

BEFORE

THE PUBLIC UTILITIES COMMISSION OF OHIO

In the Matter of the Application of)	
Duke Energy Ohio, Inc., for an)	Case No. 12-1685-GA-AIR
Increase in Gas Rates.)	
 In the Matter of the Application of)	
Duke Energy Ohio, Inc., for Tariff)	Case No. 12-1686-GA-ATA
Approval.)	
 In the Matter of the Application of)	
Duke Energy Ohio, Inc., for Approval)	Case No. 12-1687-GA-ALT
of an Alternative Rate Plan for Gas)	
Distribution Service.)	
 In the Matter of the Application of)	
Duke Energy Ohio, Inc., for Approval)	Case No. 12-1688-GA-AAM
to Change Accounting Methods.)	

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DIRECT TESTIMONY OF

JOHN J. SPANOS

ON BEHALF OF

DUKE ENERGY OHIO, INC.

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

July 20, 2012

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I. INTRODUCTION AND PURPOSE

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.

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, Inc.

7 **Q. HOW LONG HAVE YOU BEEN ASSOCIATED WITH GANNETT
8 FLEMING VALUATION AND RATE CONSULTANTS, INC.?**

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

10 **Q. WHAT IS YOUR POSITION WITH THE FIRM?**

11 A. I am a Senior Vice President.

12 **Q. WHAT IS YOUR EDUCATIONAL BACKGROUND?**

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

16 **Q. DO YOU BELONG TO ANY PROFESSIONAL SOCIETIES?**

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

20 **Q. DO YOU HOLD ANY SPECIAL CERTIFICATION AS A
21 DEPRECIATION EXPERT?**

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

5 **Q. PLEASE OUTLINE YOUR EXPERIENCE IN THE FIELD OF**
6 **DEPRECIATION.**

7 A. In June 1986, I was employed by Gannett Fleming Valuation and Rate Consultants,
8 Inc., as a Depreciation Analyst. During the period from June 1986 through
9 December 1995, I helped prepare numerous depreciation and original cost studies
10 for utility companies in various industries. I helped perform depreciation studies for
11 the following telephone companies: United Telephone of Pennsylvania, United
12 Telephone of New Jersey and Anchorage Telephone Utility. I helped perform
13 depreciation studies for the following companies in the railroad industry: Union
14 Pacific Railroad, Burlington Northern Railroad and Wisconsin Central
15 Transportation Corporation.

16 I helped perform depreciation studies for the following organizations in
17 the electric industry: Chugach Electric Association, Duke Energy Ohio, Inc.
18 (Duke Energy Ohio), Duke Energy Kentucky, Inc. (Duke Energy Kentucky),
19 Northwest Territories Power Corporation and the City of Calgary - Electric
20 System.

21 I helped perform depreciation studies for the following pipeline
22 companies: TransCanada Pipelines Limited, Trans Mountain Pipe Line Company

1 Ltd., Interprovincial Pipe Line Inc., Nova Gas Transmission Limited and
2 Lakehead Pipeline Company.

3 I helped perform depreciation studies for the following gas companies:
4 Columbia Gas of Pennsylvania, Columbia Gas of Maryland, The Peoples Natural
5 Gas Company, T. W. Phillips Gas & Oil Company, Duke Energy Ohio, Duke
6 Energy Kentucky, Lawrenceburg Gas Company and Penn Fuel Gas, Inc.

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

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

17 In January 1996, I was assigned to the position of Supervisor of
18 Depreciation Studies. In July 1999, I was promoted to the position of Manager,
19 Depreciation and Valuation Studies. In December 2000, I was promoted to the
20 position of Vice-President of Gannett Fleming Valuation and Rate Consultants,
21 Inc., and in April 2012, I was promoted to my present position as Senior Vice
22 President of the Valuation and Rate Division of Gannett Fleming, Inc. In my
23 current position, I am responsible for conducting all depreciation, valuation and

1 original cost studies, including the preparation of final exhibits and responses to
2 data requests for submission to the appropriate regulatory bodies.

3 Since January 1996, I have conducted depreciation studies similar to those
4 previously listed, including assignments for Pennsylvania-American Water
5 Company; Aqua Pennsylvania; Kentucky-American Water Company; Virginia-
6 American Water Company; Indiana-American Water Company; Hampton Water
7 Works Company; Omaha Public Power District; Enbridge Pipe Line Company;
8 Inc.; Columbia Gas of Virginia, Inc.; Virginia Natural Gas Company; National
9 Fuel Gas Distribution Corporation - New York and Pennsylvania Divisions; The
10 City of Bethlehem - Bureau of Water; The City of Coatesville Authority; The City
11 of Lancaster - Bureau of Water; Peoples Energy Corporation; The York Water
12 Company; Public Service Company of Colorado; Enbridge Pipelines; Enbridge
13 Gas Distribution, Inc.; Reliant Energy-HLP; Massachusetts-American Water
14 Company; St. Louis County Water Company; Missouri-American Water
15 Company; Chugach Electric Association; Alliant Energy; Oklahoma Gas &
16 Electric Company; Nevada Power Company; Dominion Virginia Power; NUI -
17 Virginia Gas Companies; Pacific Gas & Electric Company; PSI Energy; NUI -
18 Elizabethtown Gas Company; Cinergy Corporation - CG&E; Cinergy Corporation
19 - ULH&P; Columbia Gas of Kentucky; South Carolina Electric & Gas Company;
20 Idaho Power Company; El Paso Electric Company; Central Hudson Gas &
21 Electric; Centennial Pipeline Company; CenterPoint Energy-Arkansas;
22 CenterPoint Energy - Oklahoma; CenterPoint Energy - Entex; CenterPoint
23 Energy - Louisiana; NSTAR - Boston Edison Company; Westar Energy, Inc.;

1 United Water Pennsylvania; PPL Electric Utilities; PPL Gas Utilities; Wisconsin
2 Power & Light Company; TransAlaska Pipeline; Avista Corporation; Northwest
3 Natural Gas; Allegheny Energy Supply, Inc.; Public Service Company of North
4 Carolina; South Jersey Gas Company; Duquesne Light Company; MidAmerican
5 Energy Company; Laclede Gas; Duke Energy Corporation; E.ON U.S. Services
6 Inc.; Elkton Gas Services; Anchorage Water and Wastewater Utility; Kansas City
7 Power and Light; Duke Energy North Carolina; Duke Energy South Carolina;
8 Duke Energy Ohio Gas; Duke Energy Kentucky; Duke Energy Indiana; Northern
9 Indiana Public Service Company; Tennessee-American Water Company;
10 Columbia Gas of Maryland; Bonneville Power Administration; NSTAR Electric
11 and Gas Company; EPCOR Distribution, Inc.; B. C. Gas Utility, Ltd; Entergy
12 Arkansas; Entergy Texas; Entergy Mississippi; Entergy Louisiana; Entergy Gulf
13 States Louisiana; the Borough of Hanover; Madison Gas and Electric; Atlantic
14 City Electric and Greater Missouri Operations. My additional duties include
15 determining final life and salvage estimates, conducting field reviews, presenting
16 recommended depreciation rates to management for its consideration and
17 supporting such rates before regulatory bodies.

18 **Q. HAVE YOU SUBMITTED TESTIMONY TO ANY STATE UTILITY**
19 **COMMISSION ON THE SUBJECT OF UTILITY PLANT**
20 **DEPRECIATION?**

21 A. Yes. I have submitted testimony to the Pennsylvania Public Utility Commission;
22 the Commonwealth of Kentucky Public Service Commission; the Public Utilities
23 Commission of Ohio; the Nevada Public Utility Commission; the Public Utilities

1 Board of New Jersey; the Missouri Public Service Commission; the
2 Massachusetts Department of Telecommunications and Energy; the Alberta
3 Energy & Utility Board; the Idaho Public Utility Commission; the Louisiana
4 Public Service Commission; the State Corporation Commission of Kansas; the
5 Oklahoma Corporate Commission; the Public Service Commission of South
6 Carolina; the Railroad Commission of Texas – Gas Services Division; the New
7 York Public Service Commission; the Illinois Commerce Commission; the
8 Indiana Utility Regulatory Commission; the California Public Utilities
9 Commission; the Federal Energy Regulatory Commission (FERC); the Arkansas
10 Public Service Commission; the Public Utility Commission of Texas; the
11 Maryland Public Service Commission; the Washington Utilities and
12 Transportation Commission; the Tennessee Regulatory Commission; the District
13 of Columbia Public Service Commission; the Mississippi Public Service
14 Commission; the Regulatory Commission of Alaska; Delaware Public Service
15 Commission; Virginia State Corporation Commission; Colorado Public Utility
16 Commission; Oregon Public Utility Commission; Wisconsin Public Service
17 Commission; and the North Carolina Utilities Commission.

18 **Q. HAVE YOU HAD ANY ADDITIONAL EDUCATION RELATING TO**
19 **UTILITY PLANT DEPRECIATION?**

20 A. Yes. I have completed the following courses conducted by Depreciation Programs,
21 Inc.: “Techniques of Life Analysis,” “Techniques of Salvage and Depreciation
22 Analysis,” “Forecasting Life and Salvage,” “Modeling and Life Analysis Using
23 Simulation” and “Managing a Depreciation Study.” I have also completed the

1 “Introduction to Public Utility Accounting” program conducted by the American
2 Gas Association.

3 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THESE**
4 **PROCEEDINGS?**

5 A. I sponsor the depreciation study performed for Duke Energy Ohio, or the Company,
6 and provided information to Duke Energy Ohio witness Carl J. Council, Jr., for his
7 use in preparation of various schedules. The depreciation study was filed with the
8 July 9, 2012, Application as Supplemental Filing Requirement Schedule (C)(20).

II. DEPRECIATION STUDY

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

10 A. Depreciation refers to the loss in service value not restored by current
11 maintenance, incurred in connection with the consumption or prospective
12 retirement of utility plant in the course of service from causes which can be
13 reasonably anticipated or contemplated, against which the Company is not
14 protected by insurance. Among the causes to be given consideration are wear and
15 tear, decay, action of the elements, inadequacy, obsolescence, changes in the art,
16 changes in demand and the requirements of public authorities.

17 **Q. DID YOU PREPARE THE DEPRECIATION STUDY FILED BY DUKE**
18 **ENERGY OHIO IN THESE PROCEEDINGS?**

19 A. Yes. I prepared the depreciation study submitted by Duke Energy Ohio with its
20 filing in these proceedings. My report is entitled: “Depreciation Study - Calculated
21 Annual Depreciation Accruals Related to Gas Plant as of September 30, 2011.”
22 This report sets forth the results of my depreciation study for Duke Energy Ohio.

1 **Q. IN PREPARING THE DEPRECIATION STUDY, DID YOU FOLLOW**
2 **GENERALLY ACCEPTED PRACTICES IN THE FIELD OF**
3 **DEPRECIATION VALUATION?**

4 A. Yes.

5 **Q. PLEASE DESCRIBE THE CONTENTS OF YOUR REPORT.**

6 A. My report is presented in three parts. Part I, Introduction, presents the scope and
7 basis for the depreciation study. Part II, Methods Used in Study, includes
8 descriptions of the basis of the study, the estimation of survivor curves and net
9 salvage and the calculation of annual and accrued depreciation. Part III, Results
10 of Study, presents a description of the results, summaries of the depreciation
11 calculations, graphs and tables that relate to the service life and net salvage
12 analyses, and the detailed depreciation calculations.

13 The table on pages III-4 through III-6 presents the estimated survivor curve,
14 the net salvage percent, the original cost as of September 30, 2011, the calculated
15 annual depreciation accrual and rate and the calculated accrued depreciation for each
16 account or subaccount. The section beginning on page III-7 presents the results of
17 the retirement rate analyses prepared as the historical bases for the service life
18 estimates. The section beginning on page III-148 presents the results of the salvage
19 analysis. The section beginning on page III-187 presents the depreciation
20 calculations related to surviving original cost as of September 30, 2011.

21 **Q. PLEASE EXPLAIN HOW YOU PERFORMED YOUR DEPRECIATION**
22 **STUDY.**

1 A. I used the straight line whole life method of depreciation, with the average service
2 life procedure. The annual depreciation is based on a method of depreciation
3 accounting that seeks to distribute the cost of fixed capital assets over the useful
4 life of each unit, or group of assets, in a systematic and reasonable manner.

5 For General Plant Accounts 2910, 2911, 2940, 2950 and 2970, I used the
6 straight line whole life method of amortization. The account numbers identified
7 throughout my testimony represent those in effect as of September 30, 2011. The
8 annual amortization is based on amortization accounting that distributes the cost
9 of fixed capital assets over the amortization period selected for each account and
10 vintage.

11 **Q. HOW DID YOU DETERMINE THE RECOMMENDED ANNUAL**
12 **DEPRECIATION ACCRUAL RATES?**

13 A. I did this in two phases. In the first phase, I estimated the service life and net salvage
14 characteristics for each depreciable group, that is, each plant account or subaccount
15 identified as having similar characteristics. In the second phase, I calculated the
16 annual depreciation accrual rates based on the service life and net salvage estimates
17 determined in the first phase.

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

21 A. The service life and net salvage study consisted of compiling historical data from
22 records related to Duke Energy Ohio's plant; analyzing these data to obtain
23 historical trends of survivor characteristics; obtaining supplementary information

1 from management and operating personnel concerning practices and plans as they
2 relate to plant operations; and interpreting the above data and the estimates used by
3 other gas utilities to form judgments of average service life and net salvage
4 characteristics.

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

7 A. I analyzed the Company's accounting entries that record plant transactions during
8 the period 1956 through 2011. The transactions included additions, retirements,
9 transfers, sales and the related balances. The Company records included surviving
10 dollar value by year installed for each plant account as of September 30, 2011.

11 **Q. WHAT METHOD DID YOU USE TO ANALYZE THIS SERVICE LIFE**
12 **DATA?**

13 A. I used the retirement rate method. This is the most appropriate method when
14 retirement data covering a long period of time is available, because this method
15 determines the average rates of retirement actually experienced by the Company
16 during the period of time covered by the depreciation study.

17 **Q. PLEASE DESCRIBE HOW YOU USED THE RETIREMENT RATE**
18 **METHOD TO ANALYZE DUKE ENERGY OHIO'S SERVICE LIFE**
19 **DATA.**

20 A. I applied the retirement rate analysis to each different group of property in the study.
21 For each property group, I used the retirement rate data to form a life table which,
22 when plotted, shows an original survivor curve for that property group. Each
23 original survivor curve represents the average survivor pattern experienced by the

1 several vintage groups during the experience band studied. The survivor patterns do
2 not necessarily describe the life characteristics of the property group; therefore,
3 interpretation of the original survivor curves is required in order to use them as valid
4 considerations in estimating service life. The Iowa-type survivor curves were used
5 to perform these interpretations.

6 **Q. WHAT IS AN "IOWA-TYPE SURVIVOR CURVE" AND HOW DID YOU**
7 **USE SUCH CURVES TO ESTIMATE THE SERVICE LIFE**
8 **CHARACTERISTICS FOR EACH PROPERTY GROUP?**

9 A. Iowa-type curves are a widely-used group of survivor curves that contain the range
10 of survivor characteristics usually experienced by utilities and other industrial
11 companies. The Iowa curves were developed at the Iowa State College Engineering
12 Experiment Station through an extensive process of observing and classifying the
13 ages at which various types of property used by utilities and other industrial
14 companies had been retired.

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

19 The estimated survivor curve designations for each depreciable property
20 group indicate the average service life, the family within the Iowa system to which
21 the property group belongs, and the relative height of the mode. For example, the
22 Iowa 60-R3 indicates an average service life of sixty years; a right-moded, or R,
23 type curve (the mode occurs after average life for right-moded curves); and a

1 moderate height, 3, for the mode (possible modes for R type curves range from 1
2 to 5).

3 **Q. PLEASE DESCRIBE HOW THE ACCELERATED MAIN**
4 **REPLACEMENT PROGRAM (AMRP) WAS UTILIZED IN THIS STUDY.**

5 A. The AMRP was utilized in Account 2761, Main – Cast Iron, Copper and All
6 Valves, and Account 2801, Services – Cast Iron, Copper and Valves. This
7 program has been in place since 2000 and will continue until the year 2015 when
8 virtually all 12-inch and smaller diameter cast iron mains and most cast iron
9 services will be replaced. Therefore, the projected retirements for the years 2012
10 through 2015 were included in the life analysis for these accounts in order to
11 properly incorporate historical statistics with future expectations of service life for
12 these assets. The estimated survivor curves for the experience band 1956 through
13 2015 are plotted on page III-33 of the depreciation study for Account 2761, and
14 page III-76 for Account 2801.

15 **Q. HAS THE IMPLEMENTATION OF AMRP DATA THROUGH 2015**
16 **AFFECTED THE PROPOSED DEPRECIATION RATES?**

17 A. Yes, the utilization of the 2012 through 2015 data has properly estimated the life
18 characteristics of cast iron assets in the two accounts. Consequently, the proposed
19 depreciation accrual rates of 2.38% for Account 2761 and 3.10% for Account
20 2801 will allow for full recovery of cast iron investment in these two accounts by
21 time of retirement in 2015.

22 **Q. PLEASE DESCRIBE HOW YOU ESTIMATED NET SALVAGE**
23 **PERCENTAGES.**

1 A. I estimated the net salvage percentages by incorporating the historical data for the
2 period 1980 through 2011 and considered estimates for other gas companies.

3 **Q. PLEASE DESCRIBE THE SECOND PHASE OF THE PROCESS THAT**
4 **YOU USED IN THE DEPRECIATION STUDY IN WHICH YOU**
5 **CALCULATED ANNUAL DEPRECIATION ACCRUAL RATES.**

6 A. After I estimated the service life and net salvage characteristics for each depreciable
7 property group, I calculated the annual depreciation accrual rates for each group,
8 using the straight line whole life method, and the average service life procedure.

9 **Q. PLEASE DESCRIBE THE STRAIGHT LINE WHOLE LIFE METHOD OF**
10 **DEPRECIATION.**

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

13 **Q. PLEASE DESCRIBE AMORTIZATION ACCOUNTING.**

14 A. In amortization accounting, units of property are capitalized in the same manner as
15 they are in depreciation accounting. Amortization accounting is used for accounts
16 with a large number of units, but small asset values, therefore, depreciation
17 accounting is difficult for these assets because periodic inventories are required to
18 properly reflect plant in service. Consequently, retirements are recorded when a
19 vintage is fully amortized rather than as the units are removed from service. That is,
20 there is no dispersion of retirement. All units are retired when the age of the vintage
21 reaches the amortization period. Each plant account or group of assets is assigned a
22 fixed period which represents an anticipated life which the asset will render full
23 benefit. For example, in amortization accounting, assets that have a 25-year

1 amortization period will be fully recovered after 25 years of service and taken off
2 the Company books, but not necessarily removed from service. In contrast, assets
3 that are taken out of service before 25 years remain on the books until the
4 amortization period for that vintage has expired.

5 **Q. AMORTIZATION ACCOUNTING IS BEING UTILIZED FOR WHICH**
6 **PLANT ACCOUNTS?**

7 A. Amortization accounting is only appropriate for certain General Plant accounts.
8 These accounts are 2910, 2911, 2940, 2950 and 2970, which represent slightly more
9 than two percent of depreciable plant.

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

13 A. I will use Account 2762, Mains - Steel, as an example because it is one of the largest
14 depreciable group and represents 18% of depreciable plant.

15 The retirement rate method was used to analyze the survivor
16 characteristics of this property group. Aged plant accounting data was compiled
17 from 1956 through 2011 and analyzed in periods that best represent the overall
18 service life of this property. The life tables for the 1956-2011 and 1977-2011
19 experience bands are presented on pages III-41 through III-46 of the report. The
20 life table displays the retirement and surviving ratios of the aged plant data
21 exposed to retirement by age interval. For example, page III-41 shows \$269,249
22 retired at age 0.5 with \$269,905,221 exposed to retirement. Consequently, the
23 retirement ratio is .0010 and the surviving ratio is 0.9990. This life table, or

1 original survivor curve, is plotted along with the estimated smooth survivor curve,
2 the 67-R2.5 on page III-40.

3 My calculation of the annual depreciation related to the original cost as of
4 September 30, 2011, of utility plant is presented on pages III-201 through III-203.
5 The calculation is based on the 67-R2.5 survivor curve, 25% negative net salvage
6 and the attained age. The tabulation sets forth the installation year, the original
7 cost, calculated accrued depreciation, average life, life expectancy and annual
8 accrual amount and rate. These totals are brought forward to the table on page III-
9 5.

III. CONCLUSION

10 **Q. WAS THE DEPRECIATION STUDY, SUPPLEMENTAL FILING**
11 **REQUIREMENT SCHEDULE (C)(20), FILED BY DUKE ENERGY OHIO**
12 **IN THESE PROCEEDINGS PREPARED BY YOU OR UNDER YOUR**
13 **DIRECTION AND CONTROL?**

14 A. Yes.

15 **Q. IS THE INFORMATION CONTAINED IN THE DEPRECIATION STUDY**
16 **ACCURATE TO THE BEST OF YOUR KNOWLEDGE AND BELIEF?**

17 A. Yes.

18 **Q. DOES THIS CONCLUDE YOUR PRE-FILED DIRECT TESTIMONY?**

19 A. Yes.