

**BEFORE
THE PUBLIC UTILITIES COMMISSION OF OHIO**

In the Matter of the Application of	)	
Duke Energy Ohio, Inc., for an In-	)	Case No. 21-887-EL-AIR
crease in Electric Distribution Rates.	)	
In the Matter of the Application of	)	
Duke Energy Ohio, Inc., for Tariff Ap-	)	Case No. 21-888-EL-ATA
proval.	)	
In the Matter of the Application of	)	
Duke Energy Ohio, Inc., for Approval	)	Case No. 21-889-EL-AAM
to Change Accounting Methods.	)	

**DIRECT TESTIMONY OF
JOHN J. SPANOS
ON BEHALF OF DUKE ENERGY OHIO**

_____	Management policies, practices, and organization
_____	Operating income
_____	Rate Base
_____	Allocations
_____	Rate of return
_____	Rates and tariffs
<u> X </u> _____	Other: Depreciation

October 15, 2021

TABLE OF CONTENTS

	<u>PAGE</u>
I. INTRODUCTION	1
II. DEPRECIATION STUDY	2
III. CONCLUSION	14

ATTACHMENT:

Attachment JJS-1: Regulatory proceedings where John J. Spanos has submitted testimony

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
3 Hill, Pennsylvania, 17011.

4 **Q. ARE YOU ASSOCIATED WITH ANY FIRM?**

5 A. Yes. I am the President of Gannett Fleming Valuation and Rate Consultants, LLC
6 (Gannett Fleming).

7 **Q. HOW LONG HAVE YOU BEEN ASSOCIATED WITH GANNETT**
8 **FLEMING?**

9 A. I have been associated with the firm since June 1986.

10 **Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS CASE?**

11 A. I am testifying on behalf of Duke Energy Ohio, Inc. (Duke Energy Ohio or the
12 Company).

13 **Q. PLEASE STATE YOUR QUALIFICATIONS.**

14 A. I have over 35 years of depreciation experience, which includes expert testimony
15 in over 380 cases before approximately 41 regulatory commissions in the United
16 States and Canada. I have prepared depreciation studies for cases involving the
17 electric, gas, water, wastewater, and pipeline industries. In addition to the cases
18 where I have submitted testimony, I have supervised over 700 other depreciation
19 or valuation assignments. Please refer to Attachment JJS-1 for additional
20 information on my qualifications, which includes additional information regarding
21 my work history, case experience, and my leadership in the Society of Depreciation
22 Professionals.

1 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

2 A. My testimony will support and explain the Depreciation Study that I performed for
3 Duke Energy Ohio, which was filed on October 1, 2021, in these proceedings, as
4 Volume 5 of the Company's Application, in response to Supplemental Filing
5 Requirement (C)(18) (Depreciation Study).

II. DEPRECIATION STUDY

6 **Q. PLEASE SUMMARIZE THE RESULTS OF YOUR DEPRECIATION**
7 **STUDY.**

8 A. The depreciation rates as of March 31, 2021, appropriately reflect the rates at which
9 the value of Duke Energy Ohio's assets have been consumed over their useful lives
10 to date. These rates are based on the most commonly used methods and procedures
11 for determining depreciation rates. The life and salvage parameters are based on
12 widely used techniques and the depreciation rates are based on the average service
13 life procedure and whole life method.

14 **Q. PLEASE DEFINE THE CONCEPT OF DEPRECIATION.**

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

1 **Q. DID YOU PREPARE A DEPRECIATION STUDY FILED BY DUKE**
2 **ENERGY OHIO IN THESE PROCEEDINGS?**

3 A. Yes. I prepared the Depreciation Study submitted by Duke Energy Ohio with its
4 filing in these proceedings, which is a true and accurate copy of my report, entitled:
5 “2021 Depreciation Study - Calculated Annual Depreciation Accruals Related to
6 Electric and Common Plant as of March 31, 2021.”

7 **Q. IN PREPARING THE DEPRECIATION STUDY, DID YOU FOLLOW**
8 **GENERALLY ACCEPTED PRACTICES IN THE FIELD OF**
9 **DEPRECIATION VALUATION?**

10 A. Yes. The depreciation practices that I followed relate to authoritative publications
11 such as the FERC (Federal Energy Regulatory Commission) Uniform System of
12 Accounts, the NARUC (National Association of Regulatory Utility
13 Commissioners) Public Utility Depreciation Practices, and Depreciation Systems
14 by Wolf and Fitch.

15 **Q. WHAT IS THE PURPOSE OF THE DEPRECIATION STUDY?**

16 A. The purpose of my Depreciation Study was to estimate the annual depreciation
17 accruals for Duke Energy Ohio’s plant in service for financial and ratemaking
18 purposes, and to determine appropriate average service lives and net salvage
19 percentages for each plant account.

1 **Q. ARE THE METHODS AND PROCEDURES OF THIS DEPRECIATION**
2 **STUDY CONSISTENT WITH DUKE ENERGY OHIO’S PAST**
3 **PRACTICES?**

4 A. Yes, the depreciation methods and procedures that I used are the same as those
5 utilized in the past by Duke Energy Ohio, as well as other companies appearing
6 before this Commission. Both the existing rates and the rates determined in the
7 Depreciation Study are based on the average service life procedure and the whole
8 life method. For most general and common plant assets, amortization periods were
9 based on the nature of the assets in each account.

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
14 and IV set forth the analysis for determining service life and net salvage estimates.
15 Part V, 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
18 depreciation calculations. Parts VII, VIII and IX include graphs and tables that
19 relate to the service life and net salvage analyses, and the detailed depreciation
20 calculations by account.

21 The table on pages VI-4 through VI-6 presents the estimated survivor curve,
22 the net salvage percent, the original cost as of March 31, 2021, the calculated annual
23 depreciation accrual and rate, and accrued depreciation for each account or

1 subaccount. The table on pages VI-7 and VI-8 sets forth a comparison of the
2 calculated accrued depreciation to the book depreciation reserve as of March 31,
3 2021, with a reserve imbalance. The section beginning on page VII-2 presents the
4 results of the retirement rate analyses prepared as the historical bases for the service
5 life estimates. The section beginning on page VIII-2 presents the results of the net
6 salvage analysis. The section beginning on page IX-2 presents the depreciation
7 calculations related to surviving original cost as of March 31, 2021.

8 **Q. PLEASE EXPLAIN HOW YOU PERFORMED YOUR DEPRECIATION**
9 **STUDY.**

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

14 For General Plant Accounts 3910, 3911, 3930, 3940, 3970, and 3980 and
15 for Common Plant Accounts, 1910, 1911, 1930, 1940, 1970 and 1980, I used the
16 straight line whole life method of amortization. The annual amortization is based
17 on amortization accounting that distributes the cost of fixed capital assets over the
18 amortization period selected for each account and vintage.

19 **Q. HOW DID YOU DETERMINE THE RECOMMENDED ANNUAL**
20 **DEPRECIATION ACCRUAL RATES?**

21 A. I did this in two phases. In the first phase, I estimated the service life and net
22 salvage characteristics for each depreciable group, that is, each plant account or
23 subaccount identified as having similar characteristics. In the second phase, I

1 calculated the annual depreciation accrual rates and accrued depreciation based on
2 the service life and net salvage estimates determined in the first phase.

3 **Q. PLEASE DESCRIBE THE FIRST PHASE OF THE DEPRECIATION**
4 **STUDY, IN WHICH YOU ESTIMATED THE SERVICE LIFE AND NET**
5 **SALVAGE CHARACTERISTICS FOR EACH DEPRECIABLE GROUP.**

6 A. The service life and net salvage study consisted of compiling historical data from
7 records related to Duke Energy Ohio's plant; analyzing these data to obtain
8 historical trends of survivor characteristics; obtaining supplementary information
9 from Duke Energy Ohio's management and operating personnel concerning
10 practices and plans as they relate to plant operations; and interpreting the data and
11 the estimates used by other electric utilities to form judgments of average service
12 life and net salvage characteristics.

13 **Q. WHAT HISTORICAL DATA DID YOU ANALYZE FOR THE PURPOSE**
14 **OF ESTIMATING SERVICE LIFE CHARACTERISTICS?**

15 A. Generally speaking, I analyzed the Company's accounting entries that record plant
16 transactions during the period 1956 through 2020. The transactions that I analyzed
17 included additions, retirements, transfers, sales, and the related balances. The
18 Company records included surviving dollar value by year installed for each plant
19 account as of March 31, 2021.

20 **Q. WHAT METHOD DID YOU USE TO ANALYZE THE SERVICE LIFE**
21 **DATA?**

22 A. I used the retirement rate method for most plant accounts. This method is the most
23 appropriate method when retirement data covering a long period of time is available

1 because this method determines the average rates of retirement actually
2 experienced by the Company during the period of time covered by the Depreciation
3 Study.

4 **Q. PLEASE DESCRIBE HOW YOU USED THE RETIREMENT RATE**
5 **METHOD TO ANALYZE DUKE ENERGY OHIO'S SERVICE LIFE**
6 **DATA.**

7 A. I applied the retirement rate analysis to each different group of property in the study.
8 For each property group, I used the retirement-rate data to form a life table which,
9 when plotted, shows an original survivor curve for that property group. Each
10 original survivor curve represents the average survivor pattern experienced by
11 several vintage groups during the experience band studied. The survivor patterns
12 do not 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
14 valid considerations in estimating service life. The "Iowa-type survivor curves"
15 were used to perform these interpretations.

16 **Q. WHAT ARE "IOWA-TYPE SURVIVOR CURVES" AND HOW DID YOU**
17 **USE THEM TO ESTIMATE THE SERVICE LIFE CHARACTERISTICS**
18 **FOR EACH PROPERTY GROUP?**

19 A. Iowa-type survivor curves are a widely-used group of survivor curves that contain
20 the range of survivor characteristics usually experienced by utilities and other
21 industrial companies. These curves were developed at the Iowa State College
22 Engineering Experiment Station through an extensive process of observing and
23 classifying the ages at which various types of property used by utilities and other

1 industrial companies had been retired.

2 Iowa-type survivor curves are used to smooth and extrapolate original
3 survivor curves determined by the retirement rate method. The Iowa curves were
4 used in this study to describe the forecasted rates of retirement based on the
5 observed rates of retirement and the outlook for future retirements. The estimated
6 survivor-curve designations for each depreciable property group indicate the
7 average service life, the family within the Iowa system to which the property group
8 belongs, and the relative height of the mode. For example, the Iowa 50-R0.5
9 indicates an average service life of fifty years; a right-moded, or R, type curve (the
10 mode occurs after average life for right-moded curves); and a low height, 0.5, for
11 the mode (possible modes for R type curves range from 0.5 to 5).

12 **Q. DID YOU PHYSICALLY OBSERVE DUKE ENERGY OHIO'S PLANT**
13 **AND EQUIPMENT AS PART OF YOUR DEPRECIATION STUDY?**

14 A. Not for this study. Due to COVID-19 restrictions, physical field reviews of Duke
15 Energy Ohio's property were not possible. However, field reviews have been
16 conducted during past depreciation studies in January 2017 and July 2008. Field
17 reviews are conducted to become familiar with utility operations and to obtain an
18 understanding of the function of the plant and information with respect to the
19 reasons for past retirements and the expected future causes of retirements. I was
20 able to obtain similar information from discussions with Duke Energy Ohio's
21 management and operating personnel, which was incorporated in the interpretation
22 and extrapolation of the statistical analyses.

1 **Q. DID YOUR EXPERIENCE IN THE DEVELOPMENT OF OTHER**
2 **DEPRECIATION STUDIES AFFECT YOUR WORK IN THIS CASE FOR**
3 **DUKE ENERGY OHIO?**

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

10 **Q. PLEASE EXPLAIN THE CONCEPT OF “NET SALVAGE.”**

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

16 Because depreciation expense is the loss in service value of an asset during
17 a defined period (*e.g.*, one year), it must include a ratable portion of both the
18 original cost of the asset and the net salvage. That is, the net salvage related to an
19 asset should be incorporated in the cost of service during the same period as its
20 original cost, so that customers receiving service from the asset pay rates that
21 include a portion of both elements of the asset’s service value, the original cost and
22 the net salvage value. For example, the full service value of a \$2,000 distribution
23 pole includes not only the \$2,000 of original cost, but also, on average, \$850 to

1 remove the pole at the end of its life and \$50 gross salvage, for a total service value
2 of \$2,800. In this example, the net salvage component is negative \$800 ($\$50 -$
3 $\$850$), and the net salvage percent is negative 40 percent ($(\$50 - \$850)/\$2,000$).

4 **Q. PLEASE DESCRIBE HOW YOU ESTIMATED NET SALVAGE**
5 **PERCENTAGES.**

6 A. I estimated the net salvage percentages by incorporating the Company's actual
7 historical data for the period 1978 through 2020 and considered industry experience
8 of net salvage estimates for other electric companies. The net salvage percentages
9 in the Depreciation Study are based on a combination of statistical analyses and
10 informed judgment. The statistical analyses consider the cost of removal and gross
11 salvage ratios to the associated retirements during the 43-year period. Trends of
12 these data are also measured based on three-year moving averages and the most
13 recent five-year indications.

14 **Q. PLEASE DESCRIBE THE SECOND PHASE OF THE PROCESS THAT**
15 **YOU USED IN THE DEPRECIATION STUDY IN WHICH YOU**
16 **CALCULATED ANNUAL DEPRECIATION ACCRUAL RATES.**

17 A. After I estimated the service life and net salvage characteristics for each depreciable
18 property group, I calculated the annual depreciation accrual rates for each group
19 using the straight line whole life method, and the average service life procedure.
20 The calculation of annual depreciation accrual rates was developed as of March 31,
21 2021.

1 **Q. PLEASE DESCRIBE THE STRAIGHT LINE WHOLE LIFE METHOD OF**
2 **DEPRECIATION.**

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

5 **Q. PLEASE DESCRIBE AMORTIZATION ACCOUNTING IN CONTRAST**
6 **TO DEPRECIATION ACCOUNTING.**

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

1 **Q. IS AMORTIZATION ACCOUNTING BEING UTILIZED FOR CERTAIN**
2 **PLANT ACCOUNTS?**

3 A. Yes. Amortization accounting is appropriate only for certain General and Common
4 Plant accounts. The General Plant accounts are 3910, 3911, 3930, 3940, 3970, and
5 3980 and for Common Plant accounts 1910, 1911, 1930, 1940, 1970, and 1980,
6 which represent approximately five percent of Duke Energy Ohio's depreciable
7 plant.

8 **Q. PLEASE USE AN EXAMPLE TO ILLUSTRATE HOW THE ANNUAL**
9 **DEPRECIATION ACCRUAL RATE FOR A PARTICULAR GROUP OF**
10 **PROPERTY IS PRESENTED IN YOUR DEPRECIATION STUDY.**

11 A. I will use Account 3670, Underground Conductors and Devices, as an example
12 because it is one of the largest depreciable accounts and represents approximately
13 10 percent of depreciable plant. The retirement-rate method was used to analyze
14 the survivor characteristics of this property group. Aged plant accounting data was
15 compiled from 1956 through 2020 and analyzed in periods that best represent the
16 overall service life of this property. The life tables for the 1956-2020, 1991-2020,
17 and 2001-2020 experience bands are presented on pages VII-122 through VII-130
18 of the Depreciation Study. The life tables display the retirement and surviving
19 ratios of the aged plant data exposed to retirement by age interval. For example,
20 page VII-122 of the study shows \$1,403,527 retired at age 0.5 with \$429,873,743
21 exposed to retirement. Consequently, the retirement ratio is 0.0033 and the
22 surviving ratio is 0.9967. These life tables, or original survivor curves, are plotted
23 along with the estimated smooth survivor curve, the 60-R1.5 on page VII-121 of

1 the study.

2 The net salvage percent is presented on pages VIII-38 through VIII-40 of
3 the Depreciation Study. The percentage is based on the result of annual gross
4 salvage minus the cost to remove plant assets as compared to the original cost of
5 plant retired during the period 1978 through 2020. This 43-year period experienced
6 negative \$11,722,561 (\$4,506,324 - \$16,228,884) in net salvage for \$44,541,253
7 plant retired. The result is negative net salvage of 26 percent (negative
8 \$11,722,561/\$44,541,253). Based on the overall negative 26 percent net salvage
9 and the most recent five years of negative 30 percent, as well as industry ranges
10 and Company expectations, it was determined that negative 25 percent is the most
11 appropriate estimate.

12 My calculation of the annual depreciation related to the original cost as of
13 March 31, 2021, of electric plant is presented on pages IX-68 through IX-70 of the
14 Depreciation Study. The calculation is based on the 60-R1.5 survivor curve, 25
15 percent negative net salvage, the attained age, and the accrued depreciation. The
16 tabulation sets forth the installation year, the original cost, calculated accrued
17 depreciation, average life, life expectancy and annual accrual amount and rate.
18 These totals are brought forward to the table on page VI-5 of the Depreciation
19 Study.

20 **Q. HAVE YOU CALCULATED AN ACTUAL VS. THEORETICAL RESERVE**
21 **VARIANCE AS PART OF THE DEPRECIATION STUDY?**

22 A. Yes. As set forth on pages VI-7 and VI-8 of the Depreciation Study, there is a total
23 deficient reserve imbalance of \$68,831,787 based on the parameters proposed as a

1 result of the study. The most commonly utilized method for recovering these types
2 of deficient or excess imbalances is over the remaining life of each asset class.
3 However, the remaining life method, which is widely utilized in almost all
4 jurisdictions, is not the traditional method in Ohio. Because the reserve imbalance
5 is based on a theoretical calculated amount that is subject to volatility as
6 depreciation lives and net salvage rates change when applying normal depreciation
7 practices, a degree of variance is expected.

8 **Q. WHAT IS YOUR RECOMMENDATION REGARDING ANNUAL**
9 **DEPRECIATION ACCRUAL RATES FOR THE COMPANY?**

10 A. I recommend that the Company use an annual depreciation accrual rate for electric
11 or common accounts or subaccounts based on the calculated depreciation rates in
12 Table 1 of the Depreciation Study. In my opinion, these are reasonable and
13 appropriate depreciation accrual rates for the Company.

III. CONCLUSION

14 **Q. WAS THE INFORMATION YOU SPONSORED IN THE DEPRECIATION**
15 **STUDY, PREPARED IN RESPONSE TO SUPPLEMENTAL FILING RE-**
16 **QUIREMENTS (C)(18), PREPARED BY YOU OR UNDER YOUR DIREC-**
17 **TION AND SUPERVISION?**

18 A. Yes.

19 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

20 A. Yes, it does.

Attachment JJS-1

JOHN SPANOS

DEPRECIATION EXPERIENCE

Q. Please state your name.

A. My name is John J. Spanos.

Q. What is your educational background?

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.

Q. Do you belong to any professional societies?

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

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

A. Yes. The Society of Depreciation Professionals has established national standards for depreciation professionals. The Society administers an examination to become certified in this field. I passed the certification exam in September 1997 and was recertified in August 2003, February 2008, January 2013 and February 2018.

Q. Please outline your experience in the field of depreciation.

A. In June 1986, I was employed by Gannett Fleming Valuation and Rate Consultants, Inc. as a Depreciation Analyst. During the period from June 1986 through December 1995, I helped prepare numerous depreciation and original cost studies for utility companies in various industries. I helped perform depreciation studies for the following telephone companies: United Telephone of Pennsylvania, United Telephone of New Jersey, and Anchorage Telephone Utility. I helped perform depreciation studies for the following

companies in the railroad industry: Union Pacific Railroad, Burlington Northern Railroad, and Wisconsin Central Transportation Corporation.

I helped perform depreciation studies for the following organizations in the electric utility industry: Chugach Electric Association, The Cincinnati Gas and Electric Company (CG&E), The Union Light, Heat and Power Company (ULH&P), Northwest Territories Power Corporation, and the City of Calgary - Electric System.

I helped perform depreciation studies for the following pipeline companies: TransCanada Pipelines Limited, Trans Mountain Pipe Line Company Ltd., Interprovincial Pipe Line Inc., Nova Gas Transmission Limited and Lakehead Pipeline Company.

I helped perform depreciation studies for the following gas utility companies: Columbia Gas of Pennsylvania, Columbia Gas of Maryland, The Peoples Natural Gas Company, T. W. Phillips Gas & Oil Company, CG&E, ULH&P, Lawrenceburg Gas Company and Penn Fuel Gas, Inc.

I helped perform depreciation studies for the following water utility companies: Indiana-American Water Company, Consumers Pennsylvania Water Company and The York Water Company; and depreciation and original cost studies for Philadelphia Suburban Water Company and Pennsylvania-American Water Company.

In each of the above studies, I assembled and analyzed historical and simulated data, performed field reviews, developed preliminary estimates of service life and net salvage, calculated annual depreciation, and prepared reports for submission to state public utility commissions or federal regulatory agencies. I performed these studies under the general direction of William M. Stout, P.E.

In January 1996, I was assigned to the position of Supervisor of Depreciation Studies. In July 1999, I was promoted to the position of Manager, Depreciation and

Valuation Studies. In December 2000, I was promoted to the position as Vice-President of Gannett Fleming Valuation and Rate Consultants, Inc., in April 2012, I was promoted to the position as Senior Vice President of the Valuation and Rate Division of Gannett Fleming Inc. (now doing business as Gannett Fleming Valuation and Rate Consultants, LLC) and in January of 2019, I was promoted to my present position of President of Gannett Fleming Valuation and Rate Consultants, LLC. In my current position I am responsible for conducting all depreciation, valuation and original cost studies, including the preparation of final exhibits and responses to data requests for submission to the appropriate regulatory bodies.

Since January 1996, I have conducted depreciation studies similar to those previously listed including assignments for Pennsylvania-American Water Company; Aqua Pennsylvania; Kentucky-American Water Company; Virginia-American Water Company; Indiana-American Water Company; Iowa-American Water Company; New Jersey-American Water Company; Hampton Water Works Company; Omaha Public Power District; Enbridge Pipe Line Company; Inc.; Columbia Gas of Virginia, Inc.; Virginia Natural Gas Company National Fuel Gas Distribution Corporation - New York and Pennsylvania Divisions; The City of Bethlehem - Bureau of Water; The City of Coatesville Authority; The City of Lancaster - Bureau of Water; Peoples Energy Corporation; The York Water Company; Public Service Company of Colorado; Enbridge Pipelines; Enbridge Gas Distribution, Inc.; Reliant Energy-HLP; Massachusetts-American Water Company; St. Louis County Water Company; Missouri-American Water Company; Chugach Electric Association; Alliant Energy; Oklahoma Gas & Electric Company; Nevada Power Company; Dominion Virginia Power; NUI-Virginia Gas Companies; Pacific Gas & Electric Company; PSI Energy; NUI - Elizabethtown Gas Company; Cinergy Corporation – CG&E; Cinergy Corporation – ULH&P; Columbia Gas of Kentucky; South Carolina Electric & Gas Company; Idaho Power Company; El Paso

Electric Company; Aqua North Carolina; Aqua Ohio; Aqua Texas, Inc.; Aqua Illinois, Inc.; Ameren Missouri; Central Hudson Gas & Electric; Centennial Pipeline Company; CenterPoint Energy-Arkansas; CenterPoint Energy – Oklahoma; CenterPoint Energy – Entex; CenterPoint Energy - Louisiana; NSTAR – Boston Edison Company; Westar Energy, Inc.; United Water Pennsylvania; PPL Electric Utilities; PPL Gas Utilities; Wisconsin Power & Light Company; TransAlaska Pipeline; Avista Corporation; Northwest Natural Gas; Allegheny Energy Supply, Inc.; Public Service Company of North Carolina; South Jersey Gas Company; Duquesne Light Company; MidAmerican Energy Company; Laclede Gas; Duke Energy Company; E.ON U.S. Services Inc.; Elkton Gas Services; Anchorage Water and Wastewater Utility; Kansas City Power and Light; Duke Energy North Carolina; Duke Energy South Carolina; Monongahela Power Company; Potomac Edison Company; Duke Energy Ohio Gas; Duke Energy Kentucky; Duke Energy Indiana; Duke Energy Progress; Northern Indiana Public Service Company; Tennessee-American Water Company; Columbia Gas of Maryland; Maryland-American Water Company; Bonneville Power Administration; NSTAR Electric and Gas Company; EPCOR Distribution, Inc.; B. C. Gas Utility, Ltd; Entergy Arkansas; Entergy Texas; Entergy Mississippi; Entergy Louisiana; Entergy Gulf States Louisiana; the Borough of Hanover; Louisville Gas and Electric Company; Kentucky Utilities Company; Madison Gas and Electric; Central Maine Power; PEPCO; PacifiCorp; Minnesota Energy Resource Group; Jersey Central Power & Light Company; Cheyenne Light, Fuel and Power Company; United Water Arkansas; Central Vermont Public Service Corporation; Green Mountain Power; Portland General Electric Company; Atlantic City Electric; Nicor Gas Company; Black Hills Power; Black Hills Colorado Gas; Black Hills Kansas Gas; Black Hills Service Company; Black Hills Utility Holdings; Public Service Company of Oklahoma; City of

Dubois; Peoples Gas Light and Coke Company; North Shore Gas Company; Connecticut Light and Power; New York State Electric and Gas Corporation; Rochester Gas and Electric Corporation; Greater Missouri Operations; Tennessee Valley Authority; Omaha Public Power District; Indianapolis Power & Light Company; Vermont Gas Systems, Inc.; Metropolitan Edison; Pennsylvania Electric; West Penn Power; Pennsylvania Power; PHI Service Company - Delmarva Power and Light; Atmos Energy Corporation; Citizens Energy Group; PSE&G Company; Berkshire Gas Company; Alabama Gas Corporation; Mid-Atlantic Interstate Transmission, LLC; SUEZ Water; WEC Energy Group; Rocky Mountain Natural Gas, LLC; Illinois-American Water Company; Northern Illinois Gas Company; Public Service of New Hampshire and Newtown Artesian Water Company.

My additional duties include determining final life and salvage estimates, conducting field reviews, presenting recommended depreciation rates to management for its consideration and supporting such rates before regulatory bodies.

Q. Have you submitted testimony to any state utility commission on the subject of utility plant depreciation?

A. Yes. I have submitted testimony to the Pennsylvania Public Utility Commission; the Commonwealth of Kentucky Public Service Commission; the Public Utilities Commission of Ohio; the Nevada Public Utility Commission; the Public Utilities Board of New Jersey; the Missouri Public Service Commission; the Massachusetts Department of Telecommunications and Energy; the Alberta Energy & Utility Board; the Idaho Public Utility Commission; the Louisiana Public Service Commission; the State Corporation Commission of Kansas; the Oklahoma Corporate Commission; the Public Service Commission of South Carolina; Railroad Commission of Texas – Gas Services Division; the New York Public Service Commission; Illinois Commerce Commission; the Indiana

Utility Regulatory Commission; the California Public Utilities Commission; the Federal Energy Regulatory Commission (“FERC”); the Arkansas Public Service Commission; the Public Utility Commission of Texas; Maryland Public Service Commission; Washington Utilities and Transportation Commission; The Tennessee Regulatory Commission; the Regulatory Commission of Alaska; Minnesota Public Utility Commission; Utah Public Service Commission; District of Columbia Public Service Commission; the Mississippi Public Service Commission; Delaware Public Service Commission; Virginia State Corporation Commission; Colorado Public Utility Commission; Oregon Public Utility Commission; South Dakota Public Utilities Commission; Wisconsin Public Service Commission; Wyoming Public Service Commission; the Public Service Commission of West Virginia; Maine Public Utility Commission; Iowa Utility Board; Connecticut Public Utilities Regulatory Authority; New Mexico Public Regulation Commission; Commonwealth of Massachusetts Department of Public Utilities; Rhode Island Public Utilities Commission and the North Carolina Utilities Commission.

Q. Have you had any additional education relating to utility plant depreciation?

A. Yes. I have completed the following courses conducted by Depreciation Programs, Inc.: “Techniques of Life Analysis,” “Techniques of Salvage and Depreciation Analysis,” “Forecasting Life and Salvage,” “Modeling and Life Analysis Using Simulation,” and “Managing a Depreciation Study.” I have also completed the “Introduction to Public Utility Accounting” program conducted by the American Gas Association.

Q. Does this conclude your qualification statement?

A. Yes.

LIST OF CASES IN WHICH JOHN J. SPANOS SUBMITTED TESTIMONY

<u>Year</u>	<u>Jurisdiction</u>	<u>Docket No.</u>	<u>Client Utility</u>	<u>Subject</u>
01.	1998	R-00984375	City of Bethlehem – Bureau of Water	Original Cost and Depreciation
02.	1998	R-00984567	City of Lancaster	Original Cost and Depreciation
03.	1999	R-00994605	The York Water Company	Depreciation
04.	2000	DTE 00-105	Massachusetts-American Water Company	Depreciation
05.	2001	R-00016114	City of Lancaster	Original Cost and Depreciation
06.	2001	R-00017236	The York Water Company	Depreciation
07.	2001	R-00016339	Pennsylvania-American Water Company	Depreciation
08.	2001	01-1228-GA-AIR	Cinergy Corp – Cincinnati Gas & Elect Company	Depreciation
09.	2001	2001-092	Cinergy Corp – Union Light, Heat & Power Co.	Depreciation
10.	2002	R-00016750	Philadelphia Suburban Water Company	Depreciation
11.	2002	2002-00145	Columbia Gas of Kentucky	Depreciation
12.	2002	GF02040245	NUI Corporation/Elizabethtown Gas Company	Depreciation
13.	2002	IPC-E-03-7	Idaho Power Company	Depreciation
14.	2003	R-0027975	The York Water Company	Depreciation
15.	2003	R-0027975	Cinergy Corp – PSI Energy, Inc.	Depreciation
16.	2003	R-00038304	Pennsylvania-American Water Company	Depreciation
17.	2003	WR-2003-0500	Missouri-American Water Company	Depreciation
18.	2003	ER03-1274-000	NSTAR-Boston Edison Company	Depreciation
19.	2003	BPU 03080683	South Jersey Gas Company	Depreciation
20.	2003	03-10001	Nevada Power Company	Depreciation
21.	2003	U-27676	CenterPoint Energy – Arkla	Depreciation
22.	2003	R-00038805	Pennsylvania Suburban Water Company	Depreciation
23.	2004	1306821	EPCOR Distribution, Inc.	Depreciation
24.	2004	R-00038168	National Fuel Gas Distribution Corp (PA)	Depreciation
25.	2004	R-00049255	PPL Electric Utilities	Depreciation
26.	2004	R-00049165	The York Water Company	Depreciation
27.	2004	OK Corp Cm	CenterPoint Energy – Arkla	Depreciation
28.	2004	04-680-EL-AIR	Cinergy Corp. – Cincinnati Gas and Electric Company	Depreciation
29.	2004	RR Com of TX	CenterPoint Energy – Entex Gas Services Div.	Depreciation
30.	2004	04-G-1047	National Fuel Gas Distribution Gas (NY)	Depreciation
31.	2004	04-121-U	CenterPoint Energy – Arkla	Depreciation
32.	2005	05-ICC-06	North Shore Gas Company	Depreciation
33.	2005	05-ICC-06	Peoples Gas Light and Coke Company	Depreciation
34.	2005	2005-00042	Union Light Heat & Power	Depreciation

LIST OF CASES IN WHICH JOHN J. SPANOS SUBMITTED TESTIMONY, cont.

	<u>Year</u>	<u>Jurisdiction</u>	<u>Docket No.</u>	<u>Client Utility</u>	<u>Subject</u>
35.	2005	IL CC	05-0308	MidAmerican Energy Company	Depreciation
36.	2005	MO PSC	GF-2005	Laclede Gas Company	Depreciation
37.	2005	KS CC	05-WSEE-981-RTS	Westar Energy	Depreciation
38.	2005	RR Com of TX	GUD #	CenterPoint Energy – Entex Gas Services Div.	Depreciation
39.	2005	US District Court	Cause No. 1:99-CV-1693-LJM/VSS	Cinergy Corporation	Accounting
40.	2005	OK CC	PUD 200500151	Oklahoma Gas and Electric Company	Depreciation
41.	2005	MA Dept Tele-com & Ergy	DTE 05-85	NSTAR	Depreciation
42.	2005	NY PUC	05-E-934/05-G-0935	Central Hudson Gas & Electric Company	Depreciation
43.	2005	AK Reg Com	U-04-102	Chugach Electric Association	Depreciation
44.	2005	CA PUC	A05-12-002	Pacific Gas & Electric	Depreciation
45.	2006	PA PUC	R-00051030	Aqua Pennsylvania, Inc.	Depreciation
46.	2006	PA PUC	R-00051178	T.W. Phillips Gas and Oil Company	Depreciation
47.	2006	NC Util Cm.	G-5, Sub522	Pub. Service Company of North Carolina	Depreciation
48.	2006	PA PUC	R-00051167	City of Lancaster	Depreciation
49.	2006	PA PUC	R00061346	Duquesne Light Company	Depreciation
50.	2006	PA PUC	R-00061322	The York Water Company	Depreciation
51.	2006	PA PUC	R-00051298	PPL GAS Utilities	Depreciation
52.	2006	PUC of TX	32093	CenterPoint Energy – Houston Electric	Depreciation
53.	2006	KY PSC	2006-00172	Duke Energy Kentucky	Depreciation
54.	2006	SC PSC		SCANA	Accounting
55.	2006	AK Reg Com	U-06-6	Municipal Light and Power	Depreciation
56.	2006	DE PSC	06-284	Delmarva Power and Light	Depreciation
57.	2006	IN URC	IURC43081	Indiana American Water Company	Depreciation
58.	2006	AK Reg Com	U-06-134	Chugach Electric Association	Depreciation
59.	2006	MO PSC	WR-2007-0216	Missouri American Water Company	Depreciation
60.	2006	FERC	IS05-82-002, et al	TransAlaska Pipeline	Depreciation
61.	2006	PA PUC	R-00061493	National Fuel Gas Distribution Corp. (PA)	Depreciation
62.	2007	NC Util Com.	E-7 SUB 828	Duke Energy Carolinas, LLC	Depreciation
63.	2007	OH PSC	08-709-EL-AIR	Duke Energy Ohio Gas	Depreciation
64.	2007	PA PUC	R-00072155	PPL Electric Utilities Corporation	Depreciation
65.	2007	KY PSC	2007-00143	Kentucky American Water Company	Depreciation

LIST OF CASES IN WHICH JOHN J. SPANOS SUBMITTED TESTIMONY, cont.

	<u>Year</u>	<u>Jurisdiction</u>	<u>Docket No.</u>	<u>Client Utility</u>	<u>Subject</u>
66.	2007	PA PUC	R-00072229	Pennsylvania American Water Company	Depreciation
67.	2007	KY PSC	2007-0008	NiSource – Columbia Gas of Kentucky	Depreciation
68.	2007	NY PSC	07-G-0141	National Fuel Gas Distribution Corp (NY)	Depreciation
69.	2008	AK PSC	U-08-004	Anchorage Water & Wastewater Utility	Depreciation
70.	2008	TN Reg Auth	08-00039	Tennessee-American Water Company	Depreciation
71.	2008	DE PSC	08-96	Artesian Water Company	Depreciation
72.	2008	PA PUC	R-2008-2023067	The York Water Company	Depreciation
73.	2008	KS CC	08-WSEE1-RTS	Westar Energy	Depreciation
74.	2008	IN URC	43526	Northern Indiana Public Service Company	Depreciation
75.	2008	IN URC	43501	Duke Energy Indiana	Depreciation
76.	2008	MD PSC	9159	NiSource – Columbia Gas of Maryland	Depreciation
77.	2008	KY PSC	2008-000251	Kentucky Utilities	Depreciation
78.	2008	KY PSC	2008-000252	Louisville Gas & Electric	Depreciation
79.	2008	PA PUC	2008-20322689	Pennsylvania American Water Co. - Wastewater	Depreciation
80.	2008	NY PSC	08-E887/08-00888	Central Hudson	Depreciation
81.	2008	WV TC	VE-080416/VG-8080417	Avista Corporation	Depreciation
82.	2008	IL CC	ICC-09-166	Peoples Gas, Light and Coke Company	Depreciation
83.	2009	IL CC	ICC-09-167	North Shore Gas Company	Depreciation
84.	2009	DC PSC	1076	Potomac Electric Power Company	Depreciation
85.	2009	KY PSC	2009-00141	NiSource – Columbia Gas of Kentucky	Depreciation
86.	2009	FERC	ER08-1056-002	Entergy Services	Depreciation
87.	2009	PA PUC	R-2009-2097323	Pennsylvania American Water Company	Depreciation
88.	2009	NC Util Cm	E-7, Sub 090	Duke Energy Carolinas, LLC	Depreciation
89.	2009	KY PSC	2009-00202	Duke Energy Kentucky	Depreciation
90.	2009	VA St. CC	PUE-2009-00059	Aqua Virginia, Inc.	Depreciation
91.	2009	PA PUC	2009-2132019	Aqua Pennsylvania, Inc.	Depreciation
92.	2009	MS PSC	Docket No. 2011-UA-183	Entergy Mississippi	Depreciation
93.	2009	AK PSC	09-08-U	Entergy Arkansas	Depreciation
94.	2009	TX PUC	37744	Entergy Texas	Depreciation
95.	2009	TX PUC	37690	El Paso Electric Company	Depreciation
96.	2009	PA PUC	R-2009-2106908	The Borough of Hanover	Depreciation
97.	2009	KS CC	10-KCPE-415-RTS	Kansas City Power & Light	Depreciation
98.	2009	PA PUC	R-2009-	United Water Pennsylvania	Depreciation

LIST OF CASES IN WHICH JOHN J. SPANOS SUBMITTED TESTIMONY, cont.

<u>Year</u>	<u>Jurisdiction</u>	<u>Docket No.</u>	<u>Client Utility</u>	<u>Subject</u>
99.	2009		Aqua Ohio Water Company	Depreciation
100.	2009	3270-DU-103	Madison Gas & Electric Company	Depreciation
101.	2009	WR-2010	Missouri American Water Company	Depreciation
102.	2009	U-09-097	Chugach Electric Association	Depreciation
103.	2010	43969	Northern Indiana Public Service Company	Depreciation
104.	2010	6690-DU-104	Wisconsin Public Service Corp.	Depreciation
105.	2010	R-2010-2161694	PPL Electric Utilities Corp.	Depreciation
106.	2010	2010-00036	Kentucky American Water Company	Depreciation
107.	2010	R-2009-2149262	Columbia Gas of Pennsylvania	Depreciation
108.	2010	GR-2010-0171	Laclede Gas Company	Depreciation
109.	2010	2009-489-E	South Carolina Electric & Gas Company	Depreciation
110.	2010	ER09080664	Atlantic City Electric	Depreciation
111.	2010	PUE-2010-00001	Virginia American Water Company	Depreciation
112.	2010	R-2010-2157140	The York Water Company	Depreciation
113.	2010	ER-2010-0356	Greater Missouri Operations Company	Depreciation
114.	2010	ER-2010-0355	Kansas City Power and Light	Depreciation
115.	2010	R-2010-2167797	T.W. Phillips Gas and Oil Company	Depreciation
116.	2010	2009-489-E	SCANA – Electric	Depreciation
117.	2010	R-2010-22010702	Peoples Natural Gas, LLC	Depreciation
118.	2010	10-067-U	Oklahoma Gas and Electric Company	Depreciation
119.	2010	Cause No. 43894	Northern Indiana Public Serv. Company - NIFL	Depreciation
120.	2010	Cause No. 43894	Northern Indiana Public Serv. Co. - Kokomo	Depreciation
121.	2010	R-2010-2166212	Pennsylvania American Water Co. - WW	Depreciation
122.	2010	W-218,SUB310	Aqua North Carolina, Inc.	Depreciation
123.	2011	11-4161-WS-AIR	Ohio American Water Company	Depreciation
124.	2011	EC-123-0082-00	Entergy Mississippi	Depreciation
125.	2011	11AL-387E	Black Hills Colorado	Depreciation
126.	2011	R-2010-2215623	Columbia Gas of Pennsylvania	Depreciation
127.	2011	R-2010-2179103	City of Lancaster – Bureau of Water	Depreciation
128.	2011	43114 IGCC 4S	Duke Energy Indiana	Depreciation
129.	2011	IS11-146-000	Enbridge Pipelines (Southern Lights)	Depreciation
130.	2011	11-0217	MidAmerican Energy Corporation	Depreciation
131.	2011	201100087	Oklahoma Gas & Electric Company	Depreciation
132.	2011	2011-2232243	Pennsylvania American Water Company	Depreciation

LIST OF CASES IN WHICH JOHN J. SPANOS SUBMITTED TESTIMONY, cont.

<u>Year</u>	<u>Jurisdiction</u>	<u>Docket No.</u>	<u>Client Utility</u>	<u>Subject</u>
133.	2011	FERC	RP11-____-000	Depreciation
134.	2012	WA UTC	UE-120436/UG-120437	Depreciation
135.	2012	AK Reg Cm	U-12-009	Depreciation
136.	2012	MA PUC	DPU 12-25	Depreciation
137.	2012	TX PUC	40094	Depreciation
138.	2012	ID PUC	IPC-E-12	Depreciation
139.	2012	PA PUC	R-2012-2290597	Depreciation
140.	2012	PA PUC	R-2012-2311725	Depreciation
141.	2012	KY PSC	2012-00222	Depreciation
142.	2012	KY PSC	2012-00221	Depreciation
143.	2012	PA PUC	R-2012-2285985	Depreciation
144.	2012	DC PSC	Case 1087	Depreciation
145.	2012	OH PSC	12-1682-EL-AIR	Depreciation
146.	2012	OH PSC	12-1685-GA-AIR	Depreciation
147.	2012	PA PUC	R-2012-2310366	Depreciation
148.	2012	PA PUC	R-2012-2321748	Depreciation
149.	2012	FERC	ER-12-2681-000	Depreciation
150.	2012	MO PSC	ER-2012-0174	Depreciation
151.	2012	MO PSC	ER-2012-0175	Depreciation
152.	2012	MO PSC	GO-2012-0363	Depreciation
153.	2012	MN PUC	G007,001/D-12-533	Depreciation
154.	2012	TX PUC	SOAH 582-14-1051/ TECQ 2013-2007-UCR	Depreciation
155.	2012	PA PUC	2012-2336379	Depreciation
156.	2013	NJ BPU	ER12121071	Depreciation
157.	2013	KY PSC	2013-00167	Depreciation
158.	2013	VA St CC	2013-00020	Depreciation
159.	2013	IA Util Bd	2013-0004	Depreciation
160.	2013	PA PUC	2013-2355276	Depreciation
161.	2013	NY PSC	13-E-0030, 13-G-0031, 13-S-0032	Depreciation
162.	2013	PA PUC	2013-2355886	Depreciation
163.	2013	TN Reg Auth	12-0504	Depreciation
164.	2013	ME PUC	2013-168	Depreciation
165.	2013	DC PSC	Case 1103	Depreciation
			Peoples TWP LLC	Depreciation
			Tennessee American Water	Depreciation
			Central Maine Power Company	Depreciation
			PHI Service Company – PEPCO	Depreciation
			York Water Company	Depreciation
			PHI Service Company– Atlantic City Electric	Depreciation
			Columbia Gas of Kentucky	Depreciation
			Virginia Electric and Power Company	Depreciation
			MidAmerican Energy Corporation	Depreciation
			Pennsylvania American Water Company	Depreciation
			Consolidated Edison of New York	Depreciation
			Kansas City Power and Light	Depreciation
			KCP&L Greater Missouri Operations Company	Depreciation
			Laclede Gas Company	Depreciation
			Integrus – MN Energy Resource Group	Depreciation
			Aqua Texas	Depreciation
			Duke Energy Ohio (Electric)	Depreciation
			Duke Energy Ohio (Gas)	Depreciation
			City of Lancaster – Sewer Fund	Depreciation
			Columbia Gas of Pennsylvania	Depreciation
			ITC Holdings	Depreciation
			Peoples Natural Gas Company	Depreciation
			Potomac Electric Power Company	Depreciation
			Borough of Hanover – Bureau of Water	Depreciation
			Louisville Gas and Electric Company	Depreciation
			Kentucky Utilities Company	Depreciation
			Peoples Electric Power Company	Depreciation
			Duke Energy Ohio (Electric)	Depreciation
			Duke Energy Ohio (Gas)	Depreciation
			City of Lancaster – Sewer Fund	Depreciation
			Columbia Gas of Pennsylvania	Depreciation
			ITC Holdings	Depreciation
			Kansas City Power and Light	Depreciation
			KCP&L Greater Missouri Operations Company	Depreciation
			Laclede Gas Company	Depreciation
			Integrus – MN Energy Resource Group	Depreciation
			Aqua Texas	Depreciation
			York Water Company	Depreciation
			PHI Service Company– Atlantic City Electric	Depreciation
			Columbia Gas of Kentucky	Depreciation
			Virginia Electric and Power Company	Depreciation
			MidAmerican Energy Corporation	Depreciation
			Pennsylvania American Water Company	Depreciation
			Consolidated Edison of New York	Depreciation
			Peoples TWP LLC	Depreciation
			Tennessee American Water	Depreciation
			Central Maine Power Company	Depreciation
			PHI Service Company – PEPCO	Depreciation

LIST OF CASES IN WHICH JOHN J. SPANOS SUBMITTED TESTIMONY, cont.

<u>Year</u>	<u>Jurisdiction</u>	<u>Docket No.</u>	<u>Client Utility</u>	<u>Subject</u>
166.	2013	2003-ER-13	Cheyenne Light, Fuel and Power Company	Depreciation
167.	2013	ERC-2428-0000	Kentucky Utilities	Depreciation
168.	2013	ERC- -0000	MidAmerican Energy Company	Depreciation
169.	2013	ERC-2410-0000	PPL Utilities	Depreciation
170.	2013	R-2013-2372129	Duquesne Light Company	Depreciation
171.	2013	ERC12111052	Jersey Central Power and Light Company	Depreciation
172.	2013	R-2013-2390244	Bethlehem, City of – Bureau of Water	Depreciation
173.	2013	UM 1679	Oklahoma, Public Service Company of	Depreciation
174.	2013	13-0500	Nicor Gas Company	Depreciation
175.	2013	20000-427-EA-13	PacifiCorp	Depreciation
176.	2013	13-035-02	PacifiCorp	Depreciation
177.	2013	UM 1647	PacifiCorp	Depreciation
178.	2013	2013-2350509	Dubois, City of	Depreciation
179.	2014	14-0224	North Shore Gas Company	Depreciation
180.	2014	ERC14- -0000	Duquesne Light Company	Depreciation
181.	2014	EL14-026	Black Hills Power Company	Depreciation
182.	2014	20002-91-ER-14	Black Hills Power Company	Depreciation
183.	2014	2014-2428304	Borough of Hanover – Municipal Water Works	Depreciation
184.	2014	2014-2406274	Columbia Gas of Pennsylvania	Depreciation
185.	2014	14-0225	Peoples Gas Light and Coke Company	Depreciation
186.	2014	ER-2014-0258	Ameren Missouri	Depreciation
187.	2014	14-BHCG-502-RTS	Black Hills Service Company	Depreciation
188.	2014	14-BHCG-502-RTS	Black Hills Utility Holdings	Depreciation
189.	2014	14-BHCG-502-RTS	Black Hills Kansas Gas	Depreciation
190.	2014	2014-2418872	Lancaster, City of – Bureau of Water	Depreciation
191.	2014	14-0701-E-D	First Energy – MonPower/PotomacEdison	Depreciation
192.	2014	PUC-2014-00045	Aqua Virginia	Depreciation
193.	2014	PUE-2013	Virginia American Water Company	Depreciation
194.	2014	PUD201400229	Oklahoma Gas and Electric Company	Depreciation
195.	2014	UM1679	Portland General Electric	Depreciation
196.	2014	Cause No. 44576	Indianapolis Power & Light	Depreciation
197.	2014	MA DPU	NSTAR Gas	Depreciation
198.	2014	CT PURA	Connecticut Light and Power	Depreciation
199.	2014	ER-2014-0370	Kansas City Power & Light	Depreciation

LIST OF CASES IN WHICH JOHN J. SPANOS SUBMITTED TESTIMONY, cont.

<u>Year</u>	<u>Jurisdiction</u>	<u>Docket No.</u>	<u>Client Utility</u>	<u>Subject</u>
200.	KY PSC	2014-00371	Kentucky Utilities Company	Depreciation
201.	KY PSC	2014-00372	Louisville Gas and Electric Company	Depreciation
202.	PA PUC	R-2015-2462723	United Water Pennsylvania Inc.	Depreciation
203.	PA PUC	R-2015-2468056	NiSource - Columbia Gas of Pennsylvania	Depreciation
204.	NY PSC	15-E-0283/15-G-0284	New York State Electric and Gas Corporation	Depreciation
205.	NY PSC	15-E-0285/15-G-0286	Rochester Gas and Electric Corporation	Depreciation
206.	MO PSC	WR-2015-0301/SR-2015-0302	Missouri American Water Company	Depreciation
207.	OK CC	PUD 201500208	Oklahoma, Public Service Company of	Depreciation
208.	WV PSC	15-0676-W-42T	West Virginia American Water Company	Depreciation
209.	PA PUC	2015-2469275	PPL Electric Utilities	Depreciation
210.	IN URC	Cause No. 44688	Northern Indiana Public Service Company	Depreciation
211.	OH PSC	14-1929-EL-RDR	First Energy-Ohio Edison/Cleveland Electric/ Toledo Edison	Depreciation
212.	NM PRC	15-00127-UT	El Paso Electric	Depreciation
213.	TX PUC	PUC-44941; SOAH 473-15-5257	El Paso Electric	Depreciation
214.	WI PSC	3270-DU-104	Madison Gas and Electric Company	Depreciation
215.	OK CC	PUD 201500273	Oklahoma Gas and Electric	Depreciation
216.	KY PSC	Doc. No. 2015-00418	Kentucky American Water Company	Depreciation
217.	NC UC	Doc. No. G-5, Sub 565	Public Service Company of North Carolina	Depreciation
218.	WA UTC	Docket UE-17	Puget Sound Energy	Depreciation
219.	NY PSC	Case No. 16-W-0130	SUEZ Water New York, Inc.	Depreciation
220.	MO PSC	ER-2016-0156	KCPL – Greater Missouri	Depreciation
221.	WI PSC		Wisconsin Public Service Corporation	Depreciation
222.	KY PSC	Case No. 2016-00026	Kentucky Utilities Company	Depreciation
223.	KY PSC	Case No. 2016-00027	Louisville Gas and Electric Company	Depreciation
224.	OH PUC	Case No. 16-0907-WW-AIR	Aqua Ohio	Depreciation
225.	MD PSC	Case 9417	NiSource - Columbia Gas of Maryland	Depreciation
226.	KY PSC	2016-00162	Columbia Gas of Kentucky	Depreciation
227.	DE PSC	16-0649	Delmarva Power and Light Company – Electric	Depreciation
228.	DE PSC	16-0650	Delmarva Power and Light Company – Gas	Depreciation
229.	NY PSC	Case 16-G-0257	National Fuel Gas Distribution Corp – NY Div	Depreciation
230.	PA PUC	R-2016-2537349	Metropolitan Edison Company	Depreciation
231.	PA PUC	R-2016-2537352	Pennsylvania Electric Company	Depreciation
232.	PA PUC	R-2016-2537355	Pennsylvania Power Company	Depreciation

LIST OF CASES IN WHICH JOHN J. SPANOS SUBMITTED TESTIMONY, cont.

	<u>Year</u>	<u>Jurisdiction</u>	<u>Docket No.</u>	<u>Client Utility</u>	<u>Subject</u>
233.	2016	PA PUC	R-2016-2537359	West Penn Power Company	Depreciation
234.	2016	PA PUC	R-2016-2529660	NiSource - Columbia Gas of PA	Depreciation
235.	2016	KY PSC	Case No. 2016-00063	Kentucky Utilities / Louisville Gas & Electric Co	Depreciation
236.	2016	MO PSC	ER-2016-0285	KCP&L Missouri	Depreciation
237.	2016	AR PSC	16-052-U	Oklahoma Gas & Electric Co	Depreciation
238.	2016	PSCW	6680-DU-104	Wisconsin Power and Light	Depreciation
239.	2016	ID PUC	IPC-E-16-23	Idaho Power Company	Depreciation
240.	2016	OR PUC	UM1801	Idaho Power Company	Depreciation
241.	2016	ILL CC	16-	MidAmerican Energy Company	Depreciation
242.	2016	KY PSC	Case No. 2016-00370	Kentucky Utilities Company	Depreciation
243.	2016	KY PSC	Case No. 2016-00371	Louisville Gas and Electric Company	Depreciation
244.	2016	IN URC	Cause No. 45029	Indianapolis Power & Light	Depreciation
245.	2016	AL RC	U-16-081	Chugach Electric Association	Depreciation
246.	2017	MA DPU	D.P.U. 17-05	NSTAR Electric Company and Western Massachusetts Electric Company	Depreciation
247.	2017	TX PUC	PUC-26831, SOAH 973-17-2686	El Paso Electric Company	Depreciation
248.	2017	WA UTC	UE-17033 and UG-170034	Puget Sound Energy	Depreciation
249.	2017	OH PUC	Case No. 17-0032-EL-AIR	Duke Energy Ohio	Depreciation
250.	2017	VA SCC	Case No. PUE-2016-00413	Virginia Natural Gas, Inc.	Depreciation
251.	2017	OK CC	Case No. PUD201700151	Public Service Company of Oklahoma	Depreciation
252.	2017	MD PSC	Case No. 9447	Columbia Gas of Maryland	Depreciation
253.	2017	NC UC	Docket No. E-2, Sub 1142	Duke Energy Progress	Depreciation
254.	2017	VA SCC	Case No. PUR-2017-00090	Dominion Virginia Electric and Power Company	Depreciation
255.	2017	FERC	ER17-1162	MidAmerican Energy Company	Depreciation
256.	2017	PA PUC	R-2017-2595853	Pennsylvania American Water Company	Depreciation
257.	2017	OR PUC	UM1809	Portland General Electric	Depreciation
258.	2017	FERC	ER17-217-000	Jersey Central Power & Light	Depreciation
259.	2017	FERC	ER17-211-000	Mid-Atlantic Interstate Transmission, LLC	Depreciation
260.	2017	MN PUC	Docket No. G007/D-17-442	Minnesota Energy Resources Corporation	Depreciation
261.	2017	IL CC	Docket No. 17-0124	Northern Illinois Gas Company	Depreciation
262.	2017	OR PUC	UM1808	Northwest Natural Gas Company	Depreciation
263.	2017	NY PSC	Case No. 17-W-0528	SUEZ Water Owego-Nichols	Depreciation
264.	2017	MO PSC	GR-2017-0215	Laclede Gas Company	Depreciation
265.	2017	MO PSC	GR-2017-0216	Missouri Gas Energy	Depreciation

LIST OF CASES IN WHICH JOHN J. SPANOS SUBMITTED TESTIMONY, cont.

	<u>Year</u>	<u>Jurisdiction</u>	<u>Docket No.</u>	<u>Client Utility</u>	<u>Subject</u>
266.	2017	ILL CC	Docket No. 17-0337	Illinois-American Water Company	Depreciation
267.	2017	FERC	Docket No. ER18-22-000	PPL Electric Utilities Corporation	Depreciation
268.	2017	IN URC	Cause No. 44988	Northern Indiana Public Service Company	Depreciation
269.	2017	NJ BPU	BPU Docket No. WR17090985	New Jersey American Water Company, Inc.	Depreciation
270.	2017	RI PUC	Docket No. 4800	SUEZ Water Rhode Island	Depreciation
271.	2017	OK CC	Cause No. PUD 201700496	Oklahoma Gas and Electric Company	Depreciation
272.	2017	NJ BPU	ER18010029 & GR18010030	Public Service Electric and Gas Company	Depreciation
273.	2017	NC Util Com.	Docket No. E-7, SUB 1146	Duke Energy Carolinas, LLC	Depreciation
274.	2017	KY PSC	Case No. 2017-00321	Duke Energy Kentucky, Inc.	Depreciation
275.	2017	MA DPU	D.P.U. 18-40	Berkshire Gas Company	Depreciation
276.	2018	IN IURC	Cause No. 44992	Indiana-American Water Company, Inc.	Depreciation
277.	2018	IN IURC	Cause No. 45029	Indianapolis Power and Light	Depreciation
278.	2018	NC Util Com.	Docket No. W-218, Sub 497	Aqua North Carolina, Inc.	Depreciation
279.	2018	PA PUC	Docket No. R-2018-2647577	NiSource - Columbia Gas of Pennsylvania, Inc.	Depreciation
280.	2018	OR PUC	Docket UM 1933	Avista Corporation	Depreciation
281.	2018	WA UTC	Docket No. UE-108167	Avista Corporation	Depreciation
282.	2018	ID PUC	AVU-E-18-03, AVU-G-18-02	Avista Corporation	Depreciation
283.	2018	IN URC	Cause No. 45039	Citizens Energy Group	Depreciation
284.	2018	FERC	Docket No. ER18-	Duke Energy Progress	Depreciation
285.	2018	PA PUC	Docket No. R-2018-3000124	Duquesne Light Company	Depreciation
286.	2018	MD PSC	Case No. 948	NiSource - Columbia Gas of Maryland	Depreciation
287.	2018	MA DPU	D.P.U. 18-45	NiSource - Columbia Gas of Massachusetts	Depreciation
288.	2018	OH PUC	Case No. 18-0299-GA-ALT	Vectren Energy Delivery of Ohio	Depreciation
289.	2018	PA PUC	Docket No. R-2018-3000834	SUEZ Water Pennsylvania Inc.	Depreciation
290.	2018	MD PSC	Case No. 9847	Maryland-American Water Company	Depreciation
291.	2018	PA PUC	Docket No. R-2018-3000019	The York Water Company	Depreciation
292.	2018	FERC	ER-18-2231-000	Duke Energy Carolinas, LLC	Depreciation
293.	2018	KY PSC	Case No. 2018-00261	Duke Energy Kentucky, Inc.	Depreciation
294.	2018	NJ BPU	BPU Docket No. WR18050593	SUEZ Water New Jersey	Depreciation
295.	2018	WA UTC	Docket No. UE-180778	PacifiCorp	Depreciation
296.	2018	UT PSC	Docket No. 18-035-36	PacifiCorp	Depreciation
297.	2018	OR PUC	Docket No. UM-1968	PacifiCorp	Depreciation
298.	2018	ID PUC	Case No. PAC-E-18-08	PacifiCorp	Depreciation
299.	2018	WY PSC	20000-539-EA-18	PacifiCorp	Depreciation
300.	2018	PA PUC	Docket No. R-2018-3003068	Aqua Pennsylvania, Inc.	Depreciation

LIST OF CASES IN WHICH JOHN J. SPANOS SUBMITTED TESTIMONY, cont.

<u>Year</u>	<u>Jurisdiction</u>	<u>Docket No.</u>	<u>Client Utility</u>	<u>Subject</u>
301. 2018	IL CC	Docket No. 18-1467	Aqua Illinois, Inc.	Depreciation
302. 2018	KY PSC	Case No. 2018-00294	Louisville Gas & Electric Company	Depreciation
303. 2018	KY PSC	Case No. 2018-00295	Kentucky Utilities Company	Depreciation
304. 2018	IN URC	Cause No. 45159	Northern Indiana Public Service Company	Depreciation
305. 2018	VA SCC	Case No. PUR-2019-00175	Virginia American Water Company	Depreciation
306. 2019	PA PUC	Docket No. R-2018-3006818	Peoples Natural Gas Company, LLC	Depreciation
307. 2019	OK CC	Cause No. PUD201800140	Oklahoma Gas and Electric Company	Depreciation
308. 2019	MD PSC	Case No. 9490	FirstEnergy – Potomac Edison	Depreciation
309. 2019	SC PSC	Docket No. 2018-318-E	Duke Energy Progress	Depreciation
310. 2019	SC PSC	Docket No. 2018-319-E	Duke Energy Carolinas	Depreciation
311. 2019	DE PSC	DE 19-057	Public Service of New Hampshire	Depreciation
312. 2019	NY PSC	Case No. 19-W-0168 & 19-W-0269	SUEZ Water New York	Depreciation
313. 2019	PA PUC	Docket No. R-2019-3006904	Newtown Artesian Water Company	Depreciation
314. 2019	MO PSC	ER-2019-0335	Ameren Missouri	Depreciation
315. 2019	MO PSC	EC-2019-0200	KCP&L Greater Missouri Operations Company	Depreciation
316. 2019	MN DOC	G011/D-19-377	Minnesota Energy Resource Corp.	Depreciation
317. 2019	NY PSC	Case 19-E-0378 & 19-G-0379	New York State Electric and Gas Corporation	Depreciation
318. 2019	NY PSC	Case 19-E-0380 & 19-G-0381	Rochester Gas and Electric Corporation	Depreciation
319. 2019	WA UTC	Docket UE-190529 / UG-190530	Puget Sound Energy	Depreciation
320. 2019	PA PUC	Docket No. R-2019-3010955	City of Lancaster	Depreciation
321. 2019	IURC	Cause No. 45253	Duke Energy Indiana	Depreciation
322. 2019	KY PSC	Case No. 2019-00271	Duke Energy Kentucky, Inc.	Depreciation
323. 2019	OH PUC	Case No. 18-1720-GA-AIR	Northeast Ohio Natural Gas Corp	Depreciation
324. 2019	NC Util. Com.	Docket No. E-2, Sub 1219	Duke Energy Carolinas	Depreciation
325. 2019	FERC	Docket No. ER20-277-000	Jersey Central Power & Light Company	Depreciation
326. 2019	MA DPU	D.P.U. 19-120	NSTAR Gas Company	Depreciation
327. 2019	SC PSC	Docket No. 2019-290-WS	Blue Granite Water Company	Depreciation
328. 2019	NC Util. Com.	Docket No. E-2, Sub 1219	Duke Energy Progress	Depreciation
329. 2019	MD PSC	Case No. 9609	NiSource Columbia Gas of Maryland, Inc.	Depreciation
330. 2020	NJ BPU	Docket No. ER20020146	Jersey Central Power & Light Company	Depreciation
331. 2020	PA PUC	Docket No. R-2020-3018835	NiSource - Columbia Gas of Pennsylvania, Inc.	Depreciation
332. 2020	PA PUC	Docket No. R-2020-3019369	Pennsylvania-American Water Company	Depreciation
333. 2020	PA PUC	Docket No. R-2020-3019371	Pennsylvania-American Water Company	Depreciation
334. 2020	MO PSC	GO-2018-0309, GO-2018-0310	Spire Missouri, Inc.	Depreciation
335. 2020	NM PRC	Case No. 20-00104-UT	El Paso Electric Company	Depreciation
336. 2020	MD PSC	Case No. 9644	Columbia Gas of Maryland, Inc.	Depreciation
337. 2020	MO PSC	GO-2018-0309, GO-2018-0310	Spire Missouri, Inc.	Depreciation
338. 2020	VA St CC	Case No. PUR-2020-00095	Virginia Natural Gas Company	Depreciation

LIST OF CASES IN WHICH JOHN J. SPANOS SUBMITTED TESTIMONY, cont.

Year	Jurisdiction	Docket No.	Client Utility	Subject
339.	2020	SC PSC	Docket No. 2020-125-E	Depreciation
340.	2020	WV PSC	Case No. 20-0745-G-D	Depreciation
341.	2020	VA St CC	Case No. PUR-2020-00106	Depreciation
342.	2020	PA PUC	Docket No. R-2020-3020256	Depreciation
343.	2020	NE PSC	Docket No. NG-109	Depreciation
344.	2020	NY PSC	Case No. 20-E-0428 & 20-G-0429	Depreciation
345.	2020	FERC	ER20-598	Depreciation
346.	2020	FERC	ER20-855	Depreciation
347.	2020	OR PSC	UE 374	Depreciation
348.	2020	MD PSC	Case No. 9490 Phase II	Depreciation
349.	2020	IN URC	Case No. 45447	Depreciation
350.	2020	IN URC	IURC Cause No. 45468	Depreciation
351.	2020	KY PSC	Case No. 2020-00349	Depreciation
352.	2020	KY PSC	Case No. 2020-00350	Depreciation
353.	2020	FERC	Docket No. ER21- 000	Depreciation
354.	2020	OH PUC	Case Nos 20-1651-EL-AIR, 20-1652-EL-AAM & 20-1653-EL-ATA	Depreciation
355.	2020	OR PSC	UG 388	Depreciation
356.	2020	MO PSC	Case No. GR-2021-0241	Depreciation
357.	2021	KY PSC	Case No. 2021-00103	Depreciation
358.	2021	MPUC	Docket No. 2021-00024	Depreciation
359.	2021	PA PUC	Docket No. R-2021-3024296	Depreciation
360.	2021	NC Util. Com.	Doc. No. G-5, Sub 632	Depreciation
361.	2021	MO PSC	ER-2021-0240	Depreciation
362.	2021	PA PUC	Docket No. R-2021-3024750	Depreciation
363.	2021	KS PSC	21-BHCG-418-RTS	Depreciation
364.	2021	KY PSC	Case No. 2021-00190	Depreciation
365.	2021	OR PSC	Docket UM 2152	Depreciation
366.	2021	ILL CC	Docket No. 20-0810	Depreciation
367.	2021	FERC	ER21-1939-000	Depreciation
368.	2021	FERC	ER21-1940-000	Depreciation
369.	2021	KY PSC	Case No. 2021-00183	Depreciation
370.	2021	MD PSC	Case No. 9664	Depreciation
371.	2021	OH PUC	Case No. 21-0596-ST-AIR	Depreciation
372.	2021	PA PUC	Docket No. R-2021-3026116	Depreciation
373.	2021	OR PSC	UM-2180	Depreciation
374.	2021	ID PUC	Case No. IPC-E-21-18	Depreciation
375.	2021	WPSC	6690-DU-104	Depreciation
			Northwest Natural Gas Company	Depreciation
			Ameren Missouri Gas	Depreciation
			East Kentucky Power Cooperative	Depreciation
			Bangor Natural Gas	Depreciation
			Columbia Gas of Pennsylvania, Inc.	Depreciation
			Public Service of North Carolina	Depreciation
			Ameren Missouri	Depreciation
			Duquesne Light Company	Depreciation
			Black Hills Kansas Gas	Depreciation
			Duke Energy Kentucky	Depreciation
			Portland General Electric	Depreciation
			North Shore Gas Company	Depreciation
			Duke Energy Progress	Depreciation
			Duke Energy Carolina	Depreciation
			NiSource Columbia Gas of Kentucky	Depreciation
			NiSource Columbia Gas of Maryland	Depreciation
			Aqua Ohio	Depreciation
			Hanover Borough Municipal Water Works	Depreciation
			Idaho Power Company	Depreciation
			Idaho Power Company	Depreciation
			Wisconsin Public Service Company	Depreciation

LIST OF CASES IN WHICH JOHN J. SPANOS SUBMITTED TESTIMONY, cont.

	<u>Year</u>	<u>Jurisdiction</u>	<u>Docket No.</u>	<u>Client Utility</u>	<u>Subject</u>
376.	2021	PAPUC	Docket No. R-2021-3026116	Borough of Hanover	Depreciation
377.	2021	OH PUC	Case No. 21-637-GA-AIR; Case No. 21-638-GA-ALT; Case No. 21-639-GA-UNC; Case No. 21-640-GA-AAM	NiSource Columbia Gas of Ohio	Depreciation
378.	2021	TX PUC	Texas PUC Docket No. 52195; SOHA Docket No. 473-21-2606	El Paso Electric	Depreciation
379.	2021	MO PSC	Case No. GR.2021-0108	Spire Missouri	Depreciation
380.	2021	WV PSC	Case No. 21-0215-WS-P	West Virginia American Water Company	Depreciation
381.	2021	FERC	ER21-2736	Duke Energy Carolinas	Depreciation
382.	2021	FERC	ER21-2737	Duke Energy Progress	Depreciation
383.	2021	IN URC	Cause #45621	Northern Indiana Public Service Company	Depreciation
384.	2021	PA PUC	Docket No. R-2021-3026682	City of Lancaster	Depreciation

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Case No(s). 21-0887-EL-AIR, 21-0888-EL-ATA, 21-0889-EL-AAM

Summary: Testimony Direct Testimony of John J. Spanos electronically filed by Mrs. Tammy M. Meyer on behalf of Duke Energy Ohio Inc. and D'Ascenzo, Rocco and Kingery, Jeanne W. and Vaysman, Larisa and Elizabeth M. Brama