BEFORE THE CORPORATION COMMISSION OF OKLAHOMA

IN THE MATTER OF THE APPLICATION OF)
OKLAHOMA GAS AND ELECTRIC COMPANY)
FOR AN ORDER OF THE COMMISSION) CAUSE NO. PUD 201500273
AUTHORIZING APPLICANT TO MODIFY ITS)
RATES, CHARGES, AND TARIFFS FOR RETAIL)
ELECTRIC SERVICE IN OKLAHOMA)

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CORPORATION COMMISSION
OF OKLAHOMA

RESPONSIVE TESTIMONY

AND EXHIBITS

OF

E. CARY COOK

ON BEHALF OF

E. SCOTT PRUITT,

OKLAHOMA ATTORNEY GENERAL

March 21, 2016

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Exhibits:

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is E. Cary Cook. My business address is 1850 Parkway Place, Suite 800, Marietta, Georgia 30067.

Q. PLEASE OUTLINE YOUR FORMAL EDUCATION.

A. I received a Bachelor of Business Administration degree from Georgia Southern University in 1970. I am a Certified Public Accountant in the State of Georgia.

Q. WHAT IS YOUR PRESENT POSITION?

A. I am a Senior Project Manager of GDS Associates, Inc. ("GDS Associates"), an engineering and consulting firm.

Q. TO WHAT PROFESSIONAL ORGANIZATIONS DO YOU BELONG?

A. I am a member of the Georgia Society of Certified Public Accountants, the American Institute of Certified Public Accountants, and the Society of Depreciation Professionals.

Q. WHAT ARE YOUR DUTIES AND RESPONSIBILITIES WITH GDS ASSOCIATES?

A. My duties and responsibilities include the analysis of wholesale production and transmission formula rate filings, depreciation analysis, tax and accounting analysis, litigation support, and regulatory advisory services. I have also provided consulting services related to affiliate transaction audits and regulatory reporting assistance.

Q. PLEASE BRIEFLY DESCRIBE YOUR PROFESSIONAL EXPERIENCE.

A. Prior to joining GDS Associates in 1986, I was employed by Southern Engineering Company from 1982 through 1986 and Ebasco Business Consulting Company from 1978 to 1982. Prior to joining Ebasco Business Consulting Company, I was employed by Southern Company Services as an Economic Analyst in the Electric Rates Department. During my years with these companies, I provided wholesale and retail electric rate consulting services, with primary focus related to electric utility cost of service and revenue requirements. I have analyzed and prepared wholesale and retail jurisdictional cost of service studies for many electric utility clients, including investor owned utilities, generation and transmission cooperatives, municipal utility systems, industrial utility service customers (e.g., steel mills), and state public service commissions. I have analyzed numerous cost-of-service and formulary rate studies filed by electric utilities with the Federal Energy Regulatory Commission ("FERC") and various state regulatory commissions. I have attached a copy of my current resume as Exhibit ECC-1 for further reference to my professional experience.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE CORPORATION COMMISSION OF OKLAHOMA?

A. Yes. I have testified on behalf of the Attorney General in *Application of Public Service Company of Oklahoma* ("*PSO*"), *for an Adjustment in its Rates and Charges and the Electric Service Rules, Regulations and Conditions for Service for Electric Service in the State of Oklahoma*, Cause No. PUD 201500208.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE OTHER REGULATORY COMMISSIONS?

A. Yes. I have testified before the Georgia Public Service Commission (GPSC) in Docket No. 3840-U and in Docket No. 29849-U. I have also testified before the Texas Public Utilities Commission in Docket No. 22355 (revenue requirements); and three times before the Regulatory Commission of Alaska, in Docket No. U-96-37 (1997 Test Year Revenue Requirement Calculation), in Docket No. U-96-37 (1998 Test Year Revenue Requirement Calculation), and in Docket No. U-01-108 (2000 revenue requirements calculation). I have also filed testimony in FERC proceedings including Docket Nos. ER84-379, (Florida Power & Light Company); Docket No. ER85-477-000 (Southwestern Public Service Company); Docket Nos. ER85-720, (Connecticut Light & Power Company); Docket No. EL91-28-000 (Carolina Power & Light Company); Docket Nos. OA96-204, (Cleveland Electric Illuminating Company and Toledo Edison Company); Docket Nos. EL02-25-001, EL02-76-001 and EL03-33-000 (Public Service Company of Colorado); Docket No. ER03-971-000 (Public Service Company of Colorado); and Docket No. ER05-719-002 (Entergy Services, Inc.). I have also testified before the FERC on behalf of Golden Spread Electric Cooperative, Inc. and certain other wholesale customers in Docket Nos. EL05-19-002 and ER05-168-001 (Southwestern Public Service Company). I have filed testimony on behalf of wholesale transmission customers in a complaint proceeding in Entergy Services, FERC Docket No. EL11-64, and on behalf of Arkansas Electric Cooperative Corporation, Mississippi Delta Energy Agency, Clarksdale Public Utilities

Commission, Public Service Commission of Yazoo City and South Mississippi Electric Power Association in a complaint proceeding, FERC Docket Nos. EL12-110 and ER12-1895. I have also filed testimony on behalf of Arkansas Electric Cooperative Corporation, South Mississippi Electric Power Association, the Mississippi Delta Energy Agency, the Clarksdale Public Utilities Commission and the Public Service Commission of Yazoo City in FERC Docket No. ER12-1428.

Q. ON WHOSE BEHALF ARE YOU FILING TESTIMONY IN THIS PROCEEDING?

A. I am filing testimony on behalf of the Oklahoma Attorney General ("AG").

II. PURPOSE OF ASSIGNMENT

Q. WHAT IS THE PURPOSE OF YOUR ASSIGNMENT IN THIS PROCEEDING?

A. The purpose of my assignment in this proceeding is to analyze and respond to OGE's proposals to (1) include for the first time a dismantlement expense component in the determination of its production plant depreciation rates and expense; (2) include a 25-year life span for its wind power turbines; and (3) include a holding company depreciation expense of $10.4 million in OG&E's depreciation expense.

Q. ARE YOU SPONSORING ANY EXHIBITS TO ACCOMPANY YOUR RESPONSIVE TESTIMONY?

A. Yes. I am sponsoring Exhibits ECC-1 through ECC-4. All of my exhibits and workpapers, except those documents previously prepared by OG&E, were prepared by me or under my supervision.

Q. WHAT TESTIMONY DID YOU REVIEW IN PREPARATION OF YOUR ANALYSIS?

A. During the course of my analysis, I reviewed the testimony of OG&E's depreciation witness John J. Spanos, including pages contained in his Direct Exhibit JJS-1, and his sponsored depreciation study included in Direct Exhibit JJS-2, used as the basis to support the Company's proposed depreciation rates and annual depreciation expense, wind power facilities' 25-year life span, and holding company depreciation expense. I also reviewed the testimony of Donald R. Rowlett, who addressed the first-time inclusion of a dismantlement component by OG&E in the development of production plant depreciation rates and expense.

Q. WHAT MATERIALS DID YOU REVIEW IN PREPARATION FOR SUBMITTING YOUR TESTIMONY AND EXHIBITS?

A. I reviewed the following materials in preparation of this testimony:

- OG&E's responses to the data requests of the AG and other parties to this proceeding;
- Testimony and exhibits of depreciation witnesses filed in prior OG&E rate proceedings; and,

- Engineering and trade group materials supporting extended lives of wind power facilities.

III. EXPLANATION OF DEPRECIATION

Q. EXPLAIN THE CONCEPT OF DEPRECIATION AND THE BASIS FOR USING DEPRECIATION.

A. Depreciation is the process used for recovering the cost of electric plant in service. There are various definitions of depreciation. Based upon the FERC Uniform System of Accounts, Part 101, Definitions, item 12:

> Depreciation as applied to depreciable electric plant means the loss in service value not restored by current maintenance, incurred in connection with the consumption or prospective retirement of electric plant in the course of service from causes which are known to be in current operation and against which the utility is not protected by insurance. Among the causes to be given consideration are wear and tear, decay, action of the elements, inadequacy, obsolescence, changes in the art, changes in demand and requirements of public authorities.

Another recognized definition of depreciation as stated by the American Institute of Certified Public Accountants is:

> Depreciation accounting is a system of accounting which aims to distribute the cost or other basic value of tangible capital assets, less salvage (if any), over the estimated useful life of the unit (which may be a group of assets) in a systematic and rational manner. It is a process of allocation, not of valuation.

Depreciation of electric plant is based upon selected lives. The recovery period depends upon the type of property analyzed. The selection of the number of years for the recovery period is not a pure science, and different recovery periods may be determined based upon the individual property analyzed. Electric property is

recovered ratably and systematically over the number of years determined for cost recovery.

Q. EXPLAIN HOW DEPRECIATION RATES ARE DEVELOPED.

A. Depreciation rates are developed based upon the utilization of gross plant, accumulated depreciation as of a given date, net salvage rates, and a determined period for cost recovery based upon the application of the appropriate survivor curve. The net salvage rate is determined based upon the net of gross salvage and cost of removal. Detailed studies of a company's salvage experience and historical vintage data are completed to determine the net salvage component and the selected curve type that will be used to develop the specific account's depreciation rate.

Q. IS OG&E PROPOSING NEW DEPRECIATION RATES IN THE PRESENT PROCEEDING?

A. Yes. OG&E is proposing to increase its Test Year Ended June 30, 2015 current depreciation expense of $284,963,367 to the proposed depreciation expense of $314,602,372 based upon the Company's proposed depreciation rates. This proposed change in depreciation rates results in a total electric system increase of $29,639,005 (Exhibit ECC-2, Page 2, line 72).

Q. ARE THERE PARTICULAR AREAS REGARDING OG&E'S PROPOSED NEW DEPRECIATION RATES THAT ARE THE FOCUS OF YOUR TESTIMONY?

A. Yes. I will direct my focus to the increase in depreciation expense based upon the following OG&E proposals in this case: (1) the first-time inclusion of a fossil

dismantlement expense component in OG&E's depreciation rates; (2) a 25-year life span for OG&E's wind turbines; and (3) $10.4 million of holding company depreciation expense.

IV. ANALYSIS OF DISMANTLEMENT AND NET SALVAGE

Q. EXPLAIN WHAT DISMANTLEMENT MEANS IN THE CONTEXT OF ELECTRIC UTILITY DEPRECIATION ANALYSIS.

A. Dismantlement is the physical removal and disposal of a generating plant's equipment. Dismantlement may also include restoring the land surrounding the facilities back to a "brownfield state," which is a term used to describe land previously used for industrial purposes that is to be upgraded.

Q. EXPLAIN WHAT NET SALVAGE IS WITH RESPECT TO THE DETERMINATION OF DEPRECIATION RATES.

A. Net salvage represents the net cost or income based upon the amount of salvage value associated with the removal of property, offset by the amount of cost of removal at the time of removal of the property. If the amount of salvage realized is greater than the cost of removal, then the net salvage is positive. If the cost of removal is greater than the salvage proceeds, then the net salvage value is negative. In the determination of depreciation rates, the negative or positive salvage percentages (net salvage multiplied by the original cost of installed property) contribute to the determination of either a higher or lower depreciation rate.

Q. DID OG&E PROVIDE INFORMATION SHOWING ITS PROPOSED WEIGHTED NET SALVAGE RATES BASED UPON THE WEIGHTING OF BOTH TERMINAL AND INTERIM RETIREMENTS?

A. Yes. First of all, I note that terminal net salvage is the netting of the end-of-life cost to remove plant equipment, adjusted by any salvage received from the sale or disposal of equipment at the plant site. OG&E used both terminal net salvage and interim net salvage (net salvage associated with retirement of property between the in-service date and end-of-life) to determine the weighted average net salvage percentages shown in column 6 on Page 3 of Exhibit ECC-2. This information was provided in Mr. Spanos's sponsored Workpapers Spreadsheet Weighted Net Salvage_Table 2.

Q. DID OG&E UTILIZE THESE WEIGHTED NET SALVAGE RATES IN THE DETERMINATON OF ITS PROPOSED DEPRECIATION RATES?

A. Yes. As shown in OG&E's response to AG 1-3_Att Summary Schedule (Exhibit ECC-2, Pages 4 through 8), OG&E applied the Negative Salvage Rates shown in column 3 to the Original Cost shown in column 4 to develop the salvage cost used in the determination of the depreciation rates shown in column 8. These are the rates utilized to develop the pro forma depreciation expense shown in ECC-2, Pages 1 and 2.

Q. BASED UPON OG&E'S PROPOSAL TO INCLUDE A DISMANTLEMENT EXPENSE COMPONENT IN ITS DEPRECIATION RATES, WHAT IS THE PROPOSED AMOUNT OF DISMANTLEMENT EXPENSE?

A. OG&E witness Rowlett notes that OG&E is proposing to increase its total electric system present depreciation rates and expense by $18.3 million (total system) for recovery of dismantlement costs, as noted on page 12, line 16 of his testimony (Exhibit ECC-2, Page 9). On an OG&E retail jurisdictional basis, the amount of the increase is $15.6 million (Exhibit ECC-2, Page 10, lines 30 and 31). Mr. Rowlett provided the following statement:

> The Company's proposal to begin recovering dismantlement costs, which I discuss in greater detail below, makes up approximately $15.6 million of the increase in depreciation expense.

(Exhibit ECC-2, Page 11, Lines 1 and 2.)

Q. WHAT OTHER INFORMATION DID OG&E PROVIDE TO CONFIRM THAT IT WAS INCREASING ITS DEPRECIATION RATES AND EXPENSE TO RECOVER A DISMANTLEMENT COMPONENT?

A. As shown on Page 9 of Exhibit ECC-2, lines 9 through 18 of Mr. Rowlett's Direct Testimony included the following question and answer.

> Q. Are there any changes to OG&E's depreciation rate schedules that you would like to address?
>
> A. Yes. OG&E is requesting a change in depreciation expense to account for the increased level of plant requested in this case as well as new depreciation rates. These changes increase total Company depreciation expense by approximately $29.6 million. Those changes are fully discussed by OG&E witness Spanos. However, I would like to discuss two issues related to

depreciation: (i) dismantlement costs, a concept that is being introduced in this depreciation study and that represents approximately $18.3 million of the total Company increase; and (ii) depreciation rates for future assets, which has no impact on the revenue requirement in this cause.

Q. WHAT INFORMATION DID OG&E PROVIDE TO SUPPORT THE INCLUSION OF DISMANTLEMENT (TERMINAL RETIREMENT) EXPENSE IN ITS NET SALVAGE?

A. OG&E provided information included in Mr. Spanos's responses to data request AG 5-17 (Exhibit ECC-2, Pages 12 and 13), as well as to AG 1-3 Spanos WP Weighted Net Salvage Table 2 (Exhibit ECC-2, Page 14). Mr. Spanos's response to data request AG 5-17 stated as follows:

> **5-17** Depreciation: Referring to Mr. Rowlett's testimony, page 6, provide detailed information supporting the determination of the dismantlement expense that makes up the $15.6 million of the increase in depreciation.
>
> **Response*:** The workpapers set forth in **OCC-1-10** and AG Set 1 establishes the weighted net salvage percent calculation to be applied to each generating unit. These net salvage components include an additional dismantlement component that was not included in the current rates. (Emphasis in original.)

Q. DID MR. SPANOS PREPARE A DISMANTLEMENT STUDY TO SUPPORT DISMANTLEMENT COSTS IN THE PROPOSED DEPRECIATION RATES OF PUBLIC SERVICE COMPANY OF OKLAHOMA ("PSO") IN THE MOST RECENT PSO GENERAL RATE CASE FILING, CAUSE NO. PUD 201500208?

A. Yes. Mr. Spanos prepared a study of PSO's generating plant facilities and provided the study in PSO's recent 2015 general rate case filing, Cause No. PUD

201500208, in his Exhibit PSO (JSS-2). He noted on Page 12, lines 11 through 13 of that Exhibit: "The final net salvage or dismantlement component was determined based on the assets anticipated to be retired at the concurrent date of final retirement." (Exhibit ECC-2, Page 15.)

Q. HAS OG&E DEVELOPED ITS DISMANTLEMENT EXPENSE FOR ITS OWN PRODUCTION PLANT FACILITIES BASED UPON A COMPREHENSIVE "STUDY" OF ITS GENERATING PLANT FACILITIES?

A. No. As noted in OG&E's response to OIEC data request 3-24, it has not (Exhibit ECC-2, Page 16):

> **3-24 [Data]** - Please provide all additional bases, evidence, opinions, assumptions, documents, analyses, etc. that either describes, explains, supports, and/or justifies the specific life and salvage parameters proposed for each separate account or subaccount that has not already been provided.
>
> **Response***: Mr. Spanos has provided workpapers and information used for the depreciation study in the responses to various other data requests. However, the process of service life and net salvage estimation depends on informed judgment that incorporates Mr. Spanos' thirty years of experience in conducting depreciation studies. Because the entirety of Mr. Spanos' experience cannot be quantified in the response to a broad and vague data request, Mr. Spanos reserves the right to elaborate on additional considerations in rebuttal testimony.

Q. WAS OG&E ASKED TO PROVIDE SUPPORT FOR THE DOLLAR PER KILOWATT ("$/KW") UNIT COSTS, MEGAWATTS ("MW") AND TERMINAL RETIREMENTS IT HAS PROPOSED TO USE TO DEVELOP THE COMPANY'S DISMANTLEMENT EXPENSE?

A. Yes. The AG asked for detailed supporting information in data request AG 5-14 (Exhibit ECC-2, Page 17), and OG&E provided a revised response to the request as set forth below. The response to AG 5-14 referred to OCC-1-10_Att (Exhibit ECC-2, Page 13) and OCC 1-9 (ECC-2, Page 18).

> **AG 5-14**: Depreciation: If not previously provided, please provide detail information supporting the determination of information included in columns 3, 4, and 7 of OCC 1-10_Att.
>
> **Response*:** The MW set forth in column 3 of the attachment to **OCC-1-10** is the Unit Capability in MW provided by the Company for each unit. The $40/KW set forth in column 4 is the most commonly supported value utilized for estimating the decommissioning cost for steam facilities, $10/KW for other production units, and $5/KW for wind facilities. The amounts are in the range of $/KW averages determined by specific units studies for other utilities.
>
> The amounts in column 7 are supported in the attachment to **OCC-1-9** which is based on the existing plant in service and the segregation of interim retirements and final retirements.

OG&E'S responses confirm Mr. Spanos's selection of an arbitrary $40/KW for steam, $10/KW for other production units, and $5/KW for wind facilities based upon studies of other utilities for estimating the decommissioning (dismantlement) cost for OG&E's production units. Mr. Spanos did not conduct an OG&E-specific analysis.

Q. DOES MR. SPANOS CITE ANY OTHER SOURCES IN SUPPORT OF HIS SELECTION OF THE $40/KW CHARGE SHOWN IN OG&E'S RESPONSE TO OCC 1-10_ATT (EXHIBIT ECC-2, PAGE 13, COLUMN 4) FOR THE ESTIMATED DECOMMISSIONING COST FOR OG&E'S STEAM GENERATING PLANTS?

A. Yes. Included below is OG&E's response to data request AG 10-4 (Exhibit ECC-2, Page 19), sponsored by Mr. Spanos, addressing the selection of the $40/KW for estimated decommissioning expense for steam facilities:

> **AG 10-4:** Referring to OG&E's response to OIEC-3-4, Net Salvage for Production Plant, please provide detailed information explaining and supporting the determination of terminal net salvage estimates based on common industry costs per KW. The costs per KW are included in OG&E's response to OCC-1-10_Att., Column 4 which shows $40/KW being used in the determination of total decommissioning costs (current). If previously provided please reference the specific data response(s).
>
> **Response*:** The terminal net salvage calculations are set forth in response to OCC-1-9. The $40/KW is the most commonly utilized amount when considering all the industry estimates. This was initially established in a study presented to the AGA/EEI committee in 1993. The OCC-1-10 attachment shows no escalation to retirement date was included in the study.

As shown in Mr. Spanos's response above, Mr. Spanos notes without any further detailed explanation that $40/KW is "the most commonly utilized amount when considering all the industry estimates." Also, Mr. Spanos included the following statement in response to AG 10-4 to support his initial selection of the $40/KW cost: "This was initially established in a study presented to the AGA/EEI committee in 1993."

Q. DO YOU HAVE ANY COMMENTS REGARDING INFORMATION THAT WAS USED IN A 1993 PRESENTATION TO THE AMERICAN GAS ASSOCIATION AND THE EDISON ELECTRIC INSTITUTE ("AGA/EEI") TO SUPPORT THE $40/KW ESTIMATED DECOMMISSIONING COST FOR STEAM GENERATING FACILITIES?

A. Yes. I do not believe that consideration should be given to the $40/KW cost based upon a 1993 study presented to the AGA/EEI. While I am not proposing a specific alternative $/KW charge, I believe that utilizing information that was presented 23 years ago should not be considered as supportive of a $/KW charge for 2016 and going forward. I believe that a fully developed dismantlement cost study of OG&E's generating units should be completed in order to determine the $/KW cost for dismantlement of OG&E's steam, wind power, and other generating units.

Q. DO YOU HAVE ANY COMMENTS REGARDING OG&E'S USE OF UNIT CAPABILITY IN MW RATINGS TO DETERMINE TOTAL DECOMMISSIONING COSTS SHOWN IN OCC 1-10 ATT (ECC-2, Page 13)?

A. Yes. In OG&E's revised response to AG data request 5-14 (Exhibit ECC-2, Page 17), Mr. Spanos stated the following: "The MW set forth in column 3 of the attachment to **OCC-1-10** is the Unit Capability in MW provided by the Company for each unit."

Q. DO YOU BELIEVE THAT OG&E SHOULD USE THE UNIT CAPABILITY IN MW OF ITS STEAM, WIND POWER, AND OTHER FACILITIES TO MULTIPLY THE COMPANY'S PROPOSED $/KW TO DEVELOP ITS PROJECTED DECOMMISSIONING EXPENSE SHOWN ON PAGE 13 OF EXHIBIT ECC-2?

A. No. OG&E should not be allowed to use the Unit Capability in MW ratings of its generating plant facilities to develop its decommissioning expense. Using the company's Unit Capability in MW simply does not provide the most reliable cost approach to develop decommissioning expense. A company-specific dismantlement study provides the most reliable estimate of future decommissioning cost.

Q. DO YOU BELIEVE THAT OG&E'S DECOMMISSIONING EXPENSES SHOULD BE DEVELOPED USING STUDIES OF OTHER UTILITIES' $/KW RATES, MULTIPLIED BY THE UNIT CAPABILITY IN MW CAPACITY OF EACH OF OG&E'S GENERATING UNITS?

A. No, I do not. I believe that an in-depth study of OG&E's generating plant facilities should be performed by the Company, especially when, for the first time, a dismantlement component expense of $15.6 million is being proposed to be recovered from OG&E's customers. Completing an OG&E-specific study would use Company-owned facilities, and the Company's own projected costs specific to its units to dismantle its own facilities, instead of using generic information from various other utilities.

I wish to note that after multiple data requests have been submitted to OG&E asking for support for its dismantlement expense, the Company has continued to support its proposed inclusion of dismantlement cost based upon its application of industry-wide $/KW and company Unit Capability in MW ratings. In OG&E's recent response to AG 17-4 included below, OG&E provided the following information to support its decision to not develop an OG&E-specific dismantlement study.

> **17-4:** Depreciation: Referring to Mr. Spanos testimony in PSO Cause No 201500208, lines 20-23 indicating that PSO developed its dismantling cost based on studies for other utilities and the cost estimates of PSO, please explain why this similar process was not used to determine OG&E's dismantlement cost.
>
> **Response***: The overall process in calculating a weighted net salvage percent was the same in this case as was presented in the PSO case. However, PSO had conducted the specific unit studies for dismantlement costs. There was not enough time prior to completing this depreciation study to conduct a full dismantlement study particularly since no specific plans for each unit had been established.

OG&E's response highlights its short-cut methodology to develop its dismantlement depreciation expense. As noted above in OG&E's response:

> There was not enough time prior to completing this depreciation study to conduct a full dismantlement study particularly since no specific plans for each unit had been established.

OG&E's response is surprising with respect to not completing a dismantlement study. It would appear that OG&E has had more than enough time to evaluate its dismantlement plans since its last general rate case filing, and to move forward to complete a Company-specific dismantlement study. OG&E's use of industry-wide data, instead of its own Company-specific data, is justification for rejecting

the Company's request to include its first ever dismantlement expense in its revenue requirements and rates.

V. DISMANTLEMENT RECOMMENDATION

Q. PLEASE DISCUSS YOUR RECOMMENDATION BASED UPON YOUR ANALYSIS OF OG&E'S PROPOSAL TO INCLUDE A DISMANTLEMENT COMPONENT IN ITS PRODUCTION DEPRECIATION EXPENSE.

A. Based upon my review of Mr. Spanos's testimony and depreciation study, and information provided in OG&E's responses to data requests, I recommend that the Commission reject OG&E's proposal to recover $18.3 million of total system dismantlement expense in its production depreciation rates and expense. OG&E's proposal has used other utilities' data in lieu of a detailed study of its own facilities to determine dismantlement costs of its production units. Based upon the Company failing to provide a comprehensive detailed study, OG&E should not be allowed to recover $18.3 million of dismantlement expense. In order for OG&E to recover any dismantlement cost in the future, I recommend that the Company be required to file for Commission review a detailed, OG&E-specific dismantlement study.

VI. WIND POWER SERVICE LIVES

Q. IS OG&E PROPOSING TO INCLUDE WIND POWER DEPRECIATION EXPENSE IN ITS TOTAL DEPRECIATION EXPENSE RECOVERED FROM THE COMPANY'S RETAIL RATEPAYERS?

A. Yes. As shown in OG&E Workpapers AG 1-3 Att (Exhibit ECC-2, Pages 7 and 8) in Accounts 341, 344, 345 and 346, OG&E is proposing to include $37,397,042 of wind power depreciation expense. The proposed depreciation expense included in these accounts is associated with the Centennial Wind Farm, OU Spirit Wind Farm and Crossroads Wind Farm.

Q. WHAT LIFE SPAN IS MR. SPANOS PROPOSING FOR OG&E'S WIND TURBINES?

A. On Page III-6 of Mr. Spanos's Depreciation Study (Exhibit ECC-3, Page 1), Mr. Spanos notes: "Life spans for wind turbines were estimated at 25 years". Based upon a review of Mr. Spanos's testimony and exhibits, I was unable to determine any detailed support for his selection of a 25-year life span. OG&E briefly noted Mr. Spanos's 25-year life span proposal in its response to AG 5-4 shown below:

> **AG 5-4** Depreciation: Provide information supporting the application of the experienced life spans of similar generating units to develop the depreciable life span estimates for power generating stations. Reference Mr. Spanos testimony, page III-6.
>
> **Response*:** In determining the most appropriate life span of a power generating unit or facility it is important to understand the type of unit, the age of the unit, the load expected for the unit, the Company plans for the unit, how regulation affects the unit's utilization and the efficiency of the unit. Once the understanding of each unit is known, then the probable retirement date is established and compared to other similar generating units for reasonableness. The general industry range for steam units is 55 to 65 years and the major OG&E units fall into that range. The majority of the combustion turbines within the

industry have a life span of 35 to 45 years which includes OG&E facilities. There are different ranges for simple cycle as compared to combined cycle. **The wind assets predominantly have a life span of 25 years but the overall range is 20-30 years. OG&E has life spans of 25 and 26 years.** (Emphasis added.)

Q. DO YOU AGREE WITH MR. SPANOS'S ESTIMATED LIFE SPAN OF 25 YEARS FOR WIND TURBINES?

A. No.

Q. PLEASE EXPLAIN.

A. I believe that given modern construction, technology, and maintenance of wind turbine equipment, the life span of wind turbines is greater than 25 years. This recognition of a greater than 25-year life span is addressed in several reports that I will subsequently address in my testimony.

Q. WHAT INFORMATION ARE YOU AWARE OF THAT WOULD SUPPORT A LIFE SPAN LONGER THAN 25 YEARS?

A. Based upon my research of wind power facility information, I have found that it is common for life spans of wind power facilities to extend beyond 25 years. For example, in 2007, a wind farm life expectancy evaluation conducted by Burns & McDonnell[1] on the Meridian Way Wind Farm in Cloud County, Kansas estimated a service life of 30 years or more (Exhibit ECC-3, Page 3). Other commenters, such as those in *Renewables International* magazine, have stated that a 25-year

[1] Burns & McDonnell is a leading design firm in the United States. The company provides engineering, architecture, construction, environmental and consulting services for the aviation, defense, environmental and utilities markets. Pertinent here, the company provides engineering and consulting services on more than 20 gigawatts of renewable wind capacity. More information on Burns & McDonnell's experience in the wind industry is available here: http://www.burnsmcd.com/services/electric-power-generation/renewable-energy/wind-energy.

service life should be viewed as a minimum, since wind facilities can last as long as 40 years with retrofits and replacement components (ECC-3, Pages 6 through 8). Further, according to an article published in *WindPower Monthly* in July 2012 (see Exhibit ECC-3, Pages 9 through 14):

> All wind turbines have a number of main infrastructural components, such as transformers and medium voltage copper ground cables for electricity transport that can last 50 years or more.

Id. at 9. A recent environmental assessment study of a proposed wind farm at Nuttby Mountain, Nova Scotia by CBCL Limited, an engineering firm in Canada (Exhibit ECC-3, Pages 15 through 18), supported extended lives for wind farm facilities beyond even 40 years. For example, in Section 2.3.3, titled "Reclamation and Decommissioning," the study states:

> The design life of a wind farm is typically 20 or more years and capital improvement and replacement programs may extend safe and efficient operations well beyond 40 years.

In Section 7.2.3.4, titled: "BOUNDARIES" (*id.*, Page 16), the study states:

> The temporal boundaries for both ambient light and noise is the anticipated life of the Project, i.e., perhaps 40 years or more.

In Section 7.4.1.1, titled "BOUNDARIES" (*id.*, Page 17) the study states:

> The spatial area of greatest relevance includes those lands within 500 m of the WTGs [wind turbine generators]; the temporal boundary would extent over the life of the Project, i.e., perhaps 40 years or more.

And in Section 7.4.3.1, titled "BOUNDARIES" (*id.*, Page 18), the study states:

> The temporal boundary is the life of the Project, i.e., perhaps 40 years or more.

VII. WIND POWER SERVICE LIVES RECOMMENDATION

Q. HAVE YOU QUANTIFIED THE ADJUSTMENT TO REDUCE OG&E'S DEPRECIATION EXPENSE BASED UPON THE USE OF A 30-YEAR LIFE FOR ITS WINDPOWER FACILITIES INSTEAD OF THE 25-YEAR LIFE PROPOSED BY THE COMPANY?

A. Yes. Based upon the supporting wind power engineering opinions and wind industry trade reports I have analyzed, I propose the use of a 30-year life for wind power generating facilities. Based upon the use of a 30-year life, OG&E's total system depreciation expense is reduced by $5,814,181 (Exhibit ECC-3, Pages 19 through 21). My proposed adjustment is based upon increasing the average service lives for wind power facilities by a multiplier of 1.2 (30 years compared to OG&E's proposed life span of 25 years); a 20% increase over the Company's proposed lives results in a decrease to OG&E's production function's depreciation expense.

VIII. HOLDING COMPANY DEPRECIATION EXPENSE

Q. IS OG&E INCLUDING HOLDING COMPANY DEPRECIATION EXPENSE IN ITS PROPOSED DEPRECIATION EXPENSE?

A. Yes. OG&E is proposing to include $10,409,178 of holding company test year depreciation expense in OG&E's proposed depreciation expense. This amount is $3,731,762 above OG&Es Holding Company Test Year Expense of $6,677,416, as shown in OG&E's WP H-2-21, lines 71 and 72 (Exhibit ECC-2, Page 2).

Q. HOW DID OG&E DEVELOP ITS $10.4 MILLION OF HOLDING COMPANY DEPRECIATION EXPENSE?

A. OG&E developed its proposed $10.4 million of holding company depreciation expense based upon a study of its Holding Company Assets as of December 31, 2009. The study was completed by Gannett Fleming (Exhibit ECC-4, Pages 1 through 4) and included an analysis of the holding company's General Plant property. Specifically, the study included an analysis of General Plant Accounts 301 through 398.

Q. PLEASE CONTINUE.

A. Using the data as of 2009, OG&E multiplied the total General Plant's composite depreciation rate of 9.08% from OG&E's Depreciation Study (*see* OG&E's response to AG 5-6 included as Exhibit ECC-4, Page 3, Column 8, and Exhibit ECC-4, Page 4) times the Original Cost as of June 30, 2015 (shown in OG&E Schedule I_I1-1, line 77 (Exhibit ECC-3, Page 5)). OG&E is using this 9.08% composite General Plant Depreciation Rate to develop 2015 holding company depreciation expense. The 2015 depreciation expense is thereby determined based upon a depreciation rate that was developed in 2009, six and one-half (6 ½) years prior to the 2015 Test Period Ended June 30, 2015. Applying the 9.08% rate to the Pro Forma Adjusted Plant of $114,638,526 produced a depreciation expense of $10,409,178, shown on Page 5 of Exhibit ECC-3.

Q. DO YOU HAVE ANY COMMENTS REGARDING THE 2009 DATA USED TO DEVELOP THE 2015 PROPOSED HOLDING COMPANY DEPRECIATION EXPENSE?

A. Yes. I believe it is questionable whether a 2009 composite general plant depreciation rate of 9.08% is a reasonable rate to use in the calculation of holding company depreciation expense in the June 30, 2015 Test Year. To the best of my knowledge, OG&E has not completed an updated study using 2015 plant cost and an analysis of service lives and net salvage. I believe that OG&E should have developed a detailed study of its most currently available costs in order to support its General Plant account by account rates, instead of using a 2009 composite General Plant rate to develop its test year's General Plant holding company depreciation expense.

Q. ARE THERE ANY SPECIFIC OBSERVATIONS YOU HAVE MADE WITH RESPECT TO THE DEPRECIATION RATES PRODUCED IN THE 2009 DEPRECIATION STUDY?

A. Yes. I observed that there was $0 net salvage for all of the $107.1 million of Original Cost Plant Accounts, as shown on Exhibit ECC-3, Pages 2 and 3, column 3. These pages show a $0 net salvage for General Plant property, e.g. transportation equipment (cars, heavy and pickup trucks), computers, printers and power operated equipment. While OG&E will recover the full cost of its facilities in its depreciation rates and expense, the Company assumes that there are no salvage proceeds when these properties are disposed of, either through a market sale to a buyer for further use or a sale for scrap value.

IX. HOLDING COMPANY RECOMMENDATION

Q. PLEASE EXPLAIN YOUR PROPOSAL TO ADDRESS OG&E'S PROPOSED HOLDING COMPANY DEPRECIATION EXPENSE OF $10,409,178.

A. I propose that OG&E's holding company depreciation expense be adjusted to include a 10% net salvage rate to develop its Account 392 holding company vehicle depreciation expense, and a 15% net salvage rate to develop the Account 396 power operated equipment depreciation expense. These are the same net salvage rates used in OG&E's WP I-3 (Exhibit ECC-4, Page 6) to develop depreciation expense for the Company's on-system transportation equipment and power operated equipment. Based upon the application of the positive 10% and 15% net salvage rates to the detailed Holding Company Account 392 and Account 396 plant cost provided in the earlier-referenced Gannett Fleming 2009 study (Exhibit ECC-4, Pages 2 and 3), OG&E's total electric holding company depreciation expense is reduced by $79,750 (Exhibit ECC-4, Pages 7 and 8). I note that these 2009 detail accounts' costs were the most currently available to the Attorney General. Going forward, I also propose that OG&E be required to perform a detailed depreciation study of its holding company General Plant.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

Exhibit ECC-1
4 Pages including Cover

Resume of E. Cary Cook

GDS Associates, Inc
ENGINEERS & CONSULTANTS

E. CARY COOK

Senior Project Manager

EDUCATION

Georgia Southern University; BBA, Management, 1966-1970

Woodrow Wilson College of Law; JD, 1972-1975

Certified Public Accountant, 1987

PROFESSIONAL MEMBERSHIPS

American Institute of Certified Public Accountants

Georgia Society of Certified Public Accountants

Society of Depreciation Professionals

EXPERIENCE

Mr. Cook has extensive experience in the electric utility industry. This experience includes preparation of cost of service studies and revenue requirements analysis; development of depreciation studies, audits of electric & gas affiliate transactions and wholesale formula rates, preparation of merger studies, cost of capital analysis and negotiation of wholesale and retail revenue requirements and rates.

Mr. Cook was employed by Ebasco Business Consulting Company from March 1978 through June 1982. While at Ebasco Mr. Cook served as Project Manager in the utility rates division where he provided cost of service, revenue requirements and FERC reporting services to investor-owned and municipal electric utilities. In June 1982 Mr. Cook joined Southern Engineering Company as a Project Manager where he continued to provide cost of service and revenue requirements assistance to rural electric cooperative and municipal electric utilities. In February 1986 Mr. Cook joined GDS Associates, Inc. where he has served as Senior Project Manager. He has provided cost of service, revenue requirements, depreciation analysis, mergers and acquisitions studies, FERC and state reporting and other ratemaking services to electric cooperative, municipal, industrial and governmental organizations. Mr. Cook has also provided electric rate negotiation services on behalf of electric utilities.

Mr. Cook has prepared testimony and has testified before several regulatory agencies. Mr. Cook has filed testimony regarding the preparation of utilities' cost of service, O&M expenses, depreciation, taxes other than income taxes, A&G expenses, other revenues, income taxes and rate base on behalf of various electric utility clients. Mr. Cook has testified before the Georgia Public Service Commission, the Texas Public Utilities Commission, the Alaska Regulatory Commission, the Oklahoma Commission and the Federal Energy Regulatory Commission. Mr. Cook served as a symposium member in 2007, addressing the implementation of Fuel Adjustment Clauses (FAC).

Specific Project Experience Includes:

Prepared 1997 cost of service analyses regarding Cleveland Electric Illuminating Company on behalf of Cleveland Public Power.

Reviewed and prepared cost of service analyses regarding 1997 Southern Company open access transmission filing on behalf of Southeastern Federal Power Customers, Inc.

Reviewed and analyzed Florida Power & Light Company's 1997 depreciation filing on behalf of Seminole Electric Cooperative, Inc.

Prepared 1997 transmission rate cost of service analyses regarding South Carolina Electric & Gas Company on behalf of Southeastern Federal Power Customers, Inc.

Prepared 1997 cost of service analyses of Western Resources/KCPL merger filing on behalf of Kansas Electric Power Cooperative.

Prepared 1997 analyses of SEPCo's depreciation rate study on behalf of Georgia Public Service Commission.

Provided 1998 cost of service and rate assistance to Georgia Public Service Commission regarding Georgia Power Company retail rate filing.

Provided 1999 litigation support and analysis on behalf of Niagara Mohawk Power in counterclaim regarding Baesha Engineering Associates.

Provided 1999 cost of service and rate analysis assistance to Southeastern Federal Power Customers regarding SEPA/TVA proposed rate increases. Reviewed and provided recommendations regarding reasonableness of costs.

Prepared 2000 testimony regarding depreciation issue in Reliant HL&P filing on behalf of City of Houston and others. Provided 2001 testimony on behalf of City of Houston at retail rate proceeding.

Prepared 2000, 2001 and 2002 direct testimony regarding adjustments to Chugach cost of service and wholesale rates. Testified before the Regulatory Commission of Alaska regarding issues addressed in testimony. Dockets were ultimately settled resulting in reduced rates to client, Matanuska Electric Association.

Prepared 2000 testimony regarding recommended revenue requirements and wholesale cost of service of Pennsylvania Electric Company on behalf of Allegheny Electric Cooperative, Inc.

Reviewed 2005 electric utility affiliate transactions regulations and audited utility affiliate regulations of Sempra Energy Utilities, San Diego Gas & Electric Company and Southern California Gas Company. Prepared findings and recommendations to California Public Utility Commission resulting in revisions to affiliate transactions regulations.

Prepared 2005 direct and answering testimony on behalf of Golden Spread Electric Cooperative, and others regarding cost of service issues in FERC Docket No. EL05-19-002. Testified on behalf of client before the Federal Energy Regulatory Commission. Analyzed fuel adjustment clause components and reconciled proposed costs to allowable costs pursuant to FERC Code of Federal Regulations.

Prepared 2006 direct and closing testimony on behalf of Arkansas Electric Cooperative Corporation in FERC Docket No. ER05-719-000 and proposed adjustments to wholesale transmission rates. Docket was ultimately settled.

Reviewed and analyzed Southwestern Public Service Company 2006 projected test year wholesale cost of service on behalf of Golden Spread Electric Cooperative to determine rate issues.

Prepared depreciation and cash working capital testimony on behalf of the City of Houston in Center Point Energy, PUC Docket No. 32093. Docket resulted in settlement of proposed retail and wholesale rates.

Analyzed 2003 through 2015 Southern Company annual OATT transmission formula rate filings and recommended adjustments to wholesale transmission rates.

Analyzed 2003 through 2009 Entergy Services, Inc. OATT annual transmission formula rate determinations and recommended adjustments to wholesale rate filing.

Analyzed 2003 through 2009 Entergy Arkansas annual transmission formula rate determinations and recommended adjustments to wholesale rate filing.

Assisted Florida Office of Public Counsel in 2008 and 2009 Biennial Filings regarding oversight of FPL and PEF nuclear plant construction costs associated with nuclear uprate units and proposed additional nuclear units. Assisted client in depositions and discovery.

Assisted Holy Cross Electric Association in analysis of PSCo Wholesale Rate Filings, including recent production formulary rate filings, for the years 2009-2015. Prepared discovery and assisted in the identification of issues for ultimate settlement.

Testified on behalf of Georgia Public Service Commission Staff in Docket No. 29849-U regarding the Third through Thirteenth Semi-Annual Reviews of Plant Vogtle 3 & 4 Construction Costs for the years 2010 through 2015.

Testified on behalf of the Oklahoma Attorney General in PSO Docket No. 201500208.

Exhibit ECC-2
20 Pages including Cover

Dismantlement Workpapers of E. Cary Cook

Section - Operating Income Statement
W/P H-2-21

OKLAHOMA GAS AND ELECTRIC COMPANY
PRO FORMA ADJUSTMENT - OPERATING INCOME
DEPRECIATION EXPENSE
TEST YEAR ENDING 6/30/15
CAUSE NO. PUD 201500273

Line No.	Account	Plant	Test Year DD&A Expense per Sch I-1	Proposed DD&A Expense per Sch I-1-1	Pro Forma Adjustment
		INTANGIBLE PLANT			
1	301	Organization	-	-	-
2	302	Franchise and Consents	101,301	110,088	8,787
3	303	Miscellaneous Intangible Plant	8,187,919	4,025,596	(4,162,323)
4		CWIP	-	359,418	359,416
5		TOTAL INTANGIBLE PLANT	$ 8,289,220	$ 4,495,102	$ (3,794,118)
		PRODUCTION PLANT STEAM PRODUCTION			
6	310	Land and Land Rights	13,293	27,685	14,392
7	311	Structures and Improvements	5,736,627	7,313,224	1,576,597
8	312	Boiler Plant Equipment	22,635,705	26,366,103	3,730,398
9	313	Engines and Engine-Driven Generators	-	-	-
10	314	Turbogenerator Units	7,396,287	15,041,080	7,644,793
11	315	Accessory Electric Equipment	2,072,620	3,315,425	1,242,805
12	316	Miscellaneous Power Plant Equipment	651,320	1,188,932	537,612
13	317	ARO Cost - Steam Production	-	42,346	42,346
14		TOTAL STEAM PRODUCTION	$ 38,505,852	$ 53,294,795	$ 14,788,943
		OTHER PRODUCTION			
15	340	Land and Land Rights	-	-	-
16	341	Structures and Improvements	2,087,883	1,714,722	(373,161)
17	342	Fuel Holders, Producers and Accessories	496,024	330,320	(165,704)
18	343	Prime movers	20,108,403	21,090,746	982,343
19	344	Generators	36,435,517	33,664,740	(2,770,777)
20	345	Accessory Electric Equipment	4,376,703	3,242,657	(1,134,046)
21	346	Miscellaneous Power Plant Equipment	306,629	231,370	(75,259)
22	347	ARO Cost - Other Production	-	401,307	401,307
23		TOTAL OTHER PRODUCTION	$ 63,811,159	$ 60,675,862	$ (3,135,297)
24		CWIP	-	2,195,082	2,195,082
25		TOTAL PRODUCTION PLANT	$ 102,317,011	$ 116,165,739	$ 13,848,728
		TRANSMISSION PLANT			
26	350	Land and Land Rights	1,581,690	1,490,758	(90,932)
27	351	Clearing Land and Right of Ways	-	-	-
28	352	Structures and Improvements	92,895	104,222	11,327
29	353	Station Equipment	15,143,815	15,104,092	(39,723)
30	354	Towers and Fixtures	1,948,130	2,242,499	294,369
31	355	Poles and Fixtures	24,373,845	24,294,896	(78,949)
32	356	Overhead Conductors and Devices	10,815,772	14,380,255	3,564,483
33	357	Underground Conduit	-	-	-
34	358	Underground Conductors and Devices	1,404	298	(1,106)
35	359	ARO Cost - Transmission	-	5,909	5,909
36		CWIP	-	379,107	379,107
37		TOTAL TRANSMISSION PLANT	$ 53,957,551	$ 58,002,036	$ 4,044,485

Section - Operating Income Statement
W/P H-2-21

OKLAHOMA GAS AND ELECTRIC COMPANY
PRO FORMA ADJUSTMENT - OPERATING INCOME
DEPRECIATION EXPENSE
TEST YEAR ENDING 6/30/15
CAUSE NO. PUD 201500273

Line No.	Account	Plant	Test Year DD&A Expense	Proposed DD&A Expense	Pro Forma Adjustment
		DISTRIBUTION PLANT			
38	360	Land and Land Rights	82,834	75,645	(7,189)
39	361	Structures and Improvements	121,002	118,151	(2,851)
40	362	Station Equipment	13,582,817	12,827,979	(754,838)
41	363	Storage Battery Equipment	-	-	-
42	364	Poles, Towers, and Fixtures	13,257,209	16,472,187	3,214,978
43	365	Overhead Conductors and Devices	11,337,713	11,965,907	628,194
44	366	Underground Conduit	4,459,385	4,388,045	(71,340)
45	367	Underground Conductors and Devices	16,771,531	13,802,374	(2,969,157)
46	368	Line Transformers	16,592,799	14,571,418	(2,021,381)
47	369	Services	4,165,819	4,790,481	624,662
48	370	Meters	10,065,429	10,964,946	899,517
49	371	Installation on Customers' Premises	7,819,489	9,480,499	1,661,010
50	372	Leased Property on Customer's Premises	-	-	-
51	373	Street Lighting and Signal Systems	5,807,160	11,643,217	5,836,057
52		CWIP		2,627,117	2,627,117
53		TOTAL DISTRIBUTION PLANT	$ 104,063,187	$ 113,727,966	$ 9,664,779
		GENERAL PLANT			
54	389	Land and Land Rights	3,814	4,050	235
55	390	Structures and Improvements	5,321,402	3,296,053	(2,025,349)
56	391	Office Furniture and Equipment	3,636,132	1,378,817	(2,257,315)
57	392	Transportation Equipment	2,894,541	4,860,658	1,966,117
58	393	Stores Equipment	33,981	52,127	18,146
59	394	Tools, Shop and Garage Equipment	406,006	401,455	(4,551)
60	395	Laboratory Equipment	607,392	602,294	(5,098)
61	396	Power Operated Equipment	493,123	443,804	(49,319)
62	397	Communication Equipment	2,636,187	2,250,101	(386,086)
63	398	Miscellaneous Equipment	303,820	300,928	(2,892)
64	399	Other Tangible Property	-	-	-
65		CWIP	-	636,560	636,560
66		TOTAL GENERAL PLANT	$ 16,336,398	$ 14,226,847	$ (2,109,552)
67		TOTAL ELECTRIC PLANT IN SERVICE	$ 284,963,367	$ 306,617,690	$ 21,654,322
68		Holding Co. Included above	$ (6,677,416)		
69		Total Plant In Service	$ 278,285,951	$ 306,617,690	$ 28,331,739
70		Transportation Activity Depreciation	-	(2,424,496)	(2,424,496)
71		Holding Company Test Year Expense	6,677,416 (for Reclass Adj)	10,409,178 (for Pro Forma Adj) Schedule I 1-1	3,731,762
72		TOTAL DD&A EXPENSE	$ 284,963,367	$ 314,602,372	$ 29,639,005
			Schedule I-1		Schedule H-2

PURPOSE:

To increase operating expenses to reflect depreciation expense based on pro forma depreciable plant balances and new proposed depreciation rates.

AG 1-3
Spanos WPs
Weighted Net
Salvage
Table 2

OKLAHOMA GAS AND ELECTRIC COMPANY

TABLE 2. CALCULATION OF WEIGHTED NET SALVAGE PERCENT

	TERMINAL RETIREMENTS		INTERIM RETIREMENTS		WEIGHTED
	RETIREMENTS	NET SALVAGE	RETIREMENTS	NET SALVAGE	AVERAGE NET
LOCATION	(%)	(%)	(%)	(%)	SALVAGE %
(1)	(2)	(3)	(4)	(5)	(6)=(2)*(3)+(4)*(5)
STEAM PRODUCTION					
HORSESHOE LAKE 6	90.52	(19)	9.48	(16)	(19)
HORSESHOE LAKE 7	83.93	(30)	16.07	(16)	(28)
HORSESHOE LAKE 8	85.29	(40)	14.71	(16)	(37)
MUSTANG 1	100.00	(11)	0.00	(16)	(11)
MUSTANG 2	98.00	(23)	2.00	(16)	(23)
MUSTANG 3	97.21	(25)	2.79	(16)	(25)
MUSTANG 4	94.81	(28)	5.19	(16)	(28)
SEMINOLE GT	96.85	(11)	3.15	(16)	(12)
SEMINOLE 1	87.58	(25)	12.42	(16)	(24)
SEMINOLE 2	85.60	(38)	14.40	(16)	(35)
SEMINOLE 3	89.09	(25)	10.91	(16)	(25)
MUSKOGEE 4	81.73	(9)	18.27	(16)	(11)
MUSKOGEE 5	79.79	(13)	20.21	(16)	(14)
MUSKOGEE 6	75.40	(6)	24.60	(16)	(9)
SOONER 1	80.96	(7)	19.04	(16)	(9)
SOONER 2	77.61	(12)	22.39	(16)	(13)
OTHER PRODUCTION					
REDBUD 1	42.82	(3)	57.18	(5)	(5)
REDBUD 2	34.46	(6)	65.54	(5)	(6)
REDBUD 3	35.24	(6)	64.76	(5)	(6)
REDBUD 4	35.75	(6)	64.25	(5)	(6)
HORSESHOE LAKE 9 A	80.32	(2)	19.68	(5)	(3)
TINKER	91.23	(8)	8.77	(5)	(8)
MCCLAIN GAS 1	40.19	(5)	59.81	(5)	(6)
MCCLAIN GAS 2	37.20	(6)	62.80	(5)	(6)
MCCLAIN STEAM 1	31.85	(16)	68.15	(5)	(9)
WIND PRODUCTION					
CENTENNIAL	91.77	0	8.23	(5)	(1)
OU SPIRIT	90.73	0	9.27	(5)	(1)
CROSSROADS	88.95	0	11.05	(5)	(1)

OKLAHOMA GAS AND ELECTRIC COMPANY

TABLE 1. SUMMARY OF ESTIMATED SURVIVOR CURVES, NET SALVAGE, ORIGINAL COST, BOOK RESERVE AND CALCULATED ANNUAL DEPRECIATION RATES AS OF DECEMBER 31, 2014

AG 1-3
Att
Summary
Schedule

	ACCOUNT	SURVIVOR CURVE	NET SALVAGE PERCENT	ORIGINAL COST	BOOK RESERVE	FUTURE ACCRUALS	TOTAL ANNUAL ACCRUAL AMOUNT	TOTAL ANNUAL ACCRUAL RATE	COMPOSITE REMAINING LIFE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(7)/(4)	(9)
	INTANGIBLE PLANT								
301.0	ORGANIZATION	NONDEPRECIABLE		80,900.00					
302.0	FRANCHISES AND CONSENTS	25-SQ	0	2,592,570.79	1,493,905	1,098,666	109,494	4.22	10.0
303.2	MISCELLANEOUS INTANGIBLE PLANT - SOFTWA	10-SQ	0	63,248,130.27	29,598,260	33,649,870	3,948,825	6.24	8.5
	TOTAL INTANGIBLE PLANT			**65,921,601.06**	**31,092,165**	**34,748,536**	**4,058,319**		
	STEAM PRODUCTION PLANT								
310.1	LAND								
	HORSESHOE LAKE 6	NONDEPRECIABLE		116,198.62					
	MUSTANG 1	NONDEPRECIABLE		101,936.34					
	SEMINOLE 1	NONDEPRECIABLE		1,239,444.37					
	MUSKOGEE 3	NONDEPRECIABLE		54,996.00					
	MUSKOGEE 4	NONDEPRECIABLE		1,825,435.93					
	SOONER 1	NONDEPRECIABLE		7,006,282.38					
	TOTAL LAND			10,344,293.64					
310.2	RIGHTS OF WAY								
	HORSESHOE LAKE 6	100-S4 *	0	28,509.08	24,856	3,653	406	1.42	9.0
	MUSTANG 1	100-S4 *	0	27,941.18	27,652	289	289	1.03	1.0
	SEMINOLE 1	100-S4 *	0	78,916.24	52,835	26,081	1,633	2.07	16.0
	MUSKOGEE 4	100-S4 *	0	18,934.31	5,296	13,638	489	2.58	27.9
	SOONER 1	100-S4 *	0	813,703.89	66,925	746,779	24,898	3.06	30.0
	TOTAL RIGHTS OF WAY			968,004.70	177,564	790,440	27,715	2.86	28.5
311.0	STRUCTURES AND IMPROVEMENTS								
	HORSESHOE LAKE 6	100-R1.5 *	(19)	11,211,174.99	8,935,191	4,406,107	496,615	4.43	8.9
	HORSESHOE LAKE 7	100-R1.5 *	(28)	2,780,823.84	2,545,547	1,013,908	75,144	2.70	13.5
	HORSESHOE LAKE 8	100-R1.5 *	(37)	4,909,589.80	4,318,958	2,407,180	165,966	3.38	14.5
	MUSTANG 1	100-R1.5 *	(11)	7,416,271.48	6,531,580	1,700,481	1,700,482	22.93	1.0
	MUSTANG 2	100-R1.5 *	(23)	195,298.24	207,944	32,273	10,821	5.54	3.0
	MUSTANG 3	100-R1.5 *	(25)	1,628,466.84	1,669,747	365,837	122,953	7.55	3.0
	MUSTANG 4	100-R1.5 *	(28)	3,270,373.42	3,071,969	1,114,109	373,357	11.42	3.0
	SEMINOLE 1	100-R1.5 *	(24)	18,980,574.80	12,384,985	11,150,928	714,177	3.76	15.6
	SEMINOLE 2	100-R1.5 *	(35)	2,515,482.74	1,584,797	1,811,105	116,924	4.65	15.5
	SEMINOLE 3	100-R1.5 *	(25)	7,102,748.69	5,259,703	3,618,733	233,578	3.29	15.5
	MUSKOGEE 4	100-R1.5 *	(11)	41,211,521.49	18,852,812	26,891,977	998,317	2.42	26.9
	MUSKOGEE 5	100-R1.5 *	(14)	7,042,386.74	3,571,723	4,456,598	161,285	2.29	27.6
	MUSKOGEE 6	100-R1.5 *	(9)	51,625,591.50	32,936,867	23,335,028	713,600	1.38	32.7
	SOONER 1	100-R1.5 *	(9)	90,538,993.19	64,392,717	34,294,786	1,204,794	1.33	28.5
	SOONER 2	100-R1.5 *	(13)	12,443,473.66	8,459,021	5,602,104	192,929	1.55	29.0
	TOTAL STRUCTURES AND IMPROVEMENTS			262,872,771.42	174,723,561	122,201,154	7,280,942	2.77	16.8

OKLAHOMA GAS AND ELECTRIC COMPANY

TABLE 1. SUMMARY OF ESTIMATED SURVIVOR CURVES, NET SALVAGE, ORIGINAL COST, BOOK RESERVE AND CALCULATED ANNUAL DEPRECIATION RATES AS OF DECEMBER 31, 2014

AG 1-3
Att
Summary
Schedule

	ACCOUNT (1)	SURVIVOR CURVE (2)		NET SALVAGE PERCENT (3)	ORIGINAL COST (4)	BOOK RESERVE (5)	FUTURE ACCRUALS (6)	TOTAL ANNUAL ACCRUAL AMOUNT (7)	TOTAL ANNUAL ACCRUAL RATE (8)=(7)/(4)	COMPOSITE REMAINING LIFE (9)
312.0	BOILER PLANT EQUIPMENT									
	HORSESHOE LAKE 6	85-R0.5	*	(19)	16,714,252.90	13,870,655	6,019,306	686,081	4.10	8.8
	HORSESHOE LAKE 7	85-R0.5	*	(28)	14,425,659.59	12,666,821	5,798,023	431,637	2.99	13.4
	HORSESHOE LAKE 8	85-R0.5	*	(37)	16,592,079.98	14,335,897	8,395,253	587,749	3.54	14.3
	MUSTANG 1	85-R0.5	*	(11)	5,543,334.04	5,477,375	675,726	675,725	12.19	1.0
	MUSTANG 2	85-R0.5	*	(23)	3,597,629.65	3,597,640	827,444	278,296	7.74	3.0
	MUSTANG 3	85-R0.5	*	(25)	6,594,440.65	5,962,648	2,280,403	768,606	11.66	3.0
	MUSTANG 4	85-R0.5	*	(28)	16,899,943.34	16,741,430	4,890,497	1,847,826	9.75	3.0
	SEMINOLE 1	85-R0.5	*	(24)	31,309,355.47	21,817,445	17,006,156	1,113,684	3.56	15.3
	SEMINOLE 2	85-R0.5	*	(35)	26,377,010.37	18,599,822	17,009,142	1,116,745	4.24	15.2
	SEMINOLE 3	85-R0.5	*	(25)	48,103,100.69	32,157,938	27,970,938	1,837,606	3.82	15.2
	MUSKOGEE 4	85-R0.5	*	(11)	133,639,976.32	69,378,210	78,962,186	3,062,780	2.29	25.8
	MUSKOGEE 5	85-R0.5	*	(14)	123,366,915.14	58,954,161	81,684,122	3,057,785	2.48	26.7
	MUSKOGEE 6	85-R0.5	*	(9)	241,126,821.52	140,815,975	122,012,260	3,883,984	1.61	31.4
	SOONER 1	85-R0.5	*	(9)	215,877,477.20	125,357,245	109,949,205	3,994,353	1.85	27.5
	SOONER 2	85-R0.5	*	(13)	153,267,555.72	91,313,208	81,879,130	2,903,827	1.89	28.2
	TOTAL BOILER PLANT EQUIPMENT				1,053,435,554.58	631,046,470	565,359,771	26,048,696	2.47	21.7
314.0	TURBOGENERATOR UNITS									
	HORSESHOE LAKE 6	60-R1	*	(19)	7,851,909.01	5,580,473	3,763,299	443,617	5.65	8.5
	HORSESHOE LAKE 7	60-R1	*	(28)	16,203,243.77	14,063,445	6,676,707	524,264	3.24	12.7
	HORSESHOE LAKE 8	60-R1	*	(37)	17,870,801.31	13,955,695	10,527,303	754,047	4.22	14.0
	MUSTANG 1	60-R1	*	(11)	5,045,332.09	5,183,122	417,197	417,197	8.27	1.0
	MUSTANG 2	60-R1	*	(23)	4,630,127.96	4,429,346	1,265,711	429,268	9.27	2.9
	MUSTANG 3	60-R1	*	(25)	9,011,273.41	8,626,320	2,437,772	829,449	9.20	2.9
	MUSTANG 4	60-R1	*	(28)	14,753,734.53	12,653,222	6,231,558	2,114,546	14.33	2.9
	SEMINOLE GT	60-R1	*	(12)	1,588,884.45	1,667,982	111,569	45,538	2.87	2.5
	SEMINOLE 1	60-R1	*	(24)	25,900,404.18	16,747,769	15,368,732	1,030,169	3.98	14.9
	SEMINOLE 2	60-R1	*	(35)	30,298,116.13	18,890,591	22,011,866	1,480,754	4.89	14.9
	SEMINOLE 3	60-R1	*	(25)	30,307,045.02	17,497,773	20,386,033	1,346,705	4.44	15.1
	MUSKOGEE 4	60-R1	*	(11)	55,774,533.66	23,162,156	38,747,576	1,512,076	2.71	25.6
	MUSKOGEE 5	60-R1	*	(14)	50,930,321.41	26,290,494	31,770,072	1,219,799	2.40	26.0
	MUSKOGEE 6	60-R1	*	(9)	78,214,073.97	43,820,305	41,433,036	1,395,057	1.78	29.7
	SOONER 1	60-R1	*	(9)	36,739,503.08	25,196,967	14,849,091	555,598	1.51	26.7
	SOONER 2	60-R1	*	(13)	41,183,301.21	27,482,811	19,031,719	693,628	1.69	27.4
	TOTAL TURBOGENERATOR UNITS				426,282,605.19	265,448,471	235,029,241	14,791,712	3.47	15.9

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315.0	ACCESSORY ELECTRIC EQUIPMENT									
	HORSESHOE LAKE 6	70-R2.5	*	(19)	2,312,662.30	1,828,204	923,864	104,129	4.50	8.9
	HORSESHOE LAKE 7	70-R2.5	*	(28)	2,057,255.60	1,668,038	965,249	72,629	3.53	13.3
	HORSESHOE LAKE 8	70-R2.5	*	(37)	2,556,413.99	1,928,315	1,573,972	108,949	4.26	14.4
	MUSTANG 1	70-R2.5	*	(11)	1,420,869.30	1,267,576	309,589	309,588	21.79	1.0
	MUSTANG 2	70-R2.5	*	(23)	600,475.05	531,618	206,966	69,302	11.54	3.0
	MUSTANG 3	70-R2.5	*	(25)	1,134,098.23	1,074,926	342,597	116,543	10.28	2.9
	MUSTANG 4	70-R2.5	*	(28)	1,734,241.93	1,499,172	720,658	243,934	14.07	3.0
	SEMINOLE 1	70-R2.5	*	(24)	3,853,227.71	2,240,476	2,537,526	164,204	4.26	15.5
	SEMINOLE 2	70-R2.5	*	(35)	2,035,787.93	1,387,807	1,360,507	89,195	4.38	15.3
	SEMINOLE 3	70-R2.5	*	(25)	5,142,313.68	3,683,160	2,744,732	176,700	3.44	15.5
	MUSKOGEE 4	70-R2.5	*	(11)	21,997,601.56	13,586,527	10,830,811	426,256	1.94	25.4
	MUSKOGEE 5	70-R2.5	*	(14)	11,579,335.55	6,953,037	6,247,406	240,249	2.07	26.0
	MUSKOGEE 6	70-R2.5	*	(9)	41,899,913.64	27,213,984	18,456,922	593,067	1.42	31.1
	SOONER 1	70-R2.5	*	(9)	23,826,731.67	17,290,856	8,680,282	327,076	1.37	26.5
	SOONER 2	70-R2.5	*	(13)	12,733,338.05	8,452,513	5,936,159	216,687	1.70	27.4
	TOTAL ACCESSORY ELECTRIC EQUIPMENT				134,884,266.19	90,606,209	61,837,340	3,258,508	2.42	19.0
316.0	MISCELLANEOUS POWER PLANT EQUIPMENT									
	HORSESHOE LAKE 6	45-R0.5	*	(19)	1,733,786.76	1,131,907	931,302	108,736	6.27	8.6
	HORSESHOE LAKE 7	45-R0.5	*	(28)	1,039,113.77	941,915	388,151	31,215	3.00	12.4
	HORSESHOE LAKE 8	45-R0.5	*	(37)	2,128,869.78	1,626,132	1,090,420	81,800	3.84	13.3
	MUSTANG 1	45-R0.5	*	(11)	626,438.19	524,629	170,717	170,718	27.25	1.0
	MUSTANG 2	45-R0.5	*	(23)	28,574.62	11,226	23,921	8,081	28.28	3.0
	MUSTANG 3	45-R0.5	*	(25)	453,217.60	439,427	127,095	45,154	9.96	2.8
	MUSTANG 4	45-R0.5	*	(28)	1,283,307.91	1,235,083	407,551	141,502	11.03	2.9
	SEMINOLE 1	45-R0.5	*	(24)	3,768,642.28	2,415,910	2,257,206	159,778	4.24	14.1
	SEMINOLE 2	45-R0.5	*	(35)	39,168.48	7,482	45,395	3,345	8.54	13.6
	SEMINOLE 3	45-R0.5	*	(25)	401,384.18	252,095	249,635	17,171	4.28	14.5
	MUSKOGEE 4	45-R0.5	*	(11)	5,261,803.69	2,984,229	2,856,151	120,335	2.29	23.7
	MUSKOGEE 5	45-R0.5	*	(14)	843,110.45	558,231	402,915	17,581	2.09	22.9
	MUSKOGEE 6	45-R0.5	*	(9)	4,454,520.43	2,506,506	2,348,921	91,797	2.06	25.6
	SOONER 1	45-R0.5	*	(9)	4,328,583.40	2,617,582	2,100,574	83,886	1.94	25.0
	SOONER 2	45-R0.5	*	(13)	2,013,055.60	1,159,033	1,115,720	49,791	2.47	22.4
	POWER SUPPLY SERVICES	45-R0.5		(2)	1,448,197.57	349,832	1,127,330	27,056	1.87	41.7
	TOTAL MISCELLANEOUS POWER PLANT EQUIPMENT				29,851,576.71	18,961,219	15,643,004	1,157,946	3.88	13.5
	TOTAL STEAM PRODUCTION PLANT				1,918,639,072.43	1,180,963,494	1,000,860,950	52,565,519	2.74	19.0
	OTHER PRODUCTION PLANT									
340.0	LAND									
	REDBUD 1	NONDEPRECIABLE			326,889.60					
	MCCLAIN GAS 1	NONDEPRECIABLE			489,856.10					
	TOTAL LAND				816,745.70					

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341.0	STRUCTURES AND IMPROVEMENTS									
	REDBUD 1	45-S4	*	(5)	32,409,893.55	11,181,974	22,848,204	720,064	2.22	31.7
	REDBUD 2	45-S4	*	(6)	82,391.69	8,487	78,848	2,312	2.81	34.1
	REDBUD 3	45-S4	*	(6)	78,179.98	7,813	75,056	2,200	2.81	34.1
	REDBUD 4	45-S4	*	(6)	103,476.21	13,148	96,537	2,828	2.73	34.1
	HORSESHOE LAKE 9 AND 10	45-S4	*	(3)	987,208.14	430,842	585,982	28,473	2.88	20.6
	TINKER	45-S4	*	(8)	972,163.95	873,812	176,125	16,011	1.65	11.0
	MCCLAIN GAS 1	45-S4	*	(6)	5,791,481.26	1,683,819	4,455,151	145,593	2.51	30.6
	MCCLAIN GAS 2	45-S4	*	(6)	959,832.02	368,180	659,030	22,804	2.38	28.9
	MCCLAIN STEAM 1	45-S4	*	(9)	528,863.87	192,150	384,312	13,158	2.49	29.2
	CENTENNIAL WIND FARM	45-S3	*	(1)	2,332,066.60	712,342	1,643,065	97,395	4.18	16.9
	OU SPIRIT WIND FARM	45-S3	*	(1)	5,209,833.16	1,093,680	4,168,251	209,852	4.03	19.9
	CROSSROADS WIND FARM	45-S3	*	(1)	11,586,653.31	1,493,255	10,209,265	447,377	3.86	22.8
	TOTAL STRUCTURES AND IMPROVEMENTS				61,041,663.74	18,049,502	45,379,828	1,706,067	2.80	26.6
342.0	FUEL HOLDERS, PRODUCERS AND ACCESSORIES									
	REDBUD 1	55-R4	*	(5)	11,904,643.22	4,211,845	8,288,030	267,592	2.25	31.0
	REDBUD 2	55-R4	*	(6)	690,650.06	246,827	485,262	15,668	2.27	31.0
	REDBUD 3	55-R4	*	(6)	691,291.31	246,876	485,893	15,689	2.27	31.0
	REDBUD 4	55-R4	*	(6)	688,211.21	247,539	481,965	15,563	2.26	31.0
	TINKER	55-R4	*	(8)	167,149.95	104,016	76,506	6,962	4.17	11.0
	MCCLAIN GAS 1	55-R4	*	(6)	246,887.65	88,248	173,455	5,609	2.27	30.9
	MCCLAIN GAS 2	55-R4	*	(6)	162,705.56	63,673	108,795	3,549	2.18	30.7
	TOTAL FUEL HOLDERS, PRODUCERS AND ACCESSORIES				14,551,538.96	5,209,022	10,099,906	330,832	2.27	30.5
343.0	PRIME MOVERS									
	REDBUD 1	35-R2	*	(5)	86,059,676.78	21,374,840	68,987,821	2,673,538	3.11	25.8
	REDBUD 2	35-R2	*	(6)	65,494,633.05	13,442,833	55,981,478	2,174,732	3.32	25.7
	REDBUD 3	35-R2	*	(6)	65,549,317.40	18,063,792	51,418,484	1,974,020	3.01	26.0
	REDBUD 4	35-R2	*	(6)	60,410,045.55	14,670,842	49,363,806	1,912,669	3.17	25.8
	HORSESHOE LAKE 9 AND 10	35-R2	*	(3)	5,417,003.15	1,861,263	3,718,250	205,745	3.80	18.1
	TINKER	35-R2	*	(8)	3,910,681.03	3,294,691	928,845	88,457	2.26	10.5
	MCCLAIN GAS 1	35-R2	*	(6)	65,049,598.14	7,766,380	61,186,194	2,523,719	3.88	24.2
	MCCLAIN GAS 2	35-R2	*	(6)	66,969,030.47	13,223,312	59,883,860	2,462,819	3.57	24.3
	MCCLAIN STEAM 1	35-R2	*	(9)	31,891,451.73	10,822,794	23,938,888	1,057,394	3.32	22.6
	TOTAL PRIME MOVERS				452,751,437.30	104,520,747	375,407,626	15,073,093	3.33	24.9

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	ACCOUNT (1)		SURVIVOR CURVE (2)		NET SALVAGE PERCENT (3)	ORIGINAL COST (4)	BOOK RESERVE (5)	FUTURE ACCRUALS (6)	TOTAL ANNUAL ACCRUAL AMOUNT (7)	TOTAL ANNUAL ACCRUAL RATE (8)=(7)/(4)	COMPOSITE REMAINING LIFE (9)
	LTSA										
343.1	5-YEAR										
		REDBUD 1	5-SQ		0	2,129,243.69	228,686	1,900,556	422,346	19.84	4.5
		REDBUD 2	5-SQ		0	1,895,119.60	164,263	1,730,857	384,635	20.30	4.5
		REDBUD 3	5-SQ		0	1,908,402.25	231,144	1,677,258	372,724	19.53	4.5
		REDBUD 4	5-SQ		0	2,141,158.66	220,449	1,920,710	426,824	19.93	4.5
		MCCLAIN GAS 1	5-SQ		0	8,442,766.96	3,828,520	4,614,247	1,728,487	20.47	2.7
		MCCLAIN GAS 2	5-SQ		0	7,981,329.82	3,587,215	4,394,115	1,823,610	20.34	2.7
		MCCLAIN STEAM 1	5-SQ		0	8,624.01	8,624	0	0	-	-
343.2	20-YEAR										
		REDBUD 1	20-SQ		0	1,490,677.83	840,547	650,131	68,435	4.59	9.5
		REDBUD 2	20-SQ		0	1,490,677.83	780,635	710,043	74,741	5.01	9.5
		REDBUD 3	20-SQ		0	1,490,677.83	813,380	677,298	71,295	4.78	9.5
		REDBUD 4	20-SQ		0	1,490,677.83	805,755	684,923	72,097	4.84	9.5
	TOTAL LTSA					30,469,356.31	11,509,220	18,960,138	5,245,194		
	TOTAL ACCOUNT 343					483,220,793.61	116,029,967	394,367,764	20,318,287	4.20	19.4
344.0	GENERATORS										
	REDBUD 1		45-R2.5	*	(5)	717,739.32	56,945	696,681	22,097	3.08	31.5
	REDBUD 3		45-R2.5	*	(6)	23,198.65	2,099	22,492	703	3.03	32.0
	REDBUD 4		45-R2.5	*	(6)	23,034.59	2,119	22,298	697	3.03	32.0
	HORSESHOE LAKE 9 AND 10		45-R2.5	*	(3)	34,372,147.40	11,223,803	24,179,509	1,239,847	3.61	19.5
	TINKER		45-R2.5	*	(8)	3,314,013.04	2,313,143	1,265,991	117,104	3.53	10.8
	CENTENNIAL WIND FARM		40-R3	*	(1)	187,491,332.12	61,075,976	128,290,269	7,800,983	4.16	16.4
	OU SPIRIT WIND FARM		40-R3	*	(1)	245,143,282.08	49,131,117	198,463,598	10,276,697	4.19	19.3
	CROSSROADS WIND FARM		40-R3	*	(1)	359,760,960.19	48,350,952	315,007,618	14,208,271	3.95	22.2
	TOTAL GENERATORS					830,845,707.39	172,156,154	667,948,456	33,666,399	4.05	19.8
345.0	ACCESSORY ELECTRIC EQUIPMENT										
	REDBUD 1		45-R2.5	*	(5)	12,892,721.56	4,988,779	8,548,579	288,185	2.24	29.7
	REDBUD 2		45-R2.5	*	(6)	9,282,942.54	3,531,922	6,307,997	212,152	2.29	29.7
	REDBUD 3		45-R2.5	*	(6)	9,119,140.00	3,516,577	6,149,711	207,297	2.27	29.7
	REDBUD 4		45-R2.5	*	(6)	9,353,445.36	3,549,956	6,364,696	205,325	2.20	31.0
	HORSESHOE LAKE 9 AND 10		45-R2.5	*	(3)	4,298,290.11	1,736,116	2,691,123	139,241	3.24	19.3
	TINKER		45-R2.5	*	(8)	3,023,750.52	2,591,418	674,233	64,679	2.14	10.4
	MCCLAIN GAS 1		45-R2.5	*	(6)	3,534,608.08	1,186,684	2,560,001	93,412	2.64	27.4
	MCCLAIN GAS 2		45-R2.5	*	(6)	3,477,788.00	1,210,095	2,476,360	90,662	2.61	27.3
	MCCLAIN STEAM 1		45-R2.5	*	(9)	2,217,820.99	809,173	1,608,252	59,318	2.67	27.1
	CENTENNIAL WIND FARM		35-R3	*	(1)	911,783.39	241,070	679,831	41,041	4.50	16.6
	OU SPIRIT WIND FARM		35-R3	*	(1)	788,993.43	28,399	768,484	39,486	5.00	19.5
	CROSSROADS WIND FARM		35-R3	*	(1)	44,050,761.62	5,664,347	38,826,922	1,781,015	4.04	21.8
	TOTAL ACCESSORY ELECTRIC EQUIPMENT					102,952,045.60	29,054,536	77,656,189	3,221,813	3.13	24.1
346.0	MISCELLANEOUS POWER PLANT EQUIPMENT										
	REDBUD 1		40-R2	*	(5)	2,010,341.97	612,573	1,498,286	53,390	2.66	28.1
	REDBUD 2		40-R2	*	(6)	15,295.20	1,633	14,580	483	3.16	30.2
	REDBUD 3		40-R2	*	(6)	4,236.28	152	4,338	142	3.35	30.5
	REDBUD 4		40-R2	*	(6)	4,236.27	158	4,332	142	3.35	30.5
	HORSESHOE LAKE 9 AND 10		40-R2	*	(3)	941,452.30	413,037	556,659	30,179	3.21	18.4
	TINKER		40-R2	*	(8)	8,664.46	6,849	2,509	240	2.77	10.5
	MCCLAIN GAS 1		40-R2	*	(6)	4,078,113.35	1,329,063	2,993,737	118,464	2.90	25.3
	CENTENNIAL WIND FARM		35-R2.5	*	(1)	417,174.39	71,147	350,199	21,470	5.15	16.3
	OU SPIRIT WIND FARM		35-R2.5	*	(1)	83,464.93	9,270	75,030	3,958	4.74	19.0
	CROSSROADS WIND FARM		35-R2.5	*	(1)	58,088.08	8,910	49,759	2,308	3.97	21.6
	TOTAL MISCELLANEOUS POWER PLANT EQUIPMENT					7,621,067.23	2,452,792	5,549,429	230,776	3.03	24.0
	TOTAL OTHER PRODUCTION PLANT					1,501,049,562.23	342,951,973	1,201,001,572	59,475,974	3.96	20.2

Q. What is the Company requesting in this case?

A. OG&E is requesting a $5.5 million increase from the average 5 year spend for distribution and transmission vegetation management. In addition, the Company is proposing a vegetation management tracker which will account for variances above or below the level recovered in base rates. The tracker balance will accumulate and will be refunded or recovered as determined in the next general rate case.

C. Depreciation

Q. Are there any changes to OG&E's depreciation rate schedules that you would like to address?

A. Yes. OG&E is requesting a change in depreciation expense to account for the increased level of plant requested in this case as well as new depreciation rates. These changes increase total Company depreciation expense by approximately $29.6 million. Those changes are fully discussed by OG&E witness Spanos. However, I would like to discuss two issues related to depreciation: (i) dismantlement costs, a concept that is being introduced in this depreciation study and that represents approximately $18.3 million of the total Company increase; and (ii) depreciation rates for future assets, which has no impact on the revenue requirement in this cause.

Q. Why is OG&E proposing to begin recovering the cost of dismantling its generation stations at this time?

A. Some of OG&E's generation units are reaching an age where retirement dates are foreseeable. In OG&E's recent integrated resource plan ("IRP") submittals, the Company has included estimated unit retirement dates. It is appropriate to reflect those retirement dates in the new depreciation study and begin collecting a portion of dismantlement costs through depreciation rates over the remaining life of the units. The Company has developed an estimate of the cost of dismantling its electric generation units and is proposing systematic recovery of those costs.

on holding the line on costs have helped, there is still a revenue shortfall which must be addressed at this time.

Q. Can you elaborate on the growth in OG&E's electric system?

A. Since its last rate case, OG&E 's service territory has continued to grow and its system has continued to need ongoing investment. OG&E has invested over $2.2 billion in utility infrastructure, $1.6 billion of which is not currently being recovered from Oklahoma customers through rates or existing riders. The Company added a significant amount of infrastructure to its system since the last rate case, including approximately 700 miles of transmission line, approximately 5,500 miles of distribution line (including 2,400 miles of underground), more than 11,000 transfo1mers and twelve substations. The return required to support the new investment accounts for approximately $30.6 million of the Company's requested increase.

Q. Has the Company taken other steps to meet increasing growth?

A. As a pmi of meeting that increasing demand, OG&E terminated several wholesale contracts to free up generation to serve the needs of our retail customers. The largest of those wholesale contracts was in place for more than 50 years. That low cost generating capacity was previously paid for by the wholesale customers and will now need to be allocated to retail customers. Those contracts were temlinated in 2015 which provided an immediate benefit to OG&E customers by, in effect, adding over 300 MW of power to the system at a fraction of the cost of purchasing or building a new power plant. The total cost associated with moving existing generation from the wholesale to retail jurisdiction is approximately $16.5 million.

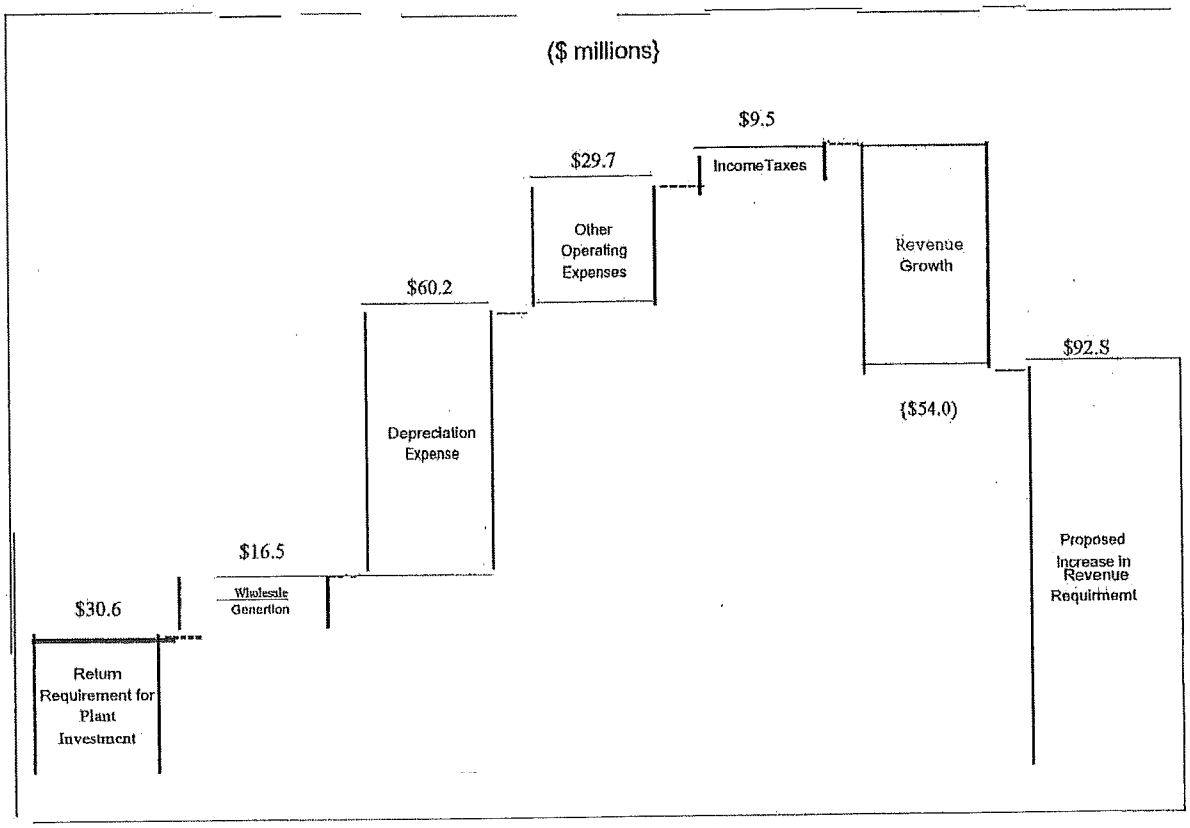
Q. Please elaborate on the changes in operating expenses since the 2010 test year.

A. Operating expenses, which include both depreciation expense and other operating expenses, have increased $90 million over this pe1iod. Approximately $60.2 million of this increase is due to an increase in depreciation expense. The increase in utility plant has contributed approximately $44.6 million to increased depreciation expense. The Company's proposal to begin recovering dismantlement costs, which Idiscuss in greater

detail below, makes up approximately $15.6 million of the increase m depreciation expense.

With a few exceptions, the Company has been able to manage its Other Operating and Maintenance expenses at approximately the levels experienced in 2010. Other operating and maintenance expenses have increased about $29.7 million over the *pro Jonna* test year, primarily because of additional vegetation management costs of $11.2 million and rising labor costs of approximately $10.9 million. These increases in depreciation expense, other operating expenses and income tax expense of $9.5 million have also been partially offset by base rate revenue growth of approximately $54.0 million. Chart 1 below visually depicts the various components discussed above.

Chart I: Visual Depiction of Rate Increase Drivers



Q. What efforts has the Company undertaken to mitigate increases in operating costs?

A. OG&E's has worked very hard to keep operating costs down and the costs the Company can control have been relatively flat since 2010. While serving record numbers of

Attorney General
Data Request AG-5
Cause No. PUD 201500273

5-17 Depreciation: Referring to Mr. Rowlett's testimony, page 6, provide detailed information supporting the determination of the dismantlement expense that makes up the $15.6 million of the increase in depreciation.

Response*: The workpapers set forth in **OCC-1-10** and AG Set 1 establish the weighted net salvage percent calculation to be applied to each generating unit. These net salvage components include an additional dismantlement component that was not included in the current rates.

Response provided by: John Spanos
Response provided on: February 24, 2016
Contact & Phone No: Sheri Richard 405-553-3747

*By responding to these Data Requests, OG&E is not indicating that the provided information is relevant or material and OG&E is not waiving any objection as to relevance or materiality or confidentiality of the information or documents provided or the admissibility of such information or documents in this or in any other proceeding.

OKLAHOMA GAS AND ELECTRIC COMPANY

DECOMMISSIONING COSTS RELATED TO STEAM GENERATING UNITS

UNIT	ESTIMATED RETIREMENT YEAR	MW	ESTIMATED DECOMMISSIONING COSTS ($/KW)	TOTAL DECOMMISSIONING COSTS (CURRENT $)	TOTAL DECOMMISSIONING COSTS (FUTURE $)	ESTIMATED TERMINAL RETIREMENTS	TERMINAL NET SALVAGE (%)
(1)	(2)	(3)	(4)	(5)=(3)*(4)	(6)	(7)	(8)=(6)/(7)
STEAM							
HORSESHOE LAKE 6	2023	171	$ 40.00	6,840,000	6,840,000	(36,076,258)	(19)
HORSESHOE LAKE 7	2028	227	$ 40.00	9,080,000	9,080,000	(30,641,148)	(30)
HORSESHOE LAKE 8	2029	380	$ 40.00	15,200,000	15,200,000	(37,578,829)	(40)
MUSTANG 1 *	2015	54	$ 40.00	2,160,000	2,160,000	(20,080,186)	(11)
MUSTANG 2 *	2017	50	$ 40.00	2,000,000	2,000,000	(8,670,613)	(23)
MUSTANG 3 *	2017	113	$ 40.00	4,520,000	4,520,000	(18,296,275)	(25)
MUSTANG 4 *	2017	251	$ 40.00	10,040,000	10,040,000	(35,972,398)	(28)
SEMINOLE GT	2017	17	$ 10.00	170,000	170,000	(1,538,896)	(11)
SEMINOLE 1	2030	464	$ 40.00	18,560,000	18,560,000	(73,468,183)	(25)
SEMINOLE 2	2030	494	$ 40.00	19,760,000	19,760,000	(52,441,956)	(38)
SEMINOLE 3	2030	502	$ 40.00	20,080,000	20,080,000	(81,123,404)	(25)
MUSKOGEE 4	2042	477	$ 40.00	19,080,000	19,080,000	(210,778,561)	(9)
MUSKOGEE 5	2043	517	$ 40.00	20,680,000	20,680,000	(154,603,510)	(13)
MUSKOGEE 6	2049	502	$ 40.00	20,080,000	20,080,000	(314,646,006)	(6)
SOONER 1	2044	522	$ 40.00	20,880,000	20,880,000	(301,285,990)	(7)
SOONER 2	2045	524	$ 40.00	20,960,000	20,960,000	(171,897,952)	(12)
TOTAL STEAM		5,265		210,090,000	210,090,000	(1,549,400,164)	
OTHER							
REDBUD 1	2049	163	$ 10.00	1,630,000	1,630,000	(64,067,679)	(3)
REDBUD 2	2049	163	$ 10.00	1,630,000	1,630,000	(27,206,483)	(6)
REDBUD 3	2049	163	$ 10.00	1,630,000	1,630,000	(27,795,588)	(6)
REDBUD 4	2049	163	$ 10.00	1,630,000	1,630,000	(26,534,299)	(6)
HORSESHOE LAKE 9 AND 10	2035	92	$ 10.00	920,000	920,000	(36,951,981)	(2)
TINKER	2025	82	$ 10.00	820,000	820,000	(10,396,903)	(8)
MCCLAIN GAS 1	2046	170	$ 10.00	1,700,000	1,700,000	(35,019,583)	(5)
MCCLAIN GAS 2	2046	170	$ 10.00	1,700,000	1,700,000	(30,337,513)	(6)
MCCLAIN STEAM 1	2046	180	$ 10.00	1,800,000	1,800,000	(11,034,981)	(16)
TOTAL OTHER		1,346		13,460,000	13,460,000	(269,355,009)	
WIND							
OU SPIRIT	2034	101	$ 5.00	505,000	505,000	(227,930,430)	0
CROSSROADS	2037	228	$ 5.00	1,140,000	1,140,000	(369,538,990)	0
CENTENNIAL	2031	120	$ 5.00	600,000	600,000	(175,417,481)	0
TOTAL WIND		449		2,245,000	2,245,000	(772,886,900)	

* ESTIMATES FOR RETIREMENT YEAR AND MW USED IN ENVIRONMENTAL STUDY DIFFER FROM THOSE SHOWN HERE.

AG 1-3
Spanos WPs
Weighted Net
Salvage
Table 2

OKLAHOMA GAS AND ELECTRIC COMPANY

TABLE 2. CALCULATION OF WEIGHTED NET SALVAGE PERCENT

LOCATION	TERMINAL RETIREMENTS RETIREMENTS (%)	TERMINAL RETIREMENTS NET SALVAGE (%)	INTERIM RETIREMENTS RETIREMENTS (%)	INTERIM RETIREMENTS NET SALVAGE (%)	WEIGHTED AVERAGE NET SALVAGE %
(1)	(2)	(3)	(4)	(5)	(6)=(2)*(3)+(4)*(5)
STEAM PRODUCTION					
HORSESHOE LAKE 6	90.52	(19)	9.48	(16)	(19)
HORSESHOE LAKE 7	83.93	(30)	16.07	(16)	(28)
HORSESHOE LAKE 8	85.29	(40)	14.71	(16)	(37)
MUSTANG 1	100.00	(11)	0.00	(16)	(11)
MUSTANG 2	98.00	(23)	2.00	(16)	(23)
MUSTANG 3	97.21	(25)	2.79	(16)	(25)
MUSTANG 4	94.81	(28)	5.19	(16)	(28)
SEMINOLE GT	96.85	(11)	3.15	(16)	(12)
SEMINOLE 1	87.58	(25)	12.42	(16)	(24)
SEMINOLE 2	85.60	(38)	14.40	(16)	(35)
SEMINOLE 3	89.09	(25)	10.91	(16)	(25)
MUSKOGEE 4	81.73	(9)	18.27	(16)	(11)
MUSKOGEE 5	79.79	(13)	20.21	(16)	(14)
MUSKOGEE 6	75.40	(6)	24.60	(16)	(9)
SOONER 1	80.96	(7)	19.04	(16)	(9)
SOONER 2	77.61	(12)	22.39	(16)	(13)
OTHER PRODUCTION					
REDBUD 1	42.82	(3)	57.18	(5)	(5)
REDBUD 2	34.46	(6)	65.54	(5)	(6)
REDBUD 3	35.24	(6)	64.76	(5)	(6)
REDBUD 4	35.75	(6)	64.25	(5)	(6)
HORSESHOE LAKE 9 A	80.32	(2)	19.68	(5)	(3)
TINKER	91.23	(8)	8.77	(5)	(8)
MCCLAIN GAS 1	40.19	(5)	59.81	(5)	(6)
MCCLAIN GAS 2	37.20	(6)	62.80	(5)	(6)
MCCLAIN STEAM 1	31.85	(16)	68.15	(5)	(9)
WIND PRODUCTION					
CENTENNIAL	91.77	0	8.23	(5)	(1)
OU SPIRIT	90.73	0	9.27	(5)	(1)
CROSSROADS	88.95	0	11.05	(5)	(1)

Q. PLEASE DESCRIBE HOW YOU ESTIMATED NET SALVAGE PERCENTAGES.

A. I estimated the net salvage percentages by incorporating the historical data for the period 1985 through 2014, and I 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 2003-2014 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 within the production assets. Based on studies for other utilities and the cost estimates of PSO, it was determined that the dismantlement or decommissioning costs for steam and other production facilities is best calculated by dividing the

Oklahoma Industrial Energy Consumers
Data Request OIEC-3
Cause No. PUD 201500273

3-24 [Data] – Please provide all additional bases, evidence, opinions, assumptions, documents, analyses, etc. that either describes, explains, supports, and/or justifies the specific life and salvage parameters proposed for each separate account or subaccount that has not already been provided.

Response*: Mr. Spanos has provided workpapers and information used for the depreciation study in the responses to various other data requests. However, the process of service life and net salvage estimation depends on informed judgment that incorporates Mr. Spanos' thirty years of experience in conducting depreciation studies. Because the entirety of Mr. Spanos' experience cannot be quantified in the response to a broad and vague data request, Mr. Spanos reserves the right to elaborate on additional considerations in rebuttal testimony.

Response provided by:	John Spanos
Response provided on:	February 12, 2016
Contact & Phone No:	Sheri Richard 405-553-3747

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Attorney General
Data Request AG-5
Cause No. PUD 201500273

5-14 Depreciation: If not previously provided, please provide detail information supporting the determination of information included in columns 3, 4, and 7 of OCC I-10_Att.

Response*: The MW set forth in column 3 of the attachment to **OCC-1-10** is the Unit Capability in MW provided by the Company for each unit. The $40/KW set forth in column 4 is the most commonly supported value utilized for estimating the decommissioning cost for steam facilities, $10/KW for other production units, and $5/KW for wind facilities. The amounts are in the range of $/KW averages determined by specific units studies for other utilities.

The amounts in column 7 are supported in the attachment to **OCC-1-9** which is based on the existing plant in service and the segregation of interim retirements and final retirements.

Response provided by: John Spanos
Response provided on: March 14, 2016
Contact & Phone No: Sheri Richard 405-553-3747

*By responding to these Data Requests, OG&E is not indicating that the provided information is relevant or material and OG&E is not waiving any objection as to relevance or materiality or confidentiality of the information or documents provided or the admissibility of such information or documents in this or in any other proceeding.

Oklahoma Corporation Commission
Data Request DJC-1
Cause No. PUD 201500273

1-9 Referring to Table 1 of the depreciation study at p. VIII-2, please provide a detailed description of how the projected terminal and interim retirements were calculated in columns 2 and 3 respectively.

Response*: The terminal and interim retirements in Table 1, Columns 2 and 3, are calculated based on the interim survivor curve, life span date and surviving age distribution for each generating unit as of December 31, 2014.

The surviving age distribution of each generating unit is utilized with the interim survivor curve to project retirements each year up to the life span date. These retirements of the December 31, 2014 balance are totaled to represent the projected interim retirements that are estimated to occur. The remaining assets will be retired on a terminal basis. The summation of these two amounts equal the December 31, 2014 balance for each unit.

Response provided by: John Spanos
Response provided on: February 1, 2016
Contact & Phone No: Sheri Richard 405-553-3747

*By responding to these Data Requests, OG&E is not indicating that the provided information is relevant or material and OG&E is not waiving any objection as to relevance or materiality or confidentiality of the information or documents provided or the admissibility of such information or documents in this or in any other proceeding.

Attorney General
Data Request AG-10
Cause No. PUD 201500273

10-4 Referring to OG&E's response to OIEC-3-4, Net Salvage for Production Plant, please provide detailed information explaining and supporting the determination of terminal net salvage estimates based on common industry costs per KW. The costs per KW are included in OG&E's response to OCC-1-10_Att., Column 4 which shows $40/KW being used in the determination of total decommissioning costs (current). If previously provided please reference the specific data response(s).

Response*: The terminal net salvage calculations are set forth in response to OCC-1-9. The $40/KW is the most commonly utilized amount when considering all the industry estimates. This was initially established in a study presented to the AGA/EEI committee in 1993. The OCC-1-10 attachment shows no escalation to retirement date was included in the study.

Response provided by: John Spanos
Response provided on: March 2, 2016
Contact & Phone No: Sheri Richard 405-553-3747

*By responding to these Data Requests, OG&E is not indicating that the provided information is relevant or material and OG&E is not waiving any objection as to relevance or materiality or confidentiality of the information or documents provided or the admissibility of such information or documents in this or in any other proceeding.

Exhibit ECC-3
22 Pages including Cover

Wind Power Workpapers of E. Cary Cook

reflect interim retirements that occur prior to the ultimate retirement of the major unit. An interim survivor curve was estimated for each plant account, inasmuch as the rate of interim retirements differs from account to account. The interim survivor curves estimated for steam and other production plant were based on the retirement rate method of life analysis which incorporated experienced aged retirements for the period 1997 through 2014.

The depreciable life span estimates for power generating stations were the result of considering experienced life spans of similar generating units, the age of surviving units, general operating characteristics of the units, major refurbishing, and discussions with management personnel concerning the probable long-term outlook for the units, and the estimate of the operating partner, if applicable. These life spans represent the expected depreciable life of each facility under their current configuration. Future capital expenditures can extend a facility's depreciable life, however, such changes to depreciable life would not be prudent until the capital expenditures are actually put into plant in service.

The life span estimate for the coal-fired and gas-fired, base-load units is 55 to 66 years, which is within the typical range of life spans for such units. The 55 to 65-year life span estimate applies to almost all the steam units. Life spans of 35 to 45 years were estimated for the combustion turbines. These life span estimates are typical for combustion turbines which are used primarily as peaking units. Life spans for wind turbines were estimated at 25 years.

Wind Farm Life Expectancy Evaluation

Client: Empire District Electric Co.
Completion Date: 2007
Location: Cloud County, Kan.

Summary

Burns & McDonnell provided a wind farm life expectancy evaluation on the Meridian Way Wind Farm in Cloud County, Kan. Horizon Wind Energy, the developer and operator of the project, will use Vestas V90 3-MW turbines to generate about 100 MW of energy on this farm. Empire District Electric Co. will take delivery of power from the wind farm and needed an estimate of its useful project life for purposes of financial due diligence and proper accounting. The evaluation included due diligence on the turbines and an evaluation of the life expectancy of other wind farm components.

Services

- Wind turbine due diligence
- Wind farm life expectancy evaluation

Background

Empire District Electric Co. is based in Joplin, Mo., and was looking to expand its portfolio of energy sources in the renewable market. It is working with Horizon Wind Energy to develop a wind farm in Cloud County, Kan. Empire District Electric has signed a purchase power agreement for all the energy produced at the Meridian Way Wind Farm, and Horizon Wind Energy will be responsible for project development and on going operations.

Empire District Electric retained Burns & McDonnell to evaluate the life expectancy of the project because its purchase power agreement is for 20 years and the estimated life expectancy of the project will determine the accounting treatment of the agreement.

The Burns & McDonnell scope of work included a life expectancy assessment of wind farm assets:

- Access roads
- Electrical gathering system
- Wind turbine foundations
- Wind turbines (Vestas V90 3 MW)

The Burns & McDonnell project scope did not include evaluating the wind resource of the project site, nor did it include an evaluation of the array design of the wind project. Specific design/engineering aspects pertinent to the wind resource and production capabilities of the wind farm were not included. The focus of the project was solely on assessing the life expectancy of the assets being deployed in the wind farm.

With the turbine types deployed by Horizon Wind Energy and Burns & McDonnell's understanding of the other wind farm assets, Burns & McDonnell estimated that the wind farm project would have a service life of 30 years or more.

Features

- 100 MW wind farm
- Vestas V90 3-MW wind turbines
- Evaluation of life expectancy

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Wind turbines for 40 years?

Wind turbines need not give up the ghost after 20 years. If properly serviced, they can remain in operation twice as long. A guest post by Markus Claudius Romberg.

Ask people from the wind sector how long a turbine can run, and you will get a clear answer: 20 years. Why? The only reason is that the service life is the same as the term of the permit. Yet, turbines are not broken after 20 years, and that term does not represent the limit of what is technically possible. Hydropower plants built in 1922 are still running. We keep them running because we know them well, take care of them, and revamp them occasionally. Wind farms can also be run like conventional power plants. They can stay in operation for at least 25 years and even reach the ripe old age of 40 with retrofits and replacement components.

Markus Claudius Romberg handles wind farms in Germany for Swiss energy provider Repower. He came to the wind sector from conventional power plant technology.

private

If you want to keep a wind turbine running smoothly, you just have to answer one question: what is the greatest cause of damage to the machine? The answer is the turbine's direction towards the wind. Proper orientation can be optimized with on-site measurements.

Unfortunately, a lot of wind farm operators forgo this option by signing full-service maintenance contracts. These contracts essentially take away the operator's options to do a better job. In return, operators receive a service that is always worse than what they could do themselves. In full-maintenance contracts, manufacturers essentially optimize themselves. If a technician is nearby, servicing work is performed – regardless of whether the wind is blowing or not.

Manufacturers don't make good on their word

Of course, manufacturers always promise to service their turbines optimally. We know from our own wind farms that this is not the case. Three-dimensional ultrasound measurements have detected deviations of up to several degrees between a turbine's orientation and the direction of the wind. The damage caused to turbines in their "youth" from improper orientation reduces their overall service life. The same holds true for improper

Keywords

Wind turbines need not give up the ghost after 20 years. If properly serviced

they can remain in operation twice as long. A guest post by Markus Claudius Romberg.

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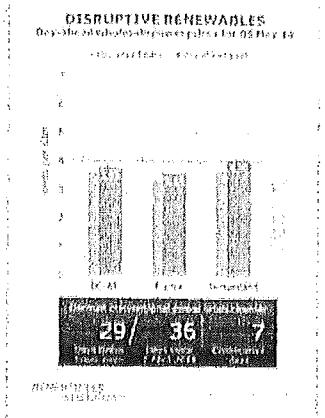
Disruptive Renewables

pitch. Our inspections have revealed that the pitch of blades on a single turbine can differ by two degrees. The result is an imbalance that can damage the machine.

All optimization requires additional expenses and should therefore be done when the turbines are not generating a lot of electricity. In addition, retrofits are a good idea at the latest when the wind turbines have been written down. Turbine owners should calculate the returns from modern control technology and a new generator if the retrofit can increase efficiency by a few percentage points.

Additional cost savings can come from long-term operation of the wind farms when the payments to property owners are changed. If an agreement can be reached, I can extend the lease immediately and pay upfront. Instead of stretching the lease across 20 years and losing money from interest and inflation, I can pay upfront and ask for a discount of a few percentage points.

Of course, the upfront payment increases the upfront investment. But our experience with banks shows that long-term partnerships are also desired in project financing. By paying the lease upfront, we reduce the number of question marks for the bank down to one: future wind conditions.
Banks like it when the future cash flow to the wind farm does not have to be shared but is instead available in full to repay the principal. Often though, banks express their thanks with better conditions despite the longer loan terms.



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2 Comments on "Wind turbines for 40 years? "

1. **James Wimberley** - 15.02.2015, 21:47 Uhr (Report comment)

   Village coops should probably reject the suggestion that they could do a better job of maintaining their few turbines than a manufacturer or specialist contractor. Instead they should try to address the principal-agent problem by designing service contracts with incentives for performance. I recall that GE offers profit-sharing contracts for upgrades to control systems on its own turbines.

2. **Todd Millions** - 11.02.2015, 22:27 Uhr (Report comment)

   That blade out pitch figure-2* seems-'stimulating'.You need ultrasound too detect it?A michrophone should suffice.I had a crossbar bolt pinch a small section on a hanglider sail once years ago -I did notice it on preflight but thought it minor and left it.Once(only)-imagining that levered by hundreds,causes uncomfortable clenching. One other item of setup and maintenence may be of intrest-In 2005,nuc useful

Idiots began to whine that the turbines installed at a demo wind farm at Gull Lake Saskatchewan,shut down at low temptures,and so were unreliable.These turbines had ports in the gear box for block heaters for just this eventuality-but the block heaters were not installed.If this is a reason other instalations in other areas are shutting down at a time of peak demand and often peak output,insuring that a pair of $50 bar heaters are installed in hopefully pre existing ports and plugged in may have a compelling payback.

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WINDPOWER MONTHLY

Extending turbine lifetime brings down CoE

23 July 2012 by Eize de Vries . Be the first to comment

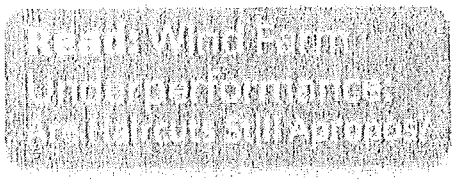
Wind turbines are still often developed for a 20-year design life. However, a number of recent initiatives indicate a gradual shift to a 25-year and even longer operating period. And with turbines in the 4.5-7.5MW class becoming more common, it is hard to imagine these giants being knocked down after operating only for two decades.

The single largest benefit for owners and operators from lifetime extension is driving down the lifecycle-based costs of energy (CoE). A wider overall benefit to societies as a whole is enhancing the sustainability of renewable products and projects.

Wind-farm sustainability

All wind turbines have a number of main infrastructural components, such as transformers and medium-voltage copper ground cables for electricity transport, that can last 50 years or more. The same applies to other durable components inside wind turbines, provided they are not exposed to lifetime-shortening factors, such as continuous vibration, major temperature fluctuations, silt air and humidity.

In addition, the latest 3-7.5MW onshore turbines are increasingly put on concrete or concrete-steel hybrid towers. These structures can again last 50 years or more due to only minor material fatigue-related impact on design life compared to steel sections performing similar tasks. The same design life range can be expected for concrete foundations.



These components represent a big share of total capital investment. Spreading their payback over a longer period contributes towards lowering CoE, while extending the active use phase of the available infrastructure improves sustainability.

For offshore applications, a wind turbine represents only about 35% of total capital investment. This relatively low proportion is due to the high installation cost of heavy and expensive support and top structures and long electricity-distribution and transport cables to shore.

Mixed results

Initiatives to extend turbine lifetime are not new but have in the past produced mixed results. In the mid-1990s, former US wind-turbine supplier Zond displayed a scale model of its then-new 750kW Z-750 model at Germany's Hanover international industry fair. Among its distinct features was a huge integrated drive train and a doubly fed induction generator — a wind technology novelty. The company claimed it to be the world's only turbine with a GL-certificate for a 30-year design life. Unfortunately, soon after its introduction on to the market, the Z-750 developed significant problems with key components such as gearboxes and generators. These required a complete redesign.

However, there are examples of kilowatt-class turbine models built from the late 1970s until the early 1990s that have successfully operated over 20 years without requiring substantial replacement of main components.

The early wind industry days were characterised by substantial knowledge gaps,

limited know-how and insufficient track-record experience. At the same time, constant market pressures to rapidly increase turbines' rated capacity made it difficult for designers to gain larger-series experience needed to develop more reliable turbines while adding to technical and operational risk as well as costs.
Owners and developers, meanwhile, often opted to remove older turbines well before they had reached their technical lifespan, replacing these with larger, more powerful new models.

Utility turbines

With the emergence of utility-grade 1.5-2MW and above turbines from the mid-1990s onwards, pressure to upscale has eased somewhat, and these power ratings are in fact widely expected to stay. Such megawatt-scale turbines are now being offered in a wide variety of makes and models. Generally, performance has been rather good, but there have been exceptions. Over the recent few years, gearboxes have attracted particular criticism, often being blamed as the single main cause of turbine failure.

Several turbine series, including the Vestas 2MW, Nordex 2.5MW, GE 1.5MW, Gamesa 2MW and Enercon 1.5-2MW have now been on the market for a decade or longer, typically in multiple versions. The Siemens 2.3MW turbine entered the market in 2002, and three new, larger rotor diameters have been introduced since — from the initial 82.4 metre to 93 metre, 101 metre and 108 metre.

This strategy is now common across the industry. It aims to boost yield performance while driving down CoE and extending turbine platform life. Manufacturing large numbers of similar turbines encourages production efficiencies and standardisation of components while lowering manufacturing and procurement costs.

Another major leap forward can be made in terms of long-term turbine upkeep including the offering of mid-life upgrades. Enercon offers a long-term service package, which guarantees the owner or operator 97% technical availability in return for an annual fee that is in proportion to and a reflection of generated energy yield. An integral part of this contract is that Enercon can implement hardware and/or software upgrades if these are considered beneficial for enhanced performance or availability. This in fact represents a mutual benefit for both supplier and customer.

Repowering

In several main wind markets large-scale repowering of sites occupied by ten- to 20-year-old kilowatt-size turbines with larger modern equivalents was expected to become a main trend. One recent Dutch example involved replacing three 225kW and 250kW turbines with two 2.3MW turbines, increasing annual energy production by a factor of eight. A potential problem is that plans for repowering are in practice often hampered by permitting constraints, such as installation height restrictions and/or limited grid capacity.

Growing business

Spanish manufacturer Gamesa set up a specialist business unit in 2010 offering dedicated, large-component reconditioning and lifetime extension services. "One of our learning examples is the nuclear industry, where the lifetime extension concept has been common practice for decades," Christian Jourdain, marketing manager for the service business, said at the recent European Wind Energy Association conference in Denmark. "These projects typically commence with a technology condition scan after around 15 years of operation, serving as the basis for a production improvement plan of the additional years."

The large-component reconditioning unit focuses on maximising wind turbine performance while reducing turbine downtime and operation-and-maintenance costs. When a large component — such as a gearbox, generator or blade — fails prematurely, the first action is always disassembly and diagnosis of the root cause, with a detailed report sent to the client.

Gamesa's clients then have a choice between "standard" and "premium" repair. The standard option includes the use of state-of-the-art remanufactured components whose specifications are technically identical to those of original components. Afterwards, the turbine returns to operation and can be expected to continue operating with unchanged "new" component useful life expectancy and similar statistical failure chances.

In the premium option, Gamesa technicians apply root-cause analysis to enhancements necessary to bring specific turbine components to the latest technological level. "Each component is further subjected to full-load bench testing up to the operational limits," Jourdain explained. "Because the enhancements significantly reduce a component's failure rate, this in turn has substantial positive impact upon future failure rates based on statistical occurrence. After component

reconditioning incorporating design enhancements, 'new useful life' this time in fact jumps over the former 'theoretical useful life' curvature, thus extending both time in service and remaining useful life."

Extending the operational lifetime of main components has been the first step of the turbine life extension programme initiated by Gamesa three years ago. Jourdain stresses that Gamesa has its own gearbox, generator and blade-manufacturing divisions, each with its own design teams and in-depth expertise.

Third-party suppliers

To further reduce turbine downtime in the event of a major failure, Gamesa keeps significant stock of large components including third-party supplier parts. Included on the comprehensive list are reconditioned gearboxes, generators and various blade types for other manufacturers' wind turbines.
Modern turbines usually recover their cumulative energy inputs within 3-8 months of electricity generation. This is called the energy payback period. An interlinked, lifecycle-based energy output-input ratio — or sustainability performance number — is known as the "harvest factor".

A 20-year turbine lifetime with a six-month energy payback period results in a harvest factor of 20 x 12 / 6 = 40. Finally, expanding turbine operation to 25-30 years substantially contributes to harvest factors, provided upkeep costs and turbine performance remain in line with predetermined industry expectations. Combined with improved material and infrastructure utilisation, overall lifecycle enhancement benefits will further drive down CoE. This is a clear win-win situation that fits seamlessly into the key expanding role modern wind power can — and does already — offer the world.

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WIND RESOURCE ASSESSMENT
Mitigate financial risk and make your project bankable

It is proposed that both culverts will be temporarily lengthened to increase site accessibility for the transportation of heavy equipment through the site. The length of the culverts will be extended to allow the large crane to place one track on the existing road bed and one track on top of the culvert extension. This proposed extension includes the placement of a 3,000 mm wide x 1,200 mm high, precast concrete, open bottom, box culvert over the stream. The box will be set back 1.5 m away from the center of the stream and will be placed on a clear stone base, which shall be constructed outside of the tributary channel and banks. Sediment control fencing will be erected at both the up-stream and down-stream ends of the culvert. Sediment control berms will be placed on either side of the tributary banks to prevent any sediment, or gravel materials from entering into the watercourses. The extension to Culvert A will be placed downstream of the existing structure while for Culvert B, the extension will be upstream (see details on Figure 2.4). By using an open bottom culvert design, no instream work will be required, and it is intended that these temporary culvert extensions will be removed once the turbines have been erected.

2.3.2 *Operation and Maintenance*

Operation and maintenance can be divided into two distinct categories. Operations is the day-to-day observation, guidance and control of the facility. This involves ensuring the facility and the operation thereof complies with various contracts and obligations to which the proponent is bound, including any environmental assessment release decision and the attached conditions. The proponent intends to have at least one full-time designated individual on site (based in Truro or closer) to assist in the guidance of these activities together with the proponent's larger off-site wind energy team. This 'front-line' individual will be accessible to the community and to other relevant interested parties.

Maintenance of the wind farm will be done by trained technicians staffed by the wind turbine supplier at least for the duration of the warranty and service contract between the proponent and the supplier. This may involve two or three full time positions based on or near the site as well as involvement from regionally based personnel. The maintenance role keeps the wind turbines fully serviced and attends to any warranty matter, i.e., the replacement of defective parts if necessary. The proponent's operations team essentially oversees this work as the owner of the wind farm.

The wind turbines will be operational on a continual basis except under circumstances of mechanical breakdown, extreme weather conditions or maintenance activities. Each turbine will be subject to periodic maintenance and inspection. Regular maintenance will involve oil changes, and any waste products, e.g., the waste oil, will be disposed of in accordance with municipal and provincial waste management regulations.

Finally, the operations team will engage other suppliers under the guidance of its engineering team, to maintain and service what are commonly referred to as the 'balance of plant' components. These include the cable collection system, substation, interconnection, etc. The servicing requirements are not as frequent for these more static components and accordingly the specialized appropriate servie personnel will be called in as needed.

2.3.3 *Reclamation and Decommissioning*

The design life of a wind farm is typically 20 or more years and capital improvement and replacement programs may extend safe and efficient operations well beyond 40 years. Decommissioning and/or

Mountain Road. The communities of Nuttby and Earltown are 2.5 and 6 km respectively from the wind farm. The sole sources of anthropogenic noise in the area are residential and commercial vehicles, and since traffic volumes are low, the background noise levels, i.e., wind, vegetation moved by wind, traffic and animal sounds, e.g., birds and frogs, are generally low.

A significant environmental effect on the rural ambience of the study area would result if a substantive increase in light and noise levels attributable to the Project was demonstrated to disrupt if the way of life of local residents.

7.2.3.4 BOUNDARIES

The geographical area of interest with respect to both the lighting that will be installed on the turbines and the noise that they will generate is twofold:

i) the area within which wildlife, including birds, may be impacted; and
ii) the nearest communities, i.e., Nuttby and Earltown.

The temporal boundaries for both ambient light and noise is the anticipated life of the Project, i.e., perhaps 40 years or more.

7.2.3.5 PATHWAY ANALYSIS

Lighting

The intent of the lighting that will be installed is to ensure aviation safety. As such, the flashing light will be angled in accordance with TC requirements. The lighting of necessity will be visible for some considerable distance including from the communities of Nuttby and Earltown. The lighting will be red, synchronized and intermittent. It should not pose discomfort to those living in proximity to it, nor to the residents of the communities of Nuttby and Earltown. The Proponent is also seeking the most effective means to meet both the requirements of TC and to minimize the impact of the required lighting on wildlife, including birds.

Noise

All phases of the proposed project will generate noise, i.e., construction, project operation and decommissioning. During the construction and decommissioning phases, the anticipated noise will be that generated by typical construction activity including the transportation of materials, site works including the building of access roads, turbine pads, etc. The noise will be caused by the operation of heavy equipment such as back hoes, bulldozers, flatbed trailers, cranes, dump trucks, ready mix trucks and smaller vehicles used to transport workers to and from the site.

Typical dBA levels in a rural environment are 38 – 46 dBA, in a suburban environment 48 – 52 dBA and in an urban residential area 58 – 62 dBA. The nearest occupied residence is approximately 600 m distant from a turbine site. Construction noise will be heard at this distance and may be heard at 1 km, but is unlikely at this distance to be an ongoing nuisance. Such noise may, however, temporarily disrupt the activities of fauna and birds at or in the vicinity of the construction activates on the Project site.

As indicated above, noise in a typical rural area can be expected to be in the vicinity of 38 – 46 dBA. It has been found to be easier in practise to calculate the potential sound emissions from wind farms than to

7.4 Social Economic Issues

7.4.1 Land Use

Land use in the immediate vicinity of the turbines is restricted to logging, forestry management, the harvesting of small areas of blueberries and some hunting. Since the Project will introduce a new use into the mix of uses on Nuttby Mountain, land use has been identified as a socio-economic issue to be evaluated.

A significant effect on land use would result if current land uses in the area were irreversibly changed as a consequence of the development, operation and decommissioning of the Project.

7.4.1.1 Boundaries

The spatial area of greatest relevance includes those lands within 500 m of the WTGs; the temporal boundary would extent over the life of the Project, i.e., perhaps 40 years ore more.

7.4.1.2 Pathway Analysis

As has been stated the primary land use activity in the immediate vicinity of the proposed wind farm is logging and the associated commercial management of private woodlots. This activity will continue as will the harvesting of areas of blueberries to the extent that such occurs in the vicinity of the proposed WTGs. Other activates that use the lands in the vicinity of the turbines include hunting and the use of various trails for snowmobiling and ATV use. Apart from working with the landowners to ensure both the safety of all who use the lands in the area including those who access and service the turbines, and also the integrity of the WTGs, permission to access the lands for hunting and other purposes resides with the land owners.

7.4.1.3 Mitigative Measures

Apart from minimizing the footprint of the proposed works, no specific mitigative measures are proposed to protect existing land use in the area.

7.4.1.4 Cumulative Effects

There are no other known works that would act cumulatively with the proposed Project to impact land use in the area; no cumulative impacts are anticipated.

7.4.1.5 Residual Effects

Based on the above analysis, the Project is not anticipated to have a significant residual effect on land use on Nuttby Mountain; the impact is predicted to be negligible.

7.4.2 Employment and the Economy

The Project area is remote and unless they travel into Truro, most in the area find employment in farming and/or forestry. There are few other sources of local work. The creation of jobs and the opportunity to find work, be it of a short term nature or longer, in the local area may be of interest. Employment and the economy has therefore been identified as a socio-economic factor to be evaluated.

A significant effect on employment and the economy would result if a substantive change in either employment or the economy could be attributed to the Project.

Table 7-3: Number of Sites of Value Identified by the MEK Study

Type of Use	*Number of Areas/Sites*	*Number of Species*
Food/Sustenance	251	30
Medicinal/Ceremonial	25	8
Tools/Art	33	13

The majority of the plant species documented as a result of the work undertaken for the MEK study can be classified as common. The species are commonly found throughout Nova Scotia, and the harvesting of these resources by the Mi'kmaq in the study area is undertaken to a lesser degree than elsewhere. None of the species identified in the MEK study are legislated species at risk.

With respect to species fished or hunted for food, the principle species were trout, smelt, deer, rabbit and partridge. Salmon is no longer fished and the moose is no longer hunted in this area.

A significant effect on the aboriginal use of land would result if their access to land or resources was substantially inhibited or the resources themselves adversely impacted.

7.4.3.1 BOUNDARIES

The boundaries of Project impacts on aboriginal use of land and resources reflect the area considered in the MEK Study together with those areas considered with respect to the evaluation of habitats and ecological features. The Mi'kmaq have indicated that they do fish and collect plants on and in the vicinity of Nuttby Mountain. The temporal boundary is the life of the Project, i.e., perhaps 40 years or more.

7.4.3.2 PATHWAY ANALYSIS

The potential pathways to link the Project to the aboriginal use of land and resources parallel those identified for the evaluation of habitats and ecological features.

7.4.3.3 MITIGATIVE MEASURES

The mitigative measures proposed for the different phases of the Project including the preparation of a comprehensive EMP and those identified to protect specific VECs will serve to protect the resources of value to First Nations peoples. The plants, for example, that are identified as important resources in the context of traditional Mi'kmaq use are widely available throughout the Province. Fish populations will be protected by the proposed mitigative measures that will be undertaken to ensure the maintenance of water quality.

7.4.3.4 CUMULATIVE EFFECTS

There are no other known works within the boundary of this assessment that would act cumulatively with the Project to impact the aboriginal use of land and resources; no cumulative effects are anticipated.

7.4.3.5 RESIDUAL EFFECTS

Based on the implementation of the recommended mitigative measures, the negligible residual effects on physical and biophysical VECs, the proposed Project is anticipated to have a negligible residual effect on the aboriginal use of land and resources.

OKLAHOMA GAS AND ELECTRIC COMPANY

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TABLE 1. SUMMARY OF ESTIMATED SURVIVOR CURVES, NET SALVAGE, ORIGINAL COST, BOOK RESERVE AND CALCULATED ANNUAL DEPRECIATION RATES AS OF DECEMBER 31, 2014

ACCOUNT		ORIGINAL COST	BOOK RESERVE	FUTURE ACCRUALS	TOTAL ANNUAL ACCRUAL AMOUNT	TOTAL ANNUAL ACCRUAL RATE	COMPOSITE REMAINING LIFE	OG&E Proposed	OG&E Proposed	Col. 7 minus Column 11
(1)		(4)	(5)	(6)	(7)	(8)=(7)/(4)	(9)	(10)	(11)	(12)
341.0	STRUCTURES AND IMPROVEMENTS	32,409,693.55	11,181,974	22,848,204	720,064	2.22	31.7			
	REDBUD 1	82,391.69	8,487	78,848	2,312	2.81	34.1			
	REDBUD 2	78,179.98	7,813	75,058	2,200	2.81	34.1			
	REDBUD 3	103,476.21	13,148	96,537	2,828	2.73	34.1			
	REDBUD 4	987,208.14	430,842	585,982	28,473	2.88	20.6			
	HORSESHOE LAKE 9 AND 10	972,163.95	873,812	176,125	16,011	1.65	11.0			
	TINKER	5,791,481.26	1,683,819	4,455,151	145,593	2.51	30.6			
	MCCLAIN GAS 1	959,632.02	358,180	659,030	22,804	2.38	28.9	OG&E Proposed	OG&E Proposed	AG Proposed Col. 7 minus Column 11
	MCCLAIN GAS 2	528,863.87	192,150	384,312	13,158	2.49	29.2	16.9	97,395	(16,376)
	MCCLAIN STEAM 1	2,332,086.60	712,342	1,643,066	81,019	3.47	20.3	19.9	209,852	(35,302)
	CENTENNIAL WIND FARM	5,209,833.16	1,093,680	4,168,251	174,550	3.35	23.9	22.8	447,377	(74,231)
	OU SPIRIT WIND FARM	11,586,653.31	1,493,255	10,209,265	373,146	3.22	27.4		754,624	(125,909)
	CROSSROADS WIND FARM	61,041,663.74	18,049,502	45,379,828	1,582,158	2.59	28.7			
	TOTAL STRUCTURES AND IMPROVEMENTS									
342.0	FUEL HOLDERS, PRODUCERS AND ACCESSORIES	11,904,643.22	4,211,845	8,288,030	267,592	2.25	31.0			
	REDBUD 1	690,650.06	246,827	485,262	15,668	2.27	31.0			
	REDBUD 2	691,291.31	246,876	485,393	15,689	2.27	31.0			
	REDBUD 3	688,211.21	247,539	481,965	15,563	2.26	31.0			
	REDBUD 4	167,149.95	104,016	76,506	6,962	4.17	11.0			
	TINKER	246,887.65	88,246	173,455	5,609	2.27	30.9			
	MCCLAIN GAS 1	162,705.56	63,673	108,795	3,549	2.18	30.7			
	MCCLAIN GAS 2	14,551,538.96	5,209,022	10,099,906	330,632	2.27	30.5			
	TOTAL FUEL HOLDERS, PRODUCERS AND ACCESSORIE									
343.0	PRIME MOVERS	86,059,676.78	21,374,840	68,987,821	2,673,538	3.11	25.8			
	REDBUD 1	65,494,633.05	13,442,833	55,981,478	2,174,732	3.32	25.7			
	REDBUD 2	65,549,317.40	18,063,792	51,418,484	1,974,020	3.01	26.0			
	REDBUD 3	60,410,045.55	14,670,842	49,363,806	1,912,669	3.17	25.8			
	REDBUD 4	5,417,003.15	1,861,263	3,718,250	205,745	3.80	18.1			
	HORSESHOE LAKE 9 AND 10	3,910,681.03	3,294,691	928,845	88,457	2.26	10.5			
	TINKER	65,049,598.14	7,766,380	61,186,194	2,523,719	3.88	24.2			
	MCCLAIN GAS 1	68,969,030.47	13,223,312	59,883,860	2,462,819	3.57	24.3			
	MCCLAIN GAS 2	31,891,451.73	10,822,794	23,938,888	1,057,394	3.32	22.6			
	MCCLAIN STEAM 1	452,751,437.30	104,520,747	375,407,626	15,073,093	3.33	24.9			
	TOTAL PRIME MOVERS									

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TABLE 1. SUMMARY OF ESTIMATED SURVIVOR CURVES, NET SALVAGE, ORIGINAL COST, BOOK RESERVE AND CALCULATED ANNUAL DEPRECIATION RATES AS OF DECEMBER 31, 2014

	ACCOUNT (1)	ORIGINAL COST (4)	BOOK RESERVE (5)	FUTURE ACCRUALS (6)	TOTAL ANNUAL ACCRUAL AMOUNT (7)	TOTAL ANNUAL ACCRUAL RATE (8)=(7)/(4)	COMPOSITE REMAINING LIFE (9)	OG&E Proposed (10)	OG&E Proposed (11)	Col. 7 minus Column 11 (12)
344.0	GENERATORS									
	REDBUD 1	717,739.32	56,945	696,881	22,097	3.08	31.5			AG Proposed Col. 7 minus Column 11
	REDBUD 3	23,198.65	2,099	22,492	703	3.03	32.0			
	REDBUD 4	23,034.59	2,119	22,298	697	3.03	32.0			
	HORSESHOE LAKE 9 AND 10	34,372,147.40	11,223,803	24,179,509	1,239,847	3.61	19.5	OG&E	OG&E	
	TINKER	3,314,013.04	2,313,143	1,265,991	117,104	3.53	10.8	Proposed	Proposed	
	CENTENNIAL WIND FARM	187,491,332.12	61,075,976	128,290,269	6,518,814	3.48	19.7	16.4	7,800,983	-1,282,169
	OU SPIRIT WIND FARM	245,143,282.08	49,131,117	198,463,598	8,569,240	3.50	23.2	19.3	10,276,697	-1,707,457
	CROSSROADS WIND FARM	359,760,960.19	48,350,952	315,007,618	11,824,810	3.29	26.6	22.20	14,208,271	-2,383,661
	TOTAL GENERATORS	830,845,707.39	172,156,154	667,948,456	28,293,113	3.41	23.6		32,285,951	-5,373,286
345.0	ACCESSORY ELECTRIC EQUIPMENT									
	REDBUD 1	12,892,721.56	4,988,779	8,548,579	288,185	2.24	29.7			
	REDBUD 2	9,282,942.54	3,531,922	6,307,997	212,152	2.29	29.7			
	REDBUD 3	9,119,140.00	3,516,577	6,149,711	207,297	2.27	29.7			
	REDBUD 4	9,353,445.36	3,549,956	6,364,696	205,325	2.20	31.0			
	HORSESHOE LAKE 9 AND 10	4,298,290.11	1,736,116	2,691,123	139,241	3.24	19.3			
	TINKER	3,023,750.52	2,591,418	674,233	64,679	2.14	10.4			AG Proposed Col. 7 minus Column 11
	MCCLAIN GAS 1	3,534,608.08	1,186,684	2,560,001	93,412	2.64	27.4			
	MCCLAIN GAS 2	3,477,788.00	1,210,095	2,476,360	90,662	2.61	27.3	OG&E	OG&E	
	MCCLAIN STEAM 1	2,217,820.99	809,173	1,608,252	59,318	2.67	27.1	Proposed	Proposed	
	CENTENNIAL WIND FARM	911,783.39	241,070	679,831	34,128	3.74	19.9	16.6	41,041	-6,913
	OU SPIRIT WIND FARM	788,993.43	28,399	768,484	32,841	4.16	23.4	19.5	39,486	-6,645
	CROSSROADS WIND FARM	44,050,761.62	5,664,347	38,826,922	1,484,210	3.37	26.2	21.80	1,781,015	-296,805
	TOTAL ACCESSORY ELECTRIC EQUIPMENT	102,952,045.60	29,054,536	77,656,189	2,911,450	2.83	26.7		1,861,542	-310,363

OKLAHOMA GAS AND ELECTRIC COMPANY

AG Wind Powr Adjustment

TABLE 1. SUMMARY OF ESTIMATED SURVIVOR CURVES, NET SALVAGE, ORIGINAL COST, BOOK RESERVE AND CALCULATED ANNUAL DEPRECIATION RATES AS OF DECEMBER 31, 2014

	ACCOUNT	ORIGINAL COST	BOOK RESERVE	FUTURE ACCRUALS	TOTAL ANNUAL ACCRUAL AMOUNT	TOTAL ANNUAL ACCRUAL RATE	COMPOSITE REMAINING LIFE	OG&E Proposed	OG&E Proposed	Col. 7 minus Column 11
	(1)	(4)	(5)	(6)	(7)	(8)=(7)/(4)	(9)	(10)	(11)	(12)
346.0	MISCELLANEOUS POWER PLANT EQUIPMENT									
	REDBUD 1	2,010,341.97	612,573	1,498,286	53,390	2.66	28.1			
	REDBUD 2	15,295.20	1,633	14,580	483	3.16	30.2			
	REDBUD 3	4,236.28	152	4,338	142	3.35	30.5			
	REDBUD 4	4,236.27	158	4,332	142	3.35	30.5			AG Proposed
	HORSESHOE LAKE 9 AND 10	941,452.30	413,037	556,659	30,179	3.21	18.4			
	TINKER	8,664.46	6,849	2,509	240	2.77	10.5	OG&E	OG&E	Col. 7 minus
	MCCLAIN GAS 1	4,078,113.35	1,329,063	2,993,737	118,464	2.90	25.3	Proposed	Proposed	Column 11
	CENTENNIAL WIND FARM	417,174.39	71,147	350,199	17,904	4.29	19.6	16.30	21,470	(3,566)
	OU SPIRIT WIND FARM	83,464.93	9,270	75,030	3,291	3.94	22.8	19.00	3,958	(667)
	CROSSROADS WIND FARM	58,088.08	8,910	49,759	1,920	3.30	25.9	21.60	2,308	(388)
	TOTAL MISCELLANEOUS POWER PLANT EQUIPMENT	7,621,067.23	2,452,792	5,549,429	226,154	2.97	24.5		27,736	-4,622
	TOTAL OTHER PRODUCTION PLANT	1,501,049,562.23	342,951,973	1,201,001,572	53,661,793	3.57	22.4			
	AG PROPOSED ADJUSTMENT								TOT ADJUST	-5,814,181

Exhibit ECC-4
9 Pages including Cover

Holding Company Depreciation Workpapers of E. Cary Cook

OKLAHOMA GAS AND ELECTRIC COMPANY

OKLAHOMA CITY, OKLAHOMA

HOLDING COMPANY ASSETS

DEPRECIATION STUDY

CALCULATED ANNUAL DEPRECIATION ACCRUALS

RELATED TO GENERAL PLANT

AS OF DECEMBER 31, 2009

Gannett Fleming
Valuation and Rate Division

Harrisburg, Pennsylvania Calgary, Alberta Valley Forge, Pennsylvania

OKLAHOMA GAS AND ELECTRIC COMPANY - HOLDING COMPANY ASSETS
SUMMARY OF ESTIMATED SURVIVOR CURVES, NET SALVAGE, ORIGINAL COST, BOOK RESERVE AND CALCULATED
ANNUAL DEPRECIATION RATES AS OF DECEMBER 31, 2009

	ACCOUNT (1)	SURVIVOR CURVE (2)	NET SALVAGE PERCENT (3)	ORIGINAL COST (4)	BOOK RESERVE (5)	FUTURE ACCRUALS (6)	CALCULATED ANNUAL ACCRUAL AMOUNT (7)	CALCULATED ANNUAL ACCRUAL RATE (8)=(7)/(4)	COMPOSITE REMAINING LIFE (9)=(6)/(8)
303.20	MISCELLANEOUS INTANGIBLE PLANT - SOFTWARE								
	Accrued	5-SQ	0	46,512,789.45	46,512,789	0	0	-	-
	Amortized			27,379,075.32	11,057,980	16,321,095	6,160,504	22.50	2.6
	TOTAL SOFTWARE			73,891,864.77	57,570,769	16,321,095	6,160,504		
	OFFICE FURNTURE AND EQUIPMENT								
391.10	COMPUTERS AND PRINTERS								
	Accrued	5-SQ	0	1,948,218.76	1,948,218	0	0	-	-
	Amortized	5-SQ	0	17,390,679.15	8,731,159	8,659,541	2,721,170	15.65	3.2
	TOTAL COMPUTERS AND PRINTERS			19,338,897.91	10,679,358	8,659,541	2,721,170		
391.12	SECURITY								
	Amortized	3-SQ	0	19,800.20	2,477	17,323	5,774	29.16	3.0
391.40	FAX MACHINES								
	Amortized	5-SQ	0	4,842.00	2,085	2,757	788	16.27	3.5
391.50	COPIERS								
	Accrued	3-SQ	0	131,952.45	131,952	0	0	-	-
	Amortized	3-SQ	0	76,922.35	52,352	24,570	24,570	31.94	1.0
	TOTAL COPIERS			208,874.80	184,304	24,570	24,570		
391.60	TABLES, CUBICLES AND STANDS								
	Accrued	15-SQ	0	483,872.70	482,335	1,538	181	0.04	8.5
	Amortized	16-SQ	0	67,174.38	20,750	46,424	4,479	6.67	10.4
	TOTAL TABLES, CUBICLES AND STANDS			551,047.08	483,085	47,962	4,660		
391.90	MISCELLANEOUS								
	Accrued	15-SQ	0	345,963.40	345,963	0	0	-	-
	Amortized	15-SQ	0	239,092.45	120,570	118,523	11,339	4.74	10.5
	TOTAL MISCELLANEOUS			585,055.85	466,533	118,523	11,339		
	TOTAL OFFICE AND FURNITURE EQUIPMENT			20,688,517.84	11,817,842	8,870,676	2,768,301		
	TRANSPORTATION EQUIPMENT								
392.01	STANDARD CARS	7.5-R0.5	0	359,338.15	75,600	283,738	41,217	11.47	6.9
392.03	PICKUP TRUCKS	10-R2	0	1,712,207.53	827,494	884,714	129,754	7.58	6.8
392.04	LIGHT TRUCKS	11-R3	0	588,364.56	286,033	302,331	36,770	6.25	8.2
392.05	HEAVY TRUCKS	10-R4	0	2,051,252.23	334,496	1,716,756	227,643	11.10	7.5
392.06	TRAILERS	16-R2.5	0	649,566.75	126,021	523,546	38,316	5.90	13.7
392.11	ELECTRIC VEHICLES	10-S1.5	0	31,717.26	31,717	0	0	-	-
392.69	MOTOR HOME	18-R4	0	112,598.80	94,421	18,178	7,543	6.70	2.4
	TOTAL TRANSPORTATION EQUIPMENT			5,505,045.38	1,775,782	3,729,263	481,243		

OKLAHOMA GAS AND ELECTRIC COMPANY - HOLDING COMPANY ASSETS
SUMMARY OF ESTIMATED SURVIVOR CURVES, NET SALVAGE, ORIGINAL COST, BOOK RESERVE AND CALCULATED
ANNUAL DEPRECIATION RATES AS OF DECEMBER 31, 2008

	ACCOUNT	SURVIVOR CURVE	NET SALVAGE PERCENT	ORIGINAL COST	BOOK RESERVE	FUTURE ACCRUALS	CALCULATED ANNUAL ACCRUAL AMOUNT	CALCULATED ANNUAL ACCRUAL RATE	COMPOSITE REMAINING LIFE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(7)/(4)	(9)=(6)/(8)
393.00	STORES EQUIPMENT								
	Accrued	25-SQ	0	29,206.24	7,635	21,571	1,136	3.89	19.0
395.00	LABORATORY EQUIPMENT								
	Accrued	20-SQ	0	15,698.00	7,315	8,383	729	4.64	11.5
396.00	POWER OPERATED EQUIPMENT	20-R2	0	1,377,341.46	426,750	950,591	56,724	4.12	16.8
	COMMUNICATION EQUIPMENT								
397.10	TELEPHONE								
	Accrued	10-SQ	0	883,439.21	728,893	154,546	103,031	11.66	1.5
397.20	RADIO SYSTEMS								
	Accrued	10-SQ	0	2,742,455.48	2,725,416	17,039	10,222	0.37	1.7
397.40	WIRELESS NETWORKS								
	Amortized	10-SQ	0	797,159.66	97,369	699,791	82,328	10.33	8.5
397.50	MISCELLANEOUS								
	Accrued	10-SQ	0	414,712.94	414,713	0	0	-	-
	Amortized	10-SQ	0	673,239.80	150,084	523,156	56,056	8.33	9.3
	TOTAL MISCELLANEOUS EQUIPMENT			1,087,952.74	564,797	523,156	56,056		
	TOTAL COMMUNICATION EQUIPMENT			5,511,007.11	4,118,475	1,394,532	251,637		
398.00	MISCELLANEOUS EQUIPMENT								
	Accrued	20-SQ	0	13,396.28	13,396	0	0	-	-
	Amortized	20-SQ	0	61,254.09	41,072	20,182	1,188	1.91	17.3
	TOTAL MISCELLANEOUS EQUIPMENT			74,652.37	54,470	20,182	1,188		
	TOTAL PLANT			107,093,333.17	75,777,039	31,316,293	9,721,442	9.08	

Attachment AG 5-6_Att2
Pro Forma Holding Company Depreciation Expense and Depreciable Plant

Total Electric Plant- Holding Company	143,155,002.00	A
Pro Forma Adjustment- Non-Utility Activities	(28,516,476.00)	B
Pro Forma Adjusted Electric Plant	114,638,526.00	C
Approved Cumulative Depreciation Rate	9.08%	D
Forma Holding Company Depreciation Expense	10,409,178.16	E

A	See Schedule C2 Tab line 69 for Total Holding Company Electric Plant.
B	See WP B-3-2 Tab for the calculation of the Pro Forma Adjustment.
C	Agrees to Schedule C2 Tab for Pro Forma Adjusted Electric Plant.
D	The depreciation rate of 9.08% used above is thedepreciation rate per the 2009 Depreciation Study. There is not a new proposed rate for the Holding Company in the 2014 Depreciation Study. See also, Attachment- (Holding Co. Depr. Study), for further details regarding the Average Depreciation Rate.
E	Agrees to Pro Forma Holding Company Depreciation Expense per Schedule I-1-1 Tab.

SCHEDULE I-1-1

OKLAHOMA GAS AND ELECTRIC COMPANY
PROPOSED DEPRECIATION EXPENSE
TEST YEAR ENDING 6/30/15
CAUSE NO. PUD 201500273

Line No.	Account	Plant	Pro Forma Adjusted Depreciable Plant In Service	Adjustment Add back Transmission LGE WP B-3-12	Adjustment For Non-Depreciable Plant In Service	Pro Forma Adjusted Depreciable Plant In Service	Proposed Annual Rate	Proposed DD&A Expense
		INTANGIBLE PLANT						
1	301	Organization	80,900	-	80,900	-	-	-
2	302	Franchise and Consents	2,606,727	-	-	2,606,727	4.22%	110,088
3	303	Miscellaneous Intangible Plant	64,512,761	-	-	64,512,761	6.24%	4,025,596
4		Plant - Completed by December 2015	5,759,911	-	-	5,759,911	6.24%	359,418
5		TOTAL INTANGIBLE PLANT	$ 72,962,289	$ -	$ 80,900	$ 72,881,389		$ 4,495,102
		PRODUCTION PLANT						
		STEAM PRODUCTION						
6	310	Land and Land Rights	11,312,298	-	10,344,294	968,004	2.86%	27,685
7	311	Structures and Improvements	264,015,312	-	-	264,015,312	2.77%	7,313,224
8	312	Boiler Plant Equipment	1,067,453,561	-	-	1,067,453,561	2.47%	26,366,103
9	314	Turbogenerator Units	433,460,517	-	-	433,460,517	3.47%	15,041,080
10	315	Accessory Electric Equipment	137,001,041	-	-	137,001,041	2.42%	3,315,425
11	316	Miscellaneous Power Plant Equipment	30,642,585	-	-	30,642,585	3.86%	1,108,932
12	317	ARO Cost - Steam Production	2,982,107	-	-	2,982,107	1.42%	42,346
13		TOTAL STEAM PRODUCTION	$ 1,946,867,421	$ -	$ 10,344,294	$ 1,936,523,127		$ 53,294,795
		OTHER PRODUCTION						
14	340	Land and Land Rights	1,147,268	-	1,147,268	-	2.86%	-
15	341	Structures and Improvements	64,031,139	-	2,791,085	61,240,054	2.80%	1,714,722
16	342	Fuel Holders, Producers and Accessories	14,882,061	-	330,523	14,551,538	2.27%	330,320
17	343	Prime movers	579,207,701	-	77,047,092	502,160,609	4.20%	21,090,746
18	344	Generators	831,228,149	-	-	831,228,149	4.05%	33,664,740
19	345	Accessory Electric Equipment	109,080,702	-	5,481,438	103,599,264	3.13%	3,242,657
20	346	Miscellaneous Power Plant Equipment	8,541,234	-	965,261	7,635,973	3.03%	231,370
21	347	ARO Cost - Other Production	43,620,335	-	-	43,620,335	0.92%	401,307
22	114	Acquisition Adjustment - Redbud	148,301,899	-	-	148,301,899		-
23		TOTAL OTHER PRODUCTION	$ 1,800,040,488	$ -	$ 87,702,667	$ 1,712,337,821		$ 60,675,862
24		Plant - Completed by December 2015	55,431,368	-	-	55,431,368	3.98%	2,195,082
25		TOTAL PRODUCTION PLANT	$ 3,802,339,277	$ -	$ 98,046,961	$ 3,704,292,316		$ 116,165,739
		TRANSMISSION PLANT						
26	350	Land and Land Rights	113,969,935	-	3,543,421	110,426,514	1.35%	1,490,758
27	352	Structures and Improvements	6,240,852	-	-	6,240,852	1.67%	104,222
28	353	Station Equipment	679,979,747	-	2,666,214	677,313,533	2.23%	15,104,092
29	354	Towers and Fixtures	30,024,032	130,184,491	-	160,178,523	1.40%	2,242,499
30	355	Poles and Fixtures	154,443,964	683,311,079	-	837,755,043	2.90%	24,294,896
31	356	Overhead Conductors and Devices	566,151,790	-	-	566,151,790	2.54%	14,380,255
32	358	Underground Conductors and Devices	110,494	-	-	110,494	0.27%	298
33	359	ARO Cost - Transmission	585,057	-	-	585,057	1.01%	5,909
34	114	Acquisition Adjustment - Edmond Substations	3,341,804	-	-	3,341,804		-
35		Plant - Completed by December 2015	15,537,187	-	-	15,537,187	2.44%	379,107
					-	-		
36		TOTAL TRANSMISSION PLANT	$ 1,570,384,862	$ 813,495,570	$ 6,209,635	$ 2,377,640,797		$ 58,002,036
		DISTRIBUTION PLANT						
37	360	Land and Land Rights	12,738,057	-	7,793,951	4,944,106	1.53%	75,645
38	361	Structures and Improvements	6,909,394	-	-	6,909,394	1.71%	118,151
39	362	Station Equipment	593,887,917	-	-	593,887,917	2.16%	12,827,979
40	364	Poles, Towers, and Fixtures	569,971,852	-	-	569,971,852	2.89%	16,472,187
41	365	Overhead Conductors and Devices	444,829,249	-	-	444,829,249	2.69%	11,965,907
42	366	Underground Conduit	199,456,583	-	-	199,456,583	2.20%	4,388,045
43	367	Underground Conductors and Devices	707,814,068	-	-	707,814,068	1.95%	13,802,374
44	368	Line Transformers	423,587,746	-	-	423,587,746	3.44%	14,571,416
45	369	Services	238,332,408	-	-	238,332,408	2.01%	4,790,481
46	370	Meters	168,174,016	-	-	168,174,016	6.52%	10,964,946
47	371	Installation on Customers' Premises	43,468,586	-	-	43,468,586	21.81%	9,480,499
48	372	Leased Property on Customer's Premises	-	-	-	-		-
49	373	Street Lighting and Signal Systems	224,772,528	-	-	224,772,528	5.18%	11,643,217
50		Plant - Completed by December 2015	86,703,523	-	-	86,703,523	3.03%	2,627,117
51		TOTAL DISTRIBUTION PLANT	$ 3,720,845,927	$ -	$ 7,793,951	$ 3,712,851,976		$ 113,727,966
		GENERAL PLANT						
52	389	Land and Land Rights	2,847,527	-	2,699,702	147,825	2.74%	4,050
53	390	Structures and Improvements	162,367,153	-	-	162,367,153	2.03%	3,296,053
54	391	Office Furniture and Equipment	16,014,137	-	-	16,014,137	8.61%	1,378,817
55	392	Transportation Equipment	78,524,364	-	-	78,524,364	6.19%	4,860,658
56	393	Stores Equipment	1,303,165	-	-	1,303,165	4.00%	52,127
57	394	Tools, Shop and Garage Equipment	10,036,365	-	-	10,036,365	4.00%	401,455
58	395	Laboratory Equipment	12,045,884	-	-	12,045,884	5.00%	602,294
59	396	Power Operated Equipment	9,131,763	-	-	9,131,763	4.86%	443,804
60	397	Communication Equipment	22,501,008	-	-	22,501,008	10.00%	2,250,101
61	398	Miscellaneous Equipment	6,018,554	-	-	6,018,554	5.00%	300,928
62		Plant - Completed by December 2015	15,640,307	-	-	15,640,307	4.07%	636,560
63								
64		TOTAL GENERAL PLANT	$ 336,430,227	$ -	$ 2,699,702	$ 333,730,525		$ 14,226,847
65		TOTAL ELECTRIC PLANT IN SERVICE	$ 9,502,762,582	$ 813,495,570	$ 114,831,149	$ 10,201,397,003		$ 306,617,690
66		Remove Transportation Activity Depreciation					0.4988	(2,424,496)
67		Holding Company	114,638,526	-	-	114,638,526	9.08%	10,409,178
68		Estimated Plant	-			-	9.08%	-
69		TOTAL HOLDING COMPANY	$ 114,638,526	$ -	$ -	$ 114,638,526		$ 10,409,178
70		TOTAL COMPANY	$ 9,617,401,108	$ 813,495,570	$ 114,831,149	$ 10,316,035,529		$ 314,602,372

Note: Many rates are composite since multiple rates can exist within each FERC account.

Pro Forma Plant per Sch. B-3	9,617,401,108
Remove fully Depreciated or non-depreciable	(114,831,149)
Total	9,502,569,959
Should equal Transmission adj.	$ 813,495,570
Check figure	$ -

Section I - Depreciation & Amortization

WP I-3

W/P I - 3

OKLAHOMA GAS AND ELECTRIC COMPANY
SUMMARY OF ESTIMATED SURVIVOR CURVES, NET SALVAGE, ORIGINAL COST, BOOK RESERVE AND CALCULATED
ANNUAL DEPRECIATION RATES AS OF DECEMBER 31, 2014
TEST YEAR ENDING 6/30/15
CAUSE NO. PUD 201500273

	ACCOUNT (1)	SURVIVOR CURVE (2)	NET SALVAGE PERCENT (3)	ORIGINAL COST (4)	BOOK RESERVE (5)	FUTURE ACCRUALS (6)	TOTAL ANNUAL ACCRUAL AMOUNT (7)	TOTAL ANNUAL ACCRUAL RATE (8)=(7)/(4)	COMPOSITE REMAINING LIFE (9)
	GENERAL PLANT								
389.1	LAND			2,866,064.39					
389.2	LAND RIGHTS	45-R4	0	147,844.49	82,176	65,668	4,058	2.74	16.2
390.0	STRUCTURES AND IMPROVEMENTS	40-R2.5	0	164,117,131.34	65,810,486	98,306,645	3,329,857	2.03	29.5
	OFFICE FURNITURE AND EQUIPMENT								
391.0	OFFICE FURNITURE AND EQUIPME	15-SQ	0	12,773,167.26	3,465,050	9,308,117	851,517	6.67	10.9
391.1	COMPUTER EQUIPMENT	5-SQ	0	726,800.86	403,920	322,881	145,355	20.00	2.2
	TOTAL OFFICE AND FURNITURE EQUIPMENT			13,499,968.12	3,868,970	9,630,998	996,872		
	TRANSPORTATION EQUIPMENT								
392.1	CARS AND TRUCKS	9.5-S2.5	10	18,189,605.87	9,027,433	7,343,212	1,347,380	7.41	5.4
393.5	HEAVY TRUCKS	13-L2.5	10	52,763,702.68	23,493,088	23,994,244	3,055,061	5.79	7.9
393.6	TRAILERS	23-S0.5	10	4,712,698.91	1,132,187	3,109,242	165,857	3.52	18.7
	TOTAL TRANSPORTATION EQUIPMENT			75,666,007.46	33,652,708	34,446,698	4,568,298		
393.0	STORES EQUIPMENT	25-SQ	0	740,515.71	391,985	348,531	29,603	4.00	11.8
394.0	TOOLS, SHOP AND GARAGE EQUIPMI	25-SQ	0	9,861,716.62	4,234,400	5,627,317	394,750	4.00	14.3
395.0	LABORATORY EQUIPMENT	20-SQ	0	11,618,007.96	5,020,220	6,597,788	581,408	5.00	11.3
396.0	POWER OPERATED EQUIPMENT	18-L2	15	9,218,432.91	3,002,848	4,832,820	448,177	4.86	10.8
397.0	COMMUNICATION EQUIPMENT	10-SQ	0	22,056,606.36	6,565,140	15,491,466	2,206,107	10.00	7.0
398.0	MISCELLANEOUS EQUIPMENT	20-SQ	0	5,833,192.57	2,285,735	3,547,458	291,909	5.00	12.2
	TOTAL GENERAL PLANT			315,625,487.93	124,914,668	178,895,389	12,851,039	4.07	13.9

OG&E
PUD Cause No. 201500273

Analysis Of Holding Company
Depreciation Expense

Line No.	Account	DESCRIPTION	NET SALVAGE % (1)	ORIGINAL COST (2)	NET SALVAGE (3)	BOOK RESERVE (4)	FUTURE ACCRUALS (5)	ANNUAL ACCRUAL AMOUNT (6)	ANNUAL ACCRUAL RATE (7)=(6)/(2)	REM LIFE (8)
1	392.01	STANDARD CARS	10.00%	$359,338	$35,934	$75,600	$247,804	$27,843	7.75%	8.90
2	392.03	PICKUP TRUCKS	10.00%	$1,712,208	$171,221	$827,494	$713,493	$81,079	4.74%	8.80
3	392.04	LIGHT TRUCKS	10.00%	$588,365	$58,836	$286,033	$243,495	$29,695	5.05%	8.20
4	392.05	HEAVY TRUCKS	10.00%	$2,051,252	$205,125	$334,495	$1,511,632	$201,551	9.83%	7.50
5	392.08	TRAILERS	10.00%	$649,567	$64,957	$126,021	$458,589	$33,474	5.15%	13.70
6	392.11	ELECTRIC VEHICLES	10.00%	$31,717	$3,172	$31,717	-$3,171		0.00%	
7	392.89	MOTOR HOME	10.00%	$112,599	$11,260	$94,421	$6,918	$2,882	2.56%	2.40
8		TOTAL TRANSP. EQUIPMENT		$5,505,045	$550,505	$1,775,781	$3,178,760	$376,523	6.84%	
9										
10	396.00	POWER OPERATED EQUIPMENT	15.00%	$1,377,341	$206,601	$426,750	$743,990	$44,285	3.22%	16.80
11										
12		TOTAL GENERAL PLANT		$6,882,387	$757,106	$2,202,531	$3,922,750	$420,809	6.11%	9.30
13										
14		Adjustment						-$79,750		

OG&E
PUD Cause No. 201500273

Analysis Of Holding Company
Depreciation Expense

Line No.	Account	DESCRIPTION	Net % (1)	ORIGINAL COST (2)	Net Salvage (3)	BOOK RESERVE (4)	FUTURE ACCRUALS (5)	ANNUAL ACCRUAL AMOUNT (6)	ANNUAL ACCRUAL RATE (7)=(6)/(2)	REM LIFE (8)
1	392.01	STANDARD CARS	0.00%	$359,338	$0	$75,600	$283,738	$31,881	8.87%	8.90
2	392.03	PICKUP TRUCKS	0.00%	$1,712,208	$0	$827,494	$884,714	$100,536	5.87%	8.80
3	392.04	LIGHT TRUCKS	0.00%	$588,365	$0	$286,033	$302,332	$36,870	6.27%	8.20
4	392.05	HEAVY TRUCKS	0.00%	$2,051,252	$0	$334,495	$1,716,757	$228,901	11.16%	7.50
5	392.08	TRAILERS	0.00%	$649,567	$0	$126,021	$523,546	$38,215	5.88%	13.70
6	392.11	ELECTRIC VEHICLES	0.00%	$31,717	$0	$31,717	$0		0.00%	
7	392.89	MOTOR HOME	0.00%	$112,599	$0	$94,421	$18,178	$7,574	6.73%	2.40
8		TOTAL TRANSPORTATION EQUIPMENT	0.00%	$5,505,045	$0	$1,775,781	$3,729,264	$443,976	8.06%	
9	396.00		0.00%							
10		POWER OPERATED EQUIPMENT	0.00%	$1,377,341	$0	$426,750	$950,591	$56,583	4.11%	16.80
11										
12		TOTAL GENERAL PLANT		$6,882,387	$0	$2,202,531	$4,679,856	$500,559	7.27%	9.30

CERTIFICATE OF SERVICE

On this 21st day of March, 2016, a true and correct copy of the above and foregoing *Responsive Testimony and Exhibits of E. Cary Cook on Behalf of E. Scott Pruitt, Oklahoma Attorney General*, was sent via electronic mail to the following interested parties:

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Cause No. PUD 201500273
Responsive Testimony and Exhibits of E. Cary Cook
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