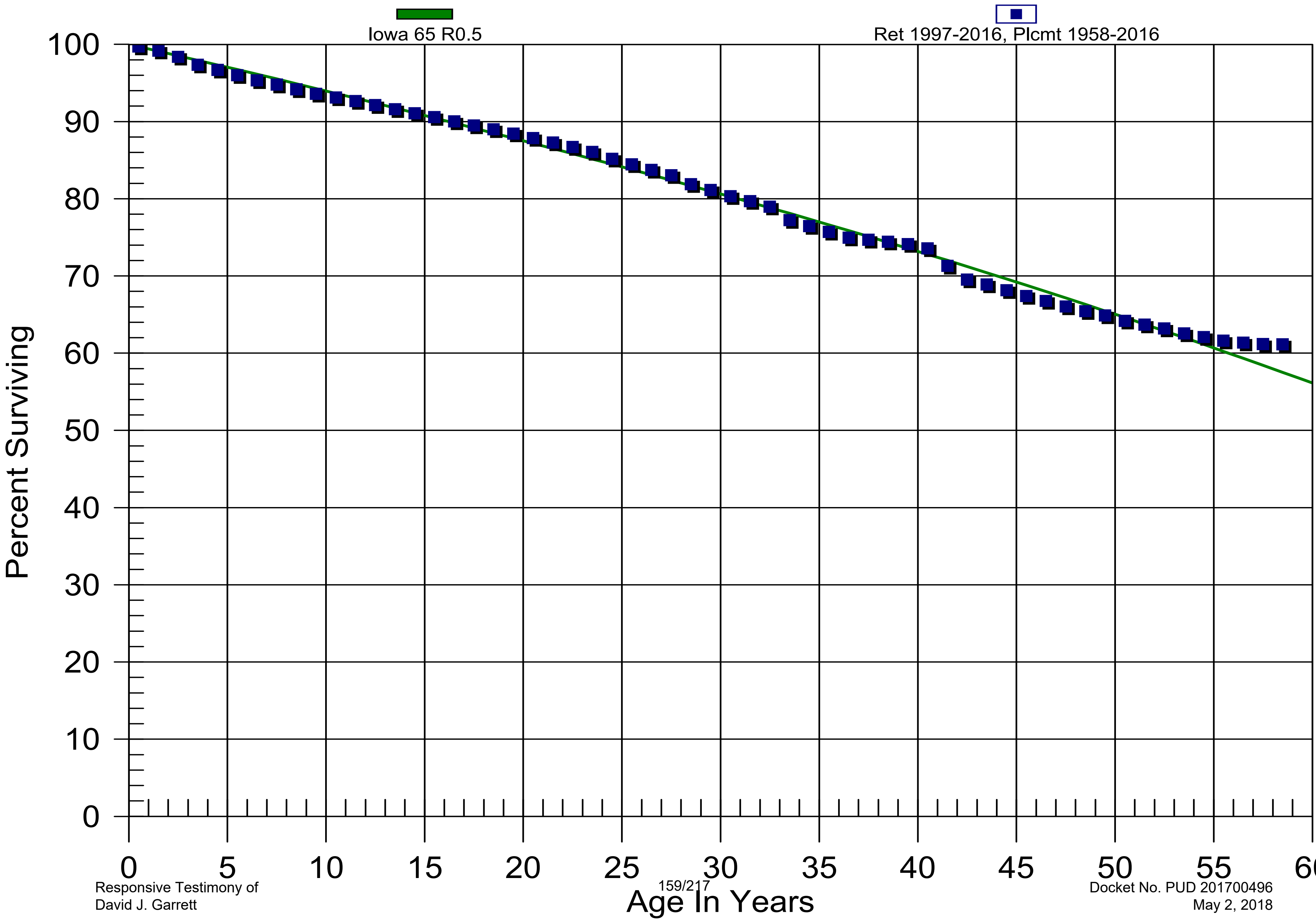
OGE
Electric Division
364.00 Poles, Towers, and Fixtures
Observed Life Table
Retirement Expr. 1997 TO 2016
Placement Years 1958 TO 2016

Age Interval	$ Surviving At Beginning of Age Interval	$ Retired During The Age Interval	Retirement Ratio	% Surviving At Beginning of Age Interval
0.0 - 0.5	$430,945,336.48	$1,253,357.40	0.00291	100.00
0.5 - 1.5	$402,534,771.59	$2,076,028.77	0.00516	99.71
1.5 - 2.5	$364,839,689.54	$3,006,967.73	0.00824	99.19
2.5 - 3.5	$351,834,951.02	$3,696,137.03	0.01051	98.38
3.5 - 4.5	$323,174,243.60	$2,164,871.68	0.00670	97.34
4.5 - 5.5	$293,581,916.63	$2,112,955.90	0.00720	96.69
5.5 - 6.5	$279,270,958.68	$1,938,980.48	0.00694	96.00
6.5 - 7.5	$267,725,929.70	$1,546,900.91	0.00578	95.33
7.5 - 8.5	$255,536,135.52	$1,621,684.84	0.00635	94.78
8.5 - 9.5	$231,464,384.33	$1,437,391.24	0.00621	94.18
9.5 - 10.5	$217,951,964.47	$1,093,498.55	0.00502	93.59
10.5 - 11.5	$209,157,777.09	$1,087,282.95	0.00520	93.12
11.5 - 12.5	$204,063,772.38	$1,139,967.50	0.00559	92.64
12.5 - 13.5	$201,120,799.12	$1,148,579.85	0.00571	92.12
13.5 - 14.5	$199,406,110.39	$1,139,346.97	0.00571	91.60
14.5 - 15.5	$182,482,234.07	$994,118.83	0.00545	91.07
15.5 - 16.5	$176,731,676.95	$1,105,665.46	0.00626	90.58
16.5 - 17.5	$175,739,803.59	$1,001,128.99	0.00570	90.01
17.5 - 18.5	$171,834,472.44	$952,542.87	0.00554	89.50
18.5 - 19.5	$169,374,558.94	$1,084,219.51	0.00640	89.00
19.5 - 20.5	$157,871,247.98	$1,035,905.68	0.00656	88.43
20.5 - 21.5	$151,873,855.97	$1,007,016.40	0.00663	87.85
21.5 - 22.5	$145,420,974.07	$958,195.13	0.00659	87.27
22.5 - 23.5	$137,209,523.32	$1,019,392.95	0.00743	86.69
23.5 - 24.5	$129,428,235.56	$1,330,351.46	0.01028	86.05
24.5 - 25.5	$123,338,148.15	$1,039,924.49	0.00843	85.16
25.5 - 26.5	$115,013,189.53	$961,139.77	0.00836	84.45
26.5 - 27.5	$109,774,085.89	$926,900.08	0.00844	83.74
27.5 - 28.5	$102,704,987.45	$1,424,467.26	0.01387	83.03
28.5 - 29.5	$95,610,649.32	$881,082.08	0.00922	81.88
29.5 - 30.5	$87,329,405.65	$851,386.18	0.00975	81.13
30.5 - 31.5	$79,662,008.89	$645,657.34	0.00810	80.34
31.5 - 32.5	$71,900,320.95	$641,443.02	0.00892	79.68
32.5 - 33.5	$64,069,866.97	$1,408,085.36	0.02198	78.97
33.5 - 34.5	$57,190,613.41	$586,399.93	0.01025	77.24
34.5 - 35.5	$50,918,742.03	$498,074.75	0.00978	76.45
35.5 - 36.5	$46,248,880.61	$456,492.57	0.00987	75.70

OGE
Electric Division
364.00 Poles, Towers, and Fixtures
Observed Life Table
Retirement Expr. 1997 TO 2016
Placement Years 1958 TO 2016

Age Interval	$ Surviving At Beginning of Age Interval	$ Retired During The Age Interval	Retirement Ratio	% Surviving At Beginning of Age Interval
36.5 - 37.5	$116,989,404.45	$438,778.21	0.00375	74.95
37.5 - 38.5	$252,947,820.87	$836,137.87	0.00331	74.67
38.5 - 39.5	$263,984,551.98	$1,017,345.19	0.00385	74.42
39.5 - 40.5	$189,927,700.40	$1,418,122.89	0.00747	74.14
40.5 - 41.5	$46,534,250.09	$1,447,985.70	0.03112	73.58
41.5 - 42.5	$42,450,679.63	$1,053,093.14	0.02481	71.29
42.5 - 43.5	$38,378,666.18	$345,873.80	0.00901	69.52
43.5 - 44.5	$35,246,603.06	$388,058.80	0.01101	68.90
44.5 - 45.5	$32,054,139.22	$347,412.91	0.01084	68.14
45.5 - 46.5	$29,626,838.97	$286,318.30	0.00966	67.40
46.5 - 47.5	$27,357,537.47	$288,906.54	0.01056	66.75
47.5 - 48.5	$26,131,367.09	$243,451.05	0.00932	66.04
48.5 - 49.5	$24,308,879.24	$198,817.31	0.00818	65.43
49.5 - 50.5	$22,701,647.35	$246,314.84	0.01085	64.89
50.5 - 51.5	$20,958,506.08	$166,154.13	0.00793	64.19
51.5 - 52.5	$19,265,993.92	$151,793.72	0.00788	63.68
52.5 - 53.5	$17,596,905.47	$173,071.34	0.00984	63.18
53.5 - 54.5	$15,681,525.25	$118,478.85	0.00756	62.56
54.5 - 55.5	$14,422,263.21	$111,897.56	0.00776	62.09
55.5 - 56.5	$13,320,886.02	$50,006.91	0.00375	61.60
56.5 - 57.5	$12,492,435.44	$40,433.32	0.00324	61.37
57.5 - 58.5	$11,926,585.89	$8,289.70	0.00070	61.17

OGE
Electric Division
364.00 Poles, Towers, and Fixtures
Original And Smooth Survivor Curves



OGE

Electric Division

365.00 Overhead Conductors and Devices

Observed Life Table

Retirement Expr. 1997 TO 2016
Placement Years 1958 TO 2016

Age Interval	$ Surviving At Beginning of Age Interval	$ Retired During The Age Interval	Retirement Ratio	% Surviving At Beginning of Age Interval
0.0 - 0.5	$305,618,381.88	$700,115.38	0.00229	100.00
0.5 - 1.5	$279,401,871.90	$1,517,211.91	0.00543	99.77
1.5 - 2.5	$247,228,085.91	$4,266,357.84	0.01726	99.23
2.5 - 3.5	$228,705,811.83	$2,006,890.65	0.00877	97.52
3.5 - 4.5	$213,657,636.41	$1,820,287.37	0.00852	96.66
4.5 - 5.5	$192,640,268.85	$2,125,881.17	0.01104	95.84
5.5 - 6.5	$184,718,425.75	$1,625,714.68	0.00880	94.78
6.5 - 7.5	$181,313,183.90	$1,366,916.77	0.00754	93.95
7.5 - 8.5	$176,370,423.48	$1,400,612.71	0.00794	93.24
8.5 - 9.5	$163,386,756.83	$3,671,152.03	0.02247	92.50
9.5 - 10.5	$157,006,186.97	$1,197,923.96	0.00763	90.42
10.5 - 11.5	$151,564,070.00	$1,173,911.36	0.00775	89.73
11.5 - 12.5	$147,391,757.84	$1,161,767.87	0.00788	89.03
12.5 - 13.5	$145,491,747.21	$1,165,702.88	0.00801	88.33
13.5 - 14.5	$148,306,998.48	$1,014,217.40	0.00684	87.62
14.5 - 15.5	$146,237,017.03	$1,616,339.91	0.01105	87.03
15.5 - 16.5	$146,757,003.99	$1,084,766.54	0.00739	86.06
16.5 - 17.5	$147,109,789.29	$915,725.71	0.00622	85.43
17.5 - 18.5	$145,499,537.95	$857,655.45	0.00589	84.90
18.5 - 19.5	$145,675,259.61	$1,198,944.72	0.00823	84.39
19.5 - 20.5	$144,680,392.73	$970,968.66	0.00671	83.70
20.5 - 21.5	$138,019,333.80	$844,214.34	0.00612	83.14
21.5 - 22.5	$129,682,812.32	$842,275.00	0.00649	82.63
22.5 - 23.5	$120,822,304.12	$1,020,148.22	0.00844	82.09
23.5 - 24.5	$110,966,342.00	$1,028,172.66	0.00927	81.40
24.5 - 25.5	$104,514,948.06	$679,543.54	0.00650	80.65
25.5 - 26.5	$96,936,310.02	$1,124,203.65	0.01160	80.12
26.5 - 27.5	$91,148,849.08	$580,141.73	0.00636	79.19
27.5 - 28.5	$85,508,290.12	$788,986.57	0.00923	78.69
28.5 - 29.5	$80,014,330.55	$655,573.41	0.00819	77.96
29.5 - 30.5	$73,648,469.36	$717,941.33	0.00975	77.32
30.5 - 31.5	$68,180,737.16	$759,094.54	0.01113	76.57
31.5 - 32.5	$61,769,352.13	$471,755.83	0.00764	75.72
32.5 - 33.5	$54,896,791.07	$1,013,879.02	0.01847	75.14
33.5 - 34.5	$49,552,320.33	$491,138.75	0.00991	73.75
34.5 - 35.5	$44,667,065.35	$396,710.01	0.00888	73.02
35.5 - 36.5	$40,165,901.99	$317,338.29	0.00790	72.37

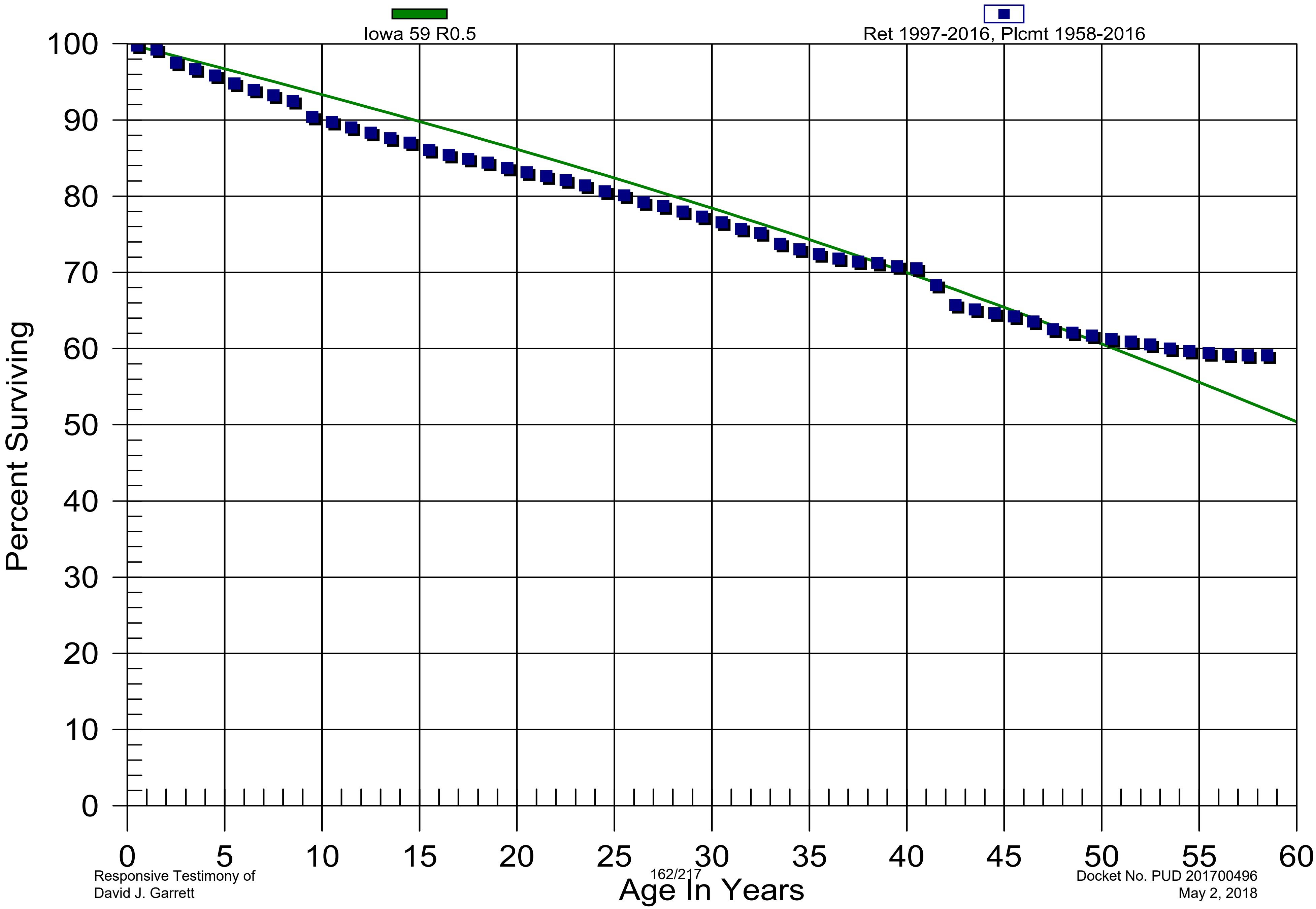
OGE
Electric Division
365.00 Overhead Conductors and Devices

Observed Life Table
Retirement Expr. 1997 TO 2016
Placement Years 1958 TO 2016

Age Interval	$ Surviving At Beginning of Age Interval	$ Retired During The Age Interval	Retirement Ratio	% Surviving At Beginning of Age Interval
36.5 - 37.5	$58,177,263.66	$321,640.85	0.00553	71.80
37.5 - 38.5	$255,497,867.31	$587,357.57	0.00230	71.40
38.5 - 39.5	$274,962,245.89	$1,645,674.70	0.00599	71.24
39.5 - 40.5	$251,554,801.97	$978,653.44	0.00389	70.81
40.5 - 41.5	$50,109,671.89	$1,553,796.14	0.03101	70.54
41.5 - 42.5	$46,704,617.29	$1,805,772.68	0.03866	68.35
42.5 - 43.5	$42,554,296.86	$379,769.83	0.00892	65.71
43.5 - 44.5	$39,847,538.55	$298,653.00	0.00749	65.12
44.5 - 45.5	$37,321,797.94	$245,526.86	0.00658	64.63
45.5 - 46.5	$35,048,123.29	$363,587.61	0.01037	64.21
46.5 - 47.5	$32,657,530.96	$516,268.84	0.01581	63.54
47.5 - 48.5	$30,711,736.21	$224,636.96	0.00731	62.54
48.5 - 49.5	$28,899,811.13	$174,770.52	0.00605	62.08
49.5 - 50.5	$27,161,796.54	$201,422.19	0.00742	61.70
50.5 - 51.5	$25,537,569.76	$129,808.72	0.00508	61.25
51.5 - 52.5	$23,819,726.49	$160,361.87	0.00673	60.94
52.5 - 53.5	$22,088,871.14	$193,346.65	0.00875	60.53
53.5 - 54.5	$20,416,056.24	$109,399.31	0.00536	60.00
54.5 - 55.5	$19,131,543.37	$84,080.07	0.00439	59.67
55.5 - 56.5	$17,973,922.03	$57,119.63	0.00318	59.41
56.5 - 57.5	$17,224,375.25	$34,448.38	0.00200	59.22
57.5 - 58.5	$16,573,050.64	$4,876.20	0.00029	59.10

OGE

Electric Division
365.00 Overhead Conductors and Devices
Original And Smooth Survivor Curves



OGE
Electric Division
366.00 Underground Conduit

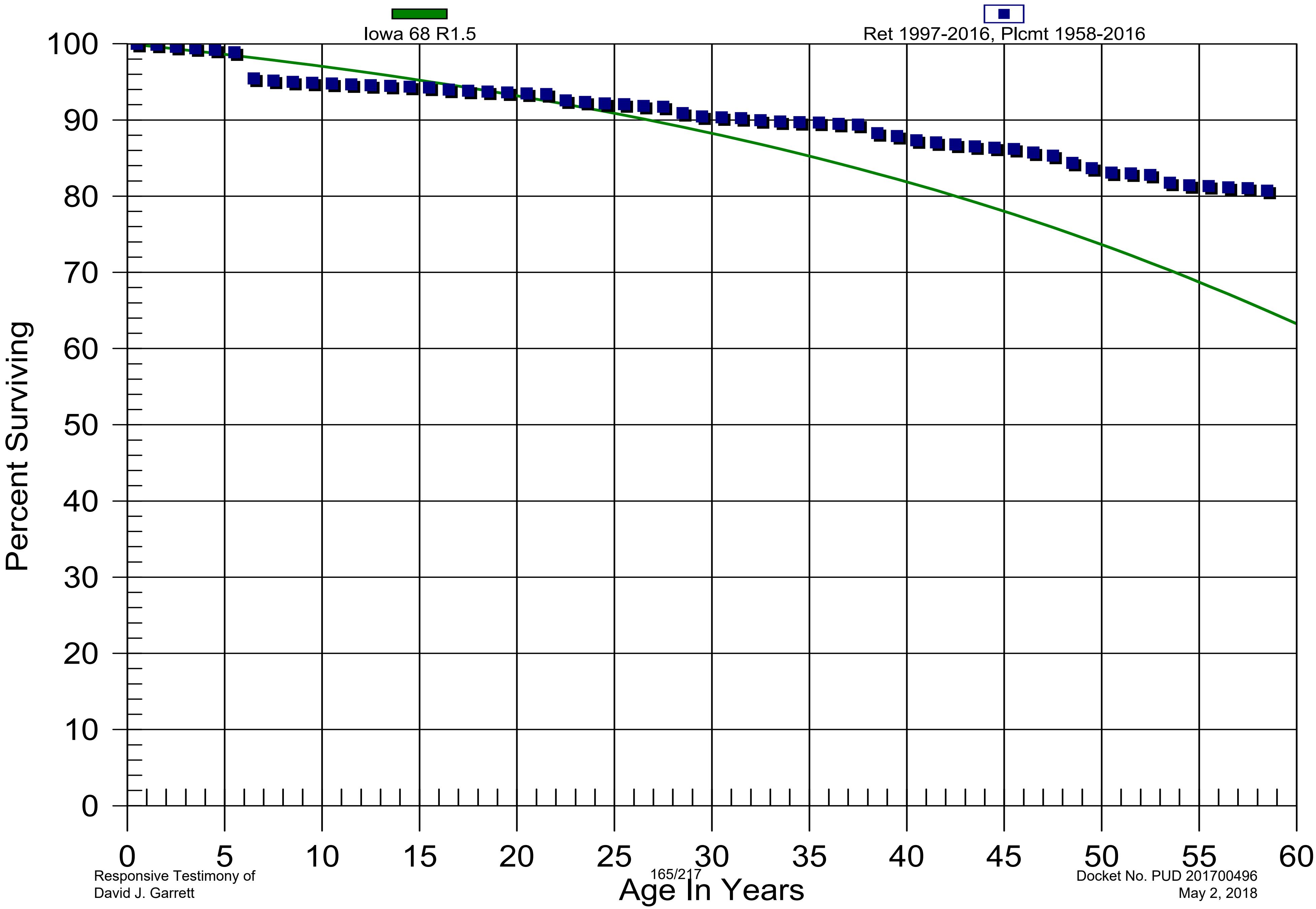
Observed Life Table
Retirement Expr. 1997 TO 2016
Placement Years 1958 TO 2016

Age Interval	$ Surviving At Beginning of Age Interval	$ Retired During The Age Interval	Retirement Ratio	% Surviving At Beginning of Age Interval
0.0 - 0.5	$166,623,985.30	$28,931.76	0.00017	100.00
0.5 - 1.5	$156,508,118.41	$157,623.81	0.00101	99.98
1.5 - 2.5	$138,370,925.88	$378,661.78	0.00274	99.88
2.5 - 3.5	$126,954,970.17	$243,632.66	0.00192	99.61
3.5 - 4.5	$120,721,930.51	$264,892.54	0.00219	99.42
4.5 - 5.5	$107,723,704.05	$342,454.29	0.00318	99.20
5.5 - 6.5	$98,350,148.14	$3,431,704.66	0.03489	98.88
6.5 - 7.5	$89,554,705.91	$246,706.25	0.00275	95.43
7.5 - 8.5	$80,139,940.49	$134,348.82	0.00168	95.17
8.5 - 9.5	$66,799,253.81	$86,888.05	0.00130	95.01
9.5 - 10.5	$61,126,867.97	$67,815.17	0.00111	94.89
10.5 - 11.5	$49,141,657.43	$62,978.11	0.00128	94.78
11.5 - 12.5	$48,352,994.60	$51,144.41	0.00106	94.66
12.5 - 13.5	$46,532,700.14	$47,048.38	0.00101	94.56
13.5 - 14.5	$41,730,520.30	$42,121.51	0.00101	94.47
14.5 - 15.5	$47,281,760.68	$57,497.74	0.00122	94.37
15.5 - 16.5	$43,542,273.52	$131,556.87	0.00302	94.26
16.5 - 17.5	$39,905,574.21	$60,840.53	0.00152	93.97
17.5 - 18.5	$43,691,532.77	$45,447.05	0.00104	93.83
18.5 - 19.5	$41,830,490.21	$50,935.91	0.00122	93.73
19.5 - 20.5	$40,408,616.81	$57,196.00	0.00142	93.62
20.5 - 21.5	$37,605,294.52	$34,140.32	0.00091	93.48
21.5 - 22.5	$34,764,076.48	$307,139.32	0.00883	93.40
22.5 - 23.5	$32,474,477.06	$68,287.88	0.00210	92.57
23.5 - 24.5	$24,440,700.51	$50,937.04	0.00208	92.38
24.5 - 25.5	$25,886,155.51	$31,103.16	0.00120	92.19
25.5 - 26.5	$28,209,021.91	$72,788.70	0.00258	92.07
26.5 - 27.5	$27,321,291.99	$33,430.16	0.00122	91.84
27.5 - 28.5	$32,446,783.71	$288,801.92	0.00890	91.72
28.5 - 29.5	$33,406,683.73	$166,228.91	0.00498	90.91
29.5 - 30.5	$29,673,611.94	$34,597.93	0.00117	90.46
30.5 - 31.5	$27,039,756.48	$32,349.67	0.00120	90.35
31.5 - 32.5	$20,656,929.41	$64,164.71	0.00311	90.24
32.5 - 33.5	$20,057,335.39	$39,670.54	0.00198	89.96
33.5 - 34.5	$70,281,069.50	$53,309.92	0.00076	89.78
34.5 - 35.5	$66,903,638.76	$45,550.54	0.00068	89.72
35.5 - 36.5	$66,353,565.86	$110,719.18	0.00167	89.66

OGE
Electric Division
366.00 Underground Conduit
Observed Life Table
Retirement Expr. 1997 TO 2016
Placement Years 1958 TO 2016

Age Interval	$ Surviving At Beginning of Age Interval	$ Retired During The Age Interval	Retirement Ratio	% Surviving At Beginning of Age Interval
36.5 - 37.5	$65,893,635.17	$90,051.49	0.00137	89.51
37.5 - 38.5	$13,463,041.41	$167,868.25	0.01247	89.38
38.5 - 39.5	$13,966,805.14	$59,869.68	0.00429	88.27
39.5 - 40.5	$13,772,667.19	$85,440.46	0.00620	87.89
40.5 - 41.5	$13,426,592.51	$45,583.36	0.00340	87.34
41.5 - 42.5	$13,266,624.41	$40,904.99	0.00308	87.05
42.5 - 43.5	$11,769,969.96	$33,313.49	0.00283	86.78
43.5 - 44.5	$11,256,514.28	$20,866.65	0.00185	86.53
44.5 - 45.5	$4,722,355.22	$9,134.87	0.00193	86.37
45.5 - 46.5	$1,088,086.70	$6,053.73	0.00556	86.21
46.5 - 47.5	$1,077,811.55	$5,328.21	0.00494	85.73
47.5 - 48.5	$1,072,483.34	$11,567.39	0.01079	85.30
48.5 - 49.5	$1,060,915.95	$8,970.57	0.00846	84.38
49.5 - 50.5	$1,051,945.38	$7,349.00	0.00699	83.67
50.5 - 51.5	$1,042,966.38	$1,199.50	0.00115	83.09
51.5 - 52.5	$1,041,766.88	$2,635.02	0.00253	82.99
52.5 - 53.5	$1,036,288.39	$12,565.52	0.01213	82.78
53.5 - 54.5	$1,023,722.87	$4,328.44	0.00423	81.78
54.5 - 55.5	$1,019,394.43	$1,145.10	0.00112	81.43
55.5 - 56.5	$1,018,249.33	$2,358.04	0.00232	81.34
56.5 - 57.5	$1,015,891.29	$1,290.15	0.00127	81.15
57.5 - 58.5	$1,014,601.14	$4,305.55	0.00424	81.05

OGE
Electric Division
366.00 Underground Conduit
Original And Smooth Survivor Curves



OGE
Electric Division
367.00 Underground Conductors and Devices
Observed Life Table
Retirement Expr. 1997 TO 2016
Placement Years 1958 TO 2016

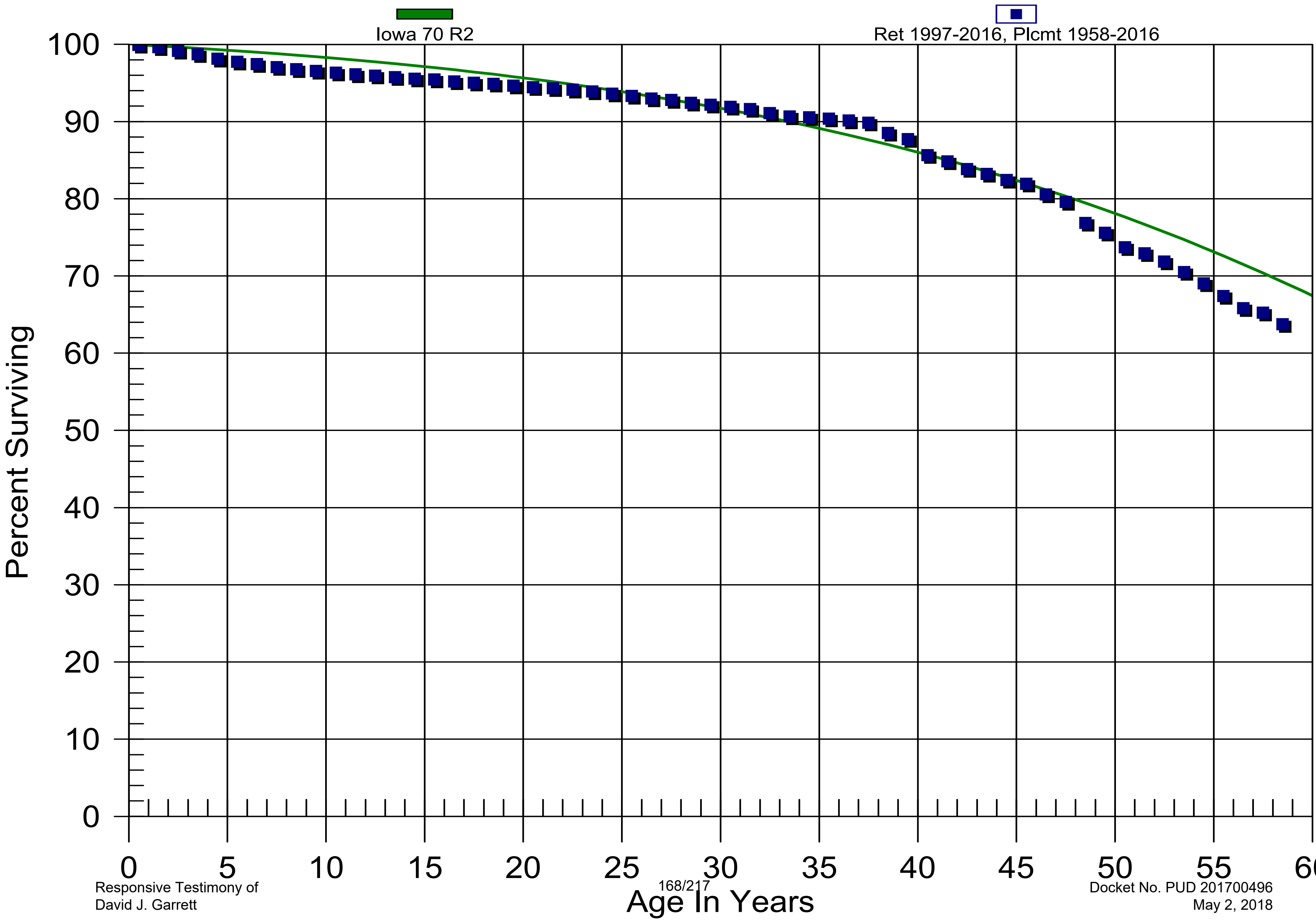
Age Interval	$ Surviving At Beginning of Age Interval	$ Retired During The Age Interval	Retirement Ratio	% Surviving At Beginning of Age Interval
0.0 - 0.5	$558,772,450.98	$358,700.34	0.00064	100.00
0.5 - 1.5	$519,438,631.18	$1,545,239.07	0.00297	99.94
1.5 - 2.5	$478,173,883.93	$2,299,684.40	0.00481	99.64
2.5 - 3.5	$445,530,638.87	$2,056,874.50	0.00462	99.16
3.5 - 4.5	$433,716,089.95	$2,498,362.53	0.00576	98.70
4.5 - 5.5	$402,025,678.35	$1,612,195.68	0.00401	98.13
5.5 - 6.5	$388,341,237.70	$1,205,796.63	0.00310	97.74
6.5 - 7.5	$371,824,853.97	$1,425,872.59	0.00383	97.44
7.5 - 8.5	$344,889,477.85	$1,014,358.14	0.00294	97.06
8.5 - 9.5	$301,236,340.01	$685,995.94	0.00228	96.78
9.5 - 10.5	$281,009,110.87	$648,230.31	0.00231	96.56
10.5 - 11.5	$244,394,062.82	$533,547.51	0.00218	96.33
11.5 - 12.5	$241,241,638.06	$466,800.06	0.00193	96.12
12.5 - 13.5	$227,110,505.61	$450,668.12	0.00198	95.94
13.5 - 14.5	$213,148,038.17	$396,822.91	0.00186	95.75
14.5 - 15.5	$219,776,016.24	$290,594.84	0.00132	95.57
15.5 - 16.5	$202,423,553.82	$511,726.08	0.00253	95.44
16.5 - 17.5	$186,387,733.62	$320,710.45	0.00172	95.20
17.5 - 18.5	$183,078,051.72	$259,594.42	0.00142	95.04
18.5 - 19.5	$177,411,840.40	$510,646.80	0.00288	94.90
19.5 - 20.5	$170,091,808.65	$319,957.91	0.00188	94.63
20.5 - 21.5	$152,415,474.49	$238,764.32	0.00157	94.45
21.5 - 22.5	$135,506,375.95	$279,370.14	0.00206	94.30
22.5 - 23.5	$117,483,758.64	$268,346.48	0.00228	94.11
23.5 - 24.5	$94,731,198.11	$290,823.18	0.00307	93.89
24.5 - 25.5	$92,406,380.27	$287,857.79	0.00312	93.61
25.5 - 26.5	$94,313,918.16	$327,471.37	0.00347	93.31
26.5 - 27.5	$81,988,986.44	$186,340.99	0.00227	92.99
27.5 - 28.5	$90,299,717.86	$334,803.57	0.00371	92.78
28.5 - 29.5	$94,185,310.59	$273,746.40	0.00291	92.43
29.5 - 30.5	$78,552,771.91	$228,953.39	0.00291	92.17
30.5 - 31.5	$68,543,554.40	$204,073.93	0.00298	91.90
31.5 - 32.5	$48,467,954.62	$274,913.68	0.00567	91.62
32.5 - 33.5	$46,246,137.38	$229,808.83	0.00497	91.10
33.5 - 34.5	$245,309,076.59	$321,851.59	0.00131	90.65
34.5 - 35.5	$240,046,523.88	$370,373.87	0.00154	90.53
35.5 - 36.5	$238,757,920.28	$696,728.69	0.00292	90.39

OGE
Electric Division
367.00 Underground Conductors and Devices
Observed Life Table
Retirement Expr. 1997 TO 2016
Placement Years 1958 TO 2016

Age Interval	$ Surviving At Beginning of Age Interval	$ Retired During The Age Interval	Retirement Ratio	% Surviving At Beginning of Age Interval
36.5 - 37.5	$237,717,754.92	$735,538.25	0.00309	90.13
37.5 - 38.5	$38,195,788.03	$558,280.03	0.01462	89.85
38.5 - 39.5	$39,480,322.00	$364,915.38	0.00924	88.54
39.5 - 40.5	$38,958,631.85	$915,568.64	0.02350	87.72
40.5 - 41.5	$34,370,154.65	$331,471.07	0.00964	85.66
41.5 - 42.5	$33,835,702.72	$396,687.89	0.01172	84.83
42.5 - 43.5	$31,845,035.18	$240,004.32	0.00754	83.84
43.5 - 44.5	$30,514,959.43	$281,880.66	0.00924	83.20
44.5 - 45.5	$13,682,477.74	$84,866.41	0.00620	82.44
45.5 - 46.5	$3,116,690.35	$52,762.30	0.01693	81.92
46.5 - 47.5	$3,020,065.95	$35,873.16	0.01188	80.54
47.5 - 48.5	$2,948,554.84	$100,963.32	0.03424	79.58
48.5 - 49.5	$2,805,895.11	$45,651.94	0.01627	76.86
49.5 - 50.5	$2,714,820.75	$68,205.14	0.02512	75.61
50.5 - 51.5	$2,606,977.97	$27,295.39	0.01047	73.71
51.5 - 52.5	$2,550,697.55	$37,857.39	0.01484	72.93
52.5 - 53.5	$2,476,888.91	$46,965.81	0.01896	71.85
53.5 - 54.5	$2,393,967.95	$48,977.35	0.02046	70.49
54.5 - 55.5	$2,315,892.94	$55,689.29	0.02405	69.05
55.5 - 56.5	$2,228,911.90	$52,032.20	0.02334	67.39
56.5 - 57.5	$2,146,359.30	$18,902.08	0.00881	65.81
57.5 - 58.5	$2,100,455.79	$48,122.90	0.02291	65.23

OGE

Electric Division
367.00 Underground Conductors and Devices
Original And Smooth Survivor Curves



OGE
Electric Division
368.00 Line Transformers

Observed Life Table
Retirement Expr. 1997 TO 2016
Placement Years 1958 TO 2016

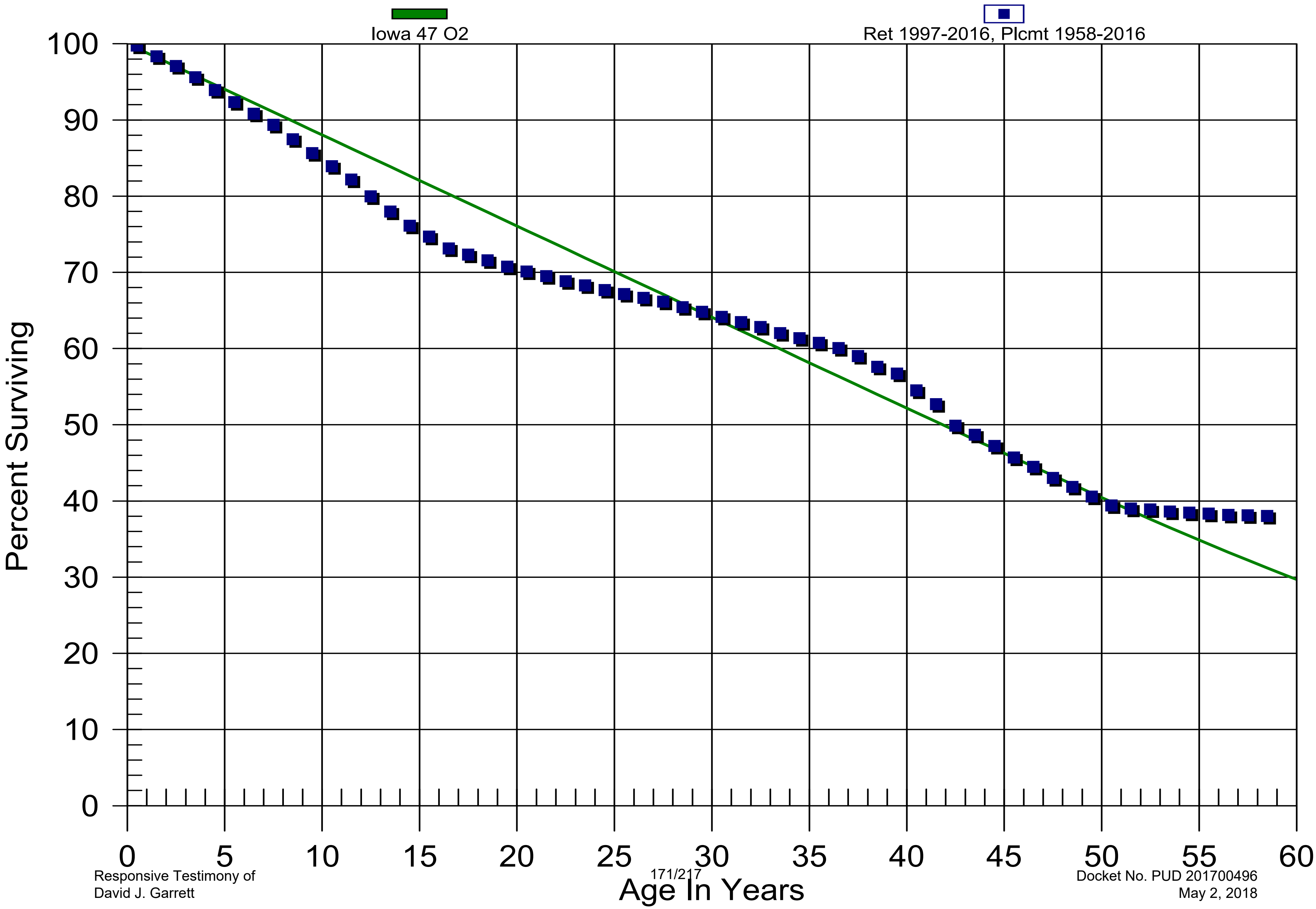
Age Interval	$ Surviving At Beginning of Age Interval	$ Retired During The Age Interval	Retirement Ratio	% Surviving At Beginning of Age Interval
0.0 - 0.5	$361,384,724.88	$860,260.35	0.00238	100.00
0.5 - 1.5	$336,277,717.80	$4,711,795.96	0.01401	99.76
1.5 - 2.5	$305,151,960.95	$4,027,941.48	0.01320	98.36
2.5 - 3.5	$273,729,783.30	$4,092,503.66	0.01495	97.07
3.5 - 4.5	$244,762,302.61	$4,314,994.07	0.01763	95.61
4.5 - 5.5	$212,918,953.31	$3,617,983.76	0.01699	93.93
5.5 - 6.5	$176,811,229.84	$2,884,539.80	0.01631	92.33
6.5 - 7.5	$158,556,633.29	$2,563,547.28	0.01617	90.83
7.5 - 8.5	$136,597,611.65	$2,874,990.08	0.02105	89.36
8.5 - 9.5	$117,618,191.13	$2,475,688.14	0.02105	87.48
9.5 - 10.5	$98,069,062.29	$1,947,675.96	0.01986	85.64
10.5 - 11.5	$82,162,222.89	$1,703,431.35	0.02073	83.94
11.5 - 12.5	$67,670,398.58	$1,823,550.60	0.02695	82.20
12.5 - 13.5	$70,523,238.37	$1,769,799.01	0.02510	79.98
13.5 - 14.5	$82,250,305.44	$1,944,377.81	0.02364	77.97
14.5 - 15.5	$74,132,103.06	$1,403,629.34	0.01893	76.13
15.5 - 16.5	$74,127,055.89	$1,549,008.44	0.02090	74.69
16.5 - 17.5	$92,235,146.91	$1,007,915.87	0.01093	73.13
17.5 - 18.5	$84,637,991.91	$865,353.73	0.01022	72.33
18.5 - 19.5	$85,531,213.92	$989,717.87	0.01157	71.59
19.5 - 20.5	$93,323,658.35	$867,871.69	0.00930	70.76
20.5 - 21.5	$100,662,079.02	$858,087.34	0.00852	70.10
21.5 - 22.5	$100,596,623.18	$955,342.09	0.00950	69.50
22.5 - 23.5	$112,855,180.70	$906,313.27	0.00803	68.84
23.5 - 24.5	$116,205,977.94	$1,068,362.06	0.00919	68.29
24.5 - 25.5	$124,021,637.53	$951,681.15	0.00767	67.66
25.5 - 26.5	$127,257,820.54	$930,217.64	0.00731	67.14
26.5 - 27.5	$126,944,596.87	$959,300.48	0.00756	66.65
27.5 - 28.5	$127,691,329.22	$1,360,295.00	0.01065	66.15
28.5 - 29.5	$130,827,522.17	$1,215,028.72	0.00929	65.45
29.5 - 30.5	$130,074,967.67	$1,384,702.45	0.01065	64.84
30.5 - 31.5	$129,932,788.56	$1,370,734.42	0.01055	64.15
31.5 - 32.5	$130,682,360.36	$1,297,247.44	0.00993	63.47
32.5 - 33.5	$118,510,526.21	$1,541,479.70	0.01301	62.84
33.5 - 34.5	$101,914,089.55	$1,067,989.07	0.01048	62.02
34.5 - 35.5	$102,136,431.47	$1,036,189.29	0.01015	61.37
35.5 - 36.5	$93,296,260.68	$1,062,786.45	0.01139	60.75

OGE
Electric Division
368.00 Line Transformers
Observed Life Table
Retirement Expr. 1997 TO 2016
Placement Years 1958 TO 2016

Age Interval	$ Surviving At Beginning of Age Interval	$ Retired During The Age Interval	Retirement Ratio	% Surviving At Beginning of Age Interval
36.5 - 37.5	$71,673,303.91	$1,256,866.92	0.01754	60.06
37.5 - 38.5	$78,113,308.60	$1,851,907.65	0.02371	59.01
38.5 - 39.5	$87,826,488.81	$1,352,101.26	0.01540	57.61
39.5 - 40.5	$73,498,827.18	$2,873,807.48	0.03910	56.72
40.5 - 41.5	$56,877,144.19	$1,886,624.91	0.03317	54.50
41.5 - 42.5	$54,600,241.61	$2,916,653.17	0.05342	52.69
42.5 - 43.5	$39,494,591.72	$947,297.61	0.02399	49.88
43.5 - 44.5	$35,540,787.41	$1,062,088.41	0.02988	48.68
44.5 - 45.5	$29,799,812.10	$967,455.05	0.03247	47.23
45.5 - 46.5	$26,431,086.75	$706,996.42	0.02675	45.69
46.5 - 47.5	$25,538,607.79	$847,222.46	0.03317	44.47
47.5 - 48.5	$23,955,373.16	$636,212.27	0.02656	43.00
48.5 - 49.5	$19,762,353.21	$611,105.68	0.03092	41.86
49.5 - 50.5	$18,951,339.55	$536,182.11	0.02829	40.56
50.5 - 51.5	$18,007,297.50	$190,043.96	0.01055	39.41
51.5 - 52.5	$16,542,391.61	$47,579.85	0.00288	39.00
52.5 - 53.5	$16,107,572.86	$111,645.65	0.00693	38.89
53.5 - 54.5	$15,836,083.28	$58,766.96	0.00371	38.62
54.5 - 55.5	$15,269,407.43	$58,439.06	0.00383	38.47
55.5 - 56.5	$15,107,664.40	$62,710.80	0.00415	38.33
56.5 - 57.5	$14,863,117.50	$19,453.97	0.00131	38.17
57.5 - 58.5	$14,790,243.54	$30,868.69	0.00209	38.12

OGE

Electric Division
368.00 Line Transformers
Original And Smooth Survivor Curves



OGE
Electric Division
369.00 Services

Observed Life Table
Retirement Expr. 1997 TO 2016
Placement Years 1958 TO 2016

Age Interval	$ Surviving At Beginning of Age Interval	$ Retired During The Age Interval	Retirement Ratio	% Surviving At Beginning of Age Interval
0.0 - 0.5	$147,274,835.68	$526,108.50	0.00357	100.00
0.5 - 1.5	$144,156,088.21	$264,734.65	0.00184	99.64
1.5 - 2.5	$139,732,534.42	$115,993.30	0.00083	99.46
2.5 - 3.5	$140,473,050.04	$75,606.86	0.00054	99.38
3.5 - 4.5	$146,699,621.81	$42,202.80	0.00029	99.32
4.5 - 5.5	$136,606,537.70	$52,133.37	0.00038	99.30
5.5 - 6.5	$133,185,340.70	$42,465.02	0.00032	99.26
6.5 - 7.5	$133,636,547.71	$34,995.94	0.00026	99.23
7.5 - 8.5	$123,999,789.67	$31,514.92	0.00025	99.20
8.5 - 9.5	$111,285,996.69	$22,070.01	0.00020	99.17
9.5 - 10.5	$101,677,863.79	$28,786.28	0.00028	99.15
10.5 - 11.5	$98,985,308.99	$52,634.05	0.00053	99.13
11.5 - 12.5	$92,302,280.18	$32,440.64	0.00035	99.07
12.5 - 13.5	$90,471,544.51	$32,001.85	0.00035	99.04
13.5 - 14.5	$84,635,569.68	$34,756.97	0.00041	99.00
14.5 - 15.5	$83,507,838.50	$70,139.55	0.00084	98.96
15.5 - 16.5	$82,855,492.37	$46,230.96	0.00056	98.88
16.5 - 17.5	$80,461,537.84	$25,274.63	0.00031	98.83
17.5 - 18.5	$83,978,537.90	$23,462.59	0.00028	98.79
18.5 - 19.5	$83,231,497.28	$19,210.03	0.00023	98.77
19.5 - 20.5	$80,378,441.53	$28,349.11	0.00035	98.74
20.5 - 21.5	$78,047,405.28	$43,746.06	0.00056	98.71
21.5 - 22.5	$75,421,076.49	$42,678.92	0.00057	98.65
22.5 - 23.5	$70,435,118.05	$40,545.03	0.00058	98.60
23.5 - 24.5	$68,118,181.66	$46,300.05	0.00068	98.54
24.5 - 25.5	$65,605,543.04	$48,201.86	0.00073	98.47
25.5 - 26.5	$64,942,874.04	$51,773.63	0.00080	98.40
26.5 - 27.5	$64,028,575.96	$35,258.81	0.00055	98.32
27.5 - 28.5	$62,462,544.13	$29,593.13	0.00047	98.27
28.5 - 29.5	$59,400,193.58	$23,501.50	0.00040	98.22
29.5 - 30.5	$55,528,343.31	$23,467.57	0.00042	98.18
30.5 - 31.5	$51,631,812.00	$44,331.41	0.00086	98.14
31.5 - 32.5	$105,426,902.58	$48,233.77	0.00046	98.06
32.5 - 33.5	$99,486,651.87	$52,485.06	0.00053	98.01
33.5 - 34.5	$94,202,167.72	$84,619.27	0.00090	97.96
34.5 - 35.5	$30,184,201.97	$56,355.71	0.00187	97.87
35.5 - 36.5	$25,564,290.91	$120,295.40	0.00471	97.69

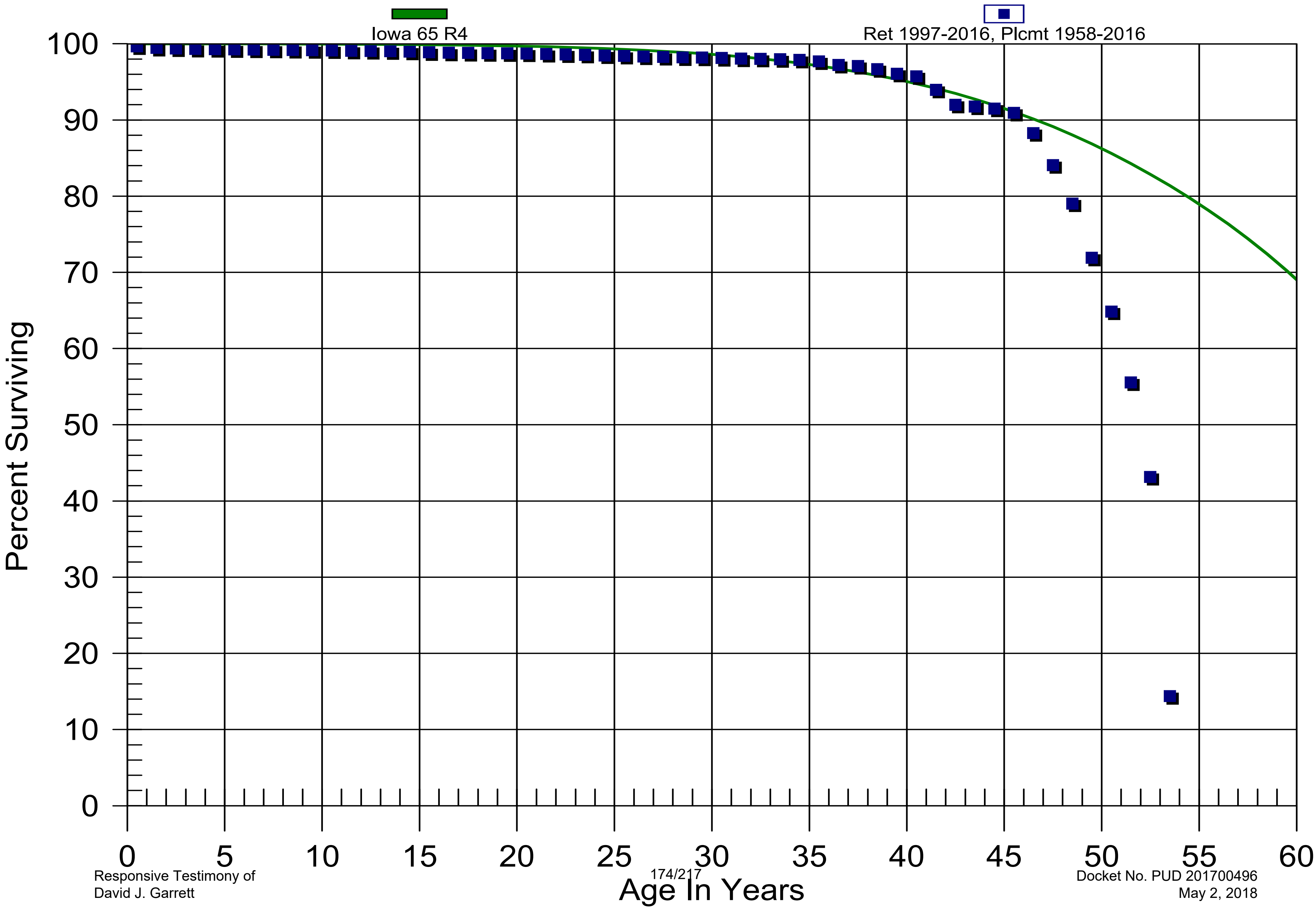
OGE
Electric Division
369.00 Services

Observed Life Table
Retirement Expr. 1997 TO 2016
Placement Years 1958 TO 2016

Age Interval	$ Surviving At Beginning of Age Interval	$ Retired During The Age Interval	Retirement Ratio	% Surviving At Beginning of Age Interval
36.5 - 37.5	$22,439,094.00	$36,333.91	0.00162	97.23
37.5 - 38.5	$61,450,180.24	$265,626.73	0.00432	97.07
38.5 - 39.5	$58,203,308.59	$355,437.25	0.00611	96.65
39.5 - 40.5	$55,152,437.12	$198,946.88	0.00361	96.06
40.5 - 41.5	$10,281,198.14	$188,839.45	0.01837	95.72
41.5 - 42.5	$8,442,462.12	$177,497.67	0.02102	93.96
42.5 - 43.5	$7,322,186.44	$18,015.08	0.00246	91.98
43.5 - 44.5	$5,801,967.11	$16,958.99	0.00292	91.76
44.5 - 45.5	$4,298,889.17	$26,137.38	0.00608	91.49
45.5 - 46.5	$3,241,456.54	$95,072.15	0.02933	90.93
46.5 - 47.5	$2,335,448.15	$110,949.89	0.04751	88.27
47.5 - 48.5	$1,584,235.79	$95,122.69	0.06004	84.07
48.5 - 49.5	$1,020,576.73	$91,930.43	0.09008	79.02
49.5 - 50.5	$555,818.28	$54,555.32	0.09815	71.91
50.5 - 51.5	$234,522.77	$33,653.51	0.14350	64.85
51.5 - 52.5	$62,921.22	$14,029.35	0.22297	55.54
52.5 - 53.5	$114.60	$76.40	0.66667	43.16

OGE

Electric Division
369.00 Services
Original And Smooth Survivor Curves



OGE
Electric Division
373.00 Street Lighting and Signal Systems
Observed Life Table
Retirement Expr. 1997 TO 2016
Placement Years 1958 TO 2016

Age Interval	$ Surviving At Beginning of Age Interval	$ Retired During The Age Interval	Retirement Ratio	% Surviving At Beginning of Age Interval
0.0 - 0.5	$185,725,088.71	$136,992.31	0.00074	100.00
0.5 - 1.5	$176,370,107.17	$672,279.52	0.00381	99.93
1.5 - 2.5	$164,647,814.80	$1,545,391.81	0.00939	99.55
2.5 - 3.5	$158,947,802.50	$973,826.52	0.00613	98.61
3.5 - 4.5	$151,523,864.04	$1,033,745.85	0.00682	98.01
4.5 - 5.5	$145,075,210.62	$777,377.76	0.00536	97.34
5.5 - 6.5	$139,469,838.68	$720,358.23	0.00516	96.82
6.5 - 7.5	$132,811,566.09	$593,172.87	0.00447	96.32
7.5 - 8.5	$124,718,862.52	$461,536.56	0.00370	95.89
8.5 - 9.5	$113,349,936.60	$437,870.32	0.00386	95.53
9.5 - 10.5	$101,095,634.62	$466,593.81	0.00462	95.16
10.5 - 11.5	$87,742,124.63	$388,613.06	0.00443	94.72
11.5 - 12.5	$81,029,046.31	$427,778.65	0.00528	94.30
12.5 - 13.5	$75,037,900.33	$519,934.54	0.00693	93.81
13.5 - 14.5	$69,739,964.71	$500,382.66	0.00717	93.16
14.5 - 15.5	$66,798,645.97	$1,013,106.27	0.01517	92.49
15.5 - 16.5	$60,978,489.99	$549,985.99	0.00902	91.08
16.5 - 17.5	$55,200,068.79	$329,884.71	0.00598	90.26
17.5 - 18.5	$49,358,573.76	$482,311.29	0.00977	89.72
18.5 - 19.5	$44,630,655.86	$414,051.27	0.00928	88.85
19.5 - 20.5	$38,812,881.39	$384,231.79	0.00990	88.02
20.5 - 21.5	$33,940,837.87	$369,624.19	0.01089	87.15
21.5 - 22.5	$31,212,772.60	$314,341.49	0.01007	86.20
22.5 - 23.5	$27,748,958.15	$216,364.50	0.00780	85.33
23.5 - 24.5	$24,850,680.79	$276,996.39	0.01115	84.67
24.5 - 25.5	$23,258,458.06	$218,360.69	0.00939	83.73
25.5 - 26.5	$22,053,465.20	$263,093.50	0.01193	82.94
26.5 - 27.5	$20,250,909.01	$169,048.21	0.00835	81.95
27.5 - 28.5	$19,552,541.42	$160,378.18	0.00820	81.27
28.5 - 29.5	$19,582,530.73	$168,955.36	0.00863	80.60
29.5 - 30.5	$18,014,383.61	$179,919.41	0.00999	79.90
30.5 - 31.5	$15,924,922.12	$108,503.07	0.00681	79.11
31.5 - 32.5	$12,003,597.74	$111,838.32	0.00932	78.57
32.5 - 33.5	$10,657,064.74	$135,905.10	0.01275	77.83
33.5 - 34.5	$20,561,080.82	$107,217.95	0.00521	76.84
34.5 - 35.5	$18,827,633.64	$107,687.20	0.00572	76.44
35.5 - 36.5	$18,137,713.50	$80,899.71	0.00446	76.00

OGE
Electric Division
373.00 Street Lighting and Signal Systems

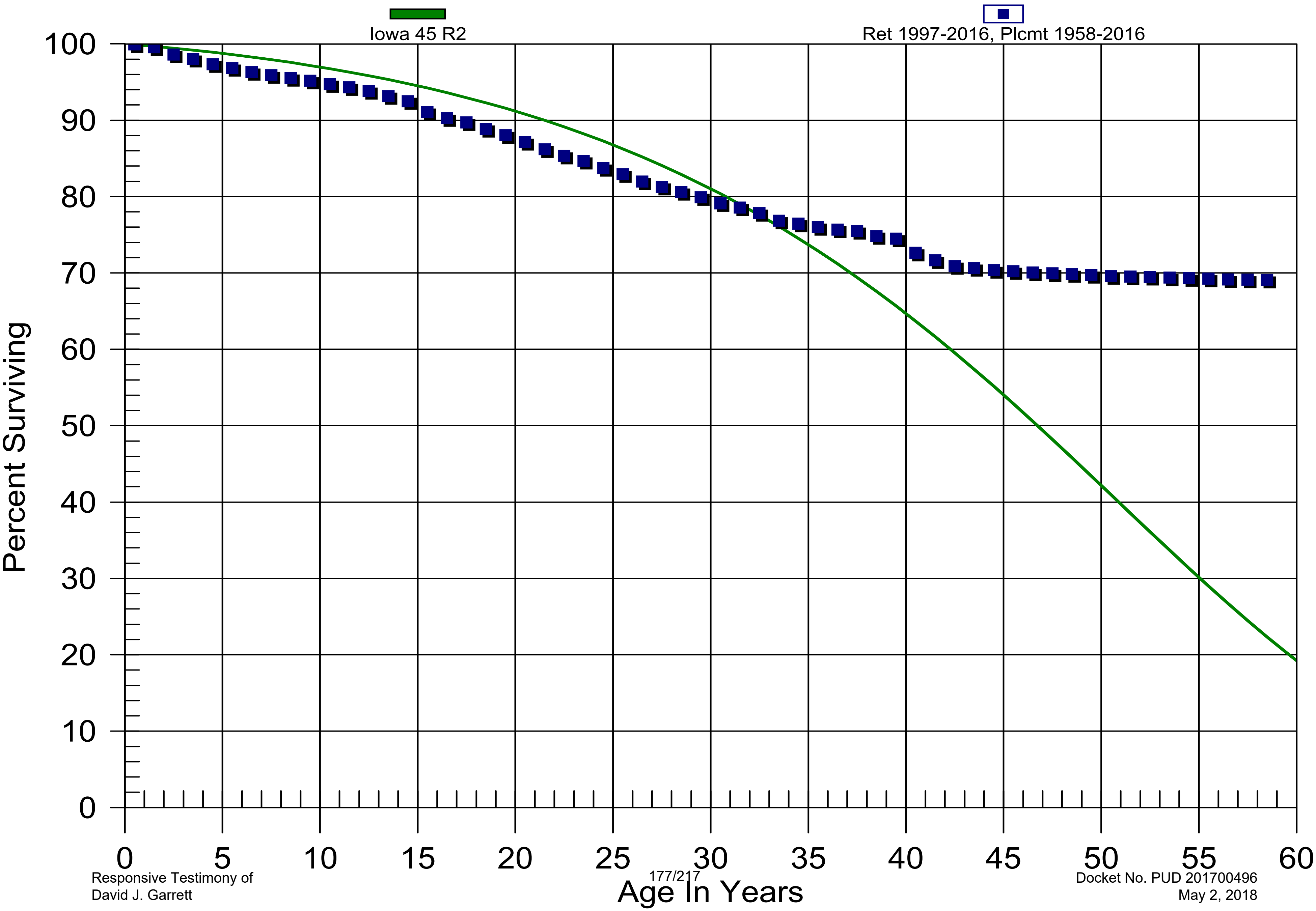
Observed Life Table

Retirement Expr. 1997 TO 2016
Placement Years 1958 TO 2016

Age Interval	$ Surviving At Beginning of Age Interval	$ Retired During The Age Interval	Retirement Ratio	% Surviving At Beginning of Age Interval
36.5 - 37.5	$39,672,335.13	$91,385.41	0.00230	75.67
37.5 - 38.5	$23,514,665.97	$212,134.74	0.00902	75.49
38.5 - 39.5	$38,330,940.00	$160,232.36	0.00418	74.81
39.5 - 40.5	$16,113,938.64	$403,645.79	0.02505	74.50
40.5 - 41.5	$19,353,341.04	$260,889.52	0.01348	72.63
41.5 - 42.5	$18,610,136.69	$195,571.71	0.01051	71.65
42.5 - 43.5	$18,077,994.21	$63,119.94	0.00349	70.90
43.5 - 44.5	$17,605,622.23	$68,668.39	0.00390	70.65
44.5 - 45.5	$16,331,370.44	$36,281.55	0.00222	70.38
45.5 - 46.5	$15,613,801.25	$33,802.68	0.00216	70.22
46.5 - 47.5	$15,489,813.79	$25,842.02	0.00167	70.07
47.5 - 48.5	$15,440,669.34	$27,905.88	0.00181	69.95
48.5 - 49.5	$15,391,905.56	$24,244.63	0.00158	69.82
49.5 - 50.5	$15,341,534.44	$27,567.14	0.00180	69.71
50.5 - 51.5	$15,284,945.42	$13,895.18	0.00091	69.59
51.5 - 52.5	$15,246,511.45	$12,378.19	0.00081	69.53
52.5 - 53.5	$15,196,550.55	$18,097.02	0.00119	69.47
53.5 - 54.5	$15,122,670.71	$14,252.54	0.00094	69.39
54.5 - 55.5	$15,079,052.99	$16,187.00	0.00107	69.32
55.5 - 56.5	$15,010,080.91	$19,197.87	0.00128	69.25
56.5 - 57.5	$14,962,541.56	$7,507.58	0.00050	69.16
57.5 - 58.5	$14,920,479.68	$6,287.49	0.00042	69.12

OGE

Electric Division
373.00 Street Lighting and Signal Systems
Original And Smooth Survivor Curves



OGE
Electric Division
390.00 Structures and Improvements
Observed Life Table
Retirement Expr. 1997 TO 2016
Placement Years 1956 TO 2016

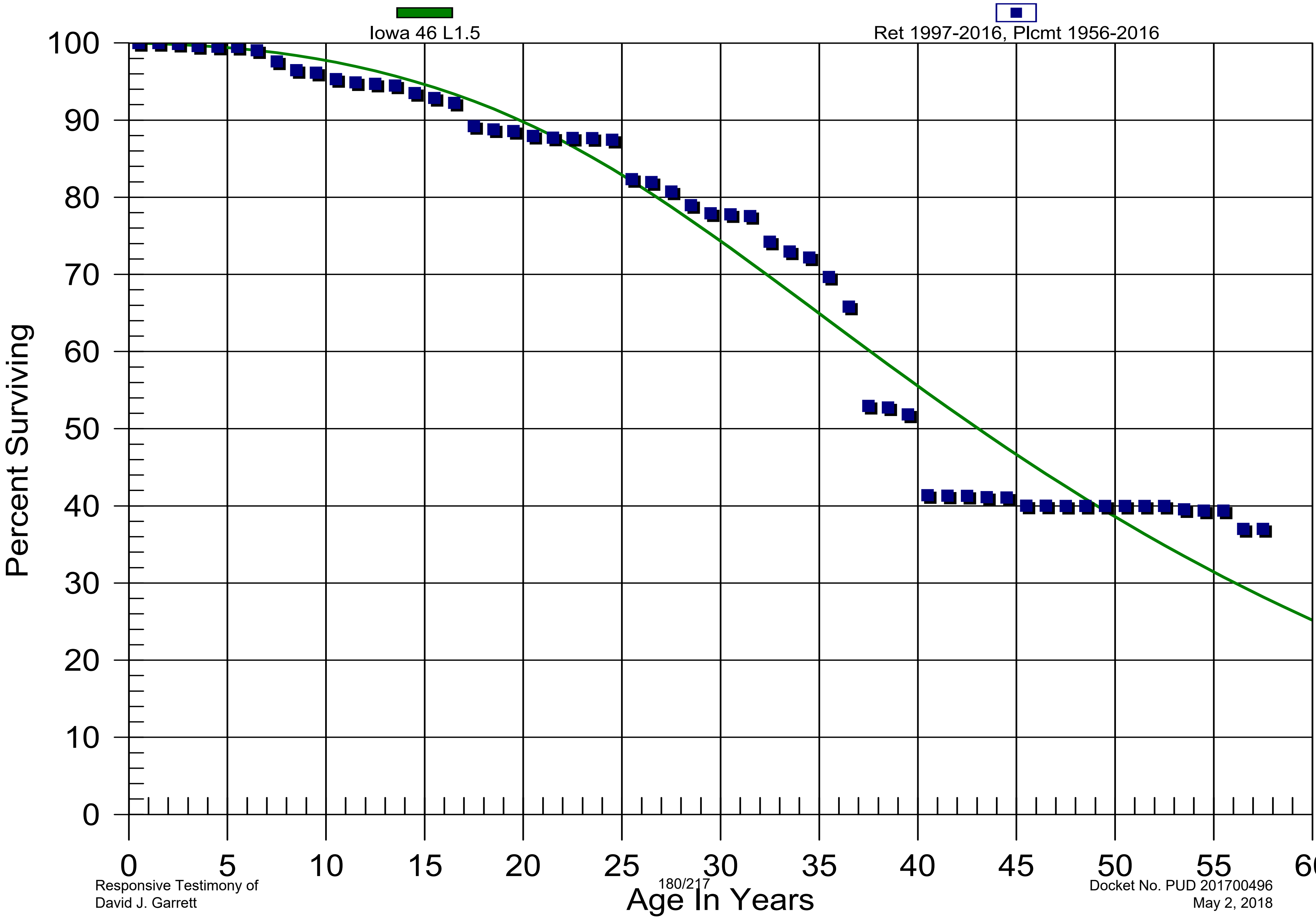
Age Interval	$ Surviving At Beginning of Age Interval	$ Retired During The Age Interval	Retirement Ratio	% Surviving At Beginning of Age Interval
0.0 - 0.5	$121,250,375.17	$0.00	0.00000	100.00
0.5 - 1.5	$123,555,507.24	$32,197.67	0.00026	100.00
1.5 - 2.5	$102,997,305.85	$107,983.46	0.00105	99.97
2.5 - 3.5	$98,887,486.16	$279,888.02	0.00283	99.87
3.5 - 4.5	$101,510,750.52	$83,894.74	0.00083	99.59
4.5 - 5.5	$81,565,550.72	$17,563.00	0.00022	99.50
5.5 - 6.5	$58,860,905.33	$264,370.90	0.00449	99.48
6.5 - 7.5	$64,661,684.91	$935,377.52	0.01447	99.04
7.5 - 8.5	$60,140,993.09	$698,083.03	0.01161	97.60
8.5 - 9.5	$66,097,621.39	$233,557.63	0.00353	96.47
9.5 - 10.5	$69,018,088.85	$596,531.19	0.00864	96.13
10.5 - 11.5	$78,553,969.24	$329,540.25	0.00420	95.30
11.5 - 12.5	$75,951,806.11	$150,631.78	0.00198	94.90
12.5 - 13.5	$79,071,190.14	$190,709.24	0.00241	94.71
13.5 - 14.5	$78,630,383.64	$806,699.54	0.01026	94.48
14.5 - 15.5	$78,215,102.19	$530,427.79	0.00678	93.51
15.5 - 16.5	$78,300,101.10	$553,629.90	0.00707	92.88
16.5 - 17.5	$77,791,006.73	$2,525,416.09	0.03246	92.22
17.5 - 18.5	$75,087,693.01	$355,524.59	0.00473	89.23
18.5 - 19.5	$73,100,567.44	$185,533.21	0.00254	88.81
19.5 - 20.5	$58,876,506.63	$429,660.24	0.00730	88.58
20.5 - 21.5	$56,947,737.75	$144,092.04	0.00253	87.93
21.5 - 22.5	$55,666,030.45	$5,973.17	0.00011	87.71
22.5 - 23.5	$55,133,147.77	$24,101.63	0.00044	87.70
23.5 - 24.5	$47,034,464.58	$117,426.58	0.00250	87.66
24.5 - 25.5	$46,762,074.22	$2,723,049.65	0.05823	87.44
25.5 - 26.5	$41,932,862.37	$201,137.70	0.00480	82.35
26.5 - 27.5	$36,535,465.70	$537,967.44	0.01472	81.96
27.5 - 28.5	$35,150,089.29	$773,469.29	0.02200	80.75
28.5 - 29.5	$28,308,414.16	$380,451.47	0.01344	78.97
29.5 - 30.5	$22,516,421.59	$41,604.07	0.00185	77.91
30.5 - 31.5	$8,010,306.36	$20,646.25	0.00258	77.77
31.5 - 32.5	$7,531,057.85	$323,050.80	0.04290	77.57
32.5 - 33.5	$6,736,539.19	$116,232.01	0.01725	74.24
33.5 - 34.5	$5,472,420.15	$57,022.25	0.01042	72.96
34.5 - 35.5	$5,438,163.82	$191,357.84	0.03519	72.20
35.5 - 36.5	$6,188,287.60	$340,972.45	0.05510	69.66

OGE
Electric Division
390.00 Structures and Improvements
Observed Life Table
Retirement Expr. 1997 TO 2016
Placement Years 1956 TO 2016

Age Interval	$ Surviving At Beginning of Age Interval	$ Retired During The Age Interval	Retirement Ratio	% Surviving At Beginning of Age Interval
36.5 - 37.5	$1,585,672.53	$310,428.14	0.19577	65.82
37.5 - 38.5	$9,699,292.38	$31,322.80	0.00323	52.94
38.5 - 39.5	$11,742,280.73	$203,444.54	0.01733	52.76
39.5 - 40.5	$11,342,474.47	$2,291,598.68	0.20204	51.85
40.5 - 41.5	$8,777,487.54	$12,202.67	0.00139	41.37
41.5 - 42.5	$8,117,572.89	$4,616.00	0.00057	41.32
42.5 - 43.5	$7,384,798.98	$27,777.90	0.00376	41.29
43.5 - 44.5	$7,226,152.53	$12,072.14	0.00167	41.14
44.5 - 45.5	$6,865,286.38	$175,062.36	0.02550	41.07
45.5 - 46.5	$6,537,516.90	$2,362.91	0.00036	40.02
46.5 - 47.5	$6,433,209.84	$1,781.89	0.00028	40.01
47.5 - 48.5	$6,213,205.42	$0.00	0.00000	40.00
48.5 - 49.5	$6,230,250.92	$0.00	0.00000	40.00
49.5 - 50.5	$6,179,459.27	$139.00	0.00002	40.00
50.5 - 51.5	$5,877,555.71	$658.11	0.00011	40.00
51.5 - 52.5	$5,854,963.63	$401.01	0.00007	39.99
52.5 - 53.5	$5,808,917.55	$63,886.91	0.01100	39.99
53.5 - 54.5	$9,218,987.25	$41,256.92	0.00448	39.55
54.5 - 55.5	$5,415,996.35	$0.00	0.00000	39.37
55.5 - 56.5	$4,956,873.45	$299,619.22	0.06045	39.37
56.5 - 57.5	$4,643,833.19	$0.00	0.00000	36.99

OGE

Electric Division
390.00 Structures and Improvements
Original And Smooth Survivor Curves



OGE
Electric Division
353.00 Station Equipment

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 60 **Survivor Curve:** R1

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1958	15,706,863.57	60.00	261,775.86	22.77	5,960,928.65
1959	995,398.35	60.00	16,589.64	23.27	386,009.15
1960	619,901.29	60.00	10,331.48	23.77	245,595.56
1961	610,260.38	60.00	10,170.80	24.28	246,942.08
1962	356,966.90	60.00	5,949.33	24.79	147,512.46
1963	319,571.75	60.00	5,326.09	25.32	134,833.60
1964	3,380,164.20	60.00	56,334.95	25.84	1,455,814.41
1965	424,332.86	60.00	7,072.07	26.37	186,516.69
1966	3,646,674.82	60.00	60,776.71	26.91	1,635,627.54
1967	4,349,793.01	60.00	72,495.11	27.45	1,990,333.52
1968	3,703,823.79	60.00	61,729.17	28.01	1,728,730.74
1969	1,070,828.19	60.00	17,846.78	28.56	509,721.36
1970	2,383,841.64	60.00	39,729.90	29.12	1,157,027.07
1971	720,123.21	60.00	12,001.82	29.69	356,317.86
1972	8,529,318.55	60.00	142,152.48	30.26	4,301,791.95
1973	3,147,563.39	60.00	52,458.35	30.84	1,617,759.34
1974	4,427,262.62	60.00	73,786.24	31.42	2,318,636.11
1975	2,866,807.92	60.00	47,779.18	32.01	1,529,587.19
1976	10,708,422.32	60.00	178,470.16	32.61	5,819,700.80
1977	3,317,330.04	60.00	55,287.74	33.21	1,836,027.63
1978	1,389,020.76	60.00	23,149.89	33.81	782,807.82
1979	868,591.52	60.00	14,476.24	34.42	498,336.52
1980	2,543,064.42	60.00	42,383.56	35.04	1,485,173.76
1981	1,006,340.06	60.00	16,772.00	35.66	598,135.12
1982	286,880.76	60.00	4,781.25	36.29	173,505.47
1983	320,898.46	60.00	5,348.20	36.92	197,448.75
1984	4,221,151.88	60.00	70,351.13	37.55	2,641,990.27

OGE
Electric Division
353.00 Station Equipment

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 60 **Survivor Curve:** R1

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1985	4,889,061.88	60.00	81,482.75	38.19	3,112,057.64
1986	990,499.93	60.00	16,508.00	38.84	641,129.15
1987	877,080.57	60.00	14,617.72	39.49	577,193.87
1988	8,872,142.21	60.00	147,866.10	40.14	5,935,051.61
1989	8,098,836.27	60.00	134,977.92	40.79	5,506,194.46
1990	5,437,622.91	60.00	90,625.25	41.45	3,756,695.56
1991	1,543,687.53	60.00	25,727.61	42.11	1,083,518.30
1992	4,146,289.21	60.00	69,103.45	42.78	2,956,368.19
1993	2,667,409.67	60.00	44,455.94	43.45	1,931,673.21
1994	2,941,892.95	60.00	49,030.57	44.12	2,163,413.88
1995	6,368,096.20	60.00	106,132.83	44.80	4,754,585.32
1996	7,007,488.39	60.00	116,789.15	45.48	5,311,169.35
1997	581,319.24	60.00	9,688.46	46.16	447,182.20
1998	1,501,771.71	60.00	25,029.03	46.84	1,172,349.88
1999	1,948,826.03	60.00	32,479.79	47.53	1,543,611.59
2000	2,243,970.21	60.00	37,398.76	48.21	1,803,083.07
2001	1,032,814.07	60.00	17,213.23	48.90	841,783.18
2002	1,437,817.11	60.00	23,963.14	49.60	1,188,491.00
2003	9,330,845.13	60.00	155,511.00	50.29	7,820,894.71
2004	8,007,906.73	60.00	133,462.46	50.99	6,805,349.49
2005	29,909,071.71	60.00	498,474.62	51.69	25,767,463.23
2006	15,302,813.06	60.00	255,041.82	52.40	13,363,513.84
2007	15,625,356.78	60.00	260,417.44	53.10	13,829,375.03
2008	37,328,323.72	60.00	622,126.37	53.82	33,480,315.59
2009	26,459,309.72	60.00	440,979.73	54.53	24,046,323.15
2010	42,555,528.62	60.00	709,244.72	55.25	39,184,042.44
2011	50,932,439.28	60.00	848,857.12	55.97	47,509,740.84

OGE
Electric Division
353.00 Station Equipment

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: **60** *Survivor Curve:* **R1**

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
2012	62,977,312.70	60.00	1,049,601.02	56.69	59,505,979.53
2013	41,694,213.04	60.00	694,889.74	57.42	39,901,830.12
2014	91,382,414.03	60.00	1,523,009.97	58.15	88,569,533.76
2015	36,632,118.06	60.00	610,523.17	58.89	35,953,234.55
2016	55,215,506.25	60.00	920,240.15	59.63	54,873,562.77
Total	667,860,981.58	60.00	11,130,795.20	51.68	575,279,521.91

Composite Average Remaining Life ... 51.68 Years

OGE
Electric Division
353.10 Station Equipment - Transformers

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 55 *Survivor Curve:* R0.5

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1955	312,369.81	55.00	5,679.33	20.72	117,663.05
1957	278,266.20	55.00	5,059.28	21.63	109,442.61
1958	152,475.32	55.00	2,772.22	22.10	61,252.72
1962	340,000.00	55.00	6,181.69	23.99	148,289.56
1965	118,403.32	55.00	2,152.74	25.45	54,791.79
1968	375,101.00	55.00	6,819.88	26.95	183,825.91
1970	753,439.00	55.00	13,698.60	27.98	383,235.21
1972	728,733.00	55.00	13,249.41	29.02	384,439.67
1974	824,216.48	55.00	14,985.44	30.07	450,628.68
1977	383,447.04	55.00	6,971.62	31.68	220,884.31
1978	1,199,057.70	55.00	21,800.59	32.23	702,604.19
1980	1,652,686.72	55.00	30,048.22	33.33	1,001,509.67
1984	1,098,312.92	55.00	19,968.91	35.57	710,361.93
1988	940,166.00	55.00	17,093.57	37.86	647,247.09
1991	3,362,877.10	55.00	61,141.94	39.61	2,421,870.55
2000	1,750,754.65	55.00	31,831.23	44.94	1,430,628.83
2001	3,951,505.47	55.00	71,844.05	45.54	3,272,028.61
2006	3,696,178.92	55.00	67,201.84	48.56	3,263,155.90
2007	1,757,109.72	55.00	31,946.78	49.16	1,570,639.94
2008	5,142,958.44	55.00	93,506.37	49.77	4,654,032.97
2009	4,664,517.94	55.00	84,807.64	50.38	4,272,736.09
2010	6,873,503.48	55.00	124,970.17	50.99	6,372,550.57
2011	10,952,034.43	55.00	199,123.72	51.61	10,275,800.84
2012	1,172,589.11	55.00	21,319.35	52.22	1,113,277.77
2013	318,720.00	55.00	5,794.79	52.83	306,165.47
2014	226,779.30	55.00	4,123.17	53.45	220,388.70

OGE

Electric Division

353.10 Station Equipment - Transformers

Original Cost Of Utility Plant In Service

And Development Of Composite Remaining Life as of December 31, 2016

Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 55 *Survivor Curve:* R0.5

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
Total	53,026,203.07	55.00	964,092.56	46.00	44,349,452.63

Composite Average Remaining Life ... 46.00 Years

OGE
Electric Division
355.00 Poles and Fixtures

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 62 **Survivor Curve:** R0.5

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1958	35,261,690.85	62.00	568,726.89	28.47	16,192,566.82
1959	222,688.26	62.00	3,591.68	28.97	104,035.77
1960	699,075.79	62.00	11,275.22	29.46	332,216.81
1961	7,087,889.78	62.00	114,318.78	29.97	3,425,648.98
1962	2,412,421.11	62.00	38,909.33	30.47	1,185,644.30
1963	1,634,716.74	62.00	26,365.93	30.98	816,861.77
1964	1,295,636.00	62.00	20,896.99	31.49	658,138.70
1965	2,232,611.77	62.00	36,009.23	32.01	1,152,717.33
1966	2,074,197.37	62.00	33,454.20	32.53	1,088,346.62
1967	1,804,300.74	62.00	29,101.11	33.06	961,973.97
1968	3,513,868.12	62.00	56,674.29	33.58	1,903,369.33
1969	1,549,405.48	62.00	24,989.97	34.12	852,535.37
1970	1,212,583.83	62.00	19,557.46	34.65	677,674.00
1971	3,674,373.87	62.00	59,263.05	35.19	2,085,402.31
1972	4,045,620.61	62.00	65,250.79	35.73	2,331,422.26
1973	4,374,117.87	62.00	70,549.04	36.28	2,559,206.22
1974	5,861,800.10	62.00	94,543.49	36.82	3,481,394.24
1975	286,735.78	62.00	4,624.69	37.38	172,848.77
1976	825,883.95	62.00	13,320.47	37.93	505,246.60
1977	5,594,438.84	62.00	90,231.29	38.49	3,472,753.90
1978	807,023.91	62.00	13,016.28	39.05	508,263.08
1979	35,528.51	62.00	573.03	39.61	22,698.80
1980	571,488.71	62.00	9,217.40	40.18	370,334.61
1982	161,716.03	62.00	2,608.28	41.32	107,768.65
1984	3,163,527.54	62.00	51,023.74	42.47	2,166,914.87
1985	1,110,417.51	62.00	17,909.64	43.05	770,956.20
1986	231,036.44	62.00	3,726.33	43.63	162,572.09

OGE
Electric Division
355.00 Poles and Fixtures

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 62 **Survivor Curve:** R0.5

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1987	160,433.11	62.00	2,587.59	44.21	114,397.61
1988	492,179.49	62.00	7,938.24	44.80	355,594.97
1989	773,794.61	62.00	12,480.34	45.38	566,380.26
1990	123,726.68	62.00	1,995.56	45.97	91,734.92
1991	29,460.48	62.00	475.16	46.56	22,123.28
1992	23,442.69	62.00	378.10	47.15	17,827.58
1993	48,700.95	62.00	785.49	47.74	37,501.62
1994	931.00	62.00	15.02	48.34	725.83
1995	86,511.12	62.00	1,395.32	48.93	68,275.61
1996	69,996.23	62.00	1,128.95	49.53	55,915.22
1997	2,651,824.21	62.00	42,770.60	50.13	2,143,911.07
1998	3,150,680.01	62.00	50,816.52	50.72	2,577,611.38
1999	8,109,359.26	62.00	130,793.80	51.32	6,712,775.51
2000	2,807,128.37	62.00	45,275.46	51.92	2,350,850.38
2001	4,901,307.74	62.00	79,051.95	52.52	4,152,193.48
2002	25,054,424.87	62.00	404,096.48	53.13	21,468,586.96
2003	5,568,966.64	62.00	89,820.45	53.73	4,826,108.04
2004	5,818,517.04	62.00	93,845.39	54.34	5,099,132.85
2005	8,346,643.17	62.00	134,620.90	54.94	7,396,191.06
2006	11,838,177.21	62.00	190,934.97	55.55	10,606,092.76
2007	10,863,885.02	62.00	175,220.85	56.16	9,839,808.56
2008	17,964,360.18	62.00	289,742.62	56.77	16,447,473.92
2009	23,664,033.40	62.00	381,671.21	57.38	21,899,093.64
2010	20,256,187.97	62.00	326,706.93	57.99	18,945,428.09
2011	27,821,639.90	62.00	448,728.19	58.60	26,296,501.05
2012	131,648,676.08	62.00	2,123,328.20	59.22	125,737,724.93
2013	147,225,692.55	62.00	2,374,565.96	59.83	142,077,616.70

OGE
Electric Division
355.00 Poles and Fixtures

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: ***62*** ***Survivor Curve:*** ***R0.5***

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
2014	269,146,675.05	62.00	4,340,998.64	60.45	262,417,524.19
2015	23,223,100.18	62.00	374,559.51	61.07	22,874,374.26
2016	59,637,134.96	62.00	961,872.27	61.69	59,338,114.23
Total	903,252,385.68	62.00	14,568,329.26	56.47	822,607,102.30

Composite Average Remaining Life ... 56.47 Years

OGE
Electric Division
356.00 Overhead Conductors and Devices

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 70 *Survivor Curve:* R2.5

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1958	21,812,565.92	70.00	311,607.66	22.80	7,106,079.21
1959	387,411.58	70.00	5,534.44	23.41	129,544.72
1960	480,396.67	70.00	6,862.80	24.02	164,814.16
1961	4,536,071.18	70.00	64,800.93	24.64	1,596,560.30
1962	1,957,845.62	70.00	27,969.19	25.27	706,696.16
1963	999,666.13	70.00	14,280.93	25.91	369,993.22
1964	859,861.87	70.00	12,283.72	26.56	326,215.28
1965	770,180.09	70.00	11,002.56	27.21	299,415.48
1966	8,167,554.66	70.00	116,679.19	27.88	3,253,375.75
1967	1,950,001.54	70.00	27,857.13	28.56	795,536.56
1968	1,272,191.89	70.00	18,174.15	29.24	531,488.50
1969	1,160,934.30	70.00	16,584.75	29.94	496,483.25
1970	1,349,841.33	70.00	19,283.42	30.64	590,815.33
1971	7,736,732.46	70.00	110,524.60	31.35	3,464,608.10
1972	5,097,575.43	70.00	72,822.41	32.06	2,334,845.08
1973	4,414,294.27	70.00	63,061.26	32.79	2,067,710.65
1974	4,324,378.03	70.00	61,776.75	33.52	2,070,738.78
1975	193,062.80	70.00	2,758.04	34.26	94,492.48
1976	2,873,724.71	70.00	41,053.15	35.01	1,437,129.33
1977	6,771,911.27	70.00	96,741.46	35.76	3,459,617.48
1978	500,641.88	70.00	7,152.02	36.52	261,203.85
1979	203,885.59	70.00	2,912.65	37.29	108,606.60
1980	5,626,446.29	70.00	80,377.70	38.06	3,059,521.09
1984	5,284,419.10	70.00	75,491.60	41.23	3,112,388.77
1985	1,856,568.98	70.00	26,522.38	42.03	1,114,855.92
1986	1,512,230.81	70.00	21,603.27	42.85	925,617.44
1987	194,505.93	70.00	2,778.65	43.67	121,334.80

OGE
Electric Division
356.00 Overhead Conductors and Devices

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 70 **Survivor Curve:** R2.5

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1988	641,339.38	70.00	9,161.98	44.49	407,622.91
1989	719,816.43	70.00	10,283.08	45.32	466,056.37
1990	879,376.37	70.00	12,562.50	46.16	579,865.16
1991	3,936.59	70.00	56.24	47.00	2,643.21
1992	7,273.97	70.00	103.91	47.85	4,972.11
1995	79,537.79	70.00	1,136.25	50.42	57,292.62
1996	6,684.00	70.00	95.49	51.29	4,897.63
1997	2,041,048.17	70.00	29,157.79	52.16	1,521,003.75
1998	556,145.15	70.00	7,944.92	53.04	421,425.12
1999	1,752,780.32	70.00	25,039.68	53.93	1,350,283.71
2000	1,074,348.88	70.00	15,347.82	54.81	841,247.30
2001	1,871,302.40	70.00	26,732.86	55.71	1,489,153.90
2002	36,700,481.21	70.00	524,291.88	56.60	29,675,102.52
2003	2,244,012.10	70.00	32,057.27	57.50	1,843,336.02
2004	3,148,406.65	70.00	44,977.18	58.41	2,626,896.72
2005	4,418,245.32	70.00	63,117.70	59.31	3,743,749.26
2006	9,563,754.15	70.00	136,624.87	60.23	8,228,290.62
2007	8,875,921.27	70.00	126,798.70	61.14	7,752,514.84
2008	12,500,177.41	70.00	178,573.72	62.06	11,082,350.46
2009	14,717,165.38	70.00	210,244.93	62.98	13,241,739.62
2010	74,620,305.05	70.00	1,066,002.91	63.91	68,127,132.38
2011	18,400,901.16	70.00	262,869.66	64.84	17,043,864.35
2012	76,453,697.66	70.00	1,092,194.20	65.77	71,833,922.96
2013	78,295,652.81	70.00	1,118,507.81	66.71	74,610,297.09
2014	121,788,100.53	70.00	1,739,827.65	67.64	117,686,617.35
2015	4,343,344.03	70.00	62,047.69	68.58	4,255,485.56
2016	21,355,100.23	70.00	305,072.45	69.53	21,210,812.71

OGE

Electric Division

356.00 Overhead Conductors and Devices

Original Cost Of Utility Plant In Service

And Development Of Composite Remaining Life as of December 31, 2016

Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 70 **Survivor Curve:** R2.5

Year	Original Cost	Avg. Service Life	Avg. Annual Accrual	Avg. Remaining Life	Future Annual Accruals
(1)	(2)	(3)	(4)	(5)	(6)
Total	589,353,754.74	70.00	8,419,327.94	59.40	500,108,264.56

Composite Average Remaining Life ... 59.40 Years

OGE
Electric Division
362.00 Station Equipment

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 66 *Survivor Curve:* R2

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1958	11,163,402.41	66.00	169,142.06	22.08	3,734,447.89
1959	2,339,613.79	66.00	35,448.61	22.63	802,121.42
1960	975,643.21	66.00	14,782.44	23.18	342,694.41
1961	1,697,265.84	66.00	25,716.09	23.75	610,736.22
1962	1,010,304.63	66.00	15,307.61	24.32	372,301.12
1963	1,708,012.09	66.00	25,878.91	24.91	644,523.19
1964	1,369,892.86	66.00	20,755.90	25.49	529,160.90
1965	2,088,274.31	66.00	31,640.44	26.10	825,674.82
1966	2,511,334.67	66.00	38,050.43	26.70	1,015,998.02
1967	2,429,076.54	66.00	36,804.10	27.32	1,005,454.28
1968	2,843,938.57	66.00	43,089.88	27.94	1,204,091.23
1969	3,289,856.39	66.00	49,846.19	28.58	1,424,357.95
1970	2,778,872.49	66.00	42,104.03	29.22	1,230,100.04
1971	7,019,697.62	66.00	106,358.80	29.86	3,176,169.12
1972	4,486,261.20	66.00	67,973.49	30.52	2,074,487.74
1973	7,102,053.58	66.00	107,606.62	31.18	3,355,323.86
1974	6,276,174.58	66.00	95,093.33	31.85	3,028,995.70
1975	2,864,319.60	66.00	43,398.68	32.53	1,411,761.54
1976	1,023,214.49	66.00	15,503.21	33.22	514,959.50
1977	1,430,823.44	66.00	21,679.09	33.91	735,093.22
1978	4,670,798.62	66.00	70,769.51	34.61	2,449,228.08
1979	2,958,851.38	66.00	44,830.97	35.31	1,583,170.09
1980	2,490,361.62	66.00	37,732.66	36.03	1,359,459.15
1981	1,453,695.38	66.00	22,025.64	36.75	809,398.48
1982	1,038,654.62	66.00	15,737.15	37.48	589,766.38
1983	1,415,755.68	66.00	21,450.79	38.21	819,605.04
1984	2,784,075.15	66.00	42,182.86	38.95	1,643,012.72

OGE
Electric Division
362.00 Station Equipment

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 66 **Survivor Curve:** R2

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1985	994,671.80	66.00	15,070.75	39.70	598,236.46
1986	1,740,642.03	66.00	26,373.30	40.45	1,066,776.64
1987	540,929.19	66.00	8,195.88	41.21	337,727.88
1988	14,150,988.79	66.00	214,408.41	41.97	8,999,434.59
1989	14,873,312.13	66.00	225,352.68	42.74	9,632,342.43
1990	10,770,610.31	66.00	163,190.68	43.52	7,102,338.57
1991	9,374,063.55	66.00	142,030.93	44.30	6,292,481.00
1992	10,150,849.78	66.00	153,800.39	45.09	6,935,409.19
1993	6,016,040.54	66.00	91,151.91	45.89	4,182,681.15
1994	4,782,252.31	66.00	72,458.20	46.69	3,382,944.74
1995	4,631,794.60	66.00	70,178.54	47.49	3,332,969.62
1996	5,888,285.95	66.00	89,216.24	48.31	4,309,591.96
1997	1,323,718.38	66.00	20,056.29	49.12	985,171.39
1998	6,367,273.45	66.00	96,473.61	49.94	4,818,208.54
1999	10,298,446.15	66.00	156,036.69	50.77	7,921,838.60
2000	8,651,674.49	66.00	131,085.67	51.60	6,764,332.04
2001	8,128,556.19	66.00	123,159.65	52.44	6,458,483.24
2002	8,230,518.20	66.00	124,704.52	53.28	6,644,460.06
2003	22,262,161.59	66.00	337,304.68	54.13	18,257,985.91
2004	16,875,917.59	66.00	255,695.11	54.98	14,058,224.65
2005	25,015,717.52	66.00	379,025.12	55.84	21,163,780.35
2006	24,394,864.32	66.00	369,618.28	56.70	20,956,656.49
2007	33,467,378.19	66.00	507,080.28	57.56	29,189,730.32
2008	32,404,637.13	66.00	490,978.18	58.43	28,689,839.16
2009	35,183,604.75	66.00	533,083.65	59.31	31,616,732.93
2010	26,629,262.23	66.00	403,472.71	60.19	24,284,033.78
2011	37,099,528.05	66.00	562,112.72	61.07	34,328,899.55

OGE
Electric Division
362.00 Station Equipment

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 66 *Survivor Curve:* R2

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
2012	58,087,087.82	66.00	880,105.30	61.96	54,529,550.25
2013	31,172,276.64	66.00	472,306.10	62.85	29,684,368.37
2014	27,225,450.83	66.00	412,505.85	63.74	26,295,046.51
2015	16,551,889.29	66.00	250,785.60	64.64	16,211,888.30
2016	19,103,852.09	66.00	289,451.62	65.55	18,972,659.46
Total	615,608,480.64	66.00	9,327,379.02	53.10	495,296,916.21

Composite Average Remaining Life ... 53.10 Years

OGE
Electric Division
364.00 Poles, Towers, and Fixtures

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: ***65*** ***Survivor Curve:*** ***R0.5***

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1958	11,918,296.19	65.00	183,355.34	31.26	5,731,287.01
1959	525,416.23	65.00	8,083.19	31.76	256,742.91
1960	778,443.67	65.00	11,975.86	32.27	386,465.97
1961	989,479.63	65.00	15,222.51	32.78	499,029.72
1962	1,140,783.19	65.00	17,550.22	33.30	584,373.38
1963	1,742,308.88	65.00	26,804.30	33.82	906,421.09
1964	1,521,474.81	65.00	23,406.91	34.34	803,746.97
1965	1,526,358.03	65.00	23,482.04	34.86	818,679.18
1966	1,496,826.43	65.00	23,027.71	35.39	815,010.55
1967	1,408,414.58	65.00	21,667.55	35.93	778,417.78
1968	1,579,036.80	65.00	24,292.47	36.46	885,720.05
1969	937,263.84	65.00	14,419.20	37.00	533,514.38
1970	1,982,983.20	65.00	30,506.92	37.54	1,145,287.28
1971	2,079,887.34	65.00	31,997.73	38.09	1,218,727.56
1972	2,804,405.04	65.00	43,143.97	38.64	1,666,941.20
1973	2,786,189.32	65.00	42,863.74	39.19	1,679,745.10
1974	3,018,920.31	65.00	46,444.15	39.74	1,845,824.22
1975	2,635,584.76	65.00	40,546.78	40.30	1,634,034.96
1976	2,823,001.13	65.00	43,430.06	40.86	1,774,579.76
1977	3,066,552.34	65.00	47,176.94	41.42	1,954,222.82
1978	3,255,741.96	65.00	50,087.50	41.99	2,103,141.85
1979	4,228,484.75	65.00	65,052.53	42.56	2,768,450.07
1980	4,610,763.69	65.00	70,933.64	43.13	3,059,250.45
1981	6,494,950.57	65.00	99,920.65	43.70	4,366,627.28
1982	7,541,476.71	65.00	116,020.78	44.28	5,137,035.29
1983	7,991,212.03	65.00	122,939.67	44.85	5,514,323.97
1984	8,628,874.41	65.00	132,749.70	45.43	6,031,365.27

OGE

Electric Division

364.00 Poles, Towers, and Fixtures

Original Cost Of Utility Plant In Service

And Development Of Composite Remaining Life as of December 31, 2016

Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 65 *Survivor Curve:* R0.5

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1985	8,852,431.03	65.00	136,188.97	46.02	6,266,869.06
1986	8,568,036.59	65.00	131,813.75	46.60	6,142,429.83
1987	9,293,586.65	65.00	142,975.87	47.18	6,746,297.91
1988	8,284,285.23	65.00	127,448.41	47.77	6,088,416.62
1989	8,764,415.92	65.00	134,834.92	48.36	6,520,681.49
1990	7,954,079.64	65.00	122,368.41	48.95	5,989,966.59
1991	10,647,645.28	65.00	163,807.19	49.54	8,115,339.86
1992	9,140,863.70	65.00	140,626.32	50.13	7,050,227.13
1993	10,092,375.18	65.00	155,264.72	50.73	7,876,389.67
1994	10,676,893.92	65.00	164,257.16	51.32	8,430,261.31
1995	9,190,913.25	65.00	141,396.30	51.92	7,341,310.29
1996	8,871,284.32	65.00	136,479.02	52.52	7,167,461.25
1997	16,282,282.21	65.00	250,492.47	53.12	13,305,036.50
1998	6,527,596.04	65.00	100,422.88	53.71	5,394,194.95
1999	10,992,029.28	65.00	169,105.32	54.31	9,184,911.95
2000	9,123,825.97	65.00	140,364.21	54.92	7,708,242.04
2001	15,802,719.98	65.00	243,114.71	55.52	13,497,216.81
2002	26,837,148.47	65.00	412,872.31	56.12	23,170,914.12
2003	11,531,213.51	65.00	177,400.32	56.73	10,063,074.66
2004	12,955,054.41	65.00	199,305.20	57.33	11,426,331.17
2005	15,550,514.65	65.00	239,234.69	57.94	13,860,534.77
2006	16,338,954.22	65.00	251,364.33	58.54	14,716,103.43
2007	22,704,799.98	65.00	349,298.78	59.15	20,662,204.88
2008	30,253,721.34	65.00	465,434.10	59.76	27,816,097.06
2009	22,845,153.81	65.00	351,458.04	60.37	21,219,148.82
2010	18,618,059.51	65.00	286,426.90	60.99	17,468,479.28
2011	25,985,770.50	65.00	399,774.41	61.60	24,626,714.38

OGE

Electric Division

364.00 Poles, Towers, and Fixtures

Original Cost Of Utility Plant In Service

And Development Of Composite Remaining Life as of December 31, 2016

Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: **65** *Survivor Curve:* **R0.5**

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
2012	37,462,458.28	65.00	576,335.89	62.22	35,857,580.85
2013	36,102,182.41	65.00	555,408.92	62.83	34,898,054.43
2014	19,492,195.50	65.00	299,874.92	63.45	19,027,248.81
2015	34,111,976.37	65.00	524,790.88	64.07	33,623,334.46
2016	27,137,493.72	65.00	417,492.93	64.69	27,007,687.10
Total	616,505,090.71	65.00	9,484,535.37	55.16	523,167,727.51

Composite Average Remaining Life ... **55.16 Years**

OGE
Electric Division
365.00 Overhead Conductors and Devices
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 59 **Survivor Curve:** R0.5

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1958	16,568,174.44	59.00	280,811.17	25.72	7,221,152.04
1959	616,876.23	59.00	10,455.33	26.20	273,917.92
1960	692,427.15	59.00	11,735.83	26.69	313,181.89
1961	1,073,541.27	59.00	18,195.27	27.18	494,502.23
1962	1,175,113.56	59.00	19,916.80	27.67	551,155.85
1963	1,479,468.25	59.00	25,075.26	28.17	706,412.54
1964	1,570,493.48	59.00	26,618.03	28.68	763,275.63
1965	1,588,034.55	59.00	26,915.33	29.18	785,453.59
1966	1,422,804.59	59.00	24,114.87	29.69	716,038.48
1967	1,563,244.07	59.00	26,495.16	30.21	800,367.63
1968	1,587,288.12	59.00	26,902.68	30.73	826,639.59
1969	1,429,525.91	59.00	24,228.79	31.25	757,124.06
1970	2,027,004.72	59.00	34,355.36	31.78	1,091,666.98
1971	2,028,147.79	59.00	34,374.73	32.31	1,110,514.86
1972	2,227,087.61	59.00	37,746.53	32.84	1,239,599.32
1973	2,326,988.48	59.00	39,439.73	33.38	1,316,383.85
1974	2,344,547.75	59.00	39,737.34	33.92	1,347,830.06
1975	1,851,258.46	59.00	31,376.66	34.46	1,081,340.60
1976	1,746,431.92	59.00	29,599.98	35.01	1,036,315.07
1977	2,279,078.81	59.00	38,627.72	35.56	1,373,695.31
1978	3,319,907.64	59.00	56,268.55	36.12	2,032,267.14
1979	3,815,457.61	59.00	64,667.54	36.67	2,371,649.54
1980	3,452,830.41	59.00	58,521.44	37.24	2,179,094.81
1981	6,389,650.00	59.00	108,297.09	37.80	4,093,632.63
1982	6,295,229.67	59.00	106,696.78	38.37	4,093,629.41
1983	6,553,239.85	59.00	111,069.75	38.94	4,324,631.94
1984	8,172,599.64	59.00	138,516.00	39.51	5,472,591.70

OGE
Electric Division
365.00 Overhead Conductors and Devices

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 59 *Survivor Curve:* R0.5

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1985	7,441,788.71	59.00	126,129.61	40.08	5,055,739.74
1986	6,628,453.89	59.00	112,344.54	40.66	4,567,987.61
1987	7,834,834.29	59.00	132,791.27	41.24	5,476,363.79
1988	7,300,234.05	59.00	123,730.42	41.82	5,174,691.79
1989	7,469,965.69	59.00	126,607.18	42.41	5,368,862.13
1990	8,089,164.60	59.00	137,101.87	42.99	5,894,248.08
1991	9,686,181.46	59.00	164,169.44	43.58	7,154,420.86
1992	8,787,815.50	59.00	148,943.19	44.17	6,578,565.38
1993	10,954,622.17	59.00	185,668.03	44.76	8,310,400.44
1994	9,813,045.04	59.00	166,319.63	45.35	7,542,925.59
1995	10,111,201.67	59.00	171,373.04	45.95	7,873,864.54
1996	9,076,262.82	59.00	153,832.03	46.54	7,159,413.59
1997	4,974,037.52	59.00	84,304.12	47.14	3,973,827.81
1998	4,217,944.48	59.00	71,489.22	47.73	3,412,480.87
1999	8,117,345.89	59.00	137,579.51	48.33	6,649,528.20
2000	5,757,824.54	59.00	97,588.39	48.93	4,775,182.29
2001	7,799,758.56	59.00	132,196.78	49.53	6,548,030.56
2002	10,589,924.30	59.00	179,486.83	50.13	8,998,328.27
2003	4,945,869.10	59.00	83,826.69	50.74	4,253,079.43
2004	10,100,212.23	59.00	171,186.78	51.34	8,788,831.57
2005	11,229,622.69	59.00	190,328.96	51.95	9,886,778.04
2006	10,878,780.61	59.00	184,382.60	52.55	9,689,642.62
2007	12,846,393.49	59.00	217,731.34	53.16	11,574,514.64
2008	20,371,682.25	59.00	345,276.18	53.77	18,565,027.06
2009	15,200,683.04	59.00	257,633.79	54.38	14,009,762.47
2010	12,327,839.53	59.00	208,942.45	54.99	11,489,837.19
2011	19,239,925.44	59.00	326,094.22	55.60	18,132,005.82

OGE
Electric Division
365.00 Overhead Conductors and Devices

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

***Average Service Life:* 59** ***Survivor Curve:* R0.5**

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
2012	31,503,878.30	59.00	533,953.87	56.22	30,017,629.30
2013	26,201,514.77	59.00	444,085.02	56.83	25,239,032.38
2014	25,819,002.68	59.00	437,601.88	57.45	25,140,790.01
2015	28,878,613.90	59.00	489,458.71	58.07	28,422,714.27
2016	24,639,772.37	59.00	417,615.31	58.69	24,509,965.53
Total	484,430,647.56	59.00	8,210,532.63	48.55	398,608,536.51

***Composite Average Remaining Life ...* 48.55 Years**

OGE
Electric Division
366.00 Underground Conduit

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 68 *Survivor Curve:* R1.5

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1958	1,010,295.59	68.00	14,857.13	26.67	396,210.37
1964	2,843.47	68.00	41.82	30.05	1,256.68
1966	1,630.00	68.00	23.97	31.24	748.79
1970	4,221.42	68.00	62.08	33.69	2,091.40
1971	3,625,133.65	68.00	53,310.22	34.32	1,829,477.39
1972	6,513,292.41	68.00	95,782.69	34.95	3,347,954.54
1973	480,142.19	68.00	7,060.84	35.59	251,327.99
1974	1,455,749.46	68.00	21,407.85	36.24	775,838.37
1975	107,211.61	68.00	1,576.62	36.90	58,171.34
1977	135,934.00	68.00	1,999.01	38.22	76,404.28
1978	325,083.37	68.00	4,780.59	38.89	185,921.08
1979	988,897.11	68.00	14,542.45	39.57	575,424.65
1980	425,656.58	68.00	6,259.59	40.25	251,945.07
1981	519,867.51	68.00	7,645.03	40.94	312,970.51
1982	3,535,899.32	68.00	51,997.97	41.63	2,164,634.92
1983	468,845.33	68.00	6,894.71	42.33	291,836.72
1984	552,853.56	68.00	8,130.11	43.03	349,832.22
1985	6,338,672.33	68.00	93,214.78	43.74	4,076,952.57
1986	2,653,895.36	68.00	39,027.46	44.45	1,734,708.32
1987	4,483,582.48	68.00	65,934.33	45.17	2,977,959.68
1988	1,622,462.29	68.00	23,859.49	45.89	1,094,813.93
1989	1,631,692.81	68.00	23,995.23	46.61	1,118,458.35
1990	1,487,426.48	68.00	21,873.69	47.34	1,035,516.59
1991	1,641,010.08	68.00	24,132.24	48.07	1,160,152.13
1992	2,154,430.37	68.00	31,682.46	48.81	1,546,485.63
1993	1,702,713.96	68.00	25,039.64	49.55	1,240,779.17
1994	3,155,829.61	68.00	46,408.76	50.30	2,334,314.23

OGE
Electric Division
366.00 Underground Conduit

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

***Average Service Life:* 68** ***Survivor Curve:* R1.5**

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1995	3,400,707.75	68.00	50,009.88	51.05	2,552,864.38
1996	3,816,600.82	68.00	56,125.88	51.80	2,907,369.63
1997	2,022,253.00	68.00	29,738.70	52.56	1,562,959.59
1998	2,542,886.13	68.00	37,394.99	53.32	1,993,792.67
1999	707,754.11	68.00	10,408.04	54.08	562,865.03
2000	3,269,488.47	68.00	48,080.20	54.85	2,637,077.21
2001	4,229,430.72	68.00	62,196.85	55.62	3,459,221.36
2002	4,216,920.36	68.00	62,012.87	56.39	3,497,020.46
2003	4,404,466.07	68.00	64,770.87	57.17	3,702,870.06
2004	6,415,764.97	68.00	94,348.48	57.95	5,467,510.45
2005	8,488,174.25	68.00	124,824.76	58.73	7,331,470.05
2006	9,650,268.25	68.00	141,914.20	59.52	8,447,067.65
2007	8,944,569.22	68.00	131,536.38	60.31	7,933,389.83
2008	11,956,746.11	68.00	175,832.63	61.11	10,744,619.81
2009	11,122,031.60	68.00	163,557.55	61.91	10,125,230.81
2010	7,201,510.26	68.00	105,903.43	62.71	6,640,883.66
2011	12,366,936.23	68.00	181,864.77	63.51	11,550,750.51
2012	16,470,160.12	68.00	242,205.66	64.32	15,578,789.13
2013	9,675,220.59	68.00	142,281.14	65.13	9,267,207.73
2014	11,885,457.03	68.00	174,784.27	65.95	11,526,598.91
2015	17,914,175.10	68.00	263,440.95	66.77	17,589,113.23
2016	10,502,928.89	68.00	154,453.19	67.59	10,439,202.76
Total	218,229,722.40	68.00	3,209,226.44	57.56	184,710,061.84

Composite Average Remaining Life ... 57.56 Years

OGE

Electric Division

367.00 Underground Conductors and Devices

Original Cost Of Utility Plant In Service

And Development Of Composite Remaining Life as of December 31, 2016

Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 70 *Survivor Curve:* R2

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1958	2,052,332.89	70.00	29,318.98	25.39	744,530.69
1959	27,001.43	70.00	385.73	25.97	10,018.51
1960	30,520.40	70.00	436.00	26.56	11,578.50
1961	31,291.75	70.00	447.02	27.15	12,136.71
1962	29,097.66	70.00	415.68	27.75	11,534.93
1963	35,955.15	70.00	513.64	28.36	14,566.43
1964	35,951.25	70.00	513.59	28.97	14,880.94
1965	28,985.03	70.00	414.07	29.60	12,255.12
1966	39,637.64	70.00	566.25	30.23	17,117.77
1967	45,422.42	70.00	648.89	30.87	20,029.69
1968	41,696.41	70.00	595.66	31.52	18,772.51
1969	35,637.95	70.00	509.11	32.17	16,377.13
1970	43,862.10	70.00	626.60	32.83	20,571.18
1971	10,480,920.98	70.00	149,727.12	33.50	5,015,424.65
1972	16,550,601.03	70.00	236,436.65	34.17	8,079,159.26
1973	1,090,071.43	70.00	15,572.42	34.85	542,764.68
1974	1,593,979.65	70.00	22,771.09	35.54	809,323.69
1975	202,980.86	70.00	2,899.72	36.24	105,081.72
1976	45,510.56	70.00	650.15	36.94	24,016.36
1977	335,276.65	70.00	4,789.66	37.65	180,327.63
1978	585,067.03	70.00	8,358.08	38.36	320,648.81
1979	2,143,150.39	70.00	30,616.37	39.08	1,196,610.33
1980	835,050.51	70.00	11,929.27	39.81	474,946.24
1981	1,020,766.74	70.00	14,582.35	40.55	591,262.29
1982	5,999,534.17	70.00	85,707.45	41.29	3,538,676.68
1983	1,346,359.77	70.00	19,233.67	42.03	808,452.93
1984	2,014,219.42	70.00	28,774.50	42.79	1,231,152.35

OGE
Electric Division
367.00 Underground Conductors and Devices

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 70 *Survivor Curve:* R2

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1985	19,921,564.54	70.00	284,593.17	43.54	12,392,238.92
1986	9,991,810.64	70.00	142,739.85	44.31	6,324,262.38
1987	15,364,732.27	70.00	219,495.71	45.08	9,894,272.90
1988	7,126,019.62	70.00	101,800.06	45.85	4,667,680.72
1989	9,449,947.11	70.00	134,998.96	46.63	6,295,451.79
1990	9,412,196.41	70.00	134,459.66	47.42	6,375,917.17
1991	9,808,605.48	70.00	140,122.64	48.21	6,755,483.73
1992	9,846,975.71	70.00	140,670.78	49.01	6,893,952.17
1993	10,335,673.63	70.00	147,652.16	49.81	7,354,373.18
1994	18,496,406.51	70.00	264,233.81	50.62	13,374,874.41
1995	16,908,324.05	70.00	241,546.97	51.43	12,422,569.27
1996	19,478,724.08	70.00	278,266.89	52.25	14,538,834.68
1997	8,180,708.52	70.00	116,867.01	53.07	6,202,097.44
1998	6,863,121.89	70.00	98,044.39	53.90	5,284,380.98
1999	11,237,441.35	70.00	160,534.53	54.73	8,786,006.16
2000	15,615,091.51	70.00	223,072.26	55.57	12,395,172.08
2001	18,838,634.02	70.00	269,122.77	56.41	15,180,852.34
2002	17,959,001.66	70.00	256,556.62	57.25	14,688,947.91
2003	18,809,418.81	70.00	268,705.41	58.11	15,613,389.76
2004	29,795,248.16	70.00	425,645.49	58.96	25,096,383.30
2005	29,856,875.69	70.00	426,525.88	59.82	25,515,248.59
2006	35,413,041.27	70.00	505,899.51	60.68	30,700,414.64
2007	34,833,474.77	70.00	497,620.00	61.55	30,629,635.94
2008	44,090,509.35	70.00	629,863.07	62.43	39,319,710.44
2009	37,452,619.87	70.00	535,036.28	63.30	33,868,732.25
2010	26,500,732.51	70.00	378,581.08	64.18	24,298,526.69
2011	32,088,571.55	70.00	458,407.19	65.07	29,827,296.83

OGE

Electric Division

367.00 Underground Conductors and Devices

Original Cost Of Utility Plant In Service

And Development Of Composite Remaining Life as of December 31, 2016

Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 70 **Survivor Curve:** R2

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
2012	46,564,871.29	70.00	665,211.02	65.96	43,874,827.49
2013	29,564,880.09	70.00	422,354.53	66.85	28,233,653.89
2014	38,096,131.12	70.00	544,229.28	67.74	36,868,007.95
2015	38,130,807.00	70.00	544,724.65	68.64	37,392,126.57
2016	41,669,221.94	70.00	595,273.33	69.55	41,399,344.31
Total	764,422,263.69	70.00	10,920,294.71	58.27	636,306,884.62

Composite Average Remaining Life ... 58.27 Years

OGE

Electric Division

368.00 Line Transformers

Original Cost Of Utility Plant In Service

And Development Of Composite Remaining Life as of December 31, 2016

Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 47 **Survivor Curve: O2**

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1958	14,759,374.85	46.84	315,071.47	28.03	8,830,685.01
1959	53,419.99	46.84	1,140.37	28.12	32,069.73
1960	181,836.10	46.84	3,881.69	28.22	109,560.75
1961	103,303.97	46.84	2,205.25	28.34	62,489.23
1962	507,908.89	46.84	10,842.44	28.46	308,551.09
1963	159,843.93	46.84	3,412.22	28.59	97,552.34
1964	387,238.90	46.84	8,266.47	28.73	237,505.48
1965	1,274,861.93	46.84	27,214.74	28.88	786,080.15
1966	407,859.94	46.84	8,706.67	29.05	252,910.89
1967	199,907.98	46.84	4,267.48	29.22	124,712.40
1968	3,556,807.68	46.84	75,927.92	29.41	2,233,150.85
1969	736,012.17	46.84	15,711.81	29.61	465,235.10
1970	185,482.54	46.84	3,959.53	29.82	118,077.39
1971	2,401,270.30	46.84	51,260.42	30.04	1,540,001.80
1972	4,678,886.90	46.84	99,881.18	30.28	3,023,937.97
1973	3,006,506.70	46.84	64,180.53	30.52	1,958,703.02
1974	12,188,996.72	46.84	260,201.07	30.77	8,006,921.26
1975	390,277.67	46.84	8,331.34	31.04	258,568.53
1976	7,324,469.86	46.84	156,356.99	31.31	4,895,357.69
1977	13,626,493.33	46.84	290,887.61	31.59	9,189,502.49
1978	6,356,954.28	46.84	135,703.23	31.88	4,326,552.27
1979	384,203.86	46.84	8,201.68	32.18	263,947.01
1980	23,500,276.26	46.84	501,665.32	32.49	16,298,950.19
1981	8,231,655.34	46.84	175,722.87	32.80	5,764,578.42
1982	147,295.69	46.84	3,144.35	33.13	104,164.23
1983	15,546,621.81	46.84	331,876.99	33.46	11,103,542.45
1984	12,048,767.91	46.84	257,207.57	33.79	8,691,744.88

OGE
Electric Division
368.00 Line Transformers

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 47 *Survivor Curve:* O2

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1985	61,015.33	46.84	1,302.51	34.13	44,460.88
1986	112,645.19	46.84	2,404.66	34.48	82,919.55
1987	126,849.35	46.84	2,707.88	34.84	94,332.85
1988	126,981.55	46.84	2,710.70	35.20	95,403.93
1989	84,202.99	46.84	1,797.50	35.56	63,917.56
1990	96,039.37	46.84	2,050.17	35.93	73,658.18
1991	131,776.69	46.84	2,813.06	36.30	102,116.88
1992	137,983.83	46.84	2,945.57	36.68	108,038.72
1993	83,980.08	46.84	1,792.74	37.06	66,438.76
1994	135,336.53	46.84	2,889.06	37.45	108,181.56
1995	100,023.43	46.84	2,135.22	37.83	80,784.72
1996	187,586.42	46.84	4,004.45	38.23	153,077.82
1997	5,971,926.82	46.84	127,483.97	38.62	4,923,801.66
1998	6,166,951.06	46.84	131,647.20	39.02	5,137,143.80
1999	7,763,519.41	46.84	165,729.47	39.42	6,533,759.92
2000	5,408,842.24	46.84	115,463.69	39.83	4,598,844.43
2001	8,126,547.08	46.84	173,479.10	40.24	6,980,322.97
2002	7,615,591.90	46.84	162,571.64	40.65	6,608,181.52
2003	5,644,686.70	46.84	120,498.31	41.06	4,947,772.06
2004	10,129,900.00	46.84	216,245.10	41.48	8,969,086.15
2005	11,828,241.29	46.84	252,499.94	41.89	10,578,329.01
2006	14,722,687.64	46.84	314,288.30	42.31	13,298,963.04
2007	18,178,662.70	46.84	388,063.72	42.74	16,584,618.27
2008	16,733,398.01	46.84	357,211.35	43.16	15,417,683.10
2009	20,392,996.46	46.84	435,333.57	43.59	18,975,161.16
2010	16,078,145.70	46.84	343,223.54	44.02	15,107,318.75
2011	32,373,147.26	46.84	691,076.35	44.45	30,715,718.50

OGE
Electric Division
368.00 Line Transformers

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 47 *Survivor Curve:* O2

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
2012	28,294,346.47	46.84	604,005.34	44.88	27,106,704.70
2013	25,954,214.04	46.84	554,050.04	45.31	25,105,180.41
2014	27,925,895.63	46.84	596,139.94	45.75	27,272,058.59
2015	26,745,400.67	46.84	570,939.67	46.19	26,368,927.41
2016	25,723,782.15	46.84	549,130.96	46.62	25,602,841.53
Total	455,509,839.49	46.84	9,723,863.94	40.21	390,990,801.04

Composite Average Remaining Life ... 40.21 Years

OGE
Electric Division
369.00 Services

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 65 *Survivor Curve:* R4

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1964	48,777.27	65.00	750.42	17.05	12,797.66
1965	137,948.04	65.00	2,122.27	17.76	37,694.62
1966	266,740.19	65.00	4,103.67	18.48	75,819.02
1967	372,828.02	65.00	5,735.78	19.21	110,159.84
1968	468,536.37	65.00	7,208.21	19.94	143,749.17
1969	640,262.47	65.00	9,850.14	20.70	203,853.54
1970	810,936.24	65.00	12,475.88	21.46	267,671.81
1971	1,031,295.25	65.00	15,866.00	22.23	352,729.68
1972	1,486,118.95	65.00	22,863.25	23.02	526,274.68
1973	1,502,204.25	65.00	23,110.71	23.81	550,368.52
1974	942,778.01	65.00	14,504.20	24.62	357,154.22
1975	1,649,896.57	65.00	25,382.89	25.44	645,809.50
1976	2,319,492.85	65.00	35,684.31	26.27	937,602.44
1977	2,735,451.49	65.00	42,083.64	27.12	1,141,100.50
1978	3,228,541.59	65.00	49,669.60	27.97	1,389,191.73
1979	3,537,919.46	65.00	54,429.24	28.83	1,569,157.93
1980	3,658,382.94	65.00	56,282.51	29.70	1,671,757.41
1981	4,660,163.04	65.00	71,694.43	30.58	2,192,617.64
1982	4,774,144.43	65.00	73,447.98	31.48	2,311,776.24
1983	5,732,687.61	65.00	88,194.72	32.37	2,855,088.77
1984	6,347,909.29	65.00	97,659.62	33.28	3,250,272.84
1985	5,523,890.86	65.00	84,982.48	34.20	2,906,182.21
1986	4,491,621.90	65.00	69,101.51	35.12	2,426,806.70
1987	3,963,653.93	65.00	60,978.96	36.05	2,198,269.63
1988	3,129,373.91	65.00	48,143.96	36.99	1,780,607.93
1989	2,885,154.33	65.00	44,386.75	37.93	1,683,497.51
1990	3,364,622.94	65.00	51,763.15	38.88	2,012,299.42

OGE
Electric Division
369.00 Services

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: **65** *Survivor Curve:* **R4**

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1991	3,319,523.04	65.00	51,069.31	39.83	2,034,036.94
1992	3,799,863.75	65.00	58,459.13	40.79	2,384,332.34
1993	3,967,418.40	65.00	61,036.88	41.75	2,548,258.23
1994	6,712,872.41	65.00	103,274.41	42.72	4,411,417.81
1995	6,127,416.28	65.00	94,267.44	43.69	4,118,218.02
1996	6,187,057.27	65.00	95,184.99	44.66	4,250,943.36
1997	6,882,666.21	65.00	105,886.61	45.64	4,832,385.53
1998	4,975,621.45	65.00	76,547.61	46.62	3,568,444.73
1999	1,481,100.78	65.00	22,786.04	47.60	1,084,603.44
2000	7,302,469.01	65.00	112,345.08	48.58	5,458,201.22
2001	7,701,091.05	65.00	118,477.69	49.57	5,873,022.27
2002	7,628,432.80	65.00	117,359.88	50.56	5,933,635.66
2003	6,782,331.65	65.00	104,343.00	51.55	5,378,798.42
2004	6,937,699.82	65.00	106,733.27	52.54	5,607,854.67
2005	9,871,197.47	65.00	151,863.76	53.53	8,129,782.16
2006	10,333,185.70	65.00	158,971.24	54.53	8,668,278.30
2007	11,991,008.06	65.00	184,476.06	55.52	10,242,468.90
2008	15,288,506.39	65.00	235,206.53	56.52	13,293,319.81
2009	12,705,002.91	65.00	195,460.54	57.51	11,241,681.18
2010	3,878,277.51	65.00	59,665.49	58.51	3,491,076.24
2011	7,221,009.82	65.00	111,091.86	59.51	6,610,883.20
2012	17,262,805.27	65.00	265,580.20	60.51	16,069,218.73
2013	32,461.96	65.00	499.41	61.50	30,716.02
2014	25,330.92	65.00	389.70	62.50	24,357.65
2015	3,606,785.91	65.00	55,488.72	63.50	3,523,629.13
2016	2,698,155.52	65.00	41,509.86	64.50	2,677,416.83

OGE
Electric Division
369.00 Services

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: **65** *Survivor Curve:* **R4**

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
Total	244,430,623.56	65.00	3,760,450.98	46.56	175,097,291.95

Composite Average Remaining Life ... **46.56 Years**

OGE
Electric Division
373.00 Street Lighting and Signal Systems

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 45 *Survivor Curve:* R2

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1958	14,914,192.19	45.00	331,424.98	7.15	2,369,500.33
1959	34,554.30	45.00	767.87	7.48	5,741.16
1960	28,341.48	45.00	629.81	7.81	4,920.21
1961	52,785.08	45.00	1,173.00	8.15	9,565.44
1962	29,365.18	45.00	652.56	8.51	5,552.46
1963	55,782.82	45.00	1,239.61	8.87	10,999.35
1964	37,582.71	45.00	835.17	9.25	7,724.06
1965	24,538.79	45.00	545.30	9.63	5,253.94
1966	29,021.88	45.00	644.93	10.03	6,470.87
1967	26,126.49	45.00	580.59	10.44	6,063.78
1968	20,857.90	45.00	463.51	10.87	5,037.14
1969	23,302.43	45.00	517.83	11.30	5,853.19
1970	90,184.78	45.00	2,004.10	11.75	23,554.34
1971	681,287.64	45.00	15,139.66	12.22	184,934.46
1972	1,205,583.40	45.00	26,790.62	12.69	339,985.36
1973	409,252.04	45.00	9,094.45	13.18	119,853.94
1974	336,570.77	45.00	7,479.32	13.68	102,330.05
1975	482,096.79	45.00	10,713.21	14.20	152,094.25
1976	176,251.00	45.00	3,916.67	14.73	57,673.24
1977	444,860.56	45.00	9,885.75	15.27	150,917.64
1978	511,599.50	45.00	11,368.83	15.82	179,856.30
1979	934,839.71	45.00	20,774.12	16.39	340,465.41
1980	581,634.80	45.00	12,925.16	16.97	219,323.38
1981	714,056.09	45.00	15,867.84	17.56	278,652.88
1982	1,693,613.08	45.00	37,635.67	18.17	683,657.64
1983	1,606,183.26	45.00	35,692.80	18.78	670,426.94
1984	1,296,231.82	45.00	28,805.02	19.41	559,160.31

OGE
Electric Division
373.00 Street Lighting and Signal Systems

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 45 *Survivor Curve:* R2

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1985	3,854,133.05	45.00	85,647.01	20.05	1,717,399.32
1986	1,992,537.70	45.00	44,278.41	20.70	916,719.17
1987	1,453,035.25	45.00	32,289.52	21.37	689,899.98
1988	573,223.79	45.00	12,738.25	22.04	280,771.37
1989	1,714,258.73	45.00	38,094.46	22.73	865,744.08
1990	1,980,719.17	45.00	44,015.78	23.42	1,030,905.93
1991	2,068,579.12	45.00	45,968.21	24.13	1,109,052.53
1992	2,311,008.45	45.00	51,355.51	24.84	1,275,843.49
1993	2,452,078.74	45.00	54,490.39	25.57	1,393,259.33
1994	3,400,575.67	45.00	75,568.00	26.30	1,987,739.31
1995	3,082,120.97	45.00	68,491.26	27.05	1,852,579.39
1996	4,954,501.57	45.00	110,099.53	27.80	3,060,985.44
1997	6,551,220.59	45.00	145,582.01	28.57	4,158,741.23
1998	5,136,948.73	45.00	114,153.89	29.34	3,349,063.01
1999	7,658,253.30	45.00	170,182.63	30.12	5,125,653.19
2000	5,992,136.29	45.00	133,157.98	30.91	4,115,560.80
2001	6,834,412.24	45.00	151,875.13	31.71	4,815,312.23
2002	7,192,783.09	45.00	159,838.89	32.51	5,196,568.88
2003	7,537,435.67	45.00	167,497.81	33.32	5,581,816.07
2004	7,971,955.43	45.00	177,153.76	34.15	6,049,062.28
2005	10,235,404.13	45.00	227,452.39	34.97	7,955,030.93
2006	11,993,420.00	45.00	266,519.23	35.81	9,544,563.89
2007	13,587,421.52	45.00	301,941.32	36.66	11,067,821.19
2008	12,781,303.22	45.00	284,027.66	37.51	10,652,787.69
2009	10,775,828.48	45.00	239,461.76	38.36	9,186,625.91
2010	8,907,207.85	45.00	197,937.05	39.23	7,764,838.20
2011	7,657,455.20	45.00	170,164.89	40.10	6,823,586.10

OGE

Electric Division

373.00 Street Lighting and Signal Systems

Original Cost Of Utility Plant In Service

And Development Of Composite Remaining Life as of December 31, 2016

Based Upon Broad Group/Remaining Life Procedure and Technique

***Average Service Life:* 45** ***Survivor Curve:* R2**

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
2012	9,569,798.67	45.00	212,661.22	40.98	8,714,257.19
2013	10,093,618.19	45.00	224,301.60	41.86	9,389,412.70
2014	10,018,313.13	45.00	222,628.16	42.75	9,517,380.28
2015	11,184,041.24	45.00	248,533.11	43.65	10,847,578.09
2016	11,288,565.40	45.00	250,855.86	44.55	11,175,020.69
Total	239,244,991.07	45.00	5,316,531.07	32.67	173,717,147.98

Composite Average Remaining Life ... 32.67 Years

OGE
Electric Division
390.00 Structures and Improvements

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 46 *Survivor Curve:* L1.5

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1959	4,643,833.19	46.00	100,949.72	16.73	1,688,928.95
1960	13,421.04	46.00	291.75	16.99	4,956.80
1961	459,122.90	46.00	9,980.62	17.25	172,165.50
1962	95,028.16	46.00	2,065.76	17.51	36,169.35
1963	22,870.51	46.00	497.17	17.77	8,834.79
1964	45,645.07	46.00	992.25	18.03	17,892.43
1965	21,933.97	46.00	476.81	18.29	8,723.13
1966	301,764.56	46.00	6,559.89	18.56	121,739.14
1967	49,501.50	46.00	1,076.09	18.82	20,254.32
1968	27,830.15	46.00	604.98	19.09	11,546.26
1969	135,923.33	46.00	2,954.76	19.35	57,177.21
1970	82,581.56	46.00	1,795.19	19.62	35,217.91
1971	164,149.09	46.00	3,568.35	19.89	70,962.09
1972	348,794.01	46.00	7,582.24	20.16	152,837.21
1973	118,442.66	46.00	2,574.76	20.43	52,603.48
1974	696,649.43	46.00	15,144.08	20.71	313,559.44
1975	643,174.72	46.00	13,981.62	20.98	293,399.34
1976	49,303.28	46.00	1,071.78	21.27	22,795.13
1977	177,023.22	46.00	3,848.21	21.56	82,957.79
1978	251,843.55	46.00	5,474.69	21.85	119,634.65
1979	236,053.02	46.00	5,131.43	22.15	113,681.04
1980	649,118.42	46.00	14,110.83	22.46	316,966.81
1981	129,019.42	46.00	2,804.68	22.78	63,892.65
1982	216,696.10	46.00	4,710.64	23.11	108,855.95
1983	803,598.95	46.00	17,468.99	23.45	409,599.27
1984	577,059.95	46.00	12,544.39	23.80	298,529.14
1985	548,995.10	46.00	11,934.30	24.16	288,359.33

OGE
Electric Division
390.00 Structures and Improvements

Original Cost Of Utility Plant In Service
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Average Service Life: 46 **Survivor Curve:** L1.5

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1986	14,790,125.50	46.00	321,514.36	24.54	7,890,122.41
1987	5,360,676.03	46.00	116,532.77	24.93	2,905,638.61
1988	5,979,184.16	46.00	129,978.18	25.34	3,294,169.49
1989	20,882.27	46.00	453.95	25.77	11,698.81
1990	5,308,526.42	46.00	115,399.12	26.22	3,025,401.99
1991	2,352,196.00	46.00	51,133.09	26.68	1,364,485.63
1992	770,359.47	46.00	16,746.42	27.17	455,058.86
1993	8,253,151.30	46.00	179,410.69	27.69	4,967,042.19
1994	1,513,386.17	46.00	32,898.67	28.22	928,450.48
1995	2,015,138.26	46.00	43,805.98	28.78	1,260,861.65
1996	2,206,046.15	46.00	47,956.02	29.37	1,408,455.26
1997	13,979,158.22	46.00	303,885.19	29.99	9,112,205.15
1998	1,693,320.00	46.00	36,810.15	30.62	1,127,270.88
1999	494,528.37	46.00	10,750.28	31.29	336,334.93
2000	645,507.05	46.00	14,032.32	31.97	448,629.09
2001	723,166.61	46.00	15,720.52	32.68	513,704.00
2002	28,926.48	46.00	628.82	33.40	21,004.47
2003	1,656,738.32	46.00	36,014.92	34.15	1,229,944.00
2004	290,301.78	46.00	6,310.71	34.92	220,341.33
2005	2,073,232.05	46.00	45,068.85	35.70	1,608,926.05
2006	4,363,638.40	46.00	94,858.72	36.50	3,462,592.86
2007	4,243,076.54	46.00	92,237.90	37.33	3,442,820.03
2008	791,101.27	46.00	17,197.31	38.17	656,420.53
2009	4,085,958.09	46.00	88,822.38	39.03	3,466,880.95
2010	2,367,181.51	46.00	51,458.85	39.91	2,053,802.02
2011	25,525,398.39	46.00	554,882.53	40.81	22,644,164.37
2012	20,617,722.23	46.00	448,197.27	41.72	18,700,039.17

OGE
Electric Division
390.00 Structures and Improvements

Original Cost Of Utility Plant In Service
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Average Service Life: 46 **Survivor Curve: L1.5**

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
2013	5,739,604.89	46.00	124,770.10	42.65	5,321,676.90
2014	5,030,158.48	46.00	109,347.83	43.60	4,767,158.50
2015	22,953,937.71	46.00	498,982.97	44.55	22,230,310.53
2016	1,495,144.99	46.00	32,502.13	45.52	1,479,368.50
Total	178,876,849.97	46.00	3,888,504.97	34.78	135,247,218.72

Composite Average Remaining Life ... 34.78 Years