

**BEFORE THE
KANSAS CORPORATION COMMISSION
PREPARED DIRECT TESTIMONY OF
DR. RONALD E. WHITE
IN DOCKET NO. 16-KGSG _____-RTS**

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Ronald E. White. My business address is 17595 S. Tamiami Trail, Suite 260, Fort Myers, Florida 33908.

Q. WHAT IS YOUR OCCUPATION?

A. I am President of Foster Associates Consultants, LLC. Foster Associates is a public utility economic consulting firm offering economic research and consulting services on issues and problems arising from governmental regulation of business. Areas of specialization supported by the firm's Fort Myers office include property service-life forecasting, depreciation estimation, and valuation of industrial property.

Q. PLEASE BRIEFLY DESCRIBE YOUR EDUCATIONAL TRAINING AND PROFESSIONAL BACKGROUND.

A. I earned a B.S. degree in Engineering Operations and an M.S. degree and Ph.D. degree in Engineering Valuation from Iowa State University. I have taught graduate and undergraduate courses in industrial engineering, engineering economics, and engineering valuation at Iowa State University and previously served on the faculty for Depreciation Programs for public utility commissions, companies, and consultants, sponsored by Depreciation Programs, Inc., in cooperation with Western Michigan University. I also conduct courses in depreciation and public utility economics for clients of Foster Associates.

I have prepared and presented a number of papers to professional organizations, committees, and conferences and have published several articles on matters relating to depreciation, valuation and economics. I am a past member of the Board of Directors of the Iowa State Regulatory Conference and an affiliate member of the joint

1 American Gas Association (A.G.A.) – Edison Electric Institute (EEI) Depreciation
2 Accounting Committee, where I previously served as chairman of a standing com-
3 mittee on capital recovery and its effect on corporate economics. I am also a member
4 of the American Economic Association, the Financial Management Association, the
5 Midwest Finance Association, and a founding member of the Society of Deprecia-
6 tion Professionals.

7 **Q. WHAT IS YOUR PROFESSIONAL EXPERIENCE?**

8 A. I joined the firm of Foster Associates in 1979, as a specialist in depreciation, the eco-
9 nomics of capital investment decisions, and cost of capital studies for ratemaking ap-
10 plications. Before joining Foster Associates, I was employed by Northern States
11 Power Company (1968–1979) in various assignments related to finance and treasury
12 activities. As Manager of the Corporate Economics Department, I was responsible for
13 book depreciation studies, studies involving staff assistance from the Corporate Eco-
14 nomics Department in evaluating the economics of capital investment decisions, and
15 the development and execution of innovative forms of project financing. As Assistant
16 Treasurer at Northern States, I was responsible for bank relations, cash requirements
17 planning, and short-term borrowings and investments.

18 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE A REGULATORY BODY?**

19 A. Yes. I have testified in numerous proceedings before administrative and judicial bod-
20 ies in over 30 jurisdictions, including several appearances in Kansas. I have also testi-
21 fied before the Federal Energy Regulatory Commission, the Federal Power
22 Commission, the Alberta Energy Board, the Ontario Energy Board, and the Securities
23 and Exchange Commission. I have sponsored position statements before the Federal
24 Communications Commission and numerous local franchising authorities in matters
25 relating to the regulation of telephone and cable television. A more detailed descrip-
26 tion of my professional qualifications is contained in Attachment REW-1.

27 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?**

28 A. Foster Associates was engaged by Kansas Gas Service (KGS), a division of ONE
29 Gas, Inc., to review and update depreciation rates as appropriate for utility plant

1 owned and operated by the Company. The 2016 update was undertaken to provide
2 more current depreciation rates than those approved in a stipulated settlement agree-
3 ment in Docket No. 12-KGSG-835-RTS (Order dated October 26, 2012). Addition-
4 ally, Foster Associates was engaged by ONE Gas to conduct a 2015 depreciation
5 study of corporate assets allocated to all divisions (*i.e.*, Texas Gas Service, Oklahoma
6 Natural Gas and Kansas Gas Service). The purpose of my testimony is to describe
7 and sponsor the update prepared for KGS and the study conducted for ONE Gas. The
8 scope, findings and recommendations of the update are contained in Exhibit REW-1
9 and the corporate study is contained in Exhibit REW-2.

10 **II. 2016 TECHNICAL UPDATE**

11 **Q. PLEASE DESCRIBE THE SCOPE OF A TECHNICAL UPDATE.**

12 A. Unlike a full depreciation study in which projection curves, projection lives and fu-
13 ture net salvage rates are estimated from a statistical analysis of recorded retirements
14 and net salvage realized in the past, a technical update generally retains the parame-
15 ters developed and/or approved in the most recent full depreciation study and adjusts
16 depreciation rates for known and measurable changes in the age distributions of sur-
17 viving plant, depreciation reserves, and average net salvage rates due to the passage
18 of time. A technical update, therefore, is intended to align depreciation rates with the
19 accounting year the rates will become effective. The steps involved in preparing a
20 technical update generally include a) data collection; b) calculation of service life sta-
21 tistics; c) computation of average net salvage rates; d) rebalancing of depreciation re-
22 serves; and e) development of accrual rates.

23 **Q. PLEASE DESCRIBE THE ACCOUNTING DATA ASSEMBLED AND USED**
24 **IN THE 2016 UPDATE.**

25 A. Plant accounting and depreciation reserve transactions recorded over the period
26 2012-2015 and age distributions of surviving plant at December 31, 2015 were pro-
27 vided to Foster Associates in an electronic format and appended to the database used
28 in conducting the 2012 study filed in Docket No. 12-KGSG-835-RTS. Detailed ac-
29 counting entries were assigned transaction codes to identify the nature of the account-

1 ing activity. Transaction codes for plant additions, for example, were used to distin-
2 guish normal additions from acquisitions, purchases, reimbursements and adjust-
3 ments. Similar transaction codes were used to distinguish normal retirements from
4 sales, reimbursements, abnormal retirements and adjustments. Transaction codes are
5 also assigned to transfers, gross salvage, cost of removal and other accounting activity
6 reflected in a depreciation study or technical update.

7 Age distributions at December 31, 2015 were derived in a forward-flow calcula-
8 tion in which accounting activity was appended to the database used in the KGS
9 2012 Depreciation Rate Study conducted by Foster Associates. The accuracy and
10 completeness of the assembled data base was validated for 2012–2015 by comparing
11 the beginning plant balance, additions, retirements, transfers and adjustments, and
12 the ending plant balance derived for each rate category to the official plant records of
13 the Company. Derived age distributions at December 31, 2015 were also reconciled
14 to the continuing property records of KGS. Annual plant activity prior to 2012 was
15 reconciled in the 2012 and prior depreciation rate studies.

16 **Q. HOW WERE SERVICE LIFE STATISTICS CALCULATED IN THE 2016**
17 **UPDATE?**

18 A. Composite remaining life and average service life statistics used in the calculation of
19 depreciation rates for a plant category were derived from a tabular arrangement of the
20 age distribution of surviving plant and related statistics. The format of such a table is
21 called a *generation arrangement*.

22 An age distribution of surviving plant is a column of values showing the dollar
23 amount of investment remaining in service at the beginning of a study or update year
24 from each of the vintages installed in prior years. The sum of an age distribution is
25 the total plant in service for a plant category. The source of data used to construct
26 age distributions was the Company’s Continuing Property Record (CPR) system.

27 Statistics for each vintage (*i.e.*, average service life and remaining life) contained
28 in the generation arrangements were derived from a mathematical function called a
29 *survivor curve*. The survivor curve most descriptive of the forces of retirement acting
30 upon a plant category were estimated in the 2012 study from a statistical analysis of

1 past retirement experience tempered with a consideration of how these forces may
 2 change in the future.¹ The 2016 update retained the service life parameters estimated
 3 in the 2012 study. The statistics for each vintage, however, were recomputed in the
 4 update to reflect known and measurable changes in the age distributions of surviving
 5 plant between December 31, 2011 and December 31, 2015. An example of a
 6 generation arrangement is illustrated in Figure 1 below.

KANSAS GAS SERVICE								
General Plant								
Depreciable								
Account: 396.00 Power Operated Equipment								
Dispersion: 12 - L2								
Procedure: Vintage Group								
Generation Arrangement								
Vintage	December 31, 2015		Avg. Life	Rem. Life	Net Plant Ratio	Alloc. Factor	Computed Net Plant	Accrual
	Age	Surviving Plant						
A	B	C	D	E	F	G	H=C*F*G	I=H/E
2015	0.5	328,202	12.00	11.50	0.9584	1.0000	314,552	27,350
2013	2.5	918,783	12.01	9.59	0.7989	1.0000	733,971	76,523
2011	4.5	1,284,694	12.05	7.89	0.6549	1.0000	841,361	106,572
2010	5.5	159,110	12.11	7.16	0.5911	1.0000	94,045	13,134
2009	6.5	1,058,426	12.22	6.54	0.5358	1.0000	567,080	86,644
2008	7.5	158,910	12.38	6.05	0.4887	1.0000	77,667	12,840
2007	8.5	663,375	12.61	5.65	0.4482	1.0000	297,336	52,609
2006	9.5	823,183	12.82	5.33	0.4156	1.0000	342,137	64,211
2005	10.5	100,593	13.32	5.05	0.3792	1.0000	38,148	7,550
2004	11.5	1,360,748	13.80	4.80	0.3480	1.0000	473,507	98,573
2003	12.5	1,095,069	14.36	4.56	0.3178	1.0000	348,028	76,254
2002	13.5	685,657	14.73	4.32	0.2935	1.0000	201,219	46,536
2001	14.5	444,099	15.40	4.08	0.2649	1.0000	117,664	28,847
2000	15.5	1,389,270	13.56	3.83	0.2823	1.0000	392,240	102,425
1999	16.5	264,426	13.25	3.58	0.2701	1.0000	71,428	19,960
1998	17.5	454,818	13.22	3.33	0.2519	1.0000	114,555	34,401
1997	18.5	263,616	14.01	3.09	0.2204	1.0000	58,105	18,821
1996	19.5	99,314	8.70	2.85	0.3279	1.0000	32,568	11,419
1993	22.5	186,210	11.46	2.20	0.1918	1.0000	35,714	16,255
Total	10.4	\$11,738,504	13.03	5.72	0.4388	1.0000	\$5,151,326	\$900,923

Figure 1. Generation Arrangement

7 **Q. HOW WERE AVERAGE NET SALVAGE RATES DERIVED IN THE 2016**
 8 **UPDATE?**

¹ The collection of past retirements used in a statistical analysis can be viewed as a random sample from an unknown parent population. The objective of a life analysis is to estimate the parameters (*i.e.*, mean service life and dispersion characteristics) of the parent population. The mean service life of the population that best describes the timing of past and future retirements is called a *projection life* and the survivor curve selected to describe the forces of retirement acting upon the population is called a *projection curve*.

1 A. Average net salvage rates were derived for each plant account from a direct dollar
2 weighting of a) historical retirements with historical (or realized) net salvage rates
3 and b) future retirements (*i.e.*, surviving plant) with future net salvage rates estimated
4 in the 2012 study. Future net salvage rates used in the 2016 update are the “effective”
5 rates stipulated in the 2012 settlement agreement. Average net salvage rates derived
6 in the 2016 update are shown in Exhibit REW–1, Statement D.

7 **Q. WERE DEPRECIATION RESERVES REBALANCED IN THE 2016**
8 **UPDATE?**

9 A. Yes. A rebalancing of recorded reserves is consistent with the objectives of a tech-
10 nical update and is considered appropriate for KGS. The rebalancing of reserves pro-
11 vided in the 2016 update will help to stabilize depreciation rates and preserve
12 consistency between measured reserve imbalances and the parameters used in the
13 formulation of updated remaining–life accrual rates.

14 A redistribution of the recorded reserve was achieved by multiplying the calculat-
15 ed reserve for each primary account within a function by the ratio of the function to-
16 tal recorded reserve to the function total calculated reserve. The sum of the
17 redistributed reserves within a function is, therefore, equal to the function total rec-
18 orded depreciation reserve before the redistribution. The redistribution of reserves in
19 the 2016 update is contained in Exhibit REW–1, Statement C.

20 **Q. HOW WERE DEPRECIATION RATES DEVELOPED IN THE 2016**
21 **UPDATE?**

22 A. With the exception of certain general plant categories for which amortization ac-
23 counting has been approved or deemed appropriate, depreciation rates were devel-
24 oped in the 2016 update using a system composed of the straight–line method,
25 vintage–group procedure and remaining–life technique. The depreciation system used
26 in the update was approved in prior depreciation studies and stipulated in the 2012
27 settlement agreement.

28 A depreciation method (*e.g.*, straight–line) describes the component of the system
29 that determines the acceleration or deceleration of depreciation accruals in relation to

1 either time or use. A depreciation procedure (*e.g.*, vintage group) identifies the level
2 of grouping or sub-grouping of assets within a plant category. The level of grouping
3 specifies the weighting used to obtain composite life statistics for an account. A de-
4preciation technique (*e.g.*, remaining-life) describes the life statistic used in the sys-
5tem.

6 The formulation of a remaining-life accrual rate is given by:

$$\text{Accrual Rate} = \frac{1.0 - \text{Reserve Ratio} - \text{Future Net Salvage Rate}}{\text{Remaining Life}}.$$

7 This formulation of the accrual rate is equivalent to:

$$\text{Accrual Rate} = \frac{1.0 - \text{Average Net Salvage}}{\text{Average Life}} + \frac{\text{Computed Reserve} - \text{Recorded Reserve}}{\text{Remaining Life}}$$

8 where Average Net Salvage, Computed Reserve and Recorded Reserve are ex-
9pressed in percent. The above two-part formulation of accrual rates is displayed in
10 Attachment REW-2, Statement A.

11 The treatment of amortization accounts in the update was designed to produce
12 2016 annualized accruals equivalent to applying a rate equal to the reciprocal of an
13 amortization period to plant balances after retirements have been recorded. Accrual
14 rates contained in Statement A have been applied to plant balances containing vin-
15tages that will be retired in 2016. Accrual rates equal to the reciprocal of the amorti-
16zation period will be applied to these categories after plant balances have been
17 reduced by all vintages that have achieved an age equal to the amortization period.

18 An amortization period of 15 years is recommended in the 2016 update for Ac-
19count 376.40 (Mains – Cathodic Protection). Commission Staff opposed amortiza-
20tion accounting for this account in Docket No. 12-KGSG-835-RTS because a) no
21 affiliate of KGS had a separate depreciation (or amortization) rate for Mains – Ca-
22thodic Protection and b) an amortization period of 12 years was considered to fall
23 outside a zone of reasonableness.² An amortization period of 15 years has since been
24 approved for both Oklahoma and Texas divisions.

² KGS reported that that an amortization period of 12 years was supported by an Anotec Industries finding that anode material in ground beds have a consumption rate of 0.5 to 1.0 pound per year. Noting that KGS mainly installs 5, 10 and 20 pound anodes, the average of 11.67 pounds at a consumption

1 **Q. WHAT IS A COMPUTED DEPRECIATION RESERVE?**

2 A. The formulation of a computed or theoretical reserve is given by:

$$\text{Computed Reserve} = \text{Plant} \left\{ (1.0 - \text{FNS}) - (1.0 - \text{ANS}) \left[\frac{\text{Remaining Life}}{\text{Average Life}} \right] \right\}$$

3 where FNS and ANS represent future and average net salvage rates, respectively.

4 Stated in words, the above formulation defines a theoretical reserve as:

$$\text{Computed Reserve} = \text{Plant Investment} - \text{Future Net Salvage} - \text{Future Accruals.}$$

5 The subtraction of future net salvage and future depreciation accruals (based on
6 an estimate of the life expectancy or average remaining life of plant currently in ser-
7 vice) provides a measurement of what the recorded reserve would be today if and on-
8 ly if the timing of future retirements and realized net salvage occurs exactly as
9 predicted by a chosen survivor curve. A computed reserve says nothing about the ad-
10 equacy or inadequacy of prior depreciation rates; it is a prospective view of the con-
11 dition of a current reserve in relation to the estimated timing of future retirements
12 and future net salvage.

13 **Q. PLEASE SUMMARIZE HOW DEPRECIATION RATES AND ACCRUALS**
14 **DERIVED IN THE UPDATE COMPARE WITH CURRENTLY APPROVED**
15 **RATES AND ACCRUALS.**

16 A. Table 1 below provides a summary of the changes in annual rates and accruals result-
17 ing from the 2016 update.

Function	Accrual Rate			2016 Annualized Accrual		
	Current	Update	Difference	Current	Update	Difference
A	B	C	D=C-B	E	F	G=F-E
Transmission	2.02%	2.02%	0.00%	\$ 5,345,046	\$ 5,341,475	\$ (3,571)
Distribution	2.42%	2.68%	0.26%	32,202,570	35,546,087	3,343,517
General Plant	4.92%	4.61%	-0.31%	5,070,810	4,753,629	(317,181)
Total Utility	2.51%	2.69%	0.18%	\$ 42,618,426	\$ 45,641,191	\$ 3,022,765

Table 1. Current vs 2016 Update

18 The update produces primary account depreciation rates equivalent to a composite
19 rate of 2.69 percent compared with current rates that composite to 2.51 percent. The

rate of 1.0 pound per year is approximately 12 years. Staff, however, found that using a consumption rate of 0.5 pounds per year “would have produced a 23 year life and using the middle of the range would produce an 18–year life.”

change in the composite depreciation rate is, therefore, an increase of 0.18 percentage points. A continued application of current rates would provide 2016 annualized depreciation expense of \$42,618,426 compared with an annualized expense of \$45,641,191 using the rates developed in the update. The increase in 2016 annualized expense is \$3,022,765.

III. 2015 ONE GAS DEPRECIATION STUDY

Q. DID FOSTER ASSOCIATES CONDUCT STATISTICAL SERVICE-LIFE STUDIES FOR ONE GAS PLANT AND EQUIPMENT?

A. No. ONE Gas depreciable assets are classified in six (6) primary plant accounts, two (2) of which are life-span categories and four (4) of which are amortizable. A description of these accounts and recommended parameters and accrual rates are contained in Exhibit REW-2.

Q. PLEASE SUMMARIZE THE DEPRECIATION RATES AND ACCRUALS RECOMMENDED FOR ONE GAS CORPORATE ASSETS.

A. Table 2 below provides a summary of the changes in annual rates and accruals resulting from an application of the parameters and depreciation systems recommended in the 2015 study.

Function	Accrual Rate			2015 Annualized Accrual		
	Current	Proposed	Difference	Current	Proposed	Difference
A	B	C	D=C-B	E	F	G=F-E
General Plant						
Depreciable	5.94%	6.93%	0.99%	\$ 962,542	\$ 1,122,230	\$ 159,688
Amortizable	7.40%	8.05%	0.65%	8,165,832	8,874,250	708,418
Total	7.22%	7.90%	0.68%	\$ 9,128,374	\$ 9,996,480	\$ 868,106

Table 2. ONE Gas

The 2015 study produces primary account depreciation rates equivalent to a composite rate of 7.90 percent. Current accrual rates composite to 7.22 percent. The change in the composite depreciation rate is an increase of 0.68 percentage points.

A continued application of current rates would provide annualized depreciation expense of \$9,128,374 compared with an annualized expense of \$9,996,480 using

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the rates developed in the 2015 study. The increase in 2015 expense is \$868,106, of which only a portion will be allocated to KGS.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, it does.

VERIFICATION


STATE OF FLORIDA)
) ss:
COUNTY OF LEE)

Dr. Ronald E. White, being duly sworn upon his oath, deposes and states that he is an Independent Consultant for Kansas Gas Service, a Division of ONE Gas, Inc.; that he has read and is familiar with the foregoing Testimony filed herewith; and that the statements made therein are true to the best of his/her knowledge, information, and belief.



Ronald E. White

SUBSCRIBED AND SWORN to before me this 25th day of April, 2016.



Notary Public

Commission/Appointment Expires:



MARGARET E. LANGE
Notary Public, State of Florida
My Comm. Expires Oct. 19, 2017
Commission No. FF 44886

2016 Technical Update



**Kansas
Gas Service**

A Division of ONE Gas



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EXECUTIVE SUMMARY

INTRODUCTION

This report presents findings and recommendations developed in a 2016 Technical Update of depreciation rates for gas plant owned and operated by Kansas Gas Service (KGS), a division of ONE Gas, Inc. The 2016 update was undertaken to provide more current depreciation rates than those approved in a stipulated settlement agreement in Docket No. 12-KGSG-835-RTS (Order dated October 26, 2012).

The purpose of a technical update is to adjust depreciation rates for changes in the variables associated with a remaining life accrual rate. Variables for an account include the age distribution of surviving plant, the recorded depreciation reserve and the average net salvage rate used in the calculation of a theoretical reserve. A technical update retains parameters developed and/or approved in the most recent full depreciation study and adjusts depreciation rates for subsequent changes in plant, reserves and realized net salvage activity.

Parameters for an account include the projection curve, projection life and future net salvage rate. With the exception of Account 376.40 (Mains – Cathodic Protection), projection curves and lives retained in the 2016 update were estimated by Foster Associates in a KGS 2012 Depreciation Rate Study.¹ Future net salvage rates adopted in the 2012 settlement agreement and retained in the 2016 update were developed by Staff using: a) a SFAS 143 formulation of accrual rates for four (4) plant accounts; and b) treating third-party reimbursements as salvage for three (3) plant accounts.² Age distributions of surviving plant at December 31, 2015 were used in the 2016 update to derive composite service life statistics and theoretical depreciation reserves. Plant balances and recorded depreciation reserves at December 31, 2015 were used in the computation of 2016 depreciation rates and annualized depreciation accruals.

The principal findings from the 2016 update are summarized in the Statements section of this report. Statement A provides a comparative summary of current and updated annual depreciation rates. B provides a comparison of annualized 2016 depreciation accruals resulting from an application of the accrual rates contained in Statement A. Statement C provides a comparison of computed, recorded and redistributed depreciation reserves at December 31, 2015 for each

¹Commission Staff objected to a proposed amortization of Account 376.40. The Stipulated Settlement Agreement combined Account 376.40 with Account 376.10 (Mains – Metallic) and retained the projection life and curve estimated by Foster Associates for Account 376.10. Account 376.40 is presented as amortizable in the 2016 update consistent with the treatment approved for other ONE Gas divisions.

²SFAS 143 was applied to Account 376.10 (Mains–Metallic), Account 376.20 (Mains–Plastic), Account 380.10 (Services–Metallic) and Account 380.20 (Services–Plastic). Third-party reimbursements were treated as salvage for Account 367.00 (Mains), Account 376.10 (Mains–Metallic) and Account 376.20 (Mains–Plastic).

rate category. Statement D provides a summary of the components used to obtain a weighted-average net salvage rate for each plant account. Statement E provides a comparative summary of retained parameters including projection life, projection curve and future net salvage rates. Statement E also contains current and updated statistics including average service life, average remaining life, and average net salvage rates.

SCOPE OF UPDATE

Unlike a full depreciation study in which service life and net salvage parameters are estimated from a blending of quantitative analyses and informed judgment, the current study retains parameters estimated and approved in the 2012 settlement agreement.

The principal activities undertaken in preparing the 2016 update included:

- Collection of plant, salvage and cost of removal data;
- Reconciliation of data to the official records of the Company;
- Computation of average net salvage rates; and
- Development of accrual rates for each rate category.

DEPRECIATION SYSTEM

A depreciation rate is formed by combining the elements of a depreciation system. A depreciation system is composed of a method, a procedure and a technique. A depreciation method (*e.g.*, straight-line) describes the component of the system that determines the acceleration or deceleration of depreciation accruals in relation to either time or use. A depreciation procedure (*e.g.*, vintage group) identifies the level of grouping or sub-grouping of assets within a plant category. The level of grouping specifies the weighting used to obtain composite life statistics for an account. A depreciation technique (*e.g.*, remaining-life) describes the life statistic used in the system.

With the exception of certain general plant categories for which amortization accounting has been approved, KGS is using a depreciation system composed of the straight-line method, vintage group procedure and remaining-life technique. Amortization accounting is used for general plant categories in which the unit cost of plant items is small in relation to the number of units classified in an account or the disposition of property units is difficult to identify. Plant is retired (*i.e.*, credited to plant and charged to the reserve) as each vintage achieves an age equal to the amortization period. Any realized net salvage for amortizable accounts is netted against current-year vintage additions.

The matching and expense recognition principles of accounting provide that the cost of an asset (or group of assets) should be allocated to operations over an estimate of the economic life of the asset in proportion to the consumption of service potential. It is the opinion of Foster Associates that the objectives of depreci-

ation accounting are being achieved using the currently approved vintage–group procedure, which distinguishes service lives among vintages, and the remaining–life technique, which provides cost apportionment over the estimated weighted–average remaining life of a each rate category. It is also the opinion of Foster Associates that amortization accounting remains appropriate for the approved amortization categories and for Account 376.40 (Mains – Cathodic Protection).

DEPRECIATION RATES

Table 1 below provides a summary of the changes in annual rates and accruals for the KGS division resulting from an application of the parameters stipulated in the 2012 settlement agreement.

Function	Accrual Rate			2016 Annualized Accrual		
	Current	Update	Difference	Current	Update	Difference
A	B	C	D=C-B	E	F	G=F-E
Transmission	2.02%	2.02%		\$ 5,345,046	\$ 5,341,475	\$ (3,571)
Distribution	2.42%	2.68%	0.26%	32,202,570	35,546,087	3,343,517
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Total	2.51%	2.69%	0.18%	\$42,618,426	\$45,641,191	\$ 3,022,765

Table 1. Current vs 2016 Update

The 2016 update produces primary account depreciation rates equivalent to a composite rate of 2.69 percent. Current accrual rates composite to 2.51 percent. The change in the composite depreciation rate is, therefore, an increase of 0.18 percentage points.

A continued application of current rates would provide annualized depreciation expense of \$42,618,426 compared with an annualized expense of \$45,641,191 using the rates developed in the 2016 update. The increase in 2016 annualized expense is \$3,022,765.

TECHNICAL UPDATE PROCEDURE

INTRODUCTION

Unlike a full or comprehensive depreciation study in which projection curves, projection lives and future net salvage rates are estimated from a statistical analysis of recorded retirements and net salvage realized in the past, a technical update generally retains the parameters developed and/or approved in the most recent full depreciation study and adjusts depreciation rates for known and measurable changes in the age distributions of surviving plant, depreciation reserves, and average net salvage rates due to the passage of time. A technical update, therefore, is intended to align depreciation rates with the accounting year the rates will become effective.

SCOPE

The steps involved in preparing a technical update can be grouped into four principal activities:

- Data collection;
- Calculation of service life statistics;
- Computation of average net salvage rates; and
- Development of accrual rates.

The scope of the 2016 update for KGS included a consideration of each of these tasks as described below.

DATA COLLECTION

The database used in the 2016 update was assembled by appending 2012–2015 plant and reserve activity to the data base used in conducting the 2012 study. Detailed accounting entries were assigned transaction codes to identify the nature of the accounting activity. Transaction codes for plant additions, for example, were used to distinguish normal additions from acquisitions, purchases, reimbursements and adjustments. Similar transaction codes were used to distinguish normal retirements from sales, reimbursements, abnormal retirements and adjustments. Transaction codes are also assigned to transfers, gross salvage, cost of removal and other accounting activity reflected in a depreciation study or technical update.

Age distributions at December 31, 2015 were derived by Foster Associates in a forward-flow calculation in which accounting activity was appended to the database used in the 2012 study. The accuracy and completeness of the assembled data base was validated for 2012–2015 by comparing the beginning plant balance, additions, retirements, transfers and adjustments, and the ending plant balance derived for each rate category to the official plant records of the Company. Derived age distributions at December 31, 2015 were also reconciled to the continuing property records of KGS. Annual plant activity prior to 2012 was reconciled in the 2012 and prior depreciation rate studies.

CALCULATION OF SERVICE LIFE STATISTICS

Composite remaining life and average service life statistics used in the calculation of depreciation rates for a plant category are derived from a tabular arrangement of the age distribution of surviving plant and related statistics. The format of such a table is called a *generation arrangement*.

The age distribution of surviving plant is a column of values showing the dollar amount of investment remaining in service at the beginning of a study or update year from each of the vintages installed in prior years. The sum of an age distribution is the total plant in service for a plant category. The source of data used to construct an age distribution is a company's Continuing Property Record (CPR) system.

The statistics for each vintage (*i.e.*, average service life and remaining life) contained in a generation arrangement are derived from a mathematical function called a *survivor curve*. The survivor curve most descriptive of the forces of retirement acting upon a plant category is identified from a statistical analysis of past retirement experience tempered with a consideration of how these forces may change in the future. The collection of past retirements used in a statistical analysis can be viewed as a random sample from an unknown parent population. The objective of a life analysis is to estimate the parameters (*i.e.*, mean service life and dispersion characteristics) of the parent population. The mean service life of the population that best describes the timing of past and future retirements is called a *projection life* and the survivor curve selected to describe the forces of retirement acting upon the population is called a *projection curve*. A technical update generally retains the service life parameters estimated in a full depreciation study. The statistics for each vintage, however, are updated to reflect known and measurable changes in the age distributions of surviving plant.

COMPUTATION OF AVERAGE NET SALVAGE RATES

Estimates of the net salvage rates applicable to future retirements are derived in a full depreciation study from an analysis of gross salvage and cost of removal realized in the past combined with a consideration of future expectations that may dictate a departure from historical indications. Future net salvage rates derived from such an analysis are retained as fixed parameters in a technical update. Future net salvage rates used in the 2016 update are the "effective" rates stipulated in the 2012 settlement agreement.

The average net salvage rate for an account or plant function is derived from a direct dollar weighting of a) historical retirements with historical (or realized) net salvage rates and b) future retirements (*i.e.*, surviving plant) with the estimated future net salvage rate. Average net salvage rates will change as additional years of retirement and net salvage activity become available and as subsequent plant additions alter the weighting of future net salvage estimates.

The difference between the sum of all plant additions and the current plant balance provides an estimate of historical retirements for a plant category. Average net salvage rates derived in the 2016 update are shown in Statement D.

DEVELOPMENT OF ACCRUAL RATES

The goal or objective of depreciation accounting is cost allocation over the economic life of an asset in proportion to the consumption of service potential. Ideally, the cost of an asset—which represents the cost of obtaining a bundle of service units—should be allocated to future periods of operation in proportion to the amount of service potential expended during an accounting interval. The service potential of an asset is the present value of future net revenue (*i.e.*, revenue less expenses exclusive of depreciation and other non-cash expenses) or cash inflows attributable to the use of that asset alone. The difference between the present value of future cash flow at the beginning and end of an accounting interval is the amount of service potential expended during the interval.

With the exception of certain general plant categories for which amortization accounting has been approved or deemed appropriate, depreciation rates were developed in the 2016 update using a system composed of the straight-line method, vintage-group procedure and remaining-life technique. The depreciation system used in the update was approved in prior depreciation studies and stipulated in the 2012 settlement agreement.

The treatment of amortization accounts in the update was designed to produce 2016 annualized accruals equivalent to applying a rate equal to the reciprocal of an amortization period to plant balances after retirements have been recorded. Accrual rates contained in Statement A have been applied to plant balances containing vintages that will be retired in 2016. Accrual rates equal to the reciprocal of the amortization period will be applied to these categories after plant balances have been reduced by all vintages that have achieved an age equal to the amortization period.

An amortization period of 15 years is recommended in the 2016 update for Account 376.40 (Mains – Cathodic Protection). Commission Staff opposed amortization accounting for this account in Docket No. 12-KGSG-835-RTS because a) no affiliate of KGS had a separate depreciation (or amortization) rate for Mains – Cathodic Protection and b) an amortization period of 12 years was considered to fall outside a zone of reasonableness.³ An amortization period of 15 years has since been approved for both Oklahoma and Texas divisions.

³ KGS reported that that an amortization period of 12 years was supported by an Anotec Industries finding that anode material in ground beds have a consumption rate of 0.5 to 1.0 pound per year. Noting that KGS mainly installs 5, 10 and 20 pound anodes, the average of 11.67 pounds at a consumption rate of 1.0 pound per year is approximately 12 years. Staff, however, found that using a consumption rate of 0.5 pounds per year “would have produced a 23 year life and using the middle of the range would produce an 18-year life.

STATEMENTS

INTRODUCTION

This section provides a comparative summary of depreciation rates, annual depreciation accruals, recorded, computed and redistributed depreciation reserves, and current and updated service life and net salvage parameters recommended for KGS plant and equipment categories. The content of these statements is briefly described below.

- Statement A provides a comparative summary of current and updated annual depreciation rates using the vintage group procedure, remaining-life technique.
- Statement B provides a comparison of current and updated annualized 2016 depreciation accruals derived from an application of the depreciation rates contained in Statement A.
- Statement C provides a comparison of recorded, computed and redistributed reserves for each rate category at December 31, 2015.
- Statement D provides a summary of the components used to obtain weighted average net salvage rates.
- Statement E provides a comparative summary of current and updated parameters and statistics including projection life, projection curve, average service life, average remaining life, and average and future net salvage rates.

Current depreciation accruals shown on Statement B are the product of the plant investment (Column B) and current depreciation rates shown on Statement A. These are the effective rates used by KGS for the mix of investments recorded at December 31, 2015. Similarly, proposed depreciation accruals shown on Statements B are the product of the plant investment and proposed depreciation rates shown on Statement A. Proposed remaining life accrual rates are given by:

$$\text{Accrual Rate} = \frac{1.0 - \text{Reserve Ratio} - \text{Future Net Salvage Rate}}{\text{Remaining Life}}$$

This formulation of a remaining-life accrual rate is equivalent to

$$\text{Accrual Rate} = \frac{1.0 - \text{Average Net Salvage}}{\text{Average Life}} + \frac{\text{Computed Reserve} - \text{Recorded Reserve}}{\text{Remaining Life}}$$

where Average Net Salvage, Computed Reserve and Recorded Reserve are expressed in percent.

KANSAS GAS SERVICE

Statement A

Comparison of Current and Updated Accrual Rates

Current: VG Procedure / RL Technique

Proposed: VG Procedure / RL Technique

Account Description A	Current (at 12/31/2015)			Updated (at 12/31/2015)		
	Investment B	Net Salvage C	Total D=B+C	Investment E	Net Salvage F	Total G=E+F
TRANSMISSION PLANT						
365.20 Rights of Way	1.34%	-0.01%	1.33%	1.32%	-0.01%	1.31%
366.10 Compressor Station Structures	1.82%	0.73%	2.55%	1.76%	0.74%	2.50%
366.20 Meas. and Reg. Station Structures	1.53%	0.45%	1.98%	1.49%	0.45%	1.94%
367.00 Mains	1.82%		1.82%	1.80%	0.05%	1.85%
368.00 Compressor Station Equipment	2.49%	0.82%	3.31%	2.26%	0.74%	3.00%
369.00 Meas. and Reg. Station Equipment	2.30%	0.61%	2.91%	2.31%	0.64%	2.95%
Total Transmission Plant	1.89%	0.13%	2.02%	1.85%	0.16%	2.02%
DISTRIBUTION PLANT						
374.20 Rights of Way	1.39%		1.39%	1.39%		1.39%
375.00 Structures and Improvements	3.19%	0.53%	3.72%	3.11%	0.53%	3.64%
376.10 Mains - Metallic	1.34%	0.19%	1.53%	1.35%	0.34%	1.69%
376.20 Mains - Plastic	1.90%	0.33%	2.23%	1.91%	0.38%	2.29%
376.90 Mains - Cathodic Protection	1.34%	0.19%	1.53%	← 15 Year Amortization →		5.91%
378.00 Meas. and Reg. Station Equip. - General	1.93%	0.44%	2.37%	1.93%	0.45%	2.38%
379.00 Meas. and Reg. Station Equip. - City Gate	1.58%	0.30%	1.88%	1.59%	0.37%	1.96%
380.10 Services - Metallic	1.61%	0.94%	2.55%	1.68%	1.98%	3.66%
380.20 Services - Plastic	2.04%	0.88%	2.92%	2.10%	1.05%	3.15%
381.00 Meters	2.50%		2.50%	2.51%	0.01%	2.52%
381.50 AMR Communication Devices	6.67%		6.67%	← 15 Year Amortization →		6.67%
382.00 Meter Installations	2.01%	1.01%	3.02%	2.00%	1.06%	3.06%
383.00 House Regulators and Installations	1.84%	0.07%	1.91%	1.89%	0.08%	1.97%
386.00 Other Property - Customer Premises	7.07%		7.07%	2.21%		2.21%
Total Distribution Plant	1.93%	0.49%	2.42%	2.07%	0.61%	2.68%
GENERAL PLANT						
Depreciable						
390.10 Structures and Improvements	1.57%	0.04%	1.61%	1.48%	0.04%	1.52%
392.00 Transportation Equipment	6.22%	-1.19%	5.03%	5.86%	-1.13%	4.73%
396.00 Power Operated Equipment	7.06%	-0.86%	6.20%	5.13%	-0.68%	4.45%
Total Depreciable	4.12%	-0.55%	3.57%	3.64%	-0.50%	3.15%
Amortizable						
391.10 Office Furniture and Equipment	5.00%		5.00%	← 20 Year Amortization →		5.00%
391.25 Computer Equipment	12.75%		12.75%	← 7 Year Amortization →		12.75%
393.00 Stores Equipment	5.00%		5.00%	← 20 Year Amortization →		5.00%
394.00 Tools, Shop and Garage Equipment	6.51%		6.51%	← 15 Year Amortization →		6.51%
395.00 Laboratory Equipment	6.67%		6.67%	← 15 Year Amortization →		6.67%
397.00 Communication Equipment	6.61%		6.61%	← 15 Year Amortization →		6.61%
398.00 Miscellaneous Equipment	5.00%		5.00%	← 20 Year Amortization →		5.00%
Total Amortizable	8.28%		8.28%			8.28%
Total General Plant	5.31%	-0.39%	4.92%	4.97%	-0.36%	4.61%
TOTAL GAS UTILITY	2.13%	0.38%	2.51%	2.21%	0.48%	2.69%

KANSAS GAS SERVICE

Statement B

Comparison of Current and Updated Accruals

Current: VG Procedure / RL Technique

Updated: VG Procedure / RL Technique

Account Description	12/31/15	Current 2016 Annualized Accrual			Updated 2016 Annualized Accrual			Difference
	Investment	Investment	Net Salvage	Total	Investment	Net Salvage	Total	
A	B	C	D	E=C+D	F	G	H=F+G	I=H-E
TRANSMISSION PLANT								
365.20 Rights of Way	\$ 12,240,603	\$ 164,024	\$ (1,224)	\$ 162,800	\$ 161,576	\$ (1,224)	\$ 160,352	\$ (2,448)
366.10 Compressor Station Structures	4,615,635	84,005	33,694	117,699	81,235	34,156	115,391	(2,308)
366.20 Meas. and Reg. Station Structures	1,208,818	18,495	5,440	23,935	18,011	5,440	23,451	(484)
367.00 Mains	204,780,896	3,727,012		3,727,012	3,686,056	102,390	3,788,446	61,434
368.00 Compressor Station Equipment	21,890,908	545,084	179,505	724,589	494,735	161,993	656,728	(67,861)
369.00 Meas. and Reg. Station Equipment	20,240,929	465,541	123,470	589,011	467,565	129,542	597,107	8,096
Total Transmission Plant	\$ 264,977,789	\$ 5,004,161	\$ 340,885	\$ 5,345,046	\$ 4,909,178	\$ 432,297	\$ 5,341,475	\$ (3,571)
DISTRIBUTION PLANT								
374.20 Rights of Way	\$ 2,212,566	\$ 30,755	\$ -	\$ 30,755	\$ 30,755	\$ -	\$ 30,755	\$ -
375.00 Structures and Improvements	856,201	27,313	4,538	31,851	26,628	4,538	31,166	(685)
376.10 Mains - Metallic	276,616,163	3,706,657	525,571	4,232,228	3,734,318	940,495	4,674,813	442,585
376.20 Mains - Plastic	310,855,840	5,906,261	1,025,824	6,932,085	5,937,347	1,181,252	7,118,599	186,514
376.90 Mains - Cathodic Protection	31,278,657	419,134	59,429	478,563	1,848,621		1,848,621	1,370,058
378.00 Meas. and Reg. Station Equip. - General	23,478,664	453,138	103,306	556,444	453,138	105,654	558,792	2,348
379.00 Meas. and Reg. Station Equip. - City Gate	7,461,635	117,894	22,385	140,279	118,640	27,608	146,248	5,969
380.10 Services - Metallic	32,227,371	518,861	302,937	821,798	541,420	638,102	1,179,522	357,724
380.20 Services - Plastic	399,309,013	8,145,904	3,513,919	11,659,823	8,385,489	4,192,745	12,578,234	918,411
381.00 Meters	108,714,149	2,717,854		2,717,854	2,728,725	10,871	2,739,596	21,742
381.50 AMR Communication Devices	20,289,237	1,352,616		1,352,616	1,352,616		1,352,616	
382.00 Meter Installations	94,402,391	1,897,488	953,464	2,850,952	1,888,048	1,000,665	2,888,713	37,761
383.00 House Regulators and Installations	19,972,565	367,495	13,981	381,476	377,481	15,978	393,459	11,983
386.00 Other Property - Customer Premises	224,125	15,846		15,846	4,953		4,953	(10,893)
Total Distribution Plant	\$ 1,327,898,577	\$ 25,677,216	\$ 6,525,354	\$ 32,202,570	\$ 27,428,179	\$ 8,117,908	\$ 35,546,087	\$ 3,343,517
GENERAL PLANT								
Depreciable								
390.10 Structures and Improvements	\$ 35,359,439	\$ 555,143	\$ 14,144	\$ 569,287	\$ 523,320	\$ 14,144	\$ 537,464	\$ (31,823)
392.00 Transportation Equipment	26,644,792	1,657,306	(317,073)	1,340,233	1,561,385	(301,086)	1,260,299	(79,934)
396.00 Power Operated Equipment	11,738,504	828,738	(100,951)	727,787	602,185	(79,822)	522,363	(205,424)
Total Depreciable	\$ 73,742,735	\$ 3,041,187	\$ (403,880)	\$ 2,637,307	\$ 2,686,890	\$ (366,764)	\$ 2,320,126	\$ (317,181)
Amortizable								
391.10 Office Furniture and Equipment	\$ 4,949,181	\$ 247,235	\$ -	\$ 247,235	\$ 247,235	\$ -	\$ 247,235	\$ -
391.25 Computer Equipment	9,571,166	1,220,190		1,220,190	1,220,190		1,220,190	
393.00 Stores Equipment	113,367	5,668		5,668	5,668		5,668	
394.00 Tools, Shop and Garage Equipment	8,974,944	584,503		584,503	584,503		584,503	
395.00 Laboratory Equipment	72,377	4,825		4,825	4,825		4,825	
397.00 Communication Equipment	5,340,533	353,054		353,054	353,054		353,054	
398.00 Miscellaneous Equipment	360,557	18,028		18,028	18,028		18,028	
Total Amortizable	\$ 29,382,125	\$ 2,433,503	\$ -	\$ 2,433,503	\$ 2,433,503	\$ -	\$ 2,433,503	\$ -
Total General Plant	\$ 103,124,860	\$ 5,474,690	\$ (403,880)	\$ 5,070,810	\$ 5,120,393	\$ (366,764)	\$ 4,753,629	\$ (317,181)
TOTAL GAS UTILITY	\$ 1,696,001,226	\$ 36,156,067	\$ 6,462,359	\$ 42,618,426	\$ 37,457,750	\$ 8,183,441	\$ 45,641,191	\$ 3,022,765

KANSAS GAS SERVICE

Depreciation Reserve Summary
 Vintage Group Procedure
 December 31, 2015

Statement C

Account Description	Plant Investment	Recorded Reserve		Computed Reserve		Redistributed Reserve	
		Amount	Ratio	Amount	Ratio	Amount	Ratio
A	B	C	D=C/B	E	F=E/B	G	H=G/B
TRANSMISSION PLANT							
365.20 Rights of Way	\$ 12,240,603	\$ 3,341,464	27.30%	\$ 2,455,198	20.06%	\$ 3,130,666	25.58%
366.10 Compressor Station Structures	4,615,635	3,983,533	86.31%	2,068,926	44.82%	2,638,123	57.16%
366.20 Meas. and Reg. Station Structures	1,208,818	1,006,256	83.24%	621,271	51.39%	792,194	65.53%
367.00 Mains	204,780,896	53,774,154	26.26%	46,772,750	22.84%	59,640,751	29.12%
368.00 Compressor Station Equipment	21,890,908	17,130,425	78.25%	9,503,124	43.41%	12,117,600	55.35%
369.00 Meas. and Reg. Station Equipment	20,240,929	5,687,130	28.10%	5,178,839	25.59%	6,603,628	32.63%
Total Transmission Plant	\$ 264,977,789	\$ 84,922,963	32.05%	\$ 66,600,108	25.13%	\$ 84,922,963	32.05%
DISTRIBUTION PLANT							
374.20 Rights of Way	\$ 2,212,566	\$ 488,733	22.09%	\$ 376,860	17.03%	\$ 417,119	18.85%
375.00 Structures and Improvements	856,201	399,374	46.64%	218,674	25.54%	242,034	28.27%
376.10 Mains - Metallic	276,616,163	93,406,661	33.77%	64,505,150	23.32%	71,396,038	25.81%
376.20 Mains - Plastic	310,855,840	105,957,846	34.09%	95,360,911	30.68%	105,548,026	33.95%
376.90 Mains - Cathodic Protection	31,278,657	3,469,524	11.09%	16,477,574	52.68%	16,477,574	52.68%
378.00 Meas. and Reg. Station Equip. - General	23,478,664	10,535,707	44.87%	8,257,849	35.17%	9,140,010	38.93%
379.00 Meas. and Reg. Station Equip. - City Gate	7,461,635	4,047,168	54.24%	2,628,562	35.23%	2,909,363	38.99%
380.10 Services - Metallic	32,227,371	13,231,839	41.06%	12,841,699	39.85%	14,213,538	44.10%
380.20 Services - Plastic	399,309,013	176,636,453	44.24%	149,874,631	37.53%	165,885,280	41.54%
381.00 Meters	108,714,149	24,814,321	22.83%	28,192,521	25.93%	31,204,242	28.70%
381.50 AMR Communication Devices	20,289,237	4,010,095	19.76%	6,574,239	32.40%	6,574,239	32.40%
382.00 Meter Installations	94,402,391	29,057,835	30.78%	38,542,973	40.83%	42,660,401	45.19%
383.00 House Regulators and Installations	19,972,565	7,195,805	36.03%	5,954,843	29.82%	6,590,980	33.00%
386.00 Other Property - Customer Premises	224,125	224,125	100.00%	195,733	87.33%	216,643	96.66%
Total Distribution Plant	\$ 1,327,898,577	\$ 473,475,487	35.66%	\$ 430,002,219	32.38%	\$ 473,475,487	35.66%

KANSAS GAS SERVICE

Depreciation Reserve Summary
 Vintage Group Procedure
 December 31, 2015

Statement C

Account Description	Plant Investment	Recorded Reserve		Computed Reserve		Redistributed Reserve	
		Amount	Ratio	Amount	Ratio	Amount	Ratio
A	B	C	D=C/B	E	F=E/B	G	H=G/B
GENERAL PLANT							
Depreciable							
390.10 Structures and Improvements	\$ 35,359,439	\$ 11,694,086	33.07%	\$ 10,444,212	29.54%	\$ 13,156,340	37.21%
392.00 Transportation Equipment	26,644,792	13,251,098	49.73%	7,635,610	28.66%	9,618,407	36.10%
396.00 Power Operated Equipment	11,738,504	8,651,762	73.70%	6,014,510	51.24%	7,576,344	64.54%
Total Depreciable	\$ 73,742,735	\$ 33,596,946	45.56%	\$ 24,094,332	32.67%	\$ 30,351,091	41.16%
Amortizable							
391.10 Office Furniture and Equipment	\$ 4,949,181	\$ 2,113,219	42.70%	\$ 2,560,318	51.73%	\$ 2,560,318	51.73%
391.25 Computer Equipment	9,571,166	7,451,704	77.86%	5,643,124	58.96%	5,643,124	58.96%
393.00 Stores Equipment	113,367	(93,230)	-82.24%	49,829	43.95%	49,829	43.95%
394.00 Tools, Shop and Garage Equipment	8,974,944	1,009,157	11.24%	3,812,541	42.48%	3,812,541	42.48%
395.00 Laboratory Equipment	72,377	(245,091)	-338.63%	31,887	44.06%	31,887	44.06%
397.00 Communication Equipment	5,340,533	2,186,609	40.94%	3,585,487	67.14%	3,585,487	67.14%
398.00 Miscellaneous Equipment	360,557	95,697	26.54%	80,734	22.39%	80,734	22.39%
Total Amortizable	\$ 29,382,125	\$ 12,518,065	42.60%	\$ 15,763,920	53.65%	\$ 15,763,920	53.65%
Total General Plant	\$ 103,124,860	\$ 46,115,011	44.72%	\$ 39,858,252	38.65%	\$ 46,115,011	44.72%
TOTAL GAS UTILITY	\$ 1,696,001,226	\$ 604,513,461	35.64%	\$ 536,460,580	31.63%	\$ 604,513,461	35.64%

KANSAS GAS SERVICE
Average Net Salvage

Statement D

Account Description	Plant Investment			Salvage Rate		Net Salvage			Average Rate
	Additions	Retirements	Survivors	Realized	Future	Realized	Future	Total	
A	B	C	D=B-C	E	F	G=E*C	H=F*D	I=G+H	J=I/B
TRANSMISSION PLANT									
365.20 Rights of Way	\$ 12,301,248	\$ 60,645	\$ 12,240,603	136.8%		\$ 82,962	\$ -	\$ 82,962	0.7%
366.10 Compressor Station Structures	5,679,692	1,064,057	4,615,635	-82.7%	-25.0%	(879,975)	(1,153,909)	(2,033,884)	-35.8%
366.20 Meas. and Reg. Station Structures	1,346,234	137,416	1,208,818	-31.0%	-30.0%	(42,599)	(362,645)	(405,244)	-30.1%
367.00 Mains	234,615,574	29,834,678	204,780,896	-14.4%		(4,296,194)		(4,296,194)	-1.8%
368.00 Compressor Station Equipment	28,948,952	7,058,044	21,890,908	-37.9%	-30.0%	(2,674,999)	(6,567,272)	(9,242,271)	-31.9%
369.00 Meas. and Reg. Station Equipment	23,488,246	3,247,317	20,240,929	-17.5%	-30.0%	(568,280)	(6,072,279)	(6,640,559)	-28.3%
Total Transmission Plant	\$ 306,379,946	\$ 41,402,157	\$ 264,977,789	-20.2%	-5.3%	\$ (8,379,085)	\$ (14,156,105)	\$ (22,535,190)	-7.4%
DISTRIBUTION PLANT									
374.20 Rights of Way	\$ 2,212,638	\$ 72	\$ 2,212,566	-748.6%		\$ (539)	\$ -	\$ (539)	
375.00 Structures and Improvements	1,150,616	294,415	856,201	-21.8%	-15.0%	(64,182)	(128,430)	(192,613)	-16.7%
376.10 Mains - Metallic	308,941,736	32,325,573	276,616,163	-119.9%	-13.0%	(38,758,362)	(35,960,101)	(74,718,463)	-24.2%
376.20 Mains - Plastic	317,618,870	6,763,030	310,855,840	-166.1%	-16.0%	(11,233,393)	(49,736,934)	(60,970,327)	-19.2%
376.90 Mains - Cathodic Protection	31,278,657		31,278,657						
378.00 Meas. and Reg. Station Equip. - General	26,107,080	2,628,416	23,478,664	-12.4%	-25.0%	(325,924)	(5,869,666)	(6,195,590)	-23.7%
379.00 Meas. and Reg. Station Equip. - City Gate	7,864,312	402,677	7,461,635	-72.0%	-20.0%	(289,927)	(1,492,327)	(1,782,254)	-22.7%
380.10 Services - Metallic	37,652,343	5,424,972	32,227,371	-460.0%	-43.0%	(24,954,871)	(13,857,770)	(38,812,641)	-103.1%
380.20 Services - Plastic	424,990,742	25,681,729	399,309,013	-209.7%	-38.0%	(53,854,586)	(151,737,425)	(205,592,011)	-48.4%
381.00 Meters	131,439,077	22,724,928	108,714,149	-2.1%		(477,223)		(477,223)	-0.4%
381.50 AMR Communication Devices	20,289,237		20,289,237						
382.00 Meter Installations	101,167,811	6,765,420	94,402,391	-86.0%	-50.0%	(5,818,261)	(47,201,196)	(53,019,457)	-52.4%
383.00 House Regulators and Installations	23,073,229	3,100,664	19,972,565	0.2%	-5.0%	6,201	(998,628)	(992,427)	-4.3%
386.00 Other Property - Customer Premises	224,125		224,125						
Total Distribution Plant	\$ 1,434,010,473	\$ 106,111,896	\$ 1,327,898,577	-128.0%	-23.1%	\$ (135,771,068)	\$ (306,982,477)	\$ (442,753,545)	-30.9%
GENERAL PLANT									
Depreciable									
390.10 Structures and Improvements	\$ 38,357,113	\$ 2,997,674	\$ 35,359,439	15.3%	-5.0%	\$ 458,644	\$ (1,767,972)	\$ (1,309,328)	-3.4%
392.00 Transportation Equipment	42,658,293	16,013,501	26,644,792	18.8%	20.0%	3,010,538	5,328,958	8,339,497	19.5%
396.00 Power Operated Equipment	22,778,957	11,040,453	11,738,504	13.5%	10.0%	1,490,461	1,173,850	2,664,312	11.7%
Total Depreciable	\$ 103,794,363	\$ 30,051,628	\$ 73,742,735	16.5%	6.4%	\$ 4,959,643	\$ 4,734,837	\$ 9,694,480	9.3%
Amortizable									
391.10 Office Furniture and Equipment	\$ 7,142,241	\$ 2,193,060	\$ 4,949,181			\$ -	\$ -	\$ -	
391.25 Computer Equipment	31,862,640	22,291,474	9,571,166						
393.00 Stores Equipment	921,317	807,950	113,367						
394.00 Tools, Shop and Garage Equipment	22,043,299	13,068,355	8,974,944						
395.00 Laboratory Equipment	1,071,414	999,037	72,377						
397.00 Communication Equipment	11,421,365	6,080,832	5,340,533						
398.00 Miscellaneous Equipment	586,754	226,197	360,557						
Total Amortizable	\$ 75,049,030	\$ 45,666,905	\$ 29,382,125			\$ -	\$ -	\$ -	
Total General Plant	\$ 178,843,393	\$ 75,718,533	\$ 103,124,860	6.6%	4.6%	\$ 4,959,643	\$ 4,734,837	\$ 9,694,480	5.4%
TOTAL GAS UTILITY	\$ 1,919,233,812	\$ 223,232,586	\$ 1,696,001,226	-62.4%	-18.7%	\$ (139,190,509)	\$ (316,403,745)	\$ (455,594,254)	-23.7%

KANSAS GAS SERVICE
 Current and Updated Parameters
 Vintage Group Procedure

Statement E

Account Description	Current Parameters						Updated Parameters						
	P-Life/ AYFR	Curve Shape	VG ASL	Rem. Life	Avg. Sal.	Fut. Sal.	P-Life/ AYFR	Curve Shape	VG ASL	Rem. Life	Avg. Sal.	Fut. Sal.	
	A	B	C	D	E	F	G	H	I	J	K	L	M
TRANSMISSION PLANT													
365.20	Rights of Way	70.00	R1.5	70.62	59.35			70.00	R1.5	70.79	56.99	0.7	
366.10	Compressor Station Structures	45.00	L2	45.85	28.94		-25.0	45.00	L2	46.02	27.17	-35.8	-25.0
366.20	Meas. and Reg. Station Structures	55.00	S1.5	54.91	34.92		-30.0	55.00	S1.5	54.90	33.17	-30.1	-30.0
367.00	Mains	50.00	L1	50.63	39.45			50.00	L1	50.61	38.36	-1.8	
368.00	Compressor Station Equipment	35.00	SC	35.92	26.22		-30.0	35.00	SC	37.93	24.90	-31.9	-30.0
369.00	Meas. and Reg. Station Equipment	40.00	L0	40.54	32.71		-30.0	40.00	L0	40.50	32.96	-28.3	-30.0
	Total Transmission Plant									48.90	36.79	-7.4	-5.3
DISTRIBUTION PLANT													
374.20	Rights of Way	70.00	R1.5	70.48	59.54			70.00	R1.5	70.57	58.55		
375.00	Structures and Improvements	30.00	L0	30.59	25.73		-15.0	30.00	L0	31.06	23.81	-16.7	-15.0
376.10	Mains - Metallic	70.00	R1.5	71.25	53.87		-13.0	70.00	R1.5	71.24	51.44	-24.2	-13.0
376.20	Mains - Plastic	50.00	R3	50.05	37.50		-16.0	50.00	R3	50.07	35.84	-19.2	-16.0
376.90	Mains - Cathodic Protection	50.00	S0.5	49.79	37.77		-25.0	15.00	SQ	15.00	7.81		
378.00	Meas. and Reg. Station Equip. - General	60.00	R2.5	59.57	40.56		-20.0	50.00	S0.5	49.85	36.20	-23.7	-25.0
379.00	Meas. and Reg. Station Equip. - City Gate	60.00	R2.5	59.57	40.56		-20.0	60.00	R2.5	59.72	41.26	-22.7	-20.0
380.10	Services - Metallic	50.00	R1.5	52.82	28.47		-43.0	50.00	R1.5	53.22	27.03	-103.1	-43.0
380.20	Services - Plastic	45.00	R3	45.17	30.99		-38.0	45.00	R3	45.17	30.58	-48.4	-38.0
381.00	Meters	38.00	R1.5	38.27	28.86			38.00	R1.5	38.28	28.24	-0.4	
381.50	AMR Communication Devices	15.00	SQ	15.00	11.38			15.00	SQ	15.00	10.14		
382.00	Meter Installations	48.00	R2.5	47.74	36.65		-50.0	48.00	R2.5	47.77	34.22	-52.4	-50.0
383.00	House Regulators and Installations	50.00	R1.5	50.89	34.23		-5.0	50.00	R1.5	50.69	36.54	-4.3	-5.0
386.00	Other Property - Customer Premises	10.00	S3	10.20	3.22			10.00	S3	11.92	1.51		
	Total Distribution Plant									46.78	32.02	-30.9	-23.1

KANSAS GAS SERVICE
 Current and Updated Parameters
 Vintage Group Procedure

Statement E

Account Description A	Current Parameters						Updated Parameters					
	P-Life/ AYFR B	Curve Shape C	VG ASL D	Rem. Life E	Avg. Sal. F	Fut. Sal. G	P-Life/ AYFR H	Curve Shape I	VG ASL J	Rem. Life K	Avg. Sal. L	Fut. Sal. M
GENERAL PLANT												
Depreciable												
390.10	Structures and Improvements	60.00	R1.5	60.75	48.49	-5.0	60.00	R1.5	61.18	44.65	-3.4	-5.0
392.00	Transportation Equipment	14.00	L1.5	14.49	9.42	20.0	14.00	L1.5	14.55	9.28	19.5	20.0
396.00	Power Operated Equipment	12.00	L2	12.16	6.88	10.0	12.00	L2	13.03	5.72	11.7	10.0
Total Depreciable									22.28	14.49	9.3	6.4
Amortizable												
391.10	Office Furniture and Equipment	20.00	SQ	20.00	12.24		20.00	SQ	20.00	9.65		
391.25	Computer Equipment	7.00	SQ	7.00	4.17		7.00	SQ	7.00	2.88		
393.00	Stores Equipment	20.00	SQ	20.00	6.47		20.00	SQ	20.00	11.21		
394.00	Tools, Shop and Garage Equipment	15.00	SQ	15.00	8.82		15.00	SQ	15.00	8.68		
395.00	Laboratory Equipment	15.00	SQ	15.00	12.39		15.00	SQ	15.00	8.39		
397.00	Communication Equipment	15.00	SQ	15.00	6.50		15.00	SQ	15.00	4.93		
398.00	Miscellaneous Equipment	20.00	SQ	20.00	11.20		20.00	SQ	20.00	15.52		
Total Amortizable									11.31	5.26		
Total General Plant									17.46	10.43	5.4	4.6
TOTAL GAS UTILITY									42.71	29.46	-23.7	-18.7

2015 Depreciation Rate Study



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EXECUTIVE SUMMARY

INTRODUCTION

This report presents findings and recommendations developed in a 2015 depreciation study conducted by Foster Associates Consultants, LLC (Foster Associates) for Tulsa-based ONE Gas, Inc. (ONE Gas). Work on the study commenced in July 2014 and progressed (with interruptions) through mid-April 2015, at which time the project was completed.

Foster Associates is a public utility economic consulting offering economic research and consulting services on issues and problems arising from governmental regulation of business. Areas of specialization supported by the firm's Fort Myers, Florida office include property life forecasting, technological forecasting, depreciation estimation, and valuation of industrial property.

Foster Associates has undertaken numerous depreciation engagements for both public and privately owned business entities including detailed statistical life studies, analyses of required net salvage rates, and the selection of depreciation systems that will most nearly achieve the goals of depreciation accounting under the constraints of either government regulation or competitive market pricing. Foster Associates is widely recognized for industry leadership in the development of depreciation systems, life analysis techniques and computer software for conducting depreciation and valuation studies.

Depreciation rates currently used by ONE Gas were developed and applied by ONEOK, Inc. (ONEOK), the predecessor Company to ONE Gas. One Gas was founded on August 30, 2013, as a wholly owned subsidiary of ONEOK, to hold ONEOK's natural gas distribution companies and to have its shares distributed to ONEOK's shareholders. ONEOK completed the separation of ONE Gas in February 2014.

The principal findings and recommendations of the 2015 Depreciation Rate Study are summarized in Section II of this report. Statement A provides a comparative summary of current and proposed annual depreciation rates for each rate category. Statement B provides a comparison of current and proposed annual depreciation accruals. Statement C provides a comparison of computed, recorded and redistributed depreciation reserves. Statement D provides the investment and net salvage components of the redistributed reserves. Statement E provides a summary of the components used to obtain weighted-average net salvage rates. Statement F provides a comparative summary of current and proposed parameters including projection life, projection curve and future net salvage rates. Statement F also contains current and proposed statistics including average service life, average remaining life, and average net salvage rates.

SCOPE OF STUDY

The principal activities undertaken in the course of the current study included:

- Collection of plant and net salvage data;

- Reconciliation of data to the official records of ONE Gas;
- Discussions with ONE Gas plant accounting personnel;
- Estimation of projection lives and retirement dispersion patterns;
- Analysis of gross salvage and cost of removal;
- Analysis and redistribution of recorded depreciation reserves; and
- Development of recommended accrual rates for each rate category.

DEPRECIATION SYSTEM

A depreciation rate is formed by combining the elements of a depreciation system. A depreciation system is composed of a method, a procedure and a technique. A depreciation method (*e.g.*, straight-line) describes the component of the system that determines the acceleration or deceleration of depreciation accruals in relation to either time or use. A depreciation procedure (*e.g.*, vintage group) identifies the level of grouping or sub-grouping of assets within a plant category. The level of grouping specifies the weighting used to obtain composite service-life statistics for a plant account. A depreciation technique (*e.g.*, remaining-life) describes the life statistic used in the system.

With the exception of Account 392.60 (Aircraft), investments classified in other general plant categories are currently treated as “end of life” or “life span” categories. This treatment contemplates that all vintages within an “end of life” category will be retired at the same future date. Stated differently, each vintage of plant currently in service is predicated to have the same remaining life. It is the opinion of Foster Associates that a life-span treatment is appropriate for the aircraft and leasehold improvements.

LIFE-SPAN CATEGORIES

The current depreciation rate for Account 390.20 (Leasehold Improvements) is a broad-group, life-span rate of 10.6195 percent based on a lease term ending April 2024. The major investment classified in Account 390.2 is signage installed on a leased, ONE Gas headquarters tower located in downtown Tulsa. A white noise reduction system is also classified in this account. A terminal retirement year of 2024 was retained to allocate the cost of leasehold improvements over the ten-year lease term of the tower entered into on March 4, 2014.

The current depreciation rate for Account 392.60 (Aircraft) is a broad-group, whole-life rate of five percent derived from an estimated service life of 20 years and 0 percent net salvage. The aircraft is a 2008 Hawker 850XP purchased by ONEOK in October 2008 and transferred to ONE Gas in February 2014. Although highly subjective, it is the opinion of ONE Gas that year 2023 is a reasonable estimate of when the aircraft might be sold or replaced. While the residual value of pre-owned aircraft is largely driven by economic conditions at the time of sale and nearly impossible to predict, it is the opinion of ONE Gas that a realis-

tic estimate of the residual value in 2023 would be about 70 percent of the current value reported in the Fall 2014 (Vol. 14-3) *Aircraft Bluebook*. Assuming 70 percent of a current residual value of \$4.5 million, the estimated residual value in 2023 becomes \$3,185,783, which was rounded to \$3 million for the purpose of this study.

AMORTIZABLE CATEGORIES

It is the opinion of Foster Associates that the remaining plant accounts currently treated as “end of life” categories are better described as open-ended plant categories in which additions and retirements are envisioned in perpetuity. Life-span categories are descriptive of integrated systems composed of major items of plant that will most likely be retired as a single unit. An LNG facility, for example, is an integrated system in which property units retired prior to the retirement of the entire facility are viewed as interim retirements that will be replaced in order to maintain the integrity of the system. The entire system and all related equipment, however, will likely be retired as a unit when the plant is no longer functional or economic to operate.

Unlike depreciation accounting in which a depreciation rate is applied to the cost of plant and equipment remaining in service regardless of the age of the property, amortization accounting ceases depreciation on all assets older than the amortization period. Although plant may physically remain in service beyond the end of the amortization period (or have been removed from service before the end of the period), no attempt is made to track the physical disposition of each property unit. Vintages of plant achieving an age equal to the amortization period are posted as retirements, regardless of the physical disposition of the assets. Any realized net salvage is netted against current year additions.

Amortization accounting is ideally suited to open-ended plant categories in which the unit cost of plant items is small in relation to the number of units classified in an account or the disposition of property units is difficult to identify. Retirement units are seldom (if ever) defined for software products such that retirements associated with system upgrades can be identified.

While the functionality provided by a purchased software product may be enhanced by system upgrades and perhaps eventually replaced with a new product, the functionality provided by an aggregation of purchased software is similar to a physical plant category in which additions and retirements are occasioned by a variety of events including upgrades and replacements with new technology. The distinction between purchased software and other depreciable plant categories is largely the absence of physical forces of retirement such as wear and tear or action of the elements acting upon software. The functional similarity, however, can be captured by using amortization accounting rather than an “end of life” treatment.

An amortization period of 13 years is recommended for Account 391.60 (Purchased Software). While the selected amortization period is considered to fall well within a zone of reasonableness, attention was also given to the potential impact of shifting reserves from the depreciable categories into the amortizable categories. A period of 13 years was selected for Account 391.60 with this concern in mind.

Amortization periods for the remaining amortizable categories were selected in consultation with ONE Gas and with consideration given to the mix of property units classified in each account.

Implementation of amortization accounting necessitates a vintage alignment of depreciation reserves to ensure that each vintage is fully allocated to operations upon achievement of an age equal to the amortization period. Such an alignment was achieved by transferring recorded reserves from the two depreciable plant categories into the four amortizable categories to obtain redistributed reserves equal to computed reserves for each amortizable account. The adjusted recorded reserves for the depreciable categories were then rebalanced in proportion to computed reserves for each account.

RECOMMENDED DEPRECIATION RATES

Table 1 below provides a summary of the changes in annual rates and accruals resulting from an application of the parameters and depreciation systems recommended in the 2015 study.

Account	Accrual Rate			2015 Annualized Accrual		
	Current	Proposed	Diff.	Current	Proposed	Difference
A	B	C	D=C-B	E	F	G=F-E
General Plant						
Depreciable	5.94%	6.93%	0.99%	\$962,542	\$1,122,230	\$159,688
Amortizable	7.40%	8.05%	0.65%	8,165,832	8,874,250	708,418
Total Plant	7.22%	7.90%	0.68%	\$9,128,374	\$9,996,480	\$868,106

Table 1. Current and Proposed Rates and Accruals

Foster Associates is recommending primary account accrual rates equivalent to a composite rate of 7.90 percent. Depreciation expense is currently accrued at a composite rate of 7.22 percent. The recommended change in the composite rate is an increase of 0.68 percentage points.

A continued application of current rates would provide annualized depreciation accruals of \$9,128,374 compared with annualized accruals of \$9,996,480 using the rates developed in this study. The resulting 2015 accrual increase is \$868,106.

Of the six property accounts included in the study, Foster Associates is recommending rate reductions for two accounts and rate increases for four accounts.

STATEMENTS

INTRODUCTION

This section provides a comparative summary of depreciation rates, annual depreciation accruals, recorded, computed and redistributed depreciation reserves, and current and proposed service life and net salvage parameters recommended for ONE Gas plant and equipment categories. The content of these statements is briefly described below.

- Statement A provides a comparative summary of current and proposed annual depreciation rates.
- Statement B provides a comparison of current and proposed annualized 2015 depreciation accruals derived from the depreciation rates contained in Statement A.
- Statement C provides a comparison of recorded, computed and redistributed reserves for each rate category at December 31, 2014.
- Statement D provides the investment and net salvage components of the redistributed reserves derived in Statement C.
- Statement E provides a summary of the components used to obtain weighted average net salvage rates.
- Statement F provides a comparative summary of current and proposed parameters and statistics including projection life, projection curve, average service life, average remaining life, and average and future net salvage rates.

ONE Gas, Inc.

Statement A

Component Accrual Rates

Current: BG Procedure / RL Technique

Proposed: VG Procedure / RL Technique

Account Description	Current			Proposed		Total Rate
	Rem. Life	Fut. Net Salvage	Accrual Rate	Investment	Net Salvage	
A	B	C	D	E	H	I=G+H
GENERAL PLANT						
Depreciable						
390.20 Leasehold Improvements			10.62%	10.15%		10.15%
392.60 Aircraft			5.00%	8.08%	-1.80%	6.28%
Total Depreciable			5.94%	8.43%	-1.50%	6.93%
Amortizable						
391.10 Office Furniture			5.00%	← 15 Year Amortization →		6.67%
391.30 Office Machines			5.00%	← 20 Year Amortization →		5.00%
391.60 Purchased Software			7.28%	← 13 Year Amortization →		7.69%
391.80 Micro Computer Equipment			10.61%	← 5 Year Amortization →		16.33%
Total Amortizable			7.40%	8.05%		8.05%
TOTAL GENERAL PLANT			7.22%	8.09%	-0.19%	7.90%

ONE Gas, Inc.

Statement B

Component Accruals

Current: BG Procedure / RL Technique

Proposed: VG Procedure / RL Technique

Account Description	12/31/14 Plant Investment	Current	Proposed 2015 Annualized Accrual			Difference
			Investment	Net Salvage	Total	
A	B	C	D	E	F=D+E	G=F-C
GENERAL PLANT						
Depreciable						
390.20 Leasehold Improvements	\$ 2,720,189	\$ 288,870	\$ 276,099	\$ -	\$ 276,099	\$ (12,771)
392.60 Aircraft	13,473,433	673,672	1,088,653	(242,522)	846,131	172,459
Total Depreciable	\$ 16,193,622	\$ 962,542	\$ 1,364,752	\$ (242,522)	\$ 1,122,230	\$ 159,688
Amortizable						
391.10 Office Furniture	\$ 555,088	\$ 27,754	\$ 37,006	\$ -	\$ 37,006	\$ 9,252
391.30 Office Machines	35,303	1,765	1,765		1,765	
391.60 Purchased Software	105,115,298	7,649,240	8,085,792		8,085,792	436,552
391.80 Micro Computer Equipment	4,590,700	487,073	749,687		749,687	262,614
Total Amortizable	\$ 110,296,389	\$ 8,165,832	\$ 8,874,250	\$ -	\$ 8,874,250	\$ 708,418
TOTAL GENERAL PLANT	\$ 126,490,011	\$ 9,128,374	\$ 10,239,002	\$ (242,522)	\$ 9,996,480	\$ 868,106

ONE Gas, Inc.
 Depreciation Reserve Summary
 Vintage Group Procedure
 December 31, 2014

Statement C

Account Description	Plant Investment	Recorded Reserve		Computed Reserve		Redistributed Reserve	
		Amount	Ratio	Amount	Ratio	Amount	Ratio
A	B	C	D=C/B	E	F=E/B	G	H=G/B
GENERAL PLANT							
Depreciable							
390.20 Leasehold Improvements	\$ 2,720,189	\$ 12,036	0.44%	\$ 136,009	5.00%	\$ 98,450	3.62%
392.60 Aircraft	13,473,433	4,152,221	30.82%	4,536,855	33.67%	3,283,980	24.37%
Total Depreciable	\$ 16,193,622	\$ 4,164,257	25.72%	\$ 4,672,864	28.86%	\$ 3,382,429	20.89%
Amortizable							
391.10 Office Furniture	\$ 555,088	\$ 13		\$ 1,542	0.28%	\$ 1,542	0.28%
391.30 Office Machines	35,303	1		74	0.21%	74	0.21%
391.60 Purchased Software	105,115,298	41,213,116	39.21%	41,708,045	39.68%	41,708,045	39.68%
391.80 Micro Computer Equipment	4,590,700	1,863,378	40.59%	2,148,676	46.80%	2,148,676	46.80%
Total Amortizable	\$ 110,296,389	\$ 43,076,508	39.06%	\$ 43,858,336	39.76%	\$ 43,858,336	39.76%
TOTAL GENERAL PLANT	\$ 126,490,011	\$ 47,240,766	37.35%	\$ 48,531,201	38.37%	\$ 47,240,766	37.35%

ONE Gas, Inc.

Depreciation Reserve Components
 Redistributed Reserve
 December 31, 2014

Statement D

Account Description	Plant Investment		Investment Reserve		Net Salvage Reserve		Total Reserve	
	Amount	Ratio	Amount	Ratio	Amount	Ratio	Amount	Ratio
A	B	C	D=C/B	E	F=E/B	G=C+E	H=G/B	
GENERAL PLANT								
Depreciable								
390.20 Leasehold Improvements	\$ 2,720,189	\$ 98,450	3.62%	\$ -		\$ 98,450	3.62%	
392.60 Aircraft	13,473,433	4,222,223	31.34%	(938,244)	-6.96%	3,283,980	24.37%	
Total Depreciable	\$ 16,193,622	\$ 4,320,673	26.68%	\$ (938,244)	-5.79%	\$ 3,382,429	20.89%	
Amortizable								
391.10 Office Furniture	\$ 555,088	\$ 1,542	0.28%	\$ -		\$ 1,542	0.28%	
391.30 Office Machines	35,303	74	0.21%			74	0.21%	
391.60 Purchased Software	105,115,298	41,708,045	39.68%			41,708,045	39.68%	
391.80 Micro Computer Equipment	4,590,700	2,148,676	46.80%			2,148,676	46.80%	
Total Amortizable	\$ 110,296,389	\$ 43,858,336	39.76%	\$ -		\$ 43,858,336	39.76%	
TOTAL GENERAL PLANT	\$ 126,490,011	\$ 48,179,010	38.09%	\$ (938,244)	-0.74%	\$ 47,240,766	37.35%	

ONE Gas, Inc.
Average Net Salvage

Statement E

Account Description	Plant Investment			Salvage Rate		Net Salvage		Total	Average Rate
	Additions	Retirements	Survivors	Realized	Future	Realized	Future		
A	B	C	D=B-C	E	F	G=E*C	H=F*D	I=G+H	J=I/B
GENERAL PLANT									
Depreciable									
390.20 Leasehold Improvements	\$ 2,720,189	\$ -	\$ 2,720,189			\$ -	\$ -	\$ -	
392.60 Aircraft	13,473,433		13,473,433		22.3%		3,000,000	3,000,000	22.3%
Total Depreciable	\$ 16,193,622	\$ -	\$ 16,193,622		18.5%	\$ -	\$ 3,000,000	\$ 3,000,000	18.5%
Amortizable									
391.10 Office Furniture	\$ 555,088	\$ -	\$ 555,088			\$ -	\$ -	\$ -	
391.30 Office Machines	35,303		35,303						
391.60 Purchased Software	105,115,298		105,115,298						
391.80 Micro Computer Equipment	4,590,700		4,590,700						
Total Amortizable	\$ 110,296,389	\$ -	\$ 110,296,389			\$ -	\$ -	\$ -	
TOTAL GENERAL PLANT	\$ 126,490,011	\$ -	\$ 126,490,011		2.4%	\$ -	\$ 3,000,000	\$ 3,000,000	2.4%

ONE Gas, Inc.

Current and Proposed Parameters
Vintage Group Procedure

Statement F

Account Description	Current Parameters						Proposed Parameters (at December 31, 2014)					
	P-Life/ AYFR	Curve Shape	Rem. Life	Avg. Life	Avg. Sal.	Fut. Sal.	P-Life/ AYFR	Curve Shape	VG ASL	Rem. Life	Avg. Sal.	Fut. Sal.
A	B	C	D	E	F	G	H	I	J	K	L	M
GENERAL PLANT												
Depreciable												
390.20 Leasehold Improvements							2024	10-SQ	10.00	9.50		
392.60 Aircraft							2023	20-SQ	14.99	8.50	22.3	22.3
Total Depreciable									13.83	8.73	18.5	18.5
Amortizable												
391.10 Office Furniture								15-SQ	180.00	179.50		
391.30 Office Machines								20-SQ	240.00	239.50		
391.60 Purchased Software								13-SQ	156.00	94.10		
391.80 Micro Computer Equipment								5-SQ	73.48	39.09		
Total Amortizable									149.15	89.84		
TOTAL GENERAL PLANT									66.21	40.13	2.4	2.4

ANALYSIS

INTRODUCTION

This section provides an explanation of the supporting schedules developed in the ONE Gas depreciation study. Unlike a typical study in which workpapers and supporting schedules are produced as a byproduct of conducting service life and net salvage studies, the only supporting schedules developed in the ONE Gas study are generation arrangements used to obtain appropriate weighted-average life statistics for a rate category. The following table provides a description of each column in the generation arrangement.

Column	Title	Description
A	Vintage	Vintage or placement year of surviving plant.
B	Age	Age of surviving plant at beginning of study year.
C	Surviving Plant	Actual dollar amount of surviving plant.
D	Average Life	Estimated average life of each vintage. This statistic is the sum of the realized life and the unrealized life, which is the product of the remaining life (Column E) and the theoretical proportion surviving.
E	Remaining Life	Estimated remaining life of each vintage.
F	Net Plant Ratio	Theoretical net plant ratio of each vintage.
G	Computed Reserve	The product of surviving plant (Column C) and the compliment of the Net Plant Ratio (Column F).
H	Computed Net Plant	Plant in service less theoretical reserve for each vintage.
I	Accrual	Ratio of computed net plant (Column H) and remaining life (Column E).

Table 2. Generation Arrangement

A weighted-average remaining-life is the sum of Column H divided by the sum of Column I. A weighted average life is the sum of Column C divided by the sum of Column I.

It should be noted that the generation arrangement does not include parameters for net salvage. Computed Net Plant (Column H) and Accruals (Column I) must be adjusted for net salvage to obtain a correct measurement of theoretical reserves and annualized depreciation accruals.

ONE Gas, Inc.

General Plant

Depreciable

Account 390.20 Leasehold Improvements

Dispersion: 10 - SQ AYFR: 2024

Procedure: Vintage Group

Generation Arrangement

Vintage	December 31, 2014		Years		Net Plant Ratio	Computed		Annual Accrual
	Age (Years)	Surviving Plant	Avg. Life	Rem. Life		Reserve	Net Plant	
A	B	C	D	E	F=E/D	G=C*(1-F)	H=C-G	I=H/E
2014/12	0.5	2,720,189	10.00	9.50	0.9500	136,009	2,584,180	272,019
Total	0.5	2,720,189	10.00	9.50	0.9500	136,009	2,584,180	272,019

ONE Gas, Inc.
General Plant
Amortizable
Account 391.10 Office Furniture
Dispersion: 15 - SQ
Procedure: Broad Group

Generation Arrangement

Vintage	December 31, 2014		Months		Net Plant Ratio	Computed		Monthly Accrual
	Age (Months)	Surviving Plant	Avg. Life	Rem. Life		Reserve	Net Plant	
A	B	C	D	E	F=E/D	G=C*(1-F)	H=C-G	I=H/E
2014/12	0.5	555,088	180	179.50	0.9972	1,542	553,546	3,084
Total	0.5	555,088	180	179.50	0.9972	1,542	553,546	3,084

ONE Gas, Inc.

General Plant

Amortizable

Account 391.30 Office Machines

Dispersion: 20 - SQ

Procedure: Broad Group

Generation Arrangement

Vintage	December 31, 2014		Months		Net Plant Ratio	Computed		Monthly Accrual
	Age (Months)	Surviving Plant	Avg. Life	Rem. Life		Reserve	Net Plant	
A	B	C	D	E	F=E/D	G=C*(1-F)	H=C-G	I=H/E
2014/12	0.5	35,303	240	239.50	0.9979	74	35,230	147
Total	0.5	35,303	240	239.50	0.9979	74	35,230	147

ONE Gas, Inc.

General Plant

Amortizable

Account 391.60 Purchased Software

Dispersion: 13 - SQ

Procedure: Broad Group

Generation Arrangement

Vintage	December 31, 2014		Months		Net Plant Ratio	Computed		Monthly Accrual
	Age (Months)	Surviving Plant	Avg. Life	Rem. Life		Reserve	Net Plant	
A	B	C	D	E	F=E/D	G=C*(1-F)	H=C-G	I=H/E
2014/12	0.5	35,761,872	156	155.50	0.9968	114,621	35,647,251	229,243
2014/11	1.5	1,284,339	156	154.50	0.9904	12,349	1,271,989	8,233
2014/03	9.5	3,000,138	156	146.50	0.9391	182,701	2,817,437	19,232
2013/12	12.5	112,740	156	143.50	0.9199	9,034	103,707	723
2013/11	13.5	436,015	156	142.50	0.9135	37,732	398,283	2,795
2013/10	14.5	37,360	156	141.50	0.9071	3,473	33,888	239
2013/09	15.5	214,441	156	140.50	0.9006	21,307	193,135	1,375
2013/07	17.5	5,853,060	156	138.50	0.8878	656,593	5,196,467	37,520
2013/06	18.5	61,000	156	137.50	0.8814	7,234	53,766	391
2013/05	19.5	675,500	156	136.50	0.8750	84,438	591,063	4,330
2013/01	23.5	143,138	156	132.50	0.8494	21,562	121,575	918
2012/11	25.5	613,262	156	130.50	0.8365	100,245	513,017	3,931
2012/10	26.5	125,763	156	129.50	0.8301	21,364	104,399	806
2012/09	27.5	163,038	156	128.50	0.8237	28,741	134,297	1,045
2012/05	31.5	139,148	156	124.50	0.7981	28,097	111,051	892
2012/04	32.5	109,455	156	123.50	0.7917	22,803	86,652	702
2012/03	33.5	20,721	156	122.50	0.7853	4,450	16,271	133
2012/01	35.5	2,729,042	156	120.50	0.7724	621,032	2,108,010	17,494
2011/11	37.5	246,276	156	118.50	0.7596	59,201	187,075	1,579
2011/04	44.5	78,410	156	111.50	0.7147	22,367	56,043	503
2011/01	47.5	35,470	156	108.50	0.6955	10,800	24,670	227
2010/12	48.5	265,075	156	107.50	0.6891	82,411	182,664	1,699
2010/11	49.5	672,585	156	106.50	0.6827	213,416	459,168	4,311
2010/08	52.5	350,264	156	103.50	0.6635	117,877	232,386	2,245
2010/01	59.5	66,505	156	96.50	0.6186	25,366	41,139	426
2009/12	60.5	68,310	156	95.50	0.6122	26,492	41,818	438
2009/10	62.5	252,307	156	93.50	0.5994	101,084	151,222	1,617
2009/09	63.5	150,588	156	92.50	0.5929	61,297	89,291	965
2009/06	66.5	33,127	156	89.50	0.5737	14,121	19,006	212
2009/01	71.5	569,672	156	84.50	0.5417	261,099	308,572	3,652
2008/09	75.5	230,230	156	80.50	0.5160	111,426	118,805	1,476
2008/06	78.5	706,383	156	77.50	0.4968	355,455	350,927	4,528
2008/05	79.5	54,146	156	76.50	0.4904	27,593	26,552	347
2007/12	84.5	956,490	156	71.50	0.4583	518,099	438,391	6,131
2007/11	85.5	50,411	156	70.50	0.4519	27,629	22,782	323
2007/08	88.5	728,896	156	67.50	0.4327	413,508	315,388	4,672
2007/05	91.5	130,441	156	64.50	0.4135	76,509	53,932	836
2006/12	96.5	70,560	156	59.50	0.3814	43,648	26,912	452
2006/09	99.5	9,802,713	156	56.50	0.3622	6,252,371	3,550,341	62,838
2004/06	126.5	38,116,411	156	29.50	0.1891	30,908,500	7,207,911	244,336
Total	61.9	105,115,298	156	94.10	0.6032	41,708,045	63,407,253	673,816

ONE Gas, Inc.
General Plant
Amortizable
Account 391.80 Micro Computer Equipment
Dispersion: 5 - SQ
Procedure: Broad Group

Generation Arrangement

Vintage	December 31, 2014		Months		Net Plant Ratio	Computed		Monthly Accrual
	Age (Months)	Surviving Plant	Avg. Life	Rem. Life		Reserve	Net Plant	
A	B	C	D	E	F=E/D	G=C*(1-F)	H=C-G	I=H/E
2014/12	0.5	1,095,911	60	59.50	0.9917	9,133	1,086,779	18,265
2014/01	11.5	314,769	60	48.50	0.8083	60,331	254,438	5,246
2013/11	13.5	366,534	60	46.50	0.7750	82,470	284,064	6,109
2013/10	14.5	384,187	60	45.50	0.7583	92,845	291,342	6,403
2013/02	22.5	94,672	60	37.50	0.6250	35,502	59,170	1,578
2012/12	24.5	191,692	60	35.50	0.5917	78,274	113,418	3,195
2012/08	28.5	13,594	60	31.50	0.5250	6,457	7,137	227
2012/06	30.5	291,284	60	29.50	0.4917	148,069	143,215	4,855
2012/02	34.5	259,959	60	25.50	0.4250	149,477	110,483	4,333
2010/08	52.5	735,832	60	7.50	0.1250	643,853	91,979	12,264
2009/12	60.5	842,265	60	0.00	0.0000	842,265	-	-
Total	28.2	4,590,700	73	39.09	0.5320	2,148,676	2,442,024	62,474

ONE Gas, Inc.

General Plant

Depreciable

Account 392.60 Aircraft

Dispersion: 20 - SQ AYFR: 2023

Procedure: Vintage Group

Generation Arrangement

Vintage	December 31, 2014		Years		Net Plant Ratio	Computed		Annual Accrual
	Age (Years)	Surviving Plant	Avg. Life	Rem. Life		Reserve	Net Plant	
A	B	C	D	E	F=E/D	G=C*(1-F)	H=C-G	I=H/E
2010/03	4.5	62,380	13.00	8.50	0.6538	21,593	40,787	4,798
2008/10	6.5	13,411,053	15.00	8.50	0.5667	5,811,456	7,599,596	894,070
Total	6.5	13,473,433	14.99	8.50	0.5671	5,833,049	7,640,384	898,869

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Education	1961 - 1964	Valparaiso University
	Major: Electrical Engineering	
	1965	Iowa State University
	B.S., Engineering Operations	
Education	1968	Iowa State University
	M.S., Engineering Valuation	
	Thesis: The Multivariate Normal Distribution and the Simulated Plant Record Method of Life Analysis	
	1977	Iowa State University
Education	Ph.D., Engineering Valuation	
	Minor: Economics	
	Dissertation: A Comparative Analysis of Various Estimates of the Hazard Rate Associated With the Service Life of Industrial Property	
	Employment	2015 - Present
President		
2007 - 2015		Foster Associates, Inc.
Chairman		
1996 - 2007		Foster Associates, Inc.
Executive Vice President		
1988 - 1996		Foster Associates, Inc.
Senior Vice President		
1979 - 1988		Foster Associates, Inc.
Vice President		
1978 - 1979		Northern States Power Company
Assistant Treasurer		
1974 - 1978		Northern States Power Company
Manager, Corporate Economics		
1972 - 1974	Northern States Power Company	
Corporate Economist		
1970 - 1972	Iowa State University	
Graduate Student and Instructor		
1968 - 1970	Northern States Power Company	
Valuation Engineer		
1965 - 1968	Iowa State University	
Graduate Student and Teaching Assistant		
Publications	<i>A New Set of Generalized Survivor Tables</i> , Journal of the Society of Depreciation Professionals, October, 1992.	
	<i>The Theory and Practice of Depreciation Accounting Under Public Utility Regulation</i> , Journal of the Society of Depreciation Professionals, December, 1989.	
	<i>Standards for Depreciation Accounting Under Regulated Competition</i> , paper presented at The Institute for Study of Regulation, Rate Symposium, February,	

1985.

The Economics of Price-Level Depreciation, paper presented at the Iowa State University Regulatory Conference, May, 1981.

Depreciation and the Discount Rate for Capital Investment Decisions, paper presented at the National Communications Forum - National Electronics Conference, October 1979.

A Computerized Method for Generating a Life Table From the 'h-System' of Survival Functions, paper presented at the American Gas Association - Edison Electric Institute Depreciation Accounting Committee Meeting, December, 1975.

The Problem With AFDC is ..., paper presented at the Iowa State University Conference on Public Utility Valuation and the Rate Making Process, May, 1973.

The Simulated Plant-Record Method of Life Analysis, paper presented at the Missouri Public Service Commission Regulatory Information Systems Conference, May, 1971.

Simulated Plant-Record Survivor Analysis Program (User's Manual), special report published by Engineering Research Institute, Iowa State University, February, 1971.

A Test Procedure for the Simulated Plant-Record Method of Life Analysis, Journal of the American Statistical Association, September, 1970.

Modeling the Behavior of Property Records, paper presented at the Iowa State University Conference on Public Utility Valuation and the Rate Making Process, May, 1970.

A Technique for Simulating the Retirement Experience of Limited-Life Industrial Property, paper presented at the National Conference of Electric and Gas Utility Accountants, May, 1969.

How Dependable are Simulated Plant-Record Estimates?, paper presented at the Iowa State University Conference on Public Utility Valuation and the Rate Making Process, April, 1968.

Testifying
Witness

Alabama Public Service Commission, Docket No. 18488, General Telephone Company of the Southeast; testimony concerning engineering economy study techniques.

Alabama Public Service Commission, Docket No. 20208, General Telephone Company of the South; testimony concerning the equal-life group procedure and remaining-life technique.

Alberta Energy and Utilities Board, Application No. 1250392, Aquila Networks Canada; rebuttal testimony supporting proposed depreciation rates.

Alberta Energy and Utilities Board, Case No. RE95081, Edmonton Power Inc.; rebuttal evidence concerning appropriate depreciation rates.

Alberta Energy and Utilities Board, 1999/2000 General Tariff Application, Edmonton Power Inc.; direct and rebuttal evidence concerning appropriate depreciation rates.

Arizona Corporation Commission, Docket No. T-01051B-97-0689, U S West Communications, Inc.; testimony concerning appropriate depreciation rates.

Arizona Corporation Commission, Docket No. G-1032A-02-0598, Citizens Communications Company; testimony supporting proposed depreciation rates.

Arizona Corporation Commission, Docket No. E-01345A-08-0172, Arizona Public Service Company; testimony supporting proposed depreciation rates.

Arizona Corporation Commission, Docket No. E-0135A-03-0437, Arizona Public Service Company; rebuttal testimony supporting net salvage rates.

Arizona Corporation Commission, Docket No. E-01345A-05-0816, Arizona Public Service Company; testimony supporting proposed depreciation rates.

Arizona Corporation Commission, Docket No. E-01345A-11-0224, Arizona Public Service Company; testimony supporting proposed depreciation rates.

Arizona Corporation Commission, Docket No. E-01933A-12-0126, Tucson Electric Power Company; testimony supporting proposed depreciation rates.

Arizona Corporation Commission, Docket No. E-01933A-15-0322, Tucson Electric Power Company; testimony supporting proposed depreciation rates.

Arizona Corporation Commission, Docket No. G-04204A-06-0463, UNS Gas, Inc.; testimony supporting proposed depreciation rates.

Arizona Corporation Commission, Docket No. E-04204A-06-0783, UNS Electric, Inc.; testimony supporting proposed depreciation rates.

Arizona Corporation Commission, Docket No. E-04204A-09-0206, UNS Electric, Inc.; testimony supporting proposed depreciation rates.

Arizona Corporation Commission, Docket No. E-04204A-15-0142, UNS Electric, Inc.; testimony supporting proposed depreciation rates.

Arizona State Board of Equalization, Docket No. 6302-07-2, Arizona Public Service Company; testimony concerning valuation and assessment of contributions in aid of construction.

California Public Utilities Commission, Case Nos. A.92-06-040, 92-06-042, GTE California Incorporated; rebuttal testimony supporting depreciation study techniques.

California Public Utilities Commission. Docket No. GRC A.05-12-002, Pacific Gas and Electric Company; testimony regarding estimation of net salvage rates.

California Public Utilities Commission. Docket No. GRC A.06-12-009/A.06-12-010, San Diego Gas & Electric Company and Southern California Gas Company; testimony regarding estimation of net salvage rates.

Public Utilities Commission of the State of Colorado, Application No. 36883-Reopened. U S WEST Communications; testimony concerning equal-life group procedure.

State of Connecticut Department of Public Utility Control, Docket No. 10-12-02, Yankee Gas Services Company; testimony supporting recommended depreciation rates.

State of Connecticut Department of Public Utility Control, Docket No. 09-12-05, The Connecticut Light and Power Company; testimony supporting recommended depreciation rates.

State of Connecticut Department of Public Utility Control, Docket No. 06-12PH01, Yankee Gas Services Company; testimony supporting recommended depreciation rates.

State of Connecticut Department of Public Utility Control, Docket No. 05-03-17, The Southern Connecticut Gas Company; testimony supporting recommended depreciation rates.

Delaware Public Service Commission, Docket No. 81-8, Diamond State Telephone Company; testimony concerning the amortization of inside wiring.

Delaware Public Service Commission, Docket No. 82-32, Diamond State Telephone Company; testimony concerning the equal-life group procedure and remaining-life technique.

Public Service Commission of the District of Columbia, Formal Case No. 842, District of Columbia Natural Gas; testimony concerning depreciation rates.

Public Service Commission of the District of Columbia, Formal Case No. 1016, Washington Gas Light Company - District of Columbia; testimony supporting proposed depreciation rates.

Public Service Commission of the District of Columbia, Formal Case No. 1054, Washington Gas Light Company - District of Columbia; testimony supporting proposed depreciation rates.

Public Service Commission of the District of Columbia, Formal Case No. 1093, Washington Gas Light Company - District of Columbia; testimony supporting proposed depreciation rates.

Public Service Commission of the District of Columbia, Formal Case No. 1115, Washington Gas Light Company - District of Columbia; testimony supporting proposed depreciation rates.

Federal Communications Commission, Prescription of Revised Depreciation Rates for AT&T Communications; statement concerning depreciation, regulation and competition.

Federal Communications Commission, Petition for Modification of FCC Depreciation Prescription Practices for AT&T; statement concerning alignment of depreciation expense used for financial reporting and regulatory purposes.

Federal Communications Commission, Docket No. 99-117, Bell Atlantic; affidavit concerning revenue requirement and capital recovery implications of omitted plant retirements.

Federal Energy Regulatory Commission, Docket No. RP14-118-000, WBI Energy Transmission, Inc.; testimony supporting proposed depreciation rates.

Federal Energy Regulatory Commission, Docket No. ER10-2110-000, ITC Midwest; testimony supporting proposed depreciation rates.

Federal Energy Regulatory Commission, Docket No. ER10-185-000, Michigan Electric Transmission Company; testimony supporting proposed depreciation rates.

Federal Energy Regulatory Commission, Docket No. ER09-1530-000, ITC *Transmission*; testimony supporting proposed depreciation rates.

Federal Energy Regulatory Commission, Docket No. ER95-267-000, New England Power Company; testimony supporting proposed depreciation rates.

Federal Energy Regulatory Commission, Docket No. ER11-3638-000, Arizona Public Service Company; testimony supporting proposed depreciation rates

Federal Energy Regulatory Commission, Docket No. RP89-248, Mississippi River Transmission Corporation; rebuttal testimony concerning appropriateness of net salvage component in depreciation rates.

Federal Energy Regulatory Commission, Docket No. ER91-565, New England Power Company; testimony supporting proposed depreciation rates.

Federal Energy Regulatory Commission, Docket No. ER78-291, Northern States Power Company; testimony concerning rate of return and general financial requirements.

Federal Energy Regulatory Commission, Docket Nos. RP80-97 and RP81-54, Tennessee Gas Pipeline Company; testimony concerning offshore plant depreciation rates.

Federal Power Commission, Docket No. E-8252, Northern States Power Company; testimony concerning general financial requirements and measurements of financial performance.

Federal Power Commission, Docket No. E-9148, Northern States Power Company; testimony concerning general financial requirements and measurements of financial performance.

Federal Power Commission, Docket No. ER76-818, Northern States Power Company; testimony concerning rate of return and general financial requirements.

Federal Power Commission, Docket No. RP74-80, *Northern* Natural Gas Company; testimony concerning depreciation expense.

Public Utilities Commission of the State of Hawaii, Docket No. 00-0309, The Gas Company; testimony supporting proposed depreciation rates.

Public Utilities Commission of the State of Hawaii, Docket No. 94-0298, GTE Hawaiian Telephone Company Incorporated; testimony concerning the need for shortened service lives and disclosure of asset impairment losses.

Idaho Public Utilities Commission, Case No. U-1002-59, General Telephone Company of the Northwest, Inc.; testimony concerning the remaining-life technique and the equal-life group procedure.

Illinois Commerce Commission, Case No. 04-0476, Illinois Power Company; testimony supporting proposed depreciation rates.

Illinois Commerce Commission, Docket No. 94-0481, Citizens Utilities Company of Illinois; rebuttal testimony concerning applications of the Simulated Plant-Record method of life analysis.

Iowa State Commerce Commission, Docket No. RPU 82-47, North Central Public Service Company; testimony on depreciation rates.

Iowa State Commerce Commission, Docket No. RPU 84-34, General Telephone Company of the Midwest; testimony concerning the remaining-life technique and the equal-life group procedure.

Iowa State Utilities Board, Docket No. DPU-86-2, Northwestern Bell Telephone Company; testimony concerning capital recovery in competition.

Iowa State Utilities Board, Docket No. RPU-84-7, Northwestern Bell Telephone Company; testimony concerning the deduction of a reserve deficiency from the rate base.

Iowa State Utilities Board, Docket No. DPU-88-6, U S WEST Communications; testimony concerning depreciation subject to refund.

Iowa State Utilities Board, Docket No. RPU-90-9, Central Telephone Company of Iowa; testimony concerning depreciation rates.

Iowa State Utilities Board, Docket No. RPU-93-9, U S WEST Communications; testimony concerning principles of depreciation accounting and abandonment of FASB 71.

Iowa State Utilities Board, Docket No. DPU-96-1, U S WEST Communications; testimony concerning principles of depreciation accounting and abandonment of FASB 71.

Iowa State Utilities Board, Docket No. RPU-05-2, Aquila Networks; testimony supporting recommended depreciation rates.

Kansas Corporation Commission, Docket No. 12-KGSG-835-RTS, Kansas Gas Service, a Division of ONEOK, Inc.; testimony supporting proposed depreciation rates.

Kansas Corporation Commission, Docket No. 12-WSEE-112-RTS, Westar Energy, Inc.; testimony supporting proposed depreciation rates.

Kansas Corporation Commission, Docket No. 10-KCPE-415-RTS; Kansas City Power and Light; cross-answering testimony addressing the recording and treatment of third-party reimbursements in estimating net salvage rates.

Kansas Corporation Commission, Docket No. 04-AQLE-1065-RTS, Aquila Networks – WPE (Kansas); testimony supporting proposed depreciation rates.

Kansas Corporation Commission, Docket No. 03-KGSG-602-RTS, Kansas Gas Service, a Division of ONEOK, Inc.; rebuttal testimony supporting net salvage rates.

Kansas Corporation Commission, Docket No. 06-KGSG-1209-RTS, Kansas Gas Service, a Division of ONEOK, Inc.; testimony supporting proposed depreciation rates.

Kentucky Public Service Commission, Case No. 97-224, Jackson Purchase Electric Cooperative Corporation; rebuttal testimony supporting proposed depreciation rates.

Maryland Public Service Commission, Case No. 9096, Baltimore Gas and Electric Company; testimony supporting proposed depreciation rates.

Maryland Public Service Commission, Case No. 8485, Baltimore Gas and Electric Company; testimony supporting proposed depreciation rates.

Maryland Public Service Commission, Case No. 9385, Potomac Electric Power Company; testimony supporting proposed depreciation rates.

Maryland Public Service Commission, Case No. 9103, Washington Gas Light Company; rebuttal testimony supporting proposed depreciation rates.

Maryland Public Service Commission, Case No. 8960, Washington Gas Light Company; testimony supporting proposed depreciation rates.

Maryland Public Service Commission, Case No. 7689, Washington Gas Light Company; testimony concerning life analysis and net salvage.

Commonwealth of Massachusetts Department of Public Utilities, D.P.U. 15-155, Massachusetts Electric Company/Nantucket Electric Company; testimony supporting proposed depreciation rates.

Commonwealth of Massachusetts Department of Public Utilities, D.P.U. 10-70, Western Massachusetts Electric Company; testimony supporting proposed depreciation rates.

Commonwealth of Massachusetts Department of Telecommunications and Energy, D.T.E. 06-55, Western Massachusetts Electric Company; testimony supporting proposed depreciation rates.

Massachusetts Department of Public Utilities, Case No. DPU 91-52, Massachusetts Electric Company; testimony supporting proposed depreciation rates which include a net salvage component.

Michigan Public Service Commission, Case No. U-16991, The Detroit Edison Company; testimony supporting proposed depreciation rates.

Michigan Public Service Commission, Case No. U-16117, The Detroit Edison Company; testimony supporting proposed depreciation rates.

Michigan Public Service Commission, Case No. U-15699, Michigan Consolidated Gas Company; testimony supporting proposed depreciation rates.

Michigan Public Service Commission, Case No. U-13899, Michigan Consolidated Gas Company; testimony concerning service life estimates.

Michigan Public Service Commission, Case No. U-13393, Aquila Networks – MGU; testimony supporting proposed depreciation rates.

Michigan Public Service Commission, Case No. U-12395, Michigan Gas Utilities; testimony supporting proposed depreciation rates including amortization accounting and redistribution of recorded reserves.

Michigan Public Service Commission, Case No. U-6587, General Telephone Company of Michigan; testimony concerning use of a theoretical depreciation reserve with the remaining-life technique.

Michigan Public Service Commission, Case No. U-7134, General Telephone Company of Michigan; testimony concerning the equal-life group depreciation procedure.

Minnesota Public Service Commission, Docket No. E-611, Northern States Power Company; testimony concerning rate of return and general financial requirements.

Minnesota Public Service Commission, Docket No. E-1086, Northern States Power Company; testimony concerning depreciation rates.

Minnesota Public Service Commission, Docket No. G-1015, Northern States Power Company; testimony concerning rate of return and general financial requirements.

Public Service Commission of the State of Missouri, Case No. ER-2009-0090, KCP&L Greater Missouri Operations, rebuttal testimony concerning depreciation rates.

Public Service Commission of the State of Missouri, Case No. ER-2001-672, Missouri Public Service, a division of Utilicorp United Inc.; surrebuttal testimony regarding computation of income tax expense.

Public Service Commission of the State of Missouri, Case No. TO-82-3, Southwestern Bell Telephone Company; rebuttal testimony concerning the remaining-life technique and the equal-life group procedure.

Public Service Commission of the State of Missouri, Case No. GO-97-79, Laclede Gas Company; rebuttal testimony concerning adequacy of database for conducting depreciation studies.

Public Service Commission of the State of Missouri, Case No. GR-99-315, Laclede Gas Company; rebuttal testimony concerning treatment of net salvage in development of depreciation rates.

Public Service Commission of the State of Missouri, Case No. HR-2004-0024, Aquila Inc. d/b/a/ Aquila Networks–L & P; testimony supporting depreciation rates.

Public Service Commission of the State of Missouri, Case No. ER-2004-0034, Aquila Inc. d/b/a/ Aquila Networks–L & P and Aquila Networks–MPS; testimony supporting depreciation rates.

Public Service Commission of the State of Missouri, Case No. GR-2004-0072, Aquila Inc. d/b/a/ Aquila Networks–L & P and Aquila Networks–MPS; testimony supporting depreciation rates.

Public Service Commission of the State of Montana, Docket No. 88.2.5, Mountain

State Telephone and Telegraph Company; rebuttal testimony concerning the equal-life group procedure and amortization of reserve imbalances.

Montana Public Service Commission, Docket No. D95.9.128, The Montana Power Company; testimony supporting proposed depreciation rates.

Nebraska Public Service Commission, Docket No. NG-0041, Aquila Networks (PNG Nebraska); testimony supporting proposed depreciation rates.

Public Service Commission of Nevada, Docket No. 92-7002, Central Telephone Company-Nevada; testimony supporting proposed depreciation rates.

Public Service Commission of Nevada, Docket No. 91-5054, Central Telephone Company-Nevada; testimony supporting proposed depreciation rates.

New Hampshire Public Utilities Commission, Docket No. DR95-169, Granite State Electric Company; testimony supporting proposed net salvage rates.

New Jersey Board of Public Utilities, Docket No. GR07110889, New Jersey Natural Gas Company; testimony supporting proposed depreciation rates.

New Jersey Board of Public Utilities, Docket No. GR 87060552, New Jersey Natural Gas Company; testimony supporting depreciation rates.

New Jersey Board of Regulatory Commissioners, Docket No. GR93040114J, New Jersey Natural Gas Company; testimony supporting depreciation rates.

New Jersey Board of Regulatory Commissioners, Docket No. GR15111304, New Jersey Natural Gas Company; testimony supporting depreciation rates.

New York Public Service Commission, Case No. 12-G-0202. Niagara Mohawk Power Corporation d/b/a National Grid; testimony supporting recommended depreciation rates.

New York Public Service Commission, Case No. 10-E-0050. Niagara Mohawk Power Corporation d/b/a National Grid; testimony supporting recommended depreciation rates.

North Carolina Utilities Commission, Docket No. E-7, SUB 487, Duke Power Company; rebuttal testimony concerning proposed depreciation rates.

North Carolina Utilities Commission, Docket No. P-19, SUB 207, General Telephone Company of the South; rebuttal testimony concerning the equal-life group depreciation procedure.

North Dakota Public Service Commission, Case No. 8860, Northern States Power Company; testimony concerning general financial requirements.

North Dakota Public Service Commission, Case No. 9634, Northern States Power Company; testimony concerning rate of return and general financial requirements.

North Dakota Public Service Commission, Case No. 9666, Northern States Power Company; testimony concerning rate of return and general financial requirements.

North Dakota Public Service Commission, Case No. 9741, Northern States Power Company; testimony concerning rate of return and general financial requirements.

Oklahoma Corporation Commission, Cause No. PUD 201500213, Oklahoma Natural Gas Company; testimony supporting revised depreciation rates.

Oklahoma Corporation Commission, Cause No. PUD 200900110, Oklahoma Natural Gas Company; testimony supporting revised depreciation rates.

Ontario Energy Board, E.B.R.O. 385, Tecumseh Gas Storage Limited; testimony concerning depreciation rates.

Ontario Energy Board, E.B.R.O. 388, Union Gas Limited; testimony concerning depreciation rates.

Ontario Energy Board, E.B.R.O. 456, Union Gas Limited; testimony concerning depreciation rates.

Ontario Energy Board, E.B.R.O. 476-03, Union Gas Limited; testimony concerning depreciation rates.

Public Utilities Commission of Ohio, Case No. 81-383-TP-AIR, General Telephone Company of Ohio; testimony in support of the remaining-life technique.

Public Utilities Commission of Ohio, Case No. 82-886-TP-AIR, General Telephone Company of Ohio; testimony concerning the remaining-life technique and the equal-life group procedure.

Public Utilities Commission of Ohio, Case No. 84-1026-TP-AIR, General Telephone Company of Ohio; testimony in support of the equal-life group procedure and the remaining-life technique.

Public Utilities Commission of Ohio, Case No. 81-1433, The Ohio Bell Telephone Company; testimony concerning the remaining-life technique and the equal-life group procedure.

Public Utilities Commission of Ohio, Case No. 83-300-TP-AIR, The Ohio Bell Telephone Company; testimony concerning straight-line age-life depreciation.

Public Utilities Commission of Ohio, Case No. 84-1435-TP-AIR, The Ohio Bell Telephone Company; testimony in support of test period depreciation expense.

Public Utilities Commission of Oregon, Docket No. UM 204, GTE of the Northwest; testimony concerning the theory and practice of depreciation accounting under public utility regulation.

Public Utilities Commission of Oregon, Docket No. UM 840, GTE Northwest Incorporated; rebuttal testimony concerning principles of capital recovery.

Pennsylvania Public Utility Commission, Docket No. R-80061235, The Bell Telephone Company of Pennsylvania; testimony concerning the proper depreciation reserve to be used with an original cost rate base.

Pennsylvania Public Utility Commission, Docket No. R-811512, General Telephone Company of Pennsylvania; testimony concerning the proper depreciation reserve to be used with an original cost rate base.

Pennsylvania Public Utility Commission, Docket No. R-811819, The Bell Telephone Company of Pennsylvania; testimony concerning the proper depreciation reserve to be used with an original cost rate base.

Pennsylvania Public Utility Commission, Docket No. R-822109, General Telephone Company of Pennsylvania; testimony in support of the remaining-life technique.

Pennsylvania Public Utility Commission, Docket No. R-850229, General Telephone Company of Pennsylvania; testimony in support of the remaining-life technique and the proper depreciation reserve to be used with an original cost rate base.

Pennsylvania Public Utility Commission, Docket No. C-860923, The Bell Telephone Company of Pennsylvania; testimony concerning capital recovery under competition.

Rhode Island Public Utilities Commission, Docket No. 2290, The Narragansett Electric Company; testimony supporting proposed net salvage rates and

depreciation rates.

South Carolina Public Service Commission, Docket No. 91-216-E, Duke Power Company; testimony supporting proposed depreciation rates.

South Dakota Public Utilities Commission, Docket No. EL14–106, NorthWestern Energy; testimony supporting revised depreciation rates.

Public Utilities Commission of the State of South Dakota, Case No. F-3062, Northern States Power Company; testimony concerning general financial requirements and measurements of financial performance.

Public Utilities Commission of the State of South Dakota, Case No. F-3188, Northern States Power Company; testimony concerning rate of return and general financial requirements.

Securities and Exchange Commission, File No. 3-5749, Northern States Power Company; testimony concerning the financial and ratemaking implications of an affiliation with Lake Superior District Power Company.

Tennessee Public Service Commission, Docket No. 89-11041, United Inter-Mountain Telephone Company; testimony concerning depreciation principles and capital recovery under competition.

The Railroad Commission of Texas, GUD Docket No. 9988, Texas Gas Service, testimony supporting recommended depreciation rates.

The Railroad Commission of Texas, GUD Docket No. 10488, Texas Gas Service, testimony supporting recommended depreciation rates.

State of Vermont Public Service Board, Docket No. 6596, Citizens Communications Company – Vermont Electric Division; testimony supporting recommended depreciation rates.

State of Vermont Public Service Board, Docket No. 6946 and 6988, Central Vermont Public Service Corporation; testimony supporting net salvage rates.

Commonwealth of Virginia State Corporation Commission, Case No. PUE-2002-00364, Washington Gas Light Company; testimony supporting proposed depreciation rates.

Public Service Commission of Wisconsin, Docket No. 2180-DT-3, General Telephone Company of Wisconsin; testimony concerning the equal-life group depreciation procedure.

Other
Consulting
Activities

Arbitrator in a Technical Dispute relating to classification of Capital Budget expenditures.

Moran Towing Corporation. In Re: Barge TEXAS-97 CIV. 2272 (ADS) and Tug HEIDE MORAN – 97 CIV. 1947 (ADS), United States District Court, Southern District of New York.

John Reigle, et al. v. Baltimore Gas & Electric Co., et al., Case No. C-2001-73230-CN, Circuit Court for Anne Arundel County, Maryland.

SR International Business Insurance Co. vs. WTC Properties et. al., 01,CV–9291 (JSM) and other related cases.

BellSouth Telecommunications, Inc. v. Citizens Utilities Company d/b/a/ Louisiana Gas Service Company, CA No. 95-2207, United States District Court, Eastern District of Louisiana.

Affidavit on behalf of Continental Cablevision, Inc. and its operating cable television systems regarding basic broadcast tier and equipment and installation cost-of-service rate justification.

Office of Chief Counsel, Internal Revenue Service. In Re: Kansas City Southern Railway Co., et. al. Docket Nos. 971-72, 974-72, and 4788-73.

Office of Chief Counsel, Internal Revenue Service. In Re: Northern Pacific Railway Co., Docket No. 4489-69.

United States Department of Justice. In Re: Burlington Northern Inc. v. United States, Ct. Cl. No. 30-72.

Minnesota District Court. In Re: Northern States Power Company v. Ronald G. Blank, et. al. File No. 394126; testimony concerning depreciation and engineering economics.

Faculty

Depreciation Programs for public utility commissions, companies, and consultants, sponsored by Depreciation Programs, Inc., in cooperation with Western Michigan University. (1980 - 1999)

United States Telephone Association (USTA), Depreciation Training Seminar, November 1999.

Depreciation Advocacy Workshop, a three-day team-training workshop on preparation, presentation, and defense of contested depreciation issues, sponsored by Gilbert Associates, Inc., October, 1979.

Corporate Economics Course, Employee Education Program, Northern States Power Company. (1968 - 1979)

Perspectives of Top Financial Executives, Course No. 5-300, University of Minnesota, September, 1978.

Depreciation Programs for public utility commissions, companies, and consultants, jointly sponsored by Western Michigan University and Michigan Technological University, 1973.

Professional Associations

Advisory Committee to the Institute for Study of Regulation, sponsored by the American University and The University of Missouri-Columbia.

American Economic Association.

American Gas Association - Edison Electric Institute Depreciation Accounting Committee.

Board of Directors, Iowa State Regulatory Conference.

Edison Electric Institute, Energy Analysis Division, Economic Advisory Committee, 1976-1980.

Financial Management Association.

The Institute of Electrical and Electronics Engineers, Inc., Power Engineering Society, Engineering and Planning Economics Working Group.

Midwest Finance Association.

Society of Depreciation Professionals (Founding Member and Chairman, Policy Committee).

Moderator

Depreciation Open Forum, Iowa State University Regulatory Conference, May 1991.

The Quantification of Risk and Uncertainty in Engineering Economic Studies, Iowa State University Regulatory Conference, May 1989.

Plant Replacement Decisions with Added Revenue from New Service Offerings, Iowa State University Regulatory Conference, May 1988.

Economic Depreciation, Iowa State University Regulatory Conference, May 1987.
Opposing Views on the Use of Customer Discount Rates in Revenue Requirement Comparisons, Iowa State University Regulatory Conference, May 1986.
Cost of Capital Consequences of Depreciation Policy, Iowa State University Regulatory Conference, May 1985.
Concepts of Economic Depreciation, Iowa State University Regulatory Conference, May 1984.
Ratemaking Treatment of Large Capacity Additions, Iowa State University Regulatory Conference, May 1983.
The Economics of Excess Capacity, Iowa State University Regulatory Conference, May 1982.
New Developments in Engineering Economics, Iowa State University Regulatory Conference, May 1980.
Training in Engineering Economy, Iowa State University Regulatory Conference, May 1979.
The Real Time Problem of Capital Recovery, Missouri Public Service Commission, Regulatory Information Systems Conference, September 1974.

Speaker

Depreciation Workshop, Oklahoma Corporation Commission, Public Utility Division, March 2015.
Depreciation Workshop, ONE Gas, Inc. January 2015.
Depreciation Training Seminar, Florida Public Service Commission, March 2013.
Depreciation and Obsolescence (Isness and Oughtness), Ninety-Fifth Annual Arizona Tax Conference, August 2012.
Group Depreciation Practices of Regulated Utilities (IAS 16 Property, Plant and Equipment), Hydro One Networks, Inc., November 2008.
Economics, Finance and Engineering Valuation. Florida Gulf Coast University, April 2007.
Depreciation Studies for Regulated Utilities, Hydro One Networks, Inc., April 2006.
Depreciation Studies for Cooperatives and Small Utilities. TELERGEE CFO and Controllers Conference, November, 2004.
Finding the "D" in RCNLD (Valuation Applications of Depreciation), Society of Depreciation Professionals Annual Meeting, September 2001.
Capital Asset and Depreciation Accounting, City of Edmonton Value Engineering Workshop, April 2001.
A Valuation View of Economic Depreciation, Society of Depreciation Professionals Annual Meeting, October 1999.
Capital Recovery in a Changing Regulatory Environment, Pennsylvania Electric Association Financial-Accounting Conference, May 1999.
Depreciation Theory and Practice, Southern Natural Gas Company Accounting and Regulatory Seminar, March 1999.
Depreciation Theory Applied to Special Franchise Property, New York Office of Real Property Services, March 1999.
Capital Recovery in a Changing Regulatory Environment, PowerPlan Consultants Annual Client Forum, November 1998.

Economic Depreciation, AGA Accounting Services Committee and EEI Property Accounting and Valuation Committee, May 1998.

Discontinuation of Application of FASB Statement No. 71, Southern Natural Gas Company Accounting Seminar, April 1998.

Forecasting in Depreciation, Society of Depreciation Professionals Annual Meeting, September 1997.

Economic Depreciation In Response to Competitive Market Pricing, 1997 TELUS Depreciation Conference, June 1997.

Valuation of Special Franchise Property, City of New York, Department of Finance Valuation Seminar, March 1997.

Depreciation Implications of FAS Exposure Draft 158-B, 1996 TLG Decommissioning Conference, October 1996.

Why Economic Depreciation?, American Gas Association Depreciation Accounting Committee Meeting, August 1995.

The Theory of Economic Depreciation, Society of Depreciation Professionals Annual Meeting, November 1994.

Vintage Depreciation Issues, G & T Accounting and Finance Association Conference, June 1994.

Pricing and Depreciation Strategies for Segmented Markets (Regulated and Competitive), Iowa State Regulatory Conference, May 1990.

Principles and Practices of Depreciation Accounting, Canadian Electrical Association and Nova Scotia Power Electric Utility Regulatory Seminar, December 1989.

Principles and Practices of Depreciation Accounting, Duke Power Accounting Seminar, September 1989.

The Theory and Practice of Depreciation Accounting Under Public Utility Regulation, GTE Capital Recovery Managers Conference, February 1989.

Valuation Methods for Regulated Utilities, GTE Capital Recovery Managers Conference, January 1988.

Depreciation Principles and Practices for REA Borrowers, NRECA 1985 National Accounting and Finance Conference, September 1985.

Depreciation Principles and Practices for REA Borrowers, Kentucky Association of Electric Cooperatives, Inc., Summer Accountants Association Meeting, June 1985.

Considerations in Conducting a Depreciation Study, NRECA 1984 National Accounting and Finance Conference, October 1984.

Software for Conducting Depreciation Studies on a Personal Computer, United States Independent Telephone Association, September 1984.

Depreciation—An Assessment of Current Practices, NRECA 1983 National Accounting and Finance Conference, September 1983

Depreciation—An Assessment of Current Practices, REA National Field Conference, September 1983.

An Overview of Depreciation Systems, Iowa State Commerce Commission, October 1982.

Depreciation Practices for Gas Utilities, Regulatory Committee of the Canadian Gas Association, September 1981.

Practice, Theory, and Needed Research on Capital Investment Decisions in the

Energy Supply Industry, workshop, sponsored by Michigan State University and the Electric Power Research Institute, November 1977.

Depreciation Concepts Under Regulation, Public Utilities Conference, sponsored by The University of Texas at Dallas, July 1976.

Electric Utility Economics, Mid-Continent Area Power Pool, May 1974.

Honors and
Awards

The Society of Sigma Xi.

Professional Achievement Citation in Engineering, Iowa State University, 1993.