

STATE OF NEW HAMPSHIRE  
BEFORE THE  
PUBLIC UTILITIES COMMISSION

Docket No. DE 23-039

Liberty Utilities (Granite State Electric) Corp. d/b/a Liberty  
Distribution Service Rate Case  
Depreciation Study

DIRECT TESTIMONY

OF

JOHN J. SPANOS

President  
Gannett Fleming Valuation and Rate Consultants, LLC

May 5, 2023



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1 **I. INTRODUCTION**

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

3 A. My name is John J. Spanos. My business address is 207 Senate Avenue, Camp Hill,  
4 Pennsylvania.

5 **Q. What is your professional association?**

6 A. I am President, Gannett Fleming Valuation and Rate Consultants, LLC (“Gannett  
7 Fleming”). I have been associated with the firm since June 1986.

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

9 A. In this proceeding, I am testifying on behalf of Liberty Utilities (Granite State Electric)  
10 Corp. d/b/a Liberty (“Liberty” or the “Company”).

11 **Q. Please state your qualifications.**

12 A. I have over 36 years of depreciation experience, which includes providing expert  
13 testimony in more than 420 cases before approximately 46 regulatory commissions,  
14 including the New Hampshire Public Utilities Commission (“Commission”). These cases  
15 included depreciation studies in the electric, gas, water, wastewater, and pipeline  
16 industries. In addition to cases where I have submitted testimony, I have also supervised  
17 over 800 other depreciation or valuation assignments. Please refer to Attachment JJS-1  
18 which provides my qualification statement including further information with respect to  
19 my work history, case experience, and leadership in the Society of Depreciation  
20 Professionals.

1 **II. PURPOSE OF TESTIMONY**

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

3 A. The purpose of my testimony is to present the depreciation study performed for Liberty  
4 provided herewith as Attachment JJS-2 (Liberty 2022 Depreciation Study). The  
5 Depreciation Study sets forth the calculated annual depreciation accrual rates by account  
6 as of December 31, 2022, for all electric plant.

7 **Q. What is the Company requesting the Commission to approve with regard to**  
8 **depreciation rates for the Company?**

9 A. The Company is requesting that the Commission review and approve in this proceeding  
10 the depreciation rates developed based on the Liberty 2022 Depreciation Study  
11 (Attachment JJS-2).

12 **Q. Please summarize the impact of the Liberty 2022 Depreciation Study on the**  
13 **Company’s depreciation rates.**

14 A. The table below sets forth a comparison of the current depreciation rates and resultant  
15 expense to the proposed depreciation rates and expense, by function, as of December 31,  
16 2022, for the Company.

17 *Table 1. Current and Proposed Rates*

<u>Function</u>	<u>Current</u>		<u>Proposed</u>	
	<u>Rates</u>	<u>Proforma Expense</u>	<u>Rates</u>	<u>Expense</u>
Intangible	12.07	3,460,647	6.99	2,002,295
Distribution	3.40	9,840,331	3.01	8,704,271
General	3.96	1,077,370	3.65	991,414
Total		\$14,378,348		\$11,697,980

1 **Q. Would you explain some of the major factors that caused the change in depreciation**  
2 **rates?**

3 A. Yes. The major components that caused rates to change by function are as follows:

- 4 • **Intangible Plant:** Assets are amortized by type of software application, based on  
5 the amortization period established by the Company. Although there has been  
6 substantial growth related to software applications, the driver of the overall  
7 decrease in depreciation expense for Intangible Plant is the increase of assets  
8 classified in the new 20-year subaccount.
- 9 • **Distribution Plant:** The primary reason for an overall lower expense for  
10 distribution accounts relates to generally longer average service lives for many  
11 accounts. There is an increase for Account 370, Meters.
- 12 • **General Plant:** Depreciation expense has decreased, and the primary reason is  
13 longer lives for Account 392, Transportation Equipment, and Account 396, Power  
14 Operated Equipment.

15 **Q. Are the recommended depreciation accrual rates presented in your study**  
16 **reasonable and applicable to the plant in service as of December 31, 2022?**

17 A. Yes, they are. Based on the Liberty 2022 Depreciation Study, I am recommending  
18 depreciation rates using the December 31, 2022, plant and reserve balances for approval.

1 **III. DEPRECIATION STUDY**

2 **Q. Please define the concept of depreciation.**

3 A. Depreciation refers to the loss in service value not restored by current maintenance,  
4 incurred in connection with the consumption or prospective retirement of utility plant in  
5 the course of service from causes which are known to be in current operation, against  
6 which the Company is not protected by insurance. Among the causes to be given  
7 consideration are wear and tear, decay, action of the elements, obsolescence, changes in  
8 the art, changes in demand, and the requirements of public authorities.

9 **Q. Please identify the Liberty 2022 Depreciation Study.**

10 A. The study is a report entitled, “2022 Depreciation Study - Calculated Annual  
11 Depreciation Accruals Related to Electric Plant as of December 31, 2022.” This report  
12 sets forth the results of my depreciation analysis for Liberty. The study was prepared,  
13 and the analyses that underlie the study were conducted, under my direction and  
14 supervision.

15 **Q. Is Attachment JJS-2 a true and accurate copy of your depreciation Sstudy?**

16 A. Yes.

17 **Q. Does Attachment JJS-2 accurately portray the results of your depreciation study as  
18 of December 31, 2022?**

19 A. Yes.



1 **Q. What was the purpose of your depreciation study?**

2 A. The purpose of the Liberty 2022 Depreciation Study was to estimate the annual  
3 depreciation accruals related to electric plant in service for financial and ratemaking  
4 purposes and determine appropriate average service lives and net salvage percentages for  
5 each plant account.

6 **Q. Are the methods and procedures of the Liberty 2022 Depreciation Study consistent**  
7 **with industry practices?**

8 A. Yes, the methods and procedures of this study are generally in accordance with industry  
9 standards. Both the existing rates and the rates determined in the Liberty 2022  
10 Depreciation Study are based on the average service life procedure. The development of  
11 depreciation rates uses the remaining life method with the average service life procedure  
12 which is the most common method and procedure combination across the United States.

13 **Q. Please describe the contents of Attachment JJS-2.**

14 A. My report is presented in nine parts. Part I, Introduction, describes the scope and basis  
15 for the Liberty 2022 Depreciation Study. Part II, Estimation of Survivor Curves, includes  
16 descriptions of the methodology of estimating survivor curves. Parts III and IV set forth  
17 the analysis for determining life and net salvage estimation. Part V, Calculation of  
18 Annual and Accrued Depreciation, includes the concepts of depreciation and  
19 amortization using the remaining life method. Part VI, Results of Study, presents a  
20 description of the results and a summary of the depreciation calculations. Parts VII, VIII,

1 and IX include graphs and tables that relate to the service life and net salvage analyses,  
2 and the detailed depreciation calculations.

3 The table on page VI-4 of Attachment JJS-2 presents the estimated survivor curve, the  
4 net salvage percent, the original cost as of December 31, 2022, the book depreciation  
5 reserve, and the calculated annual depreciation accrual and rate for each account or  
6 subaccount. The section beginning on page VII-2 presents the results of the retirement  
7 rate analyses prepared as the historical bases for the service life estimates. The section  
8 beginning on page VIII-2 presents the results of the salvage analysis. The section  
9 beginning on page IX-2 presents the depreciation calculations related to surviving  
10 original cost as of December 31, 2022.

11 **Q. Please explain how you performed your depreciation study.**

12 A. I used the straight-line remaining life method of depreciation, with the average service  
13 life procedure. The annual depreciation is based on a method of depreciation accounting  
14 that seeks to distribute the unrecovered cost of fixed capital assets over the estimated  
15 remaining useful life of each unit, or group of assets, systematically and rationally.

16 **Q. How did you determine the recommended annual depreciation accrual rates?**

17 A. I did this in two phases. In the first phase, I estimated the service life and net salvage  
18 characteristics for each depreciable group, that is, each plant account or subaccount was  
19 identified as having similar characteristics. In the second phase, I calculated the  
20 composite remaining lives and annual depreciation accrual rates based on the service life  
21 and net salvage estimates determined in the first phase.

1 **Q. Please describe the first phase of the Liberty 2022 Depreciation Study, in which you**  
2 **estimated the service life and net salvage characteristics for each depreciable group.**

3 A. The service life and net salvage studies consisted of compiling historic data from records  
4 related to Liberty's plant; analyzing these data to obtain historic trends of survivor and  
5 net salvage characteristics; obtaining supplementary information from Liberty  
6 management personnel and operating personnel concerning practices and plans as they  
7 relate to plant operations; and interpreting the above data based on my experience and in  
8 reference to estimates used by other electric utilities to form judgments of average service  
9 life and net salvage characteristics.

10 **Q. What historical data did you rely on to estimate service life characteristics?**

11 A. I analyzed accounting entries for the Company relating to plant additions, transfers, and  
12 retirements recorded through 2022. The records of the Company also included surviving  
13 dollar value by year installed for each plant account as of December 31, 2022.

14 **Q. Were there any accounts that had additional analyses performed?**

15 A. Yes. During the conduct of the depreciation study, it was determined that many of the  
16 retirements in Account 368, Line Transformers, had not be recorded as of December 31,  
17 2022. Therefore, the historical data through 2022 and the projected retirement data to be  
18 recorded in 2023 were combined to establish a more appropriate statistical analysis. The  
19 statistical analysis is outlined in Part VII of the Liberty 2022 Depreciation Study.

1 **Q. What method did you use to analyze this service life data?**

2 A. I used the retirement rate method for all accounts. This is the most appropriate method  
3 when aged retirement data are available because this method determines the average rates  
4 of retirement experienced by the Company during the period covered by the study.

5 **Q. Would you explain how you used the retirement rate method to analyze Liberty's**  
6 **service life data?**

7 A. I applied the retirement rate method to each group of property in the Liberty 2022  
8 Depreciation Study. For each property group, I used the retirement rate method to form a  
9 life table, which, when plotted, shows an original survivor curve for that property group.  
10 Each original survivor curve represents the average survivor pattern experienced by the  
11 several vintage groups during the experienced band studied. The survivor patterns do not  
12 necessarily describe the life characteristics of the property group; therefore, interpretation  
13 of the original survivor curves is required to use them as valid considerations in  
14 estimating service life. The Iowa-type Survivor Curves were used to perform these  
15 interpretations.

16 **Q. What is an "Iowa-type Survivor Curve" and how did you use such curves to**  
17 **estimate the service life characteristics for each property group?**

18 A. Iowa-type Survivor Curves are a widely used group of generalized survivor curves that  
19 contain the range of survivor characteristics usually experienced by utilities and other  
20 industrial companies. The Iowa curves were developed at the Iowa State College  
21 Engineering Experiment Station through an extensive process of observing and

1 classifying the ages at which various types of property used by utilities and other  
2 industrial companies have been retired.

3 Iowa-type curves are used to smooth and extrapolate original survivor curves determined  
4 by the retirement rate method. The Liberty 2022 Depreciation Study used Iowa curves  
5 and truncated Iowa curves to describe the forecasted rates of retirement based on the  
6 observed rates of retirement and the outlook for future retirements.

7 The estimated survivor curve designations for each depreciable property group indicate  
8 the average service life, the family within the Iowa system to which the property group  
9 belongs, and the relative height of the mode. For example, the Iowa 50-R2 indicates an  
10 average service life of fifty years; a right-moded, or R type curve (the mode occurs after  
11 average life for right-moded curves); and a low height, 2.0, for the mode (possible modes  
12 for R type curves range from 0.5 to 5).

13 **Q. Did you physically observe Liberty's plant and equipment as part of this**  
14 **Depreciation Study?**

15 A. Yes. I made field reviews of Liberty's property as part of the study during March 2023 to  
16 observe representative portions of plant. Field reviews are conducted to become familiar  
17 with the operations of the Company and obtain an understanding of the function of the  
18 plant and information with respect to the reasons for past retirements and the expected  
19 future causes of retirements. This knowledge, as well as information from other  
20 discussions with Liberty management, was incorporated into the interpretation and  
21 extrapolation of the statistical analyses.

1 **Q. How did your experience in the development of other depreciation studies affect**  
2 **your work in this case for Liberty?**

3 A. Because I customarily conduct field reviews for my depreciation studies, I have had the  
4 opportunity to visit scores of similar facilities and meet with management and operations  
5 personnel at many other companies. The knowledge I have accumulated from those  
6 visits and meetings provides me with useful information to draw upon to confirm or  
7 challenge my numerical analyses concerning asset condition and remaining life estimates.

8 **Q. Are the factors considered in your estimates of service life and net salvage percent**  
9 **presented in Attachment JJS-2?**

10 A. Yes. A discussion of the factors considered in the estimation of service lives and net  
11 salvage percent are presented in Parts III and IV of the study.

12 **Q. Please describe the concept of “net salvage.”**

13 A. Net salvage is a component of the service value of capital assets that is recovered through  
14 depreciation rates. The service value of an asset is its original cost less its net salvage.  
15 Net salvage is the salvage value received for the asset upon retirement less the cost to  
16 retire the asset. When the cost to retire the asset exceeds the salvage value, the result is  
17 negative net salvage.

18 Because depreciation expense is the loss in service value of an asset during a defined  
19 period (e.g., one year), it must include a ratable portion of both the original cost of the  
20 asset and the net salvage. That is, the net salvage related to an asset should be  
21 incorporated in the cost of service during the same period as its original cost, so that

1 customers receiving service from the asset pay rates that include a portion of both  
2 elements of the asset's service value, the original cost and the net salvage value. For  
3 example, the full-service value of a \$5,000 circuit breaker may also include \$800 of the  
4 cost of removal and \$50 gross salvage, for a total service value of \$5,750. In this  
5 example, the net salvage component is negative \$750 ( $\$50 - \$800$ ), and the net salvage  
6 percent is negative 15% ( $(\$50 - \$800)/\$5,000$ ).

7 **Q. Please describe how you estimated net salvage percentages.**

8 A. I estimated the net salvage percentages by incorporating each Company's actual  
9 historical data through 2022 and considered industry experience of net salvage estimates  
10 for other electric companies. The net salvage percentages in the Liberty 2022  
11 Depreciation Study are based on a combination of statistical analyses and informed  
12 judgment. The statistical analyses consider the cost of removal and gross salvage ratios  
13 to the associated retirements during the 11-year period for Liberty. Trends of these data  
14 are also measured based on three-year moving averages and the most recent five-year  
15 indications.

16 **Q. Please describe the second phase of the process that you used in the Liberty 2022**  
17 **Depreciation Study in which you calculated composite remaining lives and annual**  
18 **depreciation accrual rates.**

19 A. After I estimated the service life and net salvage characteristics for each depreciable  
20 property group, I calculated the annual depreciation accrual rates for each group based on  
21 the straight-line remaining life method, using remaining lives weighted consistent with

1 the average service life procedure. The calculation of annual depreciation accrual rates  
2 was developed as of December 31, 2022.

3 **Q. Please describe the straight-line remaining life method of depreciation.**

4 A. The straight-line remaining life method of depreciation allocates the original cost of the  
5 property, less accumulated depreciation, less future net salvage, in equal amounts to each  
6 year of remaining service life.

7 **Q. Please describe the average service life procedure for calculating remaining life  
8 accrual rates.**

9 A. The average service life procedure defines the group or account for which the remaining  
10 life annual accrual is determined. Under this procedure, the annual accrual rate is  
11 determined for the entire group or account based on its average remaining life, and the  
12 rate is then applied to the surviving balance of the group's cost. The average remaining  
13 life of the group is calculated by first dividing the future book accruals (original cost less  
14 allocated book reserve less future net salvage) by the average remaining life for each  
15 vintage. The average remaining life for each vintage is derived from the area under the  
16 survivor curve between the attained age of the vintage and the maximum age. The sum  
17 of the future book accruals is then divided by the sum of the annual accruals to determine  
18 the average remaining life of the entire group for use in calculating the annual  
19 depreciation accrual rate.



1 **Q. Please describe amortization accounting in contrast to depreciation accounting.**

2 A. Amortization accounting is used for accounts with a large number of units, but small  
3 asset values. In amortization accounting, units of property are capitalized in the same  
4 manner as they are in depreciation accounting. However, depreciation accounting is  
5 difficult for these types of assets because depreciation accounting requires periodic  
6 inventories to properly reflect plant in service. Consequently, amortization accounting is  
7 used for these types of assets, such that retirements are recorded when a vintage is fully  
8 amortized rather than as the units are removed from service. That is, there is no  
9 dispersion of retirements in amortization accounting. All units are retired when the age  
10 of the vintage reaches the amortization period. Each plant account or group of assets is  
11 assigned a fixed period that represents an anticipated life during which the asset will  
12 render full benefit. For example, in amortization accounting, assets that have a 20-year  
13 amortization period will be fully recovered after 20 years of service and taken off the  
14 company's books at that time, but not necessarily removed from service. In contrast,  
15 assets that are taken out of service before 20 years remain on the books until the  
16 amortization period for that vintage has expired.

17 **Q. Is amortization accounting being utilized for certain plant accounts?**

18 A. Yes. However, amortization accounting is only appropriate for certain General Plant  
19 accounts. The Liberty General Plant accounts are 391.00, 391.10, 391.20, 393.00,  
20 394.00, 395.00, 397.00, 397.10, and 398.00. These accounts represent less than two  
21 percent of the Company's depreciable plant.

1 **Q. Please provide an example to illustrate the development of the annual depreciation**  
2 **accrual rate for a particular group of property in your Depreciation Study.**

3 A. I will use the Company's Account 365.00, Overhead Conductors and Devices, as an  
4 example because it is the largest depreciable group. The retirement rate method was used  
5 to analyze the survivor characteristics of this property group. Aged plant accounting data  
6 were compiled from 2004 through 2022 and analyzed to best represent the overall service  
7 life of this property. The life tables for the 2004–2022 and 2010–2022 experience bands  
8 are presented on pages VII-18 through VII-21 of Exhibit-JJS-2. The life table displays  
9 the retirement and surviving ratios of the aged plant data exposed to retirement by age  
10 interval. For example, page VII-18 shows \$88,586 retired during the age interval 0.5-1.5  
11 with \$60,023,662 exposed to retirement at the beginning of the interval. Consequently,  
12 the retirement ratio is 0.0015 ( $\$88,586/\$60,3,662$ ) and the surviving ratio is 0.9985 (1-  
13 .0015). The percent surviving at age 0.5 of .9993 percent is multiplied by the survivor  
14 ratio of 99.85 to derive the percent surviving at age 1.5 of 99.78 percent. This process  
15 continues for the remaining age intervals for which plant was exposed to retirement  
16 during the period 2004–2022. The resultant life tables, or original survivor curves, are  
17 plotted along with the estimated smooth survivor curve, the 50-R2 on page VII-17.

18 The net salvage percent is presented on page VIII-4 of Attachment JJS-2. The percentage  
19 is based on the result of annual gross salvage minus the cost to remove plant assets as  
20 compared to the original cost of plant retired during the period 2015 through 2022. The  
21 8-year period experienced negative \$1,120,512 ( $\$45,853 - \$1,166,365$ ) in net salvage for  
22 \$1,510,169 plant retired. The result is negative net salvage of 74 percent

1 (\$1,120,512/\$1,510,169); and the most recent five-year average is negative 46 percent.

2 Therefore, based on the statistics for this account, the three-year rolling averages, the  
3 trend in recent years, as well as the estimates of other electric companies, the  
4 recommended net salvage for overhead conductors and devices is negative 50 percent.

5 My calculation of the annual depreciation related to the original cost of Account 365.00,  
6 Overhead Conductors and Devices as of December 31, 2022, is presented on pages IX-12  
7 through IX-13 of Attachment JJS-2. The calculation is based on the 50-R2 survivor  
8 curve, the negative net salvage of 50 percent, the attained age, and the allocated book  
9 reserve. The tabulation sets forth the installation year, the original cost, calculated  
10 accrued depreciation, allocated book reserve, future accruals, remaining life, and annual  
11 accrual. These totals are brought forward to the table on page VI-4.

12 **Q. Please compare the proposed depreciation expense to the current pro-forma**  
13 **depreciation expense as of December 31, 2022.**

14 A. Attachment JJS-3 sets forth the proposed versus current depreciation expense as of  
15 December 31, 2022, for the Company. The overall change reflected in the Liberty  
16 Depreciation Study is a decrease of \$2.7 million annually.

17 **Q. In your opinion, are the depreciation rates outlined in Attachment JJS-2 the**  
18 **appropriate rates for the Commission to adopt in this proceeding for Liberty?**

19 A. Yes. These rates appropriately reflect the rates at which the value of the Company's  
20 assets is being consumed over their useful lives. These rates are an appropriate basis for

1 setting electric rates in this matter and for the Company to use for booking depreciation  
2 and amortization expense going forward.

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

4 A. Yes.