BEFORE THE SOUTH DAKOTA PUBLIC UTILITIES COMMISSION

DIRECT TESTIMONY
OF
JOHN J. SPANOS

ON BEHALF OF
NORTHWESTERN
ENERGY PUBLIC SERVICE
CORPORATION

June 21, 2024

I. INTRODUCTION

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

A. My name is John J. Spanos. My business address is 207 Senate Avenue, Camp Hill, Pennsylvania, 17011.

Q. **In what capacity are you employed?**

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

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

A. I am testifying on behalf of NorthWestern Energy.

Q. **Please describe your educational background and professional experience.**

A. I have Bachelor of Science degrees in Industrial Management and Mathematics from Carnegie-Mellon University and a Master of Business Administration from York College. I have over 37 years of depreciation experience which includes giving expert testimony in more than 460 cases before 46 regulatory commissions, including this Commission. These cases have included depreciation studies in the electric, gas, water, wastewater, and pipeline industries. In addition to cases where I have submitted testimony, I have also supervised over 800 other depreciation or valuation assignments. Please refer to Appendix A for my qualifications statement, which includes further information with respect to my work history, case experience, and leadership in the Society of Depreciation Professionals.

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

A. I sponsor the Depreciation Study performed for NorthWestern Energy attached as Exhibit JJS-1 (Depreciation Study).

Q. **Are you sponsoring any other exhibits other than JJS-1?**

| 1 | A. | No, I am not. |

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II.   DEPRECIATION STUDY

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3   **Q.   Please describe the Depreciation Study that you sponsor.**

4   A.   The Depreciation Study sets forth the calculated annual depreciation accrual rates by

5   account as of December 31, 2022. The proposed rates appropriately reflect the rates

6   at which NorthWestern's assets should be depreciated over their useful lives and are

7   based on the most commonly used methods and procedures for determining

8   depreciation rates.

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

10 A.   Depreciation refers to the loss in service value not restored by current maintenance,

11   incurred in connection with the consumption or prospective retirement of utility plant

12   in the course of service from causes which are known to be in current operation,

13   against which the company is not protected by insurance. Among the causes to be

14   given consideration are wear and tear, decay, action of the elements, inadequacy,

15   obsolescence, changes in the art, changes in demand and the requirements of public

16   authorities.

17 **Q.   Did you prepare the Depreciation Study filed by NorthWestern in this**

18   **proceeding?**

19 A.   Yes. I prepared the Depreciation Study submitted by NorthWestern with its filing in

20   this proceeding. The Depreciation Study is entitled: 2022 Depreciation Study -

21   Calculated Annual Depreciation Accruals Related to Electric, Gas and Common Plant

22   as of December 31, 2022. The assets in the study include electric, gas and common

23   property in both Nebraska and South Dakota, however, only the South Dakota gas

24   assets are a component of this filing. This report sets forth the results of my

1   Depreciation Study for NorthWestern and has been included as Exhibit JJS-1.

2   **Q.**   **In preparing the Depreciation Study, did you follow generally accepted practices**

3   **in the field of depreciation valuation?**

4   A.   Yes.

5   **Q.**   **Are the methods and procedures of this Depreciation Study consistent with past**

6   **practices?**

7   A.   The methods and procedures of this study are the same as those utilized in past studies

8   of this Company as well as others before this Commission. Depreciation rates are

9   determined based on the average service life procedure and the remaining life method.

10 **Q.**   **Please describe the contents of the Depreciation Study.**

11 A.   The Depreciation Study is presented in nine parts: Part I, Introduction, presents the

12   scope and basis for the Depreciation Study. Part II, Estimation of Survivor Curves,

13   includes descriptions of the methodology of estimating survivor curves. Parts III and

14   IV set forth the analysis for determining service life and net salvage estimates. Part V,

15   Calculation of Annual and Accrued Depreciation, includes the concepts of

16   depreciation and amortization using the remaining life. Part VI, Results of Study,

17   presents a description of the results of my analysis and a summary of the depreciation

18   calculations. Parts VII, VIII and IX include graphs and tables that relate to the service

19   life and net salvage analyses, and the detailed depreciation calculations by account.

20   The table on pages VI-4 through VI-7 of the Depreciation Study presents the

21   estimated survivor curve, the net salvage percent, the original cost as of December 31,

22   2022, the book depreciation reserve and the calculated annual depreciation accrual and

23   rate for each account or subaccount. The section beginning on page VII-2 presents the

24   results of the retirement rate analyses prepared as the historical bases for the service

1		life estimates. The section beginning on page VIII-2 presents the results of the net
2		salvage analysis. The section beginning on page IX-2 presents the depreciation
3		calculations related to surviving original cost as of December 31, 2022.
4	Q.	**Please explain how you performed your Depreciation Study.**
5	A.	I used the straight-line remaining life method of depreciation, with the average service
6		life procedure. The annual depreciation is based on a method of depreciation
7		accounting that seeks to distribute the unrecovered cost of fixed capital assets over the
8		estimated remaining useful life of each unit, or group of assets, in a systematic and
9		reasonable manner.
10	Q.	**How did you determine the recommended annual depreciation accrual rates?**
11	A.	I did this in two phases. In the first phase, I estimated the service life and net salvage
12		characteristics for each depreciable group, that is, each plant account or subaccount
13		identified as having similar characteristics. In the second phase, I calculated the
14		composite remaining lives and annual depreciation accrual rates based on the service
15		life and net salvage estimates determined in the first phase.
16	Q.	**Please describe the first phase of the Depreciation Study, in which you estimated**
17		**the service life and net salvage characteristics for each depreciable group.**
18	A.	The service life and net salvage study consisted of compiling historical data from
19		records related to NorthWestern's plant; analyzing these data to obtain historical trends
20		of survivor characteristics; obtaining supplementary information from management
21		and operating personnel concerning practices and plans as they relate to plant
22		operations; and interpreting the above data and the estimates used by other electric and
23		gas utilities to form judgments of average service life and net salvage characteristics.
24	Q.	**What historical data did you analyze for the purpose of estimating service life**

1		**characteristics?**
2	A.	Generally speaking, I analyzed the Company's accounting entries that record plant
3		transactions during the 1990 through 2022 period for electric, gas and common plant
4		by account. The transactions included additions, retirements, transfers, sales, and the
5		related balances.
6	**Q.**	**What method did you use to analyze these service life data?**
7	A.	I used the retirement rate method for most plant accounts. This is the most appropriate
8		method when retirement data covering a long period of time is available because this
9		method determines the average rates of retirement actually experienced by the
10		Company during the period of time covered by the Depreciation Study.
11	**Q.**	**Please describe how you used the retirement rate method to analyze**
12		**NorthWestern's service life data.**
13	A.	I applied the retirement rate analysis to each different group of property in the study.
14		For each property group, I used the retirement rate data to form a life table which,
15		when plotted, shows an original survivor curve for that property group. Each original
16		survivor curve represents the average survivor pattern experienced by the several
17		vintage groups during the experience band studied. The survivor patterns do not
18		necessarily describe the life characteristics of the property group; therefore,
19		interpretation of the original survivor curves is required in order to use them as valid
20		considerations in estimating service life. The Iowa-type survivor curves were used to
21		perform these interpretations.
22	**Q.**	**What is an "Iowa-type survivor curve" and how did you use such curves to**
23		**estimate the service life characteristics for each property group?**
24	A.	Iowa-type curves are a widely-used group of survivor curves that contain the range of

1   survivor characteristics usually experienced by utilities and other industrial

2   companies. The Iowa-type curves were developed at the Iowa State College

3   Engineering Experiment Station through an extensive process of observing and

4   classifying the ages at which various types of property used by utilities and other

5   industrial companies had been retired.

6   Iowa-type curves are used to smooth and extrapolate original survivor curves

7   determined by the retirement rate method. The Iowa-type curves and truncated Iowa-

8   type curves were used in this study to describe the forecasted rates of retirement based

9   on the observed rates of retirement and the outlook for future retirements.

10   The estimated survivor curve designations for each depreciable property group

11   indicate the average service life, the family within the Iowa system to which the

12   property group belongs, and the relative height of the mode. For example, the Iowa

13   55-R3 indicates an average service life of fifty-five years; a right-moded, or R, type

14   curve (the mode occurs after average life for right-moded curves); and a moderate

15   height, 3, for the mode (possible modes for R type curves range from 0.5 to 5).

16   **Q.   Did you physically observe NorthWestern's plant and equipment during your**

17   **depreciation study?**

18   A.   Yes. I made field reviews of NorthWestern's property as part of this study in

19   November 2022 to observe representative portions of plant. Field reviews are

20   conducted to become familiar with company operations and obtain an understanding

21   of the function of the plant and information with respect to the reasons for past

22   retirements and the expected future causes of retirements. This knowledge as well as

23   information from other discussions with management was incorporated in the

24   interpretation and extrapolation of the statistical analyses.

1	Q.	**Please describe how you estimated net salvage percentages.**
2	A.	I estimated the net salvage percentages by incorporating the historical data for the
3		period 1990 through 2022 and considered estimates for other electric and gas
4		companies. The net salvage percentages are based on a combination of statistical
5		analyses and informed judgment. The statistical analyses consider the cost of removal
6		and gross salvage ratios to the associated retirements during the 33-year period.
7		Trends of these data are also measured based on three-year moving averages and the
8		most recent five-year indications.
9	Q.	**Please describe the second phase of the process that you used in the Depreciation**
10		**Study in which you calculated composite remaining lives and annual depreciation**
11		**accrual rates.**
12	A.	After I estimated the service life and net salvage characteristics for each depreciable
13		property group, I calculated the annual depreciation accrual rates for each group, using
14		the straight-line remaining life method, and using remaining lives weighted consistent
15		with the average service life procedure.
16	Q.	**Please describe the straight-line remaining life method of depreciation.**
17	A.	The straight-line remaining life method of depreciation allocates the original cost of
18		the property, less accumulated depreciation, less future net salvage, in equal amounts
19		to each year of remaining service life.
20	Q.	**Please use an example to illustrate how the annual depreciation accrual rate for**
21		**a particular group of property is presented in your Depreciation Study.**
22	A.	I will use Gas Account 380.10, Services - Plastic, as an example because it is one of
23		the largest depreciable mass accounts and represents approximately twenty-three
24		percent of total gas depreciable plant.

1   The retirement rate method was used to analyze the survivor characteristics of

2   this property group. Aged plant accounting data was compiled from 1990 through

3   2022 and analyzed in periods that best represent the overall service life of this property.

4   The life table for the 1990-2022 experience band is presented on pages VII-136 and

5   VII-137 of the report. The life table displays the retirement and surviving ratios of the

6   aged plant data exposed to retirement by age interval. For example, page VII-136

7   shows $13,772 retired at age 0.5 with $52,317,910 exposed to retirement.

8   Consequently, the retirement ratio is 0.0003 and the surviving ratio is 0.9997. This

9   life table, or original survivor, is plotted along with the estimated smooth survivor

10   curve, the 55-R3 on page VII-135.

11   The net salvage percent is presented on pages VIII-80 and VIII-81. The

12   percentage is based on the result of annual gross salvage minus the cost to remove

13   plant assets as compared to the original cost of plant retired during the period 2002

14   through 2022. The 21-year period experienced $2,166,709 ($4,570-$2,171,280) in net

15   salvage for $1,506,176 plant retired. The result is negative net salvage of 144 percent

16   ($2,166,709/$1,506,176). The most recent five-year period, 2018-2022, has shown

17   indications of more negative (negative 266 percent), therefore, it was determined that

18   based on industry ranges, the current estimate for the Company and future

19   expectations, negative 100 percent was the most appropriate estimate.

20   My calculation of the annual depreciation related to the original cost as of

21   December 31, 2022, of gas plant is presented on page IX-83. The calculation is based

22   on the 55-R3 survivor curve, 100 percent negative net salvage, the attained age, and

23   the allocated book reserve. The tabulation sets forth the installation year, the original

24   cost, calculated accrued depreciation, allocated book reserve, future accruals,

1		remaining life and annual accrual. These totals are brought forward to the table on
2		page VI-6.
3		**III. CONCLUSION**
4	**Q.**	**Was the Depreciation Study filed by NorthWestern Energy in this proceeding**
5		**prepared by you or under your direction and control?**
6	A.	Yes.
7	**Q.**	**Can you summarize the results of your Depreciation Study?**
8	A.	Yes. The depreciation rates as of December 31, 2022, appropriately reflect the rates
9		at which the values of NorthWestern's assets have been consumed over their useful
10		lives to date. These rates are based on the most commonly used methods and
11		procedures for determining depreciation rates. The life and net salvage parameters are
12		based on widely used techniques and the depreciation rates are based on the average
13		service life procedure and remaining life method. Therefore, the depreciation rates set
14		forth on pages VI-4 through VI-7 of Exhibit JJS-1 represent the calculated rates as of
15		December 31, 2022.
16	**Q.**	**Does this conclude your pre-filed direct testimony?**
17	A.	Yes.