BEFORE THE CORPORATION COMMISSION OF THE STATE OF OKLAHOMA

IN THE MATTER OF THE APPLICATION OF OKLAHOMA GAS AND ELECTRIC COMPANY FOR AN ORDER OF THE COMMISSION APPROVING A RECOVERY MECHANISM FOR EXPENDITURES RELATED TO THE OKLAHOMA GRID ENHANCEMENT PLAN	)	CAUSE NO. PUD 202000021

RESPONSIVE TESTIMONY OF BRICE D. BETCHAN
ON BEHALF OF
MIKE HUNTER, OKLAHOMA ATTORNEY GENERAL

Mike Hunter, the Attorney General of Oklahoma, on behalf of the utility customers of this State, hereby submits the Responsive Testimony of Brice D. Betchan in the proceeding referenced above. The Attorney General urges close consideration of the testimony.

Respectfully submitted,

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CERTIFICATE OF SERVICE

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RESPONSIVE TESTIMONY

OF

BRICE D. BETCHAN

ON BEHALF OF

MIKE HUNTER,

OKLAHOMA ATTORNEY GENERAL

August 25, 2020

TABLE OF CONTENTS

I. Introduction 6

II. Customer Rate Impact 7

III. Avoided Cost Analysis 12

A. OGE's avoided cost analysis omits any risk or variability of outcome. 15

B. OGE's avoided cost analysis lacks a refined time period and does not consider individual projects or technologies. 19

C. OGE's avoided cost analysis shows the Company has not considered fully allocated costs to customers. 23

D. OGE failed to consider options that would include a reasonable mixture of capital expenditures and ongoing expenses. 29

IV. Conclusion 32

I. Introduction

Q. PLEASE STATE YOUR NAME.

A. My name is Brice D. Betchan.

Q. PLEASE IDENTIFY YOUR EMPLOYER AND YOUR BUSINESS ADDRESS.

A. I am employed by the Oklahoma Office of the Attorney General ("Attorney General"). My business address is 313 NE 21st Street, Oklahoma City, Oklahoma 73105.

Q. WHAT IS YOUR EDUCATIONAL AND PROFESSIONAL BACKGROUND?

A. I graduated summa cum laude from Southwestern Oklahoma State University with a Bachelor of Business Administration degree in Accounting and summa cum laude from Oklahoma State University with a Master of Science degree in Accounting. I was employed by Ernst & Young, LLP as an intern from January through March of 2015, then started fulltime as a staff member with Ernst & Young, LLP in January of 2016. I passed all four sections of the Certified Public Accountant examination, on my first attempt, by the end of 2015. I became a credentialed Certified Public Accountant in the State of Oklahoma in April 2017. I was a Tax Senior III before leaving Ernst & Young in January of 2020. I have been employed by the Attorney General since February of 2020 as a Certified Public Accountant in the Utility Regulation Unit. I have attached my curriculum vita as Exhibit BDB-1.

Q. HAVE YOU PREVIOUSLY FILED TESTIMONY BEFORE THE OKLAHOMA CORPORATION COMMISSION?

A. Yes, I have previously testified before the Commission. My credentials were accepted at that time.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS CAUSE?

A. The purpose of my testimony is to discuss my evaluation of the customer impact and avoided cost analysis presented by Oklahoma Gas and Electric Company ("OGE" or "Company") to support its application regarding the Oklahoma Grid Enhancement Plan ("OGE Plan" or "Plan") in this case. To summarize, my testimony supports the following conclusions:

1. OGE did not fairly present the customer impact of the OGE Plan in the initial application.
2. OGE's avoided cost analysis did not account for risk or variability in outcomes, and does not contain investment-by-investment estimates of benefits. It also does not represent fully allocated costs to customers as a revenue requirement cost-benefit analysis does.
3. OGE failed to consider a mix of capital and operating and maintenance expenses in the OGE Plan, meaning there is no reason to think the outcome represents the lowest reasonable cost for customers.

II. Customer Rate Impact

Q. HOW IS OGE PRESENTING THE OGE PLAN'S REVENUE REQUIREMENT AND BILL INCREASES TO CUSTOMERS IN ITS DIRECT TESTIMONY?

A. OGE is presenting the Plan's revenue requirements and showing its costs to customers only for the years 2020 and 2021.[1] However, the OGE Plan is a five-year capital expenditure

[1] Errata Filing of the Direct Test. of Donald Rowlett 12, Table 2 & Ex. DRR-2 (Apr. 24, 2020) [hereinafter "Rowlett Direct Errata"].

project for 2020, 2021, 2022, 2023, and 2024 that seeks recovery beyond these years.[2] Under the mechanisms proposed structure, 2025 would be the first year all Plan capital expenditures are included in rates, if approved.[3] The proposed tariff would continue until all mechanism costs are recovered from customers or until changed by the Commission.[4]

Q. IS OGE'S PRESENTATION OF REVENUE REQUIREMENT AND YEARLY COST TO CUSTOMERS MISLEADING?

A. Yes. Presenting only the 2020 and 2021 revenue requirements and billing increases is misleading because OGE is relying on regulatory lag to show small billing increases to customers for the first two years. OGE provided that the 2020 revenue requirement is $1,391,697 and the 2021 revenue requirement is $15,379,969.[5] However, the Company acknowledged that the actual revenue requirement for 2020 and 2021 would be $2,767,761, and $22,844,423, respectively, for investments in place at the end of each year.[6] By presenting costs by amounts collected, and by only showing the first two years of the Plan, the full breadth of the Plan's billing increases are not entirely shown, even for the first two years. Rate increases are hidden in years from 2022 to 2025.[7]

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[2] Direct Test. of Donald Rowlett on Behalf of Oklahoma Gas and Electric 5:9−12 (Feb. 24, 2020) [hereinafter "Rowlett Direct"]; OGE's Supp. Response to OIEC-OGE-1-6.
[3] *See* Direct Test. of Gwin Cash on behalf of Oklahoma Gas and Electric 5:3–5 & Chart 1 (Feb. 24, 2020) [hereinafter "Cash Direct"].
[4] OGE's Response to AG-OGE-8-8.
[5] Rowlett Direct Errata 12, Table 2.
[6] OGE's Supp. Response to AG-OGE-3-24.
[7] *See* OGE's Supp. Response to OIEC-OGE-1-6.

Q. WHAT ARE THE YEARLY ANNUAL REVENUE REQUIREMENTS BY BILLING COLLECTIONS AND BILL INCREASES?

A. I am providing the 2020 to 2025 revenue requirements and billing increases by customer class, which should have been shown in the initial filing, as these were easily estimated and quantifiable. Table 1 below provides the 2020 to 2025 revenue requirements by year.[8] Table 1 illustrates that the 2022 revenue requirement increases to $38,425,561, the 2023 revenue requirement increases to $61,309,662, the 2024 revenue requirement increases to $83,414,334, and the 2025 revenue requirement increases to $97,724,419. Over five years, from 2020 to 2025, the total revenue requirement to be collected from customers for the Plan is $297,645,643.[9]

[8] Table 1 reproduces data available in OGE's Supplemental Response to OIEC-OGE-1-6.
[9] This represents the sum of Table 1. Oklahoma Jurisdictional Revenue Requirement, from 2020 through 2025. The sum does not reflect revenue requirement past 2025. The Plan may continue past 2025 as the proposed tariff would continue until all mechanism costs are recovered from customers or until changed by the Commission.

Table 1

Oklahoma Jurisdictional
Estimated Revenue Requirement

	2020	2021	2022	2023	2024	2025
Actual YE Plant in Service	$80,800,000	$255,200,000	$440,194,206	$625,197,103	$810,200,000	$810,200,000
Actual YE Accum. Depreciatior	($945,335)	($7,787,249)	($22,660,080)	($45,205,167)	($75,427,557)	($107,554,357)
Actual YE ADIT Liability	($710,757)	($4,848,087)	($12,904,374)	($22,522,787)	($33,065,510)	($42,159,591)
Net Rate Base	$79,143,907	$242,564,665	$404,629,752	$557,469,149	$701,706,932	$660,486,052
Return Requirement Recovered	1,009,188	10,588,933	25,173,945	39,667,969	53,371,630	62,196,322
Depreciation Expense	315,112	4,253,426	12,277,708	19,985,986	27,663,289	32,479,301
Ad Valorem Taxes	73,124	781,341	1,916,866	3,119,447	4,324,926	5,229,035
Total Company Revenue Req.	1,397,424	15,623,699	39,368,518	62,773,402	85,359,845	99,904,657
Oklahoma Juris. Rev. Req.	1,391,697	15,379,970	38,425,561	61,309,662	83,414,334	97,724,419
Return on Rate Base with taxes	9.07%	9.07%	9.07%	9.07%	9.07%	9.07%

Table 2 below contains a summary of bill increases from 2020 to 2025 by customer class.[10] The bill increases used in Table 2 reflect increases over the current revenue requirement.

Table 2

Total OGE Plan Impact						
	2020	**2021**	**2022**	**2023**	**2024**	**2025**
Res	0.10%	1.15%	2.86%	4.57%	6.22%	7.30%
GS	0.11%	1.21%	2.96%	4.72%	6.43%	7.57%
PL	0.07%	0.72%	1.79%	2.86%	3.90%	4.57%
LPL	0.02%	0.26%	0.73%	1.16%	1.56%	1.78%

Q. WHAT ARE THE CUMULATIVE EFFECTS OF THE BILLING INCREASES NOT PRESENTED BY OGE AND HOW DO THESE COMPARE TO OGE'S PRESENTATION?

A. As depicted by Table 2, residential customers will see a 7.30% increase in rates; general service customers will see a 7.57% increase in rates; power and light customers will see a

[10] Table 2 reproduces data available in OGE's Supplemental Response to OIEC-OGE-5-8.

4.57% increase in rates; and large power and light customers will see a 1.78% increase in rates by 2025.

OGE only presented the 2020 and 2021 columns of Tables 1 and 2 in direct testimony.[11] Additionally, OGE only made cursory mention of residential customers while not fully disclosing billing increases by class. Referring to residential customers, the Company noted, the "year over year total bill change for the remaining three years of the Plan is projected to be below 1.7% on an annual average basis."[12] Not only does the Company's direct testimony not fully disclose cumulative billing increases, but the Company's testimony also fails to disclose all billing increases, as OGE is referring to years 2022 to 2024. Since 2025 would be the first year in which all projects under the Plan would be in service and in bills, this would be the first period in which customers see all year-over-year billing increases.[13]

Q. WHAT RATIONALE DOES OGE PROVIDE FOR NOT PRESENTING ALL CUMULATIVE BILLING IMPACTS IN DIRECT TESTIMONY?

A. OGE indicated that "[t]wo years of customer impacts were provided since generally rate cases have been filed every one to two years."[14]

Q. DO YOU TAKE ISSUE WITH OGE'S RATIONALE?

A Yes. OGE did not discuss or create an expectation of its next rate case in direct testimony, nor did it propose a required date for its next rate case proceeding. Regardless of rate case

[11] Rowlett Direct Errata 12, Table 2 & Ex. DRR-2.
[12] Rowlett Direct Errata 12:17; Rowlett Direct 13:1−2.
[13] *See* Cash Direct 5:3−5.
[14] OGE's Response to AG-OGE-7-4.

timing, if the current rider mechanism is approved in its proposed form, rates would still increase as shown in Table 2. OGE's response simply considers the impact of the first two years of capital investments under the rider, rather than the cumulative billing increases to customers which extends beyond 2024.

III. Avoided Cost Analysis

Q. HOW IS OGE PRESENTING THE QUANTITATIVE BENEFITS OF THE OGE PLAN?

A. OGE is presenting the quantitative benefits as either avoided cost of service or imputed reliability benefits.[15] The avoided cost of service benefits include storm and non-storm avoided operations and maintenance ("O&M") expenses and avoided storm and non-storm capital expenditures.[16] The imputed reliability benefits are calculated using the Department of Energy's ("DOE") Interruption Cost Estimate ("ICE") calculator which quantifies the monetary cost of sustained outages to residential, commercial and industrial customers on their side of the meter.[17] While Todd F. Bohrmann discusses OGE's use of the DOE ICE calculator, my testimony focuses on OGE's avoided cost analysis.

Q. WHAT DOES THE COMPANY STATE THESE AVOIDED COST BENEFITS ARE?

A. OGE states that the storm and non-storm avoided O&M benefits are $120,000,000, the storm and non-storm avoided capital cost benefits are $380,000,000.[18] OGE calculated the

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[15] Direct Test. of Zachary Gladhill on behalf of Oklahoma Gas and Electric 15:8−11 (Feb. 24, 2020) [hereinafter "Gladhill Direct"]. While OGE uses the term "avoided economic harm," the Attorney General believes "imputed reliability benefits" is a more accurate term for behind-the-meter benefits.
[16] Gladhill Direct 16:21−23.
[17] Gladhill Direct 17:17−20.
[18] Gladhill Direct 17, Table 2.

avoided O&M and avoided capital cost benefits at an assumed 60 percent reliability improvement.[19]

Q. WHAT IS NET PRESENT VALUE AND HOW DID OGE USE IT TO SELECT PROJECTS FOR 2020?

A. Net present value is the difference between monetary inflows and monetary outflows over a period of time, generally placing greater value on monetary flows in the near term than those in the more distant future. Net present value requires a number of assumptions including outflows, inflows, a period of time which the inflows continue, and a discount rate in the form of a percentage at which future monetary flows are discounted. In the current Cause, OGE has computed NPV by substation.[20] The Company is using the expected cost of all projects at a particular substation as the outflow. Then, OGE has calculated the avoided cost benefits previously mentioned by assuming a 60 percent reliability improvement over 30 years, creating monetary inflows. Lastly, OGE is discounting the inflows at the Company's weighted average cost of capital ("WACC").[21] After OGE calculated the NPV for each substation and circuit included in the OGE Plan, the Company only included substations and circuits in the 2020 Plan that had positive NPV without considering the imputed reliability benefits.[22]

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[19] Gladhill Direct 16:6−8.
[20] OGE's July 9, 2020 Supp. Response to AG-OGE-7-11.
[21] *Id.*
[22] Direct Test. of Kandace Smith on Behalf of Oklahoma Gas and Electric 9:13−14 (Feb. 24, 2020) [hereinafter "Smith Direct"].

Q. WHAT DOES POSITIVE, ZERO, OR NEGATIVE NPV DENOTE?

A. Since OGE used its WACC, a positive NPV denotes that a project would be profitable to the Company. A zero NPV indicates that a project's expected return would be equal to its WACC or at its breakeven point. A negative NPV indicates that a project would be unprofitable.

Q. WHAT ELSE SHOULD BE NOTED ABOUT POSITIVE NPV?

A. Positive NPV does not indicate that an investment provides ample returns, but simply that the investment is expected to return more than it costs, given the listed assumptions. For example, a project with a NPV of 1, although positive, may not necessarily be a project considered viable due to variability in NPV calculations.

Q. WHY DOES OGE USE A POSTIVE NPV AS ITS FIRST GUIDING PRINCIPLE IN THE 2020 MODEL STAGE TO MAKE ITS INVESTMENT DECISIONS?

A. OGE likely included positive NPV as its first guiding principle in selecting projects to ensure the benefits of each project outweighed their associated costs to the Company. This concept is similar to a for-profit business ensuring the goods they sell are sold at prices higher than they purchased them for.

Q. DO YOU HAVE ANY CONCERNS WITH HOW OGE HAS DEVELOPED ITS NPV AVOIDED COST ANALYSIS?

A. Yes. My concerns include OGE's lack of consideration of variability in NPV inputs such as cost overruns and suboptimal reliability improvements. My concerns also include OGE's lack of use of a refined time period of expected improvement in its NPV calculations.

A. OGE's avoided cost analysis omits any risk or variability of outcome.

Q. HOW SHOULD THE NPV CALCULATIONS BE USED IN EVALUATING PROJECTS?

A. When using the NPV method to select projects, projects should be evaluated at varying levels of inputs. Cost overrun situations should be considered, suboptimal improvements in reliability should be examined, and refined estimates of discount periods should be evaluated. A prudent business would conduct an analysis that considers both risk and variability in outcomes. A business may conduct this type of analysis in the form of differing cases or expected outcomes. For example, a business may have an alternate set of inputs for a suboptimal, a likely, and an optimal case. These distinct cases allow companies to more dynamically track expected outcomes.

Q. DID OGE CONDUCT AN ANALYSIS THAT ACCOUNTS FOR DIFFERING OUTCOMES?

A. No. OGE only performed its NPV analysis at a 60 percent reliability improvement, using its estimated costs, and an expected 30 year improvement period. No other distinct cases were considered. This is why it is important to note that cost overrun situations should have been considered, suboptimal improvements in reliability should have been examined, and refined estimates of discount periods should have been evaluated.

Q. HAVE YOU SEEN ANY POTENTIAL PROJECT COST OVERRUNS ALREADY?

A. Yes. Three of the thirty substations, or 10 percent of the Company's substations targeted in the 2020 Plan, have potential cost overruns. The expected cost of the Healdton 21

substation and circuit project is $3,498,665.[23] However, the Company approved an Authorization for Expenditure ("AFE") of $5,043,720, which is 44.2 percent greater than the estimated cost.[24] There are also potential cost overruns with the Eighty Fourth St 31 and Tibbens Road 24 substation and circuit projects as well.[25] Both of these projects have Company approved AFEs greater than their costs listed on the cost-benefit analysis and the Company's statement of work. The Eighty Fourth St 31 substation and circuit has an AFE 2.8% greater than the Company's estimated cost, while the Tibbens Road 24 substation and circuit has an AFE 20.9% greater than the Company's estimated cost.[26]

Q. WHAT ISSUE DO YOU TAKE WITH THESE POTENTIAL COST OVERRUNS?

A. There is nothing within the Company's proposal to limit recovery of all costs, if the projects ultimately cost more than projected. The Company's NPV calculations also do not account for these potential cost overruns.

Q. DO YOU HAVE ANY OTHER CONCERNS WITH OGE'S LACK OF CONSIDERATION FOR VARIABILITY BEYOND POTENTIAL COST OVERRUNS?

A. Yes. OGE also failed to consider varying degrees of reliability improvement. OGE saw a 55 percent improvement with its Monte Carlo analysis of Arkansas circuits, then increased this to a 60 percent improvement when calculating the avoided cost benefits for

[23] OGE's July 9, 2020 Supp. Response to AG-OGE-7-11.
[24] OGE's Response to OIEC-OGE-9-8. 44.2 percent is the result of dividing the $1,545,055 overrun by the expected cost of $3,498,665.
[25] OGE's Supp. Response to OIEC-OGE-9-8.
[26] 2.8 percent is the result of dividing the $35,843 overrun by the expected cost of $1,271,255; 20.9 percent is the result of dividing the $223,381 overrun by the expected cost of $1,070,306.

Oklahoma.[27] OGE did not evaluate its circuits at a 55 percent improvement, but used it as a starting point to increase its estimated reliability improvement to 60 percent.

Further, OGE's basis for using a 60 percent reliability improvement over 30 years is a single year of data.[28] Using only one year of data to project 30 years of improvement does not take into account suboptimal outcomes or that reliability improvements may see diminishing returns after the worst performing circuits are improved. Diminishing returns could occur because after the worst performing circuits are targeted for improvement, the next set of circuits targeted would not be as poor performing as the previous set, resulting in less improvement experienced.

Q. HOW DID THE COMPANY EVALUATE THE NPV CALCULATIONS AT VARYING DEGREES OF RELIABILITY?

A. The Company did not evaluate the NPV calculations at varying degrees of reliability improvement as part of its application and direct testimony.[29]

Q. HOW DID THE ATTORNEY GENERAL EVALUATE THE NPV CALCULATIONS AT VARYING DEGREES OF RELIABILITY?

A. The Attorney General requested the Company evaluate NPV on a project-by-project basis using varying degrees of reliability improvement.[30] OGE's response provided NPV by substation at 30, 40, 50, 55 and 60 percent reliability improvements.[31] In evaluating these substations at varying degrees of reliability, several substation projects would no longer be

[27] OGE's Response to AG-OGE-6-4; Gladhill Direct 16:14−18.
[28] Gladhill Direct 12:14−17 & 13, Chart 3.
[29] OGE's Response to AG-OGE-7-15.
[30] OGE's Response to AG-OGE-7-16.
[31] *Id.*

included in the Company's 2020 Plan using the Company's guiding principle of positive NPV without the avoided economic harm benefits. Please see Exhibit BDB-2, which lists substations with negative NPV at varying degrees of reliability improvement. These substations would no longer be included in the Company's 2020 OGE Plan, if these varying degrees of reliability would have been used instead of a 60 percent reliability improvement. Exhibit BDB-2 provides specific information about the avoided costs at these substations using varying degrees of input.

Q. DOES OGE'S RESPONSE PROVIDING PROJECT NPV AT DIFFERENT RELIABILITY LEVELS CONERN YOU?

A. Yes. As explained by Attorney General expert witness, James B. Alexander, the cost improvements projected by OGE may rely on numerous unrealistic assumptions. The variability shown in the reliability improvement NPV calculations based on actual avoided costs casts doubt on the scope and magnitude of the proposed work on substations and circuits. While there are several projects with significantly positive NPV at all reasonable levels of improvement, investments with speculative benefits should not be pursued in the proposed alternative recovery mechanism. Traditional ratemaking allows a Company to pursue speculative benefits and only recover costs from customers when prudence is determined. Pursuing projects with speculative benefits in the proposed rider mechanism would shift the risk of recovery from shareholders to customers until prudence is determined, thus creating the inverse of traditional ratemaking. Shareholders should bear the risk of recovery to earn a rate of return on their capital, as it is not a guaranteed return.

Q. WHAT OTHER ITEMS SHOW VARIABILITY IN THE NPV CALCULATIONS THAT SHOULD BE CONSIDERED?

A. OGE's initial filing identified 33 substations targeted for improvement in 2020.[32] OGE then removed 3 substations from the 2020 OGE Plan while providing NPV at varying degrees of reliability.[33] OGE discovered that project administrative costs were not fully allocated and would result in negative NPV for the Beeline, Midway, and Westoaks substations, even at a 60 percent reliability improvement.[34] These projects totaled $8,211,587 or 9.22% of the initial 2020 Plan total project cost of $89,036,320.[35] OGE's removal of the Beeline, Midway, and Westoaks substations further demonstrates the sensitivity of the NPV calculations that should have been considered by the Company in its initial selection of projects.

B. OGE's avoided cost analysis lacks a refined time period and does not consider individual projects or technologies.

Q. PLEASE STATE YOUR CONCERN WITH THE LACK OF A REFINED BENEFIT OR IMPROVEMENT PERIOD.

A. OGE's use of a 30-year time period of expected benefits is estimated. The Company provided that the 30-year planning horizon is based on looking at the general lifecycle of assets being installed and the expectation of how long benefits will be seen.[36]

While the 30-year planning horizon may be a good estimate, this is a significant input in the NPV calculations at all levels of reliability input. Shortening the benefit period would

[32] Smith Direct 11:29−31.
[33] OGE's Response to AG-OGE-7-16.
[34] *Id*.
[35] OGE's Response to AG-OGE-3-23.
[36] OGE's Response to AG-OGE-3-12.

decrease NPV calculations, while lengthening it would increase NPV calculations. Due to the Company's guiding investment principle of positive NPV, a small deviation in the benefit period could result in a project being included in the 2020 OGE Plan when it would not have a positive NPV. Refined benefit periods should have been used when OGE performed its NPV calculations and evaluations. The refined benefit period should have been based on the particular assets installed at each substation, as the Company is not uniformly targeting each substation and circuit with the same set of investments. This level of analysis would better calculate the NPV of the substations targeted and would help establish a more granular cost-benefit analysis on an asset-by-asset basis, rather than on a substation-by-substation basis.

Q. DESPITE OGE'S COMMITMENT TO POSITIVE NPV FOR THE 2020 OGE PLAN, DOES OGE'S GRID ENHANCEMENT PLAN HAVE A POSITIVE NPV ON AN OVERALL BASIS WHEN CONSIDERING ONLY THE AVOIDED COST OF SERVICE BENEFITS?

A. No. OGE's roughly $500 million in avoided cost benefits are greater than the associated $810.2 million cost of the OGE Plan.[37] Using OGE's own NPV model comparing OGE's

[37] OGE's Response to AG-OGE-10-8.

projected avoided costs to the costs of the OGE Plan, results in a roughly $205 million negative NPV.[38]

Q. WHAT IS THE IMPLICATION OF THE OVERALL OGE PLAN HAVING A NEGATIVE NPV WHEN ONLY CONSIDERING THE AVOIDED COST BENEFITS?

A. The overall negative NPV of the OGE Plan calls into question the urgency and magnitude of the Company's stated necessity for the Plan. The Company describes that it is essential the Plan be completed in the timeframe proposed, but when considering its own benefits, the Company would likely not pursue these projects based on their own merits.[39] The Company must consider benefits outside of its own, which means that a for-profit, non-regulated business would not consider them.

Q. COULD YOU IDENTIFY ANY OTHER CONCERNS WITH OGE'S AVOIDED COST ANALYSIS STEMMING FROM THE LACK OF SPECIFIC ASSET-BASED OR TECHNOLOGY-BASED BENEFIT PERIODS?

A. Yes. Overall, OGE computed NPV on a substation-by-substation basis rather than by individual projects or technologies.[40] Computing NPV on a substation-by-substation basis rather than an asset-by-asset basis creates a general expectation that no incremental improvements can be made when targeting substations for improvement. For example, OGE has not considered that only the most critical and cost beneficial assets could provide

[38] $-204,963,855 is the result of entering the entire cost of the OGE Plan ($810.2 million) in cell B11 of tab "NPV Calc" at OGE's Supp. Response to AG-3-4.
[39] *See* OGE's Response to OIEC-OGE-10-3.
[40] OGE's Response to AG-OGE-7-24.

a majority of benefits to a substation, but has only considered that once all projects detailed at a particular substation are in service, that the purported 60 percent reliability improvement occurs. Smaller percentages of assets could provide a majority of the improvement. However, OGE has not conducted this analysis because the Company only examined benefits on an "all-or-nothing" substation or circuit level.[41]

Q. WOULD AN ASSET-BY-ASSET ANALYSIS BE MORE APPROPRIATE FOR THIS PROCEEDING?

A. Yes. An asset-by-asset analysis would ensure the Company is not packaging its investments in a manner such that unnecessary costs are bundled with legitimately beneficial investments, signified by positive asset-by-asset NPV. In the manner OGE has calculated NPV by substation, there could be asset investments that have positive asset NPV that are being offset by negative asset NPV, yet still result in positive NPV on a substation basis. An asset-by-asset analysis could provide that the Company only target improvements that have positive NPV on an asset-by-asset basis. Both the Company and customers would benefit from this type of analysis. The Company would be able to better focus its efforts on replacing or upgrading targeted assets and customers would be ensured that the Plan is providing benefits and service at the lowest reasonable cost. Without an asset-by-asset analysis, customers are not assured that all of the substation projects identified are necessary or that the Company would be providing service at the lowest reasonable cost.

[41] *Id.*

Q. DID OGE'S FAILURE TO INCLUDE AN ASSET-BY-ASSET ANALYSIS HAVE ADDITIONAL CONSEQUENCES FOR THE ATTORNEY GENERAL'S REVIEW?

A. Yes. As discussed by expert witness James B. Alexander, the lack of technology-by-technology and asset-by-asset analyses made it impossible for the Attorney General to properly weigh the risk and reliability benefits of OGE's technology proposals.

C. OGE's avoided cost analysis shows the Company has not considered fully allocated costs to customers.

Q. WHAT ARE YOUR OTHER CONCERNS WITH OGE'S NPV CALCULATIONS?

A. I am also concerned with OGE's SAS VA tool, which initially limited the amount of review third party interveners could conduct.

Q. WHAT IS THE SAS VA TOOL?

A. SAS Visual Analytics or "SAS VA tool" is the software OGE used to model the avoided cost benefits and select substations targeted for improvement based on NPV calculations.[42] On April 16, 2020, the Company gave the Attorney General's Utility Regulation Unit an overview of the software via a videoconference call. During the videoconference, OGE presented and described the numerous input fields the SAS VA tool had, some of which are detailed in OGE witness Smith's workpaper included in the filing as the "Oklahoma Cost Benefit Model Summary." The Attorney General requested the SAS VA tool's model in a widely accepted format such as Excel, which the Company was unable to provide at the time.[43] Subsequently, OGE provided the annual avoided cost of service of a single

[42] OGE's Response to AG-OGE-3-4.
[43] OGE's Response to AG-OGE 7-12.

substation/circuit, the Healdton 21 substation/circuit. However, this spreadsheet only provided the nominal value of the yearly avoided cost of service for the substation rather than the 30 year NPV.[44] On July 9, 2020, after the stay terminated, the Company provided NPV calculations for two of the thirty substations targeted in the 2020 OGE Plan, in Excel.[45] Using these two calculations, I was able to recreate the Company's SAS VA tool NPV calculations in Excel for all 30 circuits in approximately two business days.

Q. WERE YOU ABLE TO REPLICATE THE COMPANY'S NPV CALCULATIONS USING THE SAS VA MODEL YOU RECREATED?

A. Yes. I replicated the Company's SAS VA tool calculations by comparing the NPV amounts the Company provided by substation to the NPV calculations computed using the recreated SAS VA tool at 30 percent, 40 percent, 50 percent, 55 percent, and 60 percent reliability improvements.[46]

Q. ONCE YOU REPLICATED THE COMPANY'S NPV CALCULATIONS WITH THE RECREATED SAS VA TOOL IN EXCEL, WHAT ADDITONAL ANALYSIS DID YOU COMPLETE?

A. Next, I sought to evaluate the Company's avoided cost benefits on a revenue requirement basis rather than on the basis of corporate finance which OGE used in this filing. OGE's SAS VA tool is one utilized in traditional financial modeling where the Company has an upfront capital outlay and future inflows of benefits at its carrying costs. However, this is not representative of how customers pay for projects. Customers do not have upfront

[44] OGE's April 22, 2020 Supp. Response to AG-OGE-7-11.
[45] OGE's July 9, 2020 Supp. Response to AG-OGE-7-11.
[46] OGE's Response to AG-OGE-7-16.

capital outlays, but instead pay for projects through periodic depreciation expense and provide the Company with a return on its rate base. Evaluating projects based on revenue requirement provides net benefits of particular projects based on fully allocated costs to customers, rather than that shown to the Company in OGE's corporate financial model with the SAS VA tool.

Q. WERE ANY ADDITIONAL ASSUMPTIONS NECESSARY TO MODEL REVENUE REQUIREMENT NPV OF THE 2020 OGE PLAN PROJECTS FROM OGE'S SAS VA TOOL?

A. The only additional assumption necessary to complete a revenue requirement NPV model from the SAS VA tool recreated in Excel was a tax-adjusted WACC. For the purpose of modeling the revenue requirement of the 2020 OGE Plan projects, all other assumptions were provided by OGE's NPV calculations at a 60 percent reliability improvement. I did not alter any of OGE's estimated benefit assumptions or the periods in which OGE expects these benefits to be recognized when modeling the revenue requirement NPV of the 2020 OGE Plan projects.

Q. WHAT DID YOU USE AS THE TAX ADJUSTED WACC IN THE REVENUE REQUIREMENT MODEL?

A. I utilized the tax adjusted WACC used by Mr. Rowlett in his revenue requirement model of 9.07%.

Q. IS YOUR REVENUE REQUIREMENT MODEL INTENDED TO REPLACE THAT OF THE COMPANY'S?

A. No. My revenue requirement model was developed to compare the Company's projected benefits to the projected costs to customers on the same basis. The revenue requirement

model the Company provided is not detailed by asset or even by substation, but on a total yearly plan basis. My revenue requirement model better evaluates projected benefits to customers by substation.

Q. WHAT ARE THE RESULTS OF THE REVENUE REQUIRMENT NPV CALCULATIONS VERSUS THE COMPANY'S CORPORATE FINANCE NPV CALCULATIONS?

A. 26 of the 30 targeted substations result in reduced NPV, while 4 NPV are enhanced by the revenue requirement model. The most notable result of the revenue requirement model is that 4 substations that were positive under the Company's corporate finance model are negative when looking at the revenue requirement model. The Ardmore, Inglewood, Newman Ave, and Stonewall substations all have negative NPV using the revenue requirement model.

Q. WHY ARE SOME RESULTS OF THE REVENUE REQUIREMENT NPV BY SUBSTATION ENHANCED WHILE MOST ARE REDUCED?

A. As I mentioned, the revenue requirement model reflects costs as they would be passed on to the customer rather than the how the Company bears costs. The Company's NPV calculations have an upfront capital outlay for the cost of the projects, which are then offset by the discounted projected future benefits. In a revenue requirement model, customers are charged a return on rate base and periodic depreciation expense rather than having an upfront capital outlay. The revenue requirement model matches the periodic carrying costs with the periodic benefits to customers.

Some NPV calculations are enhanced with the revenue requirements model because the projected benefits materialize faster than the periodic carrying costs.[47] This contrasts with the corporate finance model provided by the Company that bears these costs up front. Most NPV calculations are reduced with the revenue requirements model because the carrying costs associated with the revenue requirements model exceed the periodic benefits in relation to the corporate financial model. No benefit assumptions or periodic recognition of those benefits have been changed between the models; rather, the manner in which costs are recognized have been adapted to reflect those of customers rather than those of the Company. These explanations provide the logic for how some substations experienced increase NPV while the majority experienced decreased NPV on a substation basis when comparing the corporate financial model to the revenue requirement model for the 2020 OGE Plan.

Q. WHAT IS THE IMPLICATION OF THE REVENUE REQUIRMENT NPV MODEL?

A. The revenue requirement NPV model shows that customers would not see the same amount of benefits that are listed on the Company's NPV calculations. Customers would see fewer benefits for most substations. This is concerning because the Company has not attempted to distinguish the Company's own benefits from that of its customers in relation to the avoided cost benefits. The Company has simply listed the avoided cost benefits but has not ascribed these benefits as to customers. The revenue requirement model shows the misalignment of the Company's interest with that of its customers. The misalignment of

[47] In relation to the corporate financial model SAS VA tool NPV calculations on an overall basis.

interest is all shown independent of critiquing any assumptions the Company has provided, as the revenue requirement model uses the Company's own assumptions. As a result, the Company's corporate finance model will not reliability identify beneficial projects, instead under prioritizing some beneficial projects while over prioritizing other projects.

Q. COULD THE SAS VA TOOL YOU RECREATED OR THE REVENUE REQUIRMENTS MODEL YOU CREATED BE USED TO FURTHER EVALUTE OR CRITIQUE THE COMPANY'S ASSUMPTIONS?

A. Yes. Although I have not used either the recreated SAS VA tool or the revenue requirement model to evaluate or critique the Company's assumptions, the Excel workpaper performing such calculations can be used to further evaluate the Company's projected avoided cost benefits to the Company and to customers for the 2020 OGE Plan. However, neither of these models is enough to critique specific investments on an asset-by-asset basis because the Company has not provided or performed a cost-benefit analysis on this basis.

Q. AFTER RECREATING THE SAS VA TOOL NPV CALCULATIONS, DO YOU HAVE ANYTHING ELSE TO NOTE?

A. Yes. After recreating the SAS VA Tool NPV calculations, it became even more conspicuous that OGE's cost-benefit calculations do not take into account specific investments. While the cost-benefit calculations provide an extra benefit for technologies such as SCADA, no actual investments are identified in the cost-benefit calculations. The calculations simply compare the expected costs of the projects to the expected improved circuit characteristics. This means that no evaluation is given to particular investments and all circuits are mechanically improved 60 percent. This further substantiates my concern that customers are not assured that the projects identified are necessary in size or scope, or

that they would be completed at the lowest reasonable cost. The Company's calculations only provide that once all the identified investments are in place, a 60 percent reliability improvement is materialized. It is fair to reason that a smaller investment may provide a substantial reliability improvement at a reduced cost. However, due to the Company's lack of analysis, this cannot be confirmed or denied.

D. OGE failed to consider options that would include a reasonable mixture of capital expenditures and ongoing expenses.

Q. DO YOU HAVE ANY OTHER CONCERNS ABOUT OGE'S AVOIDED COST ANALYSIS?

A. Yes. A close review of the avoided cost analysis, along with discovery by several parties including the Attorney General, illustrates an additional problem with the OGE Plan. The problem centers on how the OGE Plan deals with capital expenditures compared to operation and maintenance expenses.

Q. HOW MUCH OF THE OGE PLAN IS RELATED TO CAPITAL INVESTMENT VERSUS O&M EXPENSES?

A. The OGE Plan is entirely a capital investment project.[48] There are no operations and maintenance ("O&M") expenses included in the Plan.[49]

[48] *See* OGE's Supp. Response to AG-OGE-3-24.
[49] *Id.*

Q. PLEASE DESCRIBE HOW OGE EVALUATED USING A MIX OF OPERATING EXPENSES AS WELL AS CAPITAL INVESTMENTS TO IMROVE THE GRID WITH THE OGE PLAN.

A. OGE did not consider including operating expenses in the Plan. When asked about inclusion of O&M expenses within the Plan, OGE responded that the "focus of the OGE Plan is related to infrastructure investment (or capital investment); therefore, there was never any consideration given to including O&M in the mechanism."[50]

Q. DOES A REGULATED UTILITY HAVE AN INCENTIVE TO OVERINVEST IN CAPITAL?

A. Yes. Under traditional cost-of-service regulation, utilities are allowed reimbursement for operating expenses as well as recovery *of* and *on* their capital investments. The incentive exists because a utility is simply reimbursed for its operating expenses, while it is provided a return *of* its capital investments through depreciation expense and *on* its capital investments at a rate of return, such as the cost of capital. The propensity for a utility to overinvest in capital is known as the Averch-Johnson effect.

Q. PLEASE DESCRIBE THE AVERCH-JOHNSON EFFECT.

A. Harvey Averch and Leland Johnson observed the phenomena that a regulated firm has incentive to overinvest in capital when comparing regulated firms to those under competitive market forces.[51] Averch and Johnson noted that a firm under competitive market forces will optimize a mix of both labor, represented by O&M, and capital to

[50] OGE's Response to AG-OGE-3-3.
[51] Harvey Averch & Leland Johnson, *Behavior of the Firm Under Regulatory Constraint*, 52 Am. Econ. Rev. 1052–69 (1962).

achieve the lowest overall cost, while a regulated utility will maximize its use of capital. The Averch-Johnson effect posits that a regulated firm will tend to overinvest in capital due to their rate of return allowance only on capital expenditures.

Q. PLEASE EXPLAIN THE ISSUE WITH OVERINVESTING IN CAPITAL.

A. Overinvesting in capital investments creates an environment where the utility has or is seeking to pass higher-than-necessary costs on to customers due to their lack of evaluation or use of a resource mix.

Q. WHY SHOULD THE OGE PLAN CONSIDER A RESOURCE MIX OF CAPITAL EXPENDITURES AND OPERATIONS AND MAINTENANCE EXPENSES?

A. OGE should have evaluated a mix of resources by project to ensure the Plan provides targeted improvements at the lowest reasonable cost to customers. While a blanket capital expenditure program may be the easiest manner to improve reliability, the lowest reasonable cost may come from an alternative using a mix of resources of O&M and capital. For example, a smaller set of capital expenditures, coupled with routine maintenance expenses could provide similar reliability improvements at lower costs to customers. In the current cause, OGE has not considered this alternative because it did not evaluate a resource mix of capital expenditures and operations and maintenance expenses.

Q. WHAT IS YOUR RECOMMENDATION?

A. I recommend the Commission reject the OGE Plan as proposed. The OGE Plan lacks consideration of variability of outcomes in its cost-benefit analysis, and it does not contain investment-by-investment estimates of benefits. OGE's cost-benefit analysis also does not represent fully allocated costs and costs to customers as a revenue requirement cost-benefit analysis does. Lastly, the Company did not evaluate a resource mix of capital investments

and operating expenses to ensure the Plan would provide service at the lowest reasonable cost.

IV. Conclusion

Q. PLEASE SUMMARIZE YOUR RECOMMENDATIONS.

A. OGE's direct testimony only disclosed all revenue requirements and billing impacts to customers for the first two years of the OGE Plan, 2020 and 2021. However, under the proposed Plan, customer bills would continue to rise until at least 2025. The direct testimony should have presented all rate and billing increase information until at least 2025. Further, OGE's avoided cost models will not reliably identify projects that improve reliability at the lowest reasonable cost. The models do not consider variability of outcomes or input sensitivity. The models also fail to evaluate costs and benefits on an asset-by-asset basis, which does not assure customers are provided improvements at the lowest reasonable cost. OGE's avoided cost NPV analysis does not represent fully allocated costs and costs to customers as a revenue requirement cost-benefit analysis does. Finally, the Company did not consider targeting its circuits and substations for improvement with any O&M costs in the Plan, as the Company seeks to only target its grid with capital expenditures. Due to these several and significant deficiencies, the OGE Plan should not be approved as proposed.

Q. DO YOU HAVE ANY ADDITIONAL COMMENTS?

A. Yes. My testimony is limited to the subject matters discussed. The Commission and the stakeholders should not infer my agreement with or support for a subject matter not covered in this testimony.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.

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Professional Experience

Oklahoma Office of the Attorney General **Oklahoma City, OK**
Certified Public Accountant *Feb. 2020-Present*

- Review and evaluate utility financial data
- Calculate ratemaking adjustments
- Provide expert witness testimony on regulatory matters

Ernst and Young **Oklahoma City, OK**
Tax Senior *Jan. 2015-Jan. 2020*

- Reviewed federal forms 720, 1040, 1065, 1120 and 1120S for public and large private clients
- Reviewed state tax filings for public and large private clients
- Reviewed tax provisions prepared in accordance with ASC 740 for public oil and gas clients
- Reviewed tax provisions prepared in accordance with ASC 740 for private Global 360 clients
- Supervised three to five staff members

Arledge & Associates **Edmond, OK**
Audit Specialist *May 2014-Jul. 2014*

- Performed audit procedures
- Drafted management discussion letters and audit opinions
- Performed first check review procedures

Education

Oklahoma State University **Stillwater, OK**
Master of Science Major: *Accounting*
Summa Cum Laude *Dec. 2015*

Southwestern Oklahoma State University **Weatherford, OK**
Bachelor of Business Administration Major: *Accounting*
Summa Cum Laude *May 2014*

Professional Certification

Certified Public Accountant

Ratemaking Courses

Michigan State University Institute of Public Utilities Accounting and Ratemaking Course

OKLAHOMA GAS AND ELECTRIC COMPANY
IMPACT OF RELIABILITY CHANGES ON SUBSTATION NPV

2020 OGE Plan Project that Would Not Be Considered at a 55% Reliability Improvement

Substation	*Circuits*	*Cost*	*NPV*
INGLEWOOD	22	$ 2,508,082	$ (3,100)
Total		**$ 2,508,082**	

2020 OGE Plan Projects that Would Not Be Considered at a 50% Reliability Improvement

Substation	*Circuits*	*Cost*	*NPV*
ARDMORE	26	$ 1,589,980	$ (12,329)
INGLEWOOD	22	$ 2,508,082	$ (42,724)
Total		**$ 4,098,061**	

2020 OGE Plan Projects that Would Not Be Considered at a 40% Reliability Improvement

Substation	*Circuits*	*Cost*	*NPV*
ARDMORE	26	$ 1,589,980	$ (49,972)
INGLEWOOD	22	$ 2,508,082	$ (121,974)
NEWMAN AVE	41	$ 3,737,818	$ (51,785)
Total		**$ 7,835,879**	

2020 OGE Plan Projects that Would Not Be Considered at a 30% Reliability Improvement

Substation	*Circuits*	*Cost*	*NPV*
ARDMORE	26	$ 1,589,980	$ (87,614)
CYPRESS	22	$ 1,563,707	$ (1,183)
FIXICO	22, 24	$ 2,290,565	$ (285,443)
INGLEWOOD	22	$ 2,508,082	$ (201,223)
MAY AVE	21, 22, 24	$ 3,720,539	$ (9,757)
NEWMAN AVE	41	$ 3,737,818	$ (295,551)
STONEWALL	24	$ 1,761,537	$ (53,398)
Total		**$ 17,172,226**	