APPENDIX A:

DISCOUNTED CASH FLOW MODEL THEORY

The Discounted Cash Flow ("DCF") Model is based on a fundamental financial model called the "dividend discount model," which maintains that the value of a security is equal to the present value of the future cash flows it generates. Cash flows from common stock are paid to investors in the form of dividends. There are several variations of the DCF Model. In its most general form, the DCF Model is expressed as follows:[1]

Equation 1:
General Discounted Cash Flow Model

$$P_0 = \frac{D_1}{(1+k)} + \frac{D_2}{(1+k)^2} + \cdots + \frac{D_n}{(1+k)^n}$$

where: P_0 = *current stock price*
$D_1 \ldots D_n$ = *expected future dividends*
k = *discount rate / required return*

The General DCF Model would require an estimation of an infinite stream of dividends. Since this would be impractical, analysts use more feasible variations of the General DCF Model, which are discussed further below.

The DCF Models rely on the following four assumptions:

1. Investors evaluate common stocks in the classical valuation framework; that is, they trade securities rationally at prices reflecting their perceptions of value;
2. Investors discount the expected cash flows at the same rate (K) in every future period;

[1] *See* Zvi Bodie, Alex Kane & Alan J. Marcus, *Essentials of Investments* 410 (9th ed., McGraw-Hill/Irwin 2013).

3. The K obtained from the DCF equation corresponds to that specific stream of future cash flows alone; and

4. Dividends, rather than earnings, constitute the source of value.

The General DCF can be rearranged to make it more practical for estimating the cost of equity. Regulators typically rely on some variation of the Constant Growth DCF Model, which is expressed as follows:

Equation 2:
Constant Growth Discounted Cash Flow Model

$$K = \frac{D_1}{P_0} + g$$

where: K = *discount rate / required return on equity*
D_1 = *expected dividend per share one year from now*
P_0 = *current stock price*
g = *expected growth rate of future dividends*

Unlike the General DCF Model, the Constant Growth DCF Model solves directly for the required return (K). In addition, by assuming that dividends grow at a constant rate, the dividend stream from the General DCF Model may be essentially substituted with a term representing the expected constant growth rate of future dividends (g). The Constant Growth DCF Model may be considered in two parts. The first part is the dividend yield (D_1/P_0), and the second part is the growth rate (g). In other words, the required return in the DCF Model is equivalent to the dividend yield plus the growth rate.

In addition to the four assumptions listed above, the Constant Growth DCF Model relies on four additional assumptions as follows:[2]

[2] *Id.* at 254-56.

1. The discount rate (K) must exceed the growth rate (g);
2. The dividend growth rate (g) is constant in every year to infinity;
3. Investors require the same return (K) in every year; and
4. There is no external financing; that is, growth is provided only by the retention of earnings.

Because the growth rate in this model is assumed to be constant, it is important not to use growth rates that are unreasonably high. In fact, the constant growth rate estimate for a regulated utility with a defined service territory should not exceed the growth rate for the economy in which it operates.

APPENDIX B:

CAPITAL ASSET PRICING MODEL THEORY

The Capital Asset Pricing Model ("CAPM") is a market-based model founded on the principle that investors demand higher returns for incurring additional risk.[3] The CAPM estimates this required return. The CAPM relies on the following assumptions:

1. Investors are rational, risk-adverse, and strive to maximize profit and terminal wealth;
2. Investors make choices based on risk and return. Return is measured by the mean returns expected from a portfolio of assets; risk is measured by the variance of these portfolio returns;
3. Investors have homogenous expectations of risk and return;
4. Investors have identical time horizons;
5. Information is freely and simultaneously available to investors.
6. There is a risk-free asset, and investors can borrow and lend unlimited amounts at the risk-free rate;
7. There are no taxes, transaction costs, restrictions on selling short, or other market imperfections; and,
8. Total asset quality is fixed, and all assets are marketable and divisible.[4]

[3] William F. Sharpe, *A Simplified Model for Portfolio Analysis* 277-93 (Management Science IX 1963); *see also* John R. Graham, Scott B. Smart & William L. Megginson, *Corporate Finance: Linking Theory to What Companies Do* 208 (3rd ed., South Western Cengage Learning 2010).

[4] *Id*.

While some of these assumptions may appear to be restrictive, they do not outweigh the inherent value of the model. The CAPM has been widely used by firms, analysts, and regulators for decades to estimate the cost of equity capital.

The basic CAPM equation is expressed as follows:

Equation 3:
Capital Asset Pricing Model

$$K = R_F + \beta_i(R_M - R_F)$$

where: K = *required return*
R_F = *risk-free rate*
β = *beta coefficient of asset i*
R_M = *required return on the overall market*

There are essentially three terms within the CAPM equation that are required to calculate the required return (K): (1) the risk-free rate (R_F); (2) the beta coefficient (β); and (3) the equity risk premium ($R_M - R_F$), which is the required return on the overall market less the risk-free rate.

Raw Beta Calculations and Adjustments

A stock's beta equals the covariance of the asset's returns with the returns on a market portfolio, divided by the portfolio's variance, as expressed in the following formula:[5]

Equation 4:
Beta

$$\beta_i = \frac{\sigma_{im}}{\sigma_m^2}$$

where: β_i = *beta of asset i*
σ_{im} = *covariance of asset i returns with market portfolio returns*
σ^2_m = *variance of market portfolio*

[5] John R. Graham, Scott B. Smart & William L. Megginson, *Corporate Finance: Linking Theory to What Companies Do* 180-81 (3rd ed., South Western Cengage Learning 2010).

Betas that are published by various research firms are typically calculated through a regression analysis that considers the movements in price of an individual stock and movements in the price of the overall market portfolio. The betas produced by this regression analysis are considered "raw" betas. There is empirical evidence that raw betas should be adjusted to account for beta's natural tendency to revert to an underlying mean.[6] Some analysts use an adjustment method proposed by Blume, which adjusts raw betas toward the market mean of one.[7] While the Blume adjustment method is popular due to its simplicity, it is arguably arbitrary, and some would say not useful at all. According to Dr. Damodaran: "While we agree with the notion that betas move toward 1.0 over time, the [Blume adjustment] strikes us as arbitrary and not particularly useful."[8] The Blume adjustment method is especially arbitrary when applied to industries with consistently low betas, such as the utility industry. For industries with consistently low betas, it is better to employ an adjustment method that adjusts raw betas toward an industry average, rather than the market average. Vasicek proposed such a method, which is preferable to the Blume adjustment method because it allows raw betas to be adjusted toward an industry average, and also accounts for the statistical accuracy of the raw beta calculation.[9] In other words, "[t]he Vasicek adjustment seeks to overcome one weakness of the Blume model by not applying the same adjustment to every security; rather, a security-specific adjustment is made depending on the

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[6] *See* Michael J. Gombola and Douglas R. Kahl, *Time-Series Processes of Utility Betas: Implications for Forecasting Systematic Risk* 84-92 (Financial Management Autumn 1990).

[7] See Marshall Blume, *On the Assessment of Risk*, Vol. 26, No. 1, The Journal of Finance 1 (1971).

[8] *See* Aswath Damodaran, *Investment Valuation: Tools and Techniques for Determining the Value of Any Asset* 187 (3rd ed., John Wiley & Sons, Inc. 2012).

[9] Oldrich A. Vasicek, *A Note on Using Cross-Sectional Information in Bayesian Estimation of Security Betas* 1233-1239 (Journal of Finance, Vol. 28, No. 5, December 1973).

statistical quality of the regression."[10] The Vasicek beta adjustment equation is expressed as follows:

Equation 5:
Vasicek Beta Adjustment

$$\beta_{i1} = \frac{\sigma^2_{\beta i0}}{\sigma^2_{\beta 0} + \sigma^2_{\beta_{i0}}}\beta_0 + \frac{\sigma^2_{\beta 0}}{\sigma^2_{\beta 0} + \sigma^2_{\beta_{i0}}}\beta_{i0}$$

where: β_{i1} = *Vasicek adjusted beta for security i*
β_{i0} = *historical beta for security i*
β_0 = *beta of industry or proxy group*
$\sigma^2_{\beta 0}$ = *variance of betas in the industry or proxy group*
$\sigma^2_{\beta i0}$ = *square of standard error of the historical beta for security i*

The Vasicek beta adjustment is an improvement on the Blume model because the Vasicek model does not apply the same adjustment to every security. A higher standard error produced by the regression analysis indicates a lower statistical significance of the beta estimate. Thus, a beta with a high standard error should receive a greater adjustment than a beta with a low standard error. As stated in Ibbotson:

[10] 2012 Ibbotson Stocks, Bonds, Bills, and Inflation Valuation Yearbook 77-78 (Morningstar 2012).

> While the Vasicek formula looks intimidating, it is really quite simple. The adjusted beta for a company is a weighted average of the company's historical beta and the beta of the market, industry, or peer group. How much weight is given to the company and historical beta depends on the statistical significance of the company beta statistic. If a company beta has a low standard error, then it will have a higher weighting in the Vasicek formula. If a company beta has a high standard error, then it will have lower weighting in the Vasicek formula. An advantage of this adjustment methodology is that it does not force an adjustment to the market as a whole. Instead, the adjustment can be toward an industry or some other peer group. *This is most useful in looking at companies in industries that on average have high or low betas*.[11]

Thus, the Vasicek adjustment method is statistically more accurate, and is the preferred method to use when analyzing companies in an industry that has inherently low betas, such as the utility industry. The Vasicek method was also confirmed by Gombola, who conducted a study specifically related to utility companies. Gombola concluded that "[t]he strong evidence of auto-regressive tendencies in *utility* betas lends support to the application of adjustment procedures such as the . . . adjustment procedure presented by Vasicek."[12] Gombola also concluded that adjusting raw betas toward the market mean of 1.0 is *too high*, and that "[i]nstead, they should be adjusted toward a value that is less than one."[13] In conducting the Vasicek adjustment on betas in previous

[11] *Id*. at 78 (emphasis added).

[12] Michael J. Gombola and Douglas R. Kahl, *Time-Series Processes of Utility Betas: Implications for Forecasting Systematic Risk* 92 (Financial Management Autumn 1990) (emphasis added).

[13] *Id*. at 91-92.

cases, it reveals that utility betas are even lower than those published by Value Line.[14] Gombola's findings are particular important here, because his study was conducted specifically on utility companies. This evidence indicates that using Value Line's betas in a CAPM cost of equity estimate for a utility company may lead to overestimated results. Regardless, adjusting betas to a level that is *higher* than Value Line's betas is not reasonable, and it would produce CAPM cost of equity results that are too high.

[14] *See e.g.* Responsive Testimony of David J. Garrett, filed March 21, 2016 in Cause No. PUD 201500273 before the Corporation Commission of Oklahoma (the Company's 2015 rate case), at pp. 56 – 59.

APPENDIX C:

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.[15] 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.[16] The figure below illustrates the basic concept of a depreciation system and includes some of the available parameters.[17]

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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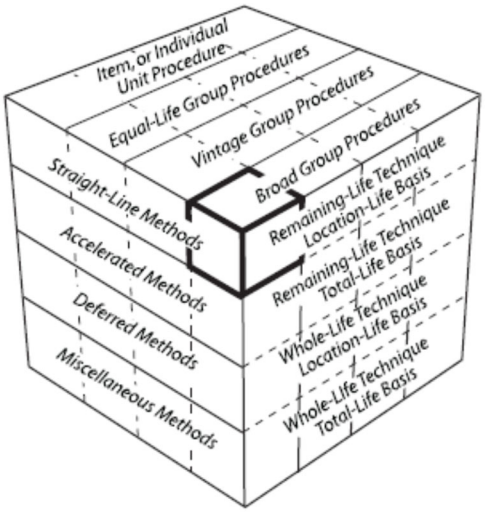
[15] *See* Frank K. Wolf & W. Chester Fitch, *Depreciation Systems* 69-70 (Iowa State University Press 1994).

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

[17] 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 1:
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.[18] 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.[19] The basic formula for the straight-line method is as follows:[20]

Equation 6:
Straight-Line Accrual

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

[18] National Association of Regulatory Utility Commissioners, *Public Utility Depreciation Practices* 56 (NARUC 1996).

[19] *Id*.

[20] *Id*.

Gross plant is a known amount from the utility's records, while both net salvage and service life must be estimated in order to calculate the annual accrual. The straight-line method differs from accelerated methods of recovery, such as the "sum-of-the-years-digits" method and the "declining balance" method. Accelerated methods are primarily used for tax purposes and are rarely used in the regulatory context for determining annual accruals.[21] 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:[22]

Equation 7:
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.[23] While single units may be analyzed for depreciation, a group plan of depreciation is particularly adaptable to utility property. Employing a grouping procedure allows for a composite application of depreciation rates to groups of similar property, rather than 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.[24] When analyzing mass property categories, it is important that

[21] *Id*. at 57.

[22] *Id*. at 56.

[23] Wolf *supra* n. 15, at 74-75.

[24] *Id*. at 74.

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.[25]

The "average life" and "equal life" grouping procedures are the two most common. In the average life procedure, a constant annual accrual rate based on the average life of all property in the group is applied to the surviving property. While property having shorter lives than the group average will not be fully depreciated, and likewise, property having longer lives than the group average will be over-depreciated, the ultimate result is that the group will be fully depreciated by the time of the final retirement.[26] 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.[27] Under the equal life procedure the property is divided into subgroups that each has a common life.[28]

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 a group, while the remaining life technique seeks to recover undepreciated costs over the remaining life of the plant.[29]

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

[25] NARUC *supra* n. 18, at 61-62.

[26] *See* Wolf *supr*a n. 15, at 74-75.

[27] *Id*. at 75.

[28] *Id*.

[29] NARUC *supra* n. 18, at 63-64.

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.[30] 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.[31] An imbalance exists when the actual accumulated depreciation account does not equal the CAD. The choice of application technique will affect how the imbalance is dealt with.

Use of the whole life technique requires that an adjustment be made to accumulated depreciation after calculation of the CAD. The adjustment can be made in a lump sum or over a period of time. With use of the remaining life technique, however, adjustments to accumulated depreciation are amortized over the remaining life of the property and are automatically included in the annual accrual.[32] 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:[33]

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[30] Wolf *supra* n. 15, at 83.

[31] NARUC *supra* n. 18, at 325.

[32] NARUC *supra* n. 18, 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.").

[33] *Id*. at 64.

Equation 8:
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.[34]

4. Analysis Model

The fourth parameter of a depreciation system, the "model," relates to the way of viewing the life and salvage characteristics of the vintage groups that have been combined to form a continuous property group for depreciation purposes.[35] 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

[34] Wolf *supra* n. 15, at 178.

[35] *See* Wolf *supra* n. 15, at 139 (I added the term "model" to distinguish this fourth depreciation system parameter from the other three parameters).

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

APPENDIX D:

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.[36] 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.[37] 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 representing the life characteristics of each group of property.[38] They generalized the 65 curves

[36] Wolf *supra* n. 15, at 276.

[37] *Id*. at 23.

[38] *Id*. at 34.

into 13 survivor curve types and published their results in *Bulletin 103: Life Characteristics of Physical Property*. The 13 type curves were designed to be used as valuable aids in forecasting probable future service lives of industrial property. Over the next few years, Winfrey continued gathering additional data, particularly from public utility property, and expanded the examined property groups from 65 to 176.[39] 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."[40] 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 Exhibit DJG-23, Appendix E.)

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.[41] Rather than using the original formulas, analysts typically rely on the published tables containing the percentages surviving. This is because absent knowledge of the integration technique applied to each age interval, it is not possible to recreate the exact original published table values. In the 1970s, John Russo collected data from over 2,000 property accounts reflecting

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[39] *Id*.

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

[41] 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. 15, at 305-38 (publishing the percent surviving for each Iowa curve, including "O" type curve, at one percent intervals).

observations during the period 1965 – 1975 as part of his Ph.D. dissertation at Iowa State. Russo essentially repeated Winfrey's data collection, testing, and analysis methods used to develop the original Iowa curves, except that Russo studied industrial property in service several decades after Winfrey published the original Iowa curves. Russo drew three major conclusions from his research:[42]

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.[43]

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

[42] *See* Wolf *supra* n. 15, at 37.

[43] *Id*.

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

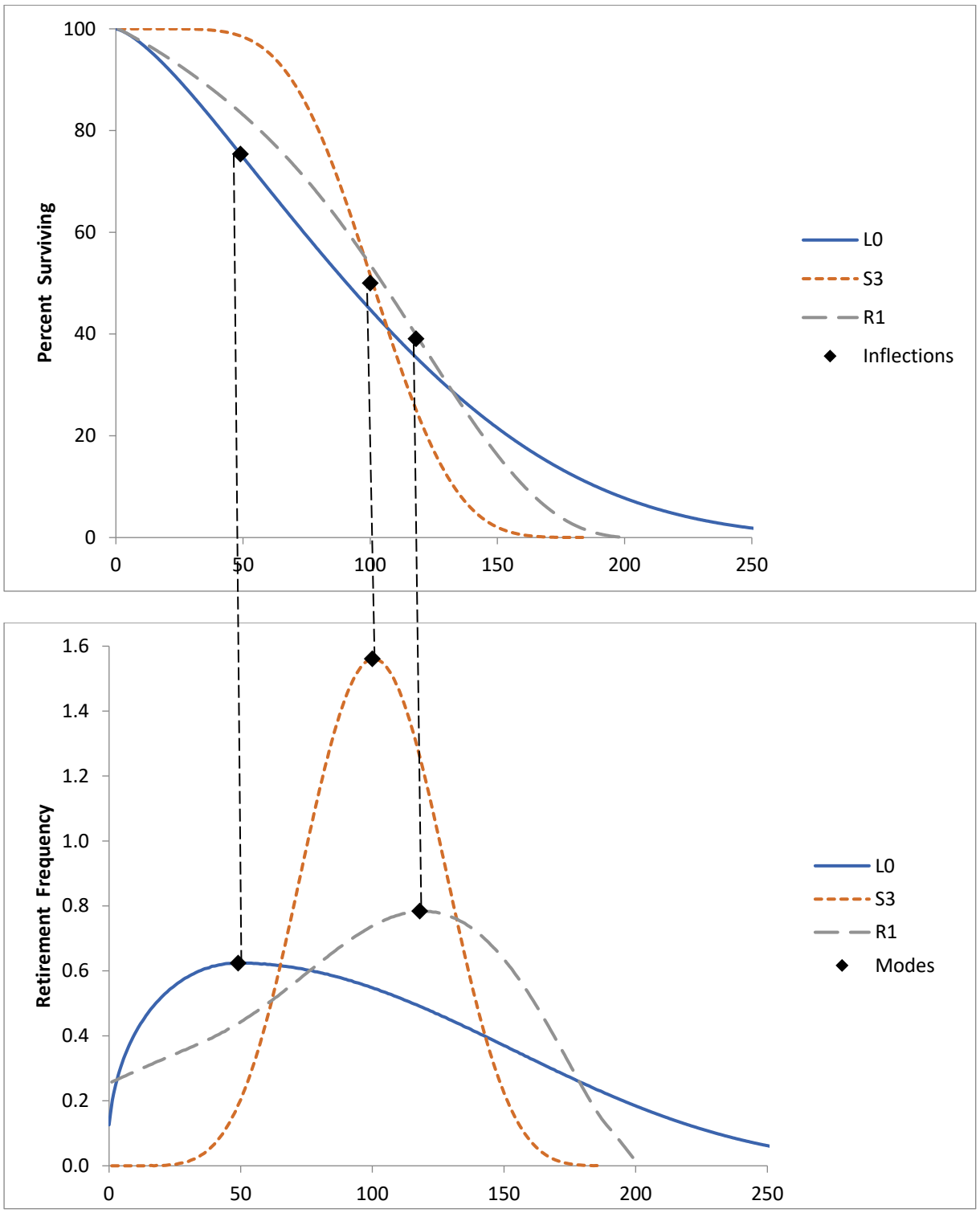
2. Classification

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

The classification of the survivor curves was made according to whether the mode of the retirement frequency curves was to the left, to the right, or coincident with average service life. There are three modal "families" of curves: six left modal curves (L0, L1, L2, L3, L4, L5); five right modal curves (R1, R2, R3, R4, R5); and seven symmetrical curves (S0, S1, S2, S3, S4, S5, S6).[44] 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.

[44] 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. 119, at 68).

Figure 2:
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:

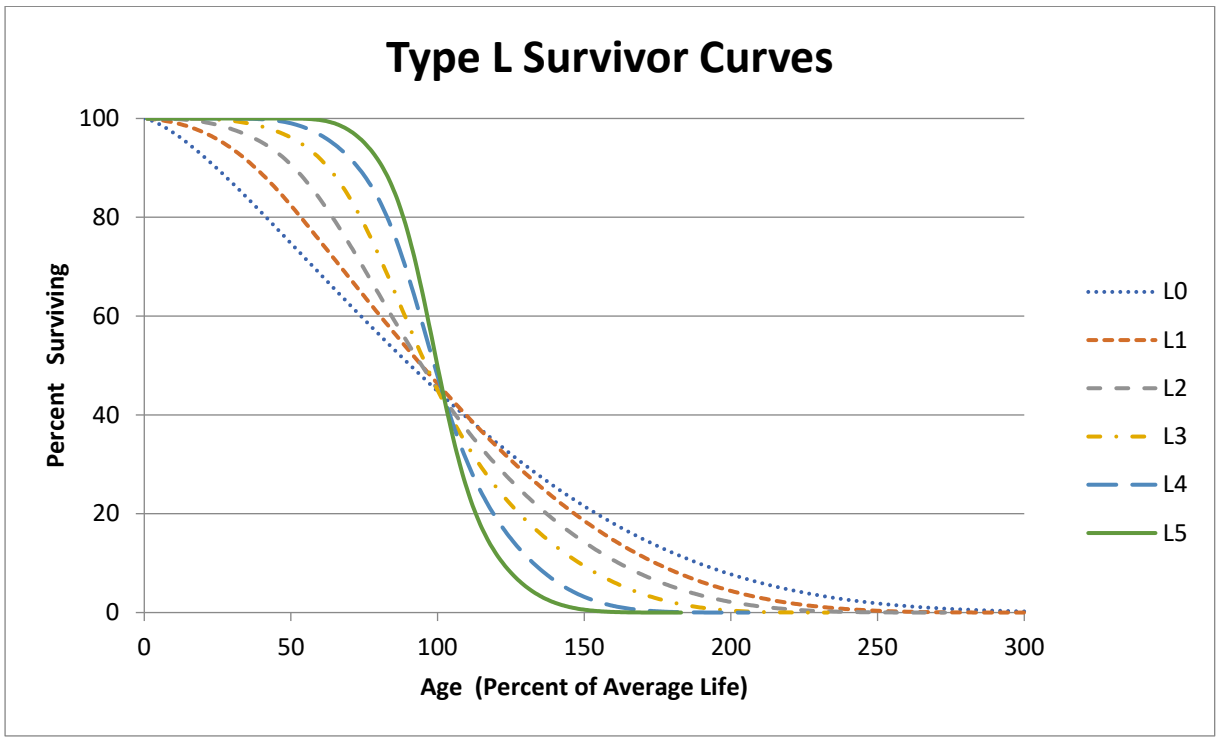
> Since the location of a particular survivor on a graph is affected by both its span in years and the shape of the curve, it is difficult to classify a group of curves unless one of these variables can be controlled. This is easily done by expressing the age in percent of average life."[45]

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.

[45] Winfrey *supra* n. 40, at 60.

Figure 3:
Type L Survivor and Frequency Curves



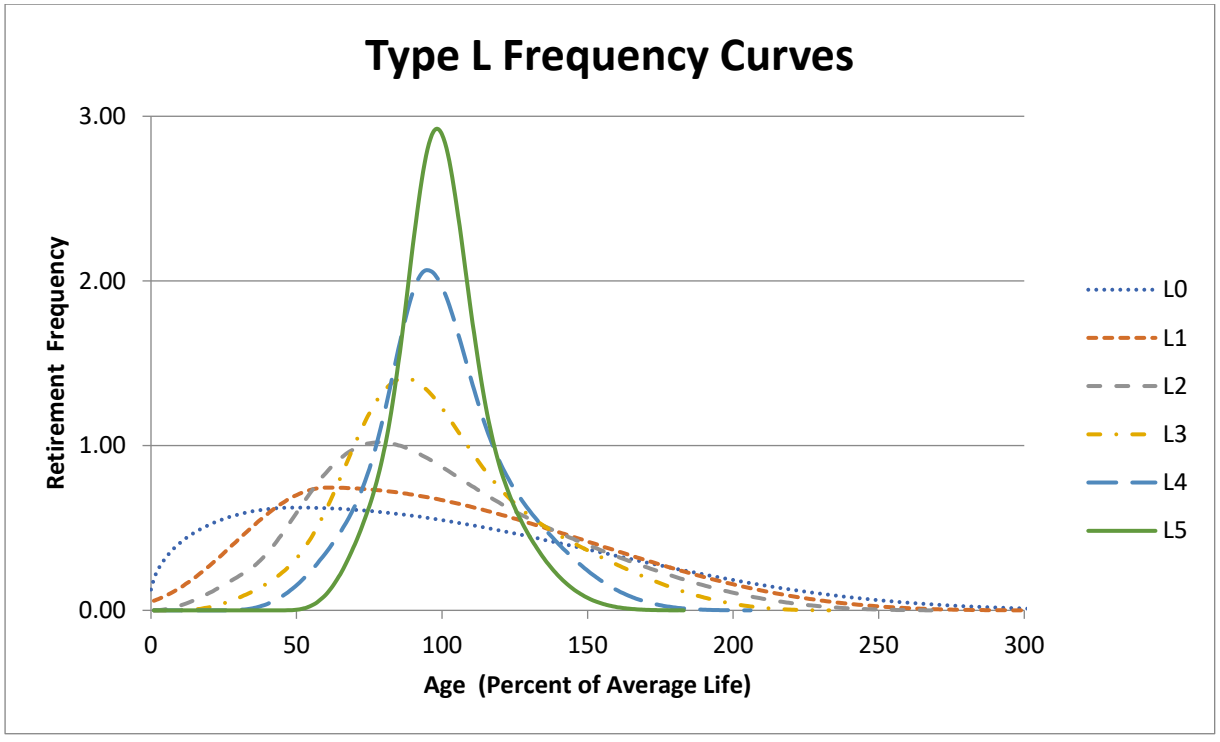
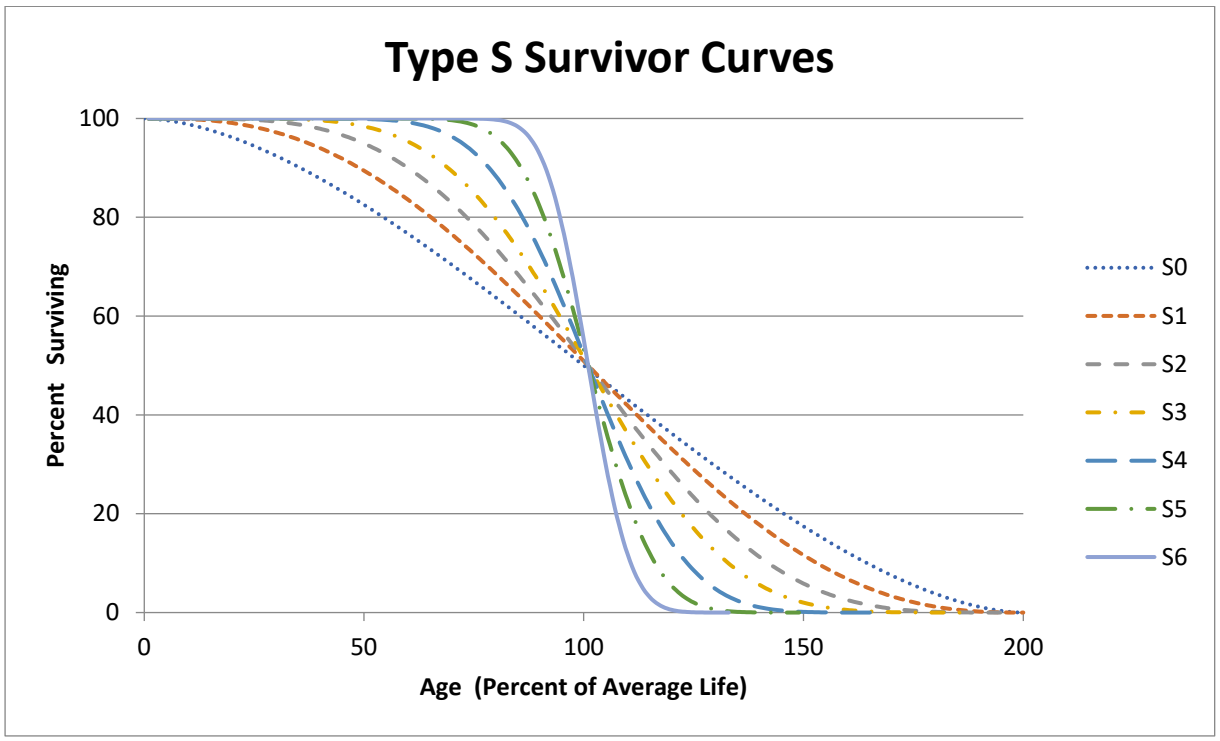


Figure 4:
Type S Survivor and Frequency Curves



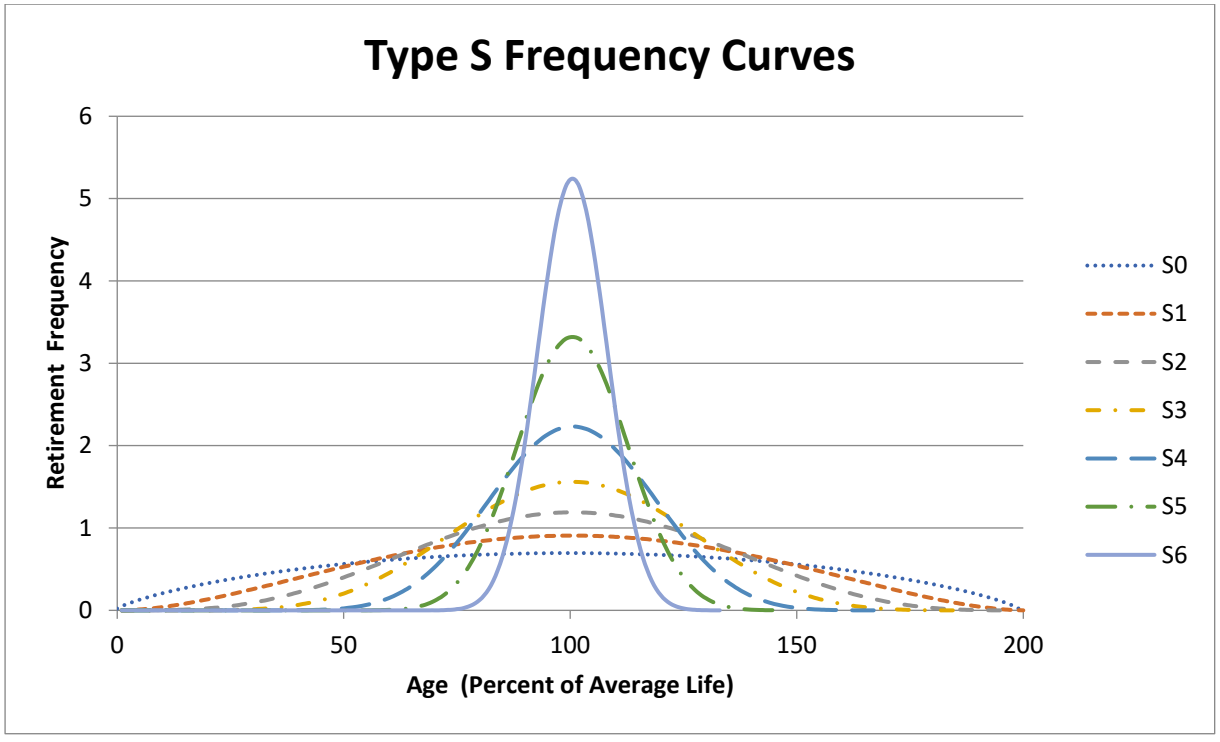
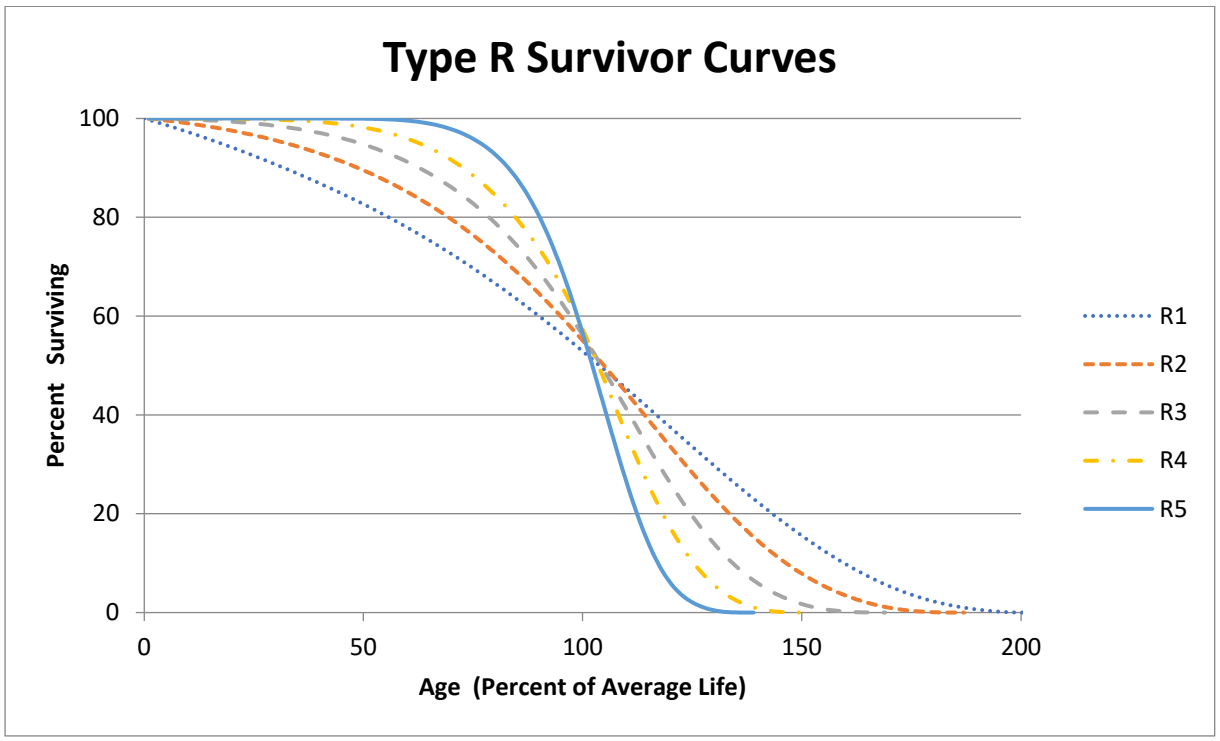
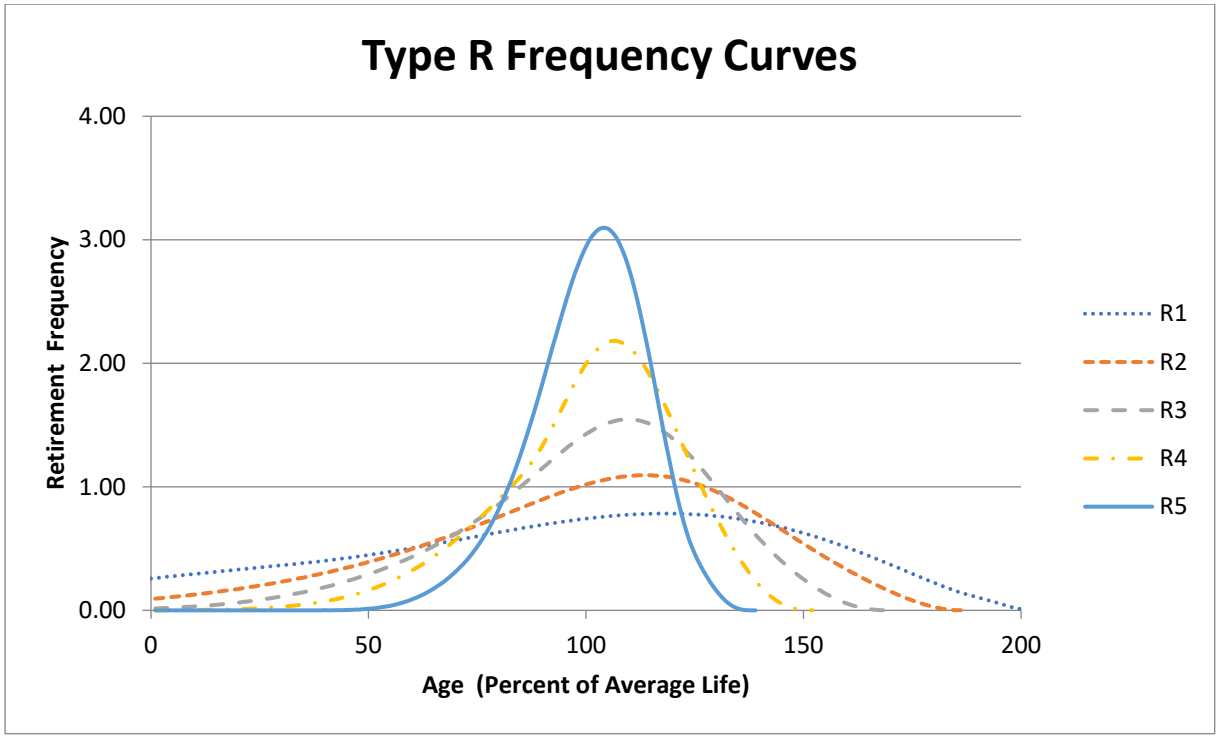


Figure 5:
Type R Survivor and Frequency Curves





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. The figure below illustrates these concepts. It shows the frequency curve, survivor curve, and probable life curve. Age M_x on the x-axis represents the modal age, while age AL_x represents the average age. Thus, this figure illustrates an "L type" Iowa curve since the mode occurs before the average.[46]

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:[47]

Equation 9:
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

[46] 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.

[47] *See* NARUC *supra* n. 18, 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 Exhibit DJG-23, Appendix E).

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.[48] 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.[49] 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 10:
Average Remaining Life

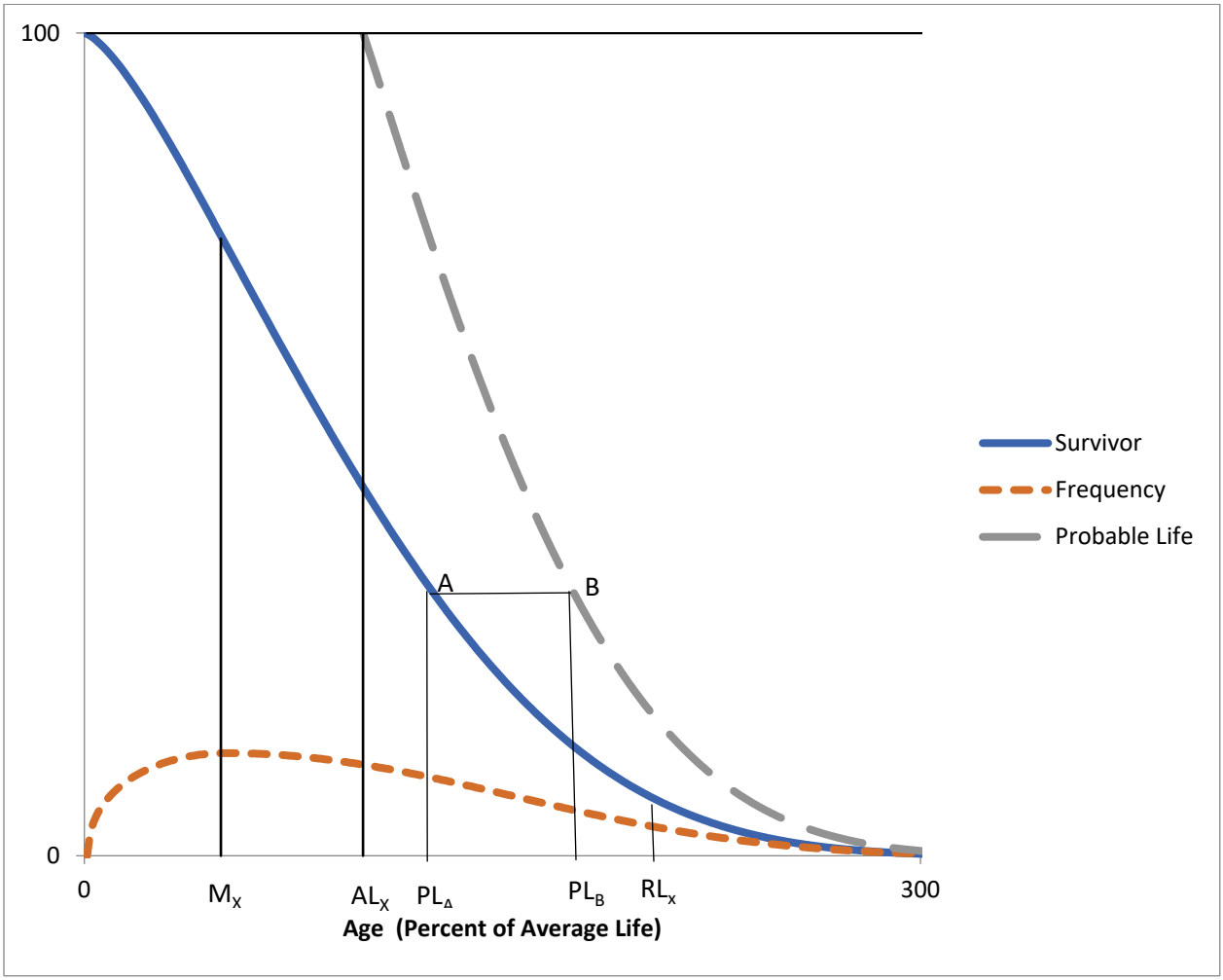
$$Average\ Remaining\ Life\ = \frac{Area\ Under\ Survivor\ Curve\ from\ Age\ x\ to\ Max\ Life}{S_X}$$

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

[48] *Id*. at 73.

[49] *Id*. at 74.

Figure 6:
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.[50] The probable life is also illustrated in this figure. The probable life at age PL_A is the age at point PL_B. Thus, to read the probable life at age PL_A, see the corresponding point on the survivor curve above at point "A," then horizontally to point "B" on

[50] Wolf *supra* n. 15, at 28.

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

APPENDIX E:

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.[51]

Figure 7:
Forces of Retirement

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

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

[51] NARUC *supra* n. 18, at 14-15.

units; 2) the association of costs with such units; and 3) the dates of installation and removal of plant. Since actuarial analysis includes the examination of historical data to forecast future retirements, the historical data used in the analysis should not contain events that are anomalous or unlikely to recur.[52] 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 calculate observed survivor curves for property groups. Of these methods, the retirement rate method is superior, and is widely employed by depreciation analysts.[53] The retirement rate method is ultimately used to develop an observed survivor curve, which can be fitted with an Iowa curve discussed in Exhibit DJG-23, Appendix D in order to forecast average life. The observed survivor curve is calculated by using an observed life table ("OLT"). The figures below illustrate how the OLT is developed. First, historical property data are organized in a matrix format, with placement years on the left forming rows, and experience years on the top forming columns. The placement year (a.k.a. "vintage year" or "installation year") is the year of placement of a group of property. The experience year (a.k.a. "activity year") refers to the accounting data for a particular calendar year. The two matrices below use aged data — that is, data for which the dates of placements, retirements, transfers, and other transactions are known. Without aged data, the retirement rate actuarial method may not be employed. The first matrix is the exposure matrix, which shows the

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

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

exposures at the beginning of each year.[54] 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 8:
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	

[54] 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 9:
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.[55] Adoption of the half-year convention leads to age intervals of 0-0.5 years, 0.5-1.5 years, etc., as shown in the matrices.

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

[55] Wolf *supra* n. 15, at 22.

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

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

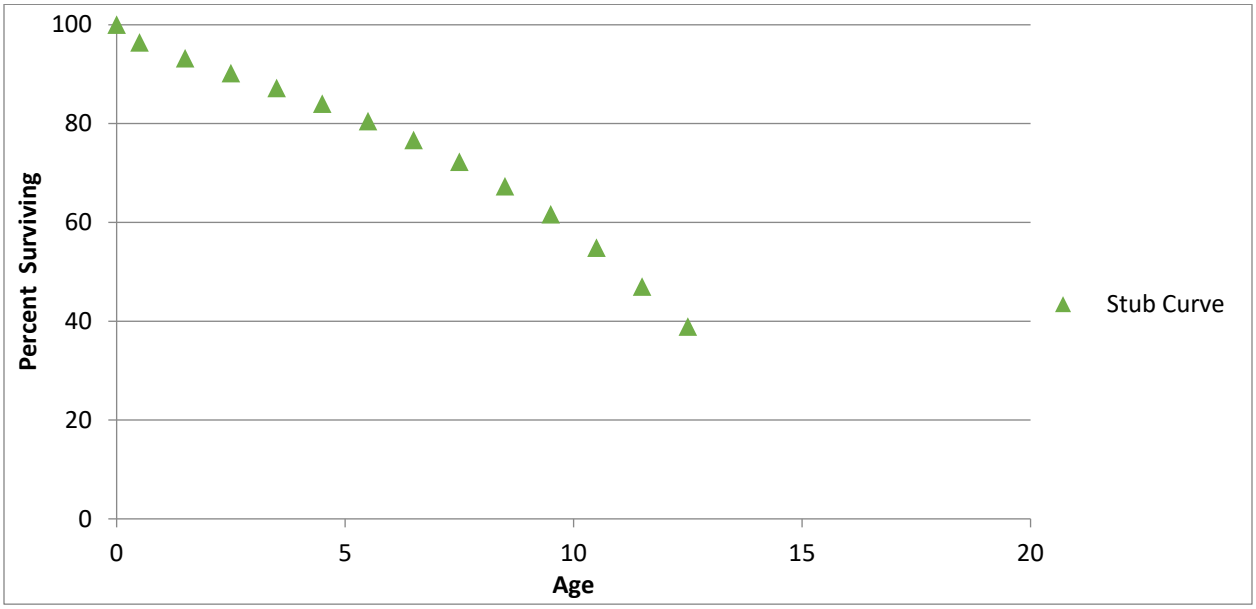
Figure 10:
Observed Life Table

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).

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 11:
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.[56] There are three primary benefits of using bands in depreciation analysis:

[56] NARUC *supra* n. 18, at 113.

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.[57]

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.

[57] *Id*.

Figure 12:
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.[58] Placement bands allow analysts to isolate the effects of changes in technology and materials that occur in successive generations of plant. For example, if in 2005 an electric utility began placing transmission poles with a special chemical treatment that extended the service lives of the poles, an analyst could use placement bands to isolate and analyze the effect of that change in the property group's physical characteristics. While placement

[58] Wolf *supra* n. 15, at 182.

bands are very useful in depreciation analysis, they also possess an intrinsic dilemma. A fundamental characteristic of placement bands is that they yield fairly complete survivor curves for older vintages. However, with newer vintages, which are arguably more valuable for forecasting, placement bands yield shorter survivor curves. Longer "stub" curves are considered more valuable for forecasting average life. Thus, an analyst must select a band width broad enough to provide confidence in the reliability of the resulting curve fit yet narrow enough so that an emerging trend may be observed.[59]

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.

[59] NARUC *supra* n. 18, at 114.

Figure 13:
Experience Bands

	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		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.[60] Likewise, the use of experience bands allows analysis of the effects of an unusual environmental event. For example, if an unusually severe ice storm occurred in 2013, destruction from that storm would affect an electric utility's line transformers of all ages. That is, each of the line transformers from each placement year would be affected, including those recently installed in 2012, as well as those installed in 2003. Using experience bands, an analyst could isolate or even eliminate the 2013 experience year from the analysis. In contrast, a placement band would not effectively isolate the

[60] *Id.*

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

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

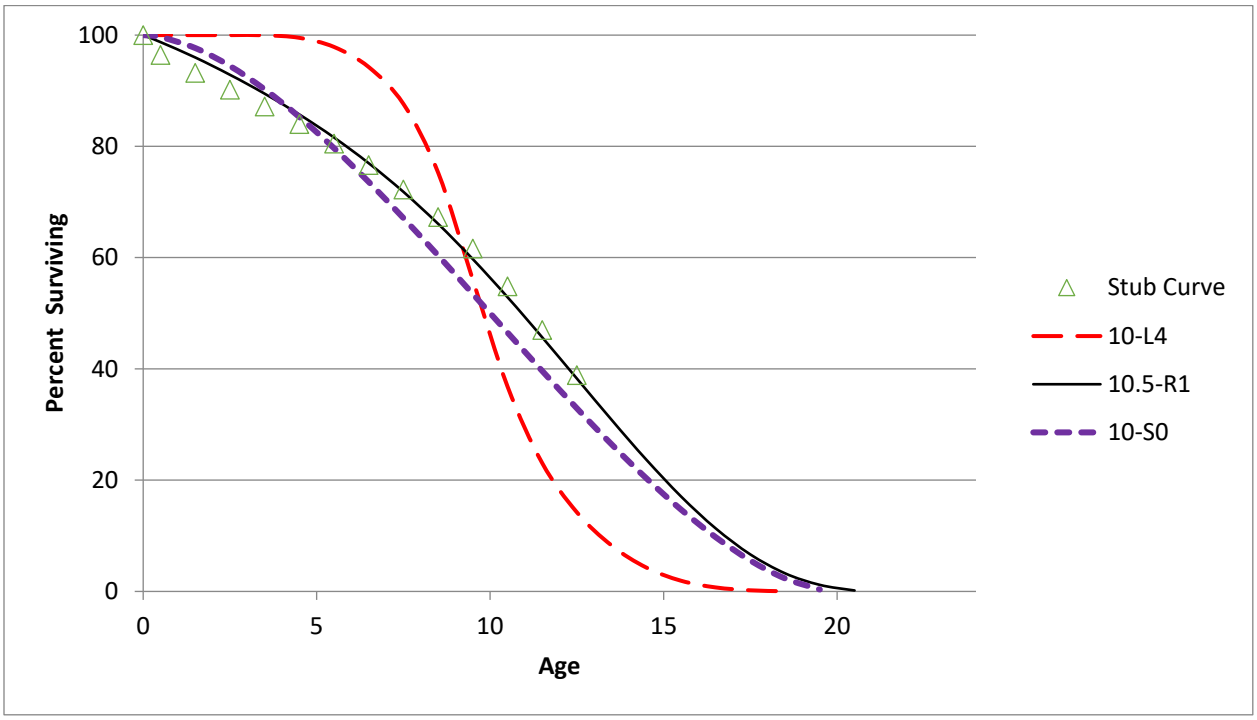
Curve Fitting

Depreciation analysts typically use the survivor curve rather than the frequency curve to fit the observed stub curves. The most commonly used generalized survivor curves used in the curve fitting process are the Iowa curves discussed above. As Wolf notes, if "the Iowa curves are

adopted as a model, an underlying assumption is that the process describing the retirement pattern is one of the 22 [or more] processes described by the Iowa curves."[61]

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

Figure 14:
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

[61] Wolf *supra* n. 15, at 46 (22 curves includes Winfrey's 18 original curves plus Cowles's four "O" type curves).

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.[62]

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."[63]

In the graph above, visual fitting was sufficient to determine that the 10.5-R1 Iowa curve was a better fit than the 10-L4 and the 10-S0 curves. Using the sum of least squares method, mathematical fitting confirms the same result. In the chart below, the percentages surviving from

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[62] Wolf *supra* n. 15, at 47.

[63] *Id*. at 48.

the OLT that formed the original stub curve are shown in the left column, while the corresponding percentages surviving for each age interval are shown for the three Iowa curves. The right portion of the chart shows the differences between the points on each Iowa curve and the stub curve. These differences are summed at the bottom. Curve 10.5-R1 is the best fit because the sum of the squared differences for this curve is less than the same sum of the other two curves. Curve 10-L4 is the worst fit, which was also confirmed visually.

Figure 15:
Mathematical Fitting

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

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EDUCATION

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

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

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

PROFESSIONAL DESIGNATIONS

Society of Depreciation Professionals
Certified Depreciation Professional (CDP)

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

WORK EXPERIENCE

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

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

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

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

TEACHING EXPERIENCE

University of Oklahoma — Norman, OK
Adjunct Instructor – "Conflict Resolution" — 2014 – 2021
Adjunct Instructor – "Ethics in Leadership"

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

PROFESSIONAL ASSOCIATIONS

Oklahoma Bar Association — 2007 – Present

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

Society of Utility Regulatory Financial Analysts — 2014 – Present

Utility Regulatory Proceedings

Regulatory Agency	Utility Applicant	Docket Number	Issues Addressed	Parties Represented
Washington Utilities & Transportation Commission	Avista Corporation	UE-260007 UG-260008	Cost of capital, awarded rate of return, capital structure	Washington Office of Attorney General
Maine Public Utilities Commission	Maine Water Company	2026-00028	Depreciation rates, service lives, net salvage	Maine Office of the Public Advocate
Pennsylvania Public Utility Commission	UGI Utilities, Inc. - Electric Division	R-2025-3059430	Cost of capital, awarded rate of return, capital structure	Pennsylvania Office of Consumer Advocate
New Mexico Public Regulation Commission	Southwestern Public Service Company	25-00079-UT	Cost of capital, depreciation rates, net salvage	The New Mexico Large Customer Group; Occidental Permian
Pennsylvania Public Utility Commission	UGI Utilities, Inc. - Gas Division	R-2025-3059523	Cost of capital, awarded rate of return, capital structure	Pennsylvania Office of Consumer Advocate
Oklahoma Corporation Commission	Public Service Company of Oklahoma	PUD 2025-000075	Cost of capital, depreciation rates, net salvage	Oklahoma Industrial Energy Consumers
Public Utilties Commission of the State of Colorado	Public Service Company of Colorado	25AL-0494E	Cost of capital, depreciation rates, net salvage	Colorado Energy Consumers
Illinois Commerce Commission	The Peoples Gas Light and Coke Company and North Shore Gas Company	26-0065, 26-0066	Cost of capital, awarded rate of return, capital structure	Legal Action Chicago and Illinois State Public Interest Research Group, Inc.
Pennsylvania Public Utility Commission	Peoples Natural Gas Company LLC	R-2026-3060855	Cost of capital, depreciation rates, net salvage	Pennsylvania Office of Consumer Advocate
Illinois Commerce Commission	Northern Illinois Gas Company d/b/a Nicor Gas Company	26-0099	Cost of capital, awarded rate of return, capital structure	Legal Action Chicago and Illinois State Public Interest Research Group, Inc.
Massachusetts Department of Public Utilities	Boston Gas Company D/B/A National Grid	D.P.U. 26-50	Depreciation rates, service lives, net salvage	Massachusetts Office of the Attorney General, Office of Ratepayer Advocacy
Public Service Commission of South Carolina	Dominion Energy South Carolina	2025-325-E	Depreciation rates, service lives, net salvage	South Carolina Office of Regulatory Staff
Massachusetts Department of Public Utilities	The Berkshire Gas Company	D.P.U. 25-170	Depreciation rates, service lives, net salvage	Massachusetts Office of the Attorney General, Office of Ratepayer Advocacy
Connecticut Public Utilities Regulatory Authority	Aquarion Water Company of Connecticut	25-12-12	Cost of capital, depreciation rates, net salvage	The Office of Consumer Counsel

Utility Regulatory Proceedings

Regulatory Agency	Utility Applicant	Docket Number	Issues Addressed	Parties Represented
Delaware Public Service Commission	Artesian Water Company	25-0346	Cost of capital, awarded rate of return, capital structure	Division of the Public Advocate
Pennsylvania Public Utility Commission	Pennsylvania-American Water Company	A-2024-3049015	Fair market value review (Borough of Greenville)	Pennsylvania Office of Consumer Advocate
Public Service Commission of South Carolina	Kiawah Island Utility, Inc.	2025-243-WS	Cost of capital, depreciation rates, net salvage	South Carolina Office of Regulatory Staff
Pennsylvania Public Utility Commission	City of Lancaster - Bureau of Water	R-2025-3057237	Cost of capital, depreciation rates, net salvage	Pennsylvania Office of Consumer Advocate
Massachusetts Department of Public Utilities	Liberty Utilities Corp. d/b/a Liberty	D.P.U. 25-85	Depreciation rates, service lives, net salvage	Massachusetts Office of the Attorney General, Office of Ratepayer Advocacy
Public Service Commission of the State of Montana	Montana-Dakota Utilities Company	2025.09.072	Cost of capital, awarded rate of return, capital structure	Montana Consumer Counsel and Denbury Onshore LLC
Wyoming Public Service Commission	Montana-Dakota Utilities Co.	20004-174-ER-25	Depreciation rates, service lives, net salvage	Wyoming Office of Consumer Advocate
Washington Utilities & Transportation Commission	Northwest Natural Gas Company	UG-250610	Depreciation rates, service lives, net salvage	Washington Office of Attorney General
Pennsylvania Public Utility Commission	Pennsylvania American Water Company	R-2025-3057983 R-2025-3058051	Cost of capital, depreciation rates, net salvage	Pennsylvania Office of Consumer Advocate
New York State Public Service Commission	New York State Electric & Gas and Rochester Gas and Electric Corporation	25-E-0375, 25-G-0378 25-E-0379, 25-G-0380	Cost of capital, depreciation rates, net salvage	Utility Intervention Unit of the New York State Department of State's Division of Consumer Protection
Pennsylvania Public Utility Commission	PPL Electric Utilities Corporation	R-2025-3057164	Cost of capital, depreciation rates, net salvage	Pennsylvania Office of Consumer Advocate
Railroad Commission of Texas	Texas Gas Services Company	OS-24-00028202	Depreciation rates, service lives, net salvage	The City of El Paso
Public Utility Commission of Texas	Texas-New Mexico Power Company	PUC 58964	Depreciation rates, service lives, net salvage	Alliance of Texas-New Mexico Power Municipalities
New Jersey Board of Public Utilities	South Jersey Gas	GR25110627	Cost of capital, awarded rate of return, capital structure	Staff of the New Jersey Board of Public Utilities
Maryland Public Service Commission	Potomac Electric Power Company	9820	Cost of capital, awarded rate of return, capital structure	Maryland Office of People's Counsel

Utility Regulatory Proceedings

Regulatory Agency	Utility Applicant	Docket Number	Issues Addressed	Parties Represented
New Jersey Board of Public Utilities	Rockland Electric Company	ER25060374	Cost of capital, depreciation rates, net salvage	Staff of the New Jersey Board of Public Utilities
Arizona Corporation Commission	Arizona Public Service Company	E-01345A-25-0105	Cost of capital, depreciation rates, net salvage	Arizona Large Customer Group and Freeport Minerals Corporation
New Jersey Board of Public Utilities	Middlesex Water Company	WR25060372	Cost of capital, depreciation rates, net salvage	Staff of the New Jersey Board of Public Utilities
Maryland Public Service Commission	Maryland-American Water Company	9808	Cost of capital, awarded rate of return, capital structure	Maryland Office of People's Counsel
Arizona Corporation Commission	Tucson Electric Power Company	E-01933A-25-0103	Cost of capital, awarded rate of return, capital structure	Arizona Large Customer Group and Freeport Minerals Corporation
Public Service Commission of West Virginia	West Virginia American Water Company	25-0426-W-42T 25-0428-S-42T	Cost of capital, awarded rate of return, capital structure	Consumer Advocate Division of the Public Service Commission of West Virginia
Federal Energy Regulatory Commission	Pacific Gas and Electric Company	ER24-96	Depreciation rates, service lives, net salvage	Northern California Power Agency
Public Utility Commission of Texas	Oncor Electric Delivery Company LLC	PUC 58306	Depreciation rates, service lives, net salvage	Alliance of Oncor Cities
Public Service Commission of West Virginia	Hope Gas, Inc.	24-0678-G-D	Cost of capital, awarded rate of return, capital structure	Consumer Advocate Division of the Public Service Commission of West Virginia
Pennsylvania Public Utility Commission	The York Water Company, et al	R-2025-3053442 R-2025-3053573	Cost of capital, awarded rate of return, capital structure	Pennsylvania Office of Consumer Advocate
Pennsylvania Public Utility Commission	UGI Utilities, Inc.	R-2024-3052716	Cost of capital, depreciation rates, net salvage	Pennsylvania Office of Consumer Advocate
Wyoming Public Service Commission	Rocky Mountain Power	20000-671-ER-24	Cost of capital and authorized rate of return	Wyoming Industrial Energy Consumers
Oklahoma Corporation Commission	Public Service Company of Oklahoma	PUD 2023-000086	Cost of capital, depreciation rates, net salvage	Oklahoma Industrial Energy Consumers
Public Service Commission of South Carolina	Piedmont Natural Gas Company	2022-89-G 2024-179-G	Depreciation rates, service lives, net salvage	South Carolina Office of Regulatory Staff
Florida Public Service Commission	Peoples Gas System	20250029-GU	Cost of capital, awarded rate of return, capital structure	Florida Office of Public Counsel

Utility Regulatory Proceedings

Regulatory Agency	Utility Applicant	Docket Number	Issues Addressed	Parties Represented
Public Service Commission of the State of Montana	NorthWestern Energy	2024.05.053	Cost of capital, depreciation rates, net salvage	Montana Consumer Counsel and Montana Large Customer Group
New York State Public Service Commission	Niagara Mohawk Power Corporation	24-E-0322 24-G-0323	Depreciation rates, service lives, net salvage, depreciation reserve	Utility Intervention Unit of the New York State Department of State's Division of Consumer Protection
Public Utilities Commission of Ohio	Ohio Edison Company, The Cleveland Electric Illuminating Company, and The Toledo Edison Company	24-468-EL-AIR, *et seq* .	Depreciation rates, service lives, net salvage	Office of the Ohio Consumers' Counsel
Public Utility Commission of Texas	El Paso Electric Company	PUC 57568	Depreciation rates, service lives, net salvage	The City of El Paso
Public Service Commission of Utah	Enbridge Gas Utah	25-057-06	Cost of capital, depreciation rates, net salvage	Office of Consumer Services
Pennsylvania Public Utility Commission	Pennsylvania-American Water Company	A-2025-3052983	Fair market value review (Elizabeth Borough)	Pennsylvania Office of Consumer Advocate
Commonwealth of Virginia State Corporation Commission	Virginia Electric and Power Company	PUR-2025-00058	Cost of capital, awarded rate of return, capital structure	Data Center Coalition
Delaware Public Service Commission	Delmarva Power & Light Company	24-1044	Cost of capital, depreciation rates, net salvage	Division of the Public Advocate
New York State Public Service Commission	Consolidated Edison Company of New York, Inc.	25-E-0072 25-G-0073	Depreciation rates, service lives, net salvage, depreciation reserve	Utility Intervention Unit of the New York State Department of State's Division of Consumer Protection
Pennsylvania Public Utility Commission	Columbia Gas of Pennsylvania	R-2025-3053499	Cost of capital, depreciation rates, net salvage	Pennsylvania Office of Consumer Advocate
Public Utility Commission of Texas	CenterPoint Energy Houston Electric	PUC 58028	System restoration costs	Texas Coast Utilities Coalition
Mississippi Public Service Commission	Atmos Energy Corporation	2025-UN-59	Depreciation rates, service lives, net salvage	Mississippi Public Utilities Staff
Public Service Commission of West Virginia	Appalachian Power Company and Wheeling Power Company	24-0854-E-42T	Cost of capital, awarded rate of return, capital structure	Consumer Advocate Division of the Public Service Commission of West Virginia
Public Service Commission of West Virginia	Appalachian Power Company and Wheeling Power Company	24-0670-E-D	Depreciation rates, service lives, net salvage	Consumer Advocate Division of the Public Service Commission of West Virginia
New Jersey Board of Public Utilities	Atlantic City Electric Company	ER24110854	Cost of capital, awarded rate of return, capital structure	Staff of the New Jersey Board of Public Utilities

Utility Regulatory Proceedings

Regulatory Agency	Utility Applicant	Docket Number	Issues Addressed	Parties Represented
Pennsylvania Public Utility Commission	Aqua Pennsylvania, Inc.	A-2022-3033138	Fair market value review (Beaver Falls)	Pennsylvania Office of Consumer Advocate
Mississippi Public Service Commission	Mississippi Power Company	2024-UN-117	Depreciation rates, service lives, net salvage	Mississippi Public Utilities Staff
Public Service Commission of the State of Montana	Montana-Dakota Utilities Company	2024.05.061	Cost of capital, depreciation rates, net salvage	Montana Consumer Counsel
Maryland Public Service Commission	Columbia Gas of Maryland	9754	Cost of capital, depreciation rates, net salvage	Maryland Office of People's Counsel
Railroad Commission of Texas	Atmos Energy, Mid-Tex Division	OS-24-00019196	Depreciation rates, service lives, net salvage	Atmos Texas Municipalities
Wyoming Public Service Commission	Montana-Dakota Utilities Co.	30013-415-GR-24	Depreciation rates, service lives, net salvage	Wyoming Office of Consumer Advocate
Indiana Utility Regulatory Commission	Duke Energy Indiana	46038	Cost of capital, depreciation rates, net salvage	Indiana Office of Utility Consumer Counselor
Railroad Commission of Texas	Atmos Energy, West Texas Division	OS-24-00018879	Depreciation rates, service lives, net salvage	The Cities of Amarillo, Lubbock, Dalhart, and Channing
Washington Utilities & Transportation Commission	Cascadia Water, LLC	UW-240151	Cost of capital, awarded rate of return, capital structure	Washington Office of Attorney General
Railroad Commission of Texas	West Texas Gas Utility	OS-24-00017816	Cost of capital, depreciation rates, net salvage	Alliance of WTG Municipalities
Maryland Public Service Commission	Washington Gas Light Company	9737	Cost of capital, awarded rate of return, capital structure	Maryland Office of People's Counsel
Railroad Commission of Texas	Texas Gas Services Company	OS-24-00017471	Depreciation rates, service lives, net salvage	The Steering Committee of Cities
Pennsylvania Public Utility Commission	Veolia Water Pennsylvania, Inc.	R-2024-3045192 R-2024-3045193	Cost of capital, depreciation rates, net salvage	Pennsylvania Office of Consumer Advocate
Pennsylvania Public Utility Commission	PECO Energy Company - Gas Division	R-2024-3046932	Cost of capital, awarded rate of return, capital structure	Pennsylvania Office of Consumer Advocate
Pennsylvania Public Utility Commission	PECO Energy Company - Electric Division	R-2024-3046931	Cost of capital, awarded rate of return, capital structure	Pennsylvania Office of Consumer Advocate

Utility Regulatory Proceedings

Regulatory Agency	Utility Applicant	Docket Number	Issues Addressed	Parties Represented
Oklahoma Corporation Commission	Oklahoma Gas & Electric Company	PUD 2023-000087	Cost of capital, depreciation rates, net salvage	Oklahoma Industrial Energy Consumers
Maryland Public Service Commission	Maryland Water Service, Inc.	9729	Cost of capital, awarded rate of return, capital structure	Maryland Office of People's Counsel
Kansas Corporation Commission	Kansas Gas Service	24-KGSG-610-RTS	Depreciation rates, service lives, net salvage	The Citizens' Utility Ratepayer Board
Pennsylvania Public Utility Commission	FirstEnergy Pennsylvania Electric Company	R-2024-3047068	Depreciation rates, service lives, net salvage	Pennsylvania Office of Consumer Advocate
Maryland Public Service Commission	Chesapeake Utilities Corporation Sandpiper Energy, Inc. Elkton Gas Company	9721	Depreciation rates, service lives, net salvage	Maryland Office of People's Counsel
Pennsylvania Public Utility Commission	Duquesne Light Company	R-2024-3046523	Cost of capital, depreciation rates, net salvage	Pennsylvania Office of Consumer Advocate
Public Utility Commission of Texas	CenterPoint Energy Houston Electric	PUC 56211	Depreciation rates, service lives, net salvage	Texas Coast Utilities Coalition
Washington Utilities & Transportation Commission	Avista Corporation	UE-240006 UG-240007	Cost of capital, awarded rate of return, capital structure	Washington Office of Attorney General
Public Utility Commission of Texas	AEP Texas Inc.	PUC 56165	Depreciation rates, service lives, net salvage	Cities Served by AEP Texas
Public Utilities Commission of Nevada	Southwest Gas Corporation	23-09012	Depreciation rates, service lives, net salvage	Bureau of Consumer Protection
Public Utilities Commission of the State of California	Southern California Edison	A.23-05-010	Depreciation rates, service lives, net salvage	The Utility Reform Network
Pennsylvania Public Utility Commission	Pennsylvania-American Water Company	R-2023-3043189 R-2023-3043190	Cost of capital, awarded rate of return, capital structure	Pennsylvania Office of Consumer Advocate
Indiana Utility Regulatory Commission	Northern Indiana Public Service Company	45967	Depreciation rates, service lives, net salvage	Indiana Office of Utility Consumer Counselor
Massachusetts Department of Public Utilities	Massachusetts Electric Company and Nantucket Electric Company D/B/A National Grid	D.P.U. 23-150	Depreciation rates, service lives, net salvage	Massachusetts Office of the Attorney General, Office of Ratepayer Advocacy
Iowa Utilities Board	Interstate Power and Light Company	RPU-2023-0002	Depreciation rates, service lives, net salvage	Office of Consumer Advocate

Utility Regulatory Proceedings

Regulatory Agency	Utility Applicant	Docket Number	Issues Addressed	Parties Represented
Public Service Commission of South Carolina	Duke Energy Carolinas	2023-388-E 2023-403-E	Depreciation rates, service lives, net salvage	South Carolina Office of Regulatory Staff
Indiana Utility Regulatory Commission	Citizens Energy Group	45988	Depreciation rates, service lives, net salvage	Indiana Office of Utility Consumer Counselor
Railroad Commission of Texas	CenterPoint Energy Resources Corp.	OS-23-00015513	Depreciation rates, service lives, net salvage	Alliance of CenterPoint Municipalities
Indiana Utility Regulatory Commission	CenterPoint Energy Indiana South	45990	Depreciation rates, service lives, net salvage	Indiana Office of Utility Consumer Counselor
Delaware Public Service Commission	Artesian Water Company, Inc.	23-0601	Cost of capital, depreciation rates, net salvage	Division of the Public Advocate
Maryland Public Service Commission	Washington Gas Light Company	9704	Cost of capital, awarded rate of return, capital structure	Maryland Office of People's Counsel
Delaware Public Service Commission	Veolia Water Delaware Inc.	23-0598	Cost of capital, awarded rate of return, capital structure	Division of the Public Advocate
Connecticut Public Utilities Regulatory Authority	United Illuminating Company	22-08-08	Depreciation rates, service lives, net salvage	PURA Staff
Public Utility Commission of Texas	Southwestern Public Service Company	PUC 54634	Depreciation rates, service lives, net salvage	Alliance of Xcel Municipalities
Railroad Commission of Texas	SiEnergy, LP	OS-23-00013504	Depreciation rates, service lives, net salvage	Texas municipal intervenor group
Pennsylvania Public Utility Commission	Aqua Pennsylvania, Inc.	A-2022-3034143	Fair market value review	Pennsylvania Office of Consumer Advocate
Wyoming Public Service Commission	Rocky Mountain Power	20000-633-ER-23	Cost of capital and authorized rate of return	Wyoming Industrial Energy Consumers
Maryland Public Service Commission	Potomac Electric Power Company	9702	Depreciation rates, service lives, net salvage	Maryland Office of People's Counsel
Public Utilities Commission of Nevada	Nevada Power Company d/b/a NV Energy	23-06007 23-06008	Depreciation rates, service lives, net salvage	Bureau of Consumer Protection
Public Utilities Commission of Ohio	Northeast Ohio Natural Gas Corp.	23-0154-GA-AIR	Cost of capital, awarded rate of return, capital structure	Office of the Ohio Consumers' Counsel

Utility Regulatory Proceedings

Regulatory Agency	Utility Applicant	Docket Number	Issues Addressed	Parties Represented
New York State Public Service Commission	The Brooklyn Union Gas Company and Keyspan Gas East Corporation d/b/a Nation Grid	23-G-0225 23-G-0226	Depreciation rates, service lives, net salvage, depreciation reserve	The City of New York
Idaho Public Utilities Commission	Idaho Power Company	IPC-E-23-11	Cost of capital, awarded rate of return, capital structure	Micron Technology, Inc.
Indiana Utility Regulatory Commission	Indiana Michigan Power Company	45933	Depreciation rates, service lives, net salvage	Indiana Office of Utility Consumer Counselor
Massachusetts Department of Public Utilities	Fitchburg Gas and Electric Company d/b/a Unitil	D.P.U. 23-80; D.P.U. 23-81	Depreciation rates, service lives, net salvage	Massachusetts Office of the Attorney General, Office of Ratepayer Advocacy
Kansas Corporation Commission	Evergy Kansas Central, Evergy Kansas South, and Evergy Metro	23-EKCE-775-RTS	Depreciation rates, service lives, net salvage	The Citizens' Utility Ratepayer Board
Delaware Public Service Commission	Delmarva Power & Light Company	22-0897	Cost of capital, awarded rate of return, capital structure	Division of the Public Advocate
Connecticut Public Utilities Regulatory Authority	Connecticut Water Company	23-08-32	Depreciation rates, service lives, net salvage	PURA Staff
Connecticut Public Utilities Regulatory Authority	Connecticut Natural Gas Corporation and The Southern Connecticut Gas Company	23-11-02	Depreciation rates, service lives, net salvage	PURA Staff
Railroad Commission of Texas	Atmos Pipeline – Texas	OS-23-00013758	Depreciation rates, service lives, net salvage	Atmos Texas Municipalities
Wyoming Public Service Commission	Black Hills Wyoming Gas	30026-78-GR-23	Depreciation rates, service lives, net salvage	Wyoming Office of Consumer Advocate
Indiana Utility Regulatory Commission	Indianapolis Power & Light Company d/b/a AES Indiana	45911	Depreciation rates, service lives, net salvage	Indiana Office of Utility Consumer Counselor
New Mexico Public Regulation Commission	Southwestern Public Service Company	22-00286-UT	Cost of capital, depreciation rates, net salvage	The New Mexico Large Customer Group; Occidental Permian
Public Utilities Commission of the State of California	Southern California Gas Company San Diego Gas & Electric Company	A.22-05-015 A.22-05-016	Depreciation rates, service lives, net salvage	The Utility Reform Network
Public Utilties Commission of the State of Colorado	Public Service Company of Colorado	22AL-0530E 22AL-0478E	Cost of capital, awarded rate of return, capital structure	Colorado Energy Consumers
New Mexico Public Regulatory Commission	Public Service Company of New Mexico	22-00270-UT	Cost of capital, depreciation rates, net salvage	The Albuquerque Bernalillo County Water Utility Authority

Utility Regulatory Proceedings

Regulatory Agency	Utility Applicant	Docket Number	Issues Addressed	Parties Represented
Florida Public Service Commission	Peoples Gas System	20230023-GU 20220219-GU 20220212-GU	Cost of capital, depreciation rates, net salvage	Florida Office of Public Counsel
Maryland Public Service Commission	Potomac Edison Company	9695	Cost of capital, depreciation rates, net salvage	Maryland Office of People's Counsel
Public Service Commission of the State of Montana	Montana-Dakota Utilities Company	2022.11.099	Depreciation rates, service lives, net salvage	Montana Consumer Counsel and Denbury Onshore
Indiana Utility Regulatory Commission	Indiana-American Water Company	45870	Depreciation rates, service lives, net salvage	Indiana Office of Utility Consumer Counselor
Public Service Commission of South Carolina	Dominion Energy South Carolina	2023-70-G	Depreciation rates, service lives, net salvage	South Carolina Office of Regulatory Staff
Maryland Public Service Commission	Columbia Gas of Maryland	9701	Cost of capital, awarded rate of return, capital structure	Maryland Office of People's Counsel
Pennsylvania Public Utility Commission	Columbia Water Company	R-2023-3040258	Cost of capital, awarded rate of return, capital structure	Pennsylvania Office of Consumer Advocate
Maryland Public Service Commission	Baltimore Gas and Electric Company	9692	Depreciation rates, service lives, net salvage	Maryland Office of People's Counsel
Arizona Corporation Commission	Arizona Public Service Company	E-01345A-22-0144	Cost of capital, awarded rate of return, capital structure	Residential Utility Consumer Office
Oklahoma Corporation Commission	Public Service Company of Oklahoma	PUD 2022-000093	Cost of capital, depreciation rates, net salvage	Oklahoma Industrial Energy Consumers
Public Service Commission of the State of Montana	NorthWestern Energy	2022.07.078	Cost of capital, depreciation rates, net salvage	Montana Consumer Counsel and Montana Large Customer Group
Indiana Utility Regulatory Commission	Northern Indiana Public Service Company	45772	Cost of capital, depreciation rates, net salvage	Indiana Office of Utility Consumer Counselor
Public Service Commission of South Carolina	Duke Energy Progress	2022-254-E	Depreciation rates, service lives, net salvage	South Carolina Office of Regulatory Staff
Wyoming Public Service Commission	Cheyenne Light, Fuel and Power Company D/B/A Black Hills Energy	20003-214-ER-22	Depreciation rates, service lives, net salvage	Wyoming Office of Consumer Advocate
Railroad Commission of Texas	Texas Gas Services Company	OS-22-00009896	Depreciation rates, service lives, net salvage	The City of El Paso

Utility Regulatory Proceedings

Regulatory Agency	Utility Applicant	Docket Number	Issues Addressed	Parties Represented
Public Utilities Commission of Nevada	Sierra Pacific Power Company	22-06014	Depreciation rates, service lives, net salvage	Bureau of Consumer Protection
Washington Utilities & Transportation Commission	Puget Sound Energy	UE-220066 UG-220067 UG-210918	Depreciation rates, service lives, net salvage	Washington Office of Attorney General
Public Utility Commission of Texas	Oncor Electric Delivery Company LLC	PUC 53601	Depreciation rates, service lives, net salvage	Alliance of Oncor Cities
Florida Public Service Commission	Florida Public Utilities Company	20220067-GU	Cost of capital, depreciation rates	Florida Office of Public Counsel
Public Utility Commission of Texas	Entergy Texas, Inc.	PUC 53719	Depreciation rates, decommissioning costs	Texas Municipal Group
Florida Public Service Commission	Florida City Gas	2020069-GU	Cost of capital, depreciation rates	Florida Office of Public Counsel
Connecticut Public Utilities Regulatory Authority	Aquarion Water Company of Connecticut	22-07-01	Depreciation rates, service lives, net salvage	PURA Staff
Washington Utilities & Transportation Commission	Avista Corporation	UE-220053 UG-220054 UE-210854	Cost of capital, awarded rate of return, capital structure	Washington Office of Attorney General
Federal Energy Regulatory Commission	ANR Pipeline Company	RP22-501-000	Depreciation rates, service lives, net salvage	Ascent Resources - Utica, LLC
Pennsylvania Public Utility Commission	Columbia Gas of Pennsylvania, Inc.	R-2022-3031211	Cost of capital, awarded rate of return, capital structure	Pennsylvania Office of Consumer Advocate
Public Service Commission of South Carolina	Piedmont Natural Gas Company	2022-89-G	Depreciation rates, service lives, net salvage	South Carolina Office of Regulatory Staff
Pennsylvania Public Utility Commission	UGI Utilities, Inc. - Gas Division	R-2021-3030218	Cost of capital, awarded rate of return, capital structure	Pennsylvania Office of Consumer Advocate
Public Utilities Commission of the State of California	Pacific Gas & Electric Company	A.21-06-021	Depreciation rates, service lives, net salvage	The Utility Reform Network
Pennsylvania Public Utility Commission	PECO Energy Company - Gas Division	R-2022-3031113	Cost of capital, awarded rate of return, capital structure	Pennsylvania Office of Consumer Advocate
Oklahoma Corporation Commission	Oklahoma Gas & Electric Company	PUD 202100164	Cost of capital, depreciation rates, net salvage	Oklahoma Industrial Energy Consumers

Utility Regulatory Proceedings

Regulatory Agency	Utility Applicant	Docket Number	Issues Addressed	Parties Represented
Massachusetts Department of Public Utilities	NSTAR Electric Company D/B/A Eversource Energy	D.P.U. 22-22	Depreciation rates, service lives, net salvage	Massachusetts Office of the Attorney General, Office of Ratepayer Advocacy
Michigan Public Service Company	DTE Electric Company	U-20836	Cost of capital, awarded rate of return, capital structure	Michigan Environmental Council and Citizens Utility Board of Michigan
New York State Public Service Commission	Consolidated Edison Company of New York, Inc.	22-E-0064 22-G-0065	Depreciation rates, service lives, net salvage, depreciation reserve	The City of New York
Pennsylvania Public Utility Commission	Aqua Pennsylvania Wastewater / East Whiteland Township	A-2021-3026132	Fair market value estimates for wastewater assets	Pennsylvania Office of Consumer Advocate
Public Service Commission of South Carolina	Kiawah Island Utility, Inc.	2021-324-WS	Cost of capital, awarded rate of return, capital structure	South Carolina Office of Regulatory Staff
Pennsylvania Public Utility Commission	Aqua Pennsylvania Wastewater / Willistown Township	A-2021-3027268	Fair market value estimates for wastewater assets	Pennsylvania Office of Consumer Advocate
Indiana Utility Regulatory Commission	Northern Indiana Public Service Company	45621	Depreciation rates, service lives, net salvage	Indiana Office of Utility Consumer Counselor
Arkansas Public Service Commission	Southwestern Electric Power Company	21-070-U	Cost of capital, depreciation rates, net salvage	Western Arkansas Large Energy Consumers
Federal Energy Regulatory Commission	Southern Star Central Gas Pipeline	RP21-778-002	Depreciation rates, service lives, net salvage	Consumer-Owned Shippers
Railroad Commission of Texas	Participating Texas gas utilities in consolidated proceeding	OS-21-00007061	Securitization of extraordinary gas costs arising from winter storms	The City of El Paso
Public Service Commission of South Carolina	Palmetto Wastewater Reclamation, Inc.	2021-153-S	Cost of capital, awarded rate of return, capital structure, ring-fencing	South Carolina Office of Regulatory Staff
Public Utilties Commission of the State of Colorado	Public Service Company of Colorado	21AL-0317E	Cost of capital, depreciation rates, net salvage	Colorado Energy Consumers
Pennsylvania Public Utility Commission	City of Lancaster - Water Department	R-2021-3026682	Cost of capital, awarded rate of return, capital structure	Pennsylvania Office of Consumer Advocate
Public Utility Commission of Texas	Southwestern Public Service Company	PUC 51802	Depreciation rates, service lives, net salvage	The Alliance of Xcel Municipalities
Pennsylvania Public Utility Commission	The Borough of Hanover - Hanover Municipal Waterworks	R-2021-3026116	Cost of capital, awarded rate of return, capital structure	Pennsylvania Office of Consumer Advocate

Utility Regulatory Proceedings

Regulatory Agency	Utility Applicant	Docket Number	Issues Addressed	Parties Represented
Maryland Public Service Commission	Delmarva Power & Light Company	9670	Cost of capital and authorized rate of return	Maryland Office of People's Counsel
Oklahoma Corporation Commission	Oklahoma Natural Gas Company	PUD 202100063	Cost of capital, awarded rate of return, capital structure	Oklahoma Industrial Energy Consumers
Indiana Utility Regulatory Commission	Indiana Michigan Power Company	45576	Depreciation rates, service lives, net salvage	Indiana Office of Utility Consumer Counselor
Public Utility Commission of Texas	El Paso Electric Company	PUC 52195	Depreciation rates, service lives, net salvage	The City of El Paso
Pennsylvania Public Utility Commission	Aqua Pennsylvania	R-2021-3027385	Cost of capital, awarded rate of return, capital structure	Pennsylvania Office of Consumer Advocate
Public Service Commission of the State of Montana	NorthWestern Energy	D2021.02.022	Cost of capital, awarded rate of return, capital structure	Montana Consumer Counsel
Pennsylvania Public Utility Commission	PECO Energy Company	R-2021-3024601	Cost of capital, awarded rate of return, capital structure	Pennsylvania Office of Consumer Advocate
New Mexico Public Regulation Commission	Southwestern Public Service Company	20-00238-UT	Cost of capital and authorized rate of return	The New Mexico Large Customer Group; Occidental Permian
Oklahoma Corporation Commission	Public Service Company of Oklahoma	PUD 202100055	Cost of capital, depreciation rates, net salvage	Oklahoma Industrial Energy Consumers
Pennsylvania Public Utility Commission	Duquesne Light Company	R-2021-3024750	Cost of capital, awarded rate of return, capital structure	Pennsylvania Office of Consumer Advocate
Maryland Public Service Commission	Columbia Gas of Maryland	9664	Cost of capital and authorized rate of return	Maryland Office of People's Counsel
Indiana Utility Regulatory Commission	Southern Indiana Gas Company, d/b/a Vectren Energy Delivery of Indiana, Inc.	45447	Depreciation rates, service lives, net salvage	Indiana Office of Utility Consumer Counselor
Public Utility Commission of Texas	Southwestern Electric Power Company	PUC 51415	Depreciation rates, service lives, net salvage	Cities Advocating Reasonable Deregulation
New Mexico Public Regulatory Commission	Avangrid, Inc., Avangrid Networks, Inc., NM Green Holdings, Inc., PNM, and PNM Resources	20-00222-UT	Ring fencing and capital structure	The Albuquerque Bernalillo County Water Utility Authority
Indiana Utility Regulatory Commission	Indiana Gas Company, d/b/a Vectren Energy Delivery of Indiana, Inc.	45468	Depreciation rates, service lives, net salvage	Indiana Office of Utility Consumer Counselor

Utility Regulatory Proceedings

Regulatory Agency	Utility Applicant	Docket Number	Issues Addressed	Parties Represented
Public Utilities Commission of Nevada	Nevada Power Company and Sierra Pacific Power Company, d/b/a NV Energy	20-07023	Construction work in progress	MGM Resorts International, Caesars Enterprise Services, LLC, and the Southern Nevada Water Authority
Massachusetts Department of Public Utilities	Boston Gas Company, d/b/a National Grid	D.P.U. 20-120	Depreciation rates, service lives, net salvage	Massachusetts Office of the Attorney General, Office of Ratepayer Advocacy
Public Service Commission of the State of Montana	ABACO Energy Services, LLC	D2020.07.082	Cost of capital and authorized rate of return	Montana Consumer Counsel
Maryland Public Service Commission	Washington Gas Light Company	9651	Cost of capital and authorized rate of return	Maryland Office of People's Counsel
Florida Public Service Commission	Utilities, Inc. of Florida	20200139-WS	Cost of capital and authorized rate of return	Florida Office of Public Counsel
New Mexico Public Regulatory Commission	El Paso Electric Company	20-00104-UT	Cost of capital, depreciation rates, net salvage	City of Las Cruces and Doña Ana County
Public Utilities Commission of Nevada	Nevada Power Company	20-06003	Cost of capital, awarded rate of return, capital structure, earnings sharing	MGM Resorts International, Caesars Enterprise Services, LLC, Wynn Las Vegas, LLC, Smart Energy Alliance, and Circus Circus Las Vegas, LLC
Wyoming Public Service Commission	Rocky Mountain Power	20000-578-ER-20	Cost of capital and authorized rate of return	Wyoming Industrial Energy Consumers
Florida Public Service Commission	Peoples Gas System	20200051-GU 20200166-GU	Cost of capital, depreciation rates, net salvage	Florida Office of Public Counsel
Wyoming Public Service Commission	Rocky Mountain Power	20000-539-EA-18	Depreciation rates, service lives, net salvage	Wyoming Industrial Energy Consumers
Public Service Commission of South Carolina	Dominion Energy South Carolina	2020-125-E	Depreciation rates, service lives, net salvage	South Carolina Office of Regulatory Staff
Pennsylvania Public Utility Commission	The City of Bethlehem	2020-3020256	Cost of capital, awarded rate of return, capital structure	Pennsylvania Office of Consumer Advocate
Railroad Commission of Texas	Texas Gas Services Company	GUD 10928	Depreciation rates, service lives, net salvage	Gulf Coast Service Area Steering Committee
Public Utilities Commission of the State of California	Southern California Edison	A.19-08-013	Depreciation rates, service lives, net salvage	The Utility Reform Network
Massachusetts Department of Public Utilities	NSTAR Gas Company	D.P.U. 19-120	Depreciation rates, service lives, net salvage	Massachusetts Office of the Attorney General, Office of Ratepayer Advocacy

Utility Regulatory Proceedings

Regulatory Agency	Utility Applicant	Docket Number	Issues Addressed	Parties Represented
Georgia Public Service Commission	Liberty Utilities (Peach State Natural Gas)	42959	Depreciation rates, service lives, net salvage	Public Interest Advocacy Staff
Florida Public Service Commission	Florida Public Utilities Company	20190155-El 20190156-El 20190174-El	Depreciation rates, service lives, net salvage	Florida Office of Public Counsel
Illinois Commerce Commission	Commonwealth Edison Company	20-0393	Depreciation rates, service lives, net salvage	The Office of the Illinois Attorney General
Public Utility Commission of Texas	Southwestern Public Service Company	PUC 49831	Depreciation rates, service lives, net salvage	Alliance of Xcel Municipalities
Public Service Commission of South Carolina	Blue Granite Water Company	2019-290-WS	Depreciation rates, service lives, net salvage	South Carolina Office of Regulatory Staff
Railroad Commission of Texas	CenterPoint Energy Resources	GUD 10920	Depreciation rates and grouping procedure	Alliance of CenterPoint Municipalities
Pennsylvania Public Utility Commission	Aqua Pennsylvania Wastewater / East Norriton Township	A-2019-3009052	Fair market value estimates for wastewater assets	Pennsylvania Office of Consumer Advocate
New Mexico Public Regulation Commission	Southwestern Public Service Company	19-00170-UT	Cost of capital and authorized rate of return	The New Mexico Large Customer Group; Occidental Permian
Indiana Utility Regulatory Commission	Duke Energy Indiana	45253	Cost of capital, depreciation rates, net salvage	Indiana Office of Utility Consumer Counselor
Maryland Public Service Commission	Columbia Gas of Maryland	9609	Depreciation rates, service lives, net salvage	Maryland Office of People's Counsel
Washington Utilities & Transportation Commission	Avista Corporation	UE-190334	Cost of capital, awarded rate of return, capital structure	Washington Office of Attorney General
Indiana Utility Regulatory Commission	Indiana Michigan Power Company	45235	Cost of capital, depreciation rates, net salvage	Indiana Office of Utility Consumer Counselor
Public Utilities Commission of the State of California	Pacific Gas & Electric Company	18-12-009	Depreciation rates, service lives, net salvage	The Utility Reform Network
Oklahoma Corporation Commission	The Empire District Electric Company	PUD 201800133	Cost of capital, authorized ROE, depreciation rates	Oklahoma Industrial Energy Consumers and Oklahoma Energy Results
Arkansas Public Service Commission	Southwestern Electric Power Company	19-008-U	Cost of capital, depreciation rates, net salvage	Western Arkansas Large Energy Consumers

Utility Regulatory Proceedings

Regulatory Agency	Utility Applicant	Docket Number	Issues Addressed	Parties Represented
Public Utility Commission of Texas	CenterPoint Energy Houston Electric	PUC 49421	Depreciation rates, service lives, net salvage	Texas Coast Utilities Coalition
Massachusetts Department of Public Utilities	Massachusetts Electric Company and Nantucket Electric Company	D.P.U. 18-150	Depreciation rates, service lives, net salvage	Massachusetts Office of the Attorney General, Office of Ratepayer Advocacy
Oklahoma Corporation Commission	Oklahoma Gas & Electric Company	PUD 201800140	Cost of capital, authorized ROE, depreciation rates	Oklahoma Industrial Energy Consumers and Oklahoma Energy Results
Public Service Commission of the State of Montana	Montana-Dakota Utilities Company	D2018.9.60	Depreciation rates, service lives, net salvage	Montana Consumer Counsel and Denbury Onshore
Indiana Utility Regulatory Commission	Northern Indiana Public Service Company	45159	Depreciation rates, grouping procedure, demolition costs	Indiana Office of Utility Consumer Counselor
Public Service Commission of the State of Montana	NorthWestern Energy	D2018.2.12	Depreciation rates, service lives, net salvage	Montana Consumer Counsel
Oklahoma Corporation Commission	Public Service Company of Oklahoma	PUD 201800097	Depreciation rates, service lives, net salvage	Oklahoma Industrial Energy Consumers and Wal-Mart
Nevada Public Utilities Commission	Southwest Gas Corporation	18-05031	Depreciation rates, service lives, net salvage	Nevada Bureau of Consumer Protection
Public Utility Commission of Texas	Texas-New Mexico Power Company	PUC 48401	Depreciation rates, service lives, net salvage	Alliance of Texas-New Mexico Power Municipalities
Oklahoma Corporation Commission	Oklahoma Gas & Electric Company	PUD 201700496	Depreciation rates, service lives, net salvage	Oklahoma Industrial Energy Consumers and Oklahoma Energy Results
Maryland Public Service Commission	Washington Gas Light Company	9481	Depreciation rates, service lives, net salvage	Maryland Office of People's Counsel
Indiana Utility Regulatory Commission	Citizens Energy Group	45039	Depreciation rates, service lives, net salvage	Indiana Office of Utility Consumer Counselor
Public Utility Commission of Texas	Entergy Texas, Inc.	PUC 48371	Depreciation rates, decommissioning costs	Texas Municipal Group
Washington Utilities & Transportation Commission	Avista Corporation	UE-180167	Depreciation rates, service lives, net salvage	Washington Office of Attorney General
New Mexico Public Regulation Commission	Southwestern Public Service Company	17-00255-UT	Cost of capital and authorized rate of return	HollyFrontier Navajo Refining; Occidental Permian

Utility Regulatory Proceedings

Regulatory Agency	Utility Applicant	Docket Number	Issues Addressed	Parties Represented
Public Utility Commission of Texas	Southwestern Public Service Company	PUC 47527	Depreciation rates, plant service lives	Alliance of Xcel Municipalities
Public Service Commission of the State of Montana	Montana-Dakota Utilities Company	D2017.9.79	Depreciation rates, service lives, net salvage	Montana Consumer Counsel
Florida Public Service Commission	Florida City Gas	20170179-GU	Cost of capital, depreciation rates	Florida Office of Public Counsel
Washington Utilities & Transportation Commission	Avista Corporation	UE-170485	Cost of capital and authorized rate of return	Washington Office of Attorney General
Wyoming Public Service Commission	Powder River Energy Corporation	10014-182-CA-17	Credit analysis, cost of capital	Private customer
Oklahoma Corporation Commission	Public Service Co. of Oklahoma	PUD 201700151	Depreciation, terminal salvage, risk analysis	Oklahoma Industrial Energy Consumers
Public Utility Commission of Texas	Oncor Electric Delivery Company	PUC 46957	Depreciation rates, simulated analysis	Alliance of Oncor Cities
Nevada Public Utilities Commission	Nevada Power Company	17-06004	Depreciation rates, service lives, net salvage	Nevada Bureau of Consumer Protection
Public Utility Commission of Texas	El Paso Electric Company	PUC 46831	Depreciation rates, interim retirements	City of El Paso
Idaho Public Utilities Commission	Idaho Power Company	IPC-E-16-24	Accelerated depreciation of North Valmy plant	Micron Technology, Inc.
Idaho Public Utilities Commission	Idaho Power Company	IPC-E-16-23	Depreciation rates, service lives, net salvage	Micron Technology, Inc.
Public Utility Commission of Texas	Southwestern Electric Power Company	PUC 46449	Depreciation rates, decommissioning costs	Cities Advocating Reasonable Deregulation
Massachusetts Department of Public Utilities	Eversource Energy	D.P.U. 17-05	Cost of capital, capital structure, and rate of return	Sunrun Inc.; Energy Freedom Coalition of America
Railroad Commission of Texas	Atmos Pipeline - Texas	GUD 10580	Depreciation rates, grouping procedure	City of Dallas
Public Utility Commission of Texas	Sharyland Utility Company	PUC 45414	Depreciation rates, simulated analysis	City of Mission

Utility Regulatory Proceedings

Regulatory Agency	Utility Applicant	Docket Number	Issues Addressed	Parties Represented
Oklahoma Corporation Commission	Empire District Electric Company	PUD 201600468	Cost of capital, depreciation rates	Oklahoma Industrial Energy Consumers
Railroad Commission of Texas	CenterPoint Energy Texas Gas	GUD 10567	Depreciation rates, simulated plant analysis	Texas Coast Utilities Coalition
Arkansas Public Service Commission	Oklahoma Gas & Electric Company	160-159-GU	Cost of capital, depreciation rates, terminal salvage	Arkansas River Valley Energy Consumers; Wal-Mart
Florida Public Service Commission	Peoples Gas	160-159-GU	Depreciation rates, service lives, net salvage	Florida Office of Public Counsel
Arizona Corporation Commission	Arizona Public Service Company	E-01345A-16-0036	Cost of capital, depreciation rates, terminal salvage	Energy Freedom Coalition of America
Nevada Public Utilities Commission	Sierra Pacific Power Company	16-06008	Depreciation rates, net salvage, theoretical reserve	Northern Nevada Utility Customers
Oklahoma Corporation Commission	Oklahoma Gas & Electric Co.	PUD 201500273	Cost of capital, depreciation rates, terminal salvage	Public Utility Division
Oklahoma Corporation Commission	Public Service Co. of Oklahoma	PUD 201500208	Cost of capital, depreciation rates, terminal salvage	Public Utility Division
Oklahoma Corporation Commission	Oklahoma Natural Gas Company	PUD 201500213	Cost of capital, depreciation rates, net salvage	Public Utility Division

Proxy Group Summary

Company	Ticker	Market Cap. ($ millions)	Value Line Safety Rank	Financial Strength
Alliant Energy Corporation	LNT	17,700	1	A
Ameren Corporation	AEE	29,700	1	A
American Electric Power Company, Inc.	AEP	66,400	1	A
Avista Corporation	AVA	3,400	2	B++
Consolidated Edison, Inc.	ED	41,100	1	A+
Duke Energy Corporation	DUK	100,000	1	A
Edison International	EIX	28,800	3	B++
Entergy Corporation	ETR	49,400	1	A
Evergy, Inc.	EVRG	18,800	2	B++
Exelon Corporation	EXC	48,200	2	A
FirstEnergy Corporation	FE	28,500	2	B++
IDACORP, Inc.	IDA	8,400	1	A
OGE Energy Corporation	OGE	9,500	2	B++
Pinnacle West Capital Corporation	PNW	13,000	2	B++
PPL Corporation	PPL	27,100	1	A+
Southern Company	SO	109,000	1	A
Xcel Energy Inc.	XEL	51,200	2	A

Value Line Investment Survey

DCF - Stock and Index Prices

Exhibit DJG-3

Ticker	^GSPC	LNT	AEE	AEP	AVA	ED	DUK	EIX	ETR	EVRG	EXC	FE	IDA	OGE	PNW	PPL	SO	XEL
30-day Average	7675	66.36	103.43	121.48	36.63	105.70	118.11	58.69	103.64	80.30	42.47	45.31	133.86	45.85	95.59	33.61	86.56	73.57
Standard Deviation	51.4	1.94	2.70	2.20	1.07	2.03	3.01	7.57	3.29	1.39	1.37	1.31	3.18	0.75	2.31	0.91	2.45	2.46
08/21/26	7674	67.86	105.38	120.94	37.57	106.35	119.85	71.59	104.62	80.92	43.37	45.96	137.20	45.62	97.36	34.10	88.94	75.69
08/24/26	7653	68.42	106.41	121.98	37.93	107.71	121.97	73.97	105.79	81.39	43.92	46.57	138.23	45.96	97.71	34.75	90.10	76.71
08/25/26	7677	68.34	106.08	122.77	37.75	107.09	121.59	74.78	106.24	81.41	43.89	46.62	137.66	45.94	97.67	34.70	89.97	76.57
08/26/26	7676	68.92	106.99	123.36	38.15	108.05	121.89	74.51	107.23	82.23	44.02	46.73	138.13	46.55	98.69	34.73	89.76	77.06
08/27/26	7731	68.21	106.00	122.71	37.74	106.69	120.84	73.68	106.49	81.42	43.55	46.25	137.74	46.03	97.89	34.16	89.05	76.54
08/28/26	7712	68.03	105.37	122.31	37.66	107.49	120.25	70.17	105.75	80.65	43.52	45.88	135.78	45.74	97.64	33.92	88.25	75.84
08/31/26	7686	67.98	105.26	122.43	37.16	107.02	119.91	53.98	106.31	81.02	43.31	45.86	136.16	45.63	97.64	33.85	88.00	75.08
09/01/26	7631	67.92	105.34	122.96	37.64	107.70	120.39	58.80	107.02	81.52	43.42	46.16	136.39	45.99	97.66	34.19	88.09	75.28
09/02/26	7667	67.74	105.14	123.57	37.25	107.67	120.56	55.19	106.75	80.77	43.56	46.29	135.13	46.46	97.38	34.26	88.31	74.91
09/03/26	7748	68.00	105.66	124.71	37.63	108.75	121.40	56.30	107.78	81.93	44.11	47.04	136.12	46.89	98.00	34.82	88.77	75.73
09/04/26	7719	67.97	105.72	124.50	37.55	107.29	120.22	56.77	107.27	81.54	43.64	46.77	135.70	46.92	97.52	34.82	88.11	75.11
09/08/26	7674	68.61	106.73	125.42	37.61	108.27	121.24	59.33	108.53	82.24	43.95	46.45	137.89	47.39	98.04	34.79	88.99	76.27
09/09/26	7636	67.86	106.25	124.67	37.40	107.49	120.43	57.44	107.17	81.22	43.70	46.21	136.25	46.92	97.18	34.26	88.34	75.58
09/10/26	7592	67.25	104.95	123.47	37.13	106.73	119.37	56.75	105.73	81.36	43.39	46.25	135.45	46.59	96.59	34.21	87.75	74.81
09/11/26	7657	67.26	104.90	123.33	36.79	106.46	119.42	56.00	105.33	81.62	43.16	46.13	135.54	46.55	96.10	34.08	87.17	74.90
09/14/26	7620	66.92	103.97	122.23	36.65	105.78	119.02	56.13	103.64	80.86	42.72	45.83	133.94	46.23	95.40	33.79	87.00	73.57
09/15/26	7586	65.99	103.02	120.61	36.31	105.24	117.77	54.56	102.92	80.20	42.20	45.33	132.68	45.71	94.90	33.23	85.95	72.49
09/16/26	7552	66.11	103.04	120.69	36.74	105.42	117.76	54.81	102.32	80.39	42.44	45.38	132.69	46.01	94.99	33.41	86.23	72.71
09/17/26	7638	66.64	103.90	121.62	36.76	107.08	118.54	55.50	103.31	80.84	42.64	45.73	133.24	46.30	95.59	33.60	86.76	73.63
09/18/26	7651	65.61	102.23	120.00	36.25	105.43	117.53	55.31	102.01	79.78	42.07	45.26	131.58	45.51	94.21	33.34	85.52	72.30
09/21/26	7765	64.97	101.83	120.03	36.10	103.86	116.74	54.95	101.58	79.26	41.98	44.97	130.47	45.05	93.31	33.05	85.46	71.85
09/22/26	7765	64.62	101.66	120.27	36.00	103.84	116.31	55.05	101.16	79.27	41.80	44.73	130.33	45.11	93.16	32.88	85.15	72.06
09/23/26	7706	63.69	99.74	118.40	35.45	102.61	114.17	53.51	99.23	78.42	40.69	43.65	128.66	44.71	92.05	32.25	83.47	70.66
09/24/26	7704	63.31	99.20	117.57	35.05	102.71	113.23	52.54	98.16	77.66	40.20	43.19	127.69	44.28	91.08	31.97	82.89	69.56
09/25/26	7743	63.60	99.39	118.35	35.11	103.10	113.35	52.65	98.57	78.04	40.34	43.30	129.78	44.81	91.74	32.03	82.88	69.80
09/28/26	7684	63.21	99.39	118.20	34.79	102.83	113.41	51.47	98.10	77.91	40.32	43.02	128.81	44.68	91.32	32.11	82.35	69.39
09/29/26	7671	64.34	100.25	119.30	35.11	103.33	114.21	53.56	99.76	78.73	40.65	43.64	131.12	45.38	93.40	32.58	83.45	70.69
09/30/26	7652	63.30	99.38	118.64	35.09	102.21	114.01	53.73	99.26	78.44	40.40	43.33	130.73	45.42	93.04	32.89	82.89	70.48
10/01/26	7666	63.71	99.64	119.75	35.07	103.50	113.74	53.80	100.40	78.79	40.47	43.39	131.86	45.67	94.63	32.76	83.47	70.55
10/02/26	7723	64.33	99.94	119.57	35.31	103.39	114.13	53.89	100.91	79.17	40.73	43.34	132.79	45.34	95.92	32.80	83.72	71.40

All prices are adjusted closing prices reported by Yahoo! Finance, http://finance.yahoo.com

DCF - Dividend Yields

Company	Ticker	[1] Annualized Dividend	[2] Stock Price	[3] Dividend Yield
Alliant Energy Corporation	LNT	2.14	66.36	3.22%
Ameren Corporation	AEE	3.00	103.43	2.90%
American Electric Power Company, Inc.	AEP	3.80	121.48	3.13%
Avista Corporation	AVA	1.97	36.63	5.38%
Consolidated Edison, Inc.	ED	3.51	105.70	3.32%
Duke Energy Corporation	DUK	4.34	118.11	3.67%
Edison International	EIX	3.51	58.69	5.98%
Entergy Corporation	ETR	2.56	103.64	2.47%
Evergy, Inc.	EVRG	2.78	80.30	3.46%
Exelon Corporation	EXC	1.68	42.47	3.96%
FirstEnergy Corporation	FE	1.86	45.31	4.11%
IDACORP, Inc.	IDA	3.52	133.86	2.63%
OGE Energy Corporation	OGE	1.72	45.85	3.75%
Pinnacle West Capital Corporation	PNW	3.64	95.59	3.81%
PPL Corporation	PPL	1.14	33.61	3.39%
Southern Company	SO	3.04	86.56	3.51%
Xcel Energy Inc.	XEL	2.37	73.57	3.22%
Average		**$2.74**	**$79.48**	**3.64%**

[1] Yahoo Finance

[2] Average stock price from Exhibit DJG-3

[3] = [1] / [2]

DCF - Terminal Growth Rate Determinants

DCF Annual Growth Rate Indicators	Rate	
Nominal GDP (2026-2056)	3.8%	[1]
Real GDP	1.7%	[2]
Company Load Growth (CAGR 2016-2025)	-1.0%	[3]
Company Customer Growth (CAGR 2016-2025)	0.6%	[4]
Long-Term Growth Ceiling	**3.8%**	

[1], [2] CBO, The 2026 Long-Term Budget Outlook (nominal annual GDP growth)

[3], [4] Response to OCC-515 Att 1

DCF - Final Result

Company	Ticker	[1] Dividend Yield	[2] Analyst Growth	[3] Sustainable Growth	[4] DCF Result (Analyst Growth)	[5] DCF Result (Sustainable Growth)
Alliant Energy Corporation	LNT	3.2%	6.0%	3.8%	9.4%	7.1%
Ameren Corporation	AEE	2.9%	5.0%	3.8%	8.0%	6.8%
American Electric Power Company, Inc.	AEP	3.1%	3.0%	3.8%	6.2%	7.0%
Avista Corporation	AVA	5.4%	4.0%	3.8%	9.6%	9.4%
Consolidated Edison, Inc.	ED	3.3%	5.5%	3.8%	9.0%	7.2%
Duke Energy Corporation	DUK	3.7%	4.0%	3.8%	7.8%	7.6%
Edison International	EIX	6.0%	6.0%	3.8%	12.3%	10.0%
Entergy Corporation	ETR	2.5%	7.5%	3.8%	10.2%	6.4%
Evergy, Inc.	EVRG	3.5%	3.0%	3.8%	6.6%	7.4%
Exelon Corporation	EXC	4.0%	5.0%	3.8%	9.2%	7.9%
FirstEnergy Corporation	FE	4.1%	5.0%	3.8%	9.3%	8.1%
IDACORP, Inc.	IDA	2.6%	4.5%	3.8%	7.2%	6.5%
OGE Energy Corporation	OGE	3.8%	1.5%	3.8%	5.3%	7.7%
Pinnacle West Capital Corporation	PNW	3.8%	3.5%	3.8%	7.4%	7.8%
PPL Corporation	PPL	3.4%	6.0%	3.8%	9.6%	7.3%
Southern Company	SO	3.5%	3.5%	3.8%	7.1%	7.4%
Xcel Energy Inc.	XEL	3.2%	6.0%	3.8%	9.4%	7.1%
Average		**3.6%**	**4.6%**	**3.8%**	**8.5%**	**7.6%**

[1] Dividend Yield from Exhibit DJG-4

[2] Forecasted dividend growth rates - Value Line

[3] Sustainable growth rate from Exhibit DJG-5

[4] Annual Compounding DCF = $D_0 (1 + g) / P_0 + g$ (using analyst growth rate)

[5] Annual Compounding DCF = $D_0 (1 + g) / P_0 + g$ (using sustainable growth rate)

CAPM - Risk-Free Rate Estimate

Date	Rate
10/02/26	5.28
10/01/26	5.24
09/30/26	5.29
09/29/26	5.26
09/28/26	5.24
09/25/26	5.17
09/24/26	5.18
09/23/26	5.11
09/22/26	4.96
09/21/26	4.96
09/18/26	5.01
09/17/26	4.94
09/16/26	5.01
09/15/26	5.00
09/14/26	4.97
09/11/26	4.96
09/10/26	4.95
09/09/26	4.83
09/08/26	4.80
09/04/26	4.78
09/03/26	4.77
09/02/26	4.79
09/01/26	4.79
08/31/26	4.75
08/28/26	4.73
08/27/26	4.67
08/26/26	4.66
08/25/26	4.64
08/24/26	4.70
08/21/26	4.74
Average	**4.94%**

*Daily Treasury Yield Curve Rates on 10-year T-bonds,
http://www.treasury.gov/resources-center/data-chart-center/interest-rates/

CAPM - Beta Coefficients

Company	Ticker	Beta
Alliant Energy Corporation	LNT	0.80
Ameren Corporation	AEE	0.80
American Electric Power Company, Inc.	AEP	0.70
Avista Corporation	AVA	0.70
Consolidated Edison, Inc.	ED	0.65
Duke Energy Corporation	DUK	0.65
Edison International	EIX	0.90
Entergy Corporation	ETR	0.75
Evergy, Inc.	EVRG	0.80
Exelon Corporation	EXC	0.75
FirstEnergy Corporation	FE	0.70
IDACORP, Inc.	IDA	0.70
OGE Energy Corporation	OGE	0.85
Pinnacle West Capital Corporation	PNW	0.75
PPL Corporation	PPL	0.80
Southern Company	SO	0.65
Xcel Energy Inc.	XEL	0.70
Average		0.74

Value Line Investment Survey

CAPM - Implied Equity Risk Premium Estimate

Year	[1] Market Value	[2] Operating Earnings	[3] Dividends	[4] Buybacks	[5] Earnings Yield	[6] Dividend Yield	[7] Buyback Yield	[8] Gross Cash Yield
2015	17,900	885	382	572	4.95%	2.14%	3.20%	5.33%
2016	19,268	920	397	536	4.77%	2.06%	2.78%	4.85%
2017	22,821	1,066	420	519	4.67%	1.84%	2.28%	4.12%
2018	21,027	1,282	456	806	6.10%	2.17%	3.84%	6.01%
2019	26,760	1,305	485	729	4.88%	1.81%	2.72%	4.54%
2020	31,659	1,019	480	520	3.22%	1.52%	1.64%	3.16%
2021	40,356	1,739	511	882	4.31%	1.27%	2.18%	3.45%
2022	32,133	1,656	565	923	5.15%	1.76%	2.87%	4.63%
2023	40,039	1,790	588	795	4.47%	1.47%	1.99%	3.46%
2024	49,805	1,967	630	943	3.95%	1.26%	1.89%	3.16%
2025	58,208	2,313	672	1,044	3.97%	1.15%	1.79%	2.95%

Cash Yield	4.15%	[9]
Growth Rate	10.08%	[10]
Risk-free Rate	4.94%	[11]
Current Index Value	7,675	[12]

Year	[13] 1	[14] 2	[15] 3	[16] 4	[17] 5
Expected Cash Distributions	351	386	425	468	515
Expected Terminal Value					9975
Present Value	318	317	316	315	6409
Intrinsic Index Value	7675	[18]			
Required Return on Market	10.4%	[19]			
Implied Equity Risk Premium	**5.4%**	[20]			

[1-4] S&P Quarterly Press Releases, data found at https://us.spindices.com/indices/equity/sp-500 (additional info tab) (all dollar figures are in $ billions)
[1] Market value of S&P 500
[5] = [2] / [1]
[6] = [3] / [1]
[7] = [4] / [1]
[8] = [6] + [7]
[9] = Average of [8]
[10] = Compund annual growth rate of [2] = (end value / beginning value)$^{1/10}$-1
[11] Risk-free rate from DJG risk-free rate exhibit
[12] 30-day average of closing index prices from DJG stock price exhibit
[13-16] Expected dividends = [9]*[12]*(1+[10])^{n} ; Present value = expected dividend / (1+[11]+[19])^{n}
[17] Expected terminal value = expected dividend * (1+[11]) / [20] ; Present value = (expected dividend + expected terminal value) / (1+[11]+[20])^{5}
[18] = Sum([13-17]) present values.
[19] = [20] + [11]
[20] Internal rate of return calculation setting [18] equal to [12] and solving for the discount rate
* 2025 data reflects NYU latest trailing four-quarter S&P data / beginning 2026 data, rather than S&P's normal completed calendar year

CAPM - Equity Risk Premium Results

IESE Business School Survey	5.3%	[1]
Kroll Report	5.0%	[2]
Damodaran (midpoint)	4.7%	[3]
Garrett	5.4%	[4]
Average	**5.1%**	

CAPM - Final Results

Company	Ticker	[1] Beta	[2] CAPM Result
Alliant Energy Corporation	LNT	0.80	9.0%
Ameren Corporation	AEE	0.80	9.0%
American Electric Power Company, Inc.	AEP	0.70	8.5%
Avista Corporation	AVA	0.70	8.5%
Consolidated Edison, Inc.	ED	0.65	8.3%
Duke Energy Corporation	DUK	0.65	8.3%
Edison International	EIX	0.90	9.5%
Entergy Corporation	ETR	0.75	8.8%
Evergy, Inc.	EVRG	0.80	9.0%
Exelon Corporation	EXC	0.75	8.8%
FirstEnergy Corporation	FE	0.70	8.5%
IDACORP, Inc.	IDA	0.70	8.5%
OGE Energy Corporation	OGE	0.85	9.3%
Pinnacle West Capital Corporation	PNW	0.75	8.8%
PPL Corporation	PPL	0.80	9.0%
Southern Company	SO	0.65	8.3%
Xcel Energy Inc.	XEL	0.70	8.5%
Average			**8.7%**

Risk-free Rate	[3]	4.9%
Equity Risk Premium	[4]	5.1%

[1] From Exhibit DJG-8

[2] = [3] + [1] * [4]

[3] From Exhibit DJG-7

[4] From Exhibit DJG-10

Cost of Equity Summary

Model	Cost of Equity
CAPM (at Proxy Debt Ratio)	8.7%
Hamada CAPM (at Company-Proposed Debt Ratio)	7.9%
DCF Model (Analyst Growth)	8.5%
DCF Model (Sustainable Growth)	7.6%
Recommended ROE	**8.7%**

Proxy Company Debt Ratios

Company	Ticker	Debt Ratio
Alliant Energy Corporation	LNT	59.9%
Ameren Corporation	AEE	57.6%
American Electric Power Company, Inc.	AEP	59.0%
Avista Corporation	AVA	50.9%
Consolidated Edison, Inc.	ED	51.4%
Duke Energy Corporation	DUK	60.7%
Edison International	EIX	65.2%
Entergy Corporation	ETR	61.9%
Evergy, Inc.	EVRG	56.1%
Exelon Corporation	EXC	62.4%
FirstEnergy Corporation	FE	67.1%
IDACORP, Inc.	IDA	49.8%
OGE Energy Corporation	OGE	51.9%
Pinnacle West Capital Corporation	PNW	56.6%
PPL Corporation	PPL	54.7%
Southern Company	SO	64.0%
Xcel Energy Inc.	XEL	58.4%
Average		58.1%

Debt ratios from Value Line Investment Survey - 2025

Competitive Industry Debt Ratios

Industry	# Firms	Debt Ratio
Retail (Building Supply)	14	97%
Restaurant/Dining	64	95%
Hotel/Gaming	63	82%
Brokerage & Investment Banking	32	79%
Retail (Automotive)	34	77%
Hospitals/Healthcare Facilities	31	76%
Rubber& Tires	3	74%
Bank (Money Center)	15	73%
Recreation	49	72%
Air Transport	23	71%
Food Wholesalers	13	69%
Retail (Grocery and Food)	15	67%
Chemical (Diversified)	4	66%
Cable TV	9	65%
Telecom (Wireless)	12	65%
Advertising	52	64%
Transportation	19	64%
R.E.I.T.	190	63%
Power	46	63%
Oil/Gas Distribution	23	63%
Transportation (Railroads)	4	62%
Computers/Peripherals	36	61%
Telecom. Services	39	61%
Broadcasting	24	61%
Auto & Truck	33	60%
Retail (Special Lines)	94	60%
Software (Internet)	29	60%
Green & Renewable Energy	15	59%
Environmental & Waste Services	53	58%
Office Equipment & Services	14	58%
Utility (General)	14	58%
Beverage (Soft)	27	57%
Apparel	35	56%
Information Services	15	56%
Retail (Distributors)	62	55%
Utility (Water)	14	55%
Farming/Agriculture	35	55%
Aerospace/Defense	79	55%
Packaging & Container	19	54%
Computer Services	64	54%
Retail (REITs)	26	54%
Chemical (Basic)	29	52%
Furn/Home Furnishings	27	52%
Business & Consumer Services	155	51%
Household Products	110	51%
Drugs (Biotechnology)	496	51%
Real Estate (Development)	14	50%
Total / Average	**2,273**	**63%**

http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/dbtfund.htm

Hamada Model Results

Unlevering Beta

Proxy Debt Ratio	58.1%	[1]
Proxy Equity Ratio	41.9%	[2]
Proxy Debt / Equity Ratio	1.4	[3]
Tax Rate	21%	[4]
Equity Risk Premium	5.1%	[5]
Risk-free Rate	4.9%	[6]
Proxy Group Beta	0.74	[7]
Unlevered Beta	0.36	[8]

Relevered Betas and Cost of Equity Estimates

[9] Debt Ratio	[10] D/E Ratio	[11] Levered Beta	[12] Cost of Equity
0%	0.0	0.36	6.8%
20%	0.3	0.43	7.1%
25%	0.3	0.45	7.2%
30%	0.4	0.48	7.4%
45.2%	0.8	0.59	7.9%
58.1%	1.4	0.74	8.7%
60%	1.5	0.78	8.9%

[1] Proxy group average debt ratio

[2] Proxy group average equity ratio

[3] = [1] / [2]

[4] Company assumed tax rate

[5] Equity risk premium from Exhibit DJG-11

[6] Risk-free rate from Exhibit DJG-11

[7] Average proxy beta from Exhibit DJG-11

[8] = [7] / (1 + (1 - [4]) * [3])

[9] Various debt ratios (Garrett proposed highlighted)

[10] = [9] / (1 - [9])

[11] = [8] * (1 + (1 - [4]) * [10])

[12] = [6] + [11] * [5]

Final Rate of Return Recommendation

Capital Component	Proposed Ratio	Cost Rate	Weighted Cost
Long-Term Debt	58.1%	4.81%	2.79%
Preferred Stock	0.9%	4.75%	0.04%
Common Equity	41.0%	8.70%	3.57%
Total	100.0%		6.40%

Summary Accrual Adjustment

Exhibit DJG-17

Plant Function	Plant 12/31/2025	Current Parameters Rate	Current Parameters Accrual	Company Proposed Rate	Company Proposed Accrual	OCC Proposed Rate	OCC Proposed Accrual	OCC Adjustment Rate	OCC Adjustment Adjustment
Distribution Plant	$ 8,273,006,454	2.85%	$ 235,997,194	3.87%	$ 320,287,974	3.02%	$ 250,048,577	-0.85%	$ (70,239,397)
General Plant	545,737,446	3.30%	18,014,725	4.40%	24,012,938	4.25%	23,191,930	-0.15%	(821,008)
Reserve Adjustment	-	0.00%	106,870	0.00%	(260,369)	0.00%	(260,369)	0.00%	-
Total Depreciable Plant	**$ 8,818,743,900**	**2.88%**	**$ 254,118,789**	**3.90%**	**$ 344,040,543**	**3.10%**	**$ 272,980,137**	**-0.81%**	**$ (71,060,406)**

Mass Property Parameter Comparison

Exhibit DJG-18

Account No.	Description	Current Parameters Iowa Curve	Salvage Rate	Depr Rate	Annual Accrual	Company Position Iowa Curve	Salvage Rate	Depr Rate	Annual Accrual	OCC Position Iowa Curve	Salvage Rate	Depr Rate	Annual Accrual
	DISTRIBUTION PLANT												
362.00	STATION EQUIPMENT	S0 - 60	-50%	2.38%	26,396,801	R1 - 60	-55%	2.61%	28,952,390	R1 - 60	-53%	2.56%	28,361,312
364.00	POLES, TOWERS AND FIXTURES	R0.5 - 53	-90%	3.58%	31,527,829	R0.5 - 48	-100%	4.82%	42,423,606	L0 - 53	-95%	3.90%	34,336,268
365.00	OVERHEAD CONDUCTORS AND DEVICES	R0.5 - 52	-40%	2.86%	66,330,207	R0.5 - 46	-30%	3.80%	88,133,983	R0.5 - 52	-19%	2.69%	62,497,891
366.00	UNDERGROUND CONDUIT	R2 - 75	-15%	1.49%	7,833,198	R1.5 - 75	-30%	1.85%	9,743,337	R1.5 - 82	-23%	1.53%	8,045,943
367.00	UNDERGROUND CONDUCTORS AND DEVICES	R0.5 - 53	-35%	2.44%	33,679,519	R0.5 - 50	-40%	3.15%	43,535,592	L0 - 55	-38%	2.65%	36,523,583
368.00	LINE TRANSFORMERS	R0.5 - 45	-12%	2.48%	22,640,084	R0.5 - 45	-15%	2.91%	26,585,913	R0.5 - 45	-14%	2.86%	26,151,503
369.00	SERVICES	R1.5 - 60	-85%	2.91%	12,835,720	R1.5 - 60	-100%	3.83%	16,883,013	R1.5 - 60	-57%	2.83%	12,488,990
370.48	METERS												
	AMR	L1 - 23	2%	4.92%	5,816,521	S0 - 20	5%	16.95%	20,034,350	S0 - 20	5%	8.33%	9,846,154
	BRIDGE	L1 - 23	2%	4.92%	3,724,944	S2 - 15	5%	16.70%	12,642,259	S2 - 15	5%	7.50%	5,674,897
	DEMAND METER	L1 - 23	2%	4.92%	563,552	S0 - 20	5%	16.00%	1,832,727	S0 - 20	5%	7.13%	816,241
	NET METER	L1 - 23	2%	4.92%	266,161	S0 - 20	5%	15.69%	848,595	S0 - 20	5%	5.61%	303,657
	TIME OF USE METER	L1 - 23	2%	4.92%	249,652	S0 - 20	5%	16.03%	813,182	S0 - 20	5%	4.98%	252,810
371.00	INSTALLATIONS ON CUSTOMERS' PREMISES	L0 - 20	-25%	7.37%	3,180,102	L0 - 20	-30%	6.56%	2,831,484	L0 - 20	-28%	6.40%	2,761,422
373.00	STREET LIGHTING AND SIGNAL SYSTEMS	L0 - 25	-30%	5.71%	3,636,347	L0 - 18	-25%	9.73%	6,196,265	O3 - 25	-25%	4.97%	3,163,357

Detailed Rate Comparison

Account No.	Description	[1] Original Cost 12/31/2025	[2] Current Parameters Rate	[2] Current Parameters Annual Accrual	[3] Company Proposal Rate	[3] Company Proposal Annual Accrual	[4] OCC Proposal Rate	[4] OCC Proposal Annual Accrual	[5] OCC Adjustment Rate	[5] OCC Adjustment Annual Accrual
	DISTRIBUTION PLANT									
360.20	LAND RIGHTS	8,660,926	1.17%	101,333	2.71%	235,014	2.71%	234,990	0.00%	-24
361.00	STRUCTURES AND IMPROVEMENTS	99,930,710	2.19%	2,188,483	2.58%	2,581,760	2.59%	2,584,249	0.01%	2,489
362.00	STATION EQUIPMENT	1,109,109,277	2.38%	26,396,801	2.61%	28,952,390	2.56%	28,361,312	-0.05%	-591,078
363.11	COMPUTER HARDWARE - PCs	6,709,115	6.67%	447,498	6.67%	447,581	6.68%	447,843	0.01%	262
363.12	COMPUTER HARDWARE									
	FULLY ACCRUED	4,339,536								
	AMORTIZED	3,581,538	20.00%	716,308	20.00%	716,440	20.00%	716,440	0.00%	0
	TOTAL	7,921,074	9.04%	716,308	9.04%	716,440	9.04%	716,440	0.00%	0
363.20	COMPUTER SOFTWARE - 3 YEAR	128,783	0.00%	0	0.00%	0	0.00%	0	0.00%	0
363.22	COMPUTER SOFTWARE - 10 YEAR	65,039,310	0.00%	836,644	0.00%	836,644	0.00%	836,644	0.00%	0
363.23	COMPUTER SOFTWARE - 5 YEAR	60,194,403	0.00%	7,126,164	0.00%	7,126,164	0.00%	7,126,164	0.00%	0
363.24	COMPUTER SOFTWARE - 15 YEAR	15,241,036	0.00%	697,927	0.00%	697,927	0.00%	697,927	0.00%	0
363.31	COMMUNICATION EQUIPMENT									
	FULLY ACCRUED	1,089,211								
	AMORTIZED	76,276,888	5.00%	3,813,844	5.00%	3,813,701	5.00%	3,813,890	0.00%	189
	TOTAL	77,366,098	4.93%	3,813,844	4.93%	3,813,701	4.93%	3,813,890	0.00%	189
363.32	COMMUNICATION EQUIPMENT - MICROWAVE	21,102,501	2.29%	483,247	0.46%	98,066	0.47%	98,159	0.01%	93
364.00	POLES, TOWERS AND FIXTURES	880,665,625	3.58%	31,527,829	4.82%	42,423,606	3.90%	34,336,268	-0.92%	-8,087,338
365.00	OVERHEAD CONDUCTORS AND DEVICES	2,319,238,004	2.86%	66,330,207	3.80%	88,133,983	2.69%	62,497,891	-1.11%	-25,636,092
366.00	UNDERGROUND CONDUIT	525,717,993	1.49%	7,833,198	1.85%	9,743,337	1.53%	8,045,943	-0.32%	-1,697,394
367.00	UNDERGROUND CONDUCTORS AND DEVICES	1,380,308,160	2.44%	33,679,519	3.15%	43,535,592	2.65%	36,523,583	-0.50%	-7,012,009
368.00	LINE TRANSFORMERS	912,906,627	2.48%	22,640,084	2.91%	26,585,913	2.86%	26,151,503	-0.05%	-434,410
369.00	SERVICES	441,090,034	2.91%	12,835,720	3.83%	16,883,013	2.83%	12,488,990	-1.00%	-4,394,023
370.47	METER EQUIPMENT	18,396,526	4.92%	905,109	12.29%	2,260,780	12.24%	2,251,138	-0.05%	-9,642
370.48	METERS									
	AMR	118,221,970	4.92%	5,816,521	16.95%	20,034,350	8.33%	9,846,154	-8.62%	-10,188,196
	BRIDGE	75,710,236	4.92%	3,724,944	16.70%	12,642,259	7.50%	5,674,897	-9.20%	-6,967,362
	DEMAND METER	11,454,314	4.92%	563,552	16.00%	1,832,727	7.13%	816,241	-8.87%	-1,016,486
	NET METER	5,409,770	4.92%	266,161	15.69%	848,595	5.61%	303,657	-10.08%	-544,938
	TIME OF USE METER	5,074,229	4.92%	249,652	16.03%	813,182	4.98%	252,810	-11.05%	-560,372
	TOTAL	215,870,519	4.92%	10,620,830	16.76%	36,171,113	7.83%	16,893,758	-8.93%	-19,277,355
370.50	ELECTRIC VEHICLE CHARGING STATION	576,618			2.98%	17,201	2.97%	17,105	-0.01%	-96
371.00	INSTALLATIONS ON CUSTOMERS' PREMISES	43,149,281	7.37%	3,180,102	6.56%	2,831,484	6.40%	2,761,422	-0.16%	-70,062
373.00	STREET LIGHTING AND SIGNAL SYSTEMS	63,683,835	5.71%	3,636,347	9.73%	6,196,265	4.97%	3,163,357	-4.76%	-3,032,908
	TOTAL DISTRIBUTION PLANT	8,273,006,454	2.85%	235,997,194	3.87%	320,287,974	3.02%	250,048,577	-0.85%	-70,239,397
	GENERAL PLANT									

Detailed Rate Comparison

Account No.	Description	[1] Original Cost 12/31/2025	[2] Current Parameters Rate	[2] Current Parameters Annual Accrual	[3] Company Proposal Rate	[3] Company Proposal Annual Accrual	[4] OCC Proposal Rate	[4] OCC Proposal Annual Accrual	[5] OCC Adjustment Rate	[5] OCC Adjustment Annual Accrual
390.10	STRUCTURES AND IMPROVEMENTS	259,003,613	1.98%	5,128,272	2.61%	6,769,554	2.48%	6,421,466	-0.13%	-348,088
391.10	OFFICE FURNITURE AND EQUIPMENT	116,783	6.67%	7,789	6.67%	7,786	6.67%	7,786	0.00%	0
391.20	OFFICE FURNITURE AND EQUIPMENT - IT									
	FULLY ACCRUED	1,488,145								
	AMORTIZED	2,558,034	20.00%	511,607	20.00%	511,553	20.16%	515,822	0.16%	4,269
	TOTAL	4,046,179	12.64%	511,607	12.64%	511,553	12.75%	515,822	0.11%	4,269
392.10	TRANSPORTATION EQUIPMENT - CLASS 1 (CARS)	2,404,795	12.65%	304,207	8.41%	202,143	8.06%	193,708	-0.35%	-8,435
392.11	TRANSPORTATION EQUIPMENT - CLASS 2 (LIGHT TRUCKS)	46,875,641	5.50%	2,578,160	6.84%	3,208,537	6.55%	3,072,089	-0.29%	-136,448
392.12	TRANSPORTATION EQUIPMENT - CLASS 3 (MEDIUM TRUCKS)	9,372,766	3.74%	350,541	8.66%	811,488	8.11%	760,507	-0.55%	-50,981
392.13	TRANSPORTATION EQUIPMENT - CLASS 4 (HEAVY TRUCKS)	110,629,770	3.88%	4,292,435	7.26%	8,033,176	7.01%	7,759,381	-0.25%	-273,795
392.14	TRANSPORTATION EQUIPMENT - CLASS 5 (ROLLING EQUIPMENT)	4,856,436	8.01%	389,001	4.82%	233,937	4.82%	234,017	0.00%	80
392.15	TRANSPORTATION EQUIPMENT - CLASS 6 (TRAILERS)	12,798,622	4.40%	563,139	2.73%	348,924	2.72%	348,383	-0.01%	-541
392.89	TRANSPORTATION EQUIPMENT - OTHER	601,274	6.83%	41,067	2.74%	16,467	2.74%	16,488	0.00%	21
393.00	STORES EQUIPMENT	9,992,919	5.00%	499,646	5.00%	499,719	5.00%	500,023	0.00%	304
394.00	TOOLS, SHOP AND GARAGE EQUIPMENT	75,533,422	4.00%	3,021,337	4.00%	3,017,688	3.98%	3,009,755	-0.02%	-7,933
395.00	LABORATORY EQUIPMENT	7,261,363	4.00%	290,455	4.00%	290,654	4.01%	291,447	0.01%	793
396.00	POWER OPERATED EQUIPMENT	1,588,146	0.31%	4,923	1.29%	20,499	1.29%	20,452	0.00%	-47
397.74	COMMUNICATION EQUIPMENT - OTHER	173,764	0.00%	0	5.00%	8,688	5.00%	8,688	0.00%	0
398.00	MISCELLANEOUS EQUIPMENT	481,952	6.67%	32,146	6.67%	32,125	6.62%	31,919	-0.05%	-206
	TOTAL GENERAL PLANT	545,737,446	3.30%	18,014,725	4.40%	24,012,938	4.25%	23,191,930	-0.15%	-821,008
	RESERVE ADJUSTMENT FOR AMORTIZATION									
363.11	COMPUTER HARDWARE - PCs					-323,298		-323,298		0
363.12	COMPUTER HARDWARE					316,346		316,346		0
363.31	COMMUNICATION EQUIPMENT					-434,532		-434,532		0
391.10	OFFICE FURNITURE AND EQUIPMENT					-266,181		-266,181		0
391.20	OFFICE FURNITURE AND EQUIPMENT - IT					499,742		499,742		0
393.00	STORES EQUIPMENT					-49,610		-49,610		0
394.00	TOOLS, SHOP AND GARAGE EQUIPMENT					33,705		33,705		0
395.00	LABORATORY EQUIPMENT					50,685		50,685		0
397.74	COMMUNICATION EQUIPMENT - OTHER			106,870		-10,808		-10,808		0
398.00	MISCELLANEOUS EQUIPMENT					-76,418		-76,418		0
	TOTAL RESERVE ADJUSTMENT FOR AMORTIZATION			106,870		-260,369		-260,369		0
	TOTAL DEPRECIABLE PLANT	**8,818,743,900**	**2.88%**	**254,118,789**	**3.90%**	**344,040,543**	**3.10%**	**272,980,137**	**-0.81%**	**-71,060,406**

[1], [2], [3] From Company depreciation study

Detailed Rate Comparison

Account No.	Description	[1] Original Cost 12/31/2025	[2] Current Parameters Rate	[2] Current Parameters Annual Accrual	[3] Company Proposal Rate	[3] Company Proposal Annual Accrual	[4] OCC Proposal Rate	[4] OCC Proposal Annual Accrual	[5] OCC Adjustment Rate	[5] OCC Adjustment Annual Accrual

[4] From Exhibit DJG-20

[4] = [4] - [3]

Depreciation Rate Development

Account No.	Description	[1] Original Cost 12/31/2025	[2] Iowa Curve Type	[2] Iowa Curve AL	[3] Net Salvage	[4] Depreciable Base	[5] Book Reserve	[6] Future Accruals	[7] Remaining Life	[8] Total Accrual	[9] Total Rate
	DISTRIBUTION PLANT										
360.20	LAND RIGHTS	8,660,926	R4	70	0%	8,660,926	3,279,652	5,381,274	22.90	234,990	2.71%
361.00	STRUCTURES AND IMPROVEMENTS	99,930,710	R2.5	65	-50%	149,896,065	19,133,060	130,763,005	50.60	2,584,249	2.59%
362.00	STATION EQUIPMENT	1,109,109,277	R1	60	-53%	1,691,391,648	293,178,982	1,398,212,666	49.30	28,361,312	2.56%
363.11	COMPUTER HARDWARE - PCs	6,709,115	SQ	15	0%	6,709,115	1,290,214	5,418,901	12.10	447,843	6.68%
363.12	COMPUTER HARDWARE										
	FULLY ACCRUED	4,339,536				4,339,536	4,339,536				
	AMORTIZED	3,581,538	SQ	5	0%	3,581,538	1,350,938	2,230,600	3.10	716,440	20.00%
	TOTAL	7,921,074			0%	7,921,074	5,690,474	2,230,600	3.11	716,440	9.04%
363.20	COMPUTER SOFTWARE - 3 YEAR	128,783	SQ	3	0%	128,783	128,783	0		0	
363.22	COMPUTER SOFTWARE - 10 YEAR	65,039,310	SQ	10	0%	65,039,310	59,155,490	5,883,820	7.00	836,644	
363.23	COMPUTER SOFTWARE - 5 YEAR	60,194,403	SQ	5	0%	60,194,403	40,950,891	19,243,512	2.70	7,126,164	
363.24	COMPUTER SOFTWARE - 15 YEAR	15,241,036	SQ	15	0%	15,241,036	12,100,363	3,140,673	4.50	697,927	
363.31	COMMUNICATION EQUIPMENT										
	FULLY ACCRUED	1,089,211				1,089,211	1,089,211				
	AMORTIZED	76,276,888	SQ	20	0%	76,276,888	30,128,824	46,148,064	12.10	3,813,890	5.00%
	TOTAL	77,366,098			0%	77,366,098	31,218,035	46,148,064	12.10	3,813,890	4.93%
363.32	COMMUNICATION EQUIPMENT - MICROWAVE	21,102,501	S2	25	0%	21,102,501	19,453,437	1,649,064	16.80	98,159	0.47%
364.00	POLES, TOWERS AND FIXTURES	880,665,625	L0	53	-95%	1,717,297,968	175,256,158	1,542,041,810	44.91	34,336,268	3.90%
365.00	OVERHEAD CONDUCTORS AND DEVICES	2,319,238,004	R0.5	52	-19%	2,759,893,225	259,977,570	2,499,915,655	40.00	62,497,891	2.69%
366.00	UNDERGROUND CONDUIT	525,717,993	R1.5	82	-23%	644,004,542	83,685,081	560,319,461	69.64	8,045,943	1.53%
367.00	UNDERGROUND CONDUCTORS AND DEVICES	1,380,308,160	L0	55	-38%	1,897,923,719	188,620,012	1,709,303,707	46.80	36,523,583	2.65%
368.00	LINE TRANSFORMERS	912,906,627	R0.5	45	-14%	1,036,149,021	157,458,519	878,690,502	33.60	26,151,503	2.86%
369.00	SERVICES	441,090,034	R1.5	60	-57%	692,511,353	154,235,884	538,275,469	43.10	12,488,990	2.83%
370.47	METER EQUIPMENT	18,396,526	S0	20	5%	17,476,700	3,969,870	13,506,830	6.00	2,251,138	12.24%
370.48	METERS										
	AMR	118,221,970	S0	20	5%	112,310,871	32,360,099	79,950,772	8.12	9,846,154	8.33%
	BRIDGE	75,710,236	S2	15	5%	71,924,724	12,622,055	59,302,669	10.45	5,674,897	7.50%
	DEMAND METER	11,454,314	S0	20	5%	10,881,598	3,086,498	7,795,100	9.55	816,241	7.13%
	NET METER	5,409,770	S0	20	5%	5,139,282	1,310,170	3,829,112	12.61	303,657	5.61%
	TIME OF USE METER	5,074,229	S0	20	5%	4,820,518	1,033,425	3,787,093	14.98	252,810	4.98%
	TOTAL	215,870,519			5%	205,076,993	50,412,247	154,664,746	9.16	16,893,758	7.83%
370.50	ELECTRIC VEHICLE CHARGING STATION	576,618	S3	10	0%	576,618	436,353	140,265	8.20	17,105	2.97%
371.00	INSTALLATIONS ON CUSTOMERS' PREMISES	43,149,281	L0	20	-28%	55,015,333	12,489,442	42,525,891	15.40	2,761,422	6.40%
373.00	STREET LIGHTING AND SIGNAL SYSTEMS	63,683,835	O3	25	-25%	79,604,794	4,190,367	75,414,427	23.84	3,163,357	4.97%
	TOTAL DISTRIBUTION PLANT	8,273,006,454			-35%	11,209,181,225	1,576,310,884	9,632,870,341	38.52	250,048,577	3.02%
	GENERAL PLANT										
390.10	STRUCTURES AND IMPROVEMENTS	259,003,613	R1.5	50	-10%	284,903,974	44,741,154	240,162,820	37.40	6,421,466	2.48%
391.10	OFFICE FURNITURE AND EQUIPMENT	116,783	SQ	15	0%	116,783	3,892	112,891	14.50	7,786	6.67%
391.20	OFFICE FURNITURE AND EQUIPMENT - IT										

Depreciation Rate Development

Account No.	Description	[1] Original Cost 12/31/2025	[2] Iowa Curve Type	[2] Iowa Curve AL	[3] Net Salvage	[4] Depreciable Base	[5] Book Reserve	[6] Future Accruals	[7] Remaining Life	[8] Total Accrual	[9] Total Rate
	FULLY ACCRUED	1,488,145				1,488,145	1,488,145				
	AMORTIZED	2,558,034	SQ	5	0%	2,558,034	1,010,567	1,547,467	3.00	515,822	20.16%
	TOTAL	4,046,179			0%	4,046,179	2,498,712	1,547,467	3.00	515,822	12.75%
392.10	TRANSPORTATION EQUIPMENT - CLASS 1 (CARS)	2,404,795	L3	8	18%	1,983,956	782,969	1,200,987	6.20	193,708	8.06%
392.11	TRANSPORTATION EQUIPMENT - CLASS 2 (LIGHT TRUCKS)	46,875,641	S2	12	18%	38,672,404	12,252,437	26,419,967	8.60	3,072,089	6.55%
392.12	TRANSPORTATION EQUIPMENT - CLASS 3 (MEDIUM TRUCKS)	9,372,766	S2.5	13	18%	7,732,532	3,777,896	3,954,636	5.20	760,507	8.11%
392.13	TRANSPORTATION EQUIPMENT - CLASS 4 (HEAVY TRUCKS)	110,629,770	S0.5	13	18%	91,269,560	23,762,945	67,506,615	8.70	7,759,381	7.01%
392.14	TRANSPORTATION EQUIPMENT - CLASS 5 (ROLLING EQUIPMENT)	4,856,436	S3	12	15%	4,127,971	2,021,820	2,106,151	9.00	234,017	4.82%
392.15	TRANSPORTATION EQUIPMENT - CLASS 6 (TRAILERS)	12,798,622	L1.5	25	15%	10,878,829	3,667,297	7,211,532	20.70	348,383	2.72%
392.89	TRANSPORTATION EQUIPMENT - OTHER	601,274	R4	25	15%	511,083	151,649	359,434	21.80	16,488	2.74%
393.00	STORES EQUIPMENT	9,992,919	SQ	20	0%	9,992,919	2,592,585	7,400,334	14.80	500,023	5.00%
394.00	TOOLS, SHOP AND GARAGE EQUIPMENT	75,533,422	SQ	25	0%	75,533,422	20,153,936	55,379,486	18.40	3,009,755	3.98%
395.00	LABORATORY EQUIPMENT	7,261,363	SQ	25	0%	7,261,363	4,842,351	2,419,012	8.30	291,447	4.01%
396.00	POWER OPERATED EQUIPMENT	1,588,146	R0.5	26	10%	1,429,331	1,038,707	390,624	19.10	20,452	1.29%
397.74	COMMUNICATION EQUIPMENT - OTHER	173,764	SQ	20	0%	173,764	47,785	125,979	14.50	8,688	5.00%
398.00	MISCELLANEOUS EQUIPMENT	481,952	SQ	15	0%	481,952	325,548	156,404	4.90	31,919	6.62%
	TOTAL GENERAL PLANT	545,737,446			1%	539,116,023	122,661,683	416,454,340	17.96	23,191,930	4.25%
	RESERVE ADJUSTMENT FOR AMORTIZATION										
363.11	COMPUTER HARDWARE - PCs						1,616,492			-323,298	
363.12	COMPUTER HARDWARE						-1,581,728			316,346	
363.31	COMMUNICATION EQUIPMENT						2,172,658			-434,532	
391.10	OFFICE FURNITURE AND EQUIPMENT						1,330,907			-266,181	
391.20	OFFICE FURNITURE AND EQUIPMENT - IT						-2,498,712			499,742	
393.00	STORES EQUIPMENT						248,051			-49,610	
394.00	TOOLS, SHOP AND GARAGE EQUIPMENT						-168,524			33,705	
395.00	LABORATORY EQUIPMENT						-253,424			50,685	
397.74	COMMUNICATION EQUIPMENT - OTHER						54,038			-10,808	
398.00	MISCELLANEOUS EQUIPMENT						382,088			-76,418	
	TOTAL RESERVE ADJUSTMENT FOR AMORTIZATION						1,301,846			-260,369	
	TOTAL DEPRECIABLE PLANT	**8,818,743,900**			**-33%**	**11,748,297,248**	**1,700,274,413**	**10,049,324,681**	**36.81**	**272,980,137**	**3.10%**

[1] From Company depreciation study
[2] Average life and Iowa curve shape developed through statistical analysis and professional judgment
[3] Net salvage estimates developed through statistical analysis and professional judgment
[4] = [1]*(1-[3])
[5] From Company depreciation study
[6] = [4] - [5]
[7] Composite remaining life based on Iowa cuve in [2]; see remaining life exhibit for detailed calculations
[8] = [6] / [7]
[9] = [8] / [1]

Account 364 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**Company R0.5-48**	**OCC L0-53**	**Company SSD**	**OCC SSD**
0.0	1,043,606,346	100.00%	100.00%	100.00%	0.0000	0.0000
0.5	993,563,249	99.58%	99.61%	99.88%	0.0000	0.0000
1.5	942,915,352	98.21%	98.81%	99.49%	0.0000	0.0002
2.5	873,787,927	97.35%	98.01%	98.97%	0.0000	0.0003
3.5	822,662,743	96.44%	97.19%	98.37%	0.0001	0.0004
4.5	765,746,812	95.45%	96.38%	97.69%	0.0001	0.0005
5.5	719,606,142	94.43%	95.55%	96.95%	0.0001	0.0006
6.5	679,917,051	93.54%	94.71%	96.15%	0.0001	0.0007
7.5	625,982,116	92.60%	93.87%	95.31%	0.0002	0.0007
8.5	586,809,611	91.74%	93.02%	94.43%	0.0002	0.0007
9.5	556,840,764	90.92%	92.16%	93.50%	0.0002	0.0007
10.5	530,946,389	90.00%	91.30%	92.55%	0.0002	0.0006
11.5	497,824,235	89.17%	90.42%	91.56%	0.0002	0.0006
12.5	484,406,882	88.30%	89.54%	90.55%	0.0002	0.0005
13.5	439,437,325	87.44%	88.65%	89.52%	0.0001	0.0004
14.5	411,242,053	86.58%	87.76%	88.46%	0.0001	0.0004
15.5	391,364,177	85.71%	86.85%	87.38%	0.0001	0.0003
16.5	372,421,173	84.78%	85.94%	86.28%	0.0001	0.0002
17.5	355,928,372	83.87%	85.02%	85.17%	0.0001	0.0002
18.5	336,020,120	82.87%	84.10%	84.05%	0.0002	0.0001
19.5	314,453,408	81.95%	83.16%	82.91%	0.0001	0.0001
20.5	292,823,214	81.01%	82.22%	81.76%	0.0001	0.0001
21.5	269,276,097	80.07%	81.26%	80.60%	0.0001	0.0000
22.5	249,955,314	79.11%	80.30%	79.44%	0.0001	0.0000
23.5	237,531,123	78.08%	79.32%	78.27%	0.0002	0.0000
24.5	222,041,444	77.16%	78.34%	77.09%	0.0001	0.0000
25.5	208,443,627	76.14%	77.34%	75.92%	0.0001	0.0000
26.5	197,412,356	75.16%	76.33%	74.74%	0.0001	0.0000
27.5	185,548,401	74.16%	75.31%	73.56%	0.0001	0.0000
28.5	175,683,519	73.12%	74.28%	72.38%	0.0001	0.0001
29.5	168,273,257	72.01%	73.24%	71.21%	0.0002	0.0001
30.5	161,127,558	70.94%	72.18%	70.03%	0.0002	0.0001
31.5	153,782,562	69.81%	71.10%	68.86%	0.0002	0.0001
32.5	145,336,278	68.59%	70.02%	67.69%	0.0002	0.0001
33.5	137,402,476	67.39%	68.92%	66.52%	0.0002	0.0001
34.5	127,655,077	66.32%	67.81%	65.35%	0.0002	0.0001
35.5	116,247,061	65.27%	66.68%	64.19%	0.0002	0.0001
36.5	108,140,700	64.20%	65.54%	63.03%	0.0002	0.0001
37.5	101,905,489	63.05%	64.38%	61.88%	0.0002	0.0001
38.5	95,478,996	61.98%	63.21%	60.73%	0.0002	0.0002
39.5	89,312,530	60.83%	62.03%	59.59%	0.0001	0.0002
40.5	84,368,098	59.71%	60.83%	58.45%	0.0001	0.0002
41.5	79,523,544	58.63%	59.62%	57.32%	0.0001	0.0002
42.5	75,354,537	57.54%	58.39%	56.19%	0.0001	0.0002
43.5	71,507,802	56.43%	57.16%	55.07%	0.0001	0.0002
44.5	68,976,193	55.35%	55.91%	53.95%	0.0000	0.0002
45.5	64,787,200	54.33%	54.65%	52.85%	0.0000	0.0002
46.5	61,487,237	53.27%	53.37%	51.75%	0.0000	0.0002

Account 364 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**Company R0.5-48**	**OCC L0-53**	**Company SSD**	**OCC SSD**
47.5	58,422,191	52.20%	52.09%	50.66%	0.0000	0.0002
48.5	55,220,755	51.07%	50.80%	49.58%	0.0000	0.0002
49.5	51,445,970	49.95%	49.50%	48.50%	0.0000	0.0002
50.5	48,290,706	48.85%	48.19%	47.44%	0.0000	0.0002
51.5	44,900,587	47.64%	46.88%	46.38%	0.0001	0.0002
52.5	41,507,748	46.58%	45.55%	45.33%	0.0001	0.0002
53.5	37,494,633	45.43%	44.23%	44.30%	0.0001	0.0001
54.5	34,017,322	44.26%	42.89%	43.27%	0.0002	0.0001
55.5	31,290,279	43.20%	41.56%	42.26%	0.0003	0.0001
56.5	28,362,744	42.08%	40.22%	41.25%	0.0003	0.0001
57.5	25,753,957	40.95%	38.88%	40.25%	0.0004	0.0000
58.5	23,371,244	39.90%	37.55%	39.27%	0.0006	0.0000
59.5	25,410,627	38.66%	36.21%	38.30%	0.0006	0.0000
60.5	23,650,885	37.78%	34.88%	37.34%	0.0008	0.0000
61.5	21,940,594	36.91%	33.56%	36.39%	0.0011	0.0000
62.5	20,469,338	36.02%	32.23%	35.45%	0.0014	0.0000
63.5	19,024,293	35.14%	30.92%	34.53%	0.0018	0.0000
64.5	17,796,881	34.29%	29.62%	33.62%	0.0022	0.0000
65.5	16,451,540	33.44%	28.32%	32.72%	0.0026	0.0001
66.5	15,038,700	32.66%	27.04%	31.83%	0.0032	0.0001
67.5	13,850,120	31.84%	25.78%	30.96%	0.0037	0.0001
68.5	12,396,636	30.64%	24.52%	30.10%	0.0037	0.0000
69.5	11,143,180	29.25%	23.29%	29.25%	0.0036	0.0000
70.5	9,978,788	28.06%	22.07%	28.42%	0.0036	0.0000
71.5	8,955,056	26.96%	20.87%	27.60%	0.0037	0.0000
72.5	8,077,963	25.75%	19.69%	26.79%	0.0037	0.0001
73.5	7,370,655	24.76%	18.54%	26.00%	0.0039	0.0002
74.5	6,770,133	23.87%	17.41%	25.22%	0.0042	0.0002
75.5	6,183,658	22.95%	16.30%	24.45%	0.0044	0.0002
76.5	5,587,404	21.76%	15.22%	23.70%	0.0043	0.0004
77.5	5,063,228	21.15%	14.17%	22.96%	0.0049	0.0003
78.5	4,561,764	20.00%	13.14%	22.24%	0.0047	0.0005
79.5	4,150,115	19.19%	12.15%	21.53%	0.0050	0.0005
80.5	3,730,476	17.92%	11.18%	20.84%	0.0045	0.0009
81.5	3,468,844	17.12%	10.25%	20.16%	0.0047	0.0009
82.5	3,250,490	16.37%	9.35%	19.49%	0.0049	0.0010
83.5	3,081,584	16.05%	8.48%	18.84%	0.0057	0.0008
84.5	2,885,109	15.68%	7.64%	18.20%	0.0065	0.0006
85.5	2,694,162	15.39%	6.84%	17.57%	0.0073	0.0005
86.5	2,538,629	15.06%	6.06%	16.96%	0.0081	0.0004
87.5	2,335,744	14.29%	5.32%	16.37%	0.0080	0.0004
88.5	2,221,355	13.98%	4.60%	15.78%	0.0088	0.0003
89.5	1,897,799	12.39%	3.92%	15.21%	0.0072	0.0008
90.5	1,807,499	12.20%	3.26%	14.66%	0.0080	0.0006
91.5	1,155,809	8.03%	2.62%	14.12%	0.0029	0.0037
92.5	1,092,610	7.86%	2.00%	13.59%	0.0034	0.0033
93.5	863,192	6.38%	1.40%	13.08%	0.0025	0.0045
94.5	693,775	5.26%	0.82%	12.57%	0.0020	0.0053

Account 364 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**Company R0.5-48**	**OCC L0-53**	**Company SSD**	**OCC SSD**
95.5	525,854	4.09%	0.27%	12.09%	0.0015	0.0064
96.5	506,889	3.97%	0.00%	11.61%	0.0016	0.0058
97.5	344,453	3.67%	0.00%	11.15%	0.0013	0.0056
98.5	305,872	3.26%	0.00%	10.70%	0.0011	0.0055
99.5	277,388	2.96%	0.00%	10.27%	0.0009	0.0053
100.5	277,045	2.96%	0.00%	9.84%	0.0009	0.0047
101.5	265,991	2.84%	0.00%	9.43%	0.0008	0.0043
102.5	247,207	2.64%	0.00%	9.03%	0.0007	0.0041
103.5	236,037	2.52%	0.00%	8.65%	0.0006	0.0038
104.5	215,240	2.29%	0.00%	8.27%	0.0005	0.0036
105.5	74,431	0.79%	0.00%	7.91%	0.0001	0.0051
106.5	40,862	0.44%	0.00%	7.56%	0.0000	0.0051
107.5	2,137	0.02%	0.00%	7.22%	0.0000	0.0052
108.5	1,734	0.02%	0.00%	6.89%	0.0000	0.0047
109.5	1,734	0.02%	0.00%	6.58%	0.0000	0.0043
110.5	1,670	0.02%	0.00%	6.27%	0.0000	0.0039
111.5	1,670	0.02%	0.00%	5.97%	0.0000	0.0035
112.5	1,641	0.02%	0.00%	5.69%	0.0000	0.0032
113.5	1,628	0.02%	0.00%	5.41%	0.0000	0.0029
114.5	1,628	0.02%	0.00%	5.15%	0.0000	0.0026
115.5	1,609	0.02%	0.00%	4.89%	0.0000	0.0024
116.5	1,609	0.02%	0.00%	4.65%	0.0000	0.0021
117.5	1,026	0.01%	0.00%	4.41%	0.0000	0.0019
118.5			0.00%	4.19%		
	Sum of Squared Differences			[8]	0.1698	0.1356
	SSD for Truncated OLT Curve			[9]	0.0329	0.0130

[1] Age in years using half-year convention

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

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

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

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

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

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

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

Account 365 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**Company R0.5-46**	**OCC R0.5-52**	**Company SSD**	**OCC SSD**
0.0	2,790,128,332	100.00%	100.00%	100.00%	0.0000	0.0000
0.5	2,645,091,557	99.66%	99.59%	99.64%	0.0000	0.0000
1.5	2,527,715,203	98.10%	98.76%	98.90%	0.0000	0.0001
2.5	2,360,915,919	96.43%	97.92%	98.16%	0.0002	0.0003
3.5	2,251,226,777	94.89%	97.07%	97.41%	0.0005	0.0006
4.5	2,141,646,765	93.26%	96.21%	96.66%	0.0009	0.0012
5.5	2,015,441,984	91.74%	95.35%	95.90%	0.0013	0.0017
6.5	1,918,275,703	90.33%	94.48%	95.13%	0.0017	0.0023
7.5	1,794,633,870	89.00%	93.59%	94.36%	0.0021	0.0029
8.5	1,691,510,295	87.70%	92.70%	93.58%	0.0025	0.0035
9.5	1,622,154,866	86.39%	91.80%	92.79%	0.0029	0.0041
10.5	1,561,722,291	85.01%	90.90%	92.00%	0.0035	0.0049
11.5	1,506,013,454	83.75%	89.98%	91.20%	0.0039	0.0055
12.5	1,458,166,702	82.53%	89.06%	90.39%	0.0043	0.0062
13.5	1,368,059,353	81.40%	88.13%	89.57%	0.0045	0.0067
14.5	1,305,053,941	80.32%	87.19%	88.76%	0.0047	0.0071
15.5	1,251,488,066	79.29%	86.24%	87.93%	0.0048	0.0075
16.5	1,204,572,952	78.30%	85.28%	87.10%	0.0049	0.0077
17.5	1,150,773,330	77.37%	84.32%	86.26%	0.0048	0.0079
18.5	1,094,352,476	76.41%	83.34%	85.41%	0.0048	0.0081
19.5	1,035,739,072	75.47%	82.36%	84.56%	0.0047	0.0083
20.5	988,516,393	74.59%	81.37%	83.70%	0.0046	0.0083
21.5	923,348,366	73.75%	80.36%	82.84%	0.0044	0.0083
22.5	870,615,517	72.89%	79.35%	81.96%	0.0042	0.0082
23.5	814,300,169	72.13%	78.32%	81.08%	0.0038	0.0080
24.5	755,556,557	71.44%	77.28%	80.19%	0.0034	0.0077
25.5	694,278,486	70.80%	76.22%	79.29%	0.0029	0.0072
26.5	653,595,047	70.23%	75.16%	78.38%	0.0024	0.0066
27.5	600,898,767	69.66%	74.08%	77.46%	0.0020	0.0061
28.5	572,389,509	68.96%	72.98%	76.53%	0.0016	0.0057
29.5	554,227,832	68.40%	71.88%	75.59%	0.0012	0.0052
30.5	540,160,117	67.80%	70.75%	74.64%	0.0009	0.0047
31.5	523,580,434	67.18%	69.61%	73.68%	0.0006	0.0042
32.5	503,529,121	66.56%	68.46%	72.71%	0.0004	0.0038
33.5	486,594,170	66.00%	67.29%	71.72%	0.0002	0.0033
34.5	461,522,401	65.43%	66.11%	70.73%	0.0000	0.0028
35.5	435,627,563	64.92%	64.91%	69.72%	0.0000	0.0023
36.5	408,682,927	64.46%	63.69%	68.71%	0.0001	0.0018
37.5	382,945,974	64.11%	62.46%	67.68%	0.0003	0.0013
38.5	358,259,295	63.76%	61.22%	66.63%	0.0006	0.0008
39.5	341,588,572	63.45%	59.96%	65.58%	0.0012	0.0005
40.5	329,627,955	63.13%	58.69%	64.51%	0.0020	0.0002
41.5	320,228,745	62.75%	57.40%	63.44%	0.0029	0.0000
42.5	312,788,881	62.41%	56.10%	62.35%	0.0040	0.0000
43.5	302,316,485	62.10%	54.78%	61.24%	0.0054	0.0001
44.5	292,655,569	61.77%	53.46%	60.13%	0.0069	0.0003
45.5	285,820,176	61.41%	52.12%	59.01%	0.0086	0.0006
46.5	274,094,402	61.07%	50.77%	57.87%	0.0106	0.0010

Account 365 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**Company R0.5-46**	**OCC R0.5-52**	**Company SSD**	**OCC SSD**
47.5	264,850,095	60.76%	49.41%	56.72%	0.0129	0.0016
48.5	250,696,942	60.41%	48.05%	55.57%	0.0153	0.0023
49.5	236,681,977	59.99%	46.67%	54.40%	0.0177	0.0031
50.5	217,744,691	59.53%	45.29%	53.23%	0.0203	0.0040
51.5	191,156,226	59.11%	43.91%	52.04%	0.0231	0.0050
52.5	168,366,017	58.60%	42.52%	50.85%	0.0259	0.0060
53.5	146,932,886	58.15%	41.12%	49.65%	0.0290	0.0072
54.5	125,071,467	57.76%	39.73%	48.44%	0.0325	0.0087
55.5	107,397,143	57.22%	38.33%	47.23%	0.0357	0.0100
56.5	91,142,472	56.74%	36.94%	46.01%	0.0392	0.0115
57.5	73,702,388	56.32%	35.55%	44.79%	0.0432	0.0133
58.5	59,731,261	55.98%	34.16%	43.56%	0.0476	0.0154
59.5	49,239,564	55.49%	32.78%	42.33%	0.0516	0.0173
60.5	42,858,085	54.82%	31.41%	41.10%	0.0548	0.0188
61.5	36,972,888	54.24%	30.04%	39.86%	0.0586	0.0207
62.5	31,764,826	53.97%	28.69%	38.63%	0.0639	0.0235
63.5	27,351,231	53.47%	27.35%	37.39%	0.0682	0.0258
64.5	23,618,329	52.57%	26.02%	36.16%	0.0705	0.0269
65.5	19,287,269	52.28%	24.71%	34.93%	0.0760	0.0301
66.5	14,698,279	51.64%	23.42%	33.71%	0.0796	0.0322
67.5	11,384,930	51.29%	22.15%	32.49%	0.0849	0.0354
68.5	8,604,416	50.07%	20.90%	31.27%	0.0851	0.0353
69.5	6,209,991	49.79%	19.67%	30.07%	0.0907	0.0389
70.5	4,843,220	49.39%	18.46%	28.87%	0.0956	0.0421
71.5	4,629,095	48.84%	17.28%	27.68%	0.0996	0.0448
72.5	3,969,736	48.34%	16.13%	26.51%	0.1037	0.0477
73.5	3,803,425	47.88%	15.01%	25.34%	0.1080	0.0508
74.5	2,603,028	47.29%	13.92%	24.19%	0.1114	0.0534
75.5	2,440,583	47.01%	12.86%	23.05%	0.1166	0.0574
76.5	2,343,345	46.53%	11.83%	21.93%	0.1204	0.0605
77.5	2,273,086	46.30%	10.84%	20.82%	0.1258	0.0649
78.5	2,243,614	46.06%	9.87%	19.74%	0.1309	0.0693
79.5	2,210,737	45.85%	8.95%	18.67%	0.1362	0.0739
80.5	1,763,365	45.71%	8.06%	17.62%	0.1418	0.0789
81.5	1,608,647	41.74%	7.20%	16.60%	0.1193	0.0632
82.5	1,411,593	36.70%	6.38%	15.59%	0.0919	0.0446
83.5	1,266,254	32.95%	5.59%	14.61%	0.0749	0.0336
84.5	851,075	22.46%	4.83%	13.65%	0.0311	0.0078
85.5	611,738	16.18%	4.11%	12.72%	0.0146	0.0012
86.5	393,076	10.61%	3.41%	11.81%	0.0052	0.0001
87.5	189,433	5.30%	2.74%	10.93%	0.0007	0.0032
88.5	129,140	3.83%	2.09%	10.07%	0.0003	0.0039
89.5	60,135	1.95%	1.46%	9.25%	0.0000	0.0053
90.5	45,679	1.86%	0.86%	8.45%	0.0001	0.0043
91.5	38,447	1.80%	0.28%	7.67%	0.0002	0.0034
92.5	32,317	1.70%	0.00%	6.93%	0.0003	0.0027
93.5	30,856	1.63%	0.00%	6.21%	0.0003	0.0021
94.5	29,176	1.58%	0.00%	5.52%	0.0002	0.0015

Account 365 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**Company R0.5-46**	**OCC R0.5-52**	**Company SSD**	**OCC SSD**
95.5	26,224	1.56%	0.00%	4.85%	0.0002	0.0011
96.5	16,478	1.54%	0.00%	4.20%	0.0002	0.0007
97.5	17,164	1.52%	0.00%	3.58%	0.0002	0.0004
98.5	15,169	1.46%	0.00%	2.98%	0.0002	0.0002
99.5	13,844	1.38%	0.00%	2.40%	0.0002	0.0001
100.5	13,637	1.38%	0.00%	1.83%	0.0002	0.0000
101.5	12,737	1.36%	0.00%	1.29%	0.0002	0.0000
102.5	12,295	1.34%	0.00%	0.76%	0.0002	0.0000
103.5	12,324	1.33%	0.00%	0.25%	0.0002	0.0001
104.5	3,904	0.33%	0.00%	0.00%	0.0000	0.0000
105.5	4,340	0.32%	0.00%	0.00%	0.0000	0.0000
106.5	3,534	0.31%	0.00%	0.00%	0.0000	0.0000
107.5	3,127	0.27%	0.00%	0.00%	0.0000	0.0000
108.5	2,637	0.23%	0.00%	0.00%	0.0000	0.0000
109.5	2,092	0.23%	0.00%	0.00%	0.0000	0.0000
110.5	2,041	0.22%	0.00%	0.00%	0.0000	0.0000
111.5	1,275	0.22%	0.00%	0.00%	0.0000	0.0000
112.5	1,256	0.22%	0.00%	0.00%	0.0000	0.0000
113.5	1,232	0.21%	0.00%	0.00%	0.0000	0.0000
114.5	1,125	0.19%	0.00%	0.00%	0.0000	0.0000
115.5	1,125	0.19%	0.00%	0.00%	0.0000	0.0000
116.5	1,026	0.19%	0.00%	0.00%	0.0000	0.0000
117.5			0.00%	0.00%		
	Sum of Squared Differences			[8]	2.8895	1.4020
	SSD for Truncated OLT Curve			[9]	0.7033	0.3539

[1] Age in years using half-year convention

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

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

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

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

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

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

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

Account 366 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**Company R1.5-75**	**OCC R1.5-82**	**Company SSD**	**OCC SSD**
0.0	592,539,158	100.00%	100.00%	100.00%	0.0000	0.0000
0.5	553,362,108	99.88%	99.88%	99.89%	0.0000	0.0000
1.5	511,346,050	99.42%	99.64%	99.67%	0.0000	0.0000
2.5	454,509,132	98.84%	99.40%	99.45%	0.0000	0.0000
3.5	409,802,735	98.56%	99.15%	99.22%	0.0000	0.0000
4.5	373,145,328	98.24%	98.89%	98.99%	0.0000	0.0001
5.5	349,085,104	97.86%	98.62%	98.75%	0.0001	0.0001
6.5	327,423,521	97.61%	98.35%	98.50%	0.0001	0.0001
7.5	303,402,507	97.40%	98.07%	98.25%	0.0000	0.0001
8.5	290,174,655	97.10%	97.79%	98.00%	0.0000	0.0001
9.5	276,790,391	96.85%	97.50%	97.73%	0.0000	0.0001
10.5	264,728,765	96.64%	97.20%	97.47%	0.0000	0.0001
11.5	250,495,982	96.49%	96.89%	97.19%	0.0000	0.0000
12.5	236,079,736	96.29%	96.58%	96.91%	0.0000	0.0000
13.5	222,864,141	96.11%	96.26%	96.63%	0.0000	0.0000
14.5	214,493,278	95.89%	95.93%	96.33%	0.0000	0.0000
15.5	200,478,797	95.41%	95.59%	96.04%	0.0000	0.0000
16.5	188,851,070	95.04%	95.25%	95.73%	0.0000	0.0000
17.5	180,022,822	94.45%	94.90%	95.42%	0.0000	0.0001
18.5	175,030,730	94.04%	94.54%	95.10%	0.0000	0.0001
19.5	169,804,616	93.65%	94.17%	94.78%	0.0000	0.0001
20.5	163,012,089	93.22%	93.79%	94.44%	0.0000	0.0001
21.5	158,486,474	92.81%	93.40%	94.11%	0.0000	0.0002
22.5	146,642,730	92.35%	93.01%	93.76%	0.0000	0.0002
23.5	139,732,798	91.93%	92.61%	93.41%	0.0000	0.0002
24.5	136,014,433	91.54%	92.20%	93.05%	0.0000	0.0002
25.5	132,315,231	91.13%	91.78%	92.68%	0.0000	0.0002
26.5	128,535,825	90.68%	91.34%	92.30%	0.0000	0.0003
27.5	123,518,904	90.19%	90.90%	91.92%	0.0001	0.0003
28.5	119,490,176	89.77%	90.45%	91.53%	0.0000	0.0003
29.5	115,034,781	89.34%	89.99%	91.13%	0.0000	0.0003
30.5	111,008,406	88.67%	89.52%	90.73%	0.0001	0.0004
31.5	105,657,828	88.15%	89.04%	90.31%	0.0001	0.0005
32.5	100,826,378	87.50%	88.54%	89.89%	0.0001	0.0006
33.5	97,567,034	87.16%	88.04%	89.45%	0.0001	0.0005
34.5	90,620,016	86.57%	87.52%	89.01%	0.0001	0.0006
35.5	85,611,442	86.14%	86.99%	88.56%	0.0001	0.0006
36.5	79,436,445	85.65%	86.45%	88.10%	0.0001	0.0006
37.5	70,863,984	85.23%	85.90%	87.63%	0.0000	0.0006
38.5	67,646,145	84.98%	85.33%	87.15%	0.0000	0.0005
39.5	63,422,274	84.44%	84.75%	86.65%	0.0000	0.0005
40.5	61,866,834	84.03%	84.15%	86.15%	0.0000	0.0004
41.5	60,197,814	83.41%	83.54%	85.64%	0.0000	0.0005
42.5	56,047,630	82.85%	82.92%	85.11%	0.0000	0.0005
43.5	54,325,747	82.52%	82.28%	84.58%	0.0000	0.0004
44.5	50,858,095	82.08%	81.62%	84.03%	0.0000	0.0004
45.5	46,525,192	81.84%	80.96%	83.47%	0.0001	0.0003
46.5	45,752,755	81.65%	80.27%	82.90%	0.0002	0.0002

Account 366 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**Company R1.5-75**	**OCC R1.5-82**	**Company SSD**	**OCC SSD**
47.5	39,201,402	81.50%	79.57%	82.31%	0.0004	0.0001
48.5	34,897,961	81.24%	78.85%	81.72%	0.0006	0.0000
49.5	33,351,885	81.07%	78.12%	81.11%	0.0009	0.0000
50.5	31,168,179	80.84%	77.37%	80.48%	0.0012	0.0000
51.5	28,831,894	80.64%	76.60%	79.85%	0.0016	0.0001
52.5	26,414,170	80.33%	75.81%	79.20%	0.0020	0.0001
53.5	24,519,238	80.08%	75.01%	78.54%	0.0026	0.0002
54.5	22,431,433	79.51%	74.19%	77.86%	0.0028	0.0003
55.5	20,453,033	78.98%	73.35%	77.17%	0.0032	0.0003
56.5	19,149,047	78.61%	72.49%	76.46%	0.0037	0.0005
57.5	17,513,297	78.14%	71.62%	75.74%	0.0043	0.0006
58.5	16,464,144	77.68%	70.73%	75.01%	0.0048	0.0007
59.5	14,883,777	77.25%	69.82%	74.26%	0.0055	0.0009
60.5	13,275,964	76.53%	68.89%	73.49%	0.0058	0.0009
61.5	11,960,045	76.00%	67.94%	72.71%	0.0065	0.0011
62.5	11,036,336	75.27%	66.97%	71.92%	0.0069	0.0011
63.5	10,253,188	74.53%	65.99%	71.11%	0.0073	0.0012
64.5	9,632,058	73.63%	64.99%	70.28%	0.0075	0.0011
65.5	9,291,035	72.75%	63.97%	69.44%	0.0077	0.0011
66.5	8,728,051	71.69%	62.93%	68.58%	0.0077	0.0010
67.5	8,327,420	70.75%	61.88%	67.71%	0.0079	0.0009
68.5	7,802,948	69.87%	60.81%	66.83%	0.0082	0.0009
69.5	6,831,070	69.01%	59.72%	65.92%	0.0086	0.0010
70.5	6,642,321	68.20%	58.61%	65.01%	0.0092	0.0010
71.5	6,166,956	67.35%	57.49%	64.08%	0.0097	0.0011
72.5	5,602,710	66.68%	56.36%	63.13%	0.0107	0.0013
73.5	5,090,450	65.90%	55.21%	62.17%	0.0114	0.0014
74.5	4,880,229	65.28%	54.05%	61.19%	0.0126	0.0017
75.5	4,629,749	64.67%	52.87%	60.20%	0.0139	0.0020
76.5	4,289,873	64.15%	51.68%	59.20%	0.0155	0.0024
77.5	3,856,665	63.22%	50.48%	58.19%	0.0162	0.0025
78.5	3,544,107	62.62%	49.27%	57.16%	0.0178	0.0030
79.5	3,225,476	62.23%	48.05%	56.12%	0.0201	0.0037
80.5	3,180,100	61.90%	46.83%	55.06%	0.0227	0.0047
81.5	3,166,503	61.65%	45.59%	54.00%	0.0258	0.0059
82.5	3,145,164	61.33%	44.35%	52.92%	0.0288	0.0071
83.5	3,054,576	61.07%	43.11%	51.84%	0.0323	0.0085
84.5	2,955,875	60.99%	41.86%	50.74%	0.0366	0.0105
85.5	2,917,088	60.90%	40.61%	49.64%	0.0412	0.0127
86.5	2,850,276	60.75%	39.36%	48.52%	0.0457	0.0149
87.5	2,771,722	60.64%	38.11%	47.40%	0.0507	0.0175
88.5	2,603,479	60.44%	36.87%	46.28%	0.0556	0.0201
89.5	2,492,757	60.31%	35.63%	45.15%	0.0609	0.0230
90.5	2,295,194	60.26%	34.39%	44.01%	0.0669	0.0264
91.5	2,109,868	59.63%	33.16%	42.87%	0.0701	0.0281
92.5	1,811,991	59.57%	31.94%	41.73%	0.0763	0.0318
93.5	1,701,793	59.56%	30.73%	40.59%	0.0831	0.0360
94.5	1,544,111	59.54%	29.53%	39.45%	0.0900	0.0404

Account 366 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**Company R1.5-75**	**OCC R1.5-82**	**Company SSD**	**OCC SSD**
95.5	1,414,303	59.52%	28.35%	38.30%	0.0972	0.0450
96.5	1,087,801	59.49%	27.18%	37.16%	0.1044	0.0498
97.5	965,845	59.43%	26.03%	36.03%	0.1116	0.0548
98.5	848,808	59.41%	24.89%	34.89%	0.1192	0.0601
99.5	760,343	59.41%	23.78%	33.77%	0.1270	0.0658
100.5	737,980	59.41%	22.68%	32.65%	0.1349	0.0716
101.5	633,913	59.41%	21.60%	31.53%	0.1429	0.0777
102.5	535,073	59.40%	20.55%	30.43%	0.1509	0.0839
103.5	524,460	59.27%	19.52%	29.34%	0.1580	0.0896
104.5	448,511	59.24%	18.52%	28.26%	0.1658	0.0960
105.5	432,709	59.20%	17.54%	27.19%	0.1735	0.1025
106.5	359,020	59.20%	16.59%	26.13%	0.1816	0.1094
107.5	344,901	59.20%	15.66%	25.09%	0.1896	0.1163
108.5	301,334	59.16%	14.76%	24.07%	0.1971	0.1232
109.5	245,101	59.16%	13.89%	23.06%	0.2049	0.1303
110.5	223,427	59.16%	13.05%	22.07%	0.2126	0.1376
111.5	179,907	59.16%	12.23%	21.09%	0.2202	0.1449
112.5	179,377	59.16%	11.44%	20.14%	0.2277	0.1522
113.5	179,377	59.16%	10.69%	19.21%	0.2350	0.1596
114.5	179,377	59.16%	9.96%	18.30%	0.2421	0.1670
115.5	179,377	59.16%	9.25%	17.40%	0.2491	0.1744
116.5	179,377	59.16%	8.58%	16.54%	0.2558	0.1817
117.5	1,026	59.16%	7.94%	15.69%	0.2623	0.1890
118.5			7.33%	14.87%		
	Sum of Squared Differences			[8]	5.1970	2.9156
	SSD for Truncated OLT Curve			[9]	0.1284	0.0277

[1] Age in years using half-year convention

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

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

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

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

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

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

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

Account 367 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**Company R0.5-50**	**OCC L0-55**	**Company SSD**	**OCC SSD**
0.0	1,662,191,118	100.00%	100.00%	100.00%	0.0000	0.0000
0.5	1,575,242,758	99.54%	99.62%	99.88%	0.0000	0.0000
1.5	1,471,205,034	97.94%	98.86%	99.51%	0.0001	0.0002
2.5	1,375,001,721	96.52%	98.09%	99.02%	0.0002	0.0006
3.5	1,304,870,083	95.33%	97.31%	98.45%	0.0004	0.0010
4.5	1,235,169,872	94.19%	96.52%	97.80%	0.0005	0.0013
5.5	1,162,615,258	93.15%	95.73%	97.10%	0.0007	0.0016
6.5	1,075,256,750	91.96%	94.93%	96.34%	0.0009	0.0019
7.5	1,014,090,945	90.84%	94.12%	95.54%	0.0011	0.0022
8.5	967,746,598	89.73%	93.31%	94.70%	0.0013	0.0025
9.5	919,740,145	88.58%	92.49%	93.83%	0.0015	0.0028
10.5	873,581,207	87.40%	91.66%	92.92%	0.0018	0.0030
11.5	824,060,817	86.30%	90.82%	91.98%	0.0020	0.0032
12.5	775,409,399	85.08%	89.98%	91.02%	0.0024	0.0035
13.5	716,463,907	83.96%	89.13%	90.03%	0.0027	0.0037
14.5	676,609,227	82.79%	88.28%	89.02%	0.0030	0.0039
15.5	630,599,353	81.71%	87.41%	87.99%	0.0033	0.0039
16.5	575,781,112	80.70%	86.54%	86.94%	0.0034	0.0039
17.5	523,815,794	79.70%	85.67%	85.88%	0.0036	0.0038
18.5	487,799,091	78.60%	84.78%	84.80%	0.0038	0.0038
19.5	446,100,345	77.46%	83.89%	83.71%	0.0041	0.0039
20.5	405,807,447	76.21%	82.99%	82.62%	0.0046	0.0041
21.5	368,588,290	75.29%	82.08%	81.51%	0.0046	0.0039
22.5	334,758,407	74.44%	81.17%	80.39%	0.0045	0.0035
23.5	305,956,353	73.46%	80.24%	79.27%	0.0046	0.0034
24.5	285,265,241	72.16%	79.30%	78.14%	0.0051	0.0036
25.5	270,694,698	71.24%	78.36%	77.01%	0.0051	0.0033
26.5	256,639,182	70.11%	77.40%	75.87%	0.0053	0.0033
27.5	241,498,081	69.11%	76.44%	74.74%	0.0054	0.0032
28.5	224,227,815	68.21%	75.46%	73.60%	0.0053	0.0029
29.5	209,316,179	67.43%	74.47%	72.47%	0.0050	0.0025
30.5	196,009,551	66.60%	73.47%	71.33%	0.0047	0.0022
31.5	183,710,659	65.79%	72.45%	70.20%	0.0044	0.0019
32.5	169,187,920	65.04%	71.43%	69.07%	0.0041	0.0016
33.5	161,332,342	64.25%	70.39%	67.94%	0.0038	0.0014
34.5	146,907,301	63.52%	69.34%	66.82%	0.0034	0.0011
35.5	134,767,065	62.90%	68.27%	65.69%	0.0029	0.0008
36.5	124,680,534	62.24%	67.20%	64.57%	0.0025	0.0005
37.5	104,759,304	61.58%	66.11%	63.46%	0.0021	0.0004
38.5	92,704,929	60.80%	65.01%	62.34%	0.0018	0.0002
39.5	82,310,561	60.32%	63.89%	61.23%	0.0013	0.0001
40.5	73,874,388	59.89%	62.76%	60.13%	0.0008	0.0000
41.5	65,113,700	59.33%	61.62%	59.03%	0.0005	0.0000
42.5	59,902,748	58.83%	60.47%	57.93%	0.0003	0.0001
43.5	54,789,815	58.27%	59.30%	56.84%	0.0001	0.0002
44.5	51,619,506	57.84%	58.12%	55.76%	0.0000	0.0004
45.5	48,224,114	57.10%	56.93%	54.68%	0.0000	0.0006
46.5	46,963,374	56.47%	55.73%	53.61%	0.0001	0.0008

Account 367 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**Company R0.5-50**	**OCC L0-55**	**Company SSD**	**OCC SSD**
47.5	42,086,908	55.84%	54.52%	52.55%	0.0002	0.0011
48.5	36,573,707	54.28%	53.30%	51.49%	0.0001	0.0008
49.5	32,766,830	53.98%	52.07%	50.44%	0.0004	0.0013
50.5	29,300,257	53.72%	50.83%	49.40%	0.0008	0.0019
51.5	24,872,370	53.19%	49.58%	48.37%	0.0013	0.0023
52.5	21,586,827	50.00%	48.32%	47.34%	0.0003	0.0007
53.5	18,794,140	49.53%	47.06%	46.32%	0.0006	0.0010
54.5	16,821,380	49.01%	45.79%	45.32%	0.0010	0.0014
55.5	14,305,619	47.50%	44.52%	44.32%	0.0009	0.0010
56.5	12,458,675	46.88%	43.24%	43.33%	0.0013	0.0013
57.5	10,321,185	44.27%	41.96%	42.35%	0.0005	0.0004
58.5	8,865,665	43.23%	40.68%	41.38%	0.0007	0.0003
59.5	7,650,819	42.87%	39.39%	40.42%	0.0012	0.0006
60.5	5,849,280	41.73%	38.11%	39.47%	0.0013	0.0005
61.5	5,243,491	41.53%	36.83%	38.53%	0.0022	0.0009
62.5	5,191,258	41.15%	35.55%	37.60%	0.0031	0.0013
63.5	4,924,379	40.71%	34.27%	36.68%	0.0041	0.0016
64.5	4,761,984	40.22%	33.00%	35.78%	0.0052	0.0020
65.5	4,271,342	38.07%	31.73%	34.88%	0.0040	0.0010
66.5	4,111,063	37.00%	30.48%	34.00%	0.0043	0.0009
67.5	3,579,218	33.76%	29.23%	33.13%	0.0021	0.0000
68.5	2,998,314	32.52%	27.99%	32.27%	0.0021	0.0000
69.5	2,573,474	32.39%	26.76%	31.42%	0.0032	0.0001
70.5	2,605,065	32.19%	25.55%	30.58%	0.0044	0.0003
71.5	2,551,292	31.67%	24.35%	29.76%	0.0054	0.0004
72.5	2,248,142	29.69%	23.16%	28.95%	0.0043	0.0001
73.5	2,203,136	29.55%	22.00%	28.15%	0.0057	0.0002
74.5	1,984,061	28.45%	20.85%	27.36%	0.0058	0.0001
75.5	1,913,851	28.35%	19.72%	26.59%	0.0075	0.0003
76.5	1,633,529	28.28%	18.61%	25.83%	0.0094	0.0006
77.5	1,622,067	28.07%	17.52%	25.08%	0.0111	0.0009
78.5	1,492,540	27.47%	16.45%	24.34%	0.0121	0.0010
79.5	1,304,583	26.16%	15.41%	23.62%	0.0116	0.0006
80.5	1,149,008	23.07%	14.40%	22.91%	0.0075	0.0000
81.5	1,114,022	22.36%	13.41%	22.22%	0.0080	0.0000
82.5	1,085,121	21.78%	12.44%	21.53%	0.0087	0.0000
83.5	910,212	18.61%	11.51%	20.86%	0.0050	0.0005
84.5	851,901	17.67%	10.60%	20.20%	0.0050	0.0006
85.5	839,239	17.65%	9.72%	19.56%	0.0063	0.0004
86.5	837,901	17.62%	8.87%	18.93%	0.0076	0.0002
87.5	832,413	17.59%	8.06%	18.31%	0.0091	0.0001
88.5	825,526	17.56%	7.27%	17.71%	0.0106	0.0000
89.5	823,770	17.53%	6.51%	17.12%	0.0122	0.0000
90.5	798,838	17.12%	5.77%	16.54%	0.0129	0.0000
91.5	732,115	15.92%	5.07%	15.97%	0.0118	0.0000
92.5	616,967	14.45%	4.39%	15.42%	0.0101	0.0001
93.5	605,348	14.26%	3.74%	14.88%	0.0111	0.0000
94.5	526,606	14.19%	3.11%	14.35%	0.0123	0.0000

Account 367 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**Company R0.5-50**	**OCC L0-55**	**Company SSD**	**OCC SSD**
95.5	494,849	14.18%	2.50%	13.84%	0.0136	0.0000
96.5	494,236	14.16%	1.91%	13.34%	0.0150	0.0001
97.5	480,791	14.12%	1.34%	12.85%	0.0163	0.0002
98.5	432,766	14.11%	0.79%	12.37%	0.0177	0.0003
99.5	370,012	14.10%	0.26%	11.90%	0.0192	0.0005
100.5	333,808	14.10%	0.00%	11.45%	0.0199	0.0007
101.5	252,767	14.10%	0.00%	11.01%	0.0199	0.0010
102.5	229,648	14.07%	0.00%	10.58%	0.0198	0.0012
103.5	202,132	14.01%	0.00%	10.17%	0.0196	0.0015
104.5	145,673	13.96%	0.00%	9.76%	0.0195	0.0018
105.5	131,601	13.91%	0.00%	9.37%	0.0193	0.0021
106.5	115,347	13.68%	0.00%	8.98%	0.0187	0.0022
107.5	102,195	13.53%	0.00%	8.61%	0.0183	0.0024
108.5	54,254	13.53%	0.00%	8.25%	0.0183	0.0028
109.5	24,227	13.53%	0.00%	7.90%	0.0183	0.0032
110.5	11,147	13.53%	0.00%	7.57%	0.0183	0.0036
111.5	1,118	13.53%	0.00%	7.24%	0.0183	0.0040
112.5			0.00%	6.92%		
	Sum of Squared Differences			[8]	0.6852	0.1529
	SSD for Truncated OLT Curve			[9]	0.1236	0.1074

[1] Age in years using half-year convention

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

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

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

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

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

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

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

Account 373 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**Company L0-18**	**OCC O3-25**	**Company SSD**	**OCC SSD**
0.0	146,265,248	100.00%	100.00%	100.00%	0.0000	0.0000
0.5	142,919,953	99.04%	99.50%	98.35%	0.0000	0.0000
1.5	135,252,022	95.32%	97.75%	95.05%	0.0006	0.0000
2.5	126,552,811	91.74%	95.43%	91.78%	0.0014	0.0000
3.5	114,114,188	89.02%	92.74%	88.53%	0.0014	0.0000
4.5	109,953,809	86.60%	89.78%	85.31%	0.0010	0.0002
5.5	100,796,039	83.65%	86.62%	82.13%	0.0009	0.0002
6.5	88,643,388	80.74%	83.32%	79.00%	0.0007	0.0003
7.5	77,986,933	77.77%	79.92%	75.92%	0.0005	0.0003
8.5	68,828,123	74.48%	76.47%	72.90%	0.0004	0.0003
9.5	64,374,712	71.49%	73.00%	69.94%	0.0002	0.0002
10.5	60,679,972	68.77%	69.54%	67.06%	0.0001	0.0003
11.5	57,336,739	66.06%	66.10%	64.26%	0.0000	0.0003
12.5	52,837,206	62.52%	62.68%	61.54%	0.0000	0.0001
13.5	49,107,082	59.84%	59.30%	58.92%	0.0000	0.0001
14.5	45,440,330	57.02%	55.97%	56.39%	0.0001	0.0000
15.5	42,160,150	54.19%	52.70%	53.96%	0.0002	0.0000
16.5	39,145,468	51.20%	49.49%	51.63%	0.0003	0.0000
17.5	36,264,912	48.73%	46.35%	49.40%	0.0006	0.0000
18.5	33,519,736	46.14%	43.30%	47.27%	0.0008	0.0001
19.5	30,466,544	43.73%	40.34%	45.25%	0.0012	0.0002
20.5	28,333,463	41.81%	37.47%	43.32%	0.0019	0.0002
21.5	26,564,390	40.16%	34.71%	41.49%	0.0030	0.0002
22.5	25,097,616	38.65%	32.05%	39.76%	0.0044	0.0001
23.5	24,058,660	37.27%	29.51%	38.11%	0.0060	0.0001
24.5	22,990,598	35.80%	27.08%	36.55%	0.0076	0.0001
25.5	21,760,720	34.41%	24.77%	35.07%	0.0093	0.0000
26.5	21,014,001	33.38%	22.58%	33.66%	0.0117	0.0000
27.5	20,127,855	32.26%	20.51%	32.33%	0.0138	0.0000
28.5	19,243,470	31.21%	18.57%	31.07%	0.0160	0.0000
29.5	18,598,783	30.35%	16.74%	29.88%	0.0185	0.0000
30.5	17,792,222	29.45%	15.04%	28.74%	0.0208	0.0001
31.5	17,030,122	28.50%	13.46%	27.66%	0.0226	0.0001
32.5	16,346,716	27.62%	11.99%	26.64%	0.0244	0.0001
33.5	15,572,273	26.64%	10.64%	25.66%	0.0256	0.0001
34.5	14,646,111	25.50%	9.40%	24.73%	0.0259	0.0001
35.5	13,869,680	24.48%	8.26%	23.85%	0.0263	0.0000
36.5	12,820,302	23.23%	7.23%	23.00%	0.0256	0.0000
37.5	11,755,954	22.00%	6.30%	22.19%	0.0247	0.0000
38.5	10,811,090	20.90%	5.45%	21.42%	0.0239	0.0000
39.5	9,938,598	19.86%	4.70%	20.68%	0.0230	0.0001
40.5	9,033,976	18.93%	4.02%	19.98%	0.0222	0.0001
41.5	8,421,266	18.17%	3.42%	19.30%	0.0217	0.0001
42.5	7,757,962	17.52%	2.90%	18.65%	0.0214	0.0001
43.5	7,188,676	16.83%	2.43%	18.02%	0.0207	0.0001
44.5	6,599,705	16.24%	2.03%	17.42%	0.0202	0.0001
45.5	5,917,112	15.31%	1.68%	16.83%	0.0186	0.0002
46.5	5,263,751	14.55%	1.38%	16.27%	0.0173	0.0003

Account 373 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**Company L0-18**	**OCC O3-25**	**Company SSD**	**OCC SSD**
47.5	4,752,019	13.80%	1.13%	15.73%	0.0161	0.0004
48.5	4,285,074	12.99%	0.91%	15.21%	0.0146	0.0005
49.5	3,839,495	12.35%	0.73%	14.71%	0.0135	0.0006
50.5	3,348,404	11.53%	0.58%	14.22%	0.0120	0.0007
51.5	3,065,885	10.85%	0.46%	13.74%	0.0108	0.0008
52.5	2,708,520	10.08%	0.35%	13.28%	0.0095	0.0010
53.5	2,360,800	9.24%	0.27%	12.84%	0.0080	0.0013
54.5	2,112,205	8.78%	0.21%	12.40%	0.0074	0.0013
55.5	1,879,222	8.37%	0.15%	11.98%	0.0067	0.0013
56.5	1,697,187	7.95%	0.11%	11.57%	0.0061	0.0013
57.5	1,542,464	7.59%	0.08%	11.17%	0.0056	0.0013
58.5	1,417,219	7.33%	0.06%	10.78%	0.0053	0.0012
59.5	1,572,483	7.11%	0.04%	10.40%	0.0050	0.0011
60.5	1,452,992	6.90%	0.03%	10.03%	0.0047	0.0010
61.5	1,351,119	6.55%	0.02%	9.66%	0.0043	0.0010
62.5	1,259,377	6.26%	0.01%	9.31%	0.0039	0.0009
63.5	1,182,195	5.97%	0.01%	8.96%	0.0036	0.0009
64.5	1,115,972	5.75%	0.00%	8.62%	0.0033	0.0008
65.5	963,700	5.20%	0.00%	8.28%	0.0027	0.0010
66.5	837,462	4.62%	0.00%	7.96%	0.0021	0.0011
67.5	688,085	3.89%	0.00%	7.64%	0.0015	0.0014
68.5	545,125	3.21%	0.00%	7.32%	0.0010	0.0017
69.5	498,151	3.00%	0.00%	7.01%	0.0009	0.0016
70.5	430,301	2.68%	0.00%	6.70%	0.0007	0.0016
71.5	368,004	2.34%	0.00%	6.40%	0.0005	0.0017
72.5	320,273	2.06%	0.00%	6.11%	0.0004	0.0016
73.5	296,795	1.93%	0.00%	5.82%	0.0004	0.0015
74.5	262,573	1.75%	0.00%	5.53%	0.0003	0.0014
75.5	241,043	1.63%	0.00%	5.25%	0.0003	0.0013
76.5	216,932	1.50%	0.00%	4.97%	0.0002	0.0012
77.5	207,502	1.46%	0.00%	4.70%	0.0002	0.0010
78.5	200,543	1.44%	0.00%	4.42%	0.0002	0.0009
79.5	194,973	1.42%	0.00%	4.16%	0.0002	0.0007
80.5	191,149	1.40%	0.00%	3.89%	0.0002	0.0006
81.5	187,736	1.39%	0.00%	3.63%	0.0002	0.0005
82.5	182,246	1.37%	0.00%	3.37%	0.0002	0.0004
83.5	175,164	1.32%	0.00%	3.12%	0.0002	0.0003
84.5	164,836	1.27%	0.00%	2.86%	0.0002	0.0003
85.5	148,084	1.15%	0.00%	2.61%	0.0001	0.0002
86.5	72,328	0.57%	0.00%	2.36%	0.0000	0.0003
87.5	10,239	0.08%	0.00%	2.12%	0.0000	0.0004
88.5	9,894	0.08%	0.00%	1.88%	0.0000	0.0003
89.5	5,832	0.08%	0.00%	1.63%	0.0000	0.0002
90.5	5,109	0.07%	0.00%	1.39%	0.0000	0.0002
91.5	4,753	0.06%	0.00%	1.16%	0.0000	0.0001
92.5	2,962	0.06%	0.00%	0.92%	0.0000	0.0001
93.5	2,737	0.06%	0.00%	0.69%	0.0000	0.0000
94.5	1,868	0.06%	0.00%	0.46%	0.0000	0.0000

Account 373 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**Company L0-18**	**OCC O3-25**	**Company SSD**	**OCC SSD**
95.5	1,868	0.06%	0.00%	0.23%	0.0000	0.0000
96.5	1,705	0.06%	0.00%	0.00%	0.0000	0.0000
97.5	1,622	0.06%	0.00%	0.00%	0.0000	0.0000
98.5	1,588	0.06%	0.00%	0.00%	0.0000	0.0000
99.5	1,588	0.06%	0.00%	0.00%	0.0000	0.0000
100.5	1,588	0.06%	0.00%	0.00%	0.0000	0.0000
101.5	1,588	0.06%	0.00%	0.00%	0.0000	0.0000
102.5	1,588	0.06%	0.00%	0.00%	0.0000	0.0000
103.5	1,588	0.06%	0.00%	0.00%	0.0000	0.0000
104.5	1,588	0.06%	0.00%	0.00%	0.0000	0.0000
105.5	1,588	0.06%	0.00%	0.00%	0.0000	0.0000
106.5	1,251	0.04%	0.00%	0.00%	0.0000	0.0000
107.5			0.00%	0.00%		
	Sum of Squared Differences			[8]	0.6404	0.0465
	SSD for Truncated OLT Curve			[9]	0.6078	0.0181

[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.

Eversource Energy
Electric Division
364.00 Poles, Towers, and Fixtures
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2025
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: *53* ***Survivor Curve:*** *L0*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1927	34.18	53.00	0.64	19.29	12.44
1928	3,050.86	53.00	57.57	19.49	1,122.14
1929	3,176.45	53.00	59.93	19.70	1,180.63
1930	12,373.07	53.00	233.46	19.91	4,647.15
1931	18,326.42	53.00	345.79	20.11	6,955.25
1932	23,707.37	53.00	447.32	20.32	9,091.45
1933	38,168.95	53.00	720.19	20.54	14,791.74
1934	34,685.25	53.00	654.46	20.75	13,580.92
1935	56,912.52	53.00	1,073.85	20.97	22,514.30
1936	71,298.27	53.00	1,345.29	21.18	28,496.18
1937	63,172.45	53.00	1,191.97	21.40	25,508.41
1938	73,324.97	53.00	1,383.53	21.62	29,912.07
1939	96,686.96	53.00	1,824.34	21.84	39,846.71
1940	151,888.83	53.00	2,865.92	22.07	63,237.05
1941	171,487.92	53.00	3,235.72	22.29	72,125.97
1942	110,507.71	53.00	2,085.12	22.52	46,956.41
1943	67,578.25	53.00	1,275.10	22.75	29,006.26
1944	96,202.57	53.00	1,815.20	22.98	41,710.64
1945	148,843.74	53.00	2,808.46	23.21	65,186.70
1946	236,610.60	53.00	4,464.49	23.45	104,670.41
1947	282,057.91	53.00	5,322.01	23.68	126,032.47
1948	394,606.12	53.00	7,445.63	23.92	178,096.58
1949	304,771.21	53.00	5,750.58	24.16	138,933.34
1950	323,913.53	53.00	6,111.77	24.40	149,140.61
1951	348,653.61	53.00	6,578.58	24.65	162,150.17
1952	399,940.92	53.00	7,546.29	24.89	187,858.64
1953	484,725.92	53.00	9,146.06	25.14	229,952.57

Eversource Energy
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And Development Of Composite Remaining Life as of December 31, 2025
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: *53* ***Survivor Curve:*** *L0*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1954	627,869.51	53.00	11,846.96	25.39	300,824.31
1955	704,050.31	53.00	13,284.38	25.64	340,677.58
1956	814,915.97	53.00	15,376.25	25.90	398,239.16
1957	940,941.80	53.00	17,754.17	26.16	464,387.06
1958	882,029.00	53.00	16,642.58	26.42	439,624.28
1959	1,045,526.32	53.00	19,727.53	26.68	526,272.21
1960	902,006.62	53.00	17,019.52	26.94	458,539.42
1961	751,632.23	53.00	14,182.18	27.21	385,863.20
1962	990,039.19	53.00	18,680.57	27.48	513,260.10
1963	1,046,888.78	53.00	19,753.23	27.75	548,073.91
1964	1,350,505.41	53.00	25,482.03	28.02	713,978.19
1965	1,303,393.56	53.00	24,593.10	28.29	695,841.89
1966	1,475,248.05	53.00	27,835.74	28.57	795,322.54
1967	1,758,544.76	53.00	33,181.12	28.85	957,351.62
1968	1,853,962.66	53.00	34,981.52	29.14	1,019,191.45
1969	2,141,740.38	53.00	40,411.46	29.42	1,188,961.68
1970	2,023,261.29	53.00	38,175.93	29.71	1,134,172.63
1971	2,554,913.41	53.00	48,207.42	30.00	1,446,196.45
1972	3,000,215.02	53.00	56,609.60	30.29	1,714,845.76
1973	2,439,249.06	53.00	46,025.00	30.59	1,407,823.59
1974	2,250,198.42	53.00	42,457.90	30.89	1,311,385.21
1975	2,123,752.62	53.00	40,072.05	31.19	1,249,765.88
1976	2,588,925.22	53.00	48,849.17	31.49	1,538,358.75
1977	1,983,379.51	53.00	37,423.42	31.80	1,190,051.66
1978	1,813,451.16	53.00	34,217.13	32.11	1,098,683.45
1979	2,101,374.51	53.00	39,649.81	32.42	1,285,510.38
1980	2,913,377.93	53.00	54,971.11	32.74	1,799,588.28

Eversource Energy
Electric Division
364.00 Poles, Towers, and Fixtures
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2025
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: *53* ***Survivor Curve:*** *L0*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1981	2,237,801.79	53.00	42,223.99	33.06	1,395,728.61
1982	2,430,277.59	53.00	45,855.72	33.38	1,530,514.35
1983	2,724,694.16	53.00	51,410.93	33.70	1,732,608.24
1984	3,410,341.28	53.00	64,348.07	34.03	2,189,680.11
1985	3,478,690.28	53.00	65,637.71	34.36	2,255,267.17
1986	4,469,299.58	53.00	84,329.04	34.69	2,925,671.66
1987	4,930,629.30	53.00	93,033.64	35.03	3,259,002.67
1988	4,376,246.82	53.00	82,573.27	35.37	2,920,653.86
1989	6,299,981.78	53.00	118,871.29	35.71	4,245,347.88
1990	9,575,203.37	53.00	180,669.85	36.06	6,515,046.69
1991	7,888,161.17	53.00	148,837.87	36.41	5,419,268.92
1992	5,567,087.68	53.00	105,042.67	36.76	3,861,786.29
1993	5,984,442.79	53.00	112,917.54	37.12	4,191,593.44
1994	5,080,622.84	53.00	95,863.80	37.48	3,593,086.67
1995	4,913,072.90	53.00	92,702.38	37.85	3,508,331.85
1996	5,201,089.16	53.00	98,136.82	38.21	3,750,047.44
1997	7,574,652.00	53.00	142,922.42	38.58	5,514,426.54
1998	9,695,132.14	53.00	182,932.73	38.96	7,126,675.92
1999	8,856,422.51	53.00	167,107.52	39.34	6,573,363.85
2000	11,226,708.84	53.00	211,831.30	39.72	8,413,541.77
2001	13,401,810.43	53.00	252,872.23	40.10	10,141,253.56
2002	9,807,125.98	53.00	185,045.88	40.50	7,493,455.48
2003	16,813,400.32	53.00	317,243.86	40.89	12,972,509.16
2004	20,695,677.69	53.00	390,496.66	41.29	16,124,721.01
2005	18,912,855.08	53.00	356,857.45	41.70	14,881,416.46
2006	18,619,686.96	53.00	351,325.80	42.12	14,796,688.08
2007	12,881,539.97	53.00	243,055.50	42.54	10,339,504.20

Eversource Energy
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Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2025
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: *53* ***Survivor Curve:*** *L0*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2008	12,671,728.84	53.00	239,096.68	42.97	10,274,169.82
2009	15,131,511.76	53.00	285,509.12	43.41	12,394,122.95
2010	16,240,291.15	53.00	306,430.14	43.86	13,439,964.39
2011	24,743,786.17	53.00	466,878.45	44.32	20,691,606.46
2012	41,283,089.13	53.00	778,950.50	44.79	34,888,466.92
2013	16,567,928.04	53.00	312,612.16	45.27	14,151,743.05
2014	22,841,584.34	53.00	430,986.73	45.76	19,723,573.77
2015	21,607,189.96	53.00	407,695.54	46.27	18,864,800.96
2016	26,301,976.05	53.00	496,279.17	46.79	23,223,183.92
2017	34,644,369.23	53.00	653,687.73	47.33	30,941,365.56
2018	48,821,025.15	53.00	921,180.14	47.89	44,115,573.94
2019	34,804,785.37	53.00	656,714.54	48.47	31,828,804.47
2020	40,936,413.36	53.00	772,409.24	49.07	37,898,521.96
2021	50,855,380.28	53.00	959,565.40	49.69	47,680,053.95
2022	45,711,765.03	53.00	862,513.03	50.34	43,417,642.40
2023	63,446,127.91	53.00	1,197,134.08	51.03	61,086,972.12
2024	39,991,848.21	53.00	754,586.70	51.76	39,058,699.52
2025	48,614,070.93	53.00	917,275.22	52.56	48,211,329.63
Total	880,665,624.58	53.00	16,616,850.68	44.91	746,277,295.49

Composite Average Remaining Life ... 44.91 Years

Eversource Energy
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Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2025
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: *52* ***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)*
1909	1,124.64	0.00	0.00	0.00	0.00
1910	0.10	0.00	0.00	0.00	0.00
1916	263.47	0.00	0.00	0.00	0.00
1918	1.48	0.00	0.00	0.00	0.00
1919	4.75	0.00	0.00	0.00	0.00
1920	151.15	0.00	0.00	0.00	0.00
1921	1,110.87	0.00	0.00	0.00	0.00
1922	341.63	52.00	6.57	0.50	3.28
1923	230.85	52.00	4.44	0.83	3.68
1924	756.71	52.00	14.55	1.28	18.67
1925	429.84	52.00	8.27	1.75	14.47
1926	564.60	52.00	10.86	2.22	24.10
1927	1,324.43	52.00	25.47	2.69	68.45
1928	789.36	52.00	15.18	3.15	47.85
1929	9,555.31	52.00	183.75	3.61	664.26
1930	2,496.16	52.00	48.00	4.07	195.30
1931	786.28	52.00	15.12	4.52	68.28
1932	122.37	52.00	2.35	4.96	11.66
1933	3,897.35	52.00	74.95	5.39	403.87
1934	5,714.52	52.00	109.89	5.82	639.12
1935	11,777.99	52.00	226.49	6.24	1,412.73
1936	6,021.22	52.00	115.79	6.65	770.45
1937	7,892.46	52.00	151.77	7.07	1,072.43
1938	6,787.63	52.00	130.53	7.47	975.59
1939	8,020.57	52.00	154.24	7.88	1,215.25
1940	2,772.61	52.00	53.32	8.28	441.54
1941	11,824.01	52.00	227.38	8.68	1,974.37

Eversource Energy
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Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2025
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: *52* ***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)*
1942	4,839.31	52.00	93.06	9.08	845.07
1943	1,178.97	52.00	22.67	9.48	214.87
1944	3,320.84	52.00	63.86	9.87	630.49
1945	443,158.81	52.00	8,522.09	10.27	87,506.66
1946	23,053.92	52.00	443.33	10.66	4,727.55
1947	22,539.79	52.00	433.45	11.06	4,793.68
1948	65,233.13	52.00	1,254.45	11.46	14,370.92
1949	61,207.71	52.00	1,177.04	11.85	13,952.01
1950	157,429.22	52.00	3,027.42	12.25	37,092.59
1951	1,150,214.91	52.00	22,119.01	12.65	279,862.73
1952	139,765.55	52.00	2,687.74	13.05	35,087.74
1953	618,145.74	52.00	11,887.15	13.46	159,988.33
1954	337,204.06	52.00	6,484.55	13.87	89,910.57
1955	1,338,506.81	52.00	25,739.93	14.27	367,431.52
1956	2,355,645.08	52.00	45,299.83	14.69	665,276.37
1957	2,524,142.38	52.00	48,540.09	15.10	732,964.68
1958	3,229,779.65	52.00	62,109.73	15.52	963,776.77
1959	4,368,575.45	52.00	84,009.15	15.94	1,338,903.57
1960	4,412,783.05	52.00	84,859.28	16.36	1,388,394.74
1961	3,481,038.22	52.00	66,941.51	16.79	1,123,821.21
1962	4,251,199.80	52.00	81,751.98	17.22	1,407,654.68
1963	5,210,487.52	52.00	100,199.40	17.65	1,768,793.36
1964	5,576,663.71	52.00	107,241.08	18.09	1,940,057.49
1965	6,342,174.75	52.00	121,962.11	18.53	2,260,244.05
1966	10,546,701.36	52.00	202,816.55	18.98	3,849,053.88
1967	14,133,438.67	52.00	271,790.69	19.43	5,280,217.80
1968	17,670,488.12	52.00	339,809.32	19.88	6,755,842.14

Eversource Energy
Electric Division
365.00 Overhead Conductors and Devices
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2025
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: *52* ***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)*
1969	16,408,133.33	52.00	315,533.82	20.34	6,417,708.90
1970	17,093,503.20	52.00	328,713.71	20.80	6,837,702.17
1971	21,424,591.13	52.00	412,001.96	21.27	8,762,398.12
1972	21,240,861.76	52.00	408,468.79	21.74	8,879,562.77
1973	21,905,048.23	52.00	421,241.31	22.21	9,357,388.63
1974	26,479,194.30	52.00	509,203.65	22.69	11,555,578.87
1975	18,731,742.76	52.00	360,217.60	23.18	8,348,927.75
1976	14,372,270.93	52.00	276,383.52	23.67	6,540,873.71
1977	15,079,139.68	52.00	289,976.84	24.16	7,005,513.01
1978	11,084,187.14	52.00	213,152.58	24.66	5,255,551.29
1979	13,938,784.44	52.00	268,047.43	25.16	6,743,579.69
1980	9,403,334.17	52.00	180,829.22	25.66	4,640,888.66
1981	12,663,873.60	52.00	243,530.47	26.17	6,374,335.38
1982	12,835,829.70	52.00	246,837.24	26.69	6,588,081.26
1983	10,590,127.99	52.00	203,651.66	27.21	5,541,286.06
1984	12,217,343.22	52.00	234,943.54	27.73	6,515,833.05
1985	14,058,010.21	52.00	270,340.18	28.26	7,640,318.25
1986	17,603,786.68	52.00	338,526.63	28.79	9,747,652.53
1987	24,936,476.47	52.00	479,536.68	29.33	14,065,278.60
1988	25,673,347.22	52.00	493,706.95	29.87	14,747,849.62
1989	26,507,523.62	52.00	509,748.43	30.42	15,504,682.72
1990	24,843,661.14	52.00	477,751.81	30.96	14,793,541.68
1991	23,216,664.02	52.00	446,464.12	31.52	14,071,329.27
1992	15,967,197.42	52.00	307,054.48	32.07	9,848,248.55
1993	18,511,195.70	52.00	355,976.41	32.63	11,616,294.54
1994	14,721,522.50	52.00	283,099.74	33.20	9,397,599.14
1995	13,603,945.42	52.00	261,608.36	33.76	8,832,372.73

Eversource Energy
Electric Division
365.00 Overhead Conductors and Devices
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2025
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: *52* ***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)*
1996	18,587,403.47	52.00	357,441.91	34.33	12,271,487.80
1997	27,114,537.52	52.00	521,421.51	34.90	18,199,715.59
1998	51,097,624.72	52.00	982,624.20	35.48	34,863,029.63
1999	38,908,920.69	52.00	748,231.39	36.06	26,979,508.33
2000	57,480,674.72	52.00	1,105,372.36	36.64	40,499,118.14
2001	54,076,688.56	52.00	1,039,912.58	37.22	38,707,180.99
2002	49,576,801.40	52.00	953,378.26	37.81	36,044,305.67
2003	43,521,357.15	52.00	836,930.07	38.39	32,133,400.32
2004	55,782,543.21	52.00	1,072,716.73	38.98	41,818,498.91
2005	36,805,603.75	52.00	707,783.91	39.57	28,010,449.19
2006	47,168,382.60	52.00	907,063.57	40.17	36,434,597.73
2007	45,388,000.42	52.00	872,826.24	40.76	35,577,733.07
2008	43,008,928.95	52.00	827,075.91	41.36	34,205,609.47
2009	35,215,050.66	52.00	677,197.05	41.95	28,411,342.02
2010	41,047,249.85	52.00	789,352.17	42.55	33,588,969.41
2011	49,240,184.83	52.00	946,905.01	43.15	40,860,858.61
2012	74,244,710.00	52.00	1,427,750.29	43.75	62,467,852.18
2013	29,477,856.85	52.00	566,868.92	44.35	25,143,200.78
2014	36,353,582.74	52.00	699,091.40	44.96	31,429,542.38
2015	37,581,956.32	52.00	722,713.43	45.56	32,928,432.12
2016	46,970,435.06	52.00	903,256.98	46.17	41,701,702.72
2017	79,659,548.96	52.00	1,531,879.43	46.78	71,654,429.74
2018	97,495,792.17	52.00	1,874,876.28	47.38	88,839,778.53
2019	69,055,214.62	52.00	1,327,954.58	47.99	63,734,175.96
2020	94,209,407.32	52.00	1,811,678.01	48.61	88,058,833.26
2021	73,623,857.05	52.00	1,415,811.08	49.22	69,685,919.58
2022	75,265,329.97	52.00	1,447,377.15	49.83	72,129,991.59

Eversource Energy
Electric Division
365.00 Overhead Conductors and Devices
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2025
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: *52* ***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)*
2023	127,492,356.43	52.00	2,451,720.12	50.45	123,693,647.48
2024	79,818,507.23	52.00	1,534,936.25	51.07	78,389,622.24
2025	140,304,522.05	52.00	2,698,102.29	51.69	139,466,145.90
Total	2,319,238,004.14	48.72	44,599,661.61	40.00	1,784,140,897.09

Composite Average Remaining Life ... 40.00 Years

Eversource Energy
Electric Division
366.00 Underground Conduit

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2025
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: **82** ***Survivor Curve:*** **R1.5**

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1908	179,376.96	82.00	2,187.50	13.22	28,926.31
1913	530.35	82.00	6.47	14.74	95.31
1914	43,519.89	82.00	530.73	15.05	7,987.00
1915	21,674.07	82.00	264.32	15.37	4,061.27
1916	56,232.51	82.00	685.76	15.68	10,756.02
1917	43,308.45	82.00	528.15	16.00	8,452.04
1918	14,118.83	82.00	172.18	16.33	2,811.60
1919	73,688.53	82.00	898.63	16.66	14,971.16
1920	15,497.60	82.00	188.99	16.99	3,211.87
1921	75,712.12	82.00	923.31	17.33	16,001.65
1922	9,380.97	82.00	114.40	17.67	2,021.88
1923	98,761.48	82.00	1,204.40	18.02	21,704.66
1924	104,066.23	82.00	1,269.09	18.37	23,317.76
1925	22,355.50	82.00	272.63	18.73	5,106.55
1926	88,427.85	82.00	1,078.38	19.09	20,587.98
1927	116,725.21	82.00	1,423.46	19.46	27,699.15
1928	120,933.45	82.00	1,474.78	19.83	29,247.44
1929	325,818.97	82.00	3,973.37	20.21	80,301.01
1930	129,202.63	82.00	1,575.63	20.59	32,446.87
1931	157,271.18	82.00	1,917.92	20.98	40,242.42
1932	109,761.35	82.00	1,338.54	21.38	28,614.45
1933	295,641.69	82.00	3,605.35	21.78	78,518.21
1934	161,408.25	82.00	1,968.37	22.18	43,668.32
1935	141,928.42	82.00	1,730.82	22.60	39,113.43
1936	105,400.34	82.00	1,285.36	23.02	29,585.38
1937	158,820.18	82.00	1,936.81	23.44	45,403.34
1938	73,692.51	82.00	898.68	23.87	21,454.61

Eversource Energy
Electric Division
366.00 Underground Conduit

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2025
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: *82* ***Survivor Curve:*** *R1.5*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1939	59,602.17	82.00	726.85	24.31	17,671.05
1940	34,220.02	82.00	417.31	24.76	10,330.95
1941	94,750.31	82.00	1,155.48	25.21	29,125.11
1942	77,178.09	82.00	941.19	25.66	24,153.17
1943	4,872.97	82.00	59.43	26.13	1,552.51
1944	1,126.06	82.00	13.73	26.60	365.22
1945	28,114.01	82.00	342.85	27.07	9,281.56
1946	296,447.10	82.00	3,615.17	27.55	99,611.70
1947	276,056.82	82.00	3,366.52	28.04	94,403.82
1948	370,804.43	82.00	4,521.96	28.54	129,040.61
1949	302,562.65	82.00	3,689.75	29.04	107,150.43
1950	162,835.01	82.00	1,985.77	29.55	58,674.95
1951	204,873.83	82.00	2,498.44	30.06	75,106.56
1952	426,840.62	82.00	5,205.32	30.58	159,185.40
1953	522,797.61	82.00	6,375.52	31.11	198,342.06
1954	392,222.58	82.00	4,783.16	31.64	151,352.86
1955	108,145.60	82.00	1,318.84	32.18	42,442.53
1956	876,190.45	82.00	10,685.15	32.73	349,689.31
1957	421,595.07	82.00	5,141.36	33.28	171,091.03
1958	285,441.21	82.00	3,480.96	33.84	117,786.77
1959	427,467.27	82.00	5,212.97	34.40	179,330.80
1960	226,675.65	82.00	2,764.31	34.97	96,668.23
1961	497,181.56	82.00	6,063.13	35.54	215,513.95
1962	673,971.35	82.00	8,219.09	36.13	296,942.27
1963	809,470.82	82.00	9,871.50	36.72	362,437.62
1964	1,223,459.28	82.00	14,920.10	37.31	556,642.10
1965	1,490,683.78	82.00	18,178.90	37.91	689,095.58

Eversource Energy
Electric Division
366.00 Underground Conduit

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2025
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: *82* ***Survivor Curve:*** *R1.5*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1966	1,474,943.20	82.00	17,986.94	38.51	692,674.47
1967	945,216.00	82.00	11,526.92	39.12	450,957.07
1968	1,607,861.79	82.00	19,607.89	39.74	779,163.56
1969	1,206,459.67	82.00	14,712.79	40.36	593,772.74
1970	1,828,893.04	82.00	22,303.37	40.98	914,060.57
1971	1,815,495.65	82.00	22,139.98	41.62	921,384.85
1972	1,563,845.50	82.00	19,071.11	42.25	805,809.50
1973	2,483,863.35	82.00	30,290.73	42.89	1,299,301.71
1974	2,381,439.36	82.00	29,041.67	43.54	1,264,493.74
1975	2,088,637.20	82.00	25,470.95	44.19	1,125,605.64
1976	1,471,962.63	82.00	17,950.60	44.85	805,095.26
1977	4,214,150.57	82.00	51,391.60	45.51	2,338,934.71
1978	6,326,544.03	82.00	77,152.26	46.18	3,562,731.73
1979	666,659.76	82.00	8,129.92	46.85	380,873.19
1980	3,855,495.51	82.00	47,017.80	47.53	2,234,544.13
1981	3,860,002.50	82.00	47,072.76	48.21	2,269,168.38
1982	1,502,504.90	82.00	18,323.06	48.89	895,811.26
1983	3,727,208.84	82.00	45,453.34	49.58	2,253,497.41
1984	1,314,947.27	82.00	16,035.79	50.27	806,131.44
1985	1,173,083.15	82.00	14,305.76	50.97	729,163.47
1986	3,784,676.26	82.00	46,154.16	51.67	2,384,842.67
1987	3,024,843.48	82.00	36,887.99	52.38	1,932,059.41
1988	7,991,266.29	82.00	97,453.56	53.09	5,173,348.93
1989	5,671,817.31	82.00	69,167.86	53.80	3,721,083.62
1990	4,702,782.97	82.00	57,350.48	54.52	3,126,570.67
1991	5,963,744.90	82.00	72,727.92	55.24	4,017,303.61
1992	2,702,862.53	82.00	32,961.43	55.96	1,844,567.55

Eversource Energy
Electric Division
366.00 Underground Conduit

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2025
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: *82* ***Survivor Curve:*** *R1.5*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1993	4,032,288.76	82.00	49,173.80	56.69	2,787,600.39
1994	4,534,069.69	82.00	55,293.02	57.42	3,175,011.57
1995	3,219,013.57	82.00	39,255.90	58.16	2,282,973.37
1996	3,609,194.62	82.00	44,014.16	58.89	2,592,167.63
1997	3,497,756.15	82.00	42,655.17	59.63	2,543,732.17
1998	4,342,647.09	82.00	52,958.62	60.38	3,197,571.13
1999	3,164,278.36	82.00	38,588.40	61.13	2,358,827.18
2000	3,098,420.86	82.00	37,785.27	61.88	2,338,089.88
2001	3,084,435.79	82.00	37,614.72	62.63	2,355,872.78
2002	6,325,906.10	82.00	77,144.48	63.39	4,890,019.63
2003	11,209,533.68	82.00	136,700.36	64.15	8,769,136.51
2004	3,831,910.14	82.00	46,730.18	64.91	3,033,303.14
2005	6,036,644.32	82.00	73,616.93	65.68	4,834,879.39
2006	4,492,045.92	82.00	54,780.54	66.44	3,639,845.47
2007	4,161,060.04	82.00	50,744.16	67.21	3,410,761.69
2008	7,792,478.94	82.00	95,029.35	67.99	6,461,084.07
2009	10,827,108.20	82.00	132,036.68	68.77	9,079,805.54
2010	12,913,314.34	82.00	157,477.98	69.55	10,952,108.17
2011	7,821,765.06	82.00	95,386.49	70.33	6,708,463.98
2012	12,670,008.43	82.00	154,510.86	71.12	10,988,199.87
2013	13,687,595.00	82.00	166,920.34	71.90	12,002,326.40
2014	13,865,718.73	82.00	169,092.56	72.70	12,292,303.34
2015	11,476,916.90	82.00	139,961.10	73.49	10,285,687.44
2016	12,713,189.99	82.00	155,037.46	74.29	11,517,150.64
2017	12,022,804.44	82.00	146,618.20	75.09	11,009,188.82
2018	23,176,321.01	82.00	282,635.43	75.89	21,449,237.46
2019	15,832,032.62	82.00	193,071.77	76.70	14,807,730.63

Eversource Energy
Electric Division
366.00 Underground Conduit

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2025
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: *82* ***Survivor Curve:*** *R1.5*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2020	12,430,970.05	82.00	151,595.79	77.50	11,749,205.03
2021	29,066,064.32	82.00	354,460.90	78.32	27,759,854.99
2022	38,457,593.75	82.00	468,990.68	79.13	37,111,098.82
2023	52,577,800.93	82.00	641,186.73	79.95	51,260,558.39
2024	38,927,077.09	82.00	474,716.03	80.77	38,340,787.49
2025	38,429,978.92	82.00	468,653.92	81.59	38,236,407.40
Total	525,717,993.31	82.00	6,411,135.38	69.64	446,453,237.54

Composite Average Remaining Life ... 69.64 Years

Eversource Energy
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, 2025
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: *55* ***Survivor Curve:*** *L0*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1914	10,029.07	55.00	182.35	18.19	3,317.14
1915	13,080.38	55.00	237.83	18.38	4,371.62
1916	30,026.69	55.00	545.96	18.57	10,140.05
1917	47,922.78	55.00	871.35	18.77	16,352.22
1918	11,842.07	55.00	215.32	18.96	4,082.77
1919	13,528.86	55.00	245.99	19.16	4,713.34
1920	13,562.63	55.00	246.60	19.36	4,773.66
1921	54,475.05	55.00	990.49	19.56	19,370.36
1922	26,553.68	55.00	482.81	19.76	9,538.71
1923	23,029.21	55.00	418.73	19.96	8,357.20
1924	81,001.09	55.00	1,472.79	20.17	29,699.15
1925	37,524.62	55.00	682.29	20.37	13,897.58
1926	62,354.34	55.00	1,133.75	20.57	23,326.72
1927	47,661.48	55.00	866.60	20.78	18,009.92
1928	12,184.98	55.00	221.55	20.99	4,650.71
1930	31,259.06	55.00	568.36	21.42	12,172.83
1931	75,772.49	55.00	1,377.72	21.63	29,801.01
1932	3,525.86	55.00	64.11	21.85	1,400.50
1933	47,498.04	55.00	863.63	22.06	19,053.97
1934	10,733.57	55.00	195.16	22.28	4,348.51
1935	5,881.29	55.00	106.94	22.50	2,406.54
1937	5,689.03	55.00	103.44	22.95	2,373.88
1938	3,890.51	55.00	70.74	23.17	1,639.34
1940	11,765.52	55.00	213.93	23.63	5,055.23
1941	12,308.15	55.00	223.79	23.86	5,340.45
1942	16,832.42	55.00	306.05	24.10	7,374.54
1945	1,272.61	55.00	23.14	24.80	573.94

Eversource Energy
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, 2025
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: *55* ***Survivor Curve:*** *L0*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1946	117,013.79	55.00	2,127.59	25.05	53,287.46
1947	94,737.63	55.00	1,722.56	25.29	43,558.81
1949	284,765.04	55.00	5,177.70	25.78	133,462.79
1950	63,436.02	55.00	1,153.42	26.02	30,016.77
1951	136,999.66	55.00	2,490.98	26.27	65,448.25
1952	64,783.24	55.00	1,177.91	26.53	31,247.03
1953	147,300.61	55.00	2,678.27	26.78	71,726.83
1955	45,722.99	55.00	831.35	27.29	22,691.57
1956	427,649.63	55.00	7,775.69	27.56	214,259.40
1957	465,377.38	55.00	8,461.67	27.82	235,395.13
1958	171,867.83	55.00	3,124.97	28.08	87,759.12
1959	39,828.75	55.00	724.18	28.35	20,530.40
1960	235,829.09	55.00	4,287.93	28.62	122,715.37
1961	110,255.13	55.00	2,004.70	28.89	57,916.02
1962	212,197.07	55.00	3,858.25	29.16	112,521.37
1964	571,621.05	55.00	10,393.43	29.72	308,882.96
1965	1,614,896.57	55.00	29,362.65	30.00	880,869.85
1966	1,149,868.93	55.00	20,907.35	30.28	633,133.05
1967	1,215,763.33	55.00	22,105.46	30.57	675,730.19
1968	1,451,700.07	55.00	26,395.35	30.86	814,499.20
1969	1,695,238.28	55.00	30,823.46	31.15	960,090.26
1970	2,015,537.01	55.00	36,647.25	31.44	1,152,227.82
1971	1,873,533.70	55.00	34,065.29	31.74	1,081,120.54
1972	2,548,954.47	55.00	46,346.04	32.04	1,484,699.23
1973	3,125,549.22	55.00	56,829.91	32.34	1,837,659.83
1974	4,139,073.21	55.00	75,258.18	32.64	2,456,467.79
1975	3,405,593.06	55.00	61,921.77	32.95	2,040,120.97

Eversource Energy
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, 2025
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: *55* ***Survivor Curve:*** *L0*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1976	3,889,387.73	55.00	70,718.30	33.26	2,351,791.87
1977	4,880,329.53	55.00	88,735.98	33.57	2,978,656.54
1978	4,546,522.67	55.00	82,666.58	33.88	2,800,937.53
1979	925,045.93	55.00	16,819.53	34.20	575,237.10
1980	2,659,240.35	55.00	48,351.30	34.52	1,669,124.71
1981	2,758,151.24	55.00	50,149.74	34.84	1,747,416.77
1982	4,537,962.32	55.00	82,510.93	35.17	2,901,925.16
1983	5,798,302.97	55.00	105,426.92	35.50	3,742,594.60
1984	7,537,432.54	55.00	137,048.42	35.83	4,910,678.42
1985	8,135,642.46	55.00	147,925.30	36.17	5,350,069.52
1986	9,589,609.96	55.00	174,361.88	36.51	6,365,196.46
1987	10,498,364.21	55.00	190,885.19	36.85	7,033,567.28
1988	18,559,086.28	55.00	337,448.25	37.19	12,550,290.85
1989	8,987,509.79	55.00	163,414.27	37.54	6,134,507.67
1990	10,816,799.32	55.00	196,675.09	37.89	7,452,212.23
1991	12,594,753.02	55.00	229,002.51	38.25	8,758,256.81
1992	6,097,866.56	55.00	110,873.69	38.60	4,280,041.09
1993	12,651,497.29	55.00	230,034.26	38.96	8,963,019.13
1994	9,853,644.10	55.00	179,162.65	39.33	7,046,148.95
1995	10,836,571.61	55.00	197,034.60	39.70	7,821,495.08
1996	12,241,084.90	55.00	222,571.99	40.07	8,917,879.65
1997	14,964,429.79	55.00	272,088.86	40.44	11,003,853.16
1998	11,952,942.04	55.00	217,332.87	40.82	8,871,619.15
1999	10,097,132.47	55.00	183,589.84	41.20	7,564,331.83
2000	10,885,847.00	55.00	197,930.55	41.59	8,231,584.05
2001	15,393,597.72	55.00	279,892.16	41.98	11,749,429.57
2002	24,514,253.82	55.00	445,727.34	42.37	18,887,197.99

Eversource Energy
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, 2025
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: *55* ***Survivor Curve:*** *L0*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2003	29,639,501.29	55.00	538,916.51	42.77	23,052,118.93
2004	33,879,970.53	55.00	616,018.31	43.18	26,600,959.63
2005	33,484,532.87	55.00	608,828.31	43.60	26,542,376.93
2006	34,429,672.39	55.00	626,013.19	44.02	27,555,009.42
2007	28,884,128.08	55.00	525,182.03	44.44	23,341,400.88
2008	44,688,025.96	55.00	812,534.42	44.88	36,467,587.54
2009	47,215,768.79	55.00	858,494.78	45.33	38,912,944.45
2010	37,242,614.92	55.00	677,159.17	45.78	31,001,708.72
2011	29,890,139.40	55.00	543,473.70	46.25	25,134,089.65
2012	49,039,110.32	55.00	891,647.46	46.72	41,659,078.40
2013	38,608,955.97	55.00	702,002.49	47.21	33,141,088.52
2014	38,501,314.91	55.00	700,045.32	47.71	33,398,998.86
2015	34,510,774.33	55.00	627,487.82	48.22	30,259,758.83
2016	35,279,990.44	55.00	641,473.99	48.75	31,273,262.00
2017	34,779,351.85	55.00	632,371.20	49.30	31,173,798.78
2018	46,891,910.82	55.00	852,606.28	49.86	42,507,923.46
2019	77,577,479.55	55.00	1,410,542.78	50.44	71,146,108.09
2020	69,401,312.02	55.00	1,261,880.64	51.04	64,410,384.48
2021	60,349,016.49	55.00	1,097,288.41	51.67	56,699,669.13
2022	58,221,070.02	55.00	1,058,597.29	52.33	55,397,421.14
2023	75,566,513.14	55.00	1,373,978.63	53.02	72,846,097.95
2024	78,954,277.93	55.00	1,435,576.24	53.76	77,172,052.79
2025	78,933,421.66	55.00	1,435,197.02	54.56	78,301,476.83
Total	1,380,308,159.54	55.00	25,097,279.72	46.80	1,174,548,558.42

Composite Average Remaining Life ... 46.80 Years

Eversource Energy
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, 2025
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: *25* ***Survivor Curve:*** *O3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1929	162.71	0.00	0.00	0.00	0.00
1931	869.40	24.66	35.26	0.99	34.82
1932	58.41	24.66	2.37	1.48	3.51
1933	1,791.57	24.66	72.66	1.98	143.51
1935	128.93	24.66	5.23	2.96	15.48
1936	3,726.29	24.66	151.13	3.45	521.57
1938	1,034.49	24.66	41.96	4.43	185.79
1939	1,111.17	24.66	45.07	4.91	221.46
1940	869.97	24.66	35.28	5.40	190.47
1941	2,867.44	24.66	116.30	5.88	683.86
1942	442.64	24.66	17.95	6.36	114.19
1943	1,395.97	24.66	56.62	6.84	387.18
1944	470.32	24.66	19.08	7.31	139.52
1945	417.88	24.66	16.95	7.79	131.99
1946	1,608.75	24.66	65.25	8.26	538.86
1947	1,605.56	24.66	65.12	8.73	568.30
1948	1,751.77	24.66	71.05	9.19	653.14
1949	3,208.43	24.66	130.13	9.66	1,256.50
1950	645.55	24.66	26.18	10.12	264.86
1951	4,641.35	24.66	188.25	10.57	1,990.27
1952	1,006.22	24.66	40.81	11.03	450.00
1953	2,106.79	24.66	85.45	11.48	980.67
1954	1,725.28	24.66	69.97	11.92	834.34
1955	10,925.56	24.66	443.12	12.37	5,479.94
1956	4,996.92	24.66	202.67	12.81	2,595.32
1957	14,175.66	24.66	574.94	13.24	7,612.82
1958	6,825.12	24.66	276.82	13.67	3,784.61

Eversource Energy
Electric Division
373.00 Street Lighting and Signal Systems
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Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: *25* ***Survivor Curve:*** *O3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1959	8,714.82	24.66	353.46	14.10	4,983.23
1960	26,746.77	24.66	1,084.81	14.52	15,751.76
1961	9,697.44	24.66	393.31	14.94	5,875.07
1962	7,088.06	24.66	287.48	15.35	4,412.65
1963	14,434.03	24.66	585.42	15.76	9,223.98
1964	12,353.08	24.66	501.02	16.16	8,095.18
1965	42,934.76	24.66	1,741.37	16.55	28,824.53
1966	25,198.49	24.66	1,022.01	16.94	17,315.19
1967	27,875.65	24.66	1,130.59	17.33	19,588.02
1968	42,182.65	24.66	1,710.86	17.70	30,285.86
1969	72,045.74	24.66	2,922.07	18.07	52,807.25
1970	104,142.96	24.66	4,223.88	18.43	77,865.52
1971	109,663.53	24.66	4,447.79	18.79	83,573.36
1972	82,812.83	24.66	3,358.76	19.14	64,278.09
1973	59,547.84	24.66	2,415.17	19.48	47,040.09
1974	35,294.70	24.66	1,431.50	19.81	28,355.20
1975	110,718.19	24.66	4,490.56	20.13	90,397.09
1976	115,384.88	24.66	4,679.84	20.44	95,673.60
1977	141,781.77	24.66	5,750.45	20.75	119,308.86
1978	131,558.58	24.66	5,335.82	21.04	112,275.51
1979	263,228.50	24.66	10,676.15	21.33	227,678.10
1980	186,119.70	24.66	7,548.73	21.60	163,047.59
1981	158,303.97	24.66	6,420.57	21.86	140,365.91
1982	143,046.49	24.66	5,801.75	22.11	128,295.35
1983	213,776.41	24.66	8,670.45	22.35	193,809.33
1984	178,799.95	24.66	7,251.85	22.58	163,750.45
1985	331,965.81	24.66	13,464.03	22.80	306,922.32

Eversource Energy
Electric Division
373.00 Street Lighting and Signal Systems
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Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: *25* ***Survivor Curve:*** *O3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1986	132,733.30	24.66	5,383.46	23.00	123,809.89
1987	269,004.86	24.66	10,910.43	23.19	252,986.39
1988	323,283.01	24.66	13,111.87	23.36	306,339.38
1989	209,712.97	24.66	8,505.64	23.53	200,101.33
1990	129,725.29	24.66	5,261.46	23.67	124,559.41
1991	204,300.65	24.66	8,286.12	23.81	197,274.81
1992	144,717.20	24.66	5,869.51	23.93	140,441.74
1993	125,098.55	24.66	5,073.81	24.03	121,934.86
1994	191,506.43	24.66	7,767.21	24.12	187,363.89
1995	165,172.79	24.66	6,699.16	24.20	162,105.63
1996	112,756.88	24.66	4,573.25	24.26	110,941.50
1997	165,575.33	24.66	6,715.48	24.31	163,221.41
1998	207,041.45	24.66	8,397.29	24.34	204,369.07
1999	117,860.14	24.66	4,780.23	24.36	116,427.46
2000	246,846.91	24.66	10,011.74	24.36	243,899.71
2001	193,330.93	24.66	7,841.21	24.35	190,966.65
2002	191,967.13	24.66	7,785.90	24.34	189,473.65
2003	467,774.07	24.66	18,972.21	24.31	461,142.85
2004	564,489.70	24.66	22,894.85	24.27	555,604.82
2005	738,844.38	24.66	29,966.41	24.22	725,825.41
2006	685,862.84	24.66	27,817.56	24.17	672,315.24
2007	703,073.13	24.66	28,515.58	24.11	687,562.29
2008	931,623.23	24.66	37,785.22	24.05	908,829.68
2009	557,412.94	24.66	22,607.82	23.99	542,428.99
2010	580,874.72	24.66	23,559.40	23.94	563,904.35
2011	771,319.74	24.66	31,283.56	23.88	747,118.74
2012	1,381,825.91	24.66	56,044.76	23.84	1,335,851.96

Eversource Energy
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, 2025
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: *25* ***Survivor Curve:*** *O3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2013	1,083,353.10	24.66	43,939.16	23.80	1,045,643.57
2014	911,413.28	24.66	36,965.54	23.77	878,691.00
2015	1,087,259.14	24.66	44,097.58	23.76	1,047,600.37
2016	1,128,609.95	24.66	45,774.71	23.76	1,087,463.87
2017	4,924,106.07	24.66	199,714.27	23.77	4,747,886.73
2018	7,303,762.95	24.66	296,229.54	23.81	7,052,387.51
2019	8,780,983.39	24.66	356,143.36	23.86	8,497,254.54
2020	6,154,493.06	24.66	249,616.90	23.93	5,973,267.58
2021	3,463,006.55	24.66	140,454.29	24.02	3,373,634.93
2022	7,425,436.03	24.66	301,164.42	24.13	7,266,579.33
2023	2,961,486.74	24.66	120,113.41	24.26	2,913,479.10
2024	2,494,270.92	24.66	101,163.84	24.40	2,468,646.35
2025	2,725,931.83	24.66	110,559.66	24.57	2,716,111.80
Total	63,683,835.24	24.39	2,582,913.10	23.84	61,575,029.83

Composite Average Remaining Life ... 23.84 Years