

**BEFORE THE PUBLIC UTILITIES COMMISSION
FOR THE STATE OF SOUTH DAKOTA**

IN RE:)
MIDAMERICAN ENERGY COMPANY) **DOCKET NO. NG22-_____**
)
)

**DIRECT TESTIMONY
OF
JOHN J. SPANOS**

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I. INTRODUCTION

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

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

4 **Q. Are you associated with any firm?**

5 A. Yes, I am associated with the firm of Gannett Fleming Valuation and Rate
6 Consultants, LLC (“Gannett Fleming” or “Firm”).

7 **Q. How long have you been associated with Gannett Fleming?**

8 A. I have been associated with Gannett Fleming since June 1986.

9 **Q. What is your position with the Firm?**

10 A. I am the Firm’s President.

11 **Q. What is your educational background?**

12 A. I have Bachelor of Science degrees in Industrial Management and Mathematics from
13 Carnegie-Mellon University and a Master of Business Administration from York
14 College.

15 **Q. Do you belong to any professional societies?**

16 A. Yes, I am a member and past President of the Society of Depreciation Professionals.
17 I am also a member of the American Gas Association/Edison Electric Institute
18 Industry Accounting Committee.

19 **Q. Do you hold any special certification as a depreciation expert?**

20 A. Yes, the Society of Depreciation Professionals has established national standards for
21 depreciation professionals. The Society administers an examination to become

1 certified in this field. I passed the certification exam in September 1997 and was
2 recertified in August 2003, February 2008, January 2013, and February 2018.

3 **Q. Can you outline your experience in the field of depreciation?**

4 A. Yes, I have over 35 years of depreciation experience which includes giving expert
5 testimony in over 390 cases before 41 regulatory commissions, including the South
6 Dakota Public Utilities Commission. These cases included depreciation studies in the
7 electric, gas, water, wastewater, and pipeline industries. In addition to cases where I
8 have submitted testimony, I have also supervised over 700 other depreciation or
9 valuation assignments. Please refer to Exhibit JJS 1.1, Schedule 1 for my
10 qualification statement, which includes further information with respect to my work
11 history, case experience, and leadership in the Society of Depreciation Professionals.

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

13 A. I sponsor the depreciation study of MidAmerican Energy Company's
14 ("MidAmerican" or "Company") gas distribution and general plant and the
15 development of the appropriate depreciation reserve and expense for the South
16 Dakota assets.

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

18 A. Depreciation refers to the loss in service value not restored by current maintenance,
19 incurred in connection with the consumption or prospective retirement of utility plant
20 in the course of service from causes which are known to be in current operation,
21 against which the Company is not protected by insurance. Among the causes to be
22 given consideration are wear and tear, decay, action of the elements, inadequacy,

1 obsolescence, changes in the art, changes in demand, and the requirements of public
2 authorities.

3 **Q. In addition to your testimony, are you sponsoring any exhibits?**

4 A. Yes, my primary Exhibit JJS 1.1, is a report entitled, “2020 Depreciation Study -
5 Calculated Annual Depreciation Accruals Related to Gas Plant as of December 31,
6 2020.” This report sets forth the results of my depreciation study for MidAmerican.
7 Additionally, I have prepared Exhibit JJS 1.2 and Exhibit JJS 1.3 setting forth the
8 depreciation reserve and expense for the South Dakota gas assets for MidAmerican
9 as of December 31, 2021.

10 **Q. Does the Exhibit JJS 1.1 accurately portray the results of your depreciation
11 study as of December 31, 2020?**

12 A. Yes.

13 **Q. In preparing the depreciation study, did you follow generally accepted practices
14 in the field of depreciation and valuation?**

15 A Yes.

16 **II. DESCRIPTION OF THE CONTENTS OF THE REPORT**

17 **Q. Please describe the contents of your report.**

18 A. My report is presented in nine parts. Part I, Introduction, presents the scope and basis
19 for the depreciation study. Part II, Estimation of Survivor Curves, includes
20 descriptions of the methodology of estimating survivor curves. Parts III and IV set
21 forth the analysis for determining life and net salvage estimation. Part V, Calculation
22 of Annual and Accrued Depreciation, includes the concepts of depreciation and
23 amortization using the remaining life. Part VI, Results of Study, presents a

1 description of the results and a summary of the depreciation calculations. Parts VII,
2 VIII, and IX include graphs and tables that relate to the service life and net salvage
3 analyses, and the detailed depreciation calculations.

4 The table on pages VI-5 through VI-7 presents the estimated survivor curve,
5 the net salvage percent, the original cost as of December 31, 2020, the book
6 depreciation reserve, and the calculated annual depreciation accrual and rate for each
7 account or subaccount. The section beginning on page VII-2 presents the results of
8 the retirement rate analyses prepared as the historical bases for the service life
9 estimates. The section beginning on page VIII-2 presents the results of the net
10 salvage analysis. The section beginning on page IX-2 presents the depreciation
11 calculations related to surviving original cost as of December 31, 2020.

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

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

18 For General Plant Accounts 391.0, 391.04, 391.1, 391.11, 391.13, 391.14,
19 393.0, 394.0, 395.0, 397.0, 397.01, 397.02 and 398.00, I used the straight-line
20 remaining life method of amortization. The annual amortization is based on
21 amortization accounting that distributes the unrecovered cost of fixed capital assets
22 over the remaining amortization period selected for each account and vintage.

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

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

6 **III. THE FIRST PHASE OF THE DEPRECIATION STUDY**

7 **Q. Please describe the first phase of the depreciation study, in which you estimated**
8 **the service life and net salvage characteristics for each depreciable group.**

9 A. The service life and net salvage study consisted of compiling historic data from
10 records related to MidAmerican's plant; analyzing these data to obtain historic trends
11 of survivor and net salvage characteristics; obtaining supplementary information
12 from Company management, other consultants and operating personnel concerning
13 practices and plans as they relate to plant operations; and interpreting the above data
14 and the estimates used by other gas utilities to form judgments of average service life
15 and net salvage characteristics.

16 **Q. What historic data did you analyze for the purpose of estimating service life**
17 **characteristics?**

18 A. I analyzed the Company's accounting entries that record plant transactions during the
19 period 1988 through 2020. The transactions included additions, retirements,
20 transfers, sales, and the related balances. The Company records also included
21 surviving dollar value by year installed for each plant account as of December 31,
22 2020.

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

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

5 **Q. Please describe how you used the retirement rate method to analyze**
6 **MidAmerican's service life data.**

7 A. I applied the retirement rate method to each different group of property in the study.
8 For each property group, I used the retirement rate method to form a life table which,
9 when plotted, shows an original survivor curve for that property group. Each original
10 survivor curve represents the average survivor pattern experienced by the several
11 vintage groups during the experience band studied. The survivor patterns do not
12 necessarily describe the life characteristics of the property group; therefore,
13 interpretation of the original survivor curves is required in order to use them as valid
14 considerations in estimating service life. The Iowa-type survivor curves were used to
15 perform these 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 curves are a widely used group of generalized survivor curves that contain
19 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
22 classifying the ages at which various types of property used by utilities and other
23 industrial companies had been retired.

1 Iowa-type curves are used to smooth and extrapolate original survivor curves
2 determined by the retirement rate method. The Iowa curves and truncated Iowa
3 curves were used in this study to describe the forecasted rates of retirement based on
4 the observed rates of retirement and the outlook for future retirements.

5 The estimated survivor curve designations for each depreciable property
6 group indicate the average service life, the family within the Iowa system to which
7 the property group belongs, and the relative height of the mode. For example, the
8 Iowa 57-R3 indicates an average service life of fifty-seven years; a right-moded, or
9 R, type curve (the mode occurs after average life for right-moded curves); and a
10 moderate height, 3, for the mode (possible modes for R type curves range from 1 to
11 5).

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

13 A. I estimated the net salvage percentages by incorporating the historical data for the
14 period 1988 through 2020 and considered estimates for other gas companies.

15 **IV. THE SECOND PHASE OF THE DEPRECIATION STUDY**

16 **Q. Please describe the second phase of the process that you used in the depreciation
17 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
21 based on the straight-line remaining life method, using remaining lives weighted
22 consistent with the average service life procedure. The calculation of annual
23 depreciation accrual rates was developed as of December 31, 2020.

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

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

5 **Q. Please describe amortization accounting.**

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

20 **Q. For which plant accounts was amortization accounting used?**

21 A. Amortization accounting is only appropriate for certain General Plant accounts.
22 These accounts are 391.0, 391.04, 391.1, 391.11, 391.13, 391.14, 393.0, 394.0,

1 395.0, 397.0, 397.01, 397.02, and 398.00, which represent less than two percent of
2 depreciable plant.

3 **Q. Please use an example to illustrate the development of the annual depreciation**
4 **accrual rate for a particular group of property in your depreciation study.**

5 A. I will use Account 376.0, Mains, as an example because it is the largest depreciable
6 group and represents 45% of depreciable plant.

7 The retirement rate method was used to analyze the survivor characteristics of
8 the combined property group in Accounts 376.0 and 376.01. Aged plant accounting
9 data were compiled from 1988 through 2020 and analyzed in periods that best
10 represent the overall service life of this property. The life tables for the 1988-2020
11 and 2001-2020 experience bands are presented on pages VII-20 through VII-25. The
12 life tables display the retirement and surviving ratios of the aged plant data exposed
13 to retirement by age interval. For example, page VII-20 shows \$228,190 retired
14 during age interval 0.5-1.5 with \$664,536,912 exposed to retirement at the beginning
15 of the interval. Consequently, the retirement ratio is 0.0003 ($\$228,190/\$664,536,912$)
16 and the surviving ratio is .9997 ($1-.0003$). The percent surviving at age 0.5 of 100.00
17 percent is multiplied by the survivor ratio of 99.97 to derive the percent surviving at
18 age 1.5 of 99.97 percent. This process continues for the remaining age intervals for
19 which plant was exposed to retirement during the period 1988-2020. The resultant
20 life tables, or original survivor curves, are plotted along with the estimated smooth
21 survivor curve, the 68-R3 on page VII-19.

22 The net salvage percent is presented on pages VIII-10 and VIII-11. The
23 percentage is based on the result of annual gross salvage minus the cost to remove

1 plant assets as compared to the original cost of plant retired during the period 1988
2 through 2020. The 33-year period experienced negative \$26,349,402 (\$3,502,956 -
3 \$29,852,358) in net salvage for \$42,313,350 plant retired. The result is negative net
4 salvage of 62 percent ($\$26,349,402/\$42,313,350$); however, the most recent five-year
5 average is negative 170%. Therefore, based on the overall statistics for this account
6 as well as the estimates of other gas utilities, the recommended net salvage for Mains
7 is negative 50%.

8 My calculation of the annual depreciation related to original cost of gas utility
9 plant as of December 31, 2020 for Account 376.0, Mains, is presented on pages IX-
10 21 through IX-23. The calculation is based on the 68-R3 survivor curve, 50%
11 negative net salvage, the attained age, and the allocated book reserve. The tabulation
12 sets forth the installation year, the original cost, calculated accrued depreciation,
13 allocated book reserve, future accruals, remaining life, and annual accrual. These
14 totals are brought forward to the table on page VI-6.

15 **V. APPLICATION FOR SOUTH DAKOTA GAS ASSETS**

16 **Q. Please explain how the MidAmerican depreciation study was applied to the**
17 **South Dakota gas assets.**

18 A. The 2020 Depreciation Study for MidAmerican established the most appropriate
19 depreciation rates to be applied to plant in service for 2021. The depreciation rates
20 determined in the 2020 Depreciation Study for all MidAmerican Gas assets were
21 utilized to calculate the South Dakota allocation. The depreciation expense was
22 determined based on the plant in service by account during 2021 for each South
23 Dakota gas account. Similarly, the book reserve or accumulated depreciation was

1 determined for year end 2021 by including the calculated annualized provision for
2 depreciation and the retirements as well as other reserve related entries to establish
3 the ending book reserve as of December 31, 2021.

4 **Q. Have you prepared any schedules to support the depreciation expense and**
5 **depreciation reserve for year 2021?**

6 A. Yes, Exhibit JJS 1.2 sets forth the development of the annual depreciation expense
7 for year 2021. Exhibit JJS 1.3 sets forth the beginning book reserve, December 31,
8 2020, annual depreciation expense from Exhibit JJS 1.2 plus the other depreciation
9 reserve entries to arrive at the updated December 31, 2021 book reserve.

10 **Q. Were any special allocations required to properly assign depreciation expense**
11 **per account?**

12 A. Yes, in order to consistently record depreciation expense for the year within the
13 company fixed asset system after a depreciation study has been performed, there is
14 an allocation factor that adjusts the rate based on the relationship of the theoretical
15 reserve to actual reserve for annualizing rates.

16 **VI. CONCLUSION**

17 **Q. Were the depreciation exhibits prepared under your direction and control?**

18 A. Yes.

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

20 A. Yes.