BEFORE THE CORPORATION COMMISSION OF OKLAHOMA

IN THE MATTER OF THE APPLICATION OF OKLAHOMA GAS AND ELECTRIC COMPANY FOR COMMISSION AUTHORIZATION OF A PLAN TO COMPLY WITH THE FEDERAL CLEAN AIR ACT AND COST RECOVERY; AND FOR APPROVAL OF THE MUSTANG MODERNIZATION AND COST RECOVERY	)))))))	CAUSE NO. PUD 201400229

Direct Testimony

of

John J. Spanos

on behalf of

Oklahoma Gas and Electric Company

August 6, 2014

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

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

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

A. Yes. I am associated with the firm of Gannett Fleming Valuation and Rate Consultants, LLC (Gannett Fleming).

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

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

Q. **What is your position with the firm?**

A. I am Senior Vice President.

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

A. I am testifying on behalf of Oklahoma Gas and Electric Company ("OG&E" or the "Company").

Q. **Please state your qualifications.**

A. I have over 28 years of depreciation experience which includes giving expert testimony in over 180 cases before 38 regulatory commissions, including this Commission. Please refer to Exhibit OG&E_ (JJS-1) for my qualifications.

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

A. I sponsor the depreciation study performed for Oklahoma Gas and Electric Company attached hereto as Exhibit OG&E_ (JJS-2) ("Depreciation Study"). The Depreciation Study sets forth the calculated annual depreciation accrual rates by account as of December 31, 2013 for some steam generating facilities.

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

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

Q. **Please identify the depreciation study you performed for OG&E.**

A. The study is a report entitled, "2013 Depreciation Study - Calculated Annual Depreciation Accruals Related to Generating Plant as of December 31, 2013." This report sets forth the results of my depreciation study for OG&E. The study was prepared and the analyses that underlie the report were conducted under my direction and supervision.

Q. **Is Exhibit OG&E_ (JJS-2) a true and accurate copy of your depreciation study?**

A. Yes.

Q. **Does Exhibit OG&E_(JJS-2) accurately portray the results of your depreciation study as of December 31, 2013?**

A. Yes.

Q. **What was the purpose of your depreciation study?**

A. The purpose of the depreciation study was to estimate the annual depreciation accruals related to steam generating plant in service for financial and ratemaking purposes and determine appropriate average service lives and net salvage percentages for each plant account.

Q. **Please describe the contents of Exhibit OG&E_ (JJS-2).**

A. My report is presented in nine parts. Part I, Introduction, describes the scope and basis for the depreciation study. Part II, Estimation of Survivor Curves, includes descriptions of the

methodology of estimating survivor curves. Parts III and IV set forth the analysis for determining life and net salvage estimation. Part V, Calculation of Annual and Accrued Depreciation includes the concepts of depreciation and amortization using the remaining life. Part VI, Results of Study, presents a description of the results and a summary of the depreciation calculations. Parts VII, VIII and IX include graphs and tables that relate to the service life and net salvage analyses, and the detailed depreciation calculations.

The table on pages VI-4 and VI-5 presents the estimated survivor curve, the net salvage percent, the original cost as of December 31, 2013, the book depreciation reserve and the calculated annual depreciation accrual and rate for each account or subaccount. The section beginning on page VII-2 presents the results of the retirement rate analyses prepared as the historical bases for the service life estimates. The section beginning on page VIII-2 presents the results of the salvage analysis. The section beginning on page IX-2 presents the depreciation calculations related to surviving original cost as of December 31, 2013.

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

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

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

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

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

A. The service life and net salvage study consisted of compiling historic data from records related to OG&E's plant; analyzing these data to obtain historic trends of survivor and net salvage characteristics; obtaining supplementary information from OG&E's management; and interpreting the above data as well as estimates used by other electric utilities to form judgments of average service life and net salvage characteristics.

Q. **What historic data did you rely on to estimate service life characteristics?**

A. I analyzed the Company's accounting entries relating to plant additions, transfers, and retirements recorded during the period 1997 through 2013. The Company records also included surviving dollar value by year installed for each plant account as of December 31, 2013

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

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

Q. **Would you explain how you used the retirement rate method to analyze OG&E's service life data?**

A. I applied the retirement rate method to each different group of property in the study. For each property group, I used the retirement rate method to form a life table which, when plotted, shows an original survivor curve for that property group. Each original survivor curve represents the average survivor pattern experienced by the several vintage groups during the experienced band studied. The survivor patterns do not necessarily describe the life characteristics of the property group; therefore, interpretation of the original survivor curves is required in order to use them as valid considerations in estimating service life. The Iowa-type survivor curves were used to perform these interpretations.

Q. **What is an "Iowa-type Survivor Curve" and how did you use such curves to estimate the service life characteristics for each property group?**

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

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

The estimated survivor curve designations for each depreciable property group indicate the average service life, the family within the Iowa system to which the property group belongs, and the relative height of the mode. For example, the Iowa 55-R1 indicates an average service life of fifty-five years; a right-moded, or R, type curve (the mode occurs after average life for right-moded curves); and a low height, 1, for the mode (possible modes for R type curves range from 1 to 5).

Q. **What approach did you use to estimate the lives of significant structures and production facilities?**

A. I used the life span technique to estimate the lives of significant facilities for which concurrent retirement of the entire facility is anticipated. In this technique, the survivor characteristics of such facilities are described by the use of interim survivor curves and estimated probable retirement dates. The interim survivor curve describes the rate of retirement related to the replacement of elements of the facility, such as, for a building, the retirements of plumbing, heating, doors, windows, roofs, etc., that occur during the life of the facility. The probable retirement date provides the rate of final retirement for each year of installation for the facility by truncating the interim survivor curve for each installation year at its attained age at the date of probable retirement. The use of interim survivor curves

truncated at the date of probable retirement provides a consistent method for estimating the lives of the several years of installation for a particular facility inasmuch as a single concurrent retirement for all years of installation will occur when it is retired.

Q. **Has Gannett Fleming used this approach in other proceedings?**

A. Yes, we have used the life span technique in performing depreciation studies presented to many public utility commissions across the United States and Canada, including past studies for OG&E in Oklahoma.

Q. **Are the factors considered in your estimates of service life and net salvage percents presented in Exhibit OG&E_ (JJS-2)?**

A. Yes. A discussion of the factors considered in the estimation of service lives and net salvage percents are presented in Parts II and III of Exhibit OG&E_ (JJS-2).

Q. **Would you please explain the concept of "net salvage"?**

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

Inasmuch as depreciation expense is the loss in service value of an asset during a defined period, e.g. one year, it must include a ratable portion of both the original cost and the net salvage. That is, the net salvage related to an asset should be incorporated in the cost of service during the same period as its original cost so that customers receiving service from the asset pay rates that include a portion of both elements of the asset's service value, the original cost and the net salvage value.

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

A. I estimated the net salvage percentages incorporating the historical data for the period 1991 through 2013 and considered estimates for other electric companies.

Q. **Were the net salvage percentages for generating facilities based on the same analyses?**

A. Yes, for the interim analyses. The net salvage percentages for generating facilities were based on two components, the interim net salvage percentage and the final net salvage percentage. The interim net salvage percentage is determined based on the historical indications from the period 1991-2013, of the cost of removal and gross salvage amounts as a percentage of the associated plant retired. The final net salvage or dismantlement component was determined based on the assets anticipated to be retired at the concurrent date of final retirement.

Q. **Have you included a dismantlement component into the overall recovery of generating facilities?**

A. Yes. A dismantlement component has been included to the net salvage percentage for steam and other production facilities.

Q. **Can you explain how the dismantlement component is included in the depreciation study?**

A. Yes. The dismantlement component is part of the overall net salvage for each location/unit within the production assets. Based on studies for comparable facilities of other utilities, it was determined that the dismantlement or decommissioning costs for steam production facilities is best calculated by dividing the dismantlement cost by the surviving plant at final retirement. These amounts at a location basis are added to the interim net salvage percentage of the assets anticipated to be retired on an interim basis to produce the weighted net salvage percentage for each location. The detailed calculation for each location is set forth on pages VIII-2 and VIII-3 of Exhibit OG&E_ (JJS-2).

Q. **Please describe the second phase of the process that you used in the depreciation study in which you calculated composite remaining lives and annual depreciation accrual rates.**

A. After I estimated the service life and net salvage characteristics for each depreciable property group, I calculated the annual depreciation accrual rates for each group based on the straight

line remaining life method, using remaining lives weighted consistent with the average service life procedure. The calculation of annual depreciation accrual rates were developed as of December 31, 2013.

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

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

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

A. I will use Account 312.00, Boiler Plant Equipment, as an example because it is one of the largest depreciable groups.

The retirement rate method was used to analyze the survivor characteristics of this property group. Aged plant accounting data were compiled from 1997 through 2013 and analyzed to best represent the overall service life of this property. The life table for the 1997-2013 experience band is presented on pages VII-9 and VII-10 of Exhibit OG&E_(JJS-2). The life table displays the retirement and surviving ratios of the aged plant data exposed to retirement by age interval. For example, page VII-9 shows $835,512 retired during age interval 0.5-1.5 with $263,572,979 exposed to retirement at the beginning of the interval. Consequently, the retirement ratio is 0.0032 ($835,512/$263,572,979) and the surviving ratio is 0.9968 (1-.0032). The percent surviving at age 0.5 of .9968 percent is multiplied by the survivor ratio of 99.96 to derive the percent surviving at age 1.5 of 99.64 percent. This process continues for the remaining age intervals for which plant was exposed to retirement during the period 1997-2013. The resultant life table, or original survivor curve, is plotted along with the estimated smooth survivor curve, the 85-R0.5 on page VII-8.

The interim net salvage percent is presented on pages VIII-6 and VIII-7 of Exhibit OG&E_(JJS-2). The percentage is based on the result of annual gross salvage minus the cost to remove plant assets as compared to the original cost of plant retired during the period 1991 through 2013. The 23-year period experienced negative $15,194,718 ($1,870,626 -

$17,065,344) in net salvage for $86,663,351 plant retired. The result is negative net salvage of 18 percent ($15,194,718/$86,663,351); however, the rolling five-year averages is negative 19 percent. Therefore, based on the statistics for this account as well as the estimates for the other steam accounts and weighting the dismantlement costs of each unit at Mustang the recommended net salvage for the four units range from negative 19 to negative 33 percent.

My calculation of the annual depreciation related to original cost of Account 312.00, Boiler Plant Equipment, at December 31, 2013, is presented on pages IX-7 through IX-9 of Exhibit OG&E_(JJS-2). The calculation is based on the 85-R0.5 interim survivor curve, the individual unit negative net salvage percent, the individual unit probable retirement date, the attained age, and the allocated book reserve. The tabulation sets forth the installation year, the original cost, calculated accrued depreciation, allocated book reserve, future accruals, remaining life and annual accrual. These totals are brought forward to the table on page VI-4.

Q. **Were there any rates developed for future assets?**

A. Yes. There are new facilities planned to be constructed at Mustang and Sooner as well as unique assets at Muskogee. There are depreciation rates established for new facilities being constructed and placed into service after December 31, 2013 which are presented on page VI-5 of Exhibit OG&E_(JJS-2). The first set of depreciation rates represent the combustion turbine units being installed at Mustang. These rates are based on a 35 year life span, interim survivor curve by account and net salvage percent as of mid-year 2019. Each of these parameters are based on estimates of comparable OG&E facilities and other unties installed by other electric companies. The second set of depreciation rates represent the two scrubbers being installed on Sooner Units 1 and 2. These rates are based on the current life span date of the respective Sooner Units, interim survivor curves and net salvage percent for the Sooner units as of the year the assets are to be placed into service. Sooner Unit 1 is 2018 and Sooner Unit 2 is 2019. The final rate relates to the addition of Activated Carbon Injection (ACI) on the Muskogee Units 4 & 5. These assets have a 3-year life, or 33.33%, as they are needed until the units are converted to natural gas.

Q. **In your opinion, are the depreciation rates set forth in Exhibit OGE_ (JJS-2) the appropriate rates for the Oklahoma Commission to adopt in this proceeding for OG&E?**

A. Yes. These rates appropriately reflect the rates at which the value of OG&E's assets is being consumed over their useful lives. These rates are an appropriate basis for setting electric rates in this matter and for the Company to use for booking depreciation and amortization expense going forward.

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

A. Yes.