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BEFORE THE ARIZONA CORPORATION COMMISSION

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CHAIRMAN

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BOB BURNS
COMMISSIONER

TOM FORESE
COMMISSIONER

ANDY TOBIN
COMMISSIONER

IN THE MATTER OF THE APPLICATION OF ARIZONA PUBLIC SERVICE COMPANY FOR A HEARING TO DETERMINE THE FAIR VALUE OF THE UTILITY PROPERTY OF THE COMPANY FOR RATEMAKING PURPOSES, TO FIX A JUST AND REASONABLE RATE OF RETURN THEREON, TO APPROVE RATE SCHEDULES DESIGNED TO DEVELOP SUCH RETURN.	**DOCKET NO. E-01345A-16-0036** **DOCKET NO. E-01345A-16-0123**
IN THE MATTER OF FUEL AND PURCHASED POWER PROCUREMENT AUDITS FOR ARIZONA PUBLIC SERVICE COMPANY.	**ENERGY FREEDOM COALITION OF AMERICA'S NOTICE OF FILING DIRECT TESTIMONY OF DAVID J. GARRETT**

Energy Freedom Coalition of America ("EFCA") hereby provides notice of filing the Direct Testimony of David J. Garrett (Part II – Depreciation) in the above referenced matter.

Respectfully submitted this 28th day of December, 2016.

/s/ Court S. Rich
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Attorney for Energy Freedom Coalition of America

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I hereby certify that I have this day served a copy of the foregoing document on all parties of record in this proceeding by regular or electronic mail to:

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Arizona Public Service Company
Docket No. E-01345A-16-0036
E-01345A-16-0123

Responsive Testimony of
David J. Garrett

[Part II – Depreciation]

on behalf of the
Energy Freedom Coalition of America

December 28, 2016

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APPENDICES

LIST OF EXHIBITS

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 in 2011. At the 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. I am a Certified Depreciation Professional through the Society of Depreciation Professionals. I am also a Certified Rate of Return Analyst through 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]

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

A. I am testifying on behalf of the Energy Freedom Coalition of America ("EFCA").

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[1] Exhibit DJG 2-1.

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

A. In this case I am testifying on the two primary capital recovery mechanisms in the rate base rate of return model – cost of capital and depreciation – in response to the application of Arizona Public Service Company ("APS" or the "Company"). Together these issues are voluminous, so I have filed two separate responsive testimony documents. Part I of my responsive testimony includes cost of capital and related issues. Part II of my responsive testimony (this document) includes depreciation expense and related issues. In this testimony, I am responding to the depreciation study conducted on the depreciable assets of Arizona Public Service Company ("APS" or the "Company"). The Company's depreciation study is sponsored by Dr. Ronald White.

II. EXECUTIVE SUMMARY

Q. Summarize the key points of your testimony.

A. In the context of utility ratemaking, "depreciation" refers to a cost allocation system designed to measure the rate by which a utility may recover its capital investments in a systematic and rational manner. I employed a well-established depreciation system and used actuarial analysis to statistically analyze the Company's depreciable assets in order to develop reasonable depreciation rates in this case. The table below compares EFCA's and APS's proposed depreciation expense by plant function.

Figure 1:
Depreciation Expense Comparison by Plant Function

Plant Function	Original Cost 12/31/2015	APS Proposed Accrual	EFCA Proposed Accrual	EFCA Adjustment
Production	$ 7,083,506,331	$ 260,637,960	$ 228,843,970	$ (31,793,991)
Transmission	2,448,884,449	49,828,765	49,746,863	(81,902)
Distribution	5,540,635,406	135,036,574	122,262,029	(12,774,545)
General	714,596,494	44,318,029	43,037,840	(1,280,189)
General (Not Studied)	792,828,220	60,297,649	60,297,649	-
Total	$ 16,580,450,900	$ 550,118,977	$ 504,188,350	$ (45,930,627)

EFCA's total adjustment reduces the Company's proposed depreciation expense by $45.9 million.

Q. Summarize the primary factors driving EFCA's adjustment.

A. There are three primary factors driving EFCA's adjustment in this case: (1) proposing the currently approved depreciation rates Cholla Units 1 and 3, (2) removing the contingency and escalation factors from the Company's proposed decommissioning costs which reduces terminal net salvage for some production units; and (3) proposing different Iowa curve shapes and average lives for several transmission and distribution accounts.

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.[2] 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. Moreover, the Company's original cost investment in these assets would remain in the Company's rate base until they are recovered. Moreover, since the Company's awarded and earned returns on equity are far above its true cost of equity, the Company's shareholders further benefit from the excess wealth transfer from ratepayers while these costs are in rate base. Thus, the process of depreciation strives for a perfect match between actual and estimated useful life. When these estimates are not exact, however, it is better that useful lives are overestimated rather than underestimated.

[2] An obvious example of this fact can be seen in the very low debt ratios of regulated utilities, as discussed in my cost of capital testimony.

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."[3] 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.[4] Moreover, the *Lindheimer* Court found:

> [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. 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.[5]

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

[4] *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."

[5] *Id.* at 169.

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.[6] 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.[7] 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.[8]

Thus, the concept of depreciation as "the allocation of cost has proven to be the most useful and most widely used concept."[9]

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

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

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

[9] Wolf *supra* n. 6, 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. Nonetheless, depreciation analysts must 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 four 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.[10] 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.

[10] *See* Wolf *supra* n. 6, at 70, 140.

Q. Generally 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 actuaries 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.[11] 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.[12] 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."[13] 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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[11] 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).

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

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

Q. 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 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. The Company's depreciable property could be divided into two main groups: life span property and mass property. "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 as of the unit's probable retirement date.

A. Interim Retirement Analysis

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 as well as the Company's proposed weighting of interim and terminal retirements.

B. Terminal Net Salvage Analysis

Q. Describe the Company's approach to estimating terminal net salvage rates for the production accounts.

A. The Company's terminal retirements for each production unit are based on various decommissioning studies performed over the past several years. The Company applied terminal net salvage rates to its production accounts based on these decommissioning studies. These terminal net salvage rates affect the final proposed depreciation rates.

Q. Describe the problems with the Company's proposed decommissioning costs.

A. Yes. There are three main problems with the Company's terminal net salvage estimates proposals: (1) the decommissioning studies did not consider less costly, more realistic alternatives and generally relied on questionable assumptions that had an increasing effect on cost estimates; (2) the decommissioning studies include arbitrary and unsupported contingency factors that increase decommissioning cost by as much as 20% for some units; and (3) the decommissioning costs have been escalated into the future. Each of these problems results in the Company's terminal net salvage rates and depreciation rates for the affected production plants to be unreasonable. I will discuss each problem in turn.

Q. The Company's decommissioning studies are based on questionable, costly assumptions and do not include less costly alternatives.

A. Yes. The assumptions relied upon in the Company's decommissioning studies generally include a major demolition of the plants and returning the sites to an "industrial condition," which would be suitable for development of an industrial facility. In other words, the decommissioning studies do not consider the less costly alternative of having these sites

remain as power generating facilities. Likewise, the studies do not consider the sale of any facilities before the end of their service life. The studies' various liberal assumptions also include grading the site to achieve natural drainage patters, removing foundations to four feet below grade, and restoring native vegetation to disturbed site areas.[14] Moreover, the studies assume that none of the equipment will have a salvage value in excess of the scrap value, and resale of equipment is not considered as a cost mitigation factor. All of these assumptions, along with the absence of less costly alternatives, contribute to decommissioning cost estimates that are immoderate and overestimated. Many of these assumptions inherent in the various decommissioning studies proposed by the Company are problematic. For example, it is questionable to simply assume that when a major generating facility is retired that not a single part of the facility will be resold or have any salvage value in excess of scrap value, especially considering the relatively small amount of interim retirements assumed by the Company. It is also unreasonable to assume that the majority of the Company's plants will be "decommissioned to zero generating output[15]" and the plant sites will be no longer used for generating facilities. For all of these reasons, the Company's decommissioning costs are too speculative, immoderate, and ultimately unreasonable, which results in the Company's terminal net salvage rates and depreciation rates to be unreasonable, notwithstanding the additional problems with the decommissioning studies discussed below.

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[14] *See e.g.* response to Staff 5.79, at APSRC01197 p. 13 of 46.

[15] *Id.* at p. 12 of 46.

Q. The Company's decommissioning studies include arbitrary and unsupported contingency factors that further inflate cost estimates.

A. Yes. As discussed above, the decommissioning cost estimates are overstated due to considering relatively more costly scenarios and assumptions. Furthermore, most of the Company's decommissioning studies include unsupported "contingency factors" that arbitrarily increase decommissioning costs by as much as 20%, or about $20 million.[16] Terminal decommissioning costs are a problematic issue for ratemaking because unlike many other costs at issue in a rate case, decommissioning costs are often scheduled to occur many years in the future. Moreover, utilities are often not very sure whether the costs will be incurred at all. For example, a decommissioning study may contemplate a total plant site demolition, but the utility may decide many years later to repower the plant at a fraction of the cost, or may decide to sell the plant site to another utility. Ratepayers, meanwhile, would be paying inflated rates for a substantial future cost that the Company ultimately never incurred. This is one of the reasons why some jurisdictions do not allow for the early recovery of decommissioning costs. In this case, if the Commission is going to allow for early recovery of decommissioning costs, it should ensure that those costs are very conservative. Therefore, the Commission should not adopt the Company's proposed deprecation rates, which include these unsupported contingency factors.

[16] *See e.g. id.* at p. 19 of 46.

Q. The Company's decommissioning cost estimates are escalated many years into the future.

Yes. Although the present value of the Company's decommissioning cost estimates is overstated for the reasons discussed above, the Company has added an annual escalation factor to these costs for as many as 29 years into the future for some plants. There are several problems with the Company's cost escalation factor. First, the Company did not provide any support for the escalation factor. Second, it is inappropriate from a reasonableness standpoint to escalate costs that are already overestimated, include an arbitrary contingency factor, and moreover, may never even occur at all. Third, not every cost associated with decommissioning will necessarily increase by the same rate each year. Finally, and most importantly, it is not proper to charge current ratepayers for a future cost that has not been discounted to present value. The concept of the time value of money is a cornerstone of finance and valuation. For example, the Gordon Growth Model (or DCF Model) is one of the most widely-used valuation models. The model 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. In contrast to this approach, the Company has escalated the present value of its decommissioning costs decades into the future and is essentially asking current ratepayers to pay the future value of a cost with present-day dollars. This arrangement ignores the time value of money principle and is inappropriate for that reason.

Q. Describe your adjustment to the Company's decommissioning costs and terminal net salvage rates.

A. For the reasons discussed above, I recalculated the Company's proposed decommissioning costs by removing the escalation and contingency factors. I then applied the adjusted decommissioning costs to the estimated weighting of the terminal and interim retirements proposed by the Company to ultimately arrive at reasonable weighted net salvage rates. I applied these net salvage rates to the remaining life depreciation model to calculate depreciation rates for the Company's production accounts. If the Commission adopts the Company's production depreciation rates, it will be in essence adopting the Company's proposed decommissioning costs, which are unreasonable for all of the reasons discussed above.

C. Cholla Depreciation Rates

Q. Describe the Company's proposal regarding Cholla Units 1 and 3.

A. In his direct testimony, Daniel Froetscher stated that the Company plans to no longer burn coal in Cholla Units 1 and 3 beyond 2025.[17] In APS's depreciation study, the depreciation rates for Cholla Units 1 and 3 were calculated assuming a retirement date of 2025. Shortening the probable retirement date for these units to 2025 has resulted in an overly burdensome increase in depreciation expense of more than $20 million.

[17] Direct Testimony of Daniel Froetscher, p. 8:25-26.

Q. Is the Company certain it will retire Cholla Units 1 and 3 in 2025?

A. No. In fact, the Company acknowledges that the outlook of its coal-fired plants is "uncertain."[18] Moreover, the Company stated that it has "not yet determined whether the units will be retired or converted to natural gas."[19]

Q. When the lifespan of a generating unit is underestimated, does it impose an unfair burden on current ratepayers?

A. Yes. When the lifespan of a generating unit is underestimated in the early stages of its service life, it creates an artificially short remaining life calculation which overstates depreciation expense. This results in current ratepayers effectively subsidizing future ratepayers.

Q. Describe the Company's treatment of Cholla Unit 2.

A. Before it was retired in 2015, APS's estimated retirement year for Cholla Unit 2 was 2033.[20] Despite being retired in 2015, the Company is proposing to keep the plant life assumption of 2033 for the amortization period of the Cholla Unit 2 regulatory asset.

Q. What is your recommendation with regard to the proposed depreciation rates for Cholla Units 1 and 3?

A. I recommend that the Commission leave the currently-approved rates in place for Cholla Units 1 and 3. These rates were based on a retirement year for Unit 1 of 2028 and a retirement year for Unit 3 of 2035. In the even the Company actually retires these units in

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[18] Preliminary 2017 Integrated Resource Plan, p. 7.

[19] Direct Testimony of James C. Wilde, p. 24:13-14.

[20] Direct Testimony of Elizabeth A. Blankenship, p. 24:18-25.

2025, the Company could place any reaming book value into a regulatory asset to be amortized over the currently recognized life spans, similar to the regulatory treatment for Cholla. Keeping the current rates for these units will also relieve some of the financial burden for existing ratepayers in the face of a substantial potential rate increase without harming the Company.

VI. MASS PROPERTY ANALYSIS

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 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 Appendices B and C, pages 64-91.

A. Service Life Estimates

Q. Generally 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 judgement. 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 curves that were not the mathematical best fit, and in almost every one of those instances, this decision resulted in a shorter curve being chosen. All else held constant, shorter curves result in higher depreciation rates.

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."[21] 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

[21] Wolf *supra* n. 6, at 46.

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 analyses that involved fitting Iowa curves to the most significant part of the OLT curve. 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. Analysis of Material Accounts

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 "material" accounts discussed in this section are those involving a significant amount of original cost, such that even a small difference in average life estimates can result in a sizeable dollar impact. For these material 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. 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 differences between your service life estimates and the Company's service life estimates for these material accounts

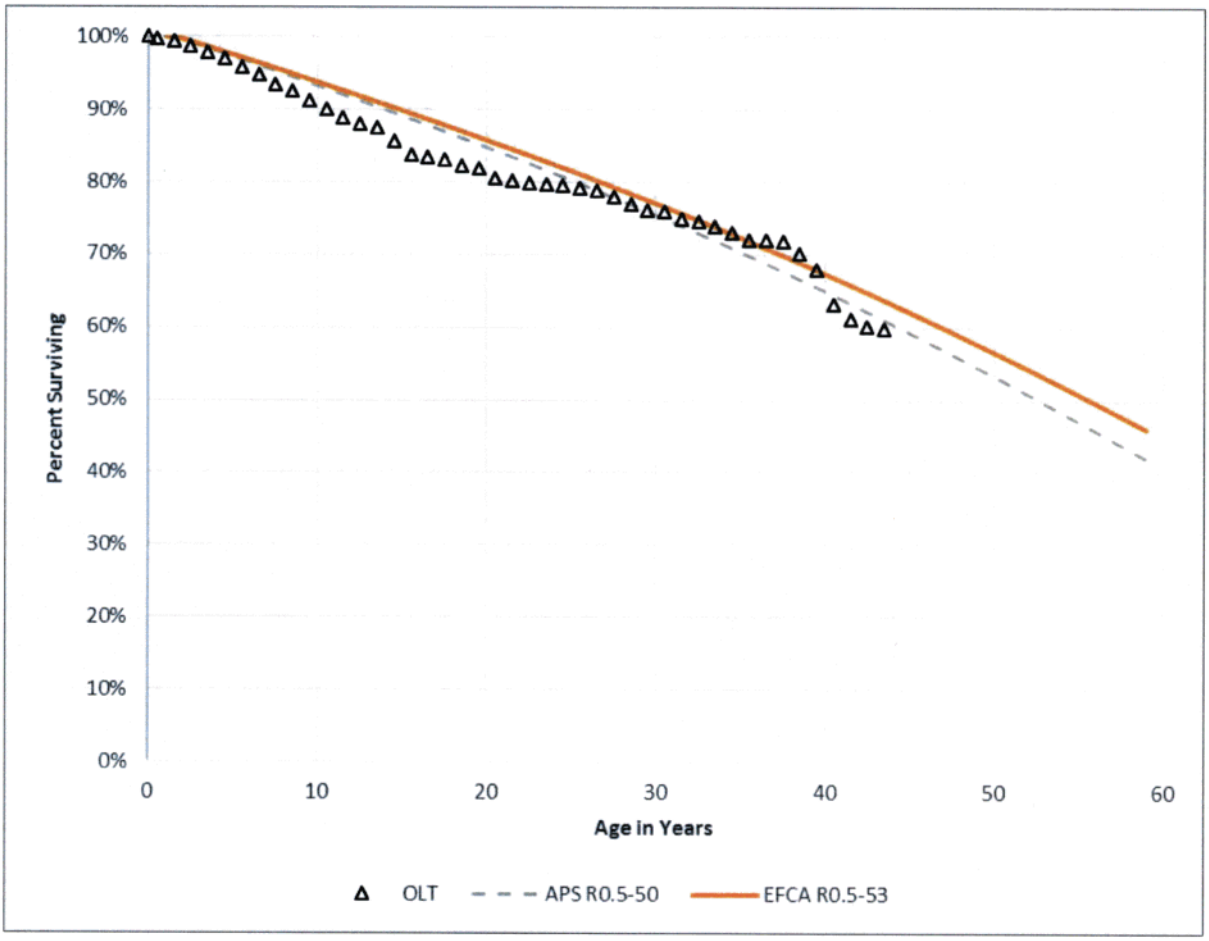
A. While the Company and I used similar curve-fitting approaches in this case, the curves I selected for these accounts provide a better mathematical fit to the observed data, and provide a more reasonable and accurate representation of the mortality characteristics for each account. In each of the following accounts, the Company has selected a curve that underestimates the average remaining life of the assets in the account, which results in unreasonably high depreciation rates. The analysis of each material account is discussed individually below.

1. <u>Account 364.02 – Poles, Towers and Fixtures – Steel</u>

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

A. The observed survivor curve Account 366 is ideal for visual curve-fitting because it does not display a typical Iowa-curve type retirement pattern. The observed survivor curve is derived from the OLT calculated from the Company's aged plant data. Thus, as set forth above, the OLT curve is not an estimate or a theoretical curve, rather, it represents actual data. Using primarily mathematical curve-fitting techniques, I selected the Iowa R0.5-53 curve type to best represent the future mortality characteristics for this account. The Company chose the R0.5-50 curve. In the graph below, the black triangles represent the OLT curve. The graphs also show the Iowa curve I selected as well as the Company's selected curve.

Figure 2:
Account 364.02 – Poles, Towers and Fixtures – Steel



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

A. Yes. While it is not necessarily clear from a visual standpoint that the curve I chose provides a better fit to the data, mathematical curve-fitting techniques reveal this is indeed the case. Mathematical curve fitting essentially involves measuring the distance between the OLT curve and the selected Iowa curve. 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. Specifically, the SSD for the R0.5-53 curve I chose is 0.0727, while the SSD or "distance" related to the Company's curve is longer, at 0.1552. Thus, the R0.5-53 curve is a better fit.[22]

2. Account 367 – Underground Conductors and Devices

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

A. Unlike the OLT curve in the previous account, the OLT curve in Account 367 is well-suited for Iowa curve fitting. Specifically, the shape of the OLT curve closely reflects the curve shapes seen in the L-type Iowa curves. The curve I selected is the L0.5-41 curve, and the curve the Company selected is the L1-40 curve. As shown in the graph below, the selected curves are both so close to the OLT curve that it is not easy to determine the better fitting curve through mere visual inspection.[23]

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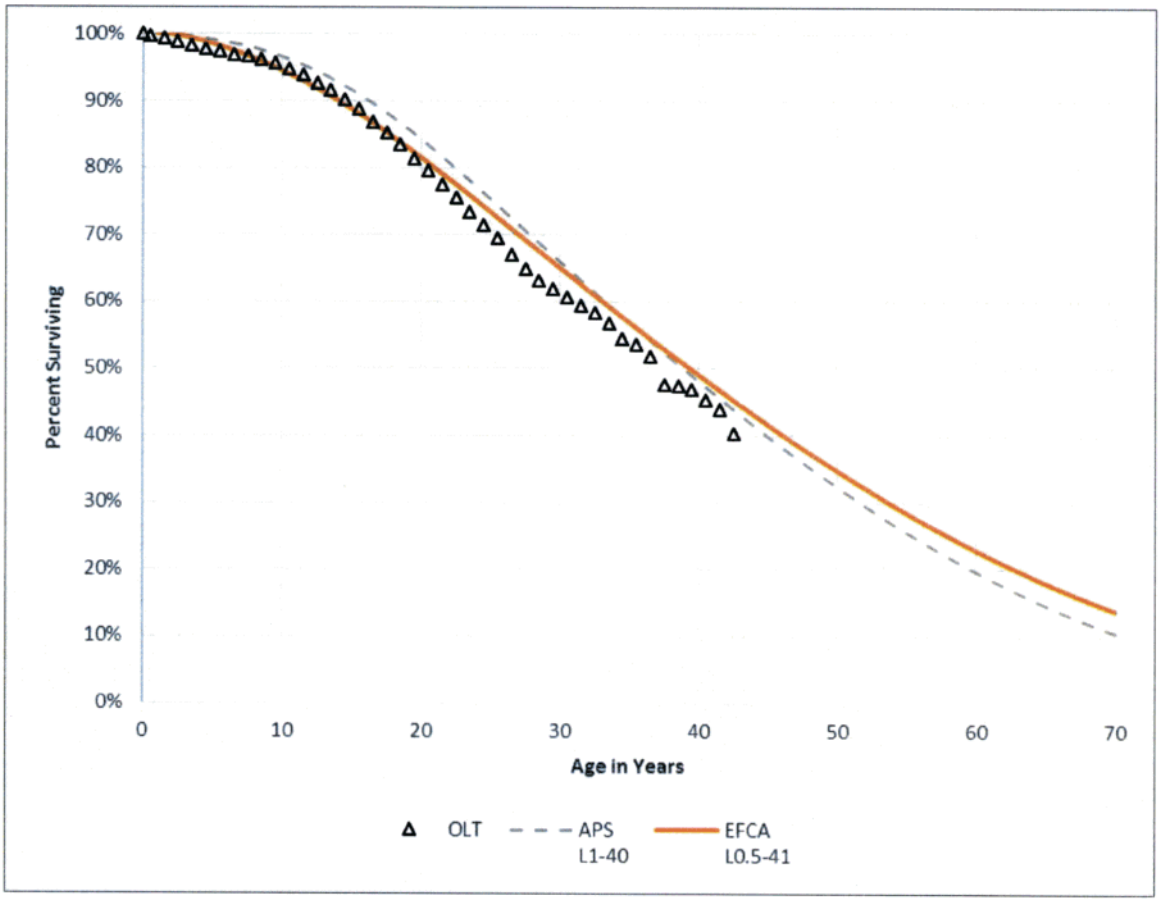
[22] Exhibit DG 2-8.

[23] *See also* Exhibit DG 2-9.

Figure 3:
Account 367 – Underground Conductors and Devices



It is fair to say that both of the selected curves are within the range of reasonable choices for this account. In my opinion, however, the L0.5-41 curve I chose is better, as discussed below.

Q. Describe why your selected curve for this account should be adopted.

A. There are two reasons why the L0.5-41 curve should be adopted over the Company's curve. The first reason is technical in nature. Using the mathematical SSD approach for the entire OLT curve would show that the curve I selected provides a better mathematical fit.

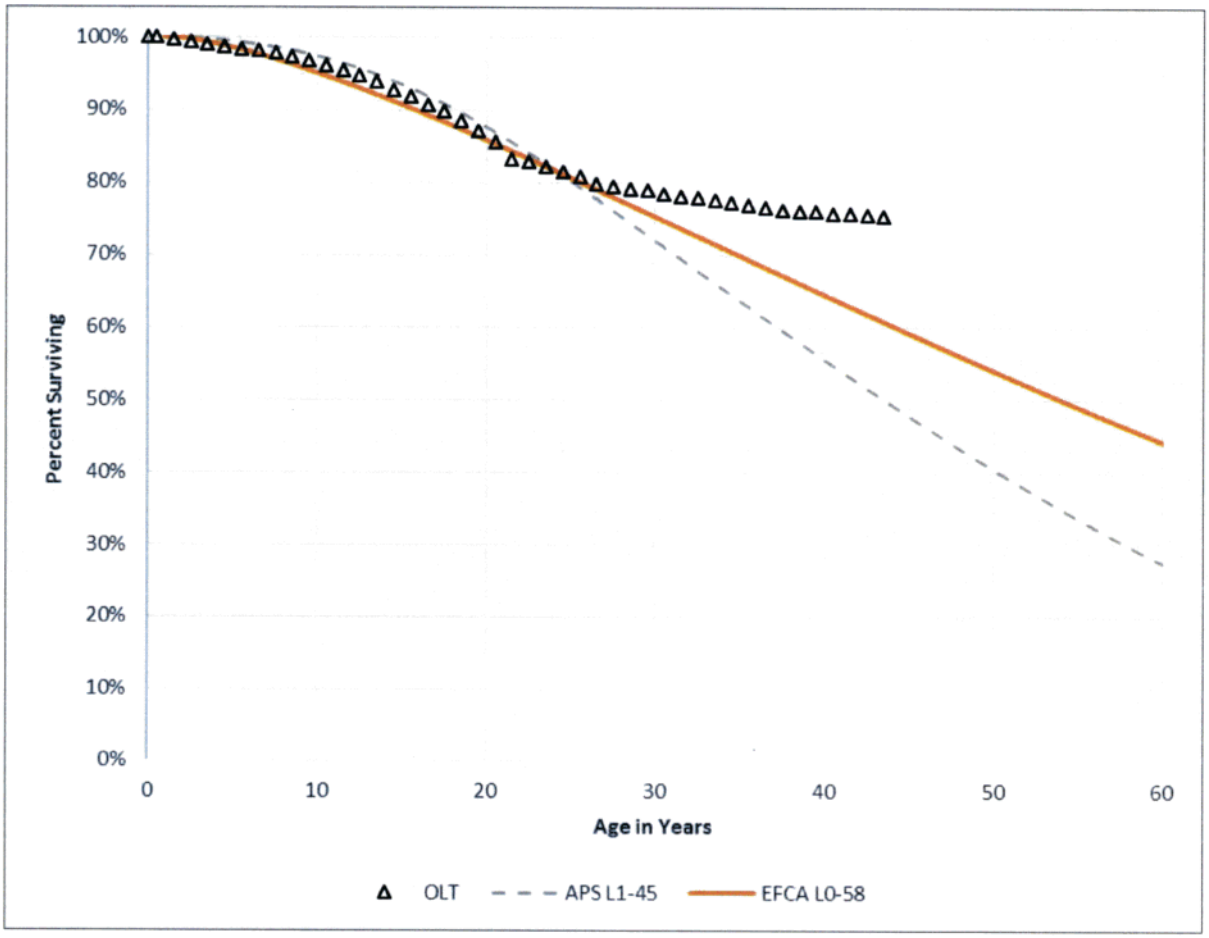
However, when looking at the more meaningful upper and middle potions of the OLT curve, the mathematical curve-fitting process reveals that the choice is not perfectly clear. Analysts may have slightly differing opions regarding which portions of the curve are most meaningful from a statistical standpoint. The Company's curve provides a better mathematical fit during the portion of the OLT curve representing age 7 through age 20. However, the curve I selected provides a better fit for the remaining portions of the curve, which represent the majority of the years covered by the OLT curve. The second reason the L0.5-41 curve is a better choice is more important, however, and is driven more from a plicy perspective. Account 367 contains a very substantial original cost balance of $1.6 billion as of the study date. The difference between the Company's proposed depreciation rate and my proposed depreciation rate for this account is only 0.37%. However, due to the size of this account, the small difference in proposed rates translates to a discrepancy in dollars of $6.1 million. Overall, the Company is proposing a substantial increase in depreciation expense of more than $75 million. As discussed above, when faced with two reaonable choices regarding the estimated service life of a plant or a group of assets, the Commission should lean toward adopting longer lives (i.e., lower depreciation rates) because doing so can provide immediate and needed rate relief to ratepayers, espeically in the current case, and the Company is not harmed financially. In this account, both curves are reasonable from a technical standpoint, but the L0.5-41 curve I selected is the better, fairer choice from a broader standpoint of reasonableness.

3. Account 369 – Distribution Services

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

A. The upper and middle portions of the OLT curve in Account 369 are ideal for Iowa curve fitting. Specifically, the shape of the OLT curve closely reflects the curve shapes seen in the L-type Iowa curves. The graph below shows the L0-58 curve I selected, along with the Company's L1-45 curve and the OLT curve.

Figure 4:
Account 369 – Distribution Services



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

A. Yes. In this case, both curves correctly ignore the more erratic "tail end" of the curve. This portion of the curve can be problematic from a statistical standpoint if it does not represent a sufficient portion of the dollars exposed to retirement, as is the case here. Regardless, not only is my selected curve a better mathematical fit over the entirety of the OLT curve, but more importantly, my selected curve is a better mathematical fit over the more meaningful upper and middle portions of the OLT curve. Thus, the L0-58 curve is the better choice for this account.[24]

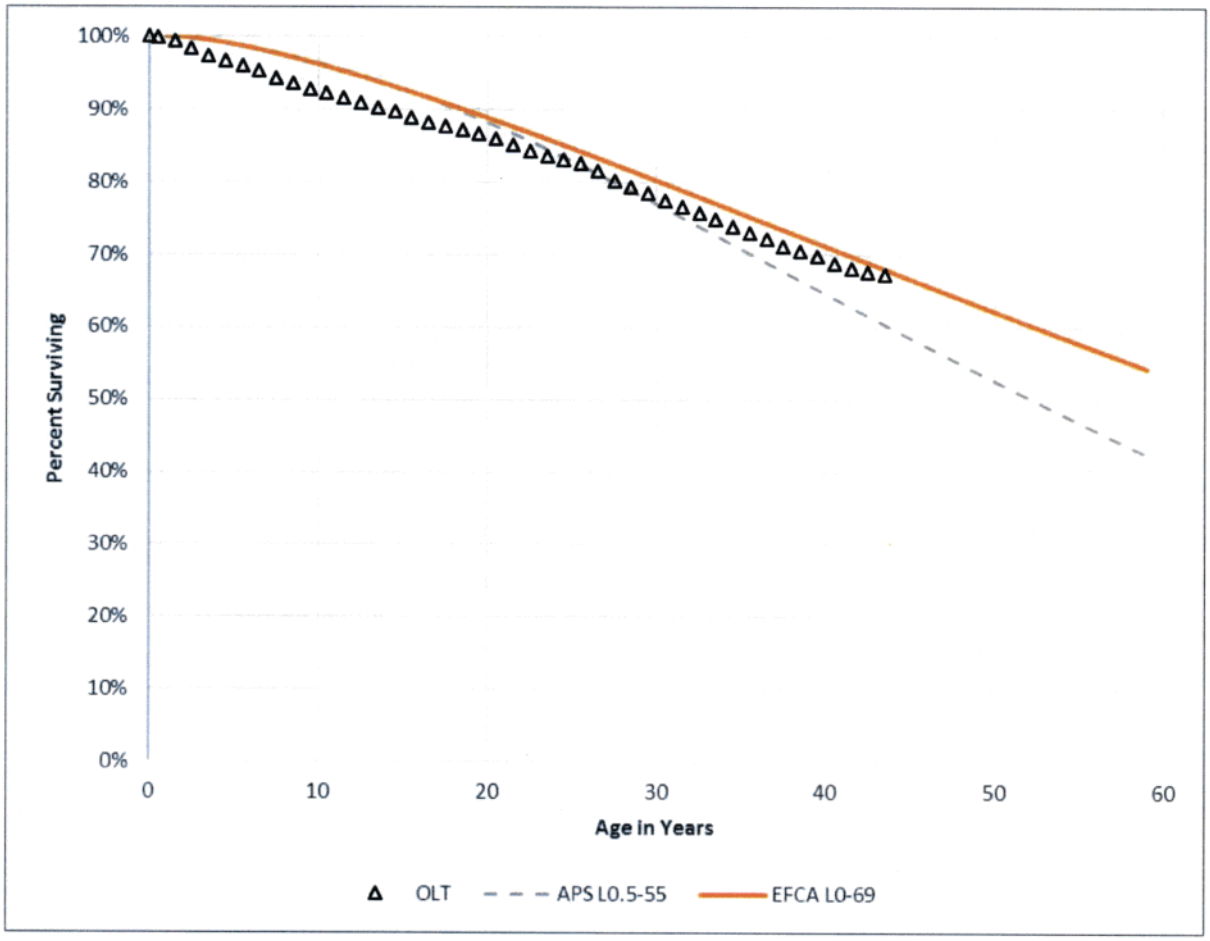
4. Account 373 – Street Lighting and Signal Systems

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

A. I selected the L0-69 curve to best describe the mortality characteristics for the assets in Account 373, while the Company selected the L0.5-55 curve. These two curves are displayed along with the OLT curve in the following chart.

[24] Exhibit DG 2-10.

Figure 5:
Account 373 – Street Lighting and Signal Systems



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

A. Yes. While it is not precisely clear from a visual standpoint which curve is a better fit, I have confirmed mathematically that the curve I selected provides a better fit not only to the entire OLT curve, but also to the middle and upper portions of the OLT curve.[25]

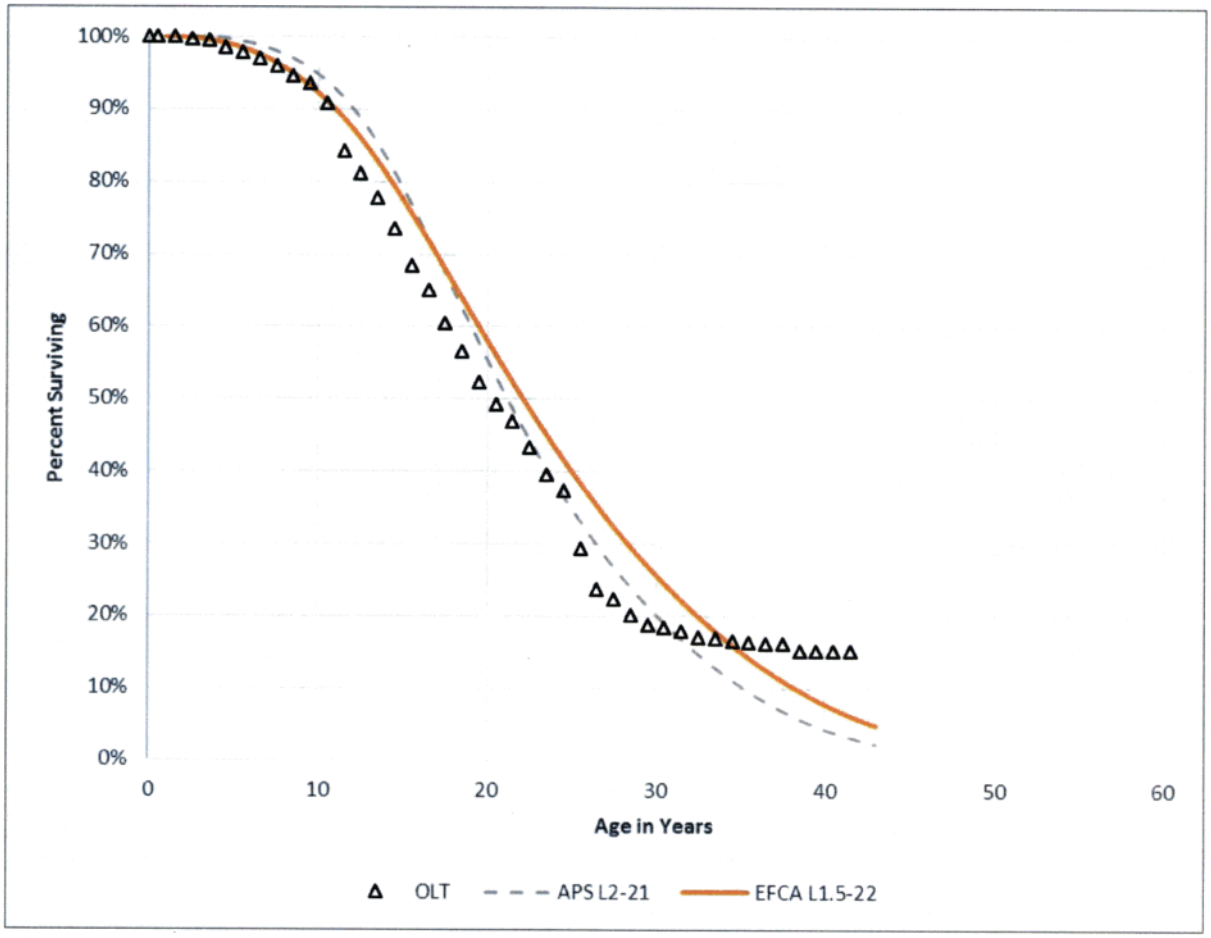
[25] Exhibit DG 2-11.

5. Account 397 – Communication Equipment

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

A. The OLT curve in Account 397 is well-suited for Iowa curve fitting. Specifically, the shape of the OLT curve closely reflects the curve shapes seen in the L-type Iowa curves. The curve I selected is the L1.5-22 curve, and the curve the Company selected is the L2-21 curve. Both curves are shown in the chart below along with the OLT curve for this account.

Figure 6:
Account 397 – Communication Equipment



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

A. Yes. The L1.5-22 curve I selected provides the better mathematical fit. Specifically, the SSD for my selected curve is only 0.0782 while the SSD for the Company's curve represents a longer "distance" of 0.1336.[26]

VII. CALCULATED ACCUMULATED DEPRECIATION

Q. Describe calculated accumulated depreciation.

A. Calculated accumulated depreciation (or the "theoretical reserve") is the calculated balance that would be in the accumulated depreciation account at a point in time using current depreciation parameters, such as average service life and net salvage. In other words, the theoretical reserve is the amount that would be in the accumulated depreciation account had the current depreciation parameters been in place all along. There is almost always an imbalance between the actual accumulated depreciation amount and the theoretical reserve ("TRI"). If the whole life application technique is used, this imbalance should be amortized in order to bring the actual accumulated depreciation balance closer to the theoretical reserve. If the remaining life application technique is used, however, any imbalance between the actual accumulated depreciation amount and the theoretical reserve is "automatically" amortized over the remaining life of the account. That is, it is usually not necessary to make a separate adjustment to amortize the TRI if the remaining life application technique is employed, unless the TRI is excessive.

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[26] Exhibit DG 2-12.

Q. Did the Company propose separate reserve allocations despite using the remaining life technique?

A. Yes, that appears to be the case. As discussed above, there are certain circumstances when it may be preferable to make separate, "manual" adjustments to the allocated reserve even when using the remaining life technique, but that doesn't appear to be the case here, and the Company has not explained why such allocations were necessary.

Q. Describe how this impacts your recommendation.

A. The Company's decision to make arguably unnecessary reserve allocations does not specifically impact my adjustment. Rather, I calculated my proposed depreciation rates using the more widely-accepted approach to the remaining life technique. That is, I based my proposed rates on the Company's book reserve balances, rather than adjusted reserve balances.

VIII. CONCLUSION AND RECOMMENDATION

Q. Summarize the key points of your testimony.

A. I employed a well-established depreciation system and used actuarial analysis to statistically analyze the Company's depreciable assets in order to develop reasonable depreciation rates in this case. I recommended leaving the current depreciation rates for Cholla Units 1 & 3 in place. In the event that the Company decides to retire these units before their costs are fully recovered, any unrecovered costs can be placed into a regulatory asset. The Company's proposed rates for most of its production plants include overstated decommissioning costs that include arbitrary and unsupported contingency and escalation

factors. The rates I propose do not include these unreasonable factors. I made adjustments to the Company's proposed rates for several transmission and distribution accounts. I demonstrated that the Iowa curve shapes and average lives I selected to represent the retirement patterns in these accounts provided better, more mathematically accurate fits to the Company's observed data.

Q. What is EFCA's recommendation to the Commission with regard to depreciation rates and expense?

A. EFCA recommends that the Commission adopt the proposed depreciation rates presented in my exhibits. Applying these rates to the Company's pro forma plant balances result in an estimated adjustment to depreciation expense of $45.9 million.

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.

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.[27] 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.[28] The figure below illustrates the basic concept of a depreciation system and includes some of the available parameters.[29]

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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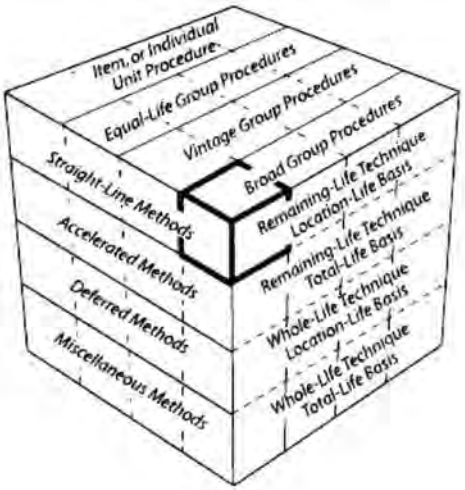
[27] Wolf *supra* n. 6, at 69-70.

[28] *See* Wolf *supra* n. 6, at 70, 139-40.

[29] 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 7:
The Depreciation System Cube



1. Allocation Methods

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.[30] 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.[31] The basic formula for the straight-line method is as follows:[32]

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[30] NARUC *supra* n. 7, at 56.

[31] *Id.*

[32] *Id.*

Equation 1:
Straight-Line Accrual

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

Gross plant is a known figure 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.[33] 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:[34]

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.[35] While single units may be analyzed for depreciation, a group plan of depreciation is particularly adaptable to utility property. Employing a grouping procedure allows

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[33] *Id.* at 57.

[34] *Id.* at 56.

[35] Wolf *supra* n. 6, at 74-75.

for a composite application of depreciation rates to groups of similar property, rather than 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.[36] 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.[37]

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 depreciation, 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.[38] 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.[39] Under the equal life procedure the property is divided into subgroups that each has a common life.[40]

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[36] *Id.* at 74.

[37] NARUC *supra* n. 7, at 61-62.

[38] *See* Wolf *supra* n. 6, at 74-75.

[39] *Id.* at 75.

[40] *Id.*

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 technique applies the depreciation rate on the estimated average service life of group, while the remaining life technique seeks to recover undepreciated costs over the remaining life of the plant.[41]

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.[42] 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.[43] 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

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[41] NARUC *supra* n. 7, at 63-64.

[42] Wolf *supra* n. 6, at 83.

[43] NARUC *supra* n. 7, at 325.

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 in the annual accrual.[44] 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:[45]

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.[46]

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

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[44] NARUC *supra* n. 7, 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.").

[45] *Id.* at 64.

[46] Wolf *supra* n. 6, at 178.

continuous property group for depreciation purposes.[47] 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 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.

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[47] *See* Wolf *supra* n. 6, at 139 (I added the term "model" to distinguish this fourth depreciation system parameter from the other three parameters).

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.[48] 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.[49] 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. Development

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

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[48] Wolf *supra* n. 6, at 276.

[49] *Id.* at 23.

representing the life characteristics of each group of property.[50] They generalized the 65 curves 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.[51] 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."[52] 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.[53] 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

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[50] *Id.* at 34.

[51] *Id.*

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

[53] 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. 6, at 305-38 (publishing the percent surviving for each Iowa curve, including "O" type curve, at one percent intervals).

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 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:[54]

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.[55]

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[54] *See* Wolf *supra* n. 6, at 37.

[55] *Id.*

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 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).[56] 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.

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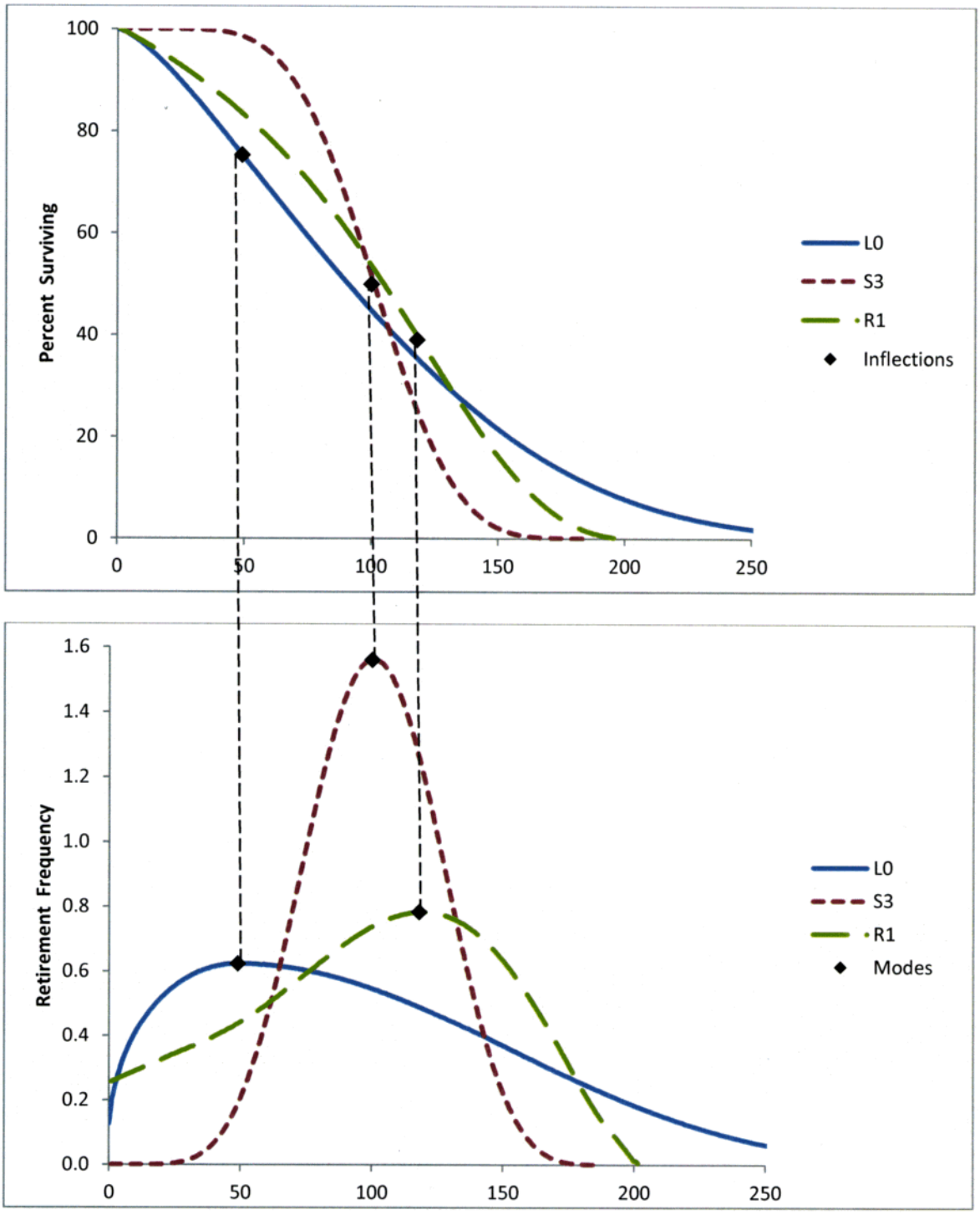
[56] In 1967, Harold A. Cowles added four origin-modal curves known as "O type" curves. There are also several "half" curves and a square curve, so the total amount of survivor curves commonly called "Iowa" curves is about 31 (see NARUC supra n. 7, at 68).

Figure 8:
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."[57]

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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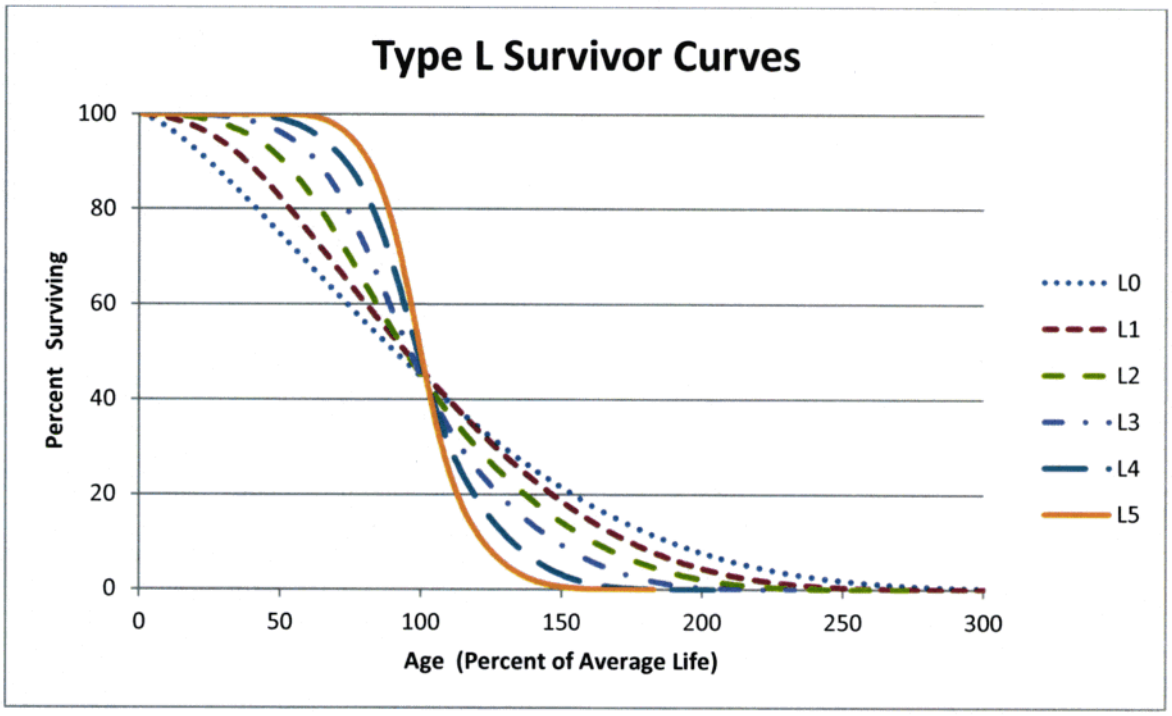
[57] Winfrey *supra* n. 75, at 60.

Figure 9:
Type L Survivor and Frequency Curves



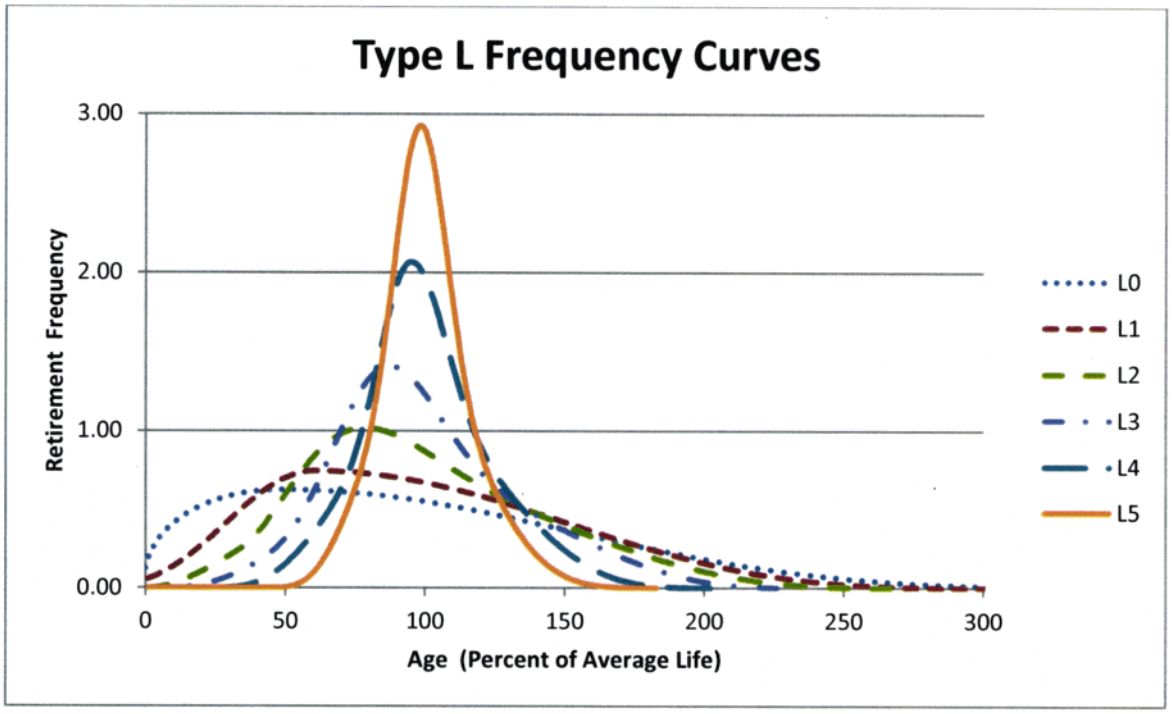
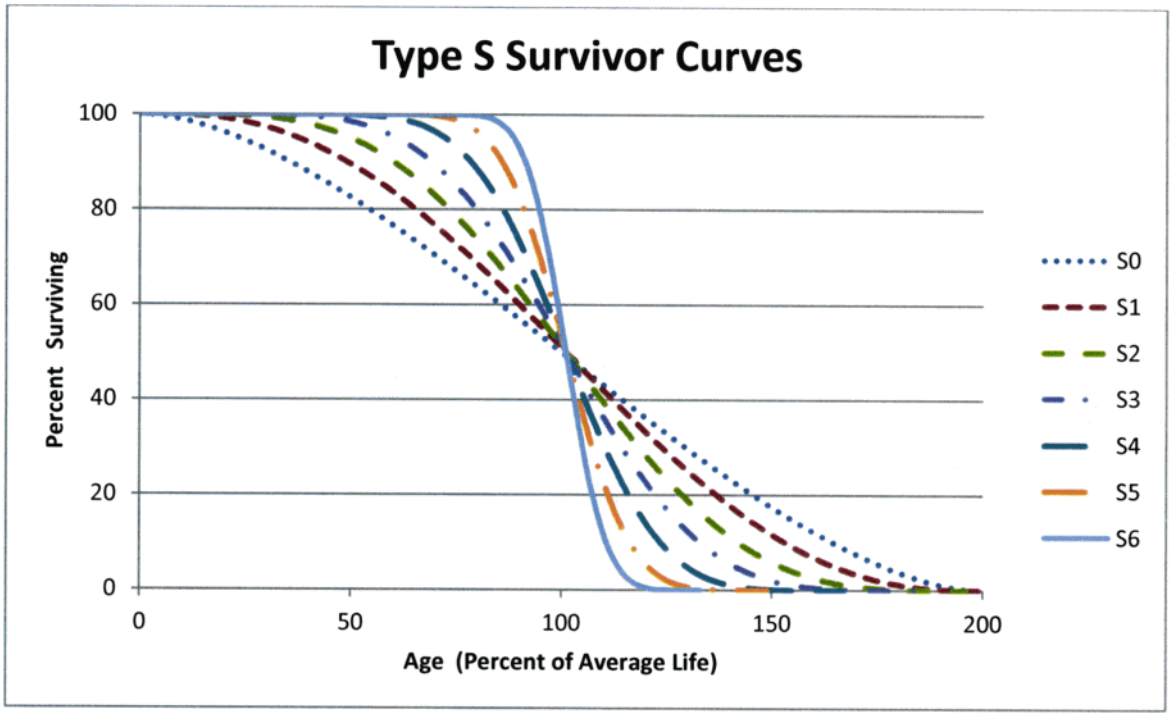


Figure 10:
Type S Survivor and Frequency Curves



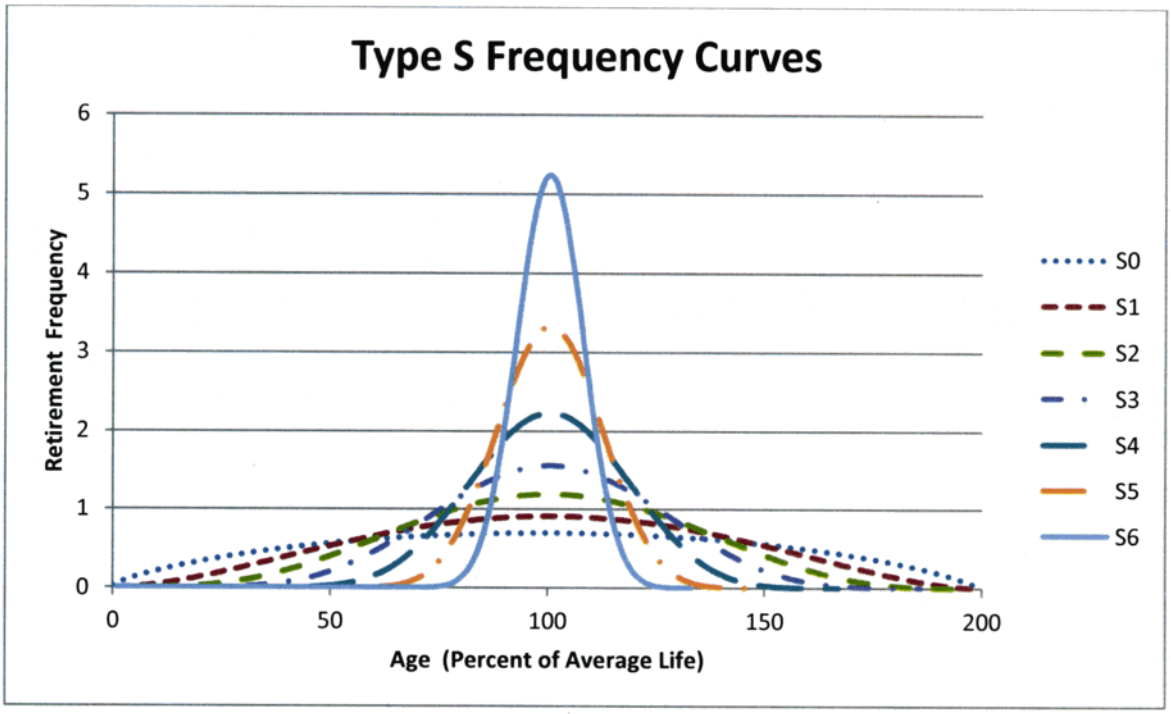
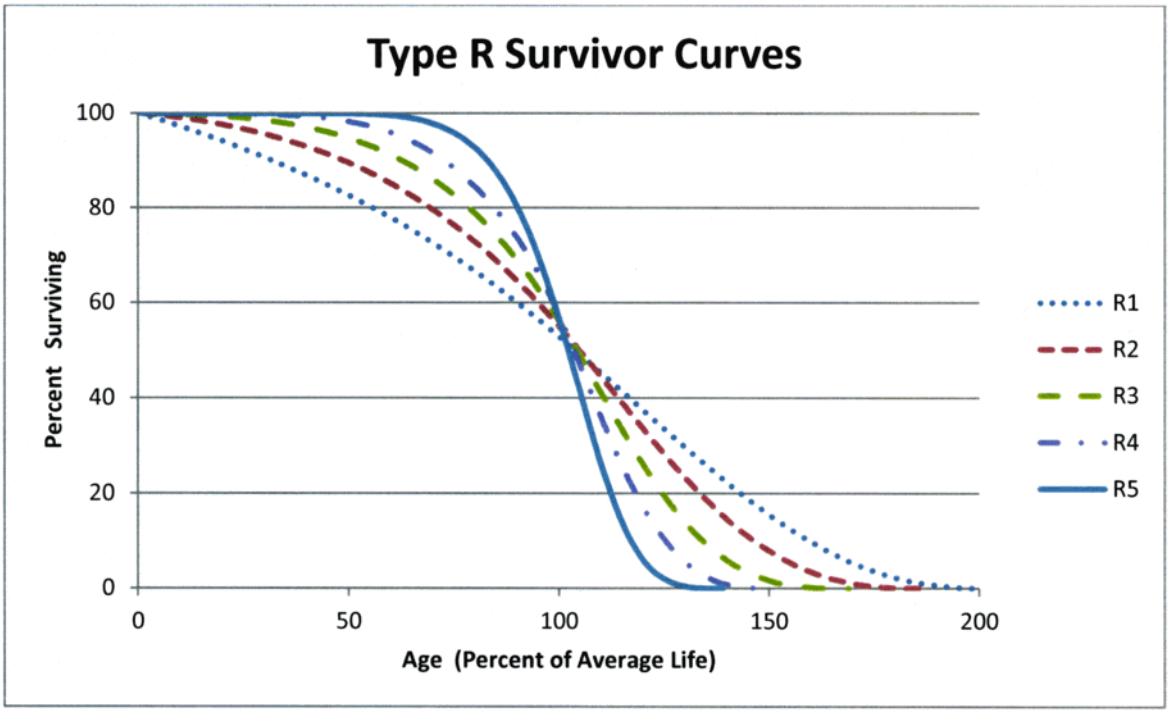
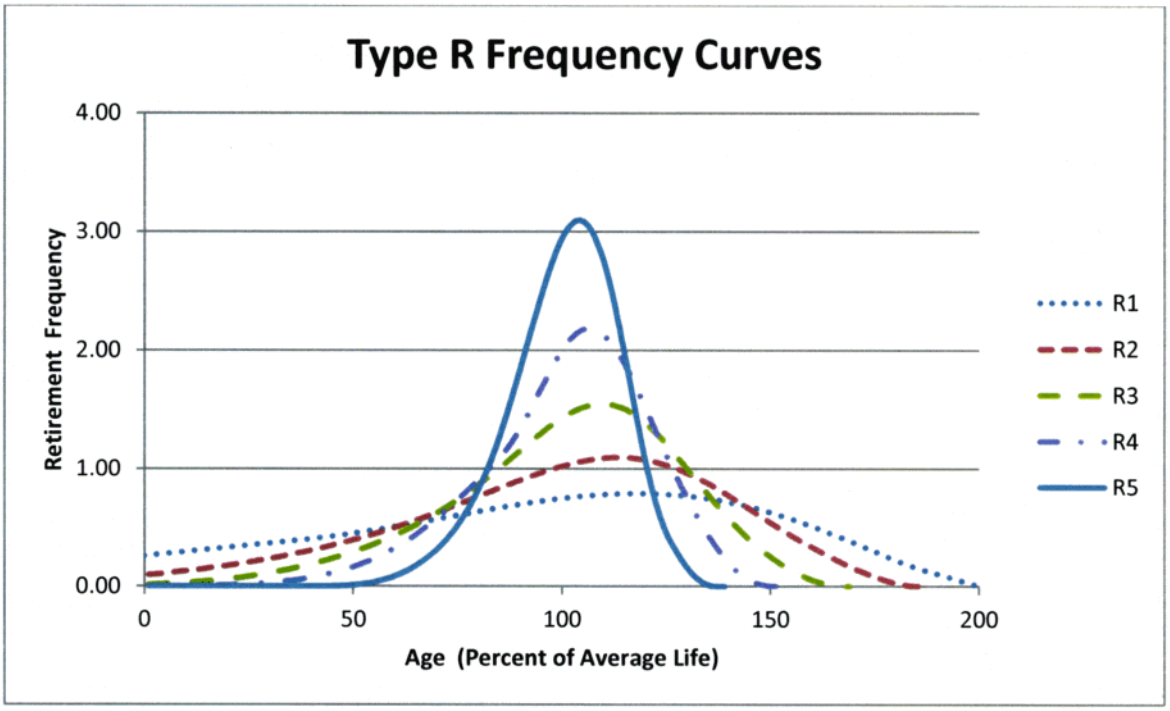


Figure 11:
Type R Survivor and Frequency Curves





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. Types of Lives

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. Figure 8 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.[58]

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:[59]

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

[58] 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.

[59] *See* NARUC *supra* n. 7, 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.[60] 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.[61] 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.

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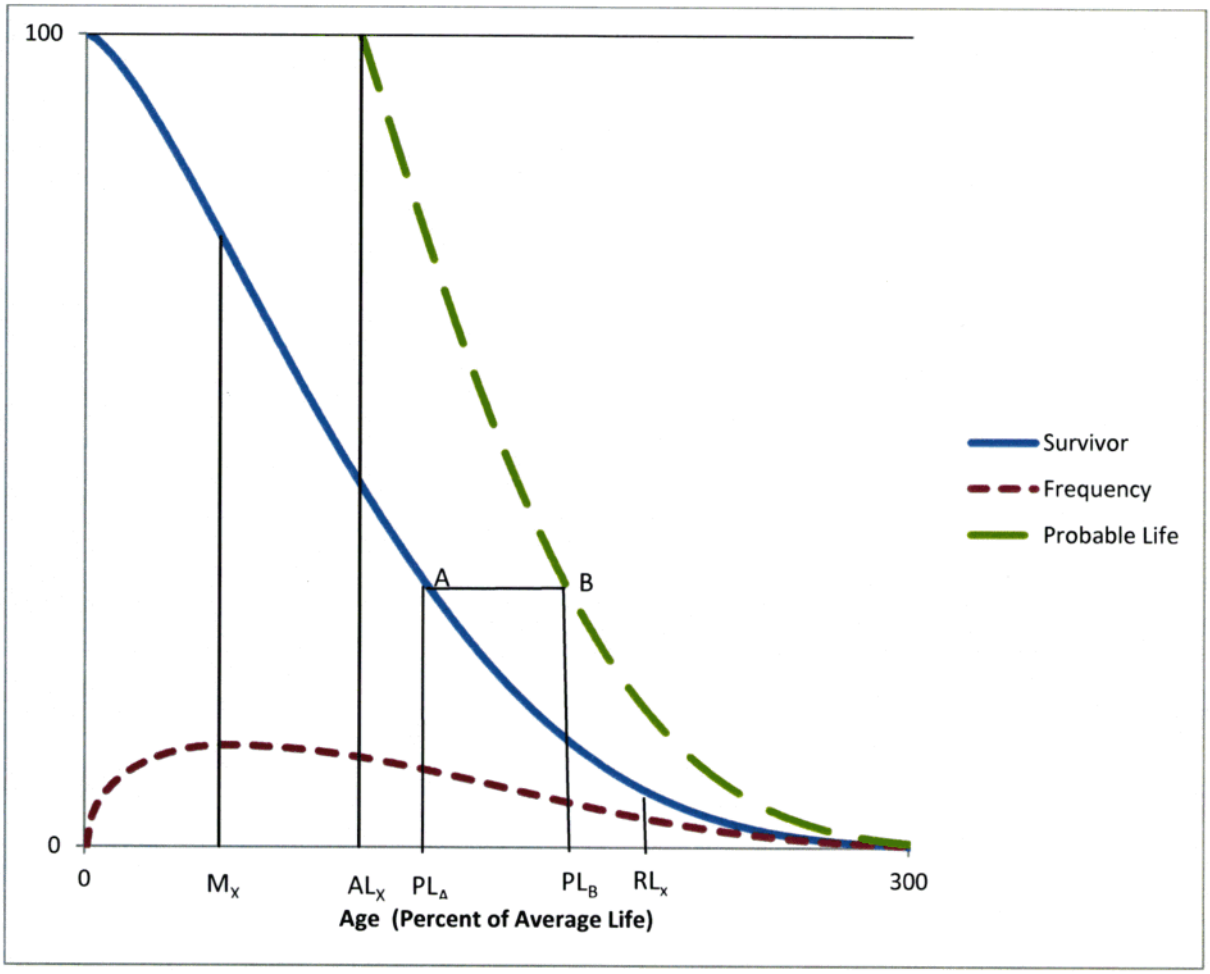
[60] *Id.* at 73.

[61] *Id.* at 74.

Figure 12:
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.[62] The probable life is also illustrated in this figure. The

[62] Wolf *supra* n. 6, at 28.

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 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.[63]

Figure 13:
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

[63] NARUC *supra* n. 7, at 14-15.

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 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.[64] Historical data is used in the retirement rate actuarial method, which is discussed further below.

The Retirement Rate Method

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.[65] 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,

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

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

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 at the beginning of each year.[66] 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 14:
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	

[66] 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 15:
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.[67] 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

[67] Wolf *supra* n. 6, at 22.

was calculated by adding the numbers shown on the "stairs" to the left (192+184+216+255=847). 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 Figure 12 below. This figure 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 16:
Observed Life Table

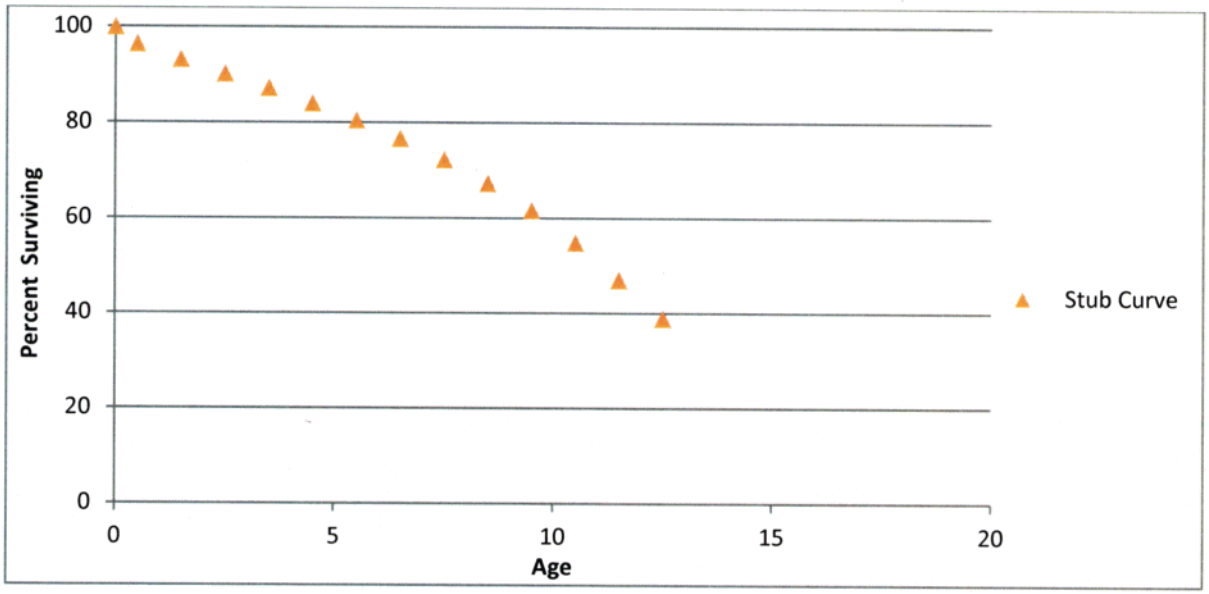
Age at Start of Interval	Exposures at Start of Age Interval	Retirements During Age Interval	Retirement Ratio	Survivor Ratio	Percent Surviving at Start of Age Interval
A	B	C	D = C / B	E = 1 - D	F
0.0	3,141	112	0.036	0.964	**100.00**
0.5	2,998	100	0.033	0.967	**96.43**
1.5	2,866	93	0.032	0.968	**93.21**
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)[68].

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

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 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 17:
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.

Banding

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.[69] 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.[70]

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.

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[69] NARUC *supra* n. 7, at 113.

[70] *Id.*

Figure 18:
Placement 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	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.[71] 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

[71] Wolf *supra* n. 6, at 182.

analyze the effect of that change in the property group's physical characteristics. While placement 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.[72]

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.

[72] NARUC *supra* n. 7, at 114.

Figure 19:
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.[73] 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

[73] *Id.*

experience year from the analysis. In contrast, a placement band would not effectively isolate the 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

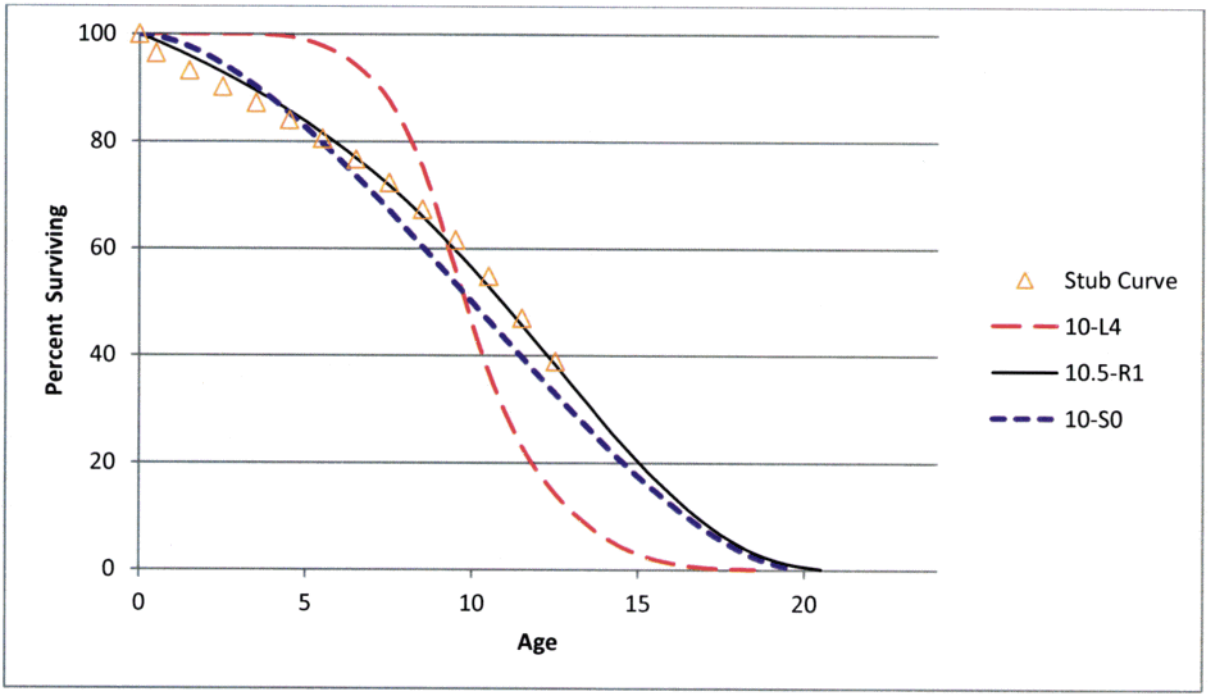
Depreciation analysts typically use the survivor curve rather than the frequency curve to fit the observed stub curves. The most commonly used generalized survivor curves used in the

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."[74]

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 from Figure 13 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.

[74] Wolf *supra* n. 6, at 46 (22 curves includes Winfrey's 18 original curves plus Cowles's four "O" type curves).

Figure 20:
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.[75]

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."[76]

In Figure 16 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 figure 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 figure 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.

---

[75] Wolf *supra* n. 6, at 47.

[76] *Id.* at 48.

Figure 21:
Mathematical Fitting

Age Interval	Stub Curve	Iowa Curves			Squared Differences		
		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 — 08/2016 – 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 — 02/2012 – Present
Assistant General Counsel — 02/2011 – 01/2012
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 — 09/2009 – 01/2011
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 — 08/2007 – 08/2009
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 – Vice President — 2016 – 2017
Participate in management of operations, attend meetings, review performance, organize presentation agenda.

Society of Utility Regulatory Financial Analysts — 2014 – Present

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.

Energy Management Institute — Houston, TX
"Fundamentals of Power Trading" — 2013
Instruction and practical examples on the power market complex, as well as comprehensive training on power trading.

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.

Energy Management Institute — Houston, TX
"Introduction to Energy Trading and Hedging" — 2012
Instruction in energy trading and hedging, including examination of various trading instruments and techniques.

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.

EXPERIENCE IN REGULATORY PROCEEDINGS

1. **CenterPoint Energy Resources, 2016** (Texas) – Filing testimony on cost of capital; filing testimony on depreciation rates.

2. **Oklahoma Gas and Electric Company, 2016** (Arkansas, Docket No. 16-052-U) – (Arkansas rate case) Filing testimony on cost of capital; filing testimony on depreciation rates.

3. **Peoples Gas System, 2016** (Florida, Docket No. 160-159-GU) – Filed report on depreciation rates.

4. **Arizona Public Service Company, 2016** (Arizona, Docket No. E-01345A-16-0036) – Filing testimony on depreciation rates.

5. **Sierra Pacific Power Company, 2016** (Nevada, Docket No. 16-06008) – Testified on depreciation rates.

6. **Oklahoma Gas and Electric Company, 2016** (Oklahoma, Docket No. PUD 15-273) – Testified on cost of capital and depreciation rates.

7. **Public Service Company of Oklahoma, 2015** (Oklahoma, Docket No. PUD 15-208) – Testified on cost of capital and depreciation rates.

8. **Oklahoma Natural Gas Company, 2015** (Oklahoma, Docket No. PUD 15-213) – Testified on cost of capital and depreciation rates.

9. **Oak Hills Water System, Inc.** (Oklahoma, Docket No. PUD 15-123) – Testified on cost of capital and depreciation rates.

10. **CenterPoint Energy Oklahoma Gas, 2014** (Oklahoma, Docket No. PUD 14-227) – Testified on prudence of fuel-related costs and process in annual fuel audit and prudence review.

11. **Public Service Company of Oklahoma, 2014** (Oklahoma, Docket No. PUD 14-233) – Testified on PSO's application for a certificate of authority to issue new debt securities.

12. **Empire District Electric Company, 2014** (Oklahoma, Docket No. PUD 14-226) – Testified on prudence of fuel-related costs and process in annual fuel audit and prudence review.

13. **Fort Cobb Fuel Authority, 2014** (Oklahoma, Docket No. PUD 14-219) – Testified on prudence of fuel-related costs and process in annual fuel audit and prudence review.

14. **Fort Cobb Fuel Authority, 2014** (Oklahoma, Docket No. PUD 14-140) – Testified in FCFA's application for a rate increase on outside services, legislative advocacy, miscellaneous taxes, payroll expense and taxes, employee insurance expense, and insurance expense.

15. **Public Service Company of Oklahoma, 2013** (Oklahoma, Docket No. PUD 13-217) – Lead auditor of PSO's application for a rate increase. Provided additional research support for cost of capital issue. Assisted in coordination of PUD staff analysts and issues.

16. **Public Service Company of Oklahoma, 2013** (Oklahoma, Docket No. PUD 13-201) – Testified in PSO's application for authorization of a standby and supplemental service tariff.

17. **Fort Cobb Fuel Authority, 2013** (Oklahoma, Docket No. PUD 13-134) – Testified on prudence of fuel-related costs and process in annual fuel audit and prudence review.

18. **Empire District Electric Company, 2013** (Oklahoma, Docket No. PUD 13-131) – Testified on prudence of fuel-related costs and process in annual fuel audit and prudence review.

19. **CenterPoint Energy Oklahoma Gas, 2013** (Oklahoma, Docket No. PUD 13-127) – Testified on prudence of fuel-related costs and process in annual fuel audit and prudence review.

20. **Oklahoma Gas & Electric Company, 2012** (Oklahoma, Docket No. PUD 12-185) – Testified in OG&E's application for extension of a gas transportation contract.

21. **Empire District Electric Company, 2012** (Oklahoma, Docket No. PUD 12-170) – Testified on prudence of fuel-related costs and process in annual fuel audit and prudence review.

22. **Oklahoma Gas & Electric Company, 2012** (Oklahoma, Docket No. PUD 12-169) – Testified on prudence of fuel-related costs and process in annual fuel audit and prudence review.

Summary Accrual Adjustment

Exhibit DG 2-2

Summary Depreciation Accrual Comparison

Plant Function	Original Cost 12/31/2015	APS Proposed Accrual	EFCA Proposed Accrual	EFCA Adjustment
Production	$ 7,083,506,331	$ 260,637,960	$ 228,843,970	$ (31,793,991)
Transmission	2,448,884,449	49,828,765	49,746,863	(81,902)
Distribution	5,540,635,406	135,036,574	122,262,029	(12,774,545)
General	714,596,494	44,318,029	43,037,840	(1,280,189)
General (Not Studied)	792,828,220	60,297,649	60,297,649	-
Total	$ 16,580,450,900	$ 550,118,977	$ 504,188,350	$ (45,930,627)

EFCA Proposed accruals from Exhibit DG 2-3

EFCA Depreciation Adjustment

Exhibit DG 2-3

	Original Cost 12-31-15	Actual Expense TME 12-31-15	12-31-15 Balance Proposed Rates	Depreciation Study Assets	Non-Studied Assets	EFCA Proposed Expense	APS Proposed Expense	EFCA Adjustment
Production:								
Steam Production	$ 1,761,040,372	$ 44,808,730	$ 48,510,114	$ 48,510,114	$ -	$ 48,510,114	$ 79,327,361	$ (30,817,246)
Steam - Land & Land Rights	5,799,508	2,135	2,135		2,135	2,135	2,135	
Steam Production - Excluded from Study		6,602						
Steam - Navajo Coal Haul - (Note 1)		(506,214)			(554,874)	(554,874)	(554,874)	
Steam - Cholla U2 Reg. Asset Amort. - (Note 2)		7,417,361			7,417,361	7,417,361	7,417,361	
Steam - Saguaro Reg. Asset Amort		2,936,533			2,936,533	2,936,533	2,936,533	
Steam - Four Corners Deferral - (Note 3)		293,673						
Steam - Four Corners Deferral Amort	-	6,688,721			6,688,721	6,688,721	6,688,721	
Steam - Four Corners Acq. Adj. Amort		10,873,443			10,873,443	10,873,443	10,873,443	
Nuclear Production	1,844,454,002	40,219,789	45,907,571	45,907,571		45,907,571	45,907,571	
Nuclear - Land	4,417,790							
Nuclear - Leased Property Amortized	106,888,589	2,257,519	2,458,865		2,458,865	2,458,865	2,458,865	
Nuclear - Decommissioning - (Note 4)		15,663,590			15,663,590	15,663,590	15,663,590	
Other Production (Gas & Oil)	3,678,095,643	46,326,431	61,838,658	61,838,658		61,838,658	61,838,658	
Other Production - Land & Land Rights	4,094,752							
Solar Units - Legacy	18,040,509	966,549	462,443	462,443		462,443	520,879	(58,436)
Solar Units - Roof Tops	60,808,263	2,025,581	2,154,240	2,154,240		2,154,240	2,267,806	(113,566)
AZ Sun Production	652,174,856	20,089,457	24,495,167	24,495,167		24,495,167	25,299,998	(804,741)
AZ Sun - Land	11,671,917							
Total Production Depreciation	7,083,506,331	200,069,853	185,819,193	184,158,198	45,485,776	229,643,970	260,647,960	(33,793,990)
Transmission:								
Transmission SCE 500 kV	72,783,707	1,056,826	1,056,826		1,056,826	1,056,826	1,056,826	
Transmission SCE 500 kV - Land & Land Rights	2,371,510	62,635	62,635		62,635	62,635	62,635	
Transmission - ACC	329,806,561	3,031,948	2,456,458	2,456,458		2,456,458	2,538,360	(81,902)
Transmission - FERC	2,315,824,970	39,805,235	42,118,744		42,118,744	42,118,744	42,118,744	
Transmission - Mead-Phoenix CIAC	(19,000,000)							
Transmission - Land & Land Rights	150,147,699	4,005,174	4,052,701		4,052,701	4,052,701	4,052,701	
Total Transmission Depreciation	2,448,884,449	47,961,819	49,746,863	2,456,458	47,290,405	49,746,863	49,828,765	(81,902)
Distribution:								
Distribution	5,186,320,149	119,087,761	107,193,137	107,193,137		107,193,137	119,967,683	(12,774,545)
Electronic Meters	17,142,728	634,383	953,135	953,135		953,135	953,135	
AMS Meters	278,220,605	10,423,175	13,272,276	13,272,276		13,272,276	13,272,276	
Distribution - Land & Land Rights	62,532,916	927,403	843,480		843,480	843,480	843,480	
Distribution - Leased Property Amortized	419,012							
Total Distribution Depreciation	5,540,635,406	125,072,682	122,262,029	121,418,549	843,480	122,262,029	135,036,574	(12,774,545)
General & Intangible (Studied):								
Structures and Improvements	178,729,946	3,788,546	4,834,736	4,834,736		4,834,736	4,834,736	
Office Furniture & Equipment Amortized	99,067,179	2,799,354	2,941,473	2,941,473		2,941,473	2,941,473	
Computer Equipment	169,141,948	16,886,142	21,785,482	21,785,482		21,785,482	21,785,482	
Stores Equipment Amortized	242,516	29,697	12,126	12,126		12,126	12,126	
Tools Amortized	37,140,670	1,537,981	1,852,721	1,852,721		1,852,721	1,852,721	
Laboratory Equipment Amortized	810,561	41,561	40,422	40,422		40,422	40,422	
Communication Equipment	251,017,440	12,640,116	10,843,953	10,843,953		10,843,953	12,124,142	(1,280,189)
Miscellaneous Equipment Amortized	17,446,236	816,323	726,926	726,926		726,926	726,926	
Total General & Intangible (Studied)	714,596,494	38,339,720	44,037,840	43,037,840		43,037,840	44,318,029	(1,280,189)
Total Studied	15,787,622,680	411,474,073	800,865,925	350,271,040	93,619,661	443,990,701	489,831,327	(45,930,626)
General & Intangible (Not Studied):								
General - Land	14,600,073	-		-				
Franchises	3,516,990	140,225	140,130		140,130	140,130	140,130	
Intangible Amortization	688,013,046	57,429,383	57,924,362		57,924,361	57,924,361	57,924,361	
Structures and Improvements - Leased Property	36,391,035	903,994	838,828		838,828	838,828	838,828	
Transportation Equipment	40,843,127	3,644,307	3,157,540		3,157,540	3,157,540	3,157,540	
Power Operated Equipment	10,351,198	317,916	316,304		316,304	316,304	316,304	
Communication Equipment - Leased Property	266,116	16,987	16,987		16,987	16,987	16,987	
Communication Equipment - SCE	1,162,495	37,781	37,781		37,781	37,781	37,781	
ARO Assets	(2,138,857)	0						
Steam - Four Corners ARO Amortization - (Note 5)		3,084,696						
Clearing From 4030 - (Note 6)		(2,868,972)			(2,334,283)	(2,334,283)	(2,334,283)	
Total General & Intangible (Not Studied)	792,828,220	62,706,316	62,433,931		60,297,649	60,297,649	60,297,649	
Total	$ 16,580,450,900	$ 474,130,389	$ 863,299,856	$ 350,271,040	$ 153,917,310	$ 504,188,350	$ 550,128,976	$ (45,930,626)

Detailed Rate Comparison

Account No.	Description	[1] Original Cost	[2] APS Proposal Rate	[2] APS Proposal Annual Accrual	[3] EFCA Proposal Rate	[3] EFCA Proposal Annual Accrual	[4] Difference Rate	[4] Difference Annual Accrual
	Steam Production							
311.00	Structures and Improvements							
	Cholla Unit 1	4,743,207	5.80%	275,106	3.77%	178,818	-2.03%	(96,288)
	Cholla Unit 3	13,288,725	7.48%	993,996	2.29%	304,312	-5.19%	(689,684)
	Cholla Common	59,706,059	7.71%	4,603,338	3.09%	1,844,917	-4.62%	(2,758,421)
	Four Corners Units 4-5	38,507,966	2.06%	793,264	1.67%	642,574	-0.39%	(150,690)
	Four Corners Common	16,059,266	3.97%	637,553	4.23%	679,199	0.26%	41,646
	Navajo Units 1-3	32,849,766	3.98%	1,307,421	3.99%	1,310,891	0.01%	3,470
	Ocotillo Units 1-2	4,804,518	12.93%	621,224	6.26%	300,633	-6.67%	(320,591)
	Total Structures and Improvements	169,959,507	5.43%	9,231,902	3.10%	5,261,344	-2.34%	(3,970,558)
312.00	Boiler Plant Equipment							
	Cholla Unit 1	80,244,501	6.69%	5,368,357	4.48%	3,594,954	-2.21%	(1,773,403)
	Cholla Unit 3	238,165,292	7.83%	18,648,342	3.65%	8,693,033	-4.18%	(9,955,309)
	Cholla Common	60,085,479	7.87%	4,728,727	3.57%	2,145,052	-4.30%	(2,583,675)
	Four Corners Units 4-5	546,025,397	1.64%	8,954,817	1.43%	7,833,515	-0.21%	(1,121,302)
	Four Corners Common	35,487,771	3.88%	1,376,925	3.58%	1,269,327	-0.30%	(107,598)
	Navajo Units 1-3	171,354,162	3.71%	6,357,240	3.51%	6,022,219	-0.20%	(335,021)
	Ocotillo Units 1-2	25,219,018	10.86%	2,738,786	3.66%	924,219	-7.20%	(1,814,567)
	Total Boiler Plant Equipment	1,156,581,620	4.17%	48,173,194	2.64%	30,482,319	-1.53%	(17,690,875)
314.00	Turbogenerator Units							
	Cholla Unit 1	27,503,716	6.95%	1,911,509	4.83%	1,328,430	-2.12%	(583,079)
	Cholla Unit 3	56,834,120	7.11%	4,040,906	3.19%	1,813,008	-3.92%	(2,227,898)
	Cholla Common	1,775,980	9.13%	162,147	2.80%	49,728	-6.33%	(112,419)
	Four Corners Units 4-5	80,391,368	1.85%	1,487,240	1.32%	1,060,090	-0.53%	(427,150)
	Four Corners Common	3,435,753	3.14%	107,883	2.69%	92,538	-0.45%	(15,345)
	Navajo Units 1-3	25,206,593	2.87%	723,429	2.68%	675,670	-0.19%	(47,759)
	Ocotillo Units 1-2	17,146,984	12.13%	2,079,929	5.66%	970,453	-6.47%	(1,109,476)
	Total Turbogenerator Units	212,294,514	4.95%	10,513,043	2.82%	5,989,917	-2.13%	(4,523,126)

Detailed Rate Comparison

Account No.	Description	[1] Original Cost	[2] APS Proposal Rate	[2] APS Proposal Annual Accrual	[3] EFCA Proposal Rate	[3] EFCA Proposal Annual Accrual	[4] Difference Rate	[4] Difference Annual Accrual
315.00	Accessory Electric Equipment							
	Cholla Unit 1	9,492,908	5.96%	565,777	3.84%	364,528	-2.12%	(201,249)
	Cholla Unit 3	34,832,937	6.41%	2,232,791	2.28%	794,191	-4.13%	(1,438,600)
	Cholla Common	7,987,689	7.76%	619,845	3.14%	250,814	-4.62%	(369,031)
	Four Corners Units 4-5	35,325,258	2.53%	893,729	1.62%	572,475	-0.91%	(321,254)
	Four Corners Common	12,251,933	4.29%	525,608	4.15%	508,161	-0.14%	(17,447)
	Navajo Units 1-3	22,361,468	3.23%	722,275	3.08%	688,511	-0.15%	(33,764)
	Ocotillo Units 1-2	4,894,907	15.44%	755,773	10.29%	503,794	-5.15%	(251,979)
	Total Accessory Electric Equipment	127,147,100	4.97%	6,315,798	2.90%	3,682,473	-2.07%	(2,633,325)
316.00	Miscellaneous Power Plant Equipment							
	Cholla Unit 1	2,926,476	5.60%	163,883	3.64%	106,523	-1.96%	(57,360)
	Cholla Unit 3	6,842,283	7.76%	530,961	2.63%	179,952	-5.13%	(351,009)
	Cholla Common	14,067,234	8.48%	1,192,902	3.38%	475,473	-5.10%	(717,429)
	Four Corners Units 4-5	32,289,311	2.42%	781,401	1.25%	403,463	-1.17%	(377,938)
	Four Corners Common	12,665,945	3.37%	426,842	2.99%	378,619	-0.38%	(48,223)
	Navajo Units 1-3	19,203,553	4.48%	860,319	4.49%	862,658	0.01%	2,339
	Ocotillo Units 1-2	7,062,830	16.10%	1,137,116	10.18%	719,265	-5.92%	(417,851)
	Total Miscellaneous Power Plant Equipment	95,057,632	5.36%	5,093,424	3.29%	3,125,952	-2.07%	(1,967,472)
	Total Steam Production Plant	1,761,040,373	4.50%	79,327,361	2.76%	48,542,006	-1.75%	(30,785,355)
	Nuclear Production							
321.00	Structures and Improvements							
	Palo Verde Unit 1	160,238,922	1.15%	1,842,748	1.15%	1,842,748	0.00%	-
	Palo Verde Unit 2	92,055,736	1.23%	1,132,286	1.23%	1,132,286	0.00%	-
	Palo Verde Unit 3	165,218,693	1.24%	2,048,712	1.24%	2,048,712	0.00%	-
	Palo Verde Water Reclamation	210,244,404	2.29%	4,814,597	2.29%	4,814,597	0.00%	-
	Palo Verde Common	172,546,205	1.96%	3,381,905	1.96%	3,381,905	0.00%	-
	Total Structures and Improvements	800,303,960	1.65%	13,220,248	1.65%	13,220,248	0.00%	-

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322.00	Reactor Plant Equipment							
	Palo Verde Unit 1	464,794,795	1.47%	6,832,484	1.47%	6,832,484	0.00%	-
	Palo Verde Unit 2	249,302,485	1.71%	4,263,072	1.71%	4,263,072	0.00%	-
	Palo Verde Unit 3	427,193,012	1.66%	7,091,404	1.66%	7,091,404	0.00%	-
	Palo Verde Water Reclamation	561,290	3.02%	16,951	3.02%	16,951	0.00%	-
	Palo Verde Common	35,589,315	2.01%	715,345	2.01%	715,345	0.00%	-
	Total Reactor Plant Equipment	1,177,440,897	1.61%	18,919,256	1.61%	18,919,256	0.00%	-
323.00	Turbogenerator Units							
	Palo Verde Unit 1	133,635,855	1.62%	2,164,901	1.62%	2,164,901	0.00%	-
	Palo Verde Unit 2	87,999,272	1.79%	1,575,187	1.79%	1,575,187	0.00%	-
	Palo Verde Unit 3	152,558,297	1.60%	2,440,933	1.60%	2,440,933	0.00%	-
	Palo Verde Water Reclamation	217,756	1.88%	4,094	1.88%	4,094	0.00%	-
	Palo Verde Common	4,491,434	2.79%	125,311	2.79%	125,311	0.00%	-
	Total Turbogenerator Units	378,902,614	1.67%	6,310,426	1.67%	6,310,426	0.00%	-
324.00	Accessory Electric Equipment							
	Palo Verde Unit 1	117,924,193	1.16%	1,367,920	1.16%	1,367,920	0.00%	-
	Palo Verde Unit 2	47,992,891	1.31%	628,707	1.31%	628,707	0.00%	-
	Palo Verde Unit 3	94,317,583	1.32%	1,244,993	1.32%	1,244,993	0.00%	-
	Palo Verde Water Reclamation							
	Palo Verde Common	26,706,829	1.79%	478,052	1.79%	478,052	0.00%	-
	Total Accessory Electric Equipment	286,941,496	1.30%	3,719,672	1.30%	3,719,672	0.00%	-
325.00	Miscellaneous Power Plant Equipment							
	Palo Verde Unit 1	31,243,002	1.33%	415,532	1.33%	415,532	0.00%	-
	Palo Verde Unit 2	27,285,762	1.48%	403,830	1.48%	403,830	0.00%	-
	Palo Verde Unit 3	28,965,542	1.44%	417,104	1.44%	417,104	0.00%	-
	Palo Verde Water Reclamation	165,219	2.38%	3,932	2.38%	3,932	0.00%	-
	Palo Verde Common	103,205,509	2.42%	2,497,574	2.42%	2,497,574	0.00%	-
	Total Miscellaneous Power Plant Equipment	190,865,034	1.96%	3,737,972	1.96%	3,737,972	0.00%	-

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	Total Nuclear Production	2,834,454,001	1.62%	45,907,574	1.62%	45,907,574	0.00%	-
	Other Production							
341.00	Structures and Improvements							
	Douglas CT	103,952	16.94%	17,609	16.94%	17,609	0.00%	-
	Ocotillo CT Units 1-2	1,953,223	5.98%	116,802	5.98%	116,802	0.00%	-
	Redhawk CC Units 1-2	23,674,859	4.20%	994,344	4.20%	994,344	0.00%	-
	Saguaro CT Units 1-2	3,173,028	4.61%	146,276	4.61%	146,276	0.00%	-
	Saguaro CT Unit 3							
	Sundance	13,336,561	2.72%	362,754	2.72%	362,754	0.00%	-
	West Phoenix CC Units 1-3	963,966	4.22%	40,680	4.22%	40,680	0.00%	-
	West Phoenix CC Unit 4	4,683,180	3.47%	162,506	3.47%	162,506	0.00%	-
	West Phoenix CC Unit 5	11,935,671	3.66%	436,845	3.66%	436,845	0.00%	-
	West Phoenix CT Units 1-2	4,040,996	6.51%	263,069	6.51%	263,069	0.00%	-
	West Phoenix Common	12,629,586	2.68%	338,473	2.68%	338,473	0.00%	-
	Yucca CT Units 1-4	5,185,290	5.30%	274,820	5.30%	274,820	0.00%	-
	Yucca CT Units 5-6	1,070,429	3.46%	37,037	3.46%	37,037	0.00%	-
	Total Structures and Improvements	82,750,741	3.86%	3,191,215	3.86%	3,191,215	0.00%	-
342.00	Fuel Holders, Producers and Accessories							
	Douglas CT	137,759	25.17%	34,674	25.17%	34,674	0.00%	-
	Ocotillo CT Units 1-2	1,107,461	3.91%	43,302	3.91%	43,302	0.00%	-
	Redhawk CC Units 1-2	11,611,849	4.60%	534,145	4.60%	534,145	0.00%	-
	Saguaro CT Units 1-2	1,642,488	2.29%	37,613	2.29%	37,613	0.00%	-
	Saguaro CT Unit 3							
	Sundance	4,629,010	2.57%	118,966	2.57%	118,966	0.00%	-
	West Phoenix CC Units 1-3	24,667,947	4.14%	1,021,253	4.14%	1,021,253	0.00%	-
	West Phoenix CC Unit 4	4,135,109	3.37%	139,353	3.37%	139,353	0.00%	-
	West Phoenix CC Unit 5							
	West Phoenix CT Units 1-2	1,859,577	3.53%	65,643	3.53%	65,643	0.00%	-
	West Phoenix Common							
	Yucca CT Units 1-4	3,934,860	1.50%	59,023	1.50%	59,023	0.00%	-

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	Yucca CT Units 5-6	1,495,227	3.16%	47,249	3.16%	47,249	0.00%	-
	Total Fuel Holders, Producers and Accessories	55,221,287	3.81%	2,101,221	3.81%	2,101,221	0.00%	-
343.00	Prime Movers							
	Douglas CT	3,721,569	2.20%	81,874	2.20%	81,874	0.00%	-
	Ocotillo CT Units 1-2	21,989,611	6.11%	1,343,565	6.11%	1,343,565	0.00%	-
	Redhawk CC Units 1-2	132,566,124	4.23%	5,607,547	4.23%	5,607,547	0.00%	-
	Saguaro CT Units 1-2	15,965,868	4.60%	734,430	4.60%	734,430	0.00%	-
	Saguaro CT Unit 3	1,939,305	4.19%	81,257	4.19%	81,257	0.00%	-
	Sundance	232,679,199	2.46%	5,723,908	2.46%	5,723,908	0.00%	-
	West Phoenix CC Units 1-3							
	West Phoenix CC Unit 4	49,464,010	3.23%	1,597,688	3.23%	1,597,688	0.00%	-
	West Phoenix CC Unit 5	92,946,762	3.73%	3,466,915	3.73%	3,466,915	0.00%	-
	West Phoenix CT Units 1-2	22,613,160	5.52%	1,248,246	5.52%	1,248,246	0.00%	-
	West Phoenix Common							
	Yucca CT Units 1-4	11,077,145	3.24%	358,899	3.24%	358,899	0.00%	-
	Yucca CT Units 5-6	67,699,735	3.16%	2,139,312	3.16%	2,139,312	0.00%	-
	Total Prime Movers	652,662,488	3.43%	22,383,641	3.43%	22,383,641	0.00%	-
344.00	Generators and Devices							
	Douglas CT	971,924	19.92%	193,607	19.92%	193,607	0.00%	-
	Ocotillo CT Units 1-2	14,737,836	4.98%	733,945	4.98%	733,945	0.00%	-
	Redhawk CC Units 1-2	336,601,568	4.22%	14,204,586	4.22%	14,204,586	0.00%	-
	Saguaro CT Units 1-2	4,666,538	2.87%	133,930	2.87%	133,930	0.00%	-
	Saguaro CT Unit 3	27,718,142	3.16%	875,893	3.16%	875,893	0.00%	-
	Sundance	11,764,416	4.67%	549,399	4.67%	549,399	0.00%	-
	West Phoenix CC Units 1-3	103,127,942	4.14%	4,269,497	4.14%	4,269,497	0.00%	-
	West Phoenix CC Unit 4	23,653,858	3.98%	941,424	3.98%	941,424	0.00%	-
	West Phoenix CC Unit 5	163,209,028	3.67%	5,989,771	3.67%	5,989,771	0.00%	-
	West Phoenix CT Units 1-2	10,798,722	5.09%	549,655	5.09%	549,655	0.00%	-
	West Phoenix Common							
	Yucca CT Units 1-4	10,058,652	3.57%	359,094	3.57%	359,094	0.00%	-
	Yucca CT Units 5-6	113,198	3.30%	3,735	3.30%	3,735	0.00%	-

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	Total Generators and Devices	707,421,824	4.07%	28,804,536	4.07%	28,804,536	0.00%	-
345.00	Accessory Electric Equipment							
	Douglas CT	403,765	24.63%	99,447	24.63%	99,447	0.00%	-
	Ocotillo CT Units 1-2	4,017,658	5.11%	205,303	5.11%	205,303	0.00%	-
	Redhawk CC Units 1-2	23,778,511	4.16%	989,186	4.16%	989,186	0.00%	-
	Saguaro CT Units 1-2	3,261,717	4.37%	142,537	4.37%	142,537	0.00%	-
	Saguaro CT Unit 3	122,553	3.16%	3,873	3.16%	3,873	0.00%	-
	Sundance	27,604,244	2.54%	701,148	2.54%	701,148	0.00%	-
	West Phoenix CC Units 1-3	25,144,330	5.56%	1,398,025	5.56%	1,398,025	0.00%	-
	West Phoenix CC Unit 4	453,669	4.20%	19,054	4.20%	19,054	0.00%	-
	West Phoenix CC Unit 5	13,138,590	3.71%	487,441	3.71%	487,441	0.00%	-
	West Phoenix CT Units 1-2	1,772,089	2.74%	48,556	2.74%	48,556	0.00%	-
	West Phoenix Common							
	Yucca CT Units 1-4	3,737,069	3.11%	116,223	3.11%	116,223	0.00%	-
	Yucca CT Units 5-6	817,613	3.64%	29,762	3.64%	29,762	0.00%	-
	Total Accessory Electric Equipment	104,251,808	4.07%	4,240,555	4.07%	4,240,555	0.00%	-
346.00	Miscellaneous Power Plant Equipment							
	Douglas CT	33,564	25.36%	8,512	25.36%	8,512	0.00%	-
	Ocotillo CT Units 1-2	990,572	4.38%	43,387	4.38%	43,387	0.00%	-
	Redhawk CC Units 1-2	6,538,111	4.61%	301,407	4.61%	301,407	0.00%	-
	Saguaro CT Units 1-2	892,062	2.36%	21,052	2.36%	21,052	0.00%	-
	Saguaro CT Unit 3							
	Sundance	2,565,605	3.00%	76,968	3.00%	76,968	0.00%	-
	West Phoenix CC Units 1-3	6,536,270	5.05%	330,081	5.05%	330,081	0.00%	-
	West Phoenix CC Unit 4	709,405	4.72%	33,484	4.72%	33,484	0.00%	-
	West Phoenix CC Unit 5	4,353,879	4.34%	188,959	4.34%	188,959	0.00%	-
	West Phoenix CT Units 1-2	1,026,473	3.78%	38,801	3.78%	38,801	0.00%	-
	West Phoenix Common							
	Yucca CT Units 1-4	1,328,508	2.50%	33,212	2.50%	33,212	0.00%	-
	Yucca CT Units 5-6	813,044	3.89%	31,628	3.89%	31,628	0.00%	-

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	Total Miscellaneous Power Plant Equipment	25,787,493	4.29%	1,107,491	4.29%	1,107,491	0.00%	-
	Total Other Production	1,628,095,641	3.80%	61,828,659	3.80%	61,828,659	0.00%	-
	Solar Production							
341.00	Structures and Improvements							
	Chino Valley	527,889	3.79%	20,007	3.73%	19,702	-0.06%	(305)
	Cotton Center	1,813,500	3.76%	68,187	3.69%	66,976	-0.07%	(1,211)
	Desert Star	1,572,235	5.03%	79,084	4.84%	76,039	-0.19%	(3,045)
	Foothills Units 1-2	10,906,684	3.78%	412,273	3.68%	401,738	-0.10%	(10,535)
	Gila Bend	5,018,097	3.82%	191,691	3.66%	183,862	-0.16%	(7,829)
	Hyder Units 1-2	6,915,232	3.67%	253,789	3.65%	252,251	-0.02%	(1,538)
	Legacy Units	325,971	1.34%	4,368	0.43%	1,399	-0.91%	(2,969)
	Luke AFB	1,566,281	5.05%	79,097	4.87%	76,254	-0.18%	(2,843)
	Roof Tops	1,582,181	3.71%	58,699	3.68%	58,189	-0.03%	(510)
	Paloma	2,281,950	3.82%	87,171	3.70%	84,463	-0.12%	(2,708)
	Total Structures and Improvements	32,510,020	3.86%	1,254,366	3.76%	1,220,875	-0.10%	(33,491)
344.00	Generators and Devices							
	Chino Valley	77,719,075	3.79%	2,945,553	3.67%	2,852,415	-0.12%	(93,138)
	Cotton Center	61,593,054	3.76%	2,315,899	3.66%	2,251,864	-0.10%	(64,035)
	Desert Star	25,365,040	5.03%	1,275,861	4.82%	1,222,432	-0.21%	(53,429)
	Foothills Units 1-2	105,443,248	3.78%	3,985,755	3.64%	3,836,632	-0.14%	(149,123)
	Gila Bend	89,246,612	3.82%	3,409,221	3.66%	3,269,859	-0.16%	(139,362)
	Hyder Units 1-2	93,250,197	3.66%	3,412,957	3.58%	3,338,957	-0.08%	(74,000)
	Legacy Units	10,113,649	3.52%	356,001	3.05%	308,270	-0.47%	(47,731)
	Luke AFB	24,574,551	5.05%	1,241,015	4.85%	1,192,243	-0.20%	(48,772)
	Roof Tops	51,531,113	3.73%	1,922,111	3.53%	1,819,801	-0.20%	(102,310)
	Paloma	49,000,026	3.82%	1,871,801	3.69%	1,805,814	-0.13%	(65,987)
	Total Generators and Devices	587,836,565	3.87%	22,736,174	3.73%	21,898,287	-0.14%	(837,887)
345.00	Accessory Electric Equipment							

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	Chino Valley	6,511,775	3.79%	246,797	3.73%	243,039	-0.06%	(3,758)
	Cotton Center	15,418,050	3.76%	579,718	3.69%	568,207	-0.07%	(11,511)
	Desert Star	3,579,659	5.03%	180,057	4.84%	173,125	-0.19%	(6,932)
	Foothills Units 1-2	20,815,540	3.78%	786,828	3.68%	766,509	-0.10%	(20,319)
	Gila Bend	11,096,944	3.82%	423,903	3.66%	406,575	-0.16%	(17,328)
	Hyder Units 1-2	22,556,482	3.64%	821,056	3.60%	812,289	-0.04%	(8,767)
	Legacy Units	3,606,980	4.45%	160,510	4.23%	152,465	-0.22%	(8,045)
	Luke AFB	1,330,175	5.05%	67,174	4.87%	64,760	-0.18%	(2,414)
	Roof Tops	7,714,968	3.72%	286,997	3.59%	276,707	-0.13%	(10,290)
	Paloma	12,514,947	3.82%	478,071	3.70%	463,157	-0.12%	(14,914)
	Total Accessory Electric Equipment	105,145,520	3.83%	4,031,111	3.73%	3,926,834	-0.10%	(104,277)
346.00	Miscellaneous Power Plant Equipment							
	Chino Valley	216,504	3.79%	8,206	3.73%	8,081	-0.06%	(125)
	Cotton Center	262,641	3.76%	9,875	3.69%	9,689	-0.07%	(186)
	Desert Star	293,963	5.03%	14,787	4.84%	14,217	-0.19%	(570)
	Foothills Units 1-2	57,708	3.78%	2,181	3.68%	2,121	-0.10%	(60)
	Gila Bend	21,142	3.82%	808	3.66%	775	-0.16%	(33)
	Hyder Units 1-2	206,389	3.57%	7,369	3.56%	7,348	-0.01%	(21)
	Legacy Units							
	Luke AFB	377,821	5.05%	19,080	4.87%	18,394	-0.18%	(686)
	Roof Tops							
	Paloma	121,486	3.82%	4,640	3.71%	4,503	-0.11%	(137)
	Total Miscellaneous Power Plant Equipment	1,557,654	4.30%	66,946	4.18%	65,128	-0.12%	(1,818)
	Total Solar Production	727,049,759	3.86%	28,088,597	3.73%	27,111,124	-0.13%	(977,473)
	Transmission Plant							
352.02	Structures and Improvements	151,995	2.51%	3,815	0.13%	191	-2.38%	(3,624)
353.00	Station Equipment	122,007,490	2.00%	2,440,150	1.95%	2,378,798	-0.05%	(61,352)
354.00	Towers and Fixtures	1,329,316	1.78%	23,662	1.50%	19,929	-0.28%	(3,733)
355.00	Poles and Fixtures	1,370,085	2.22%	30,416	1.60%	21,913	-0.62%	(8,503)

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356.00	Overhead Conductors and Devices	1,947,677	2.07%	40,317	1.81%	35,319	-0.26%	(4,998)
	Total Transmission Plant	126,806,563	2.00%	2,538,360	1.94%	2,456,149	-0.06%	(82,211)
	Distribution Plant							
361.00	Structures and Improvements	82,271,151	1.70%	1,398,610	1.39%	1,142,303	-0.31%	(256,307)
362.00	Station Equipment	494,771,283	2.33%	11,528,171	2.33%	11,528,171	0.00%	-
363.00	Storage Battery Equipment	2,123,630	9.26%	196,648	9.26%	196,648	0.00%	-
364.01	Poles, Towers and Fixtures - Wood	332,284,839	2.57%	8,539,721	2.57%	8,539,721	0.00%	-
364.02	Poles, Towers and Fixtures - Steel	260,823,751	2.16%	5,633,793	1.92%	4,997,452	-0.24%	(636,341)
365.00	Overhead Conductors and Devices	355,117,540	2.38%	8,451,797	2.38%	8,451,797	0.00%	-
366.00	Underground Conduit	685,513,670	1.78%	12,202,143	1.49%	10,223,603	-0.29%	(1,978,540)
367.00	Underground Conductors and Devices	1,646,381,070	2.62%	43,135,184	2.25%	36,993,326	-0.37%	(6,141,858)
368.00	Transformers	833,275,690	1.81%	15,082,290	1.81%	15,082,290	0.00%	-
369.00	Services	375,644,741	3.02%	11,344,471	2.15%	8,067,866	-0.87%	(3,276,605)
370.01	Meters - Electronic	17,142,724	5.56%	953,135	5.56%	953,135	0.00%	-
370.03	Meters - AMI	274,220,605	4.84%	13,272,277	4.84%	13,272,277	0.00%	-
371.00	Installations on Customer Premises	43,510,997	2.47%	1,074,721	2.21%	959,813	-0.26%	(114,908)
373.00	Street Lighting and Signal Systems	74,601,787	1.85%	1,380,133	1.27%	945,753	-0.58%	(434,380)
	Total Distribution Plant	5,477,683,478	2.45%	134,193,094	2.22%	121,354,154	-0.23%	(12,838,940)
	General Plant							
390.00	Structures and Improvements	179,729,946	2.69%	4,834,736	2.69%	4,834,736	0.00%	-
391.00	Office Furniture and Equipment - Furniture	59,067,179	4.98%	2,941,473	4.98%	2,941,473	0.00%	-
391.10	Office Furniture and Equipment - Computers	169,141,944	12.88%	21,785,482	12.88%	21,785,482	0.00%	-
393.00	Stores Equipment	242,516	5.00%	12,126	5.00%	12,126	0.00%	-
394.00	Tools, Shop and Garage Equipment	37,140,670	4.99%	1,852,721	4.99%	1,852,721	0.00%	-
395.00	Laboratory Equipment	810,563	4.99%	40,422	4.99%	40,422	0.00%	-
397.00	Communication Equipment	251,017,440	4.83%	12,124,142	4.32%	10,841,480	-0.51%	(1,282,662)
398.00	Miscellaneous Equipment	17,446,236	4.17%	726,927	4.17%	726,927	0.00%	-

Detailed Rate Comparison

Account No.	Description	[1] Original Cost	[2] APS Proposal Rate	[2] APS Proposal Annual Accrual	[3] EFCA Proposal Rate	[3] EFCA Proposal Annual Accrual	[4] Difference Rate	[4] Difference Annual Accrual
	Total General Plant	714,596,494	6.20%	44,318,029	6.02%	43,035,367	-0.18%	(1,282,662)
	TOTAL PLANT STUDIED	**13,269,726,309**	**2.99%**	**396,201,674**	**2.64%**	**350,235,033**	**-0.35%**	**(45,966,641)**

[1] OG&E Depreciation Study pp. VI-4 - VI-11
[2] Attachement to OG&E's response to Data Request DJG 2-6
[3] Rates and Accruals from DG 2-4
[4] = [3] - [2]

Depreciation Rate Development
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Exhibit DG 2-5
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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
	Steam Production														
311.00	Structures and Improvements														
	Cholla Unit 1	4,743,207			-6.3%	5,047,925	2,600,487	2,447,438	10.2	200,754	4.23%	(23,436)	-0.49%	178,818	**3.77%**
	Cholla Unit 3	13,288,725			-5.3%	13,991,584	4,481,615	9,509,969	15.4	570,909	4.29%	(266,097)	-2.00%	304,312	**2.29%**
	Cholla Common	59,706,059			-5.6%	63,075,823	22,611,732	40,414,091	15.5	2,391,619	9.01%	(546,722)	-0.92%	1,844,917	**3.09%**
	Four Corners Units 4-5	38,507,966			-12.6%	43,356,810	29,322,995	14,033,816	21.8	870,557	3.09%	222,017	0.58%	642,574	**1.67%**
	Four Corners Common	16,059,366			-7.2%	17,216,491	2,469,209	14,847,282	21.9	676,203	3.90%	52,918	0.33%	679,199	**4.23%**
	Navajo Units 1-3	32,849,766			-4.8%	34,501,232	20,520,441	13,580,830	10.4	1,190,089	4.62%	170,802	0.37%	1,110,891	**3.99%**
	Ocotillo Units 1-2	4,804,518			-16.0%	5,574,223	4,293,626	1,280,599	4.3	119,951	2.50%	180,687	3.76%	300,638	**6.26%**
	Total Structures and Improvements	169,959,507			-7.8%	182,300,129	86,200,008	96,109,125	18.1	5,519,161	4.25%	(257,817)	-0.15%	5,261,344	**3.10%**
312.00	Boiler Plant Equipment														
	Cholla Unit 1	80,344,501			-6.7%	85,597,603	37,762,684	47,834,919	11.5	3,690,867	4.60%	(95,908)	-0.12%	3,594,954	**4.48%**
	Cholla Unit 3	218,165,792			-5.6%	751,596,913	77,712,334	173,884,599	17.0	9,432,862	4.96%	(739,829)	-0.11%	8,693,033	**3.65%**
	Cholla Common	60,085,479			-5.9%	63,637,313	20,199,511	43,437,802	16.9	2,357,327	3.92%	(212,275)	-0.35%	2,145,052	**3.57%**
	Four Corners Units 4-5	146,035,397			-13.5%	639,582,653	448,577,011	191,005,641	21.8	4,463,966	3.83%	3,369,549	0.62%	7,833,515	**1.43%**
	Four Corners Common	35,487,771			-8.1%	38,348,762	10,613,981	27,734,800	21.9	1,118,389	3.21%	130,938	0.37%	1,249,327	**3.58%**
	Navajo Units 1-3	171,354,162			-4.3%	178,567,640	116,237,975	62,329,965	10.4	5,325,264	3.11%	696,954	0.41%	6,022,219	**3.51%**
	Ocotillo Units 1-2	25,219,018			-16.1%	29,279,589	25,499,534	3,780,054	4.1	(68,586)	-0.27%	992,805	3.94%	924,219	**3.66%**
	Total Boiler Plant Equipment	1,856,581,620			-9.5%	1,396,610,472	736,602,691	530,007,781	17.8	16,340,084	2.78%	9,142,235	0.36%	30,487,319	**2.64%**
314.00	Turbogenerator Units														
	Cholla Unit 1	27,503,716			-6.6%	29,306,045	10,814,768	18,491,276	11.9	1,400,079	5.09%	(71,649)	-0.26%	1,328,430	**4.83%**
	Cholla Unit 3	56,834,120			-5.5%	59,971,922	21,817,285	38,154,637	17.8	1,851,757	3.26%	(38,749)	-0.07%	1,813,008	**3.19%**
	Cholla Common	1,775,940			-5.8%	1,878,854	866,179	1,012,674	18.2	77,419	4.36%	(27,691)	-1.56%	49,728	**2.80%**
	Four Corners Units 4-5	80,393,368			-11.2%	89,984,889	67,843,103	23,141,786	21.8	574,817	0.72%	485,274	0.60%	1,060,090	**1.32%**
	Four Corners Common	3,435,753			-7.4%	3,703,611	1,682,590	2,021,025	21.9	80,273	2.34%	12,265	0.36%	92,538	**2.69%**
	Navajo Units 1-3	25,206,543			-4.1%	26,236,972	19,242,787	6,993,185	10.4	576,233	2.29%	99,457	0.39%	675,670	**2.68%**
	Ocotillo Units 1-2	17,146,984			-16.1%	19,903,114	15,033,580	4,869,993	4.4	344,060	2.01%	626,391	3.65%	970,451	**5.66%**
	Total Turbogenerator Units	212,794,514			-9.4%	231,986,405	139,399,848	92,586,557	15.5	4,904,638	2.31%	1,085,298	0.51%	5,989,917	**2.82%**
315.00	Accessory Electric Equipment														
	Cholla Unit 1	9,492,908			-6.4%	10,104,095	5,087,328	5,016,768	12.3	364,399	3.84%	129	0.00%	364,528	**3.84%**
	Cholla Unit 3	34,832,927			-5.4%	36,717,560	18,984,562	17,732,998	18.3	866,979	2.49%	(72,288)	-0.21%	794,191	**2.28%**
	Cholla Common	7,987,689			-5.7%	8,441,216	2,668,165	5,773,072	18.5	287,380	4.60%	(36,572)	-0.46%	250,814	**3.14%**
	Four Corners Units 4-5	35,325,258			-12.9%	39,877,446	27,374,496	12,502,950	21.8	364,046	1.03%	208,429	0.59%	572,475	**1.62%**
	Four Corners Common	12,251,933			-7.5%	13,169,411	2,061,520	11,108,391	21.9	466,390	3.81%	41,971	0.34%	508,361	**4.15%**
	Navajo Units 1-3	22,361,468			-4.9%	23,443,879	16,317,792	7,126,087	10.4	603,254	2.70%	85,257	0.38%	688,511	**3.08%**
	Ocotillo Units 1-2	4,894,907			-16.0%	5,680,395	3,398,542	2,281,853	4.5	327,380	6.69%	176,314	3.61%	503,794	**10.29%**
	Total Accessory Electric Equipment	127,147,100			-7.9%	137,233,924	75,731,875	61,502,049	16.7	4,279,534	2.58%	802,940	0.32%	3,682,473	**2.90%**
316.00	Miscellaneous Power Plant Equipment														
	Cholla Unit 1	2,926,476			-6.6%	3,118,455	1,768,861	1,349,691	13.9	97,377	3.33%	9,146	0.31%	106,523	**3.64%**
	Cholla Unit 3	6,642,284			-5.5%	7,010,318	2,484,996	4,735,322	18.7	239,939	3.61%	(59,987)	-0.88%	179,952	**2.63%**
	Cholla Common	14,067,234			-5.8%	14,882,046	2,572,312	12,309,934	18.3	629,525	4.48%	(154,052)	-1.10%	475,473	**3.38%**
	Four Corners Units 4-5	32,289,311			-13.2%	36,543,328	27,731,704	8,811,624	21.8	308,679	0.65%	194,781	0.60%	503,461	**1.25%**
	Four Corners Common	12,665,945			-7.8%	13,651,261	5,382,216	8,269,045	21.8	333,504	2.63%	45,115	0.36%	378,619	**2.99%**
	Navajo Units 1-3	19,203,553			-4.1%	19,985,561	11,068,426	8,917,135	10.4	787,174	4.10%	75,481	0.39%	862,658	**4.49%**
	Ocotillo Units 1-2	7,062,830			-16.1%	8,198,105	6,004,569	3,194,536	4.4	463,572	6.56%	255,693	3.62%	719,265	**10.18%**
	Total Miscellaneous Power Plant Equipment	95,057,632			-9.0%	103,599,074	55,992,799	47,606,285	15.1	2,759,770	2.90%	366,182	0.39%	3,125,952	**3.29%**
	Total Steam Production Plant	2,761,040,373			-9.1%	3,021,738,953	1,093,927,156	827,811,797	17.1	43,803,168	2.43%	5,738,837	0.31%	48,542,006	**2.76%**
	Nuclear Production														
321.00	Structures and Improvements														
	Palo Verde Unit 1	160,236,922			-0.4%	160,841,307	111,383,638	49,456,670	27.8	1,784,848	1.11%	58,900	0.04%	1,842,748	**1.15%**
	Palo Verde Unit 2	92,055,736			-0.4%	92,414,901	82,520,612	10,294,289	28.1	1,056,658	1.15%	75,628	0.08%	1,132,286	**1.23%**
	Palo Verde Unit 3	165,218,693			-0.4%	165,904,277	105,360,310	60,510,967	30.2	1,982,943	1.20%	65,769	0.04%	2,048,712	**1.24%**
	Palo Verde Water Reclamation	310,244,404			-0.4%	311,091,035	66,066,458	144,994,580	30.3	4,769,886	2.27%	44,711	0.02%	4,814,597	**2.29%**
	Palo Verde Common	172,546,205			-0.4%	173,245,036	71,733,528	107,111,508	30.2	3,356,924	1.95%	24,981	0.01%	3,381,905	**1.96%**

Depreciation Rate Development
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Account No.	Description	(1) Original Cost	(2) Iowa Curve Type	(2) 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
	Total Structures and Improvements	800,303,960			-0.4%	803,499,556	416,089,543	387,410,015	29.1	12,950,259	1.62%	269,989	0.03%	13,220,248	1.65%
322.00	Reactor Plant Equipment:														
	Palo Verde Unit 1	464,794,795			-1.1%	469,988,199	293,647,691	188,340,508	27.4	6,576,890	1.44%	155,594	0.03%	6,832,484	1.47%
	Palo Verde Unit 2	249,302,485			-1.2%	252,176,093	130,773,605	125,402,488	28.4	4,280,913	1.68%	82,159	0.03%	4,263,072	1.71%
	Palo Verde Unit 3	427,193,012			-1.2%	432,441,384	218,413,881	214,027,503	30.3	6,913,216	1.62%	178,188	0.04%	7,091,404	1.66%
	Palo Verde Water Reclamation	561,290			-1.2%	567,879	(213,882)	781,761	30.3	25,628	4.57%	(8,675)	-1.55%	16,951	3.02%
	Palo Verde Common	35,589,335			-1.2%	36,025,677	18,681,385	17,344,292	30.2	559,865	1.57%	155,480	0.44%	715,345	2.01%
	Total Reactor Plant Equipment	1,477,440,897			-1.1%	1,391,199,232	649,307,681	541,896,552	28.6	18,356,510	1.56%	562,746	0.05%	18,919,256	1.61%
323.00	Turbogenerator Units														
	Palo Verde Unit 1	133,635,855			-0.4%	134,132,326	72,981,040	61,771,286	27.4	2,215,633	1.66%	(50,732)	0.04%	2,164,901	1.62%
	Palo Verde Unit 2	87,999,272			-0.4%	88,326,718	42,283,715	46,052,998	28.4	1,611,973	1.83%	(36,786)	0.04%	1,575,187	1.79%
	Palo Verde Unit 3	152,558,797			-0.4%	153,184,032	76,703,435	76,480,597	30.2	2,532,582	1.65%	(71,649)	0.05%	2,460,933	1.60%
	Palo Verde Water Reclamation	217,756			-0.4%	218,657	127,761	91,396	30.2	2,998	1.38%	1,096	0.50%	4,094	1.88%
	Palo Verde Common	6,491,434			-0.4%	6,509,190	835,467	5,673,683	30.2	170,898	2.09%	4,413	0.10%	175,311	2.79%
	Total Turbogenerator Units	378,902,614			-0.4%	380,380,880	192,810,930	187,569,959	29.7	6,464,085	1.71%	(153,659)	0.04%	6,310,426	1.67%
324.00	Accessory Electric Equipment:														
	Palo Verde Unit 1	117,924,393			-0.4%	118,368,207	81,830,907	36,537,300	27.4	1,316,574	1.12%	53,346	0.05%	1,369,920	1.16%
	Palo Verde Unit 2	67,992,891			-0.4%	68,179,534	30,236,127	37,943,407	28.3	626,562	1.31%	2,145	0.00%	628,707	1.31%
	Palo Verde Unit 3	94,117,583			-0.4%	94,708,068	57,880,628	36,827,440	30.2	1,207,321	1.28%	37,672	0.04%	1,244,993	1.32%
	Palo Verde Water Reclamation														
	Palo Verde Common	26,706,829			-0.4%	26,815,608	12,384,569	14,431,038	30.2	474,090	1.78%	3,962	0.01%	478,052	1.79%
	Total Accessory Electric Equipment	186,841,496			-0.4%	288,071,817	182,338,231	105,743,185	28.4	3,624,547	1.26%	95,125	0.03%	3,719,672	1.30%
325.00	Miscellaneous Power Plant Equipment														
	Palo Verde Unit 1	31,243,002			-0.4%	31,360,132	20,319,419	11,040,918	27.4	398,526	1.28%	17,006	0.05%	415,532	1.33%
	Palo Verde Unit 2	27,285,762			-0.4%	27,391,177	16,504,484	10,886,693	28.3	380,426	1.39%	23,404	0.09%	403,830	1.48%
	Palo Verde Unit 3	28,965,543			-0.4%	29,085,175	16,530,455	12,554,716	30.2	412,041	1.42%	5,071	0.02%	417,104	1.44%
	Palo Verde Water Reclamation	165,219			-0.4%	165,883	52,959	112,924	30.2	3,735	2.25%	217	0.13%	3,952	2.38%
	Palo Verde Common	103,205,509			-0.4%	103,618,435	23,920,108	79,698,347	30.2	2,622,737	2.54%	(125,161)	-0.12%	2,497,574	2.42%
	Total Miscellaneous Power Plant Equipment	190,865,034			-0.4%	191,620,981	77,327,486	114,293,497	30.8	3,817,464	2.00%	(79,467)	0.04%	3,737,992	1.96%
	Total Nuclear Production	2,834,454,001			-0.7%	2,854,771,067	1,317,868,359	1,336,903,202	29.1	45,212,866	1.60%	694,736	0.02%	45,907,574	1.62%
	Other Production														
341.00	Structures and Improvements:														
	Douglas CT	103,952			-5.0%	109,150	41,706	67,444	14.2	4,374	4.21%	13,235	12.73%	17,609	16.94%
	Ocotillo CT Units 1-2	1,954,223			-5.0%	2,050,884	455,707	1,595,178	14.2	105,247	5.39%	11,565	0.59%	116,802	5.98%
	Redhawk CC Units 1-2	23,674,859			-5.0%	24,858,602	6,830,375	18,028,227	20.9	805,571	3.40%	188,775	0.80%	994,344	4.20%
	Saguaro CT Units 1-2	3,171,028			-5.0%	3,331,079	1,321,116	2,010,564	14.2	130,341	4.10%	16,135	0.51%	146,476	4.61%
	Saguaro CT Unit 3														
	Sundance	14,336,561			-5.0%	14,003,389	6,110,566	7,892,823	20.9	345,576	2.59%	17,178	0.13%	362,754	2.72%
	West Phoenix CC Units 1-3	963,966			-5.0%	1,012,164	252,238	759,926	14.2	50,016	5.19%	(9,316)	-0.97%	40,680	4.22%
	West Phoenix CC Unit 4	4,683,180			-5.0%	4,917,339	1,747,459	3,169,880	20.0	147,080	3.14%	15,426	0.33%	162,506	3.47%
	West Phoenix CC Unit 5	11,935,671			-5.0%	12,532,455	3,701,814	8,830,641	21.9	376,836	4.16%	60,009	0.50%	436,845	3.66%
	West Phoenix CT Units 1-3	4,040,996			-5.0%	4,243,046	541,367	3,701,143	14.2	245,723	6.08%	17,346	0.43%	263,069	6.51%
	West Phoenix Common	12,629,586			-5.0%	13,261,065	5,879,259	7,381,806	21.9	308,339	2.45%	29,514	0.23%	338,473	2.68%
	Yucca CT Units 1-4	5,185,290			-5.0%	5,444,555	1,231,880	4,812,674	25.5	163,199	3.15%	111,621	2.15%	274,820	5.30%
	Yucca CT Units 5-6	3,070,425			-5.0%	3,173,950	142,480	981,470	26.5	34,964	3.37%	2,073	0.19%	37,037	3.46%
	Total Structures and Improvements	82,750,741			-5.0%	86,888,278	28,056,501	58,831,777	18.4	2,717,654	3.28%	473,559	0.57%	3,191,213	3.86%
342.00	Fuel Holders, Producers and Accessories:														
	Douglas CT	137,759			-5.0%	144,647	127,498	17,153	14.2	723	0.52%	33,952	24.66%	34,674	25.17%
	Ocotillo CT Units 1-2	1,107,461			-5.0%	1,162,834	706,200	456,635	14.2	28,198	2.55%	15,104	1.36%	43,302	3.91%
	Redhawk CC Units 1-2	11,611,849			-5.0%	12,192,441	1,261,578	10,930,864	20.9	494,755	4.26%	39,390	0.34%	534,145	4.60%
	Saguaro CT Units 1-2	1,642,488			-5.0%	1,724,612	1,251,522	473,091	14.2	27,494	1.67%	10,119	0.62%	37,613	2.29%
	Saguaro CT Unit 3														
	Sundance	4,629,010			-5.0%	4,860,461	2,395,879	2,464,587	20.9	106,798	2.31%	12,168	0.26%	118,966	2.57%

Depreciation Rate Development
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Exhibit DG 2-5
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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
	West Phoenix CC Units 1-3	24,667,947			-5.0%	25,901,344	10,071,539	15,829,805	14.2	1,025,749	4.16%	(4,896)	0.02%	1,021,251	**4.14%**
	West Phoenix CC Unit 4	4,135,109			-5.0%	4,341,864	1,648,909	2,692,955	20.0	124,560	4.01%	14,793	0.36%	139,353	**3.37%**
	West Phoenix CC Unit 5														
	West Phoenix CT Units 1-7	1,858,577			-5.0%	1,951,556	1,320,981	627,175	14.2	17,967	1.02%	19,676	1.11%	93,643	**5.53%**
	West Phoenix Common														
	Yucca CT Units 1-4	3,938,860			-5.0%	4,135,803	3,070,678	961,125	24.6	34,831	0.88%	44,211	1.12%	59,023	**1.50%**
	Yucca CT Units 5-6	3,395,227			-5.0%	3,569,988	311,488	1,258,500	26.5	44,607	1.98%	2,647	0.18%	47,249	**3.16%**
	Total Fuel Holders, Producers and Accessories	55,271,287			-5.0%	57,982,151	22,670,454	35,311,899	16.6	1,909,246	3.49%	195,965	0.35%	2,101,721	**3.81%**
343.00	Prime Movers														
	Douglas CT	5,721,569			-5.0%	3,907,647	2,747,816	3,164,833	14.2	68,733	1.84%	13,141	0.35%	81,874	**2.20%**
	Ocotillo CT Units 1-2	21,989,611			-5.0%	23,089,092	1,378,173	21,910,269	14.2	1,462,494	6.65%	(118,929)	-0.54%	1,343,565	**6.11%**
	Redhawk CC Units 1-2	132,566,124			-5.0%	139,194,430	19,811,056	119,383,374	20.9	5,394,979	4.07%	212,568	0.16%	5,607,547	**4.23%**
	Saguaro CT Units 1-2	15,965,868			-5.0%	16,764,161	5,407,885	11,356,277	14.2	741,952	4.65%	(7,522)	0.05%	734,430	**4.60%**
	Saguaro CT Unit 3	1,939,305			-5.0%	2,036,270	288,202	1,748,068	20.9	78,925	4.07%	2,332	0.12%	81,257	**4.19%**
	Sundance	232,679,199			-5.0%	244,313,159	125,640,926	118,672,233	20.9	5,558,999	2.39%	604,909	0.26%	5,723,908	**2.46%**
	West Phoenix CC Units 1-3														
	West Phoenix CC Unit 4	49,464,010			-5.0%	51,937,211	19,271,730	32,665,471	20.0	1,512,639	3.06%	85,049	0.17%	1,597,688	**3.23%**
	West Phoenix CC Unit 5	92,946,762			-5.0%	97,594,100	19,809,595	77,784,591	21.9	3,345,870	3.60%	121,045	0.13%	3,466,915	**3.73%**
	West Phoenix CT Units 1-5	22,613,160			-5.0%	23,743,818	4,234,734	19,509,084	14.2	1,293,527	5.72%	(43,283)	-0.19%	1,248,244	**5.52%**
	West Phoenix Common														
	Yucca CT Units 1-4	11,077,145			-5.0%	11,631,002	6,327,502	5,304,002	22.8	207,975	1.88%	150,824	1.36%	358,799	**3.24%**
	Yucca CT Units 5-6	67,699,735			-5.0%	71,084,722	14,517,907	56,567,115	26.5	2,003,848	2.96%	135,464	0.20%	2,139,311	**3.16%**
	Total Prime Movers	652,682,488			-5.0%	685,295,612	219,359,800	466,014,812	20.8	23,727,940	3.75%	1,155,701	0.18%	22,883,641	**3.41%**
344.00	Generators and Devices														
	Douglas CT	971,924			-5.0%	1,020,520	537,475	483,045	14.2	30,530	3.14%	163,077	16.78%	193,607	**19.92%**
	Ocotillo CT Units 1-2	14,737,836			-5.0%	15,474,728	7,492,673	7,982,054	14.2	508,142	3.45%	224,798	1.53%	733,945	**4.98%**
	Redhawk CC Units 1-2	336,601,368			-5.0%	353,431,646	54,102,294	299,329,352	20.9	13,530,247	4.01%	694,339	0.21%	14,224,586	**4.22%**
	Saguaro CT Units 1-2	4,666,538			-5.0%	4,899,865	3,905,233	994,632	14.2	53,500	1.15%	80,430	1.72%	133,930	**2.87%**
	Saguaro CT Unit 3	27,718,140			-5.0%	29,104,049	10,850,196	18,253,853	20.9	807,079	2.91%	68,814	0.25%	875,893	**3.16%**
	Sundance	11,764,416			-5.0%	12,352,637	188,594	12,164,043	20.9	553,176	4.70%	(3,727)	-0.03%	549,399	**4.67%**
	West Phoenix CC Units 1-3	103,127,942			-5.0%	108,284,339	51,645,231	56,639,108	14.2	3,617,900	3.51%	651,597	0.63%	4,269,497	**4.14%**
	West Phoenix CC Unit 4	23,653,858			-5.0%	24,836,551	6,720,434	18,116,117	20.0	848,368	3.59%	93,056	0.39%	941,424	**3.98%**
	West Phoenix CC Unit 5	163,209,078			-5.0%	171,369,479	41,025,894	130,342,585	21.9	5,589,307	3.42%	409,469	0.25%	5,989,771	**3.67%**
	West Phoenix CT Units 1-5	10,798,722			-5.0%	11,338,658	4,921,465	7,017,193	14.2	455,381	4.22%	94,474	0.87%	549,855	**5.09%**
	West Phoenix Common														
	Yucca CT Units 1-4	10,058,652			-5.0%	10,561,585	6,798,049	4,763,535	17.3	246,278	2.45%	117,816	1.17%	359,094	**3.57%**
	Yucca CT Units 5-6	113,198			-5.0%	118,858	21,842	97,216	26.5	3,450	3.05%	285	0.25%	3,735	**3.30%**
	Total Generators and Devices	707,421,824			-5.0%	742,792,915	186,620,170	556,172,745	19.3	26,239,107	3.71%	2,580,429	0.36%	28,804,536	**4.07%**
345.00	Accessory Electric Equipment														
	Douglas CT	303,765			-5.0%	423,953	327,486	96,467	14.2	5,364	1.77%	94,083	31.00%	99,447	**24.63%**
	Ocotillo CT Units 1-2	4,017,658			-5.0%	4,218,541	1,301,908	2,916,633	14.2	190,847	4.75%	14,456	0.36%	205,303	**5.11%**
	Redhawk CC Units 1-2	23,778,511			-5.0%	24,967,437	7,626,307	17,341,129	20.9	772,833	3.25%	216,353	0.91%	989,186	**4.16%**
	Saguaro CT Units 1-3	3,283,717			-5.0%	3,424,803	3,137,459	287,344	14.2	149,280	4.58%	(6,743)	0.21%	142,537	**4.37%**
	Saguaro CT Unit 4	127,553			-5.0%	128,681	48,975	79,706	20.9	3,520	2.87%	353	0.29%	3,873	**3.16%**
	Sundance	27,604,244			-5.0%	28,984,456	14,251,435	14,733,021	20.9	688,585	2.31%	62,561	0.21%	701,148	**2.54%**
	West Phoenix CC Units 1-3	25,144,330			-5.0%	26,401,547	4,593,580	21,874,867	14.2	1,448,886	5.76%	(50,861)	-0.20%	1,398,025	**5.56%**
	West Phoenix CC Unit 4	451,669			-5.0%	474,252	71,836	404,516	20.0	19,530	4.27%	(76)	-0.02%	19,054	**4.20%**
	West Phoenix CC Unit 5	14,138,590			-5.0%	14,795,520	3,888,482	9,907,038	21.9	423,346	3.21%	64,095	0.49%	487,441	**3.71%**
	West Phoenix CT Units 1-5	1,772,089			-5.0%	1,860,693	1,518,630	342,063	14.2	17,824	1.01%	30,732	1.73%	48,556	**2.74%**
	West Phoenix Common														
	Yucca CT Units 1-4	3,717,069			-5.0%	3,923,922	2,228,754	1,695,172	20.4	74,335	1.98%	42,304	1.13%	116,223	**3.11%**
	Yucca CT Units 5-6	817,613			-5.0%	858,494	148,167	906,660	26.6	32,609	3.99%	(2,847)	-0.35%	29,762	**3.64%**
	Total Accessory Electric Equipment	104,251,808			-5.0%	109,464,398	36,879,783	72,584,616	17.1	3,776,344	3.62%	464,211	0.45%	4,240,555	**4.07%**
346.00	Miscellaneous Power Plant Equipment														
	Douglas CT	33,564			-5.0%	35,242	31,236	4,006	14.2	371	0.91%	8,341	24.85%	8,512	**25.36%**
	Ocotillo CT Units 1-2	900,572			-5.0%	1,040,101	524,535	515,586	14.2	32,752	3.91%	10,635	1.07%	43,387	**4.38%**
	Redhawk CC Units 1-2	6,538,111			-5.0%	6,865,017	565,082	6,299,935	20.9	285,518	4.37%	15,889	0.24%	301,407	**4.61%**
	Saguaro CT Units 1-2	892,062			-5.0%	936,665	748,220	188,445	14.2	10,115	1.13%	10,837	1.21%	21,052	**2.36%**
	Saguaro CT Unit 3														

Depreciation Rate Development
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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
	Sundance	7,565,605			-5.0%	2,693,885	982,751	1,711,135	20.0	75,698	2.95%	1,370	0.05%	76,968	3.00%
	West Phoenix CC Units 1-3	6,516,270			-5.0%	6,863,084	1,487,653	5,375,450	14.2	354,728	5.44%	(24,707)	-0.38%	330,081	5.05%
	West Phoenix CC Unit 4	709,405			-5.0%	744,875	70,218	674,657	20.0	32,007	4.51%	1,477	0.21%	33,484	4.72%
	West Phoenix CC Unit 5	4,353,879			-5.0%	4,571,573	373,022	4,198,551	21.9	187,307	4.18%	6,852	0.16%	188,959	4.34%
	West Phoenix CT Units 1-7	1,026,473			-5.0%	1,077,797	771,777	306,020	14.2	17,899	1.74%	20,902	2.04%	38,801	3.78%
	West Phoenix Common														
	Yuma CT Units 1-4	1,328,508			-5.0%	1,394,933	1,043,730	351,203	21.3	13,357	1.01%	19,855	1.49%	33,212	2.50%
	Yuma CT Units 5-6	813,044			-5.0%	853,696		853,696	26.6	30,623	3.77%	1,005	0.12%	31,628	3.89%
	Total Miscellaneous Power Plant Equipment	25,787,493			-5.0%	27,076,868	6,598,084	20,478,784	18.6	1,035,935	4.01%	11,456	0.04%	1,107,491	4.29%
	Total Other Production	1,628,099,641			-5.0%	1,709,500,423	500,084,791	1,209,415,632	19.6	56,886,339	3.49%	4,947,320	0.30%	61,828,659	3.80%
	Solar Production														
341.00	Structures and Improvements														
	Chino Valley	527,888			4.5%	551,456	46,878	504,578	25.6	18,781	3.56%	920	0.17%	19,702	3.73%
	Cotton Center	1,813,900			-4.3%	1,891,348	243,070	1,648,278	24.6	63,813	3.52%	3,163	0.17%	66,976	3.69%
	Desert Star	1,572,235			-6.9%	1,680,407	17,438	1,662,969	21.9	73,093	4.65%	4,946	0.31%	76,039	4.84%
	Foothills Units 1-2	10,969,684			-5.3%	11,458,367	792,219	10,666,148	26.6	380,959	3.49%	20,779	0.19%	401,738	3.68%
	Gila Bend	5,018,067			-6.0%	5,317,624	765,090	4,552,534	27.5	172,962	3.45%	10,900	0.22%	183,862	3.66%
	Hyder Units 1-2	6,815,250			-7.7%	7,304,818	641,745	6,663,669	25.6	244,867	3.56%	7,384	0.11%	252,251	3.65%
	Legacy Units	325,971			-0.3%	326,878	297,653	29,225	20.9	1,356	0.42%	43	0.01%	1,399	0.43%
	Luke AFB	1,866,261			-7.6%	1,685,047	17,363	1,667,686	21.9	70,824	4.52%	5,431	0.35%	76,254	4.87%
	Roof Tops	1,582,761			-0.3%	1,587,366	96,551	1,490,815	25.6	57,987	3.67%	202	0.01%	58,189	3.68%
	Paloma	2,391,866			-5.2%	2,401,447	416,892	2,084,556	24.7	79,615	3.49%	4,842	0.21%	84,463	3.70%
	Total Structures and Improvements	42,510,020			4.6%	44,004,349	7,734,898	37,269,451	25.6	1,162,764	0.58%	58,611	0.18%	1,210,875	3.76%
344.00	Generators and Devices														
	Chino Valley	77,719,075			4.5%	81,188,741	8,138,402	73,050,339	25.6	2,716,938	3.50%	135,481	0.17%	2,852,415	3.67%
	Cotton Center	61,503,054			-4.3%	64,217,045	8,661,033	55,576,012	24.7	2,144,733	3.48%	107,131	0.17%	2,251,864	3.66%
	Desert Star	26,365,640			-6.9%	27,110,193	375,308	26,734,589	21.9	1,142,635	4.34%	79,797	0.31%	1,222,432	4.82%
	Foothills Units 1-2	105,443,246			-5.3%	110,776,793	8,914,223	101,862,570	26.6	3,835,745	3.45%	200,887	0.19%	3,836,632	3.64%
	Gila Bend	89,246,612			-6.0%	94,573,681	4,717,950	89,855,731	27.5	3,076,007	3.45%	193,451	0.22%	3,269,459	3.66%
	Hyder Units 1-2	90,250,197			-7.7%	95,801,308	10,290,617	85,510,691	25.6	3,238,343	3.47%	99,614	0.11%	3,338,957	3.58%
	Legacy Units	10,119,646			-0.3%	10,140,671	3,694,744	6,445,929	20.9	306,978	3.04%	1,292	0.01%	308,270	3.05%
	Luke AFB	24,974,581			-7.6%	26,437,954	863,603	26,074,351	21.9	1,107,039	4.50%	85,204	0.35%	1,192,243	4.85%
	Roof Tops	51,531,113			-0.3%	51,699,929	5,076,629	46,623,300	25.6	1,814,212	3.57%	6,589	0.01%	1,819,801	3.53%
	Paloma	48,000,025			-5.2%	51,565,859	6,998,366	44,567,494	24.7	1,701,850	3.47%	103,964	0.21%	1,805,814	3.69%
	Total Generators and Devices	587,816,565			4.4%	613,532,179	57,731,175	556,801,008	25.4	20,894,476	3.55%	1,013,831	0.17%	21,898,287	3.73%
345.00	Accessory Electric Equipment														
	Chino Valley	15,511,775			4.5%	16,802,385	578,261	16,224,224	25.6	591,687	3.56%	11,351	0.17%	244,039	3.73%
	Cotton Center	19,418,050			-4.3%	16,079,897	2,056,544	14,023,353	24.7	541,590	3.55%	26,817	0.17%	568,207	3.69%
	Desert Star	3,579,650			-6.9%	3,825,945	39,702	3,786,243	21.9	161,464	4.51%	11,661	0.31%	173,125	4.84%
	Foothills Units 1-2	20,815,540			-5.3%	21,868,435	1,517,628	20,350,806	26.6	726,853	3.49%	39,657	0.19%	766,509	3.68%
	Gila Bend	11,098,644			-6.0%	11,759,133	586,619	11,172,694	27.5	382,477	3.45%	24,104	0.22%	406,575	3.66%
	Hyder Units 1-2	22,556,482			-7.7%	24,173,591	2,370,857	20,802,734	25.6	788,193	3.49%	24,096	0.11%	812,289	3.60%
	Legacy Units	3,600,940			-0.3%	3,616,501	826,934	3,189,567	20.9	157,010	4.33%	455	0.01%	157,465	4.23%
	Luke AFB	1,330,176			-7.6%	1,431,038	14,745	1,416,293	21.9	60,148	4.52%	4,612	0.35%	64,760	4.87%
	Roof Tops	7,714,968			-0.3%	7,740,246	651,002	7,089,244	25.6	275,773	3.57%	987	0.01%	276,707	3.59%
	Paloma	12,514,847			-5.2%	13,170,229	1,739,553	11,430,726	24.7	436,604	3.49%	26,553	0.21%	463,157	3.70%
	Total Accessory Electric Equipment	105,145,520			4.1%	109,467,728	9,881,845	99,485,883	25.4	3,756,940	3.57%	169,894	0.16%	3,926,834	3.73%
346.00	Miscellaneous Power Plant Equipment														
	Chino Valley	216,604			4.5%	226,170	19,226	206,943	25.6	7,703	3.56%	377	0.17%	8,081	3.73%
	Cotton Center	282,641			-4.3%	273,915	34,795	239,120	24.7	9,237	3.52%	457	0.17%	9,689	3.69%
	Desert Star	260,960			-6.9%	314,188	3,261	310,927	21.9	13,791	4.52%	925	0.31%	14,717	4.84%
	Foothills Units 1-2	97,709			-5.3%	60,627	8,308	56,323	26.6	1,911	3.49%	110	0.19%	2,121	3.68%
	Gila Bend	21,142			6.0%	22,404	1,118	21,286	27.5	729	3.45%	46	0.22%	775	3.66%
	Hyder Units 1-2	198,380			-7.7%	212,036	13,854	198,182	25.6	7,317	3.45%	220	0.11%	7,448	3.56%
	Legacy Units														
	Luke AFB	377,821			-7.6%	406,470	8,188	407,782	21.9	17,084	4.52%	3,310	0.35%	38,393	4.87%
	Roof Tops														

Depreciation Rate Development
(SL-AL-RL-BG System)

Account No.	Description	(1) Original Cost	(2) Iowa Curve Type	(2) 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
	Paloma	723,486			5.2%	627,847	36,709	513,138	24.7	4,245	1.49%	758	0.21%	4,503	3.71%
	Total Miscellaneous Power Plant Equipment	1,557,854			5.5%	1,644,657	107,455	1,536,202	23.5	63,435	3.94%	1,701	0.28%	65,178	4.18%
	Total Solar Production	727,049,759			-4.3%	758,647,913	70,055,369	688,593,544	25.4	25,865,105	3.56%	1,246,019	0.17%	27,111,124	3.73%
	Transmission Plant														
352.02	Structures and Improvements	151,995	R2	70	0.0%	151,995	145,144	6,851	35.9	191	0.13%		0.00%	191	0.13%
353.00	Station Equipment	122,007,460	R1	53	4.5%	127,497,827	27,589,109	99,909,518	42.0	2,248,906	1.84%	130,727	0.11%	2,379,798	1.95%
354.00	Towers and Fixtures	1,329,318	R3	67	0.0%	1,329,316	542,128	787,188	39.5	19,929	1.50%		0.00%	19,929	1.50%
355.00	Poles and Fixtures	1,371,895	R2	72	-70.0%	1,644,102	311,528	1,332,574	59.9	17,338	1.27%	4,575	0.33%	21,914	1.60%
356.00	Overhead Conductors and Devices	1,947,877	R3	66	-18.7%	2,311,893	598,039	1,712,953	48.5	27,809	1.43%	7,510	0.39%	35,319	1.81%
	Total Transmission Plant	126,806,363				142,935,133	29,206,048	103,729,084	42.2	2,313,343	1.82%	142,806	0.11%	2,456,149	1.94%
	Distribution Plant														
361.00	Structures and Improvements	83,271,151	R2	70	-6.1%	88,466,980	19,956,898	67,510,082	59.1	1,071,307	1.30%	70,995	0.09%	1,142,303	1.39%
362.00	Station Equipment	494,771,263	LO.5	44	-1.8%	513,572,592	99,057,304	414,515,288	35.9	11,022,674	2.23%	505,497	0.10%	11,528,171	2.33%
363.00	Storage Battery Equipment	2,123,630	S3	10	0.0%	2,123,630	747,881	1,375,749	6.5	288,138	13.57%	(91,486)	-4.31%	196,648	9.26%
364.01	Poles, Towers and Fixtures - Wood	332,284,009	10	45	20.1%	199,074,093	104,136,831	294,937,260	34.7	6,574,871	1.98%	1,964,850	0.59%	8,539,721	2.57%
364.02	Poles, Towers and Fixtures - Steel	290,823,751	R0.5	53	10.0%	286,906,126	47,528,155	239,377,971	47.9	4,452,935	1.73%	544,511	0.21%	4,997,452	1.92%
365.00	Overhead Conductors and Devices	555,117,540	SC	50	21.3%	434,808,751	58,041,908	376,766,844	42.2	7,041,045	1.98%	1,408,753	0.40%	8,451,797	2.38%
366.00	Underground Conduit	685,519,670	L0.5	68	10.4%	756,807,093	172,016,992	584,790,100	57.3	8,977,215	2.31%	1,246,388	0.38%	10,223,603	1.49%
367.00	Underground Conductors and Devices	1,646,381,070	L0	42	-9.0%	1,794,555,466	588,572,946	1,205,982,420	32.6	32,448,102	1.97%	4,545,224	0.28%	36,993,326	2.25%
368.00	Transformers	839,279,660	L1	55	-1.7%	864,106,891	237,986,280	626,120,610	49.0	13,841,940	1.66%	1,238,350	0.15%	15,082,290	1.81%
369.00	Services	378,844,741	L0	58	46.4%	549,943,903	159,459,194	390,484,707	48.4	4,466,644	1.19%	3,601,222	0.96%	8,067,866	2.15%
370.01	Meters - Electronic	17,142,724	SC	20	0.5%	17,057,010	(34,215,235)	51,272,245	15.3	3,356,729	19.58%	(2,403,594)	-14.02%	953,135	5.56%
370.03	Meters - AMI	274,200,665	SC	20	0.4%	273,223,723	37,797,690	235,426,033	17.8	13,289,652	4.85%	(17,375)	0.01%	13,272,277	4.84%
373.00	Installations on Customer Premises	43,510,067	L0	46	-14.8%	49,950,625	13,775,290	36,175,334	32.7	788,955	1.81%	170,858	0.39%	959,813	2.21%
373.00	Street Lighting and Signal Systems	74,601,787	L0	49	-4.7%	78,508,073	23,159,812	54,948,259	58.1	885,404	1.19%	60,348	0.08%	945,753	1.27%
	Total Distribution Plant	5,477,683,478				6,306,304,848	1,576,523,946	4,579,582,902	37.7	108,509,605	1.98%	12,844,569	0.23%	121,354,154	2.22%
	General Plant														
390.00	Structures and Improvements	179,729,646	L1	40	-6.6%	191,592,122	30,649,534	160,942,588	32.7	4,566,016	2.54%	168,720	0.10%	4,834,736	2.69%
391.00	Office Furniture and Equipment - Furniture	58,067,176	SQ	20	0.0%	58,067,179	27,687,599	31,379,580	11.0	2,855,285	4.83%	86,188	0.15%	2,941,473	4.98%
391.10	Office Furniture and Equipment - Computers	169,143,944	L1	8	-0.7%	169,480,228	56,285,814	113,194,414	4.8	23,680,580	14.00%	11,895,048	-1.12%	21,785,483	12.88%
393.00	Stores Equipment	242,516	SQ	20	0.0%	242,516	82,193	160,323	14.2	11,290	4.66%	836	0.34%	12,126	5.00%
394.00	Tools, Shop and Garage Equipment	37,140,670	SQ	20	0.0%	37,140,670	17,907,765	19,232,905	11.5	1,666,670	4.49%	186,091	0.50%	1,852,721	4.99%
395.00	Laboratory Equipment	810,563	SQ	20	0.0%	810,563	409,057	401,506	9.7	41,222	5.09%	(800)	0.10%	40,422	4.99%
397.00	Communication Equipment	281,817,441	L1.5	22	-0.3%	251,268,457	79,973,072	171,295,385	15.8	10,825,591	4.31%	15,887	0.01%	10,841,480	4.32%
398.00	Miscellaneous Equipment	17,446,236	SQ	20	0.0%	17,446,236	4,575,059	12,871,177	18.6	690,514	3.96%	36,413	0.21%	726,927	4.17%
	Total General Plant	714,596,494				727,047,972	217,470,093	509,577,878	11.8	44,337,080	6.20%	(1,301,733)	-0.18%	43,035,367	6.02%
	TOTAL PLANT STUDIED	**13,269,726,309**				**14,210,747,309**	**3,955,134,264**	**9,255,613,045**	**26.4**	**325,927,475**	**2.46%**	**24,307,558**	**0.18%**	**350,235,033**	**2.64%**

(1) Original Cost of plant from the date of the Depreciation Study.
(2) Selected Iowa curve type and average life through mathematical and visual curve fitting techniques and professional judgement.
(3) For life span accounts, weighted net salvage considering interim and terminal retirements. For mass accounts, estimated net salvage through historical analysis.
(4) = (1)*(3)-(5).
(5) From the Company's property records. Any negative book reserve balances were included with the Company's reallocated reserve calculation.
(6) = (4) - (5)
(7) Average remaining life based on Iowa Curve in Column (2).
(8) = (6) / (7)
(9) = (8) / (1)
(10) = (1) * (9)
(11) = (10) - (9)
(12) = (8) + (10). Some unadjusted accruals may be hard coded to match the Company's proposed accrual.
(13) = (12) / (1). Some unadjusted rates may be hard coded to match the Company's proposed rate.

Weighted Net Salvage

Account No.	Description	(1) Original Cost	(2) Terminal Retirements Retirements	(3) Terminal Retirements Net Salvage	(4) Terminal Retirements Net Salvage %	(5) Interim Retirements Retirements	(6) Interim Retirements Net Salvage	(7) Interim Retirements Net Salvage %	(8) Total Net Salvage	(9) Total Net Salvage %
	Steam Production									
311.00	Structures and Improvements									
	Cholla Unit 1	4,749,207	4,629,612	(264,039)	-6.4%	133,595	(6,679)	-5.0%	(299,718)	-6.3%
	Cholla Unit 2	13,288,725	12,870,805	(687,065)	-5.3%	335,920	(16,796)	-5.0%	(703,859)	-5.3%
	Cholla Common	56,706,069	54,297,709	(3,249,849)	-6.0%	1,408,456	(70,418)	-5.0%	(3,319,764)	-5.8%
	Four Corners Units 4-5	18,507,966	16,256,425	(4,738,217)	-13.1%	2,252,541	(112,627)	-5.0%	(4,849,844)	-12.8%
	Four Corners Common	16,058,266	15,153,404	(1,111,902)	-7.3%	905,862	(45,293)	-5.0%	(1,157,195)	-7.2%
	Navajo Units 1-3	32,849,766	31,977,365	(1,207,886)	-3.8%	872,401	(43,620)	-5.0%	(1,251,506)	-3.8%
	Ocotillo Units 1-2	4,804,518	4,778,896	(768,429)	-16.1%	25,614	(1,281)	-5.0%	(769,705)	-16.0%
	Total Structures and Improvements	169,959,507	164,065,228	(12,054,908)	-7.3%	5,934,279	(294,714)	-5.0%	(12,349,622)	-7.3%
312.00	Boiler Plant Equipment									
	Cholla Unit 1	80,344,501	78,364,691	(4,977,141)	-6.4%	1,979,808	(375,962)	20.0%	(5,353,102)	-6.7%
	Cholla Unit 2	258,186,292	251,602,382	(12,916,509)	-5.1%	6,583,910	(1,316,782)	-20.0%	(13,433,671)	-5.6%
	Cholla Common	60,085,479	58,679,422	(3,275,822)	-5.6%	1,406,057	(281,211)	-20.0%	(3,557,033)	-5.9%
	Four Corners Units 4-5	548,025,397	513,934,522	(67,735,081)	-13.2%	34,110,875	(6,822,175)	-20.0%	(73,557,256)	-13.5%
	Four Corners Common	35,487,775	33,458,465	(2,456,125)	-7.3%	2,029,310	(405,865)	-20.0%	(2,860,991)	-8.1%
	Navajo Units 1-3	171,354,167	166,787,148	(8,300,075)	-5.0%	4,567,014	(913,403)	-20.0%	(7,213,478)	-4.2%
	Ocotillo Units 1-2	25,219,018	25,079,360	(4,032,939)	-16.1%	139,658	(27,932)	-20.0%	(4,060,871)	-16.1%
	Total Boiler Plant Equipment	1,156,681,629	1,108,885,991	(103,693,712)	-9.3%	47,695,648	(9,539,130)	-20.0%	(110,028,852)	-9.5%
314.00	Turbogenerator Units									
	Cholla Unit 1	27,501,716	26,860,030	(1,709,078)	-6.4%	641,686	(96,253)	15.0%	(1,805,330)	-6.6%
	Cholla Unit 2	56,834,120	55,496,840	(3,689,213)	-6.7%	1,337,280	(200,589)	15.0%	(3,889,802)	-6.8%
	Cholla Common	1,775,860	1,734,758	(96,980)	-5.6%	41,102	(6,165)	15.0%	(103,874)	-5.8%
	Four Corners Units 4-5	80,991,168	75,660,671	(9,680,877)	-12.1%	4,730,995	(709,649)	15.0%	(10,569,521)	-13.2%
	Four Corners Common	3,435,753	3,230,226	(297,029)	-7.1%	205,527	(30,829)	15.0%	(267,858)	-7.8%
	Navajo Units 1-3	25,206,593	24,518,284	(908,135)	-3.8%	688,309	(103,246)	15.0%	(1,029,379)	-4.1%
	Ocotillo Units 1-2	17,146,984	17,052,216	(2,741,913)	-16.1%	94,768	(14,215)	15.0%	(2,756,129)	-16.1%
	Total Turbogenerator Units	212,284,514	204,554,746	(19,523,926)	-9.1%	7,739,768	(1,160,965)	-15.0%	(19,491,891)	-9.2%
315.00	Accessory Electric Equipment									
	Cholla Unit 1	9,492,908	9,366,290	(598,529)	-6.4%	126,618	(22,862)	10.0%	(611,187)	-6.4%
	Cholla Unit 2	34,931,937	33,986,648	(1,700,904)	-5.3%	945,289	(94,629)	-10.0%	(1,884,623)	-5.4%
	Cholla Common	7,987,689	7,799,318	(434,712)	-5.6%	188,371	(18,837)	10.0%	(453,549)	-5.7%
	Four Corners Units 4-5	45,329,258	43,241,279	(4,347,960)	-11.1%	2,043,982	(204,398)	-10.0%	(4,552,068)	-12.0%
	Four Corners Common	12,251,933	11,558,846	(845,169)	-7.3%	693,087	(69,309)	10.0%	(914,478)	-7.6%
	Navajo Units 1-3	22,361,468	21,754,849	(821,148)	-3.8%	606,620	(60,662)	10.0%	(882,415)	-3.9%
	Ocotillo Units 1-2	4,894,907	4,868,793	(782,878)	-16.1%	26,114	(2,611)	10.0%	(785,488)	-16.0%
	Total Accessory Electric Equipment	127,147,100	122,515,989	(9,621,713)	-7.9%	4,631,111	(463,111)	10.0%	(10,084,824)	-7.9%
316.00	Miscellaneous Power Plant Equipment									
	Cholla Unit 1	2,926,476	2,856,974	(161,454)	-5.6%	69,502	(10,425)	-15.0%	(171,879)	-6.0%
	Cholla Unit 2	6,842,283	6,680,950	(363,630)	-5.3%	161,333	(24,200)	15.0%	(378,035)	-5.5%
	Cholla Common	14,067,334	13,741,074	(760,668)	-5.6%	326,260	(48,924)	-15.0%	(814,812)	-5.8%
	Four Corners Units 4-5	32,285,331	30,432,288	(3,875,614)	-13.1%	1,857,023	(278,553)	-15.0%	(4,254,087)	-13.2%
	Four Corners Common	12,865,941	11,936,256	(875,863)	-7.3%	929,685	(109,453)	-15.0%	(985,316)	-7.8%
	Navajo Units 1-3	19,208,553	18,698,952	(706,318)	-3.8%	504,601	(75,689)	15.0%	(782,008)	-4.1%
	Ocotillo Units 1-2	7,062,800	7,029,927	(1,129,784)	-16.1%	32,928	(4,939)	-15.0%	(1,135,275)	-16.1%
	Total Miscellaneous Power Plant Equipment	95,067,602	91,377,821	(7,983,677)	-8.7%	3,884,831	(552,221)	-15.0%	(8,541,392)	-9.0%
	Total Steam Production Plant	1,761,040,373	1,691,394,755	(148,587,936)	-8.8%	69,645,638	(12,010,042)	-17.2%	(160,598,580)	-9.1%
	Nuclear Production									
321.00	Structures and Improvements									
	Palo Verde Unit 1	160,138,922	148,171,228		0.0%	12,067,694	(603,385)	5.0%	(603,385)	-0.4%
	Palo Verde Unit 2	92,055,736	84,872,439		0.0%	7,183,297	(359,165)	5.0%	(359,165)	-0.4%
	Palo Verde Unit 3	165,218,693	151,507,015		0.0%	13,711,678	(685,584)	5.0%	(685,584)	-0.4%
	Palo Verde Water Reclamation	210,444,408	193,271,784		0.0%	16,972,621	(848,631)	5.0%	(848,631)	-0.4%
	Palo Verde Common	172,546,205	158,569,580		0.0%	13,976,625	(698,831)	5.0%	(698,831)	-0.4%
	Total Structures and Improvements	800,303,980	736,992,046		0.0%	63,911,914	(3,195,596)	5.0%	(3,195,596)	-0.4%
322.00	Reactor Plant Equipment									
	Palo Verde Unit 1	494,794,795	430,172,374	-	0.0%	34,622,691	(5,193,404)	15.0%	(5,193,404)	1.1%
	Palo Verde Unit 2	249,302,485	230,145,101	-	0.0%	19,157,384	(2,873,608)	-15.0%	(2,873,608)	1.2%
	Palo Verde Unit 3	477,139,013	392,203,863	-	0.0%	84,935,149	(5,248,372)	15.0%	(5,248,372)	1.1%
	Palo Verde Water Reclamation	561,290	517,361	-	0.0%	43,929	(6,589)	-15.0%	(6,589)	1.2%
	Palo Verde Common	35,589,315	32,685,258	-	0.0%	2,904,057	(456,362)	-15.0%	(456,362)	1.2%

Weighted Net Salvage

Account No.	Description	(1) Original Cost	(2) Terminal Retirements Retirements	Terminal Retirements Net Salvage	Terminal Retirements Net Salvage %	(5) Interim Retirements Retirements	(6) Interim Retirements Net Salvage	(7) Interim Retirements Net Salvage %	(8) Total Net Salvage	(9) Total Net Salvage %
	Steam Production									
	Total Reactor Plant Equipment	1,177,440,897	1,085,738,669		0.0%	91,772,234	(13,758,335)	15.0%	(13,758,335)	-1.2%
323.00	Turbogenerator Units									
	Palo Verde Unit 1	133,635,855	120,706,829	-	0.0%	9,929,429	(496,471)	5.0%	(496,471)	-0.4%
	Palo Verde Unit 2	89,998,372	81,250,416	-	0.0%	6,748,814	(337,441)	5.0%	(337,441)	-0.4%
	Palo Verde Unit 3	152,558,297	140,043,598	-	0.0%	12,514,699	(625,735)	5.0%	(625,735)	-0.4%
	Palo Verde Water Reclamation	217,756	199,777	-	0.0%	18,028	(901)	5.0%	(901)	-0.4%
	Palo Verde Common	4,491,434	4,137,112	-	0.0%	354,322	(17,716)	5.0%	(17,716)	-0.4%
	Total Turbogenerator Units	378,902,618	349,337,501	-	0.0%	29,565,353	(1,478,268)	5.0%	(1,478,268)	-0.4%
324.00	Accessory Electric Equipment									
	Palo Verde Unit 1	112,928,091	104,043,915	-	0.0%	8,885,078	(444,054)	5.0%	(444,054)	-0.4%
	Palo Verde Unit 2	47,961,801	44,160,029	-	0.0%	3,732,862	(186,643)	5.0%	(186,643)	-0.4%
	Palo Verde Unit 3	84,317,581	76,507,681	-	0.0%	7,809,700	(390,485)	5.0%	(390,485)	-0.4%
	Palo Verde Water Reclamation	-	-	-		-	-	5.0%	-	
	Palo Verde Common	36,706,828	24,531,295	-	0.0%	2,175,574	(108,779)	5.0%	(108,779)	-0.4%
	Total Accessory Electric Equipment	286,943,496	258,143,083	-	0.0%	22,598,413	(1,129,921)	5.0%	(1,129,921)	-0.4%
325.00	Miscellaneous Power Plant Equipment									
	Palo Verde Unit 1	31,243,002	28,896,395	-	0.0%	2,346,607	(117,330)	5.0%	(117,330)	-0.4%
	Palo Verde Unit 2	27,285,762	25,177,456	-	0.0%	2,108,306	(105,415)	5.0%	(105,415)	-0.4%
	Palo Verde Unit 3	28,960,341	26,572,882	-	0.0%	2,392,660	(119,633)	5.0%	(119,633)	-0.4%
	Palo Verde Water Reclamation	166,219	153,942	-	0.0%	13,277	(664)	5.0%	(664)	-0.4%
	Palo Verde Common	103,209,509	94,947,385	-	0.0%	8,258,128	(412,906)	5.0%	(412,906)	-0.4%
	Total Miscellaneous Power Plant Equipment	190,865,084	175,748,064	-	0.0%	15,118,978	(755,949)	5.0%	(755,949)	-0.4%
	Total Nuclear Production	3,834,454,095	2,611,537,156		0.0%	227,918,845	(20,318,066)	8.9%	(20,318,066)	-0.7%
	Other Production									
341.00	Structures and Improvements									
	Douglas CT	(09,954)	100,226	(5,011)	5.0%	3,726	(186)	5.0%	(5,198)	5.0%
	Gonzillo CT Units 1-2	1,958,173	1,883,327	(94,166)	5.0%	69,900	(3,495)	5.0%	(97,661)	5.0%
	Redhawk CC Units 1-2	23,674,859	22,393,472	(1,119,674)	5.0%	1,291,387	(64,569)	5.0%	(1,184,243)	5.0%
	Saguaro CT Units 1-2	3,173,028	3,054,841	(152,742)	5.0%	118,187	(5,908)	5.0%	(158,651)	5.0%
	Saguaro CT Unit 3	-	-	-		-	-	5.0%	-	
	Sundance	13,330,581	12,619,114	(630,999)	5.0%	717,467	(35,873)	5.0%	(666,828)	5.0%
	West Phoenix CC Units 1-3	963,966	929,208	(46,460)	5.0%	34,758	(1,738)	5.0%	(48,198)	5.0%
	West Phoenix CC Unit 4	4,683,180	4,440,841	(222,042)	5.0%	242,339	(12,117)	5.0%	(234,159)	5.0%
	West Phoenix CC Unit 5	11,935,471	11,259,625	(562,981)	5.0%	675,846	(33,792)	5.0%	(596,784)	5.0%
	West Phoenix CT Units 1-2	4,040,996	3,897,795	(194,890)	5.0%	143,201	(7,160)	5.0%	(202,050)	5.0%
	West Phoenix Common	12,629,386	11,908,377	(595,419)	5.0%	721,209	(36,060)	5.0%	(631,479)	5.0%
	Yucca CT Units 1-4	5,185,290	4,999,371	(249,969)	-5.0%	185,919	(9,296)	5.0%	(259,265)	-5.0%
	Yucca CT Units 5-6	1,070,429	997,450	(49,867)	-5.0%	73,079	(3,654)	-5.0%	(53,521)	-5.0%
	Total Structures and Improvements	82,750,741	78,687,763	(3,934,388)	-5.0%	4,160,978	(213,349)		(4,147,579)	-5.0%
342.00	Fuel Holders, Producers and Accessories									
	Douglas CT	137,759	132,510	(6,625)	5.0%	5,249	(262)	5.0%	(6,888)	5.0%
	Gonzillo CT Units 1-2	1,107,461	1,066,382	(53,319)	-5.0%	41,079	(2,054)	5.0%	(55,373)	5.0%
	Redhawk CC Units 1-2	11,611,849	10,995,194	(549,760)	-5.0%	616,655	(30,833)	5.0%	(580,592)	5.0%
	Saguaro CT Units 1-2	1,842,488	1,780,372	(78,019)	-5.0%	62,116	(3,106)	-5.0%	(81,124)	-5.0%
	Saguaro CT Unit 3									
	Sundance	4,629,010	4,373,883	(218,694)	5.0%	149,127	(12,454)	-5.0%	(231,451)	5.0%
	West Phoenix CC Units 1-3	24,667,947	23,775,408	(1,188,770)	-5.0%	892,539	(44,627)	5.0%	(1,233,397)	5.0%
	West Phoenix CC Unit 4	4,335,109	3,920,578	(196,029)	-5.0%	214,503	(10,727)	5.0%	(206,755)	5.0%
	West Phoenix CC Unit 5									
	West Phoenix CT Units 1-2	1,359,577	1,289,668	(89,483)	-5.0%	69,909	(3,495)	5.0%	(92,978)	5.0%
	West Phoenix Common									
	Yucca CT Units 1-4	3,934,860	3,782,232	(189,112)	5.0%	152,628	(7,631)	-5.0%	(196,743)	5.0%
	Yucca CT Units 5-6	1,495,227	1,392,382	(69,619)	-5.0%	102,845	(5,142)	-5.0%	(74,761)	5.0%
	Total Fuel Holders, Producers and Accessories	55,221,287	52,814,606	(2,640,730)	-5.0%	1,806,681	(120,334)	5.0%	(2,761,064)	5.0%
343.00	Prime Movers									
	Douglas CT	3,721,569	3,569,042	(178,452)	5.0%	152,527	(8,626)	-5.0%	(186,078)	5.0%
	Gonzillo CT Units 1-2	21,989,611	21,201,696	(1,060,085)	-5.0%	787,915	(39,396)	5.0%	(1,099,481)	5.0%
	Redhawk CC Units 1-2	132,566,128	125,161,280	(6,258,164)	-5.0%	7,202,938	(360,147)	5.0%	(6,618,306)	5.0%
	Saguaro CT Units 1-2	15,986,868	15,380,672	(769,034)	-5.0%	585,196	(29,260)	5.0%	(798,293)	5.0%
	Saguaro CT Unit 3	1,999,305	1,936,059	(96,803)	-5.0%	100,246	(5,162)	-5.0%	(99,965)	5.0%

Weighted Net Salvage

Account No.	Description	(1) Original Cost	(2) Terminal Retirements Retirements	(3) Terminal Retirements Net Salvage	(4) Terminal Retirements Net Salvage %	(5) Interim Retirements Retirements	(6) Interim Retirements Net Salvage	(7) Interim Retirements Net Salvage %	(8) Total Net Salvage	(9) Total Net Salvage %
	Steam Production									
	Sundance	232,879,199	220,141,159	(11,007,958)	-5.0%	12,548,706	(626,902)	5.0%	(11,634,860)	-5.0%
	West Phoenix CC Units 1-3							5.0%		
	West Phoenix CC Unit 4	49,464,010	46,991,778	(2,344,889)	-5.0%	2,568,234	(128,312)	5.0%	(2,473,201)	-5.0%
	West Phoenix CC Unit 5	91,946,762	87,349,370	(4,363,468)	-5.0%	5,278,992	(263,450)	5.0%	(4,847,918)	-5.0%
	West Phoenix CT Units 1-2	22,813,160	21,788,259	(1,086,913)	-5.0%	914,901	(40,745)	5.0%	(1,127,658)	-5.0%
	West Phoenix Common							5.0%		
	Yucca CT Units 1-4	11,077,148	10,468,801	(632,915)	-5.9%	439,844	(20,942)	5.0%	(653,857)	-5.0%
	Yucca CT Units 5-6	67,099,735	63,042,672	(3,192,754)	-5.0%	4,687,063	(234,653)	5.0%	(3,384,987)	-5.0%
	Total Prime Movers	652,962,488	617,578,696	(30,873,935)	-5.0%	35,093,792	(1,754,196)	5.0%	(32,631,126)	-5.0%
344.00	Generators and Devices									
	Douglas CT	971,924	935,495	(48,775)	-5.0%	36,429	(1,821)	5.0%	(48,596)	-5.0%
	Ocotillo CT Units 1-2	34,717,836	34,206,132	(710,857)	-5.0%	511,704	(26,589)	5.0%	(736,892)	-5.0%
	Redhawk CC Units 1-2	346,601,568	328,604,270	(15,930,214)	-5.0%	17,997,298	(899,865)	5.0%	(16,830,079)	-5.0%
	Saguaro CT Units 1-2	4,668,538	4,494,123	(224,708)	-5.0%	174,415	(8,621)	5.0%	(233,329)	-5.0%
	Saguaro CT Unit 3	27,718,142	26,211,107	(1,310,809)	-5.0%	1,506,036	(75,302)	5.0%	(1,386,907)	-5.0%
	Sundance	13,744,416	13,145,179	(867,066)	-6.0%	619,297	(30,965)	5.0%	(588,221)	-5.0%
	West Phoenix CC Units 1-3	159,127,941	99,403,065	(4,870,053)	-5.0%	5,724,877	(286,244)	5.0%	(5,156,297)	-5.0%
	West Phoenix CC Unit 4	23,650,858	22,661,985	(1,132,099)	-5.0%	1,211,873	(60,594)	5.0%	(1,182,693)	-5.0%
	West Phoenix CC Unit 5	183,089,028	164,017,578	(7,701,879)	-5.0%	9,171,450	(458,573)	5.0%	(8,160,451)	-5.0%
	West Phoenix CT Units 1-2	11,098,722	10,608,179	(529,409)	-5.0%	590,543	(29,527)	5.0%	(549,936)	-5.0%
	West Phoenix Common							5.0%		
	Yucca CT Units 1-4	10,098,651	9,628,506	(484,926)	-5.0%	172,186	(18,607)	5.0%	(502,934)	-5.0%
	Yucca CT Units 5-6	116,198	105,442	(5,272)	-5.0%	7,756	(388)	5.0%	(5,660)	-5.0%
	Total Generators and Devices	767,611,824	671,679,003	(33,583,900)	-5.0%	39,743,823	(1,987,191)	5.0%	(35,371,091)	-5.0%
345.00	Accessory Electric Equipment									
	Douglas CT	408,786	388,248	(19,412)	-5.0%	15,521	(776)	5.0%	(20,188)	-5.0%
	Ocotillo CT Units 1-2	4,011,058	3,871,486	(193,574)	-5.0%	146,172	(7,309)	5.0%	(200,883)	-5.0%
	Redhawk CC Units 1-2	29,778,511	22,489,414	(1,124,471)	-5.0%	1,089,097	(54,455)	5.0%	(1,178,926)	-4.0%
	Saguaro CT Units 1-2	4,081,717	3,142,262	(157,113)	-5.0%	119,155	(5,958)	5.0%	(163,066)	-5.0%
	Saguaro CT Unit 3	122,554	115,894	(5,795)	-5.0%	6,959	(333)	5.0%	(6,128)	-5.0%
	Sundance	27,804,244	26,117,963	(1,305,898)	-5.0%	1,686,282	(74,314)	5.0%	(1,380,212)	-5.0%
	West Phoenix CC Units 1-3	25,344,930	24,248,083	(1,212,404)	-5.0%	996,247	(44,912)	5.0%	(1,257,317)	-5.0%
	West Phoenix CC Unit 4	453,669	430,619	(21,531)	-5.0%	23,050	(1,152)	5.0%	(22,683)	-5.0%
	West Phoenix CC Unit 5	13,118,590	12,195,402	(591,770)	-5.0%	923,188	(37,159)	5.0%	(656,930)	-5.0%
	West Phoenix CT Units 1-2	1,771,089	1,704,169	(85,208)	-5.0%	67,920	(3,396)	5.0%	(88,604)	-5.0%
	West Phoenix Common							5.0%		
	Yucca CT Units 1-4	4,737,064	3,596,953	(179,848)	-5.1%	140,111	(7,006)	5.0%	(186,853)	-5.0%
	Yucca CT Units 5-6	817,633	761,945	(38,097)	-5.0%	55,688	(2,784)	5.0%	(40,881)	-5.0%
	Total Accessory Electric Equipment	104,251,808	99,262,535	(4,963,127)	-5.0%	4,989,271	(249,464)	5.0%	(5,212,590)	-5.0%
346.00	Miscellaneous Power Plant Equipment									
	Douglas CT	33,566	32,293	(1,615)	-5.0%	1,273	(64)	5.0%	(1,679)	-5.0%
	Ocotillo CT Units 1-2	990,577	953,978	(47,699)	-5.0%	36,594	(1,830)	5.0%	(49,528)	-5.0%
	Redhawk CC Units 1-2	6,538,111	6,191,127	(309,556)	-5.0%	346,984	(17,349)	5.0%	(326,906)	-5.0%
	Saguaro CT Units 1-2	892,092	858,759	(42,938)	-5.0%	33,303	(1,665)	5.0%	(44,603)	-5.0%
	Saguaro CT Unit 3									
	Sundance	2,580,605	2,428,249	(121,412)	-5.0%	137,356	(6,868)	5.0%	(128,280)	-5.0%
	West Phoenix CC Units 1-3	6,568,270	6,303,829	(315,191)	-5.0%	234,441	(11,722)	5.0%	(326,914)	-5.0%
	West Phoenix CC Unit 4	709,405	671,675	(33,584)	-5.0%	35,730	(1,787)	5.0%	(35,370)	-5.0%
	West Phoenix CC Unit 5	4,353,879	4,117,257	(205,863)	-5.0%	261,622	(12,081)	5.0%	(217,944)	-5.0%
	West Phoenix CT Units 1-2	1,025,473	988,709	(49,435)	-5.0%	37,798	(1,888)	5.0%	(51,324)	-5.0%
	West Phoenix Common									
	Yucca CT Units 1-4	1,128,508	1,279,544	(63,807)	-5.0%	49,968	(2,498)	5.0%	(66,425)	-5.0%
	Yucca CT Units 5-6	913,044	958,095	(37,905)	-5.0%	54,949	(2,747)	5.0%	(40,652)	-5.0%
	Total Miscellaneous Power Plant Equipment	25,787,493	24,577,510	(1,228,876)	-5.0%	1,209,983	(60,499)	5.0%	(1,239,375)	-5.0%
	Total Other Production	1,528,099,641	1,544,398,112	(77,219,956)	-5.0%	81,696,529	(4,184,826)	5.0%	(81,404,782)	-5.0%
	Solar Production									
341.00	Structures and Improvements									
	Chino Valley	927,889	893,273	(21,836)	-4.4%	38,616	(1,731)	5.0%	(23,567)	-4.5%
	Gillette Center	1,813,502	1,688,866	(72,116)	-4.2%	124,634	(5,732)	5.0%	(77,848)	-4.3%
	Desert Star	1,572,235	1,485,654	(102,843)	-7.0%	86,581	(4,329)	5.0%	(108,172)	-6.9%
	Foothills Units 1-2	10,908,884	10,166,851	(514,842)	-5.1%	740,833	(37,042)	5.0%	(551,883)	-5.1%
	Gila Bend	9,268,097	8,665,507	(281,807)	-3.0%	252,590	(12,629)	5.0%	(299,527)	-3.2%
	Hyder Units 1-2	8,943,370	8,461,917	(188,548)	-2.1%	453,315	(22,666)	5.0%	(189,181)	-2.1%
	Legacy Units	326,971	307,830	-	0.0%	18,141	(907)	5.0%	(907)	-0.3%

Weighted Net Salvage

Exhibit DG 2-6
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Account No.	Description	(1) Original Cost	(2) Terminal Retirements: Retirements	(3) Terminal Retirements: Net Salvage	(4) Terminal Retirements: Net Salvage %	(5) Interim Retirements: Retirements	(6) Interim Retirements: Net Salvage	(7) Interim Retirements: Net Salvage %	(8) Total Net Salvage	(9) Total Net Salvage %
	Steam Production									
	Luke AFB	1,508,281	1,480,018	(114,450)	-7.7%	86,263	(4,313)	-5.0%	(118,766)	-7.6%
	Roof Tops	1,582,181	1,478,481		0.0%	103,700	(5,185)	-5.0%	(5,185)	-0.3%
	Paloma	2,281,950	2,137,705	(112,280)	-5.3%	144,245	(7,212)	-5.0%	(119,492)	-5.2%
	Total Structures and Improvements	32,510,020	30,375,112	(1,387,584)	-4.6%	2,134,908	(106,745)	-5.0%	(1,494,329)	-4.6%
344.00	Generators and Devices									
	Chino Valley	77,719,075	72,622,729	(3,214,849)	-4.4%	5,096,346	(254,817)	-5.0%	(3,469,666)	-4.5%
	Cotton Center	61,593,054	57,699,676	(2,449,332)	-4.2%	3,893,378	(194,669)	-5.0%	(2,643,991)	-4.3%
	Desert Star	25,359,040	23,968,213	(1,675,312)	-7.0%	1,390,827	(69,841)	-5.0%	(1,745,153)	-6.9%
	Foothills Units 1-2	105,443,248	98,281,048	(4,975,435)	-5.1%	7,162,200	(358,110)	-5.0%	(5,333,545)	-5.1%
	Gila Bend	89,246,812	82,975,817	(5,013,531)	-6.0%	6,270,995	(313,540)	-5.0%	(5,327,071)	-6.0%
	Hyder Units 1-2	93,250,197	87,135,762	(2,245,389)	-2.6%	6,114,435	(305,722)	-5.0%	(2,551,111)	-2.7%
	Legacy Units	10,113,649	9,573,164	-	0.0%	540,485	(27,024)	-5.0%	(27,024)	-0.3%
	Luke AFB	24,574,551	23,121,256	(1,798,758)	-7.7%	1,453,295	(67,665)	-5.0%	(1,863,403)	-7.6%
	Roof Tops	51,531,113	48,154,794		0.0%	3,376,319	(168,816)	-5.0%	(168,816)	-0.3%
	Paloma	49,000,026	45,902,670	(2,410,969)	-5.3%	3,097,356	(154,868)	-5.0%	(2,565,831)	-5.2%
	Total Generators and Devices	587,816,565	549,535,129	(23,790,542)	-4.3%	38,301,436	(1,915,072)	-5.0%	(25,695,614)	-4.4%
345.00	Accessory Electric Equipment									
	Chino Valley	6,511,779	6,084,772	(266,360)	-4.4%	427,007	(21,350)	-5.0%	(290,710)	-4.5%
	Cotton Center	15,418,080	14,443,485	(613,117)	-4.2%	974,595	(48,730)	-5.0%	(661,847)	-4.3%
	Desert Star	3,579,659	3,382,531	(236,430)	-7.0%	197,128	(9,856)	-5.0%	(246,286)	-6.9%
	Foothills Units 1-2	20,815,540	19,401,651	(982,201)	-5.1%	1,413,889	(70,694)	-5.0%	(1,052,895)	-5.1%
	Gila Bend	11,096,944	10,317,232	(623,384)	-6.0%	779,712	(38,986)	-5.0%	(662,369)	-6.0%
	Hyder Units 1-2	22,556,482	21,076,823	(545,128)	-2.6%	1,479,659	(73,981)	-5.0%	(617,109)	-2.7%
	Legacy Units	3,606,980	3,416,559	-	0.0%	190,421	(9,521)	-5.0%	(9,521)	-0.3%
	Luke AFB	1,330,175	1,256,924	(97,200)	-7.7%	73,251	(3,663)	-5.0%	(100,863)	-7.6%
	Roof Tops	7,714,968	7,209,416	-	0.0%	505,552	(25,278)	-5.0%	(25,278)	-0.3%
	Paloma	12,514,947	11,723,861	(615,777)	-5.3%	791,086	(39,554)	-5.0%	(655,332)	-5.2%
	Total Accessory Electric Equipment	105,145,520	98,313,223	(3,980,593)	-4.0%	6,832,297	(341,615)	-5.0%	(4,322,208)	-4.1%
346.00	Miscellaneous Power Plant Equipment									
	Chino Valley	218,504	202,307	(8,956)	-4.4%	16,197	(710)	-5.0%	(9,666)	-4.5%
	Cotton Center	262,641	246,029	(10,444)	-4.2%	16,602	(830)	-5.0%	(11,274)	-4.3%
	Desert Star	293,963	277,775	(19,416)	-7.0%	16,188	(809)	-5.0%	(20,225)	-6.9%
	Foothills Units 1-2	57,708	53,788	(2,723)	-5.1%	3,920	(196)	-5.0%	(2,919)	-5.1%
	Gila Bend	21,142	19,656	(1,188)	-6.0%	1,486	(74)	-5.0%	(1,262)	-6.0%
	Hyder Units 1-2	206,389	192,829	(4,969)	-2.6%	13,560	(678)	-5.0%	(5,647)	-2.7%
	Legacy Units									
	Luke AFB	377,821	357,015	(27,609)	-7.7%	20,806	(1,040)	-5.0%	(28,649)	-7.6%
	Roof Tops									
	Paloma	121,480	113,807	(5,978)	-5.3%	7,673	(384)	-5.0%	(6,361)	-5.2%
	Total Miscellaneous Power Plant Equipment	1,557,654	1,463,216	(81,283)	-5.6%	94,438	(4,722)	-5.0%	(86,005)	-5.5%
	Total Solar Production	727,049,759	679,686,680	(29,240,000)	-4.3%	47,363,079	(2,368,154)	-5.0%	(31,608,154)	-4.3%

(1) Original cost of plant from the date of the Depreciation Study
(2) = (1) - (5)
(3) = (2) * (4)
(4) Based on [illegible] decommissioning costs [illegible]
(5) From Interim Retirement Calculation exhibit
(6) = (5) * (7)
(7) Based on historical analysis [illegible] rates from depreciation study
(8) = (3) + (6)
(9) = (8) / (1)

Terminal Net Salvage

Unit	[1] Owned MW Capacity	[2] Cost per kW	[3] APS Estimated Cost	[4] Less Adjustments	[5] EFCA Proposed Cost	[6] Final Retirements	[7] Distributed Cost	[8] Terminal Net Salvage %
Cholla								
Unit 1	116	87	10,090,392		10,090,392	121,979,608	7,747,235	-6.4%
Unit 3	271	87	23,573,245		23,573,245	341,739,645	18,099,143	-5.3%
Common						140,252,275	7,817,259	-5.6%
	387	87	33,663,637		33,663,637	603,971,528	33,663,637	
Allocated to Common:					7,817,259			
Allocated to Units:					25,846,378			
Four Corners								
Units 4-5	970	93	90,078,373	-	90,078,373	689,543,884		-13.1%
Common			5,528,118	-	5,528,118	75,337,177		-7.3%
	970	99	95,606,491		95,606,491	764,881,061		
Navajo								
Units 1-3	315	93	11,456,480	1,494,320	9,962,160	263,736,596		3.8%
Common								
	315	32	11,456,480		9,962,160	263,736,596		
Ocotillo								
Units 1-2	220	93	11,722,250	2,266,600	9,455,650	58,805,570		-16.1%
Common								
	220	43	11,722,250		9,455,650	58,805,570		
Solar Sites								
Chino Valley	19	185	3,515,000	-	3,515,000	79,403,082		-4.4%
Cotton Center	17	185	3,145,000	-	3,145,000	74,088,037		-4.2%
Desert Star	11	185	2,035,000	-	2,035,000	29,114,172		-7.0%
Foothills	35	185	6,475,000	-	6,475,000	127,902,337		-5.1%
Gila Bend	32	185	5,920,000	-	5,920,000	97,978,213		-6.0%
Hyder	16	185	2,960,000	-	2,960,000	114,867,331		-2.6%
Legacy				-		13,297,553		0.0%
Luke AFB	11	185	2,035,000	-	2,035,000	26,315,221		-7.7%
Roof Tops				-		56,842,691		0.0%
Paloma	17	185	3,145,000	-	3,145,000	59,878,043		-5.3%
	158	185	29,230,000		29,230,000	679,686,680		

Terminal Net Salvage

Unit	[1] Owned MW Capacity	[2] Cost per kW	[3] APS Estimated Cost	[4] Less Adjustments	[5] EFCA Proposed Cost	[6] Final Retirements	[7] Distributed Cost	[8] Terminal Net Salvage %

[1] Owned MW capacity from depreciation study
[2] Cost per kW from depreciation study
[3] = Company estimated cost from depreciation study
[4] Adjustments based on removing contingency cost from decommissioning study
[5] = [3] - [4]
[6] Final retirements from Weighted Net Salvage exhibit
[7] Distributed cost based on owned MW capacity, proposed costs, and final retirements
[8] = [5] / [6] * -1

Account 364.02 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	Exposures (Dollars)	Observed Life Table (OLT)	APS R0.5-50	EFCA R0.5-53	APS SSD	EFCA SSD
0.0	199,450,698	100.00%	100.00%	100.00%	0.0000	0.0000
0.5	199,135,501	99.71%	99.62%	99.64%	0.0000	0.0000
1.5	197,835,972	99.32%	98.86%	98.92%	0.0000	0.0000
2.5	189,612,617	98.69%	98.09%	98.20%	0.0000	0.0000
3.5	182,286,551	97.79%	97.31%	97.46%	0.0000	0.0000
4.5	167,817,606	96.92%	96.52%	96.72%	0.0000	0.0000
5.5	153,778,365	95.85%	95.73%	95.98%	0.0000	0.0000
6.5	133,699,958	94.82%	94.93%	95.23%	0.0000	0.0000
7.5	120,782,490	93.49%	94.12%	94.47%	0.0000	0.0001
8.5	97,312,093	92.52%	93.31%	93.70%	0.0001	0.0001
9.5	71,368,237	91.28%	92.49%	92.93%	0.0001	0.0003
10.5	65,643,709	90.00%	91.66%	92.15%	0.0003	0.0005
11.5	51,953,505	88.77%	90.82%	91.37%	0.0004	0.0007
12.5	39,827,269	88.06%	89.98%	90.58%	0.0004	0.0006
13.5	27,216,035	87.42%	89.13%	89.78%	0.0003	0.0006
14.5	16,999,932	85.56%	88.28%	88.98%	0.0007	0.0012
15.5	7,978,216	83.70%	87.41%	88.17%	0.0014	0.0020
16.5	8,562,156	83.36%	86.54%	87.36%	0.0010	0.0016
17.5	7,148,988	83.11%	85.67%	86.54%	0.0007	0.0012
18.5	6,984,734	82.23%	84.78%	85.71%	0.0007	0.0012
19.5	1,866,428	81.91%	83.89%	84.88%	0.0004	0.0009
20.5	1,616,313	80.53%	82.99%	84.04%	0.0006	0.0012
21.5	1,262,929	80.23%	82.08%	83.19%	0.0003	0.0009
22.5	1,274,144	79.91%	81.17%	82.33%	0.0002	0.0006
23.5	1,175,462	79.61%	80.24%	81.47%	0.0000	0.0003
24.5	1,133,027	79.58%	79.30%	80.60%	0.0000	0.0001
25.5	973,697	79.22%	78.36%	79.72%	0.0001	0.0000
26.5	740,476	78.88%	77.40%	78.83%	0.0002	0.0000
27.5	665,851	77.93%	76.44%	77.94%	0.0002	0.0000
28.5	486,971	76.93%	75.46%	77.03%	0.0002	0.0000
29.5	436,889	76.13%	74.47%	76.11%	0.0003	0.0000
30.5	355,345	75.94%	73.47%	75.19%	0.0006	0.0001
31.5	343,361	74.97%	72.45%	74.25%	0.0006	0.0001
32.5	307,333	74.50%	71.43%	73.30%	0.0009	0.0001
33.5	296,606	73.91%	70.39%	72.35%	0.0012	0.0002
34.5	232,540	73.04%	69.34%	71.38%	0.0014	0.0003
35.5	214,228	72.07%	68.27%	70.40%	0.0014	0.0003
36.5	200,382	71.95%	67.20%	69.41%	0.0023	0.0006
37.5	163,717	71.77%	66.11%	68.41%	0.0032	0.0011
38.5	157,212	70.17%	65.01%	67.39%	0.0027	0.0008
39.5	133,845	68.01%	63.89%	66.37%	0.0017	0.0003
40.5	105,765	63.19%	62.76%	65.33%	0.0000	0.0005
41.5	93,779	61.12%	61.62%	64.28%	0.0000	0.0010
42.5	83,897	60.16%	60.47%	63.22%	0.0000	0.0009
43.5	78,403	59.79%	59.30%	62.15%	0.0000	0.0006
44.5	66,683	59.79%	58.12%	61.07%	0.0003	0.0002
45.5	58,928	59.74%	56.93%	59.97%	0.0008	0.0000
46.5	78,478	59.74%	55.73%	58.87%	0.0016	0.0001
47.5	78,685	59.63%	54.52%	57.75%	0.0026	0.0004

Account 364.02 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**APS R0.5-50**	**EFCA R0.5-53**	**APS SSD**	**EFCA SSD**
48.5	88,678	59.63%	53.30%	56.63%	0.0040	0.0009
49.5	84,058	57.71%	52.07%	55.49%	0.0032	0.0005
50.5	80,473	57.71%	50.83%	54.35%	0.0047	0.0011
51.5	71,377	55.74%	49.58%	53.19%	0.0038	0.0006
52.5	67,115	55.74%	48.32%	52.03%	0.0055	0.0014
53.5	62,013	55.74%	47.06%	50.86%	0.0075	0.0024
54.5	59,733	55.74%	45.79%	49.68%	0.0099	0.0037
55.5	52,733	55.74%	44.52%	48.50%	0.0126	0.0052
56.5	52,733	55.74%	43.24%	47.31%	0.0156	0.0071
57.5	44,334	54.56%	41.96%	46.11%	0.0159	0.0071
58.5	18,699	54.56%	40.68%	44.91%	0.0193	0.0093
59.5	13,187	54.56%	39.39%	43.71%	0.0230	0.0118
Sum of Squared Differences				[8]	0.1552	0.0727

[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.

*The bold horizontal line represents the 1% of beginning exposures cut-off.

Account 367 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	Exposures (Dollars)	Observed Life Table (OLT)	APS L1-40	EFCA L0.5-41	APS SSD	EFCA SSD
0.0	1,898,806,054	100.00%	100.00%	100.00%	0.0000	0.0000
0.5	1,816,141,551	99.80%	99.93%	99.88%	0.0000	0.0000
1.5	1,736,889,978	99.39%	99.74%	99.51%	0.0000	0.0000
2.5	1,679,842,335	98.85%	99.51%	99.04%	0.0000	0.0000
3.5	1,619,742,435	98.34%	99.22%	98.46%	0.0001	0.0000
4.5	1,551,734,570	97.87%	98.87%	97.81%	0.0001	0.0000
5.5	1,491,096,524	97.44%	98.43%	97.07%	0.0001	0.0000
6.5	1,430,910,799	96.99%	97.92%	96.26%	0.0001	0.0001
7.5	1,332,226,699	96.68%	97.32%	95.38%	0.0000	0.0002
8.5	1,196,812,109	96.13%	96.63%	94.43%	0.0000	0.0003
9.5	1,085,891,199	95.60%	95.84%	93.41%	0.0000	0.0005
10.5	989,036,796	94.85%	94.95%	92.32%	0.0000	0.0006
11.5	910,653,323	93.94%	93.96%	91.16%	0.0000	0.0008
12.5	839,413,792	92.66%	92.86%	89.94%	0.0000	0.0007
13.5	767,130,486	91.54%	91.67%	88.65%	0.0000	0.0008
14.5	688,772,912	90.22%	90.37%	87.31%	0.0000	0.0008
15.5	620,248,425	88.85%	88.98%	85.91%	0.0000	0.0009
16.5	550,964,443	86.82%	87.50%	84.45%	0.0000	0.0006
17.5	473,070,262	85.31%	85.93%	82.95%	0.0000	0.0006
18.5	417,645,434	83.39%	84.29%	81.41%	0.0001	0.0004
19.5	363,526,582	81.44%	82.59%	79.84%	0.0001	0.0003
20.5	328,010,214	79.62%	80.83%	78.23%	0.0001	0.0002
21.5	293,022,701	77.49%	79.02%	76.60%	0.0002	0.0001
22.5	264,560,495	75.57%	77.19%	74.95%	0.0003	0.0000
23.5	222,751,105	73.38%	75.33%	73.29%	0.0004	0.0000
24.5	194,897,812	71.41%	73.47%	71.62%	0.0004	0.0000
25.5	154,309,783	69.46%	71.61%	69.96%	0.0005	0.0000
26.5	124,203,431	67.08%	69.75%	68.30%	0.0007	0.0001
27.5	103,769,062	64.93%	67.89%	66.64%	0.0009	0.0003
28.5	88,992,377	63.10%	66.04%	64.99%	0.0009	0.0004
29.5	86,679,582	61.99%	64.20%	63.34%	0.0005	0.0002
30.5	72,696,107	60.75%	62.36%	61.70%	0.0003	0.0001
31.5	63,105,252	59.41%	60.54%	60.07%	0.0001	0.0000
32.5	57,575,399	58.34%	58.73%	58.45%	0.0000	0.0000
33.5	51,636,893	56.83%	56.93%	56.84%	0.0000	0.0000
34.5	46,499,191	54.59%	55.14%	55.25%	0.0000	0.0000
35.5	41,276,062	53.63%	53.37%	53.66%	0.0000	0.0000
36.5	37,597,584	51.84%	51.62%	52.09%	0.0000	0.0000
37.5	31,779,270	47.67%	49.89%	50.54%	0.0005	0.0008
38.5	29,804,989	47.41%	48.18%	49.00%	0.0001	0.0003
39.5	28,021,565	46.92%	46.48%	47.48%	0.0000	0.0000
40.5	24,934,757	45.35%	44.82%	45.98%	0.0000	0.0000
41.5	22,993,308	43.84%	43.17%	44.49%	0.0000	0.0000
42.5	20,074,790	40.45%	41.55%	43.03%	0.0001	0.0007
43.5	18,623,602	39.97%	39.96%	41.59%	0.0000	0.0003
44.5	17,641,626	39.22%	38.39%	40.16%	0.0001	0.0001
45.5	13,986,908	39.00%	36.85%	38.76%	0.0005	0.0000
46.5	13,015,791	38.88%	35.34%	37.39%	0.0013	0.0002
47.5	10,918,455	38.36%	33.86%	36.03%	0.0020	0.0005
48.5	8,088,303	38.18%	32.41%	34.70%	0.0033	0.0012
49.5	7,281,743	38.04%	31.00%	33.40%	0.0050	0.0022

Account 367 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**APS L1-40**	**EFCA L0.5-41**	**APS SSD**	**EFCA SSD**
50.5	5,829,825	37.67%	29.61%	32.12%	0.0065	0.0031
51.5	4,498,422	37.38%	28.26%	30.87%	0.0083	0.0042
52.5	4,165,842	37.12%	26.94%	29.64%	0.0104	0.0056
53.5	4,158,361	37.06%	25.65%	28.44%	0.0130	0.0074
54.5	1,650,123	37.01%	24.40%	27.27%	0.0159	0.0095
55.5	1,600,199	36.96%	23.19%	26.12%	0.0190	0.0117
56.5	1,599,517	36.95%	22.01%	25.00%	0.0223	0.0143
57.5	1,558,265	36.90%	20.86%	23.92%	0.0257	0.0169
58.5	1,555,954	36.84%	19.75%	22.86%	0.0292	0.0196
59.5	0	36.77%	18.68%	21.82%	0.0327	0.0223
60.5	0	36.77%	17.64%	20.82%	0.0366	0.0254
61.5	0	36.77%	16.64%	19.85%	0.0405	0.0286
62.5	0	36.77%	15.67%	18.90%	0.0445	0.0319
63.5	0	36.77%	14.74%	17.98%	0.0485	0.0353
64.5	0	36.77%	13.85%	17.09%	0.0525	0.0387
65.5	0	36.77%	12.99%	16.24%	0.0566	0.0422
66.5	0	36.77%	12.16%	15.41%	0.0605	0.0456
67.5	0	36.77%	11.38%	14.60%	0.0645	0.0491
68.5	0	36.77%	10.62%	13.83%	0.0684	0.0526
69.5	0	36.77%	9.90%	13.08%	0.0722	0.0561
70.5	0	36.77%	9.21%	12.37%	0.0759	0.0596
71.5	0	36.77%	8.56%	11.67%	0.0796	0.0630
72.5	0	36.77%	7.93%	11.01%	0.0832	0.0663
73.5	0	36.77%	7.34%	10.37%	0.0866	0.0697
74.5	0	36.77%	6.78%	9.76%	0.0899	0.0729
Sum of Squared Differences				[8]	1.1621	0.8671
Up to 1% of Beginning Exposures				[9]	0.0069	0.0108

[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.

[9] = Sum of squared differences up to the 1% of beginning exposures cut-off.

*The bold horizontal line represents the 1% of beginning exposures cut-off.

Account 369 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	Exposures (Dollars)	Observed Life Table (OLT)	APS L1-45	EFCA L0-58	APS SSD	EFCA SSD
0.0	414,386,928	100.00%	100.00%	100.00%	0.0000	0.0000
0.5	410,940,976	99.97%	99.93%	99.89%	0.0000	0.0000
1.5	401,220,439	99.69%	99.78%	99.55%	0.0000	0.0000
2.5	389,648,190	99.28%	99.58%	99.10%	0.0000	0.0000
3.5	382,865,419	98.96%	99.34%	98.56%	0.0000	0.0000
4.5	372,116,208	98.66%	99.05%	97.96%	0.0000	0.0000
5.5	366,075,185	98.32%	98.71%	97.31%	0.0000	0.0001
6.5	359,863,108	98.16%	98.30%	96.61%	0.0000	0.0002
7.5	345,048,782	97.72%	97.83%	95.86%	0.0000	0.0003
8.5	330,766,515	97.20%	97.29%	95.08%	0.0000	0.0004
9.5	315,818,873	96.75%	96.67%	94.27%	0.0000	0.0006
10.5	295,397,920	96.11%	95.98%	93.42%	0.0000	0.0007
11.5	277,197,631	95.48%	95.21%	92.55%	0.0000	0.0009
12.5	264,025,062	94.74%	94.36%	91.65%	0.0000	0.0010
13.5	243,862,986	93.86%	93.42%	90.72%	0.0000	0.0010
14.5	230,438,179	92.66%	92.41%	89.78%	0.0000	0.0008
15.5	218,163,994	91.87%	91.31%	88.82%	0.0000	0.0009
16.5	191,732,120	90.62%	90.14%	87.84%	0.0000	0.0008
17.5	175,451,727	89.81%	88.90%	86.85%	0.0001	0.0009
18.5	166,575,378	88.41%	87.58%	85.84%	0.0001	0.0007
19.5	154,917,030	87.01%	86.20%	84.82%	0.0001	0.0005
20.5	131,072,096	85.50%	84.75%	83.79%	0.0001	0.0003
21.5	115,709,374	83.16%	83.26%	82.74%	0.0000	0.0000
22.5	102,749,785	82.81%	81.71%	81.69%	0.0001	0.0001
23.5	96,007,839	82.14%	80.13%	80.64%	0.0004	0.0002
24.5	88,055,118	81.45%	78.51%	79.57%	0.0009	0.0004
25.5	78,387,549	80.72%	76.88%	78.50%	0.0015	0.0005
26.5	64,736,596	79.71%	75.23%	77.43%	0.0020	0.0005
27.5	56,852,710	79.39%	73.57%	76.36%	0.0034	0.0009
28.5	49,210,024	79.18%	71.92%	75.28%	0.0053	0.0015
29.5	44,336,961	78.87%	70.26%	74.20%	0.0074	0.0022
30.5	33,936,857	78.43%	68.61%	73.13%	0.0096	0.0028
31.5	26,124,896	78.12%	66.96%	72.05%	0.0124	0.0037
32.5	22,209,049	77.83%	65.32%	70.98%	0.0156	0.0047
33.5	19,667,030	77.59%	63.69%	69.91%	0.0193	0.0059
34.5	16,654,904	77.27%	62.06%	68.83%	0.0231	0.0071
35.5	15,735,083	76.83%	60.44%	67.76%	0.0269	0.0082
36.5	14,295,959	76.54%	58.83%	66.70%	0.0314	0.0097
37.5	9,968,772	76.26%	57.23%	65.63%	0.0362	0.0113
38.5	9,503,536	76.11%	55.64%	64.57%	0.0419	0.0133
39.5	8,688,457	75.96%	54.06%	63.51%	0.0480	0.0155
40.5	7,552,947	75.77%	52.49%	62.45%	0.0542	0.0177
41.5	5,157,698	75.67%	50.95%	61.40%	0.0611	0.0204
42.5	4,709,136	75.47%	49.41%	60.35%	0.0679	0.0229
43.5	4,297,646	75.43%	47.89%	59.31%	0.0758	0.0260
44.5	4,001,929	75.34%	46.39%	58.27%	0.0838	0.0291
45.5	3,780,932	75.26%	44.91%	57.23%	0.0921	0.0325
46.5	3,409,318	75.13%	43.44%	56.20%	0.1004	0.0358
47.5	3,280,283	74.99%	42.00%	55.18%	0.1088	0.0392

Account 369 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**APS L1-45**	**EFCA L0-58**	**APS SSD**	**EFCA SSD**
48.5	3,012,953	74.87%	40.57%	54.16%	0.1176	0.0429
49.5	2,959,509	74.73%	39.17%	53.15%	0.1265	0.0466
50.5	2,801,991	74.68%	37.79%	52.14%	0.1361	0.0508
51.5	2,696,495	74.62%	36.43%	51.14%	0.1459	0.0551
52.5	2,549,870	74.57%	35.09%	50.15%	0.1558	0.0596
53.5	2,461,290	74.52%	33.78%	49.16%	0.1660	0.0643
54.5	2,301,576	74.45%	32.49%	48.18%	0.1760	0.0690
55.5	1,890,181	74.39%	31.23%	47.21%	0.1863	0.0739
56.5	1,814,720	74.26%	29.99%	46.25%	0.1960	0.0785
57.5	1,692,073	74.04%	28.78%	45.29%	0.2049	0.0826
58.5	1,435,655	73.96%	27.59%	44.35%	0.2150	0.0877
59.5	1,005,076	73.82%	26.43%	43.41%	0.2245	0.0925
Sum of Squared Differences				[8]	2.9807	1.1259
Up to 1% of Beginning Exposures				[9]	0.5450	0.1857

[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.

[9] = Sum of squared differences up to the 1% of beginning exposures cut-off.

*The bold horizontal line represents the 1% of beginning exposures cut-off.

Account 373 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	Exposures (Dollars)	Observed Life Table (OLT)	APS L0.5-55	EFCA L0-69	APS SSD	EFCA SSD
0.0	120,192,165	100.00%	100.00%	100.00%	0.0000	0.0000
0.5	116,575,761	99.84%	99.92%	99.91%	0.0000	0.0000
1.5	111,638,170	99.34%	99.67%	99.64%	0.0000	0.0000
2.5	109,499,770	98.40%	99.35%	99.29%	0.0001	0.0001
3.5	103,570,317	97.40%	98.98%	98.87%	0.0002	0.0002
4.5	97,001,664	96.74%	98.55%	98.40%	0.0003	0.0003
5.5	90,051,226	95.97%	98.08%	97.89%	0.0004	0.0004
6.5	87,354,387	95.35%	97.56%	97.33%	0.0005	0.0004
7.5	83,578,928	94.30%	97.00%	96.75%	0.0007	0.0006
8.5	78,076,482	93.63%	96.40%	96.13%	0.0008	0.0006
9.5	74,268,173	92.81%	95.76%	95.49%	0.0009	0.0007
10.5	68,579,704	92.19%	95.08%	94.82%	0.0008	0.0007
11.5	65,234,574	91.56%	94.36%	94.13%	0.0008	0.0007
12.5	63,517,236	90.82%	93.60%	93.41%	0.0008	0.0007
13.5	59,798,921	90.26%	92.80%	92.68%	0.0006	0.0006
14.5	57,767,601	89.65%	91.96%	91.93%	0.0005	0.0005
15.5	56,043,772	88.93%	91.09%	91.16%	0.0005	0.0005
16.5	52,937,434	88.22%	90.19%	90.38%	0.0004	0.0005
17.5	48,768,212	87.60%	89.24%	89.58%	0.0003	0.0004
18.5	43,077,793	87.15%	88.27%	88.77%	0.0001	0.0003
19.5	39,111,193	86.66%	87.26%	87.95%	0.0000	0.0002
20.5	35,288,877	85.91%	86.22%	87.12%	0.0000	0.0001
21.5	32,510,561	85.06%	85.15%	86.27%	0.0000	0.0001
22.5	28,007,264	84.31%	84.05%	85.42%	0.0000	0.0001
23.5	26,577,388	83.66%	82.93%	84.56%	0.0001	0.0001
24.5	22,000,038	83.14%	81.78%	83.69%	0.0002	0.0000
25.5	18,891,330	82.58%	80.61%	82.81%	0.0004	0.0000
26.5	15,611,068	81.59%	79.43%	81.93%	0.0005	0.0000
27.5	13,664,058	80.26%	78.23%	81.04%	0.0004	0.0001
28.5	10,924,405	79.40%	77.01%	80.15%	0.0006	0.0001
29.5	10,636,090	78.50%	75.79%	79.26%	0.0007	0.0001
30.5	10,331,169	77.45%	74.56%	78.36%	0.0008	0.0001
31.5	9,473,217	76.69%	73.32%	77.45%	0.0011	0.0001
32.5	8,300,105	75.80%	72.08%	76.55%	0.0014	0.0001
33.5	7,536,011	74.92%	70.84%	75.65%	0.0017	0.0001
34.5	6,549,155	73.84%	69.59%	74.74%	0.0018	0.0001
35.5	5,767,560	72.98%	68.36%	73.84%	0.0021	0.0001
36.5	4,990,199	72.15%	67.12%	72.93%	0.0025	0.0001
37.5	4,297,465	71.20%	65.89%	72.03%	0.0028	0.0001
38.5	3,805,181	70.43%	64.66%	71.13%	0.0033	0.0000
39.5	3,427,951	69.79%	63.43%	70.22%	0.0040	0.0000
40.5	3,121,622	68.81%	62.21%	69.32%	0.0044	0.0000
41.5	2,823,849	68.14%	60.99%	68.42%	0.0051	0.0000
42.5	2,489,894	67.63%	59.78%	67.52%	0.0062	0.0000
43.5	2,326,533	67.22%	58.57%	66.63%	0.0075	0.0000
44.5	2,190,342	66.15%	57.37%	65.73%	0.0077	0.0000
45.5	1,962,032	65.65%	56.17%	64.84%	0.0090	0.0001
46.5	1,852,371	64.57%	54.99%	63.95%	0.0092	0.0000
47.5	1,689,800	63.73%	53.81%	63.06%	0.0098	0.0000

Account 373 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**APS L0.5-55**	**EFCA L0-69**	**APS SSD**	**EFCA SSD**
48.5	1,615,094	62.85%	52.63%	62.17%	0.0104	0.0000
49.5	1,571,116	61.37%	51.47%	61.29%	0.0098	0.0000
50.5	1,387,129	60.76%	50.32%	60.40%	0.0109	0.0000
51.5	1,140,649	60.25%	49.17%	59.53%	0.0123	0.0001
52.5	977,881	59.06%	48.03%	58.65%	0.0122	0.0000
53.5	907,726	58.56%	46.91%	57.78%	0.0136	0.0001
54.5	821,865	58.22%	45.79%	56.91%	0.0155	0.0002
55.5	576,570	58.10%	44.68%	56.05%	0.0180	0.0004
56.5	456,765	58.03%	43.59%	55.19%	0.0209	0.0008
57.5	226,756	56.62%	42.50%	54.33%	0.0199	0.0005
58.5	104,880	56.36%	41.43%	53.48%	0.0223	0.0008
Sum of Squared Differences				[8]	0.2579	0.0127
Up to 1% of Beginning Exposures				[9]	0.1233	0.0098

[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.

[9] = Sum of squared differences up to the 1% of beginning exposures cut-off.

*The bold horizontal line represents the 1% of beginning exposures cut-off.

Account 397 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	Exposures (Dollars)	Observed Life Table (OLT)	APS L2-21	EFCA L1.5-22	APS SSD	EFCA SSD
0.0	331,347,102	100.00%	100.00%	100.00%	0.0000	0.0000
0.5	310,826,298	99.99%	100.00%	99.93%	0.0000	0.0000
1.5	301,787,859	99.96%	99.96%	99.71%	0.0000	0.0000
2.5	283,502,858	99.67%	99.82%	99.34%	0.0000	0.0000
3.5	258,380,773	99.43%	99.53%	98.79%	0.0000	0.0000
4.5	234,791,330	98.55%	99.04%	98.01%	0.0000	0.0000
5.5	206,481,439	97.84%	98.34%	96.97%	0.0000	0.0001
6.5	189,414,128	96.87%	97.41%	95.67%	0.0000	0.0001
7.5	177,267,427	95.99%	96.22%	94.08%	0.0000	0.0004
8.5	162,236,319	94.60%	94.68%	92.19%	0.0000	0.0006
9.5	148,450,979	93.52%	92.66%	89.95%	0.0001	0.0013
10.5	138,178,553	90.90%	90.08%	87.34%	0.0001	0.0013
11.5	126,746,828	84.22%	86.90%	84.36%	0.0007	0.0000
12.5	118,294,594	81.20%	83.18%	81.06%	0.0004	0.0000
13.5	105,230,665	77.77%	79.00%	77.50%	0.0002	0.0000
14.5	93,317,722	73.46%	74.47%	73.74%	0.0001	0.0000
15.5	77,512,589	68.37%	69.72%	69.86%	0.0002	0.0002
16.5	64,765,587	65.03%	64.88%	65.90%	0.0000	0.0001
17.5	57,916,135	60.36%	60.04%	61.92%	0.0000	0.0002
18.5	50,210,322	56.59%	55.30%	57.98%	0.0002	0.0002
19.5	39,903,880	52.30%	50.73%	54.11%	0.0002	0.0003
20.5	37,372,873	49.27%	46.37%	50.35%	0.0008	0.0001
21.5	33,786,324	46.76%	42.25%	46.72%	0.0020	0.0000
22.5	31,420,105	43.24%	38.39%	43.24%	0.0024	0.0000
23.5	27,010,561	39.54%	34.78%	39.91%	0.0023	0.0000
24.5	24,480,716	37.37%	31.43%	36.75%	0.0035	0.0000
25.5	16,369,540	29.37%	28.31%	33.74%	0.0001	0.0019
26.5	11,601,363	23.79%	25.41%	30.90%	0.0003	0.0051
27.5	9,630,685	22.31%	22.73%	28.21%	0.0000	0.0035
28.5	8,389,386	20.18%	20.24%	25.67%	0.0000	0.0030
29.5	4,840,797	18.84%	17.94%	23.27%	0.0001	0.0020
30.5	5,381,032	18.42%	15.81%	21.02%	0.0007	0.0007
31.5	5,096,677	17.90%	13.85%	18.91%	0.0016	0.0001
32.5	4,747,862	17.13%	12.06%	16.94%	0.0026	0.0000
33.5	4,309,556	16.93%	10.42%	15.10%	0.0042	0.0003
34.5	4,217,156	16.58%	8.93%	13.40%	0.0058	0.0010
35.5	4,022,122	16.34%	7.59%	11.82%	0.0076	0.0020
36.5	3,938,122	16.30%	6.40%	10.37%	0.0098	0.0035
37.5	3,926,375	16.30%	5.34%	9.04%	0.0120	0.0053
38.5	3,633,308	15.27%	4.40%	7.83%	0.0118	0.0055
39.5	3,608,948	15.24%	3.59%	6.74%	0.0136	0.0072
40.5	3,608,695	15.24%	2.89%	5.77%	0.0152	0.0090
41.5	3,605,659	15.23%	2.30%	4.89%	0.0167	0.0107
42.5	3,605,659	15.23%	1.80%	4.12%	0.0180	0.0124
Sum of Squared Differences				[8]	0.1336	0.0782

Account 397 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**APS L2-21**	**EFCA L1.5-22**	**APS SSD**	**EFCA SSD**

[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.

*The bold horizontal line represents the 1% of beginning exposures cut-off.

APS

Electric Division

352.02 Structures and Improvements

Observed Life Table

Retirement Expr. 2004 TO 2015

Placement Years 1969 TO 2013

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	$0.00	$0.00	0.00000	100.00
0.5 - 1.5	$0.00	$0.00	0.00000	100.00
1.5 - 2.5	$0.00	$0.00	0.00000	100.00
2.5 - 3.5	$0.00	$0.00	0.00000	100.00
3.5 - 4.5	$0.00	$0.00	0.00000	100.00
4.5 - 5.5	$0.00	$0.00	0.00000	100.00
5.5 - 6.5	$0.00	$0.00	0.00000	100.00
6.5 - 7.5	$0.00	$0.00	0.00000	100.00
7.5 - 8.5	$0.00	$0.00	0.00000	100.00
8.5 - 9.5	$0.00	$0.00	0.00000	100.00
9.5 - 10.5	$0.00	$0.00	0.00000	100.00
10.5 - 11.5	$0.00	$0.00	0.00000	100.00
11.5 - 12.5	$0.00	$0.00	0.00000	100.00
12.5 - 13.5	$0.00	$0.00	0.00000	100.00
13.5 - 14.5	$0.00	$0.00	0.00000	100.00
14.5 - 15.5	$0.00	$0.00	0.00000	100.00
15.5 - 16.5	$0.00	$0.00	0.00000	100.00
16.5 - 17.5	$0.00	$0.00	0.00000	100.00
17.5 - 18.5	$0.00	$0.00	0.00000	100.00
18.5 - 19.5	$0.00	$0.00	0.00000	100.00
19.5 - 20.5	$0.00	$0.00	0.00000	100.00
20.5 - 21.5	$0.00	$0.00	0.00000	100.00
21.5 - 22.5	$0.00	$0.00	0.00000	100.00
22.5 - 23.5	$0.00	$0.00	0.00000	100.00
23.5 - 24.5	$0.00	$0.00	0.00000	100.00
24.5 - 25.5	$0.00	$0.00	0.00000	100.00
25.5 - 26.5	$3,387.00	$0.00	0.00000	100.00
26.5 - 27.5	$13,716.00	$0.00	0.00000	100.00
27.5 - 28.5	$49,753.00	$0.00	0.00000	100.00
28.5 - 29.5	$82,279.00	$0.00	0.00000	100.00
29.5 - 30.5	$109,651.00	$0.00	0.00000	100.00
30.5 - 31.5	$109,651.00	$0.00	0.00000	100.00
31.5 - 32.5	$109,651.00	$0.00	0.00000	100.00
32.5 - 33.5	$109,651.00	$0.00	0.00000	100.00
33.5 - 34.5	$109,651.00	$0.00	0.00000	100.00
34.5 - 35.5	$151,995.00	$0.00	0.00000	100.00
35.5 - 36.5	$151,995.00	$0.00	0.00000	100.00

APS
Electric Division
352.02 Structures and Improvements
Observed Life Table
Retirement Expr. 2004 TO 2015
Placement Years 1969 TO 2013

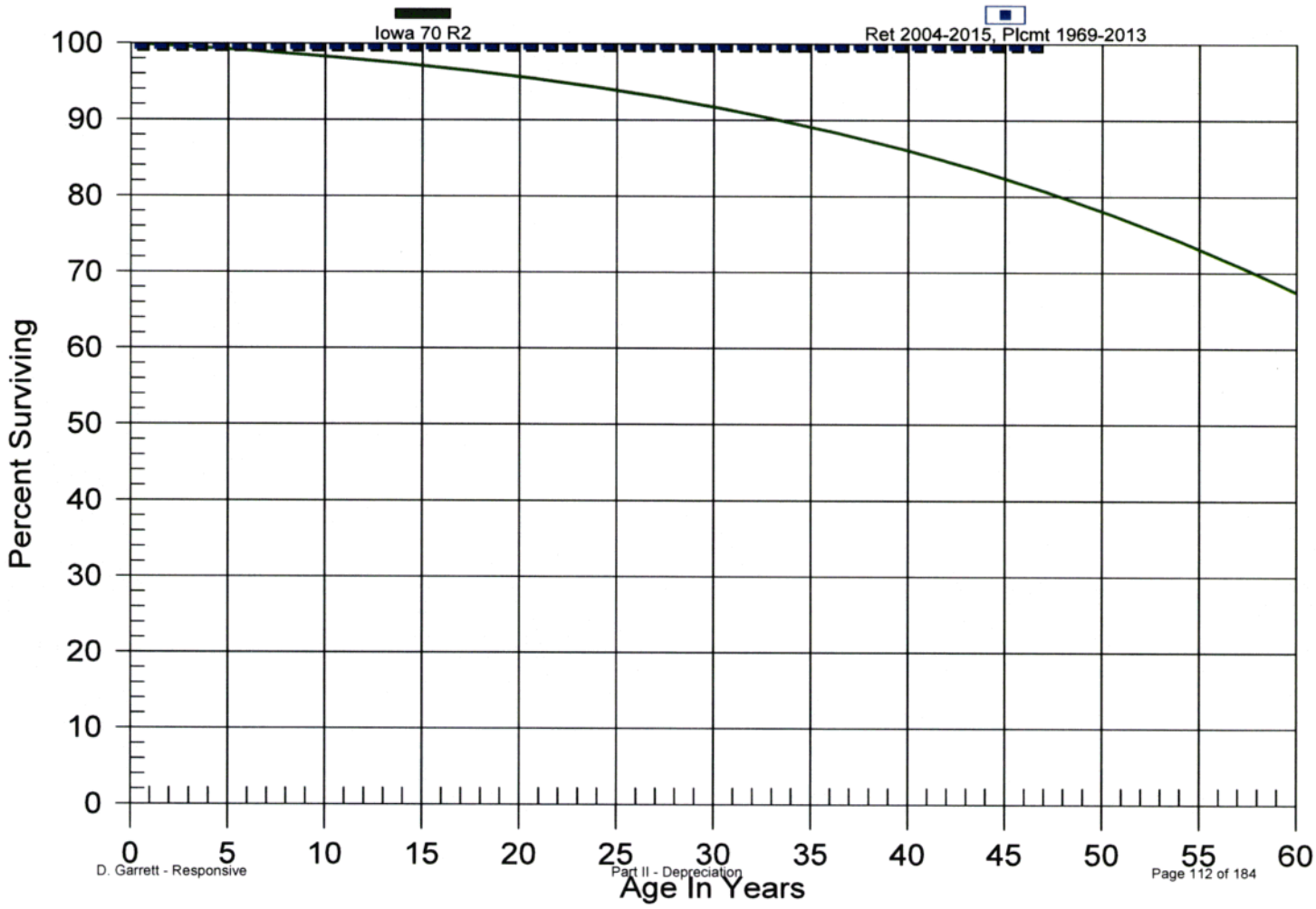
Age Interval	*$ Surviving At Beginning of Age Interval*	*$ Retired During The Age Interval*	*Retirement Ratio*	*% Surviving At Beginning of Age Interval*
36.5 - 37.5	$151,995.00	$0.00	0.00000	100.00
37.5 - 38.5	$148,608.00	$0.00	0.00000	100.00
38.5 - 39.5	$138,279.00	$0.00	0.00000	100.00
39.5 - 40.5	$102,242.00	$0.00	0.00000	100.00
40.5 - 41.5	$69,716.00	$0.00	0.00000	100.00
41.5 - 42.5	$42,344.00	$0.00	0.00000	100.00
42.5 - 43.5	$42,344.00	$0.00	0.00000	100.00
43.5 - 44.5	$42,344.00	$0.00	0.00000	100.00
44.5 - 45.5	$42,344.00	$0.00	0.00000	100.00
45.5 - 46.5	$42,344.00	$0.00	0.00000	100.00

APS

Electric Division

352.02 Structures and Improvements

Original And Smooth Survivor Curves



APS
Electric Division
353.02 Station Equipment
Observed Life Table
Retirement Expr. 1971 TO 2015
Placement Years 1936 TO 2015

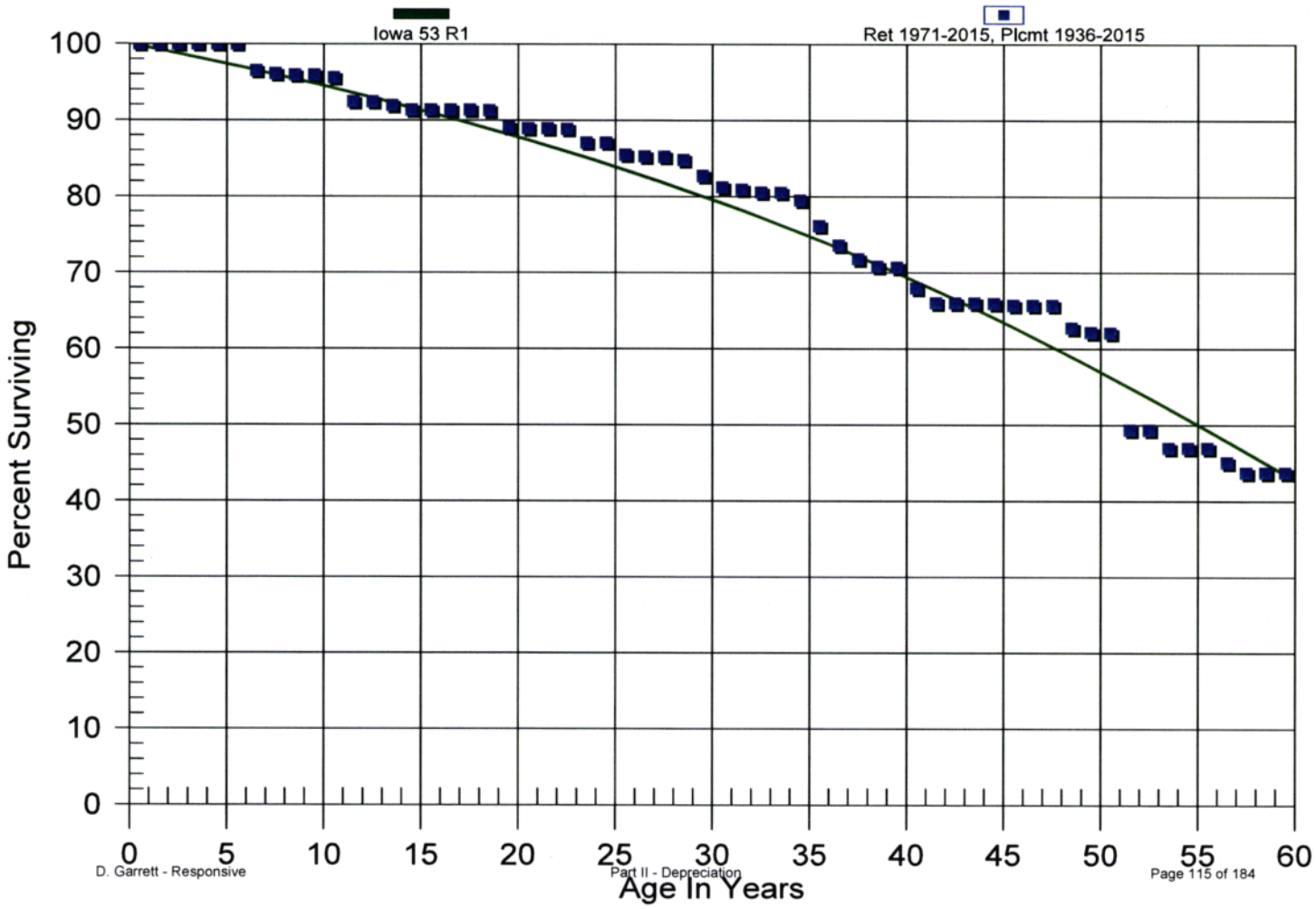
Age Interval	*$ Surviving At Beginning of Age Interval*	*$ Retired During The Age Interval*	*Retirement Ratio*	*% Surviving At Beginning of Age Interval*
0.0 - 0.5	$85,333,694.00	$0.00	0.00000	100.00
0.5 - 1.5	$89,736,722.00	$0.00	0.00000	100.00
1.5 - 2.5	$95,166,064.00	$0.00	0.00000	100.00
2.5 - 3.5	$96,714,656.00	$0.00	0.00000	100.00
3.5 - 4.5	$89,802,457.00	$0.00	0.00000	100.00
4.5 - 5.5	$83,695,941.00	$0.00	0.00000	100.00
5.5 - 6.5	$80,629,717.00	$2,822,212.00	0.03500	100.00
6.5 - 7.5	$65,892,493.00	$262,633.00	0.00399	96.50
7.5 - 8.5	$57,551,458.00	$101,825.00	0.00177	96.12
8.5 - 9.5	$54,828,875.00	$31.00	0.00000	95.95
9.5 - 10.5	$54,322,743.00	$201,170.00	0.00370	95.95
10.5 - 11.5	$50,634,104.00	$1,669,652.00	0.03297	95.59
11.5 - 12.5	$48,526,687.00	$0.00	0.00000	92.44
12.5 - 13.5	$67,917,256.00	$372,038.00	0.00548	92.44
13.5 - 14.5	$45,132,579.00	$288,476.00	0.00639	91.93
14.5 - 15.5	$42,890,998.00	$0.00	0.00000	91.34
15.5 - 16.5	$42,727,641.00	$0.00	0.00000	91.34
16.5 - 17.5	$43,249,738.00	$0.00	0.00000	91.34
17.5 - 18.5	$43,249,738.00	$25,600.00	0.00059	91.34
18.5 - 19.5	$43,224,138.00	$1,053,483.00	0.02437	91.29
19.5 - 20.5	$42,126,711.00	$57,983.00	0.00138	89.06
20.5 - 21.5	$41,966,949.00	$0.00	0.00000	88.94
21.5 - 22.5	$41,942,667.00	$44,965.00	0.00107	88.94
22.5 - 23.5	$41,934,502.00	$849,668.00	0.02026	88.85
23.5 - 24.5	$40,714,147.00	$0.00	0.00000	87.05
24.5 - 25.5	$39,973,430.00	$729,662.00	0.01825	87.05
25.5 - 26.5	$38,628,567.00	$97,912.00	0.00253	85.46
26.5 - 27.5	$38,481,307.00	$27,793.00	0.00072	85.24
27.5 - 28.5	$33,364,321.00	$155,173.00	0.00465	85.18
28.5 - 29.5	$32,955,419.00	$806,239.00	0.02446	84.78
29.5 - 30.5	$19,851,911.00	$348,658.00	0.01756	82.71
30.5 - 31.5	$19,407,268.00	$75,189.00	0.00387	81.26
31.5 - 32.5	$19,333,548.00	$96,000.00	0.00497	80.94
32.5 - 33.5	$18,275,153.00	$3,000.00	0.00016	80.54
33.5 - 34.5	$18,258,153.00	$235,087.00	0.01288	80.53
34.5 - 35.5	$17,490,860.00	$740,398.00	0.04233	79.49
35.5 - 36.5	$14,732,037.00	$492,676.00	0.03344	76.12

APS
Electric Division
353.02 Station Equipment
Observed Life Table
Retirement Expr. 1971 TO 2015
Placement Years 1936 TO 2015

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	$14,239,361.00	$346,175.00	0.02431	73.58
37.5 - 38.5	$11,330,270.00	$156,421.00	0.01381	71.79
38.5 - 39.5	$10,465,350.00	$16,200.00	0.00155	70.80
39.5 - 40.5	$10,394,640.00	$403,952.00	0.03886	70.69
40.5 - 41.5	$9,800,779.00	$278,731.00	0.02844	67.94
41.5 - 42.5	$9,448,609.00	$0.00	0.00000	66.01
42.5 - 43.5	$8,252,785.00	$0.00	0.00000	66.01
43.5 - 44.5	$7,057,263.00	$9,265.00	0.00131	66.01
44.5 - 45.5	$6,550,578.00	$23,018.00	0.00351	65.92
45.5 - 46.5	$6,331,327.00	$0.00	0.00000	65.69
46.5 - 47.5	$3,339,190.00	$0.00	0.00000	65.69
47.5 - 48.5	$3,339,190.00	$151,600.00	0.04540	65.69
48.5 - 49.5	$3,182,090.00	$26,889.00	0.00845	62.71
49.5 - 50.5	$3,155,201.00	$5,300.00	0.00168	62.18
50.5 - 51.5	$3,149,901.00	$645,513.00	0.20493	62.08
51.5 - 52.5	$2,504,388.00	$0.00	0.00000	49.35
52.5 - 53.5	$2,333,327.00	$113,173.00	0.04850	49.35
53.5 - 54.5	$1,808,056.00	$0.00	0.00000	46.96
54.5 - 55.5	$1,808,056.00	$0.00	0.00000	46.96
55.5 - 56.5	$904,501.00	$35,965.00	0.03976	46.96
56.5 - 57.5	$868,536.00	$26,185.00	0.03015	45.09
57.5 - 58.5	$842,351.00	$0.00	0.00000	43.73
58.5 - 59.5	$842,351.00	$0.00	0.00000	43.73
59.5 - 60.5	$842,351.00	$74,815.00	0.08882	43.73
60.5 - 61.5	$733,433.00	$0.00	0.00000	39.85
61.5 - 62.5	$169,732.00	$0.00	0.00000	39.85
62.5 - 63.5	$169,732.00	$0.00	0.00000	39.85
63.5 - 64.5	$169,732.00	$0.00	0.00000	39.85
64.5 - 65.5	$169,732.00	$0.00	0.00000	39.85
65.5 - 66.5	$108,432.00	$46,203.00	0.42610	39.85
66.5 - 67.5	$30,429.00	$0.00	0.00000	22.87
67.5 - 68.5	$7,629.00	$0.00	0.00000	22.87
68.5 - 69.5	$7,629.00	$850.00	0.11142	22.87
69.5 - 70.5	$6,779.00	$0.00	0.00000	20.32
70.5 - 71.5	$6,779.00	$0.00	0.00000	20.32

APS

Electric Division
353.02 Station Equipment
Original And Smooth Survivor Curves



APS
Electric Division
354.02 Towers and Fixtures
Observed Life Table
Retirement Expr. 1974 TO 2015
Placement Years 1974 TO 1988

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	$1,329,316.00	$0.00	0.00000	100.00
0.5 - 1.5	$1,329,316.00	$0.00	0.00000	100.00
1.5 - 2.5	$1,329,316.00	$0.00	0.00000	100.00
2.5 - 3.5	$1,329,316.00	$0.00	0.00000	100.00
3.5 - 4.5	$1,329,316.00	$0.00	0.00000	100.00
4.5 - 5.5	$1,329,316.00	$0.00	0.00000	100.00
5.5 - 6.5	$1,329,316.00	$0.00	0.00000	100.00
6.5 - 7.5	$1,329,316.00	$0.00	0.00000	100.00
7.5 - 8.5	$1,329,316.00	$0.00	0.00000	100.00
8.5 - 9.5	$1,329,316.00	$0.00	0.00000	100.00
9.5 - 10.5	$1,329,316.00	$0.00	0.00000	100.00
10.5 - 11.5	$1,329,316.00	$0.00	0.00000	100.00
11.5 - 12.5	$1,329,316.00	$0.00	0.00000	100.00
12.5 - 13.5	$1,329,316.00	$0.00	0.00000	100.00
13.5 - 14.5	$1,329,316.00	$0.00	0.00000	100.00
14.5 - 15.5	$1,329,316.00	$0.00	0.00000	100.00
15.5 - 16.5	$1,329,316.00	$0.00	0.00000	100.00
16.5 - 17.5	$1,329,316.00	$0.00	0.00000	100.00
17.5 - 18.5	$1,329,316.00	$0.00	0.00000	100.00
18.5 - 19.5	$1,329,316.00	$0.00	0.00000	100.00
19.5 - 20.5	$1,329,316.00	$0.00	0.00000	100.00
20.5 - 21.5	$1,329,316.00	$0.00	0.00000	100.00
21.5 - 22.5	$1,329,316.00	$0.00	0.00000	100.00
22.5 - 23.5	$1,329,316.00	$0.00	0.00000	100.00
23.5 - 24.5	$1,329,316.00	$0.00	0.00000	100.00
24.5 - 25.5	$1,329,316.00	$0.00	0.00000	100.00
25.5 - 26.5	$1,329,316.00	$0.00	0.00000	100.00
26.5 - 27.5	$1,329,316.00	$0.00	0.00000	100.00
27.5 - 28.5	$870,873.00	$0.00	0.00000	100.00
28.5 - 29.5	$870,873.00	$0.00	0.00000	100.00
29.5 - 30.5	$64,866.00	$0.00	0.00000	100.00
30.5 - 31.5	$64,866.00	$0.00	0.00000	100.00
31.5 - 32.5	$64,866.00	$0.00	0.00000	100.00
32.5 - 33.5	$64,866.00	$0.00	0.00000	100.00
33.5 - 34.5	$64,866.00	$0.00	0.00000	100.00
34.5 - 35.5	$64,866.00	$0.00	0.00000	100.00
35.5 - 36.5	$64,866.00	$0.00	0.00000	100.00

APS

Electric Division

354.02 Towers and Fixtures

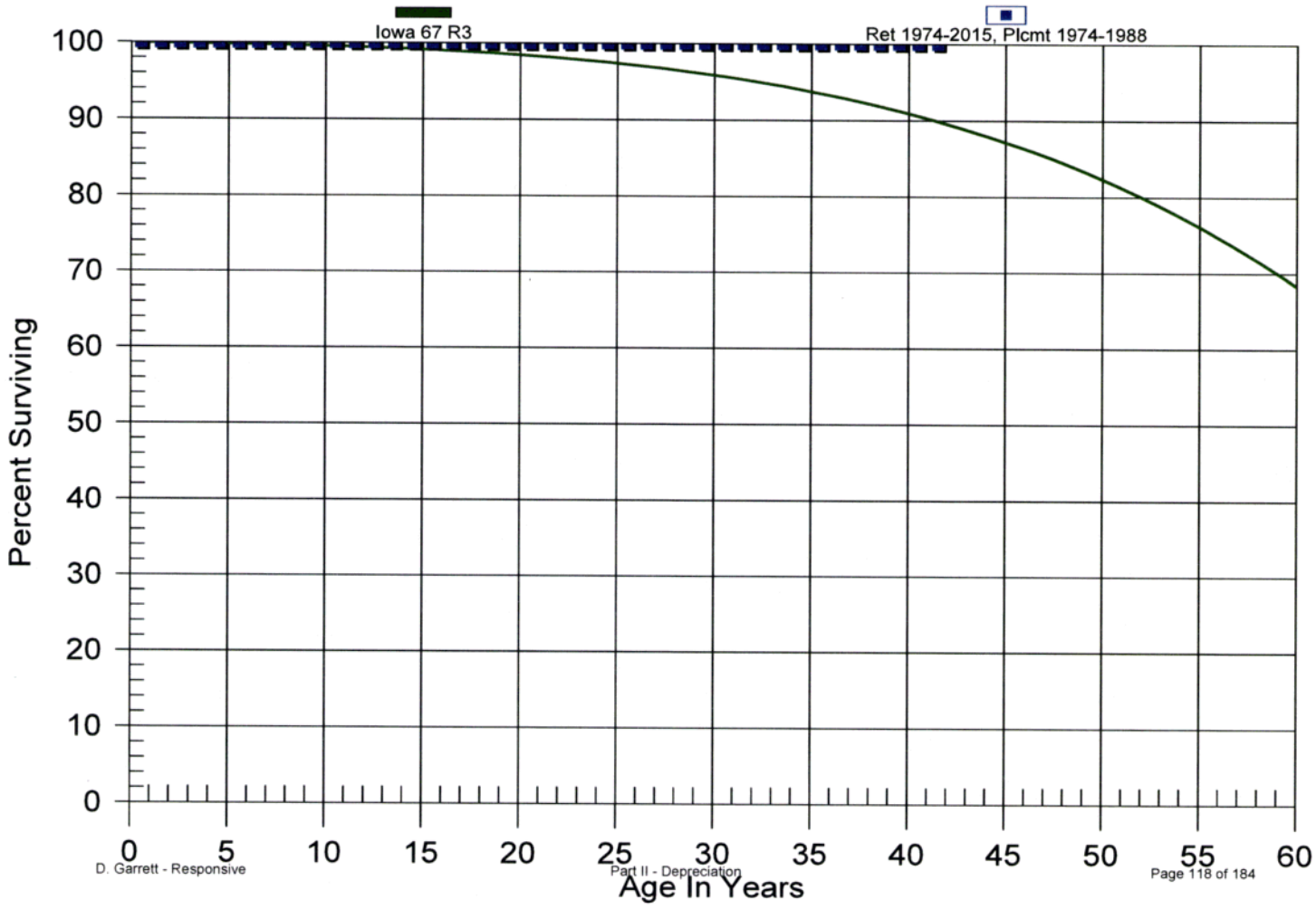
Observed Life Table

Retirement Expr. 1974 TO 2015
Placement Years 1974 TO 1988

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	$64,866.00	$0.00	0.00000	100.00
37.5 - 38.5	$64,866.00	$0.00	0.00000	100.00
38.5 - 39.5	$64,866.00	$0.00	0.00000	100.00
39.5 - 40.5	$34,530.00	$0.00	0.00000	100.00
40.5 - 41.5	$19,954.00	$0.00	0.00000	100.00

APS

Electric Division
354.02 Towers and Fixtures
Original And Smooth Survivor Curves



APS
Electric Division
355.04 Poles and Fixtures
Observed Life Table
Retirement Expr. 2004 TO 2015
Placement Years 1962 TO 2008

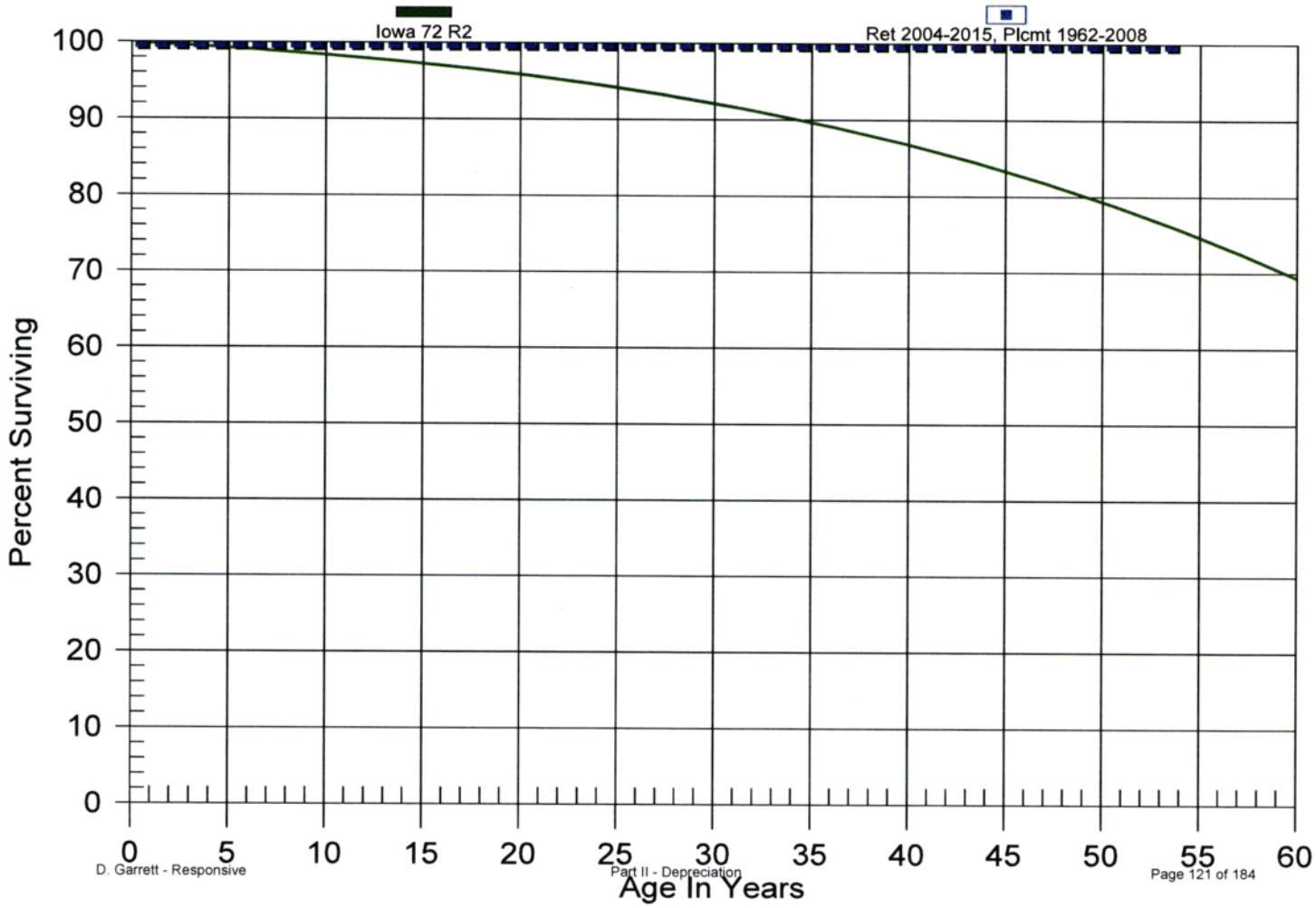
Age Interval	*$ Surviving At Beginning of Age Interval*	*$ Retired During The Age Interval*	*Retirement Ratio*	*% Surviving At Beginning of Age Interval*
0.0 - 0.5	$3,195.00	$0.00	0.00000	100.00
0.5 - 1.5	($1,358,163.00)	$0.00	0.00000	100.00
1.5 - 2.5	$1,364,553.00	$0.00	0.00000	100.00
2.5 - 3.5	$1,364,553.00	$0.00	0.00000	100.00
3.5 - 4.5	$1,364,553.00	$0.00	0.00000	100.00
4.5 - 5.5	$1,364,553.00	$0.00	0.00000	100.00
5.5 - 6.5	$1,364,553.00	$0.00	0.00000	100.00
6.5 - 7.5	$1,364,553.00	$0.00	0.00000	100.00
7.5 - 8.5	$1,364,542.00	$0.00	0.00000	100.00
8.5 - 9.5	$1,361,358.00	$0.00	0.00000	100.00
9.5 - 10.5	$1,361,358.00	$0.00	0.00000	100.00
10.5 - 11.5	$1,361,358.00	$0.00	0.00000	100.00
11.5 - 12.5	$1,361,358.00	$0.00	0.00000	100.00
12.5 - 13.5	$1,361,358.00	$0.00	0.00000	100.00
13.5 - 14.5	$0.00	$0.00	0.00000	100.00
14.5 - 15.5	$0.00	$0.00	0.00000	100.00
15.5 - 16.5	$0.00	$0.00	0.00000	100.00
16.5 - 17.5	$0.00	$0.00	0.00000	100.00
17.5 - 18.5	$0.00	$0.00	0.00000	100.00
18.5 - 19.5	$0.00	$0.00	0.00000	100.00
19.5 - 20.5	$0.00	$0.00	0.00000	100.00
20.5 - 21.5	$0.00	$0.00	0.00000	100.00
21.5 - 22.5	$0.00	$0.00	0.00000	100.00
22.5 - 23.5	$0.00	$0.00	0.00000	100.00
23.5 - 24.5	$0.00	$0.00	0.00000	100.00
24.5 - 25.5	$0.00	$0.00	0.00000	100.00
25.5 - 26.5	$0.00	$0.00	0.00000	100.00
26.5 - 27.5	$0.00	$0.00	0.00000	100.00
27.5 - 28.5	$0.00	$0.00	0.00000	100.00
28.5 - 29.5	$0.00	$0.00	0.00000	100.00
29.5 - 30.5	$0.00	$0.00	0.00000	100.00
30.5 - 31.5	$0.00	$0.00	0.00000	100.00
31.5 - 32.5	$183.00	$0.00	0.00000	100.00
32.5 - 33.5	$183.00	$0.00	0.00000	100.00
33.5 - 34.5	$183.00	$0.00	0.00000	100.00
34.5 - 35.5	$183.00	$0.00	0.00000	100.00
35.5 - 36.5	$183.00	$0.00	0.00000	100.00

APS
Electric Division
355.04 Poles and Fixtures
Observed Life Table
Retirement Expr. 2004 TO 2015
Placement Years 1962 TO 2008

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	$183.00	$0.00	0.00000	100.00
37.5 - 38.5	$183.00	$0.00	0.00000	100.00
38.5 - 39.5	$183.00	$0.00	0.00000	100.00
39.5 - 40.5	$183.00	$0.00	0.00000	100.00
40.5 - 41.5	$183.00	$0.00	0.00000	100.00
41.5 - 42.5	$5,532.00	$0.00	0.00000	100.00
42.5 - 43.5	$5,532.00	$0.00	0.00000	100.00
43.5 - 44.5	$5,349.00	$0.00	0.00000	100.00
44.5 - 45.5	$5,349.00	$0.00	0.00000	100.00
45.5 - 46.5	$5,349.00	$0.00	0.00000	100.00
46.5 - 47.5	$5,349.00	$0.00	0.00000	100.00
47.5 - 48.5	$5,349.00	$0.00	0.00000	100.00
48.5 - 49.5	$5,349.00	$0.00	0.00000	100.00
49.5 - 50.5	$5,349.00	$0.00	0.00000	100.00
50.5 - 51.5	$5,349.00	$0.00	0.00000	100.00
51.5 - 52.5	$5,349.00	$0.00	0.00000	100.00
52.5 - 53.5	$5,349.00	$0.00	0.00000	100.00

APS

Electric Division
355.04 Poles and Fixtures
Original And Smooth Survivor Curves



APS
Electric Division
356.02 Overhead Conductors and Devices
Observed Life Table
Retirement Expr. 1972 TO 2015
Placement Years 1962 TO 2002

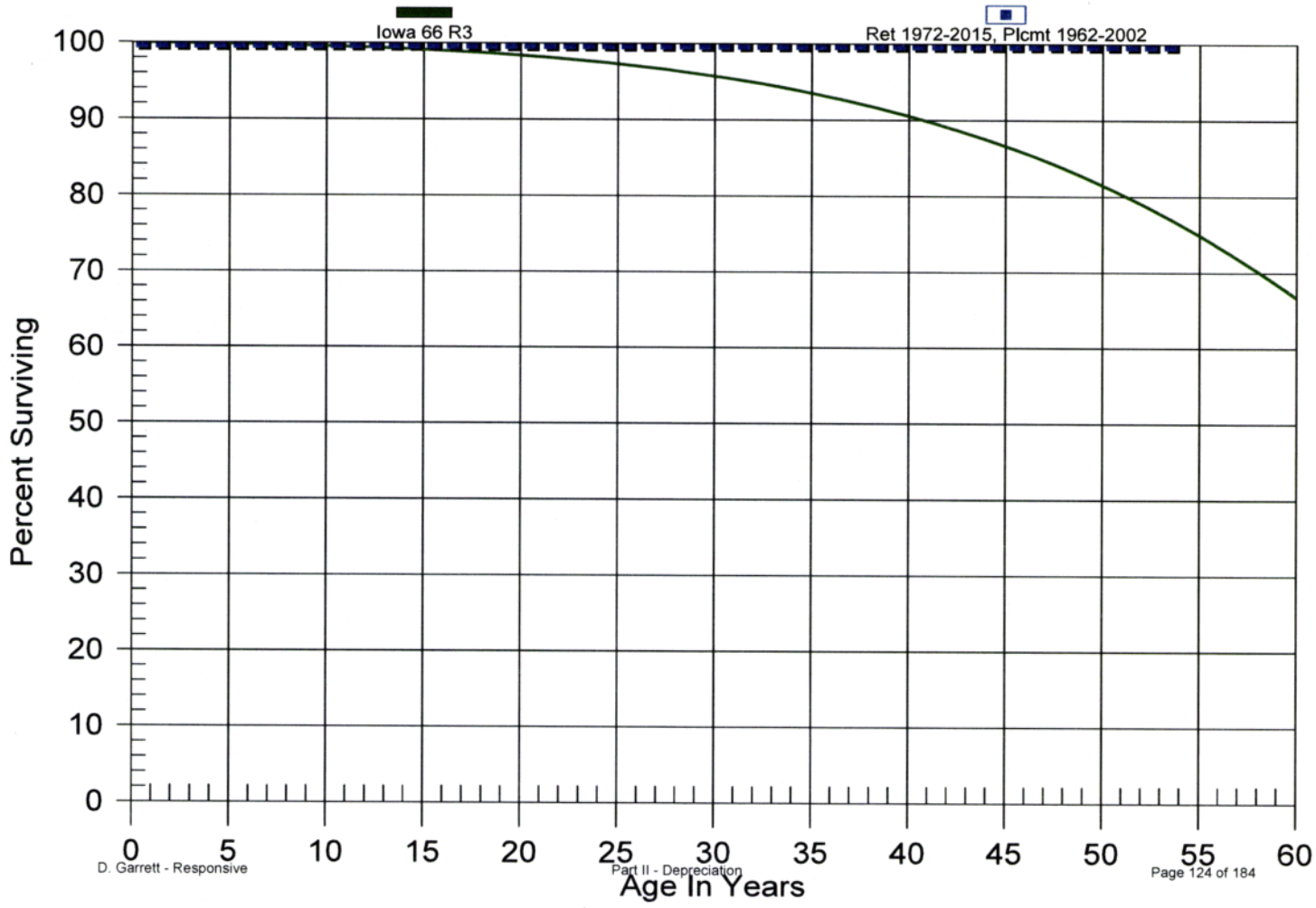
Age Interval	*$ Surviving At Beginning of Age Interval*	*$ Retired During The Age Interval*	*Retirement Ratio*	*% Surviving At Beginning of Age Interval*
0.0 - 0.5	$1,937,498.00	$0.00	0.00000	100.00
0.5 - 1.5	$1,937,498.00	$0.00	0.00000	100.00
1.5 - 2.5	$1,937,498.00	$0.00	0.00000	100.00
2.5 - 3.5	$1,937,498.00	$0.00	0.00000	100.00
3.5 - 4.5	$1,937,498.00	$0.00	0.00000	100.00
4.5 - 5.5	$1,937,498.00	$0.00	0.00000	100.00
5.5 - 6.5	$1,937,498.00	$0.00	0.00000	100.00
6.5 - 7.5	$1,937,498.00	$0.00	0.00000	100.00
7.5 - 8.5	$1,937,498.00	$0.00	0.00000	100.00
8.5 - 9.5	$1,937,498.00	$0.00	0.00000	100.00
9.5 - 10.5	$1,947,677.00	$0.00	0.00000	100.00
10.5 - 11.5	$1,947,677.00	$0.00	0.00000	100.00
11.5 - 12.5	$1,947,677.00	$0.00	0.00000	100.00
12.5 - 13.5	$1,947,677.00	$0.00	0.00000	100.00
13.5 - 14.5	$586,319.00	$0.00	0.00000	100.00
14.5 - 15.5	$586,319.00	$0.00	0.00000	100.00
15.5 - 16.5	$586,319.00	$0.00	0.00000	100.00
16.5 - 17.5	$586,319.00	$0.00	0.00000	100.00
17.5 - 18.5	$586,319.00	$0.00	0.00000	100.00
18.5 - 19.5	$586,319.00	$0.00	0.00000	100.00
19.5 - 20.5	$586,319.00	$0.00	0.00000	100.00
20.5 - 21.5	$586,319.00	$0.00	0.00000	100.00
21.5 - 22.5	$586,319.00	$0.00	0.00000	100.00
22.5 - 23.5	$586,319.00	$0.00	0.00000	100.00
23.5 - 24.5	$586,319.00	$0.00	0.00000	100.00
24.5 - 25.5	$586,319.00	$0.00	0.00000	100.00
25.5 - 26.5	$586,319.00	$0.00	0.00000	100.00
26.5 - 27.5	$586,319.00	$0.00	0.00000	100.00
27.5 - 28.5	$405,848.00	$0.00	0.00000	100.00
28.5 - 29.5	$405,848.00	$0.00	0.00000	100.00
29.5 - 30.5	$18,393.00	$0.00	0.00000	100.00
30.5 - 31.5	$18,393.00	$0.00	0.00000	100.00
31.5 - 32.5	$18,393.00	$0.00	0.00000	100.00
32.5 - 33.5	$18,393.00	$0.00	0.00000	100.00
33.5 - 34.5	$18,393.00	$0.00	0.00000	100.00
34.5 - 35.5	$18,393.00	$0.00	0.00000	100.00
35.5 - 36.5	$18,393.00	$0.00	0.00000	100.00

APS
Electric Division
356.02 Overhead Conductors and Devices
Observed Life Table
Retirement Expr. 1972 TO 2015
Placement Years 1962 TO 2002

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	$14,897.00	$0.00	0.00000	100.00
37.5 - 38.5	$14,897.00	$0.00	0.00000	100.00
38.5 - 39.5	$14,897.00	$0.00	0.00000	100.00
39.5 - 40.5	$9,062.00	$0.00	0.00000	100.00
40.5 - 41.5	$14,797.00	$0.00	0.00000	100.00
41.5 - 42.5	$10,959.00	$0.00	0.00000	100.00
42.5 - 43.5	$10,959.00	$0.00	0.00000	100.00
43.5 - 44.5	$10,179.00	$0.00	0.00000	100.00
44.5 - 45.5	$10,179.00	$0.00	0.00000	100.00
45.5 - 46.5	$10,179.00	$0.00	0.00000	100.00
46.5 - 47.5	$10,179.00	$0.00	0.00000	100.00
47.5 - 48.5	$10,179.00	$0.00	0.00000	100.00
48.5 - 49.5	$10,179.00	$0.00	0.00000	100.00
49.5 - 50.5	$10,179.00	$0.00	0.00000	100.00
50.5 - 51.5	$10,179.00	$0.00	0.00000	100.00
51.5 - 52.5	$10,179.00	$0.00	0.00000	100.00
52.5 - 53.5	$10,179.00	$0.00	0.00000	100.00

APS

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



APS
Electric Division
361.00 Structures and Improvements
Observed Life Table
Retirement Expr. 1971 TO 2015
Placement Years 1940 TO 2015

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	$79,723,446.00	$0.00	0.00000	100.00
0.5 - 1.5	$78,964,120.00	$38,412.00	0.00049	100.00
1.5 - 2.5	$78,604,247.00	$124,081.00	0.00158	99.95
2.5 - 3.5	$74,827,392.00	$17,024.00	0.00023	99.79
3.5 - 4.5	$71,314,082.00	$219,791.00	0.00308	99.77
4.5 - 5.5	$64,710,357.00	$51,421.00	0.00079	99.46
5.5 - 6.5	$58,408,090.00	$204,948.00	0.00351	99.38
6.5 - 7.5	$51,595,178.00	$37,097.00	0.00072	99.04
7.5 - 8.5	$40,421,212.00	$16,754.00	0.00041	98.96
8.5 - 9.5	$38,056,272.00	$50,585.00	0.00133	98.92
9.5 - 10.5	$35,721,916.00	$86,682.00	0.00243	98.79
10.5 - 11.5	$31,872,476.00	$11,166.00	0.00035	98.55
11.5 - 12.5	$29,672,858.00	$161,520.00	0.00544	98.52
12.5 - 13.5	$27,753,653.00	$25,181.00	0.00091	97.98
13.5 - 14.5	$26,606,878.00	$109,114.00	0.00410	97.89
14.5 - 15.5	$24,277,841.00	$74,221.00	0.00306	97.49
15.5 - 16.5	$23,707,577.00	$80,581.00	0.00340	97.19
16.5 - 17.5	$21,860,259.00	$153,487.00	0.00702	96.86
17.5 - 18.5	$19,962,087.00	$57,813.00	0.00290	96.18
18.5 - 19.5	$19,396,218.00	$860.00	0.00004	95.90
19.5 - 20.5	$18,282,976.00	$75,325.00	0.00412	95.90
20.5 - 21.5	$16,798,663.00	$48,030.00	0.00286	95.50
21.5 - 22.5	$15,583,198.00	$124,882.00	0.00801	95.23
22.5 - 23.5	$14,795,053.00	$32,628.00	0.00221	94.47
23.5 - 24.5	$14,576,141.00	$64,572.00	0.00443	94.26
24.5 - 25.5	$13,709,064.00	$100,293.00	0.00732	93.84
25.5 - 26.5	$12,097,634.00	$82,697.00	0.00684	93.16
26.5 - 27.5	$11,022,904.00	$59,218.00	0.00537	92.52
27.5 - 28.5	$9,487,823.00	$41,173.00	0.00434	92.02
28.5 - 29.5	$8,315,705.00	$28,134.00	0.00338	91.62
29.5 - 30.5	$6,389,970.00	$20,667.00	0.00323	91.31
30.5 - 31.5	$5,864,150.00	$38,965.00	0.00664	91.02
31.5 - 32.5	$5,430,362.00	$19,458.00	0.00358	90.41
32.5 - 33.5	$4,898,113.00	$16,740.00	0.00342	90.09
33.5 - 34.5	$4,316,714.00	$15,176.00	0.00352	89.78
34.5 - 35.5	$4,050,685.00	$18,190.00	0.00449	89.47
35.5 - 36.5	$3,488,349.00	$31,210.00	0.00895	89.06

APS
Electric Division
361.00 Structures and Improvements
Observed Life Table
Retirement Expr. 1971 TO 2015
Placement Years 1940 TO 2015

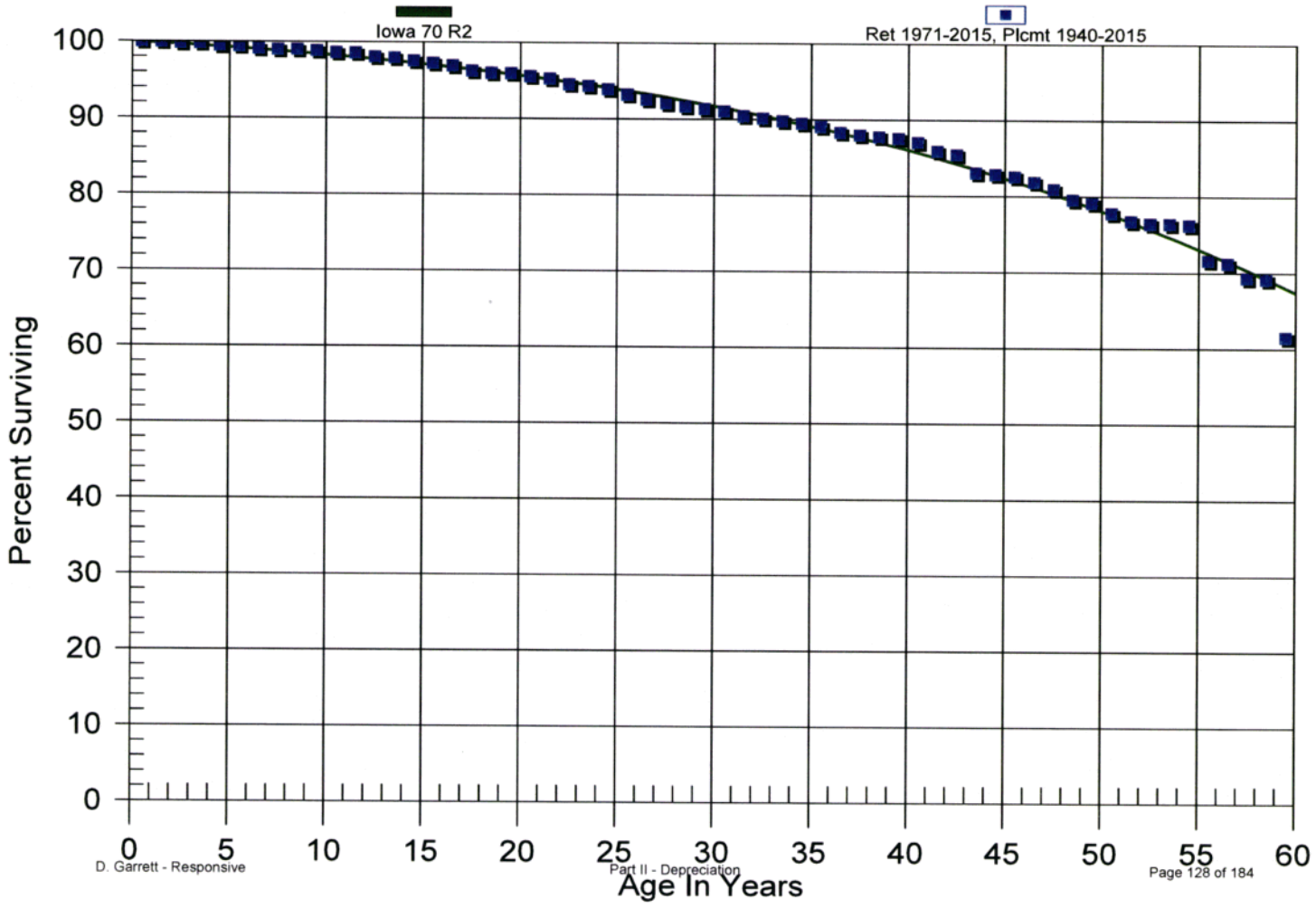
Age Interval	*$ Surviving At Beginning of Age Interval*	*$ Retired During The Age Interval*	*Retirement Ratio*	*% Surviving At Beginning of Age Interval*
36.5 - 37.5	$2,673,138.00	$9,845.00	0.00368	88.27
37.5 - 38.5	$2,414,256.00	$6,125.00	0.00254	87.94
38.5 - 39.5	$2,255,184.00	$4,828.00	0.00214	87.72
39.5 - 40.5	$2,145,926.00	$12,843.00	0.00598	87.53
40.5 - 41.5	$2,065,765.00	$27,605.00	0.01336	87.01
41.5 - 42.5	$1,701,513.00	$8,621.00	0.00507	85.84
42.5 - 43.5	$1,416,142.00	$39,274.00	0.02773	85.41
43.5 - 44.5	$1,181,344.00	$2,988.00	0.00253	83.04
44.5 - 45.5	$1,130,384.00	$4,090.00	0.00362	82.83
45.5 - 46.5	$898,714.00	$7,337.00	0.00816	82.53
46.5 - 47.5	$792,369.00	$9,373.00	0.01183	81.86
47.5 - 48.5	$762,347.00	$12,864.00	0.01687	80.89
48.5 - 49.5	$677,169.00	$3,421.00	0.00505	79.52
49.5 - 50.5	$670,165.00	$11,405.00	0.01702	79.12
50.5 - 51.5	$613,766.00	$8,074.00	0.01315	77.78
51.5 - 52.5	$560,398.00	$2,481.00	0.00443	76.75
52.5 - 53.5	$518,722.00	$150.00	0.00029	76.41
53.5 - 54.5	$434,995.00	$847.00	0.00195	76.39
54.5 - 55.5	$401,173.00	$24,395.00	0.06081	76.24
55.5 - 56.5	$309,047.00	$1,688.00	0.00546	71.61
56.5 - 57.5	$276,740.00	$7,422.00	0.02682	71.21
57.5 - 58.5	$221,982.00	$413.00	0.00186	69.30
58.5 - 59.5	$155,024.00	$17,138.00	0.11055	69.18
59.5 - 60.5	$109,571.00	$6,078.00	0.05547	61.53
60.5 - 61.5	$72,479.00	$254.00	0.00350	58.12
61.5 - 62.5	$65,362.00	$0.00	0.00000	57.91
62.5 - 63.5	$62,298.00	$642.00	0.01031	57.91
63.5 - 64.5	$26,379.00	$0.00	0.00000	57.31
64.5 - 65.5	$26,379.00	$0.00	0.00000	57.31
65.5 - 66.5	$14,867.00	$0.00	0.00000	57.31
66.5 - 67.5	$8,365.00	$0.00	0.00000	57.31
67.5 - 68.5	$8,365.00	$0.00	0.00000	57.31
68.5 - 69.5	$8,365.00	$0.00	0.00000	57.31
69.5 - 70.5	$8,365.00	$0.00	0.00000	57.31
70.5 - 71.5	$6,496.00	$0.00	0.00000	57.31
71.5 - 72.5	$6,496.00	$0.00	0.00000	57.31
72.5 - 73.5	$6,496.00	$0.00	0.00000	57.31

APS
Electric Division
361.00 Structures and Improvements
Observed Life Table
Retirement Expr. 1971 TO 2015
Placement Years 1940 TO 2015

Age Interval	*$ Surviving At Beginning of Age Interval*	*$ Retired During The Age Interval*	*Retirement Ratio*	*% Surviving At Beginning of Age Interval*
73.5 - 74.5	$0.00	$0.00	0.00000	57.31
74.5 - 75.5	$0.00	$0.00	0.00000	57.31

APS

Electric Division
361.00 Structures and Improvements
Original And Smooth Survivor Curves



APS
Electric Division
364.02 Poles, Towers, and Fixtures - Steel
Observed Life Table
Retirement Expr. 2004 TO 2015
Placement Years 1955 TO 2015

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	$199,450,698.00	$578,478.00	0.00290	100.00
0.5 - 1.5	$199,135,501.00	$779,492.00	0.00391	99.71
1.5 - 2.5	$197,835,972.00	$1,259,373.00	0.00637	99.32
2.5 - 3.5	$189,612,617.00	$1,714,936.00	0.00904	98.69
3.5 - 4.5	$182,286,551.00	$1,638,802.00	0.00899	97.79
4.5 - 5.5	$167,817,606.00	$1,850,035.00	0.01102	96.92
5.5 - 6.5	$153,778,365.00	$1,648,683.00	0.01072	95.85
6.5 - 7.5	$133,699,958.00	$1,869,585.00	0.01398	94.82
7.5 - 8.5	$120,782,490.00	$1,257,260.00	0.01041	93.49
8.5 - 9.5	$97,312,093.00	$1,300,835.00	0.01337	92.52
9.5 - 10.5	$71,368,237.00	$1,003,155.00	0.01406	91.28
10.5 - 11.5	$65,643,709.00	$899,486.00	0.01370	90.00
11.5 - 12.5	$51,953,505.00	$415,274.00	0.00799	88.77
12.5 - 13.5	$39,827,269.00	$286,452.00	0.00719	88.06
13.5 - 14.5	$27,216,035.00	$580,314.00	0.02132	87.42
14.5 - 15.5	$16,999,932.00	$368,815.00	0.02170	85.56
15.5 - 16.5	$7,978,216.00	$32,874.00	0.00412	83.70
16.5 - 17.5	$8,562,156.00	$25,858.00	0.00302	83.36
17.5 - 18.5	$7,148,988.00	$75,818.00	0.01061	83.11
18.5 - 19.5	$6,984,734.00	$26,995.00	0.00386	82.23
19.5 - 20.5	$1,866,428.00	$31,303.00	0.01677	81.91
20.5 - 21.5	$1,616,313.00	$6,044.00	0.00374	80.53
21.5 - 22.5	$1,262,929.00	$5,072.00	0.00402	80.23
22.5 - 23.5	$1,274,144.00	$4,725.00	0.00371	79.91
23.5 - 24.5	$1,175,462.00	$443.00	0.00038	79.61
24.5 - 25.5	$1,133,027.00	$5,152.00	0.00455	79.58
25.5 - 26.5	$973,697.00	$4,243.00	0.00436	79.22
26.5 - 27.5	$740,476.00	$8,859.00	0.01196	78.88
27.5 - 28.5	$665,851.00	$8,559.00	0.01285	77.93
28.5 - 29.5	$486,971.00	$5,065.00	0.01040	76.93
29.5 - 30.5	$436,889.00	$1,120.00	0.00256	76.13
30.5 - 31.5	$355,345.00	$4,538.00	0.01277	75.94
31.5 - 32.5	$343,361.00	$2,148.00	0.00626	74.97
32.5 - 33.5	$307,333.00	$2,442.00	0.00795	74.50
33.5 - 34.5	$296,606.00	$3,479.00	0.01173	73.91
34.5 - 35.5	$232,540.00	$3,090.00	0.01329	73.04
35.5 - 36.5	$214,228.00	$360.00	0.00168	72.07

APS
Electric Division
364.02 Poles, Towers, and Fixtures - Steel
Observed Life Table
Retirement Expr. 2004 TO 2015
Placement Years 1955 TO 2015

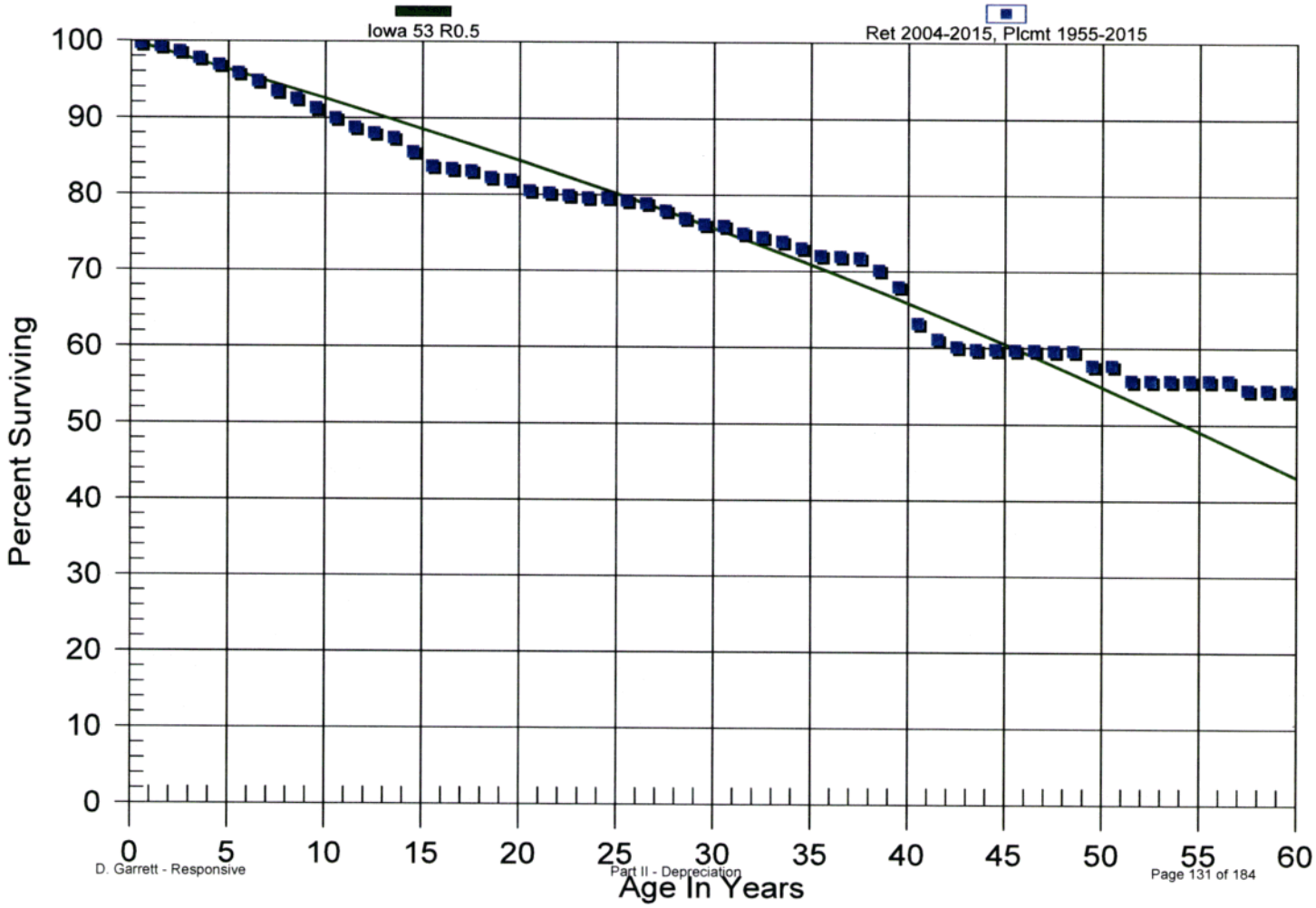
Age Interval	*$ Surviving At Beginning of Age Interval*	*$ Retired During The Age Interval*	*Retirement Ratio*	*% Surviving At Beginning of Age Interval*
36.5 - 37.5	$200,382.00	$490.00	0.00245	71.95
37.5 - 38.5	$163,717.00	$3,661.00	0.02236	71.77
38.5 - 39.5	$157,212.00	$4,837.00	0.03077	70.17
39.5 - 40.5	$133,845.00	$9,489.00	0.07090	68.01
40.5 - 41.5	$105,765.00	$3,462.00	0.03273	63.19
41.5 - 42.5	$93,779.00	$1,476.00	0.01574	61.12
42.5 - 43.5	$83,897.00	$517.00	0.00616	60.16
43.5 - 44.5	$78,403.00	$0.00	0.00000	59.79
44.5 - 45.5	$66,683.00	$53.00	0.00079	59.79
45.5 - 46.5	$58,928.00	$0.00	0.00000	59.74
46.5 - 47.5	$78,478.00	$140.00	0.00178	59.74
47.5 - 48.5	$78,685.00	$0.00	0.00000	59.63
48.5 - 49.5	$88,678.00	$2,856.00	0.03221	59.63
49.5 - 50.5	$84,058.00	$0.00	0.00000	57.71
50.5 - 51.5	$80,473.00	$2,743.00	0.03409	57.71
51.5 - 52.5	$71,377.00	$0.00	0.00000	55.74
52.5 - 53.5	$67,115.00	$0.00	0.00000	55.74
53.5 - 54.5	$62,013.00	$0.00	0.00000	55.74
54.5 - 55.5	$59,733.00	$0.00	0.00000	55.74
55.5 - 56.5	$52,733.00	$0.00	0.00000	55.74
56.5 - 57.5	$52,733.00	$1,117.00	0.02118	55.74
57.5 - 58.5	$44,334.00	$0.00	0.00000	54.56
58.5 - 59.5	$18,699.00	$0.00	0.00000	54.56
59.5 - 60.5	$13,187.00	$0.00	0.00000	54.56

APS

Electric Division

364.02 Poles, Towers, and Fixtures - Steel

Original And Smooth Survivor Curves



APS
Electric Division
366.00 Underground Conduit
Observed Life Table
Retirement Expr. 1971 TO 2015
Placement Years 1940 TO 2015

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	$720,521,522.00	$814,658.00	0.00113	100.00
0.5 - 1.5	$706,920,502.00	$1,805,096.00	0.00255	99.89
1.5 - 2.5	$689,379,468.00	$1,557,028.00	0.00226	99.63
2.5 - 3.5	$675,530,961.00	$2,293,198.00	0.00339	99.41
3.5 - 4.5	$658,630,492.00	$1,005,177.00	0.00153	99.07
4.5 - 5.5	$644,055,161.00	$908,647.00	0.00141	98.92
5.5 - 6.5	$629,303,781.00	$963,020.00	0.00153	98.78
6.5 - 7.5	$614,304,220.00	$923,150.00	0.00150	98.63
7.5 - 8.5	$594,226,508.00	$1,030,905.00	0.00173	98.48
8.5 - 9.5	$567,521,609.00	$857,591.00	0.00151	98.31
9.5 - 10.5	$539,368,350.00	$1,042,800.00	0.00193	98.16
10.5 - 11.5	$512,038,859.00	$1,281,842.00	0.00250	97.97
11.5 - 12.5	$471,212,974.00	$1,299,251.00	0.00276	97.72
12.5 - 13.5	$433,052,506.00	$1,580,340.00	0.00365	97.46
13.5 - 14.5	$393,622,721.00	$1,967,595.00	0.00500	97.10
14.5 - 15.5	$352,089,690.00	$1,988,273.00	0.00565	96.61
15.5 - 16.5	$317,454,029.00	$1,525,633.00	0.00481	96.07
16.5 - 17.5	$282,213,488.00	$1,749,953.00	0.00620	95.61
17.5 - 18.5	$246,828,462.00	$1,484,667.00	0.00601	95.01
18.5 - 19.5	$214,272,231.00	$1,566,365.00	0.00731	94.44
19.5 - 20.5	$179,951,592.00	$1,360,347.00	0.00756	93.75
20.5 - 21.5	$154,378,566.00	$1,433,971.00	0.00929	93.04
21.5 - 22.5	$122,582,433.00	$1,233,519.00	0.01006	92.18
22.5 - 23.5	$67,520,861.00	$716,274.00	0.01061	91.25
23.5 - 24.5	$60,523,662.00	$793,267.00	0.01311	90.28
24.5 - 25.5	$49,005,813.00	$810,792.00	0.01654	89.10
25.5 - 26.5	$35,549,041.00	$977,430.00	0.02750	87.63
26.5 - 27.5	$30,582,356.00	$544,374.00	0.01780	85.22
27.5 - 28.5	$23,457,337.00	$751,735.00	0.03205	83.70
28.5 - 29.5	$20,443,319.00	$552,713.00	0.02704	81.02
29.5 - 30.5	$18,427,369.00	$332,547.00	0.01805	78.83
30.5 - 31.5	$17,560,112.00	$405,044.00	0.02307	77.40
31.5 - 32.5	$15,547,930.00	$233,145.00	0.01500	75.62
32.5 - 33.5	$13,834,128.00	$149,741.00	0.01082	74.49
33.5 - 34.5	$12,547,739.00	$198,721.00	0.01584	73.68
34.5 - 35.5	$11,072,594.00	$249,213.00	0.02251	72.51
35.5 - 36.5	$9,827,517.00	$150,290.00	0.01529	70.88

APS
Electric Division
366.00 Underground Conduit
Observed Life Table
Retirement Expr. 1971 TO 2015
Placement Years 1940 TO 2015

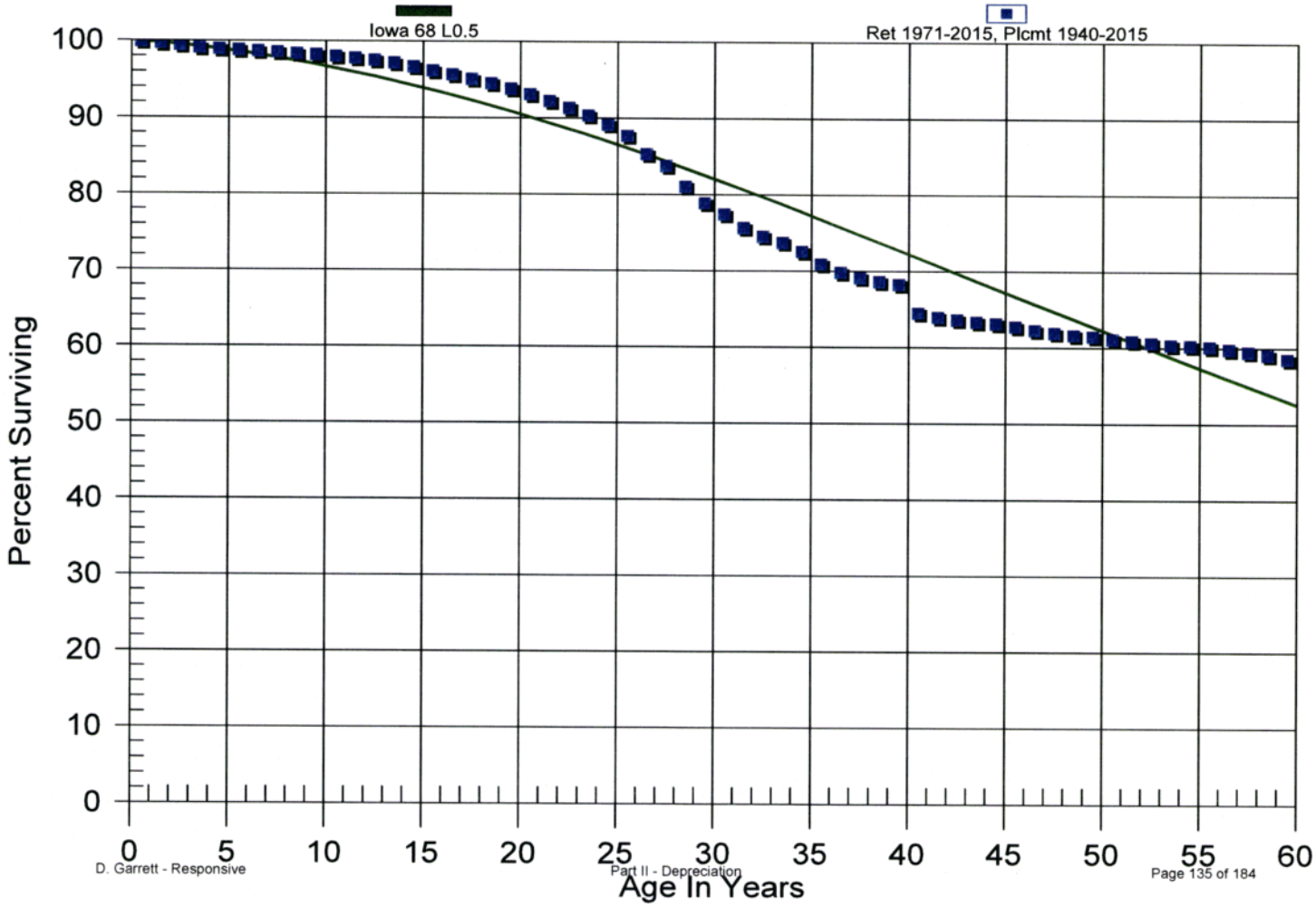
Age Interval	*$ Surviving At Beginning of Age Interval*	*$ Retired During The Age Interval*	*Retirement Ratio*	*% Surviving At Beginning of Age Interval*
36.5 - 37.5	$9,181,273.00	$87,896.00	0.00957	69.80
37.5 - 38.5	$8,522,800.00	$61,771.00	0.00725	69.13
38.5 - 39.5	$8,049,728.00	$41,775.00	0.00519	68.63
39.5 - 40.5	$7,720,012.00	$427,486.00	0.05537	68.27
40.5 - 41.5	$6,803,111.00	$56,182.00	0.00826	64.49
41.5 - 42.5	$6,347,536.00	$30,883.00	0.00487	63.96
42.5 - 43.5	$6,025,710.00	$26,266.00	0.00436	63.65
43.5 - 44.5	$5,512,003.00	$21,260.00	0.00386	63.37
44.5 - 45.5	$4,657,540.00	$30,029.00	0.00645	63.12
45.5 - 46.5	$4,164,210.00	$29,967.00	0.00720	62.72
46.5 - 47.5	$3,886,847.00	$21,504.00	0.00553	62.27
47.5 - 48.5	$3,212,900.00	$15,048.00	0.00468	61.92
48.5 - 49.5	$2,407,703.00	$6,227.00	0.00259	61.63
49.5 - 50.5	$2,296,062.00	$13,140.00	0.00572	61.47
50.5 - 51.5	$2,164,699.00	$8,338.00	0.00385	61.12
51.5 - 52.5	$1,762,236.00	$7,235.00	0.00411	60.89
52.5 - 53.5	$1,647,541.00	$7,039.00	0.00427	60.64
53.5 - 54.5	$1,608,488.00	$2,561.00	0.00159	60.38
54.5 - 55.5	$698,041.00	$1,390.00	0.00199	60.28
55.5 - 56.5	$679,657.00	$4,057.00	0.00597	60.16
56.5 - 57.5	$675,600.00	$3,674.00	0.00544	59.80
57.5 - 58.5	$666,782.00	$4,194.00	0.00629	59.48
58.5 - 59.5	$646,822.00	$6,214.00	0.00961	59.10
59.5 - 60.5	$0.00	$0.00	0.00000	58.53
60.5 - 61.5	$0.00	$0.00	0.00000	58.53
61.5 - 62.5	$0.00	$0.00	0.00000	58.53
62.5 - 63.5	$0.00	$0.00	0.00000	58.53
63.5 - 64.5	$0.00	$0.00	0.00000	58.53
64.5 - 65.5	$0.00	$0.00	0.00000	58.53
65.5 - 66.5	$0.00	$0.00	0.00000	58.53
66.5 - 67.5	$0.00	$0.00	0.00000	58.53
67.5 - 68.5	$0.00	$0.00	0.00000	58.53
68.5 - 69.5	$0.00	$0.00	0.00000	58.53
69.5 - 70.5	$0.00	$0.00	0.00000	58.53
70.5 - 71.5	$0.00	$0.00	0.00000	58.53
71.5 - 72.5	$0.00	$0.00	0.00000	58.53
72.5 - 73.5	$0.00	$0.00	0.00000	58.53

APS
Electric Division
366.00 Underground Conduit
Observed Life Table
Retirement Expr. 1971 TO 2015
Placement Years 1940 TO 2015

Age Interval	*$ Surviving At Beginning of Age Interval*	*$ Retired During The Age Interval*	*Retirement Ratio*	*% Surviving At Beginning of Age Interval*
73.5 - 74.5	$0.00	$0.00	0.00000	58.53
74.5 - 75.5	$0.00	$0.00	0.00000	58.53

APS

Electric Division
366.00 Underground Conduit
Original And Smooth Survivor Curves



APS
Electric Division
367.00 Underground Conductors and Devices
Observed Life Table
Retirement Expr. 1971 TO 2015
Placement Years 1940 TO 2015

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	$1,898,806,054.00	$3,736,692.00	0.00197	100.00
0.5 - 1.5	$1,816,141,551.00	$7,562,869.00	0.00416	99.80
1.5 - 2.5	$1,736,889,978.00	$9,308,983.00	0.00536	99.39
2.5 - 3.5	$1,679,842,335.00	$8,833,951.00	0.00526	98.85
3.5 - 4.5	$1,619,742,435.00	$7,597,674.00	0.00469	98.34
4.5 - 5.5	$1,551,734,570.00	$6,947,544.00	0.00448	97.87
5.5 - 6.5	$1,491,096,524.00	$6,750,769.00	0.00453	97.44
6.5 - 7.5	$1,430,910,799.00	$4,619,629.00	0.00323	96.99
7.5 - 8.5	$1,332,226,699.00	$7,576,109.00	0.00569	96.68
8.5 - 9.5	$1,196,812,109.00	$6,595,818.00	0.00551	96.13
9.5 - 10.5	$1,085,891,199.00	$8,524,881.00	0.00785	95.60
10.5 - 11.5	$989,036,796.00	$9,478,418.00	0.00958	94.85
11.5 - 12.5	$910,653,323.00	$12,401,546.00	0.01362	93.94
12.5 - 13.5	$839,413,792.00	$10,185,279.00	0.01213	92.66
13.5 - 14.5	$767,130,486.00	$11,054,997.00	0.01441	91.54
14.5 - 15.5	$688,772,912.00	$10,489,485.00	0.01523	90.22
15.5 - 16.5	$620,248,425.00	$14,158,327.00	0.02283	88.85
16.5 - 17.5	$550,964,443.00	$9,590,598.00	0.01741	86.82
17.5 - 18.5	$473,070,262.00	$10,637,470.00	0.02249	85.31
18.5 - 19.5	$417,645,434.00	$9,733,876.00	0.02331	83.39
19.5 - 20.5	$363,526,582.00	$8,122,345.00	0.02234	81.44
20.5 - 21.5	$328,010,214.00	$8,794,947.00	0.02681	79.62
21.5 - 22.5	$293,022,701.00	$7,262,234.00	0.02478	77.49
22.5 - 23.5	$264,560,495.00	$7,670,452.00	0.02899	75.57
23.5 - 24.5	$222,751,105.00	$5,969,029.00	0.02680	73.38
24.5 - 25.5	$194,897,812.00	$5,331,272.00	0.02735	71.41
25.5 - 26.5	$154,309,783.00	$5,291,221.00	0.03429	69.46
26.5 - 27.5	$124,203,431.00	$3,981,412.00	0.03206	67.08
27.5 - 28.5	$103,769,062.00	$2,926,942.00	0.02821	64.93
28.5 - 29.5	$88,992,377.00	$1,564,586.00	0.01758	63.10
29.5 - 30.5	$86,679,582.00	$1,735,072.00	0.02002	61.99
30.5 - 31.5	$72,696,107.00	$1,593,689.00	0.02192	60.75
31.5 - 32.5	$63,105,252.00	$1,137,648.00	0.01803	59.41
32.5 - 33.5	$57,575,399.00	$1,489,824.00	0.02588	58.34
33.5 - 34.5	$51,636,893.00	$2,034,852.00	0.03941	56.83
34.5 - 35.5	$46,499,191.00	$819,932.00	0.01763	54.59
35.5 - 36.5	$41,276,062.00	$1,380,938.00	0.03346	53.63

APS
Electric Division
367.00 Underground Conductors and Devices
Observed Life Table
Retirement Expr. 1971 TO 2015
Placement Years 1940 TO 2015

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	$37,597,584.00	$3,019,282.00	0.08031	51.84
37.5 - 38.5	$31,779,270.00	$176,565.00	0.00556	47.67
38.5 - 39.5	$29,804,989.00	$305,186.00	0.01024	47.41
39.5 - 40.5	$28,021,565.00	$937,019.00	0.03344	46.92
40.5 - 41.5	$24,934,757.00	$833,497.00	0.03343	45.35
41.5 - 42.5	$22,993,308.00	$1,779,364.00	0.07739	43.84
42.5 - 43.5	$20,074,790.00	$237,568.00	0.01183	40.45
43.5 - 44.5	$18,623,602.00	$350,336.00	0.01881	39.97
44.5 - 45.5	$17,641,626.00	$94,877.00	0.00538	39.22
45.5 - 46.5	$13,986,908.00	$44,542.00	0.00318	39.00
46.5 - 47.5	$13,015,791.00	$174,088.00	0.01338	38.88
47.5 - 48.5	$10,918,455.00	$50,495.00	0.00462	38.36
48.5 - 49.5	$8,088,303.00	$29,158.00	0.00360	38.18
49.5 - 50.5	$7,281,743.00	$72,547.00	0.00996	38.04
50.5 - 51.5	$5,829,825.00	$44,819.00	0.00769	37.67
51.5 - 52.5	$4,498,422.00	$30,992.00	0.00689	37.38
52.5 - 53.5	$4,165,842.00	$6,360.00	0.00153	37.12
53.5 - 54.5	$4,158,361.00	$6,219.00	0.00150	37.06
54.5 - 55.5	$1,650,123.00	$2,025.00	0.00123	37.01
55.5 - 56.5	$1,600,199.00	$682.00	0.00043	36.96
56.5 - 57.5	$1,599,517.00	$1,991.00	0.00124	36.95
57.5 - 58.5	$1,558,265.00	$2,311.00	0.00148	36.90
58.5 - 59.5	$1,555,954.00	$3,015.00	0.00194	36.84
59.5 - 60.5	$0.00	$0.00	0.00000	36.77
60.5 - 61.5	$0.00	$0.00	0.00000	36.77
61.5 - 62.5	$0.00	$0.00	0.00000	36.77
62.5 - 63.5	$0.00	$0.00	0.00000	36.77
63.5 - 64.5	$0.00	$0.00	0.00000	36.77
64.5 - 65.5	$0.00	$0.00	0.00000	36.77
65.5 - 66.5	$0.00	$0.00	0.00000	36.77
66.5 - 67.5	$0.00	$0.00	0.00000	36.77
67.5 - 68.5	$0.00	$0.00	0.00000	36.77
68.5 - 69.5	$0.00	$0.00	0.00000	36.77
69.5 - 70.5	$0.00	$0.00	0.00000	36.77
70.5 - 71.5	$0.00	$0.00	0.00000	36.77
71.5 - 72.5	$0.00	$0.00	0.00000	36.77
72.5 - 73.5	$0.00	$0.00	0.00000	36.77

APS

Electric Division

367.00 Underground Conductors and Devices

Observed Life Table

Retirement Expr. 1971 TO 2015
Placement Years 1940 TO 2015

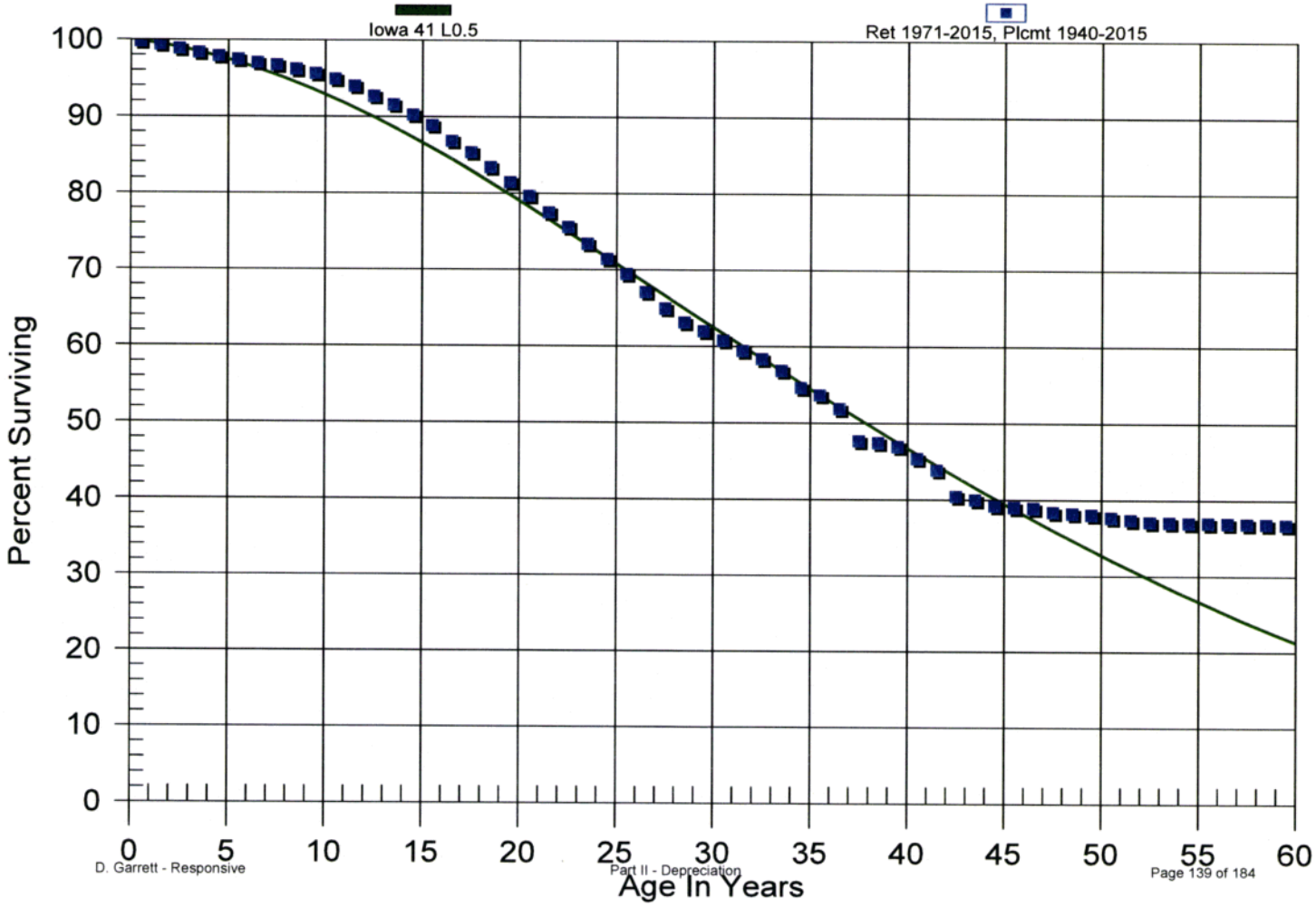
Age Interval	*$ Surviving At Beginning of Age Interval*	*$ Retired During The Age Interval*	*Retirement Ratio*	*% Surviving At Beginning of Age Interval*
73.5 - 74.5	$0.00	$0.00	0.00000	36.77
74.5 - 75.5	$0.00	$0.00	0.00000	36.77

APS

Electric Division

367.00 Underground Conductors and Devices

Original And Smooth Survivor Curves



APS
Electric Division
369.00 Services
Observed Life Table
Retirement Expr. 1971 TO 2015
Placement Years 1909 TO 2015

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	$414,386,928.00	$119,318.00	0.00029	100.00
0.5 - 1.5	$410,940,976.00	$1,163,416.00	0.00283	99.97
1.5 - 2.5	$401,220,439.00	$1,655,809.00	0.00413	99.69
2.5 - 3.5	$389,648,190.00	$1,245,096.00	0.00320	99.28
3.5 - 4.5	$382,865,419.00	$1,172,174.00	0.00306	98.96
4.5 - 5.5	$372,116,208.00	$1,256,516.00	0.00338	98.66
5.5 - 6.5	$366,075,185.00	$599,770.00	0.00164	98.32
6.5 - 7.5	$359,863,108.00	$1,624,578.00	0.00451	98.16
7.5 - 8.5	$345,048,782.00	$1,834,032.00	0.00532	97.72
8.5 - 9.5	$330,766,515.00	$1,536,529.00	0.00465	97.20
9.5 - 10.5	$315,818,873.00	$2,098,341.00	0.00664	96.75
10.5 - 11.5	$295,397,920.00	$1,936,635.00	0.00656	96.11
11.5 - 12.5	$277,197,631.00	$2,129,052.00	0.00768	95.48
12.5 - 13.5	$264,025,062.00	$2,469,642.00	0.00935	94.74
13.5 - 14.5	$243,862,986.00	$3,111,936.00	0.01276	93.86
14.5 - 15.5	$230,438,179.00	$1,961,662.00	0.00851	92.66
15.5 - 16.5	$218,163,994.00	$2,955,903.00	0.01355	91.87
16.5 - 17.5	$191,732,120.00	$1,727,546.00	0.00901	90.62
17.5 - 18.5	$175,451,727.00	$2,731,561.00	0.01557	89.81
18.5 - 19.5	$166,575,378.00	$2,643,278.00	0.01587	88.41
19.5 - 20.5	$154,917,030.00	$2,690,141.00	0.01737	87.01
20.5 - 21.5	$131,072,096.00	$3,588,017.00	0.02737	85.50
21.5 - 22.5	$115,709,374.00	$482,008.00	0.00417	83.16
22.5 - 23.5	$102,749,785.00	$830,561.00	0.00808	82.81
23.5 - 24.5	$96,007,839.00	$809,978.00	0.00844	82.14
24.5 - 25.5	$88,055,118.00	$788,136.00	0.00895	81.45
25.5 - 26.5	$78,387,549.00	$982,739.00	0.01254	80.72
26.5 - 27.5	$64,736,596.00	$256,804.00	0.00397	79.71
27.5 - 28.5	$56,852,710.00	$149,343.00	0.00263	79.39
28.5 - 29.5	$49,210,024.00	$194,920.00	0.00396	79.18
29.5 - 30.5	$44,336,961.00	$246,488.00	0.00556	78.87
30.5 - 31.5	$33,936,857.00	$134,084.00	0.00395	78.43
31.5 - 32.5	$26,124,896.00	$95,136.00	0.00364	78.12
32.5 - 33.5	$22,209,049.00	$68,453.00	0.00308	77.83
33.5 - 34.5	$19,667,030.00	$82,794.00	0.00421	77.59
34.5 - 35.5	$16,654,904.00	$93,887.00	0.00564	77.27
35.5 - 36.5	$15,735,083.00	$59,007.00	0.00375	76.83

APS
Electric Division
369.00 Services
Observed Life Table
Retirement Expr. 1971 TO 2015
Placement Years 1909 TO 2015

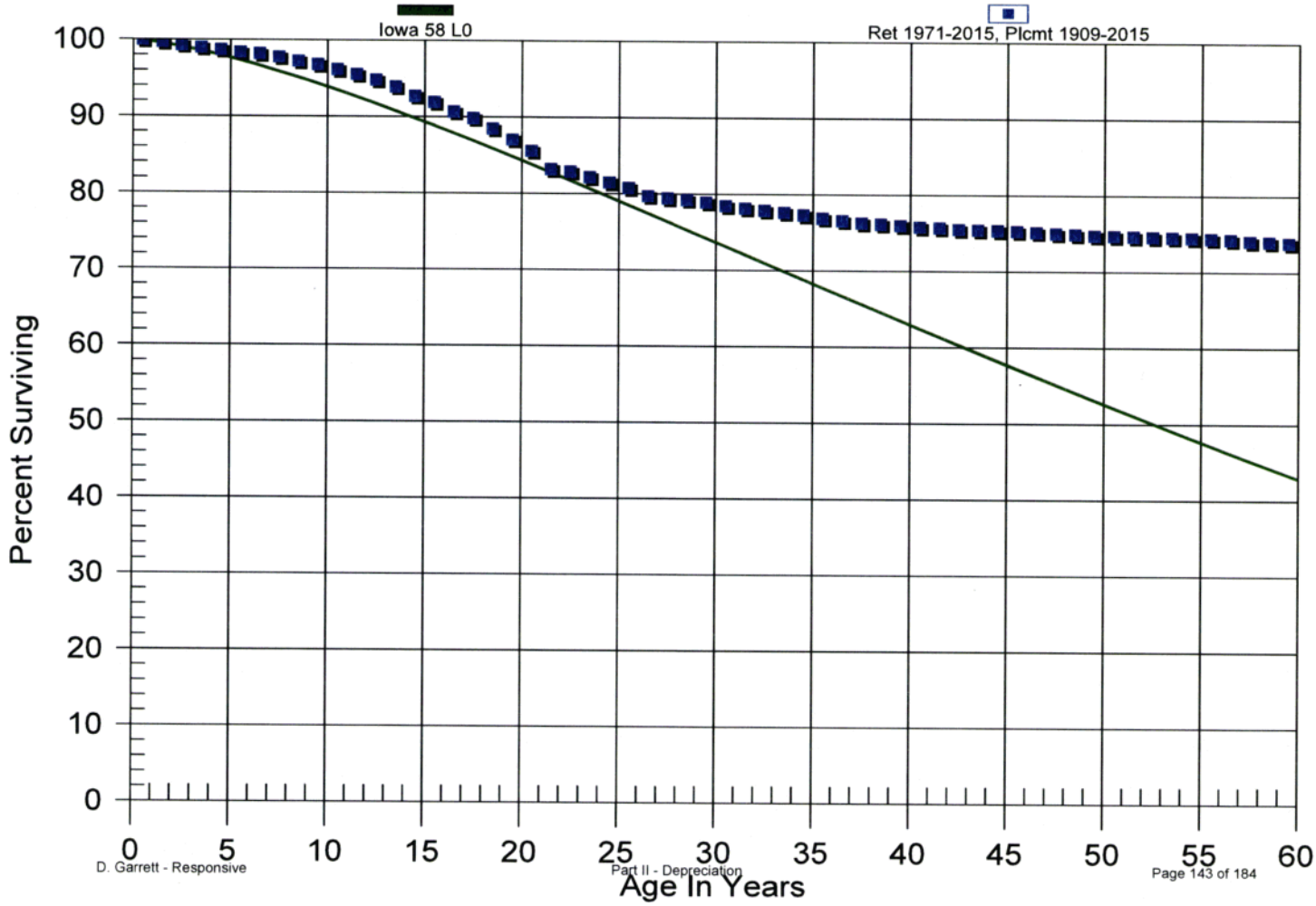
Age Interval	*$ Surviving At Beginning of Age Interval*	*$ Retired During The Age Interval*	*Retirement Ratio*	*% Surviving At Beginning of Age Interval*
36.5 - 37.5	$14,295,959.00	$52,355.00	0.00366	76.54
37.5 - 38.5	$9,968,772.00	$20,205.00	0.00203	76.26
38.5 - 39.5	$9,503,536.00	$18,405.00	0.00194	76.11
39.5 - 40.5	$8,688,457.00	$22,137.00	0.00255	75.96
40.5 - 41.5	$7,552,947.00	$10,278.00	0.00136	75.77
41.5 - 42.5	$5,157,698.00	$13,163.00	0.00255	75.67
42.5 - 43.5	$4,709,136.00	$2,397.00	0.00051	75.47
43.5 - 44.5	$4,297,646.00	$5,580.00	0.00130	75.43
44.5 - 45.5	$4,001,929.00	$4,051.00	0.00101	75.34
45.5 - 46.5	$3,780,932.00	$6,468.00	0.00171	75.26
46.5 - 47.5	$3,409,318.00	$6,326.00	0.00186	75.13
47.5 - 48.5	$3,280,283.00	$5,430.00	0.00166	74.99
48.5 - 49.5	$3,012,953.00	$5,568.00	0.00185	74.87
49.5 - 50.5	$2,959,509.00	$2,072.00	0.00070	74.73
50.5 - 51.5	$2,801,991.00	$1,978.00	0.00071	74.68
51.5 - 52.5	$2,696,495.00	$2,000.00	0.00074	74.62
52.5 - 53.5	$2,549,870.00	$1,667.00	0.00065	74.57
53.5 - 54.5	$2,461,290.00	$2,195.00	0.00089	74.52
54.5 - 55.5	$2,301,576.00	$1,978.00	0.00086	74.45
55.5 - 56.5	$1,890,181.00	$3,274.00	0.00173	74.39
56.5 - 57.5	$1,814,720.00	$5,328.00	0.00294	74.26
57.5 - 58.5	$1,692,073.00	$1,779.00	0.00105	74.04
58.5 - 59.5	$1,435,655.00	$2,748.00	0.00191	73.96
59.5 - 60.5	$1,005,076.00	$7.00	0.00001	73.82
60.5 - 61.5	$0.00	$0.00	0.00000	73.82
61.5 - 62.5	$1,943.00	$0.00	0.00000	73.82
62.5 - 63.5	$1,943.00	$0.00	0.00000	73.82
63.5 - 64.5	$1,943.00	$0.00	0.00000	73.82
64.5 - 65.5	$1,943.00	$0.00	0.00000	73.82
65.5 - 66.5	$1,943.00	$0.00	0.00000	73.82
66.5 - 67.5	$1,943.00	$0.00	0.00000	73.82
67.5 - 68.5	$1,943.00	$0.00	0.00000	73.82
68.5 - 69.5	$1,943.00	$0.00	0.00000	73.82
69.5 - 70.5	$1,943.00	$0.00	0.00000	73.82
70.5 - 71.5	$1,943.00	$0.00	0.00000	73.82
71.5 - 72.5	$1,943.00	$0.00	0.00000	73.82
72.5 - 73.5	$1,943.00	$0.00	0.00000	73.82

APS
Electric Division
369.00 Services
Observed Life Table
Retirement Expr. 1971 TO 2015
Placement Years 1909 TO 2015

Age Interval	*$ Surviving At Beginning of Age Interval*	*$ Retired During The Age Interval*	*Retirement Ratio*	*% Surviving At Beginning of Age Interval*
73.5 - 74.5	$1,943.00	$0.00	0.00000	73.82
74.5 - 75.5	$1,943.00	$0.00	0.00000	73.82
75.5 - 76.5	$1,954.00	$0.00	0.00000	73.82
76.5 - 77.5	$1,954.00	$0.00	0.00000	73.82
77.5 - 78.5	$1,954.00	$0.00	0.00000	73.82
78.5 - 79.5	$1,954.00	$0.00	0.00000	73.82
79.5 - 80.5	$1,982.00	$11.00	0.00555	73.82
80.5 - 81.5	$1,971.00	$0.00	0.00000	73.41
81.5 - 82.5	$1,971.00	$0.00	0.00000	73.41
82.5 - 83.5	$1,971.00	$0.00	0.00000	73.41
83.5 - 84.5	$1,971.00	$28.00	0.01421	73.41
84.5 - 85.5	$1,943.00	$0.00	0.00000	72.37
85.5 - 86.5	$1,943.00	$0.00	0.00000	72.37
86.5 - 87.5	$1,943.00	$0.00	0.00000	72.37
87.5 - 88.5	$1,943.00	$0.00	0.00000	72.37
88.5 - 89.5	$1,943.00	$0.00	0.00000	72.37
89.5 - 90.5	$1,943.00	$0.00	0.00000	72.37
90.5 - 91.5	$1,943.00	$0.00	0.00000	72.37
91.5 - 92.5	$1,943.00	$0.00	0.00000	72.37
92.5 - 93.5	$1,943.00	$0.00	0.00000	72.37
93.5 - 94.5	$1,943.00	$0.00	0.00000	72.37
94.5 - 95.5	$1,943.00	$0.00	0.00000	72.37

APS

Electric Division
369.00 Services
Original And Smooth Survivor Curves



APS
Electric Division
371.00 Installations on Customer Premises
Observed Life Table
Retirement Expr. 1971 TO 2015
Placement Years 1951 TO 2015

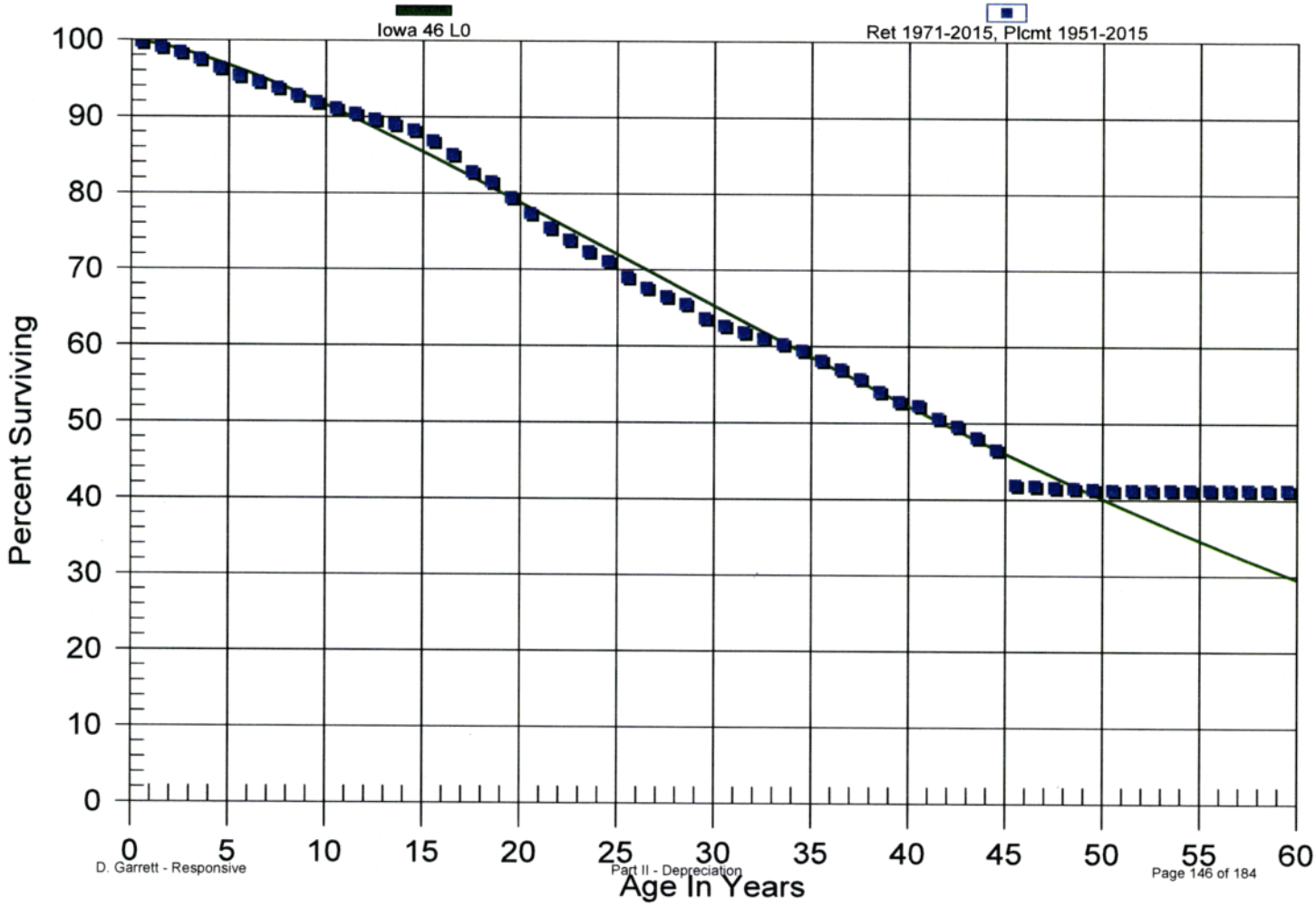
Age Interval	*$ Surviving At Beginning of Age Interval*	*$ Retired During The Age Interval*	*Retirement Ratio*	*% Surviving At Beginning of Age Interval*
0.0 - 0.5	$52,117,855.00	$113,326.00	0.00217	100.00
0.5 - 1.5	$51,422,144.00	$332,316.00	0.00646	99.78
1.5 - 2.5	$51,012,556.00	$360,909.00	0.00707	99.14
2.5 - 3.5	$49,573,804.00	$434,982.00	0.00877	98.44
3.5 - 4.5	$48,357,110.00	$593,811.00	0.01228	97.57
4.5 - 5.5	$45,958,146.00	$478,053.00	0.01040	96.37
5.5 - 6.5	$45,159,745.00	$356,490.00	0.00789	95.37
6.5 - 7.5	$43,875,617.00	$378,153.00	0.00862	94.62
7.5 - 8.5	$42,218,049.00	$434,064.00	0.01028	93.80
8.5 - 9.5	$38,287,686.00	$376,026.00	0.00982	92.84
9.5 - 10.5	$35,745,871.00	$309,255.00	0.00865	91.93
10.5 - 11.5	$33,298,756.00	$252,053.00	0.00757	91.13
11.5 - 12.5	$30,558,484.00	$250,686.00	0.00820	90.44
12.5 - 13.5	$27,552,928.00	$198,923.00	0.00722	89.70
13.5 - 14.5	$24,036,671.00	$206,869.00	0.00861	89.05
14.5 - 15.5	$21,671,656.00	$351,638.00	0.01623	88.29
15.5 - 16.5	$19,353,696.00	$399,371.00	0.02064	86.85
16.5 - 17.5	$17,887,073.00	$472,355.00	0.02641	85.06
17.5 - 18.5	$16,037,219.00	$242,928.00	0.01515	82.82
18.5 - 19.5	$13,955,898.00	$355,712.00	0.02549	81.56
19.5 - 20.5	$11,969,635.00	$316,119.00	0.02641	79.48
20.5 - 21.5	$10,442,268.00	$257,838.00	0.02469	77.38
21.5 - 22.5	$9,456,164.00	$192,990.00	0.02041	75.47
22.5 - 23.5	$8,312,583.00	$174,724.00	0.02102	73.93
23.5 - 24.5	$7,842,545.00	$136,857.00	0.01745	72.38
24.5 - 25.5	$6,965,395.00	$203,608.00	0.02923	71.11
25.5 - 26.5	$6,858,861.00	$138,414.00	0.02018	69.04
26.5 - 27.5	$6,239,262.00	$105,118.00	0.01685	67.64
27.5 - 28.5	$5,798,372.00	$82,812.00	0.01428	66.50
28.5 - 29.5	$5,506,186.00	$158,751.00	0.02883	65.55
29.5 - 30.5	$5,249,683.00	$81,025.00	0.01543	63.66
30.5 - 31.5	$4,802,351.00	$62,625.00	0.01304	62.68
31.5 - 32.5	$4,614,757.00	$61,734.00	0.01338	61.86
32.5 - 33.5	$4,430,986.00	$53,114.00	0.01199	61.04
33.5 - 34.5	$4,301,337.00	$56,596.00	0.01316	60.30
34.5 - 35.5	$3,843,388.00	$86,267.00	0.02245	59.51
35.5 - 36.5	$3,636,421.00	$70,812.00	0.01947	58.17

APS
Electric Division
371.00 Installations on Customer Premises
Observed Life Table
Retirement Expr. 1971 TO 2015
Placement Years 1951 TO 2015

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	$3,503,137.00	$76,333.00	0.02179	57.04
37.5 - 38.5	$3,311,853.00	$99,517.00	0.03005	55.80
38.5 - 39.5	$3,159,949.00	$74,656.00	0.02363	54.12
39.5 - 40.5	$2,976,147.00	$32,026.00	0.01076	52.84
40.5 - 41.5	$2,739,404.00	$84,442.00	0.03082	52.28
41.5 - 42.5	$2,546,287.00	$51,994.00	0.02042	50.66
42.5 - 43.5	$2,358,062.00	$70,805.00	0.03003	49.63
43.5 - 44.5	$2,070,135.00	$68,086.00	0.03289	48.14
44.5 - 45.5	$1,814,149.00	$180,237.00	0.09935	46.56
45.5 - 46.5	$1,566,876.00	$3,814.00	0.00243	41.93
46.5 - 47.5	$1,299,027.00	$6,141.00	0.00473	41.83
47.5 - 48.5	$1,148,904.00	$2,397.00	0.00209	41.63
48.5 - 49.5	$891,686.00	$2,659.00	0.00298	41.54
49.5 - 50.5	$756,637.00	$2,050.00	0.00271	41.42
50.5 - 51.5	$0.00	$0.00	0.00000	41.31
51.5 - 52.5	$0.00	$0.00	0.00000	41.31
52.5 - 53.5	$0.00	$0.00	0.00000	41.31
53.5 - 54.5	$0.00	$0.00	0.00000	41.31
54.5 - 55.5	$0.00	$0.00	0.00000	41.31
55.5 - 56.5	$0.00	$0.00	0.00000	41.31
56.5 - 57.5	$0.00	$0.00	0.00000	41.31
57.5 - 58.5	$0.00	$0.00	0.00000	41.31
58.5 - 59.5	$0.00	$0.00	0.00000	41.31
59.5 - 60.5	$0.00	$0.00	0.00000	41.31
60.5 - 61.5	$0.00	$0.00	0.00000	41.31
61.5 - 62.5	$0.00	$0.00	0.00000	41.31
62.5 - 63.5	$0.00	$0.00	0.00000	41.31
63.5 - 64.5	$0.00	$0.00	0.00000	41.31

APS

Electric Division
371.00 Installations on Customer Premises
Original And Smooth Survivor Curves



APS
Electric Division
373.00 Street Lighting and Signal Systems
Observed Life Table
Retirement Expr. 1971 TO 2015
Placement Years 1920 TO 2015

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	$120,192,165.00	$194,603.00	0.00162	100.00
0.5 - 1.5	$116,575,761.00	$582,944.00	0.00500	99.84
1.5 - 2.5	$111,638,170.00	$1,052,003.00	0.00942	99.34
2.5 - 3.5	$109,499,770.00	$1,110,814.00	0.01014	98.40
3.5 - 4.5	$103,570,317.00	$710,018.00	0.00686	97.40
4.5 - 5.5	$97,001,664.00	$773,357.00	0.00797	96.74
5.5 - 6.5	$90,051,226.00	$582,160.00	0.00646	95.97
6.5 - 7.5	$87,354,387.00	$958,368.00	0.01097	95.35
7.5 - 8.5	$83,578,928.00	$593,583.00	0.00710	94.30
8.5 - 9.5	$78,076,482.00	$684,030.00	0.00876	93.63
9.5 - 10.5	$74,268,173.00	$496,899.00	0.00669	92.81
10.5 - 11.5	$68,579,704.00	$469,568.00	0.00685	92.19
11.5 - 12.5	$65,234,574.00	$522,680.00	0.00801	91.56
12.5 - 13.5	$63,517,236.00	$397,286.00	0.00625	90.82
13.5 - 14.5	$59,798,921.00	$403,818.00	0.00675	90.26
14.5 - 15.5	$57,767,601.00	$460,064.00	0.00796	89.65
15.5 - 16.5	$56,043,772.00	$446,999.00	0.00798	88.93
16.5 - 17.5	$52,937,434.00	$375,824.00	0.00710	88.22
17.5 - 18.5	$48,768,212.00	$248,727.00	0.00510	87.60
18.5 - 19.5	$43,077,793.00	$244,128.00	0.00567	87.15
19.5 - 20.5	$39,111,193.00	$334,599.00	0.00856	86.66
20.5 - 21.5	$35,288,877.00	$349,428.00	0.00990	85.91
21.5 - 22.5	$32,510,561.00	$286,121.00	0.00880	85.06
22.5 - 23.5	$28,007,264.00	$218,236.00	0.00779	84.31
23.5 - 24.5	$26,577,388.00	$165,183.00	0.00622	83.66
24.5 - 25.5	$22,000,038.00	$148,461.00	0.00675	83.14
25.5 - 26.5	$18,891,330.00	$225,283.00	0.01193	82.58
26.5 - 27.5	$15,611,068.00	$254,399.00	0.01630	81.59
27.5 - 28.5	$13,664,058.00	$146,090.00	0.01069	80.26
28.5 - 29.5	$10,924,405.00	$124,354.00	0.01138	79.40
29.5 - 30.5	$10,636,090.00	$141,701.00	0.01332	78.50
30.5 - 31.5	$10,331,169.00	$102,537.00	0.00993	77.45
31.5 - 32.5	$9,473,217.00	$109,284.00	0.01154	76.69
32.5 - 33.5	$8,300,105.00	$96,479.00	0.01162	75.80
33.5 - 34.5	$7,536,011.00	$108,682.00	0.01442	74.92
34.5 - 35.5	$6,549,155.00	$76,195.00	0.01163	73.84
35.5 - 36.5	$5,767,560.00	$65,584.00	0.01137	72.98

APS
Electric Division
373.00 Street Lighting and Signal Systems
Observed Life Table
Retirement Expr. 1971 TO 2015
Placement Years 1920 TO 2015

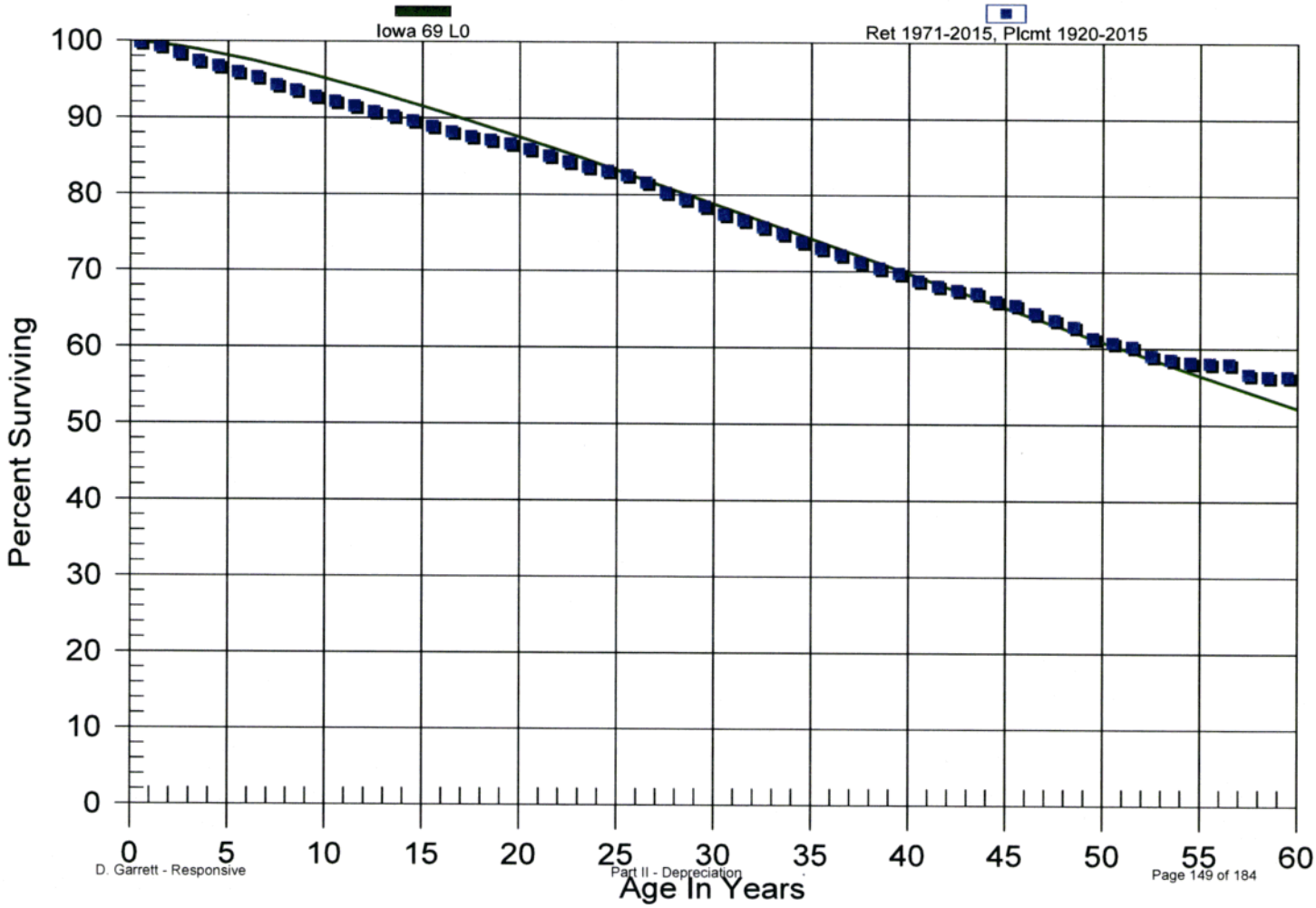
Age Interval	*$ Surviving At Beginning of Age Interval*	*$ Retired During The Age Interval*	*Retirement Ratio*	*% Surviving At Beginning of Age Interval*
36.5 - 37.5	$4,990,199.00	$65,484.00	0.01312	72.15
37.5 - 38.5	$4,297,465.00	$46,515.00	0.01082	71.20
38.5 - 39.5	$3,805,181.00	$34,532.00	0.00907	70.43
39.5 - 40.5	$3,427,951.00	$48,259.00	0.01408	69.79
40.5 - 41.5	$3,121,622.00	$30,295.00	0.00970	68.81
41.5 - 42.5	$2,823,849.00	$21,469.00	0.00760	68.14
42.5 - 43.5	$2,489,894.00	$14,964.00	0.00601	67.63
43.5 - 44.5	$2,326,533.00	$36,968.00	0.01589	67.22
44.5 - 45.5	$2,190,342.00	$16,714.00	0.00763	66.15
45.5 - 46.5	$1,962,032.00	$32,057.00	0.01634	65.65
46.5 - 47.5	$1,852,371.00	$24,302.00	0.01312	64.57
47.5 - 48.5	$1,689,800.00	$23,252.00	0.01376	63.73
48.5 - 49.5	$1,615,094.00	$38,027.00	0.02354	62.85
49.5 - 50.5	$1,571,116.00	$15,584.00	0.00992	61.37
50.5 - 51.5	$1,387,129.00	$11,748.00	0.00847	60.76
51.5 - 52.5	$1,140,649.00	$22,481.00	0.01971	60.25
52.5 - 53.5	$977,881.00	$8,197.00	0.00838	59.06
53.5 - 54.5	$907,726.00	$5,408.00	0.00596	58.56
54.5 - 55.5	$821,865.00	$1,592.00	0.00194	58.22
55.5 - 56.5	$576,570.00	$764.00	0.00133	58.10
56.5 - 57.5	$456,765.00	$11,084.00	0.02427	58.03
57.5 - 58.5	$226,756.00	$1,020.00	0.00450	56.62
58.5 - 59.5	$104,880.00	$10.00	0.00010	56.36

APS

Electric Division

373.00 Street Lighting and Signal Systems

Original And Smooth Survivor Curves



APS
Electric Division
397.00 Communication Equipment
Observed Life Table
Retirement Expr. 1971 TO 2015
Placement Years 1950 TO 2015

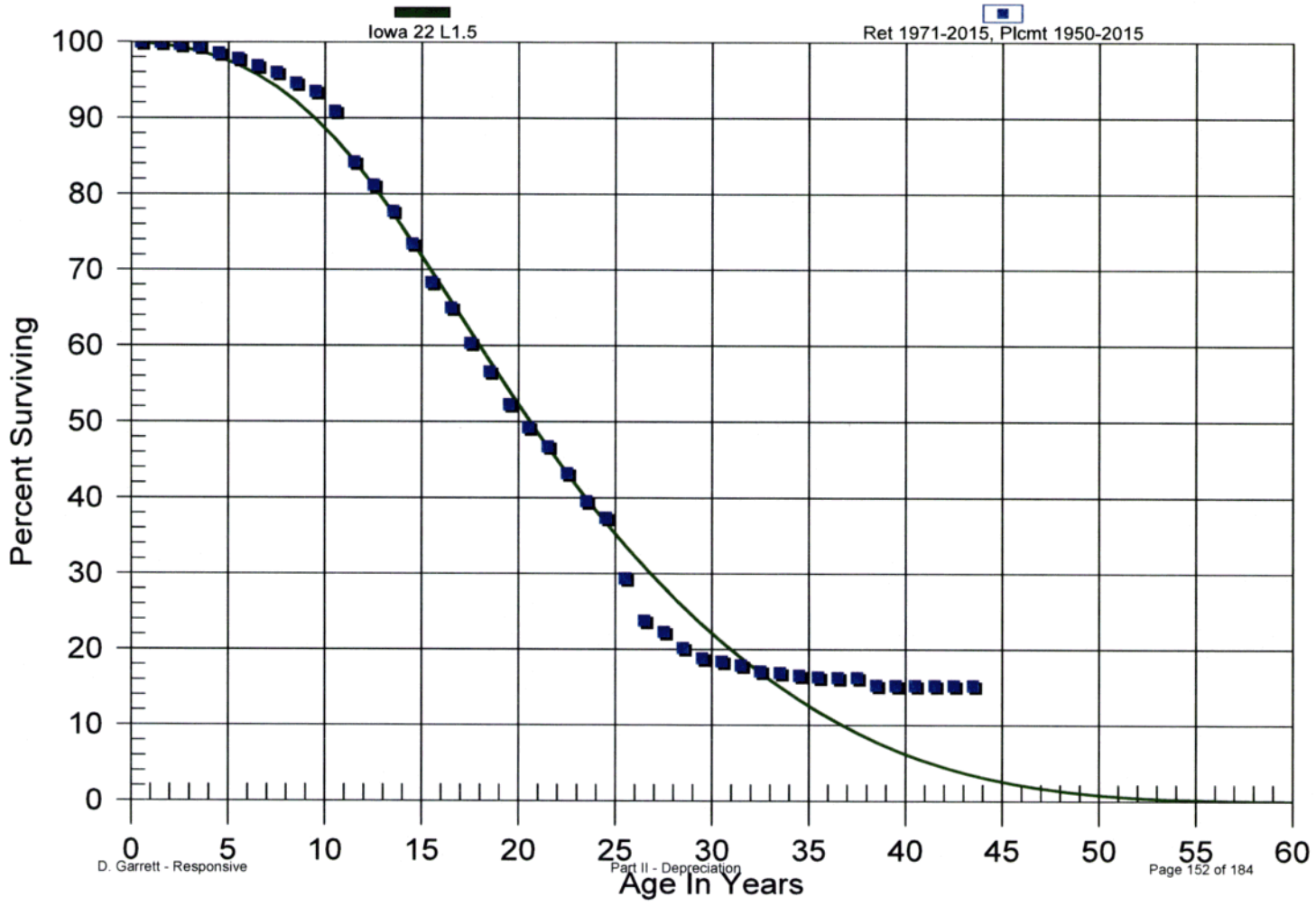
Age Interval	$ Surviving At Beginning of Age Interval	$ Retired During The Age Interval	Retirement Ratio	% Surviving At Beginning of Age Interval
0.0 - 0.5	$331,347,102.00	$25,632.00	0.00008	100.00
0.5 - 1.5	$310,826,298.00	$85,775.00	0.00028	99.99
1.5 - 2.5	$301,787,859.00	$881,262.00	0.00292	99.96
2.5 - 3.5	$283,502,858.00	$698,894.00	0.00247	99.67
3.5 - 4.5	$258,380,773.00	$2,277,948.00	0.00882	99.43
4.5 - 5.5	$234,791,330.00	$1,688,789.00	0.00719	98.55
5.5 - 6.5	$206,481,439.00	$2,052,548.00	0.00994	97.84
6.5 - 7.5	$189,414,128.00	$1,727,356.00	0.00912	96.87
7.5 - 8.5	$177,267,427.00	$2,550,390.00	0.01439	95.99
8.5 - 9.5	$162,236,319.00	$1,868,257.00	0.01152	94.60
9.5 - 10.5	$148,450,979.00	$4,152,265.00	0.02797	93.52
10.5 - 11.5	$138,178,553.00	$10,151,831.00	0.07347	90.90
11.5 - 12.5	$126,746,828.00	$4,539,279.00	0.03581	84.22
12.5 - 13.5	$118,294,594.00	$4,997,086.00	0.04224	81.20
13.5 - 14.5	$105,230,665.00	$5,837,348.00	0.05547	77.77
14.5 - 15.5	$93,317,722.00	$6,469,343.00	0.06933	73.46
15.5 - 16.5	$77,512,589.00	$3,788,547.00	0.04888	68.37
16.5 - 17.5	$64,765,587.00	$4,643,958.00	0.07170	65.03
17.5 - 18.5	$57,916,135.00	$3,618,533.00	0.06248	60.36
18.5 - 19.5	$50,210,322.00	$3,811,234.00	0.07591	56.59
19.5 - 20.5	$39,903,880.00	$2,311,801.00	0.05793	52.30
20.5 - 21.5	$37,372,873.00	$1,899,805.00	0.05083	49.27
21.5 - 22.5	$33,786,324.00	$2,543,139.00	0.07527	46.76
22.5 - 23.5	$31,420,105.00	$2,693,176.00	0.08572	43.24
23.5 - 24.5	$27,010,561.00	$1,482,681.00	0.05489	39.54
24.5 - 25.5	$24,480,716.00	$5,239,513.00	0.21403	37.37
25.5 - 26.5	$16,369,540.00	$3,109,863.00	0.18998	29.37
26.5 - 27.5	$11,601,363.00	$721,839.00	0.06222	23.79
27.5 - 28.5	$9,630,685.00	$917,181.00	0.09524	22.31
28.5 - 29.5	$8,389,386.00	$559,925.00	0.06674	20.18
29.5 - 30.5	$4,840,797.00	$108,414.00	0.02240	18.84
30.5 - 31.5	$5,381,032.00	$149,586.00	0.02780	18.42
31.5 - 32.5	$5,096,677.00	$219,231.00	0.04301	17.90
32.5 - 33.5	$4,747,862.00	$55,520.00	0.01169	17.13
33.5 - 34.5	$4,309,556.00	$89,894.00	0.02086	16.93
34.5 - 35.5	$4,217,156.00	$62,034.00	0.01471	16.58
35.5 - 36.5	$4,022,122.00	$8,000.00	0.00199	16.34

APS
Electric Division
397.00 Communication Equipment
Observed Life Table
Retirement Expr. 1971 TO 2015
Placement Years 1950 TO 2015

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	$3,938,122.00	$0.00	0.00000	16.30
37.5 - 38.5	$3,926,375.00	$249,269.00	0.06349	16.30
38.5 - 39.5	$3,633,308.00	$6,000.00	0.00165	15.27
39.5 - 40.5	$3,608,948.00	$0.00	0.00000	15.24
40.5 - 41.5	$3,608,695.00	$3,036.00	0.00084	15.24
41.5 - 42.5	$3,605,659.00	$0.00	0.00000	15.23
42.5 - 43.5	$3,605,659.00	$0.00	0.00000	15.23

APS

Electric Division
397.00 Communication Equipment
Original And Smooth Survivor Curves



APS
Electric Division
352.02 Structures and Improvements
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2015
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 70 *Survivor Curve:* R2

Year	Original Cost	Avg. Service Life	Avg. Annual Accrual	Avg. Remaining Life	Future Annual Accruals
(1)	(2)	(3)	(4)	(5)	(6)
1969	42,344.00	70.00	604.91	32.83	19,859.20
1974	27,372.00	70.00	391.03	36.24	14,170.29
1975	32,526.00	70.00	464.66	36.94	17,164.28
1976	36,037.00	70.00	514.81	37.65	19,382.40
1977	10,329.00	70.00	147.56	38.36	5,660.86
1978	3,387.00	70.00	48.39	39.08	1,891.10
Total	151,995.00	70.00	2,171.35	35.98	78,128.13

Composite Average Remaining Life ... 35.9 *Years*

APS
Electric Division
353.02 Station Equipment
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2015
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 53 *Survivor Curve:* R1

Year	Original Cost	Avg. Service Life	Avg. Annual Accrual	Avg. Remaining Life	Future Annual Accruals
(1)	(2)	(3)	(4)	(5)	(6)
1948	22,800.00	53.00	430.18	13.06	5,616.06
1949	31,800.00	53.00	599.99	13.46	8,074.93
1950	61,300.00	53.00	1,156.58	13.87	16,038.88
1954	563,701.00	53.00	10,635.64	15.56	165,469.72
1955	34,103.00	53.00	643.44	16.00	10,291.85
1960	903,555.00	53.00	17,047.84	18.27	311,457.46
1962	412,098.00	53.00	7,775.27	19.22	149,463.10
1963	171,061.00	53.00	3,227.50	19.71	63,610.80
1967	5,500.00	53.00	103.77	21.72	2,253.59
1969	2,992,137.00	53.00	56,454.20	22.76	1,284,949.20
1970	196,233.00	53.00	3,702.43	23.29	86,239.84
1971	497,420.00	53.00	9,385.08	23.83	223,657.72
1972	1,195,522.00	53.00	22,556.53	24.38	549,842.77
1973	1,195,824.00	53.00	22,562.23	24.93	562,426.17
1974	73,439.00	53.00	1,385.61	25.49	35,313.52
1975	189,909.00	53.00	3,583.11	26.05	93,341.73
1976	54,510.00	53.00	1,028.47	26.62	27,378.22
1977	708,499.00	53.00	13,367.62	27.20	363,574.41
1978	2,562,916.00	53.00	48,355.87	27.78	1,343,433.67
1980	2,018,425.00	53.00	38,082.67	28.97	1,103,218.57
1981	533,056.00	53.00	10,057.44	29.57	297,414.41
1982	14,000.00	53.00	264.15	30.18	7,971.91
1983	962,395.00	53.00	18,158.01	30.79	559,162.47
1984	49,046.00	53.00	925.38	31.41	29,069.92
1985	95,985.00	53.00	1,811.00	32.04	58,021.69
1986	12,297,269.00	53.00	232,018.96	32.67	7,579,949.02
1987	253,729.00	53.00	4,787.24	33.31	159,442.22

APS
Electric Division
353.02 Station Equipment
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2015
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 53 *Survivor Curve:* R1

Year	Original Cost	Avg. Service Life	Avg. Annual Accrual	Avg. Remaining Life	Future Annual Accruals
(1)	(2)	(3)	(4)	(5)	(6)
1988	5,089,193.00	53.00	96,020.45	33.95	3,259,586.11
1989	49,348.00	53.00	931.07	34.59	32,208.32
1990	692,483.00	53.00	13,065.44	35.24	460,465.49
1991	740,717.00	53.00	13,975.49	35.90	501,688.70
1994	56,082.00	53.00	1,058.13	37.88	40,087.17
1995	163,079.00	53.00	3,076.90	38.56	118,630.23
1996	43,944.00	53.00	829.11	39.23	32,525.01
1999	102,541.00	53.00	1,934.69	41.27	79,839.23
2000	206,489.00	53.00	3,895.94	41.95	163,443.32
2001	1,953,105.00	53.00	36,850.25	42.64	1,571,302.38
2002	22,412,639.00	53.00	422,870.90	43.33	18,323,426.57
2003	4,605,879.00	53.00	86,901.51	44.02	3,825,764.46
2004	437,765.00	53.00	8,259.54	44.72	369,376.99
2005	4,517,299.00	53.00	85,230.23	45.42	3,871,294.73
2006	511,401.00	53.00	9,648.87	46.13	445,057.58
2007	3,065,139.00	53.00	57,831.57	46.83	2,708,403.17
2008	9,135,088.00	53.00	172,356.45	47.54	8,194,422.79
2009	11,915,012.00	53.00	224,806.72	48.26	10,848,733.63
2010	3,423,051.00	53.00	64,584.48	48.98	3,163,120.10
2011	6,106,516.00	53.00	115,214.81	49.70	5,726,042.45
2012	6,913,073.00	53.00	130,432.54	50.42	6,576,999.54
2013	2,906,209.00	53.00	54,832.95	51.16	2,804,997.86
2014	8,474,578.00	53.00	159,894.27	51.89	8,296,974.03
2015	390,629.00	53.00	7,370.20	52.63	387,892.00

APS

Electric Division

353.02 Station Equipment

Original Cost Of Utility Plant In Service

And Development Of Composite Remaining Life as of December 31, 2015

Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 53 *Survivor Curve:* R1

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
Total	122,007,491.00	53.00	2,301,978.71	42.09	96,898,965.70

Composite Average Remaining Life ... *42.0 Years*

APS
Electric Division
354.02 Towers and Fixtures
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2015
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 67 *Survivor Curve:* R3

Year	Original Cost	Avg. Service Life	Avg. Annual Accrual	Avg. Remaining Life	Future Annual Accruals
(1)	(2)	(3)	(4)	(5)	(6)
1974	19,954.00	67.00	297.82	29.65	8,829.63
1975	14,576.00	67.00	217.55	30.42	6,617.81
1976	30,336.00	67.00	452.78	31.20	14,125.69
1986	806,007.00	67.00	12,030.11	39.42	474,185.25
1988	458,443.00	67.00	6,842.52	41.15	281,545.94
Total	1,329,316.00	67.00	19,840.78	39.58	785,304.32

Composite Average Remaining Life ... 39.5 *Years*

APS
Electric Division
355.04 Poles and Fixtures
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2015
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 72 *Survivor Curve:* R2

Year	Original Cost	Avg. Service Life	Avg. Annual Accrual	Avg. Remaining Life	Future Annual Accruals
(1)	(2)	(3)	(4)	(5)	(6)
1962	5,349.00	72.00	74.29	30.11	2,237.20
1972	183.00	72.00	2.54	36.71	93.30
2002	1,361,358.00	72.00	18,907.71	60.09	1,136,253.26
2007	3,184.00	72.00	44.22	64.42	2,848.85
2008	11.00	72.00	0.15	65.30	9.98
Total	1,370,085.00	72.00	19,028.92	59.98	1,141,442.58

Composite Average Remaining Life ... 59.9 *Years*

APS
Electric Division
356.02 Overhead Conductors and Devices
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2015
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 66 *Survivor Curve:* R3

Year	Original Cost	Avg. Service Life	Avg. Annual Accrual	Avg. Remaining Life	Future Annual Accruals
(1)	(2)	(3)	(4)	(5)	(6)
1962	10,179.00	66.00	154.23	20.28	3,128.50
1972	780.00	66.00	11.82	27.23	321.77
1974	3,838.00	66.00	58.15	28.73	1,670.81
1976	5,835.00	66.00	88.41	30.27	2,676.33
1979	3,496.00	66.00	52.97	32.65	1,729.23
1986	387,455.00	66.00	5,870.53	38.45	225,728.12
1988	180,471.00	66.00	2,734.41	40.18	109,855.22
2002	1,361,358.00	66.00	20,626.65	52.92	1,091,660.17
Total	1,953,412.00	66.00	29,597.17	48.54	1,436,770.15

Composite Average Remaining Life ... 48.5 *Years*

APS
Electric Division
361.00 Structures and Improvements
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2015
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 70 *Survivor Curve:* R2

Year	Original Cost	Avg. Service Life	Avg. Annual Accrual	Avg. Remaining Life	Future Annual Accruals
(1)	(2)	(3)	(4)	(5)	(6)
1942	6,496.00	70.00	92.80	17.75	1,647.44
1945	1,869.00	70.00	26.70	19.13	510.72
1949	6,502.00	70.00	92.89	21.08	1,958.23
1950	11,512.00	70.00	164.46	21.59	3,550.71
1952	35,277.00	70.00	503.96	22.64	11,407.52
1953	3,064.00	70.00	43.77	23.17	1,014.29
1954	6,863.00	70.00	98.04	23.72	2,325.08
1955	31,014.00	70.00	443.06	24.27	10,752.03
1956	28,315.00	70.00	404.50	24.83	10,042.64
1957	66,545.00	70.00	950.64	25.39	24,140.72
1958	47,336.00	70.00	676.23	25.97	17,563.37
1959	30,619.00	70.00	437.41	26.56	11,615.90
1960	67,731.00	70.00	967.58	27.15	26,269.90
1961	32,975.00	70.00	471.07	27.75	13,071.99
1962	83,577.00	70.00	1,193.95	28.36	33,859.36
1963	39,195.00	70.00	559.93	28.97	16,223.60
1964	45,294.00	70.00	647.06	29.60	19,150.69
1965	22,607.00	70.00	322.96	30.23	9,762.98
1966	3,583.00	70.00	51.19	30.87	1,579.98
1967	95,973.00	70.00	1,371.04	31.52	43,208.85
1968	20,649.00	70.00	294.99	32.17	9,489.08
1969	99,008.00	70.00	1,414.40	32.83	46,434.43
1970	230,054.00	70.00	3,286.48	33.50	110,087.51
1971	47,972.00	70.00	685.31	34.17	23,417.48
1972	195,524.00	70.00	2,793.19	34.85	97,354.65
1973	276,750.00	70.00	3,953.56	35.54	140,516.43
1974	343,403.00	70.00	4,905.75	36.24	177,777.25

APS
Electric Division
361.00 Structures and Improvements
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2015
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 70 *Survivor Curve:* R2

Year	Original Cost	Avg. Service Life	Avg. Annual Accrual	Avg. Remaining Life	Future Annual Accruals
(1)	(2)	(3)	(4)	(5)	(6)
1975	82,110.00	70.00	1,173.00	36.94	43,330.24
1976	101,592.00	70.00	1,451.31	37.65	54,640.98
1977	187,925.00	70.00	2,684.64	38.36	102,993.20
1978	256,101.00	70.00	3,658.58	39.08	142,991.88
1979	775,280.00	70.00	11,075.40	39.81	440,950.96
1980	577,853.00	70.00	8,255.03	40.55	334,711.82
1981	285,885.00	70.00	4,084.06	41.29	168,622.19
1982	586,351.00	70.00	8,376.42	42.03	352,088.05
1983	571,621.00	70.00	8,166.00	42.79	349,392.19
1984	411,744.00	70.00	5,882.04	43.54	256,125.97
1985	640,473.00	70.00	9,149.59	44.31	405,383.91
1986	1,966,973.00	70.00	28,099.55	45.08	1,266,651.92
1987	1,250,238.00	70.00	17,860.50	45.85	818,930.08
1988	1,485,545.00	70.00	21,222.03	46.63	989,653.89
1989	1,026,891.00	70.00	14,669.84	47.42	695,626.36
1990	1,480,586.00	70.00	21,151.18	48.21	1,019,724.43
1991	794,258.00	70.00	11,346.52	49.01	556,066.84
1992	168,106.00	70.00	2,401.51	49.81	119,616.22
1993	800,599.00	70.00	11,437.10	50.62	578,918.45
1994	1,179,964.00	70.00	16,856.59	51.43	866,921.20
1995	1,381,498.00	70.00	19,735.64	52.25	1,031,144.08
1996	1,066,801.00	70.00	15,239.98	53.07	808,781.26
1997	518,877.00	70.00	7,412.51	53.90	399,518.44
1998	1,700,108.00	70.00	24,287.21	54.73	1,329,231.35
1999	1,733,728.00	70.00	24,767.49	55.57	1,376,223.56
2000	552,868.00	70.00	7,898.10	56.41	445,521.02
2001	2,228,227.00	70.00	31,831.75	57.25	1,822,501.66

APS

Electric Division

361.00 Structures and Improvements

Original Cost Of Utility Plant In Service

And Development Of Composite Remaining Life as of December 31, 2015

Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 70 *Survivor Curve:* R2

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2002	1,286,587.00	70.00	18,379.77	58.11	1,067,974.75
2003	1,763,594.00	70.00	25,194.15	58.96	1,485,466.10
2004	2,046,763.00	70.00	29,239.41	59.82	1,749,133.68
2005	3,918,208.00	70.00	55,974.28	60.68	3,396,788.47
2006	2,913,164.00	70.00	41,616.54	61.55	2,561,592.07
2007	2,440,738.00	70.00	34,867.61	62.43	2,176,638.76
2008	11,069,996.00	70.00	158,142.46	63.30	10,010,694.36
2009	6,579,791.00	70.00	93,996.81	64.18	6,033,011.62
2010	5,815,058.00	70.00	83,072.08	65.07	5,405,272.12
2011	6,555,702.00	70.00	93,652.69	65.96	6,176,980.34
2012	4,175,142.00	70.00	59,644.76	66.85	3,987,146.70
2013	4,672,501.00	70.00	66,749.87	67.74	4,521,871.35
2014	2,047,835.00	70.00	29,254.72	68.64	2,008,163.78
2015	1,294,162.00	70.00	18,487.99	69.55	1,285,780.15
Total	82,271,150.00	70.00	1,175,299.63	59.14	69,507,509.24

Composite Average Remaining Life ... 59.1 Years

APS
Electric Division
364.02 Poles, Towers, and Fixtures - Steel
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2015
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 53 *Survivor Curve:* R0.5

Year	Original Cost	Avg. Service Life	Avg. Annual Accrual	Avg. Remaining Life	Future Annual Accruals
(1)	(2)	(3)	(4)	(5)	(6)
1955	13,187.00	53.00	248.81	19.41	4,828.68
1956	5,512.00	53.00	104.00	19.86	2,065.15
1957	25,635.00	53.00	483.67	20.31	9,824.22
1958	7,282.00	53.00	137.39	20.77	2,853.69
1960	7,000.00	53.00	132.07	21.70	2,865.87
1961	2,280.00	53.00	43.02	22.17	953.72
1962	5,102.00	53.00	96.26	22.65	2,179.90
1963	4,262.00	53.00	80.41	23.13	1,859.57
1964	6,353.00	53.00	119.87	23.61	2,829.90
1965	3,585.00	53.00	67.64	24.10	1,629.95
1966	1,764.00	53.00	33.28	24.59	818.41
1967	5,937.00	53.00	112.02	25.09	2,810.10
1968	5,165.00	53.00	97.45	25.59	2,493.58
1969	8,941.00	53.00	168.69	26.09	4,401.92
1970	16,241.00	53.00	306.43	26.60	8,152.29
1971	11,720.00	53.00	221.13	27.12	5,996.74
1972	12,030.00	53.00	226.98	27.64	6,273.13
1973	10,686.00	53.00	201.62	28.16	5,677.77
1974	14,143.00	53.00	266.84	28.69	7,655.29
1975	24,329.00	53.00	459.03	29.22	13,412.70
1976	28,345.00	53.00	534.80	29.75	15,912.80
1977	13,202.00	53.00	249.09	30.29	7,546.01
1978	44,956.00	53.00	848.21	30.84	26,157.12
1979	22,381.00	53.00	422.27	31.39	13,253.32
1980	22,116.00	53.00	417.27	31.94	13,326.41
1981	69,528.00	53.00	1,311.82	32.49	42,623.27
1982	26,033.00	53.00	491.18	33.05	16,233.47

APS
Electric Division
364.02 Poles, Towers, and Fixtures - Steel
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2015
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 53 *Survivor Curve:* R0.5

Year	Original Cost	Avg. Service Life	Avg. Annual Accrual	Avg. Remaining Life	Future Annual Accruals
(1)	(2)	(3)	(4)	(5)	(6)
1983	48,942.00	53.00	923.41	33.61	31,037.66
1984	22,829.00	53.00	430.73	34.18	14,720.90
1985	92,348.00	53.00	1,742.38	34.74	60,538.07
1986	62,376.00	53.00	1,176.88	35.32	41,562.61
1987	198,436.00	53.00	3,743.99	35.89	134,372.63
1988	98,771.00	53.00	1,863.56	36.47	67,958.84
1989	246,284.00	53.00	4,646.77	37.05	172,147.31
1990	200,645.00	53.00	3,785.67	37.63	142,449.70
1991	68,307.00	53.00	1,288.78	38.21	49,248.08
1992	119,897.00	53.00	2,262.16	38.80	87,769.86
1993	54,088.00	53.00	1,020.51	39.39	40,195.14
1994	377,745.00	53.00	7,127.11	39.98	284,921.35
1995	331,103.00	53.00	6,247.09	40.57	253,438.43
1996	5,123,126.00	53.00	96,660.64	41.16	3,978,793.24
1997	209,390.00	53.00	3,950.67	41.76	164,969.49
1998	1,465,499.00	53.00	27,650.32	42.35	1,171,089.04
1999	4,575,940.00	53.00	86,336.61	42.95	3,708,239.92
2000	8,753,433.00	53.00	165,155.51	43.55	7,192,448.35
2001	9,901,082.00	53.00	186,808.79	44.15	8,247,477.56
2002	12,472,117.00	53.00	235,317.82	44.75	10,530,527.25
2003	11,773,963.00	53.00	222,145.39	45.35	10,074,745.17
2004	12,913,147.00	53.00	243,638.96	45.96	11,196,567.95
2005	17,545,590.00	53.00	331,041.64	46.56	15,413,442.44
2006	25,043,650.00	53.00	472,511.38	47.17	22,286,791.33
2007	22,601,606.00	53.00	426,436.08	47.77	20,372,695.34
2008	17,018,563.00	53.00	321,097.95	48.38	15,535,818.61
2009	13,941,190.00	53.00	263,035.58	48.99	12,887,166.65

APS

Electric Division

364.02 Poles, Towers, and Fixtures - Steel

Original Cost Of Utility Plant In Service

And Development Of Composite Remaining Life as of December 31, 2015

Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 53 *Survivor Curve:* R0.5

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2010	13,938,091.00	53.00	262,977.11	49.61	13,045,271.93
2011	18,638,951.00	53.00	351,670.64	50.22	17,660,816.76
2012	16,204,503.00	53.00	305,738.66	50.83	15,542,113.48
2013	19,100,950.00	53.00	360,387.41	51.45	18,542,502.95
2014	14,483,704.00	53.00	273,271.47	52.07	14,229,293.68
2015	12,779,772.00	53.00	241,122.51	52.69	12,704,845.08
Total	260,823,753.00	53.00	4,921,095.43	47.98	236,090,611.77

Composite Average Remaining Life ... *47.9 Years*

APS

Electric Division

364.02 Poles, Towers, and Fixtures - Steel

Original Cost Of Utility Plant In Service

And Development Of Composite Remaining Life as of December 31, 2015

Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 53 *Survivor Curve:* R0.5

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*

APS
Electric Division
366.00 Underground Conduit
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2015
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 68 *Survivor Curve:* L0.5

Year	Original Cost	Avg. Service Life	Avg. Annual Accrual	Avg. Remaining Life	Future Annual Accruals
(1)	(2)	(3)	(4)	(5)	(6)
1956	640,608.00	68.00	9,420.56	38.05	358,463.98
1957	15,766.00	68.00	231.85	38.37	8,896.88
1958	5,144.00	68.00	75.65	38.70	2,927.40
1960	16,994.00	68.00	249.91	39.36	9,835.40
1961	907,886.00	68.00	13,351.06	39.69	529,882.45
1962	32,014.00	68.00	470.79	40.02	18,842.91
1963	107,460.00	68.00	1,580.27	40.36	63,783.17
1964	394,125.00	68.00	5,795.87	40.70	235,912.28
1965	118,223.00	68.00	1,738.55	41.05	71,362.35
1966	105,414.00	68.00	1,550.18	41.39	64,168.29
1967	790,149.00	68.00	11,619.66	41.74	485,044.06
1968	652,443.00	68.00	9,594.60	42.10	403,894.44
1969	247,396.00	68.00	3,638.12	42.45	154,442.69
1970	463,301.00	68.00	6,813.15	42.81	291,668.31
1971	833,203.00	68.00	12,252.80	43.17	528,963.52
1972	487,441.00	68.00	7,168.14	43.54	312,066.27
1973	290,943.00	68.00	4,278.51	43.90	187,837.66
1974	399,393.00	68.00	5,873.34	44.27	260,029.21
1975	489,415.00	68.00	7,197.17	44.65	321,327.17
1976	287,941.00	68.00	4,234.36	45.02	190,643.98
1977	411,301.00	68.00	6,048.45	45.40	274,622.53
1978	570,577.00	68.00	8,390.71	45.79	384,207.12
1979	495,954.00	68.00	7,293.33	46.18	336,807.50
1980	995,864.00	68.00	14,644.84	46.58	682,122.23
1981	1,276,424.00	68.00	18,770.66	46.98	881,859.58
1982	1,136,648.00	68.00	16,715.16	47.39	792,166.53
1983	1,480,657.00	68.00	21,774.04	47.81	1,041,015.20

APS
Electric Division
366.00 Underground Conduit
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2015
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 68 *Survivor Curve:* L0.5

Year	Original Cost	Avg. Service Life	Avg. Annual Accrual	Avg. Remaining Life	Future Annual Accruals
(1)	(2)	(3)	(4)	(5)	(6)
1984	1,607,138.00	68.00	23,634.02	48.24	1,140,042.17
1985	535,836.00	68.00	7,879.82	48.67	383,528.20
1986	1,477,241.00	68.00	21,723.80	49.12	1,067,027.31
1987	2,262,283.00	68.00	33,268.36	49.57	1,649,178.69
1988	6,580,645.00	68.00	96,772.72	50.04	4,842,297.63
1989	3,989,255.00	68.00	58,664.62	50.51	2,963,325.56
1990	12,645,980.00	68.00	185,967.47	51.00	9,484,456.23
1991	10,724,464.00	68.00	157,710.31	51.50	8,121,825.79
1992	6,280,925.00	68.00	92,365.14	52.01	4,803,600.16
1993	53,827,958.00	68.00	791,575.59	52.53	41,582,084.89
1994	30,362,089.00	68.00	446,494.53	53.06	23,692,496.70
1995	24,211,640.00	68.00	356,048.12	53.61	19,088,541.62
1996	32,754,051.00	68.00	481,669.90	54.17	26,092,101.91
1997	31,073,769.00	68.00	456,960.25	54.74	25,016,051.50
1998	33,635,753.00	68.00	494,635.91	55.33	27,367,381.81
1999	33,758,122.00	68.00	496,435.43	55.93	27,765,064.93
2000	32,669,351.00	68.00	480,424.33	56.54	27,162,899.31
2001	40,250,535.00	68.00	591,910.64	57.17	33,837,512.47
2002	37,876,512.00	68.00	556,999.07	57.80	32,196,998.26
2003	36,877,878.00	68.00	542,313.50	58.46	31,703,029.76
2004	39,547,332.00	68.00	581,569.58	59.12	34,385,077.06
2005	26,309,976.00	68.00	386,905.53	59.81	23,139,692.51
2006	28,273,246.00	68.00	415,776.71	60.50	25,155,193.25
2007	25,751,166.00	68.00	378,687.86	61.21	23,179,232.86
2008	19,272,078.00	68.00	283,408.61	61.94	17,553,815.07
2009	14,406,605.00	68.00	211,858.62	62.68	13,278,662.17
2010	13,869,078.00	68.00	203,953.93	63.44	12,938,492.67

APS
Electric Division
366.00 Underground Conduit
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2015
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 68 *Survivor Curve:* L0.5

Year	Original Cost	Avg. Service Life	Avg. Annual Accrual	Avg. Remaining Life	Future Annual Accruals
(1)	(2)	(3)	(4)	(5)	(6)
2011	13,485,427.00	68.00	198,312.09	64.21	12,733,900.46
2012	15,142,189.00	68.00	222,675.87	65.01	14,476,130.97
2013	12,878,706.00	68.00	189,389.86	65.82	12,466,319.95
2014	16,172,967.00	68.00	237,834.14	66.67	15,856,330.71
2015	13,350,791.00	68.00	196,332.18	67.54	13,260,397.01
Total	685,513,670.00	68.00	10,080,930.23	57.26	577,275,482.72

Composite Average Remaining Life ... 57.2 *Years*

APS
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, 2015
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 41 *Survivor Curve:* L0.5

Year	Original Cost	Avg. Service Life	Avg. Annual Accrual	Avg. Remaining Life	Future Annual Accruals
(1)	(2)	(3)	(4)	(5)	(6)
1956	1,552,939.00	41.00	37,875.88	16.46	623,276.93
1958	39,261.00	41.00	957.57	16.93	16,209.38
1960	47,899.00	41.00	1,168.25	17.41	20,342.63
1961	2,502,019.00	41.00	61,023.76	17.66	1,077,750.85
1962	1,121.00	41.00	27.34	17.91	489.73
1963	301,588.00	41.00	7,355.67	18.17	133,628.76
1964	1,286,584.00	41.00	31,379.53	18.43	578,187.74
1965	1,379,371.00	41.00	33,642.59	18.69	628,656.78
1966	777,402.00	41.00	18,960.68	18.95	359,345.03
1967	2,779,657.00	41.00	67,795.30	19.22	1,303,042.81
1968	1,923,248.00	41.00	46,907.65	19.49	914,376.67
1969	926,575.00	41.00	22,598.98	19.77	446,755.54
1970	3,559,841.00	41.00	86,823.83	20.05	1,740,731.14
1971	640,087.00	41.00	15,611.60	20.33	317,434.96
1972	1,213,620.00	41.00	29,599.96	20.62	610,352.82
1973	1,139,154.00	41.00	27,783.75	20.91	581,011.41
1974	1,107,952.00	41.00	27,022.73	21.21	573,063.96
1975	2,160,022.00	41.00	52,682.52	21.51	1,133,012.29
1976	1,477,640.00	41.00	36,039.35	21.81	785,998.87
1977	1,791,160.00	41.00	43,686.05	22.12	966,213.00
1978	2,795,801.00	41.00	68,189.05	22.43	1,529,389.46
1979	2,285,065.00	41.00	55,732.29	22.74	1,267,615.47
1980	4,350,962.00	41.00	106,119.12	23.07	2,447,664.34
1981	6,976,922.00	41.00	170,165.78	23.39	3,980,083.88
1982	4,393,975.00	41.00	107,168.20	23.72	2,541,885.72
1983	4,470,318.00	41.00	109,030.19	24.05	2,622,384.24
1984	7,982,701.00	41.00	194,696.53	24.39	4,748,667.48

APS
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, 2015
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 41 *Survivor Curve:* L0.5

Year	Original Cost	Avg. Service Life	Avg. Annual Accrual	Avg. Remaining Life	Future Annual Accruals
(1)	(2)	(3)	(4)	(5)	(6)
1985	12,323,550.00	41.00	300,569.00	24.73	7,433,861.89
1986	7,564,173.00	41.00	184,488.72	25.08	4,626,992.63
1987	11,730,661.00	41.00	286,108.55	25.43	7,276,420.21
1988	17,182,891.00	41.00	419,087.39	25.79	10,807,921.03
1989	27,832,508.00	41.00	678,829.49	26.15	17,752,188.86
1990	37,571,415.00	41.00	916,359.54	26.52	24,300,016.49
1991	22,660,981.00	41.00	552,696.94	26.89	14,862,024.57
1992	37,313,721.00	41.00	910,074.44	27.27	24,815,527.81
1993	29,027,921.00	41.00	707,985.38	27.65	19,577,479.67
1994	26,193,832.00	41.00	638,862.49	28.05	17,917,894.56
1995	30,953,517.00	41.00	754,950.29	28.45	21,479,249.28
1996	41,758,299.00	41.00	1,018,476.83	28.87	29,401,132.69
1997	42,513,091.00	41.00	1,036,886.06	29.30	30,380,079.46
1998	64,216,421.00	41.00	1,566,226.08	29.75	46,587,455.82
1999	53,110,336.00	41.00	1,295,350.82	30.21	39,131,044.53
2000	59,803,506.00	41.00	1,458,595.94	30.69	44,763,013.31
2001	69,442,379.00	41.00	1,693,686.19	31.19	52,825,383.75
2002	57,225,087.00	41.00	1,395,708.80	31.71	44,255,814.49
2003	56,481,107.00	41.00	1,377,563.27	32.25	44,424,922.58
2004	64,161,451.00	41.00	1,564,885.38	32.81	51,342,847.09
2005	86,507,732.00	41.00	2,109,906.85	33.39	70,450,730.30
2006	112,039,137.00	41.00	2,732,612.88	34.00	92,898,056.89
2007	117,968,836.00	41.00	2,877,237.09	34.62	99,614,418.13
2008	91,168,473.00	41.00	2,223,581.42	35.27	78,430,129.50
2009	52,324,833.00	41.00	1,276,192.55	35.94	45,870,968.57
2010	54,141,429.00	41.00	1,320,498.98	36.64	48,384,294.62
2011	48,027,742.00	41.00	1,171,387.34	37.36	43,764,776.39

APS

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, 2015

Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 41 *Survivor Curve:* L0.5

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2012	52,667,171.00	41.00	1,284,542.11	38.11	48,950,537.30
2013	45,289,616.00	41.00	1,104,604.97	38.89	42,953,610.18
2014	65,956,784.00	41.00	1,608,673.20	39.69	63,854,599.60
2015	91,359,584.00	41.00	2,228,242.58	40.55	90,354,514.97
Total	1,646,381,068.00	41.00	40,154,915.73	32.66	1,311,435,479.04

Composite Average Remaining Life ... 32.6 Years

APS
Electric Division
369.00 Services
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2015
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 58 *Survivor Curve:* L0

Year	Original Cost	Avg. Service Life	Avg. Annual Accrual	Avg. Remaining Life	Future Annual Accruals
(1)	(2)	(3)	(4)	(5)	(6)
1955	1,005,069.00	58.00	17,329.32	32.58	564,573.94
1956	427,859.00	58.00	7,377.11	32.87	242,493.06
1957	254,611.00	58.00	4,389.98	33.16	145,589.06
1958	117,319.00	58.00	2,022.81	33.46	67,682.02
1959	72,187.00	58.00	1,244.64	33.76	42,016.28
1960	409,433.00	58.00	7,059.41	34.06	240,437.52
1961	157,508.00	58.00	2,715.74	34.36	93,318.65
1962	86,913.00	58.00	1,498.55	34.67	51,951.41
1963	144,625.00	58.00	2,493.61	34.98	87,219.33
1964	103,518.00	58.00	1,784.85	35.29	62,983.38
1965	155,469.00	58.00	2,680.58	35.60	95,432.25
1966	47,876.00	58.00	825.47	35.92	29,649.06
1967	261,900.00	58.00	4,515.66	36.24	163,635.05
1968	122,709.00	58.00	2,115.74	36.56	77,348.94
1969	365,146.00	58.00	6,295.82	36.88	232,210.61
1970	216,946.00	58.00	3,740.57	37.21	139,189.04
1971	290,150.00	58.00	5,002.74	37.54	187,809.41
1972	409,093.00	58.00	7,053.55	37.87	267,147.74
1973	435,407.00	58.00	7,507.26	38.21	286,853.37
1974	609,498.00	58.00	10,508.92	38.55	405,113.45
1975	1,115,499.00	58.00	19,233.35	38.89	748,007.98
1976	796,748.00	58.00	13,737.47	39.24	539,003.25
1977	442,915.00	58.00	7,636.71	39.58	302,290.56
1978	4,275,716.00	58.00	73,721.58	39.94	2,944,078.98
1979	1,380,190.00	58.00	23,797.13	40.29	958,764.41
1980	1,833,585.00	58.00	31,614.54	40.65	1,285,011.99
1981	3,373,000.00	58.00	58,157.02	41.01	2,384,822.40

APS
Electric Division
369.00 Services
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2015
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 58 *Survivor Curve:* L0

Year	Original Cost	Avg. Service Life	Avg. Annual Accrual	Avg. Remaining Life	Future Annual Accruals
(1)	(2)	(3)	(4)	(5)	(6)
1982	2,740,702.00	58.00	47,254.98	41.37	1,954,951.91
1983	3,942,570.00	58.00	67,977.50	41.74	2,837,180.67
1984	7,751,052.00	58.00	133,643.06	42.11	5,627,324.23
1985	10,578,228.00	58.00	182,389.02	42.48	7,747,986.48
1986	4,845,632.00	58.00	83,548.03	42.86	3,580,638.13
1987	7,584,856.00	58.00	130,777.52	43.24	5,654,470.44
1988	7,776,204.00	58.00	134,076.73	43.62	5,848,557.35
1989	12,775,553.00	58.00	220,275.13	44.01	9,693,970.06
1990	9,039,792.00	58.00	155,863.42	44.40	6,920,426.62
1991	7,196,503.00	58.00	124,081.57	44.80	5,558,566.46
1992	6,178,124.00	58.00	106,522.75	45.20	4,814,786.99
1993	14,142,491.00	58.00	243,843.78	45.61	11,121,252.04
1994	12,178,759.00	58.00	209,985.26	46.02	9,664,133.25
1995	21,380,051.00	58.00	368,633.25	46.44	17,120,975.09
1996	9,377,357.00	58.00	161,683.69	46.87	7,578,509.02
1997	4,482,358.00	58.00	77,284.48	47.31	3,656,277.00
1998	13,748,217.00	58.00	237,045.74	47.75	11,319,986.12
1999	21,365,249.00	58.00	368,378.03	48.21	17,758,879.16
2000	10,213,131.00	58.00	176,094.05	48.67	8,570,599.11
2001	8,229,099.00	58.00	141,885.51	49.14	6,972,879.63
2002	14,297,614.00	58.00	246,518.40	49.63	12,234,440.81
2003	12,105,720.00	58.00	208,725.92	50.12	10,461,964.84
2004	13,849,781.00	58.00	238,796.89	50.63	12,090,786.04
2005	16,867,380.00	58.00	290,826.11	51.15	14,877,067.45
2006	12,396,054.00	58.00	213,731.84	51.69	11,048,073.21
2007	12,254,826.00	58.00	211,296.80	52.24	11,038,469.51
2008	14,049,761.00	58.00	242,244.93	52.81	12,793,567.23

APS
Electric Division
369.00 Services
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2015
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: *58* ***Survivor Curve:*** *L0*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2009	7,411,595.00	58.00	127,790.17	53.40	6,824,332.70
2010	6,741,939.00	58.00	116,244.01	54.01	6,278,816.55
2011	9,285,662.00	58.00	160,102.69	54.65	8,749,179.60
2012	5,778,141.00	58.00	99,626.28	55.31	5,510,679.39
2013	14,035,731.00	58.00	242,003.03	56.01	13,555,534.18
2014	15,458,007.00	58.00	266,525.81	56.75	15,125,186.08
2015	6,675,717.00	58.00	115,102.22	57.56	6,624,818.17
Total	375,644,745.00	58.00	6,476,838.76	48.46	313,859,898.65

Composite Average Remaining Life ... *48.4* ***Years***

APS
Electric Division
371.00 Installations on Customer Premises
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2015
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 46 *Survivor Curve:* L0

Year	Original Cost	Avg. Service Life	Avg. Annual Accrual	Avg. Remaining Life	Future Annual Accruals
(1)	(2)	(3)	(4)	(5)	(6)
1965	754,587.00	46.00	16,404.58	25.12	412,080.61
1966	132,390.00	46.00	2,878.13	25.40	73,115.89
1967	254,821.00	46.00	5,539.76	25.69	142,315.99
1968	129,480.00	46.00	2,814.87	25.98	73,129.57
1969	258,611.00	46.00	5,622.16	26.27	147,708.64
1970	62,352.00	46.00	1,355.52	26.57	36,014.28
1971	183,601.00	46.00	3,991.45	26.87	107,241.21
1972	216,669.00	46.00	4,710.34	27.17	127,980.21
1973	134,597.00	46.00	2,926.11	27.47	80,394.22
1974	105,873.00	46.00	2,301.66	27.78	63,947.91
1975	198,964.00	46.00	4,325.44	28.10	121,524.88
1976	108,054.00	46.00	2,349.07	28.41	66,738.91
1977	50,702.00	46.00	1,102.25	28.73	31,667.15
1978	110,724.00	46.00	2,407.12	29.05	69,930.99
1979	60,374.00	46.00	1,312.52	29.38	38,557.70
1980	119,363.00	46.00	2,594.93	29.71	77,085.11
1981	398,790.00	46.00	8,669.62	30.04	260,425.52
1982	75,902.00	46.00	1,650.10	30.38	50,122.19
1983	119,325.00	46.00	2,594.10	30.72	79,679.19
1984	119,258.00	46.00	2,592.65	31.06	80,525.37
1985	367,250.00	46.00	7,983.95	31.41	250,750.36
1986	96,269.00	46.00	2,092.87	31.76	66,466.16
1987	202,146.00	46.00	4,394.62	32.11	141,128.06
1988	323,194.00	46.00	7,026.18	32.47	228,163.09
1989	482,669.00	46.00	10,493.14	32.84	344,560.32
1990	407,368.00	46.00	8,856.11	33.20	294,059.58
1991	808,922.00	46.00	17,585.82	33.58	590,458.17

APS
Electric Division
371.00 Installations on Customer Premises
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2015
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 46 *Survivor Curve:* L0

Year	Original Cost	Avg. Service Life	Avg. Annual Accrual	Avg. Remaining Life	Future Annual Accruals
(1)	(2)	(3)	(4)	(5)	(6)
1992	479,472.00	46.00	10,423.63	33.95	353,899.71
1993	1,141,766.00	46.00	24,821.78	34.33	852,175.22
1994	834,963.00	46.00	18,151.94	34.72	630,168.59
1995	987,249.00	46.00	21,462.61	35.11	753,468.46
1996	1,417,918.00	46.00	30,825.28	35.50	1,094,365.03
1997	1,739,547.00	46.00	37,817.43	35.90	1,357,828.34
1998	1,241,905.00	46.00	26,998.79	36.31	980,458.59
1999	901,554.00	46.00	19,599.62	36.73	719,956.21
2000	2,030,467.00	46.00	44,141.98	37.16	1,640,331.66
2001	2,069,068.00	46.00	44,981.16	37.60	1,691,167.19
2002	3,162,065.00	46.00	68,742.71	38.05	2,615,381.75
2003	2,758,430.00	46.00	59,967.76	38.51	2,309,074.43
2004	2,321,390.00	46.00	50,466.59	38.98	1,967,037.12
2005	2,005,807.00	46.00	43,605.88	39.46	1,720,788.52
2006	2,368,289.00	46.00	51,486.17	39.96	2,057,509.33
2007	3,295,323.00	46.00	71,639.72	40.48	2,900,017.71
2008	1,157,761.00	46.00	25,169.51	41.02	1,032,342.57
2009	929,305.00	46.00	20,202.92	41.57	839,848.56
2010	1,323,810.00	46.00	28,779.39	42.15	1,213,001.27
2011	1,218,897.00	46.00	26,498.60	42.75	1,132,859.43
2012	849,555.00	46.00	18,469.17	43.39	801,287.55
2013	1,493,856.00	46.00	32,476.15	44.06	1,430,903.84
2014	833,857.00	46.00	18,127.90	44.78	811,744.69
2015	666,490.00	46.00	14,489.37	45.56	660,191.88

APS

Electric Division

371.00 Installations on Customer Premises

Original Cost Of Utility Plant In Service

And Development Of Composite Remaining Life as of December 31, 2015

Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 46 *Survivor Curve:* L0

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
Total	43,510,999.00	46.00	945,921.12	37.66	35,621,578.95

Composite Average Remaining Life ... *37.6 Years*

APS
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, 2015
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 69 *Survivor Curve:* L0

Year	Original Cost	Avg. Service Life	Avg. Annual Accrual	Avg. Remaining Life	Future Annual Accruals
(1)	(2)	(3)	(4)	(5)	(6)
1956	104,754.00	69.00	1,518.22	42.53	64,577.53
1957	120,856.00	69.00	1,751.59	42.85	75,060.74
1958	218,925.00	69.00	3,172.93	43.17	136,982.48
1959	111,018.00	69.00	1,609.01	43.49	69,983.26
1960	236,908.00	69.00	3,433.56	43.82	150,454.53
1961	71,018.00	69.00	1,029.28	44.15	45,438.36
1962	48,885.00	69.00	708.50	44.48	31,510.86
1963	134,708.00	69.00	1,952.35	44.81	87,477.98
1964	231,551.00	69.00	3,355.92	45.14	151,488.73
1965	36,403.00	69.00	527.60	45.48	23,993.40
1966	559.00	69.00	8.10	45.82	371.19
1967	46,734.00	69.00	677.33	46.16	31,263.35
1968	136,141.00	69.00	1,973.12	46.50	91,752.24
1969	77,604.00	69.00	1,124.73	46.85	52,690.64
1970	208,360.00	69.00	3,019.81	47.20	142,523.92
1971	88,106.00	69.00	1,276.94	47.55	60,715.68
1972	148,306.00	69.00	2,149.43	47.90	102,962.10
1973	294,646.00	69.00	4,270.37	48.26	206,083.60
1974	259,170.00	69.00	3,756.21	48.62	182,620.03
1975	243,301.00	69.00	3,526.21	48.98	172,715.46
1976	224,086.00	69.00	3,247.73	49.35	160,259.40
1977	273,700.00	69.00	3,966.79	49.71	197,200.01
1978	474,273.00	69.00	6,873.74	50.08	344,256.96
1979	489,747.00	69.00	7,098.01	50.46	358,137.08
1980	462,855.00	69.00	6,708.26	50.83	340,992.97
1981	765,670.00	69.00	11,097.02	51.21	568,284.01
1982	461,877.00	69.00	6,694.08	51.59	345,361.35

APS
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, 2015
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 69 *Survivor Curve:* L0

Year	Original Cost	Avg. Service Life	Avg. Annual Accrual	Avg. Remaining Life	Future Annual Accruals
(1)	(2)	(3)	(4)	(5)	(6)
1983	1,126,129.00	69.00	16,321.23	51.98	848,323.04
1984	649,334.00	69.00	9,410.94	52.36	492,799.71
1985	419,328.00	69.00	6,077.41	52.76	320,623.06
1986	141,371.00	69.00	2,048.92	53.15	108,904.64
1987	1,890,929.00	69.00	27,405.65	53.55	1,467,648.36
1988	1,598,698.00	69.00	23,170.28	53.96	1,250,212.48
1989	2,841,178.00	69.00	41,177.82	54.37	2,238,757.39
1990	2,193,417.00	69.00	31,789.67	54.78	1,741,545.00
1991	3,999,352.00	69.00	57,963.48	55.20	3,199,813.79
1992	782,125.00	69.00	11,335.51	55.63	630,618.92
1993	4,372,269.00	69.00	63,368.25	56.07	3,552,756.50
1994	2,000,783.00	69.00	28,997.79	56.51	1,638,571.32
1995	3,013,992.00	69.00	43,682.45	56.95	2,487,883.21
1996	3,297,578.00	69.00	47,792.52	57.41	2,743,777.39
1997	4,920,318.00	69.00	71,311.25	57.87	4,126,988.77
1998	3,239,214.00	69.00	46,946.64	58.35	2,739,134.43
1999	2,254,154.00	69.00	32,669.95	58.83	1,921,840.55
2000	1,462,424.00	69.00	21,195.23	59.32	1,257,240.81
2001	1,457,469.00	69.00	21,123.42	59.82	1,263,541.95
2002	2,993,234.00	69.00	43,381.60	60.33	2,617,067.39
2003	1,098,945.00	69.00	15,927.25	60.85	969,195.82
2004	2,683,669.00	69.00	38,895.00	61.38	2,387,559.26
2005	4,027,212.00	69.00	58,367.27	61.93	3,614,976.11
2006	2,856,182.00	69.00	41,395.27	62.50	2,587,030.64
2007	3,474,408.00	69.00	50,355.36	63.08	3,176,204.71
2008	2,657,115.00	69.00	38,510.15	63.67	2,451,908.87
2009	969,245.00	69.00	14,047.48	64.28	903,039.54

APS
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, 2015
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 69 *Survivor Curve:* L0

Year	Original Cost	Avg. Service Life	Avg. Annual Accrual	Avg. Remaining Life	Future Annual Accruals
(1)	(2)	(3)	(4)	(5)	(6)
2010	2,085,925.00	69.00	30,231.77	64.92	1,962,583.56
2011	929,181.00	69.00	13,466.82	65.57	883,043.88
2012	565,782.00	69.00	8,200.00	66.26	543,353.29
2013	663,966.00	69.00	9,623.00	66.98	644,505.94
2014	808,137.00	69.00	11,712.51	67.74	793,419.42
2015	1,158,563.00	69.00	16,791.31	68.55	1,151,021.49
Total	74,601,787.00	69.00	1,081,220.04	58.19	62,911,049.08

Composite Average Remaining Life ... 58.1 *Years*

APS
Electric Division
397.00 Communication Equipment
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2015
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 22 *Survivor Curve:* L1.5

Year	Original Cost	Avg. Service Life	Avg. Annual Accrual	Avg. Remaining Life	Future Annual Accruals
(1)	(2)	(3)	(4)	(5)	(6)
1972	3,774.00	22.00	171.54	4.41	756.06
1976	18,360.00	22.00	834.52	5.19	4,332.31
1977	43,798.00	22.00	1,990.75	5.40	10,746.02
1978	12,000.00	22.00	545.43	5.61	3,060.25
1979	76,000.00	22.00	3,454.42	5.83	20,137.46
1980	133,000.00	22.00	6,045.24	6.05	36,587.72
1981	2,506.00	22.00	113.90	6.28	715.50
1982	382,786.00	22.00	17,398.74	6.51	113,346.31
1983	129,832.00	22.00	5,901.24	6.75	39,856.76
1984	133,035.00	22.00	6,046.83	7.00	42,307.37
1985	45,498.00	22.00	2,068.02	7.24	14,982.67
1986	2,991,434.00	22.00	135,969.39	7.50	1,019,176.58
1987	230,260.00	22.00	10,465.99	7.75	81,121.66
1988	1,258,164.00	22.00	57,187.22	8.01	457,920.90
1989	1,636,844.00	22.00	74,399.33	8.27	615,009.69
1990	3,010,294.00	22.00	136,826.63	8.53	1,166,773.12
1991	1,134,870.00	22.00	51,583.15	8.79	453,367.43
1992	1,806,679.00	22.00	82,118.82	9.05	743,407.52
1993	260,393.00	22.00	11,835.62	9.32	110,281.38
1994	2,055,843.00	22.00	93,444.05	9.59	895,796.29
1995	286,188.00	22.00	13,008.08	9.86	128,247.61
1996	5,526,618.00	22.00	251,200.88	10.14	2,547,050.49
1997	4,134,617.00	22.00	187,930.38	10.43	1,960,008.10
1998	2,113,347.00	22.00	96,057.78	10.73	1,031,052.63
1999	8,875,404.00	22.00	403,412.96	11.06	4,460,049.58
2000	9,584,151.00	22.00	435,627.57	11.40	4,966,556.95
2001	6,073,682.00	22.00	276,066.53	11.77	3,250,300.86

APS

Electric Division

397.00 Communication Equipment

Original Cost Of Utility Plant In Service

And Development Of Composite Remaining Life as of December 31, 2015

Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 22 *Survivor Curve:* L1.5

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2002	8,383,615.00	22.00	381,059.72	12.18	4,641,008.05
2003	4,442,678.00	22.00	201,932.65	12.62	2,548,684.70
2004	3,807,944.00	22.00	173,082.14	13.11	2,268,816.11
2005	6,304,051.00	22.00	286,537.48	13.64	3,909,531.51
2006	12,027,968.00	22.00	546,706.17	14.23	7,782,073.44
2007	11,575,349.00	22.00	526,133.32	14.88	7,826,807.58
2008	11,030,552.00	22.00	501,370.71	15.57	7,805,268.12
2009	15,260,524.00	22.00	693,635.26	16.30	11,306,406.65
2010	26,913,559.00	22.00	1,223,299.63	17.07	20,887,083.56
2011	21,287,269.00	22.00	967,568.37	17.89	17,308,807.46
2012	26,088,852.00	22.00	1,185,814.30	18.74	22,226,064.78
2013	19,463,374.00	22.00	884,667.03	19.64	17,371,640.39
2014	10,633,370.00	22.00	483,317.63	20.56	9,938,207.12
2015	21,838,958.00	22.00	992,644.24	21.52	21,358,190.98
Total	251,017,440.00	22.00	11,409,473.64	15.89	181,351,539.67

Composite Average Remaining Life ... 15.8 Years

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Electric Division

397.00 Communication Equipment

Original Cost Of Utility Plant In Service

And Development Of Composite Remaining Life as of December 31, 2015

Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 22 *Survivor Curve:* L1.5

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*