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

SCOTT NORWOOD

ON BEHALF OF

OKLAHOMA INDUSTRIAL ENERGY CONSUMERS

AUGUST 25, 2020

RESPONSIVE TESTIMONY OF SCOTT NORWOOD

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DIRECT EXHIBITS:

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME, TITLE AND BUSINESS ADDRESS.

A. My name is Scott Norwood. I am President of Norwood Energy Consulting, L.L.C. My business address is P.O. Box 30197, Austin, Texas 78755-3197.

Q. WHAT IS YOUR OCCUPATION?

A. I am an energy consultant specializing in the areas of electric utility regulation, resource planning and energy procurement.

Q. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL EXPERIENCE.

A. I have over 37 years of experience in the electric utility industry. After graduating from the University of Texas with a Bachelor of Science degree in electrical engineering, I began my career as a power plant engineer for the City of Austin's Electric Utility Department where I was responsible for electrical maintenance and design projects for the City's three gas-fired power plants. In January 1984, I joined the staff of the Public Utility Commission of Texas ("PUCT") as Manager of Power Plant Engineering, and in that capacity was responsible for addressing resource planning, fuel and purchased power cost issues presented in regulatory filings before the PUCT. In 1986, I joined GDS Associates, Inc., an electric utility consulting firm, where I served as a Principal and Director of the firm's Deregulation Services Department for 18 years. In January 2004, I founded Norwood Energy Consulting, LLC, which is based in Austin, Texas. The focus of my current consulting practice is providing regulatory consulting and expert witness services to organizations representing consumers of electricity on matters related to electric utility economic, operational, and planning issues.[1]

Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS CASE?

A. I am testifying on behalf of Oklahoma Industrial Energy Consumers ("OIEC").

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[1] *See* Direct Exhibit SN-1 for a more detailed summary of my background and experience.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE OKLAHOMA CORPORATION COMMISSION ("COMMISSION")?

A. Yes. I have filed testimony in over 200 electric utility regulatory proceedings involving electric restructuring, base rate, fuel recovery, power plant certification, demand-side management and other utility matters before state regulatory commissions in Arkansas, Alaska, Florida, Georgia, Illinois, Iowa, Kentucky, Louisiana, Michigan, Missouri, New Jersey, Ohio, Oklahoma, Texas, Virginia, Washington, and Wisconsin. I have filed testimony on behalf of OIEC in numerous past ratemaking, prudence reviews, planning and annual fuel prudence proceedings before the Commission, including many cases involving OG&E. Through my past involvement in OG&E regulatory proceedings in Oklahoma and Arkansas over the last 20 years, I have become familiar with OG&E's system operations, generating resources and ratemaking practices.

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

A. The purpose of my testimony is to present my conclusions and recommendations regarding OG&E's proposed 5-year Oklahoma Grid Enhancement Plan ("GEP" or "the Project").

Q. HAVE YOU PREPARED ANY EXHIBITS TO SUPPORT YOUR TESTIMONY?

A. Yes. I have prepared 14 exhibits which are included with my testimony.

II. SUMMARY OF TESTIMONY

Q. PLEASE SUMMARIZE YOUR FINDINGS AND RECOMMENDATIONS BASED ON YOUR REVIEW OF OG&E'S APPLICATION FOR COST RECOVERY OF THE GEP.

A. My testimony addresses the reasonableness of OG&E's proposed $810 million GEP, which is designed primarily to improve the reliability of distribution service provided to customers in the Company's Oklahoma service area. My primary conclusions and recommendations regarding the GEP are as follows:

1) OG&E's proposed $810 million GEP is not necessary because the Company already provides extremely high service reliability (~99.95% including impacts of major

storms). Moreover, the forecasted improvement in reliability attributable to the GEP is only approximately 0.03% per year, which is extremely small.

2) OG&E has not provided details of the calculations underlying the results of the cost/benefit analysis ("CBA") for the GEP. This prevents confirmation of the benefits estimates included in the CBA; therefore, the cost-effectiveness of the GEP cannot be confirmed.

3) OG&E's CBA for the GEP did not evaluate potentially lower cost alternatives to the Project, such as optional tariffs for premium reliability service, or delay or scaling back of the proposed GEP investment. Accordingly, the Company has not demonstrated that the GEP represents the lowest reasonable cost alternative to improve Oklahoma service reliability.

4) OG&E's unverified CBA results show that the GEP is not cost-effective, with costs of the Project exceeding forecasted electric cost savings by $310 million.

5) OG&E has not provided underlying calculations and data required to confirm the Company's $1.4 billion forecast of customer avoided harm benefits. In any event, these non-electric benefits are unduly speculative, are not guaranteed by OG&E, and should not be used to justify OG&E's proposed $810 million investment in the GEP.

6) OG&E has not fully evaluated the impact of the COVID-19 pandemic on the GEP, but should do so before proceeding with the GEP given the lack of urgency or need for the Project.

Based on the above facts, and due to the significant economic uncertainty caused by the COVID-19 pandemic, I recommend that the Commission reject OG&E's application for approval of a cost recovery mechanism for the GEP.

III. SUMMARY OF OG&E'S APPLICATION

Q. PLEASE DESCRIBE OG&E'S PROPOSED OKLAHOMA GRID ENHANCEMENT PLAN?

A. OG&E is requesting approval of a Grid Enhancement Mechanism ("GEM") rider (GEM Rider) to recover costs of the Company's proposed Oklahoma GEP. The GEP is a 5-year plan under which the Company proposes to invest approximately $810 million to accelerate replacement and upgrade of transmission and distribution ("T&D") grid equipment while installing new technology and communication systems designed to improve reliability of service to Oklahoma customers and provide customer benefits primarily by reducing distribution outage costs.

Q. WHAT TYPES OF IMPROVEMENTS DOES OG&E PROPOSE TO IMPLEMENT UNDER THE GEP?

A. OG&E indicates that the GEP will involve grid infrastructure investments in four main categories: 1) grid resiliency; 2) grid automation; 3) communications systems, and 4) technology platforms and applications. The estimated total investment for the GEP is summarized in Table 1 below:

Table 1
Proposed Investment for Grid Enhancement Plan ($Millions)[2]

Investment Category	2020	2021	2022	2023	2024	Total Cost
Grid Resiliency	$50.1	$71.8	$86.8	$86.8	$86.8	$382.3
Grid Automation	$36.5	$52.0	$61.5	$61.5	$61.5	$273.0
Communications Systems	$0.0	$30.0	$16.7	$16.7	$16.7	$80.1
Technology Platforms & Applications	$2.4	$18.4	$18.0	$18.0	$18.0	$74.8
Total Investment	$89.0	$172.2	$183.0	$183.0	$183.0	$810.2

Q. WHAT ARE OG&E'S STATED OBJECTIVES FOR THE GEP?

2 Source is OG&E witness Gladhill's direct testimony, page 14, Table 1.

A. OG&E has identified six primary objectives of the GEP: 1) improved reliability through reduced outages and outage durations; 2) greater resilience of the grid through decreasing outages and adding capabilities to respond more quickly to outages; 3) enhanced flexibility to predict and respond to grid variability and uncertain conditions, including two-way power flows; 4) increased efficiency to operate and maintain the grid through streamlined operations; 5) additional affordability to continue offering low rates to customers; and 6) enhanced customer benefits including reduced economic harm to customers from outages, and better accommodation of electric vehicles ("EVs") and distributed energy resources ("DER") such as rooftop solar.[3]

Q. IS THE GEP OG&E'S FIRST MAJOR PROJECT TO IMPROVE DISTRIBUTION RELIABILITY IN OKLAHOMA?

A. No. The proposed GEP would represent the fourth of a series of major projects implemented by OG&E over the last decade to improve distribution reliability in its Oklahoma service area.[4] The first major project was OG&E's "smart grid" project, which involved the deployment of advanced metering infrastructure ("AMI") and smart meters. This project was initiated in 2009 and completed in 2012, at a total investment of nearly $350 million.[5]

The second major distribution grid reliability project implemented by OG&E in Oklahoma was the Company's "System Hardening Program", which was initiated in 2010 and completed in 2013. The System Hardening Program involved targeted investment totaling approximately $47 million, to strengthen certain distribution circuits to increase reliability and improve performance during outages. [6]

OG&E's third major project, initiated in 2013, was a "technology growth" project, which included the addition of a new outage management system ("OMS") and distribution management system ("DMS") to improve distribution system operations and

3 *See* Gladhill direct testimony, page 11.
4 *See* Gladhill direct testimony, page 5.
5 *See* Gladhill direct testimony, page 6.
6 *See* Gladhill direct testimony, page 6 and Exhibit SN-2, OG&E's Response to OIEC 4-8.

decision-making capabilities that leverage AMI. [7] The total investment for OG&E's Technology Growth Project was $24.6 million.[8]

Q. HAS OG&E MADE SIMILAR INVESTMENTS TO IMPROVE DISTRIBUTION GRID RELIABILITY IN THE COMPANY'S ARKANSAS SERVICE AREA?

A. Yes. OG&E invested approximately $100 million in a "grid hardening program" in its Arkansas service area.[9] The Company's Arkansas Grid Hardening Program was initiated in 2018 and is scheduled for completion this year.

Q. WHAT WAS OG&E'S TOTAL INVESTMENT IN T&D OVER THE LAST FIVE YEARS INCLUDING THESE PAST GRID HARDENING PROJECTS?

A. As summarized in Table 2 below, OG&E has invested more than $1.5 billion over the last five years to improve and maintain reliability of its T&D grid.

Table 2
OG&E T&D Capital Additions[10]

	Transmission	Distribution	T&D Total
2015	$62,264,030	$194,277,265	$256,541,295
2016	$123,134,145	$184,692,483	$307,826,628
2017	$122,310,988	$184,907,044	$307,218,032
2018	$180,682,475	$168,470,799	$349,153,274
2019	$94,356,483	$246,392,379	$340,748,862
Total	$582,748,121	$978,739,970	$1,561,488,091

Q. HAS OG&E ESTIMATED THE IMPACT OF THE GEP ON RATES CHARGED TO OKLAHOMA CUSTOMERS?

7 Gladhill direct testimony, page 6.
8 *See* Exhibit SN-3, OG&E's Response to OIEC 4-13.
9 *See* Exhibit SN-4, OG&E's response to OIEC 7-5.
10 Source of capital expenditure data are OG&E's FERC Form 1, page 204.

A. Yes. OG&E estimates that the proposed GEP investments will increase electric charges to an average residential customer that uses 1,055 kWh by $0.36 per month (0.12%) over the last four months of 2020, and by $1.18 per month (1.1%) during 2021.[11]

Q. HOW HAVE YOU EVALUATED THE REASONABLENESS OF OG&E'S PROPOSED GEP?

A. Although OG&E is not asking the Commission to determine the prudence of the proposed GEP in this case, the Company is seeking approval of a rider to recover deployment capital costs of the GEP, which are estimated to be more than $810 million over the next five years. OIEC witness Mark Garrett addresses the GEM rider in his direct testimony.

My testimony focuses on the need for the proposed GEP, whether the Project is reasonably expected to be cost-effective, and whether it would be prudent for the Company to proceed with such a large project at a time when Oklahomans are facing great economic uncertainty because of the COVID-19 pandemic.

IV. NEED FOR PROPOSED GEP

Q. WHAT STANDARDS ARE TYPICALLY APPLIED BY REGULATORY COMMISSIONS TO DECIDE WHETHER MAJOR UTILITY INVESTMENTS ARE PRUDENT AND SHOULD BE APPROVED FOR COST RECOVERY?

A. In my experience, most regulatory commissions evaluate major electric utility investments such as the GEP based on three primary factors: 1) whether the Project is needed to ensure reasonable and reliable electric service to customers; 2) whether the proposed Project is cost-effective and the lowest reasonable cost alternative; and 3) whether such investments are justified considering forecasted benefits and the uncertainty in market conditions at the time they are proposed.

Q. HOW DO YOU MEASURE THE RELIABILITY OF ELECTRIC UTILITY T&D SERVICE TO CUSTOMERS?

11 *See* Rowlett direct testimony, page 12.

A. I measure T&D service reliability by three performance metrics: 1) the System Average Interruption Frequency Index ("SAIFI"), which represents the average number of outages per customer per year; and 2) the System Average Interruption Duration Index ("SAIDI"), which is the average duration of T&D outages per customer per year, expressed in minutes; and 3) annual service reliability, which represents the average percentage of total time in a year that service is provided to customers.

Q. HAS OG&E'S T&D RELIABILITY PERFORMANCE IN OKLAHOMA BEEN REASONABLE OVER THE LAST FIVE YEARS?

A. Yes. While I have not examined the performance of each of OG&E's T&D circuits, overall, the Company's service reliability in Oklahoma has been very good over the last five years. For example, as summarized in Table 3 below, over the last five years OG&E's Oklahoma customers have experienced approximately 1 outage every two years and approximately 261 minutes per year of service interruption due to distribution outages, including impacts of major storm events, which equates to an annual average service reliability of 99.95%, including the impacts of major storm events, which are difficult to predict or control.

Table 3
OG&E's Distribution System Reliability Performance[12]

Year	SAIDI	SAIFI
2015	569.9	0.59
2016	168.8	0.46
2017	152.2	0.43
2018	101.5	0.41
2019	314.5	0.56
Average:	261.4	0.49
Reliability	99.950%	

[12] *See* Direct Exhibit SN-5, OG&E's response to OIEC 2-3. SAIDI values are minutes per customer/year, including major storm events. SAIFI values are outages per customer/year.

Q. WHAT DOES THE RELIABILITY DATA IN TABLE 2 INDICATE REGARDING THE NEED FOR THE GEP?

A. The reliability data in Table 3 indicates that OG&E has generally provided very good overall service reliability to its Oklahoma customers, with very few outages, even considering impacts of major storm events. At minimum, this data indicates that OG&E already provides very reliable electric service in Oklahoma, and that there is no urgent need for the Company's proposed $810 million GEP.

Q. OG&E SUGGESTS THAT ITS CUSTOMERS ARE DISSATISFIED WITH THE COMPANY'S SERVICE RELIABILITY.[13] IS THERE ANY EVIDENCE TO SUPPORT THESE CLAIMS?

A. No. As summarized in Table 4 below, over the last ten years OG&E has averaged 100 complaints per year regarding the reliability of service it provides in Oklahoma, which represents approximately 0.014% of the Company's 790,000 customers.

Table 4
OG&E Customer Complaints Related to Reliability[14]

	Complaints	% of Total Cust
2010	81	0.012%
2011	101	0.014%
2012	70	0.010%
2013	56	0.008%
2014	41	0.006%
2015	123	0.018%
2016	157	0.022%
2017	136	0.019%
2018	111	0.016%
2019	128	0.018%
2010-19 Avg	100	0.014%

Q. IS THERE OTHER EVIDENCE THAT SUGGESTS OG&E'S OKLAHOMA CUSTOMERS ARE GENERALLY SATISFIED WITH THE LEVEL OF RELIABILITY CURRENTLY PROVIDED BY THE COMPANY?

13 *See* Gladhill direct testimony, page 8.

14 *See* Direct Exhibit SN-6, OG&E's response to OIEC 2-23.

A. Yes. While OG&E's existing Terms and Conditions for Service allow customers to rent facilities that might improve service reliability, the Company indicates that no customers have requested this service.[15] Moreover, OG&E indicates that it does not have records on the number of customers in the Oklahoma service area that have backup power supplies. If the Company's customers were truly dissatisfied with the level of service reliability provided by OG&E, I would expect there to be a much higher level of customer complaints regarding reliability, and many more customers seeking to lease facilities or to acquire backup power supplies to enhance service reliability.

Q. WOULD OG&E'S SERVICE RELIABILITY BE GREATLY IMPROVED IF THE GEP WERE TO BE IMPLEMENTED?

A. No. OG&E speculates that the GEP would reduce the Company's average customer outage time (SAIDI) in Oklahoma by approximately 157 minutes/year. As summarized in Table 5 below, this reduction in outage time would improve OG&E's service reliability by only approximately 0.03% (three one hundredths of one percent), from the existing level of 99.95% up to 99.98%.

Table 5
Forecasted Reliability Improvement Due to GEP

	SAIDI	Reliability
Avg SAIDI (2015-2019), minutes/yr	261.4	99.950%
Projected SAIDI Improvement with GEP	60%	
SAIDI with GEP	104.6	99.980%
SAIDI reduction with GEP, minutes/yr	156.8	0.030%

Q. WILL OG&E GUARANTEE THE 0.03% ESTIMATED IMPROVEMENT IN SERVICE RELIABILITY IT CLAIMS WOULD RESULT FROM THE GEP?

[15] *See* Exhibit SN-7, OG&E's response to OIEC 3-6.

A. No. OG&E has stated that it is not willing to guarantee the small forecasted reliability improvement or the significant customer economic savings that it claims would result from the GEP.[16]

Q. DO YOU BELIEVE MOST CUSTOMERS WOULD NOTICE THE SMALL FORECASTED IMPROVEMENT IN SERVICE RELIABILITY DUE TO THE GEP?

A. No. Even if the GEP results in a 157-minute reduction in average outage time, a significant portion of that reduction in outage time would likely occur at times when customers are asleep, away from home, or when businesses are closed, and therefore would likely have little if any impact on Oklahoma customers or businesses. At other times, customers may simply leave home and pursue other activities that are not impacted by the power outage. In addition, larger businesses may have backup power supplies to allow operation during outage periods. For these reasons, the small estimated reliability benefits of the GEP are likely exaggerated, and the improvement in reliability that results from the $810 million project may be virtually unnoticeable to most customers.

Q. PLEASE SUMMARIZE YOUR CONCLUSIONS AS TO WHETHER THE GEP IS NEEDED TO IMPROVE OG&E'S T&D SERVICE RELIABILITY IN OKLAHOMA.

A. OG&E has invested more than $1.5 billion in its T&D system over the last five years and has provided highly reliable T&D service to its Oklahoma customers during this period, without the GEP. The Company has received very few complaints related to service reliability in Oklahoma and there is no evidence that Oklahoma customers are demanding higher reliability.[17] Moreover, the 0.03% improvement in reliability performance that OG&E claims would result from the proposed $810 million GEP is not guaranteed, and even if achieved is so small that it would not likely be noticeable by most Oklahoma customers. Given these facts, and for other reasons explained in the following sections of

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16 *See* Exhibit SN-8, OG&E's responses to OIEC 12-17 and 12-18.

17 *See* Exhibit SN-6.

my testimony, the GEP is not needed to improve service reliability in Oklahoma and should not be implemented.

V. COST EFFECTIVENESS OF PROPOSED GEP

Q. HOW ARE THE COST EFFECTIVENESS OF PROPOSED MAJOR UTILITY INVESTMENTS TYPICALLY EVALUATED IN REGULATORY PROCEEDINGS?

A. Once the need for an investment to ensure reliable electric service is established, the cost-effectiveness of the investment is typically evaluated through cost/benefit analyses ("CBA"), which should demonstrate that the proposed investment represents the lowest reasonable cost alternative to supply the identified need, with due consideration given to uncertainty in the underlying economic assumptions used for the analysis.

Q. HAS OG&E PROVIDED A CBA THAT DEMONSTRATES THAT THE GEP IS COST-EFFECTIVE AND THE LOWEST REASONABLE COST ALTERNATIVE TO IMPROVE T&D SERVICE RELIABILITY IN OKLAHOMA?

A. No. While OG&E has presented a CBA for the GEP, the results of this analysis cannot be confirmed and do not demonstrate that the GEP is cost-effective, or the lowest reasonable cost alternative to improve service reliability in Oklahoma.

Q. PLEASE EXPLAIN WHY OG&E'S CBA RESULTS CANNOT BE CONFIRMED.

A. The calculations underlying results of the Company's CBA for the GEP have not been provided by OG&E, and the Company claims that this information cannot be extracted from the models used for such calculations.[18] As shown in Figure 1 below, which is the CBA information provided by OG&E to support the $810 million GEP, the information provided is simply columns of numbers, with no underlying formula to show how the claimed benefits were calculated, and therefore, this information does not allow the

[18] *See* Direct Exhibit SN-9, OG&E's responses to OIEC 2-2 and AG 7-12.

Commission or any other party to confirm the underlying calculations or results of the Company's CBA for the GEP.

Figure 1
Information Provided by OG&E to Support Cost-Effectiveness of the GEP[19]

Project	NPV	Total Cost	Substation Automation	Distribution Automation	Grid Resiliency	Distribution Line	Distribution Substation	Avoided Annual O&M
ARDMORE	$242,293	$1,653,164	$0	$515,973	$1,137,192	$1,653,164	$0	$21,049
BELLCOW	$1,202,211	$3,332,424	$66,919	$1,107,615	$2,157,892	$2,972,784	$359,640	$32,754
BELLE ISLE STA	$1,357,325	$3,182,664	$131,366	$1,419,229	$1,631,971	$2,441,555	$741,009	$25,787
BIXBY	$1,210,192	$3,892,471	$402,232	$1,217,773	$2,272,467	$2,700,432	$1,192,039	$40,283
BOYD	$121,275	$1,538,701	$162,252	$462,438	$914,013	$891,464	$647,237	$18,251
BRISTOW	$726,388	$3,208,300	$219,287	$825,857	$2,163,157	$2,100,288	$1,108,012	$34,066
CUSHING TAP	$453,792	$941,358	$5,148	$229,767	$706,444	$734,342	$207,016	$5,216
DALE	$535,751	$1,692,430	$68,978	$695,623	$927,830	$1,550,273	$142,157	$21,390
DAVIS	$438,077	$3,928,084	$492,855	$1,196,661	$2,308,569	$2,722,635	$1,205,449	$34,985
EIGHTY FOURTH ST	$323,885	$778,069	$0	$467,586	$310,484	$778,069	$0	$10,435
FAIRMONT	$747,710	$2,952,773	$5,148	$910,277	$2,037,349	$2,728,085	$224,688	$23,451
FIXICO	$912,078	$1,842,766	$0	$826,557	$1,016,210	$1,842,766	$0	$21,995
HEAVENER	$272,624	$2,915,436	$347,565	$550,976	$2,016,896	$2,009,705	$905,731	$26,192
INGLEWOOD	$684,205	$3,424,325	$0	$1,314,033	$2,110,293	$3,115,471	$308,854	$39,292
JENSEN RD	$352,817	$1,237,750	$0	$356,913	$880,838	$1,237,750	$0	$7,893
JUMPER CREEK	$698,668	$3,334,214	$7,207	$974,203	$2,352,717	$2,739,070	$595,144	$35,040
KEY WEST	$827,882	$3,223,699	$402,232	$1,043,785	$1,777,684	$2,675,107	$548,592	$35,772
LAKESIDE	$413,728	$630,991	$62,800	$314,188	$254,004	$524,782	$106,209	$11,099
LETHA	$488,071	$1,128,763	$105,011	$474,277	$549,476	$1,023,753	$105,010	$15,064
LIGHTNING CREEK	$166,656	$1,438,708	$83,391	$647,751	$707,568	$1,260,433	$178,275	$13,371
LONE GROVE	$815,443	$2,682,078	$11,325	$856,928	$1,813,828	$2,524,393	$157,685	$32,760
LONE OAK	$1,647,226	$2,497,204	$170,488	$397,064	$1,929,655	$1,952,749	$544,455	$40,363
MAYSVILLE	$623,421	$2,217,216	$105,011	$502,259	$1,609,947	$1,869,206	$355,010	$22,921
MCLOUD	$993,937	$2,094,199	$347,565	$371,841	$1,374,795	$1,467,552	$626,647	$26,838
MERIDIAN	$302,918	$1,597,481	$0	$972,234	$695,249	$1,597,481	$0	$13,523
MIDWAY	$1,932,191	$4,658,723	$398,217	$1,113,277	$3,147,230	$3,603,422	$1,055,301	$51,281
MISSION HILL	$293,403	$2,002,035	$336,652	$682,754	$982,630	$1,463,515	$538,520	$19,063
MORRISON TAP	$656,995	$875,696	$162,252	$178,806	$534,639	$691,741	$183,955	$11,965
NE 10TH ST	$310,465	$1,815,190	$27,797	$513,914	$1,273,481	$1,177,751	$637,439	$20,689
OAK GROVE	$412,918	$2,353,580	$155,045	$788,280	$1,410,256	$1,842,239	$511,341	$20,171
OTTER	$1,951,600	$2,935,910	$0	$1,014,773	$1,921,137	$2,789,549	$146,361	$16,481
PEARSON	$600,550	$2,230,116	$102,952	$878,362	$1,248,803	$2,105,461	$124,655	$26,219
PENNSYLVANIA	$403,956	$1,599,337	$166,370	$232,561	$1,120,308	$492,868	$1,016,369	$19,201
PRAIRIE POINT	$536,622	$995,926	$0	$240,063	$755,864	$849,565	$146,361	$9,260
REMINGTON	$264,921	$2,177,473	$105,011	$668,856	$1,403,608	$1,514,296	$663,177	$24,480
RENO	$317,557	$957,502	$114,894	$432,582	$410,027	$747,724	$209,778	$10,913
ROSEDALE TAP	$508,930	$1,412,708	$7,207	$553,650	$851,952	$1,332,322	$80,386	$13,271
RUSH CREEK	$412,108	$1,948,636	$107,070	$554,580	$1,286,988	$1,437,827	$510,809	$19,348
RUSSETT	$725,066	$1,422,280	$60,741	$296,171	$1,065,368	$1,013,309	$408,971	$12,178
SOUTH ADA	$1,117,373	$1,750,975	$0	$739,563	$1,011,413	$1,604,614	$146,361	$17,671
SOUTHGATE	$732,345	$986,749	$71,037	$245,210	$670,503	$725,943	$260,806	$19,780
SULPHUR	$1,229,697	$2,656,956	$11,325	$905,830	$1,739,803	$2,550,747	$106,209	$30,262
SW 5TH ST	$1,155,831	$3,225,058	$220,522	$812,659	$2,191,878	$2,729,486	$495,572	$31,111
TENNESSEE	$973,932	$2,702,037	$351,734	$1,110,376	$1,239,931	$1,850,303	$851,734	$31,392
THIRTY EIGHTH ST	$866,631	$1,986,327	$274,057	$900,167	$812,103	$1,587,615	$398,712	$25,396
TISHOMINGO	$392,201	$1,104,019	$0	$561,789	$542,233	$1,104,019	$0	$13,210
VANOSS	$459,706	$1,653,865	$160,193	$484,573	$1,009,101	$1,420,493	$233,372	$18,096
VIAN	$664,207	$1,133,289	$102,952	$330,660	$699,679	$828,469	$304,820	$14,989
WARWICK	$494,557	$2,609,948	$0	$779,014	$1,830,934	$2,463,587	$146,361	$15,900
WELLS	$563,272	$4,291,963	$1,074,609	$646,721	$2,570,634	$1,891,085	$2,400,878	$22,874
WESTERN AVE	$2,513,108	$2,620,902	$0	$1,512,401	$1,108,504	$2,620,902	$0	$31,053
WEWOKA	$1,205,154	$4,919,734	$399,349	$1,360,876	$3,159,510	$4,219,597	$700,137	$60,060
WILSHIRE	$1,343,751	$2,369,150	$290,529	$961,939	$1,116,684	$1,674,881	$694,269	$31,088
WR AIRPORT	$421,260	$581,840	$58,682	$227,708	$295,450	$523,158	$58,682	$8,362
	$40,138,880	$119,252,992	$7,955,977	$38,299,912	$72,997,179	$95,962,797	$23,290,195	$1,255,553

This total lack of transparency as to how the results of OG&E's CBA for the GEP were derived is highly problematic and unusual in a case involving an investment of this magnitude. This inability to verify the Company's CBA for the GEP is particularly concerning given the fact that the GEP is a discretionary investment that is not required

[19] *See* Direct Exhibit SN-10, OG&E's responses to OIEC 12-6, OIEC 12-7 and AG 7-11 Supplement.

for the Company to provide reliable service, and that the benefits of the Project have not been demonstrated through pilot programs and are not guaranteed by OG&E.

Q. PLEASE EXPLAIN WHY OG&E'S CBA FOR THE GEP DOES NOT DEMONSTRATE THAT THE PROJECT IS THE LOWEST REASONABLE COST ALTERNATIVE.

A. OG&E's CBA for the GEP does not consider potentially lower cost alternatives to the selected projects. For example, three potentially less costly alternatives to the GEP would be: 1) to delay the Project for several years and continue with the Company's current practice of strategically addressing T&D service reliability until there is a significant observed decline in T&D reliability performance and then deploy the GEP, 2) to significantly reduce the scale and investment level of the Project in light of the already very high reliability that the Company is providing, and 3) to offer optional tariffs to provide premium reliability service to customers who truly desire such service. However, such alternatives were not evaluated in OG&E's CBA for the GEP as presented in the Company's testimony in this case.[20] This failure to evaluate alternatives to the GEP is a highly unusual omission for a project of this magnitude and leaves the Commission without assurance that the Project represents the lowest reasonable cost alternative to improve reliability in the Company's Oklahoma service area.

Q. PLEASE EXPLAIN WHY OG&E'S CBA FOR THE GEP INDICATES THAT THE PROJECT IS NOT COST-EFFECTIVE.

A. As summarized in Table 6 below, OG&E's CBA for the GEP indicates that the $810 million project is expected to produce electric cost benefits of only $500 million over 30 years, which means that the Project cost would exceed projected electric cost benefits by approximately $310 million.

[20] *See* Direct Exhibit SN-11, OG&E's response to OIEC 11-7.

Table 6
OG&E's Estimate of GEP Electric Service Costs and Benefits[21]
($Millions, NPV)

GEP Capital Cost (First 5 Years)	$810
Avoided O&M Savings (30 Yrs)	($120)
Avoided Capital Savings (30 Yrs)	($380)
Net Electric Cost/(Benefit) of GEP	$310

However, the Company's CBA for the GEP also includes approximately $1.4 billion of estimated "avoided economic harm" benefits to customers. These economic harm benefits are not electric cost savings that will be reflected on OG&E's electric bills, but instead represent highly speculative non-electric savings to businesses and customers that are attributed to the forecasted reduction in outage time produced by the GEP. For example, these avoided economic harm benefits would consist of estimated savings such as reduced food spoilage costs, as well as estimated increases in commercial and industrial business revenues, due to reduced outage time.

Q. HAS OG&E PROVIDED INFORMATION NECESSARY TO CONFIRM THE REASONABLENESS OF THE COMPANY'S $1.4 BILLION ESTIMATE OF AVOIDED ECONOMIC HARM BENEFITS?

A. No. OG&E's $1.4 billion avoided economic harm benefit estimate was derived using the Department of Energy's Interruption Calculation Estimator ("DOE ICE") software. OG&E claims that underlying calculations supporting the $1.4 billion economic harm benefit are all included within the DOE ICE software and, therefore, cannot be provided by the Company.[22] In fact, OG&E admits that it is not even able to identify the estimated economic harm benefit of the GEP for each customer class.[23]

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21 *See* Gladhill direct testimony, page 17.
22 *See* Exhibit SN-12, OG&E's response to AG 3-8.
23 *See* Exhibit SN-13, OG&E's response to OIEC 7-1.

Q. WILL OG&E GUARANTEE THAT CUSTOMERS WILL RECEIVE $1.4 BILLION OF AVOIDED ECONOMIC HARM BENEFITS IF THE GEP IS IMPLEMENTED?

A. No. OG&E has stated that it will not guarantee that customers would receive the $1.4 billion of avoided economic harm benefits if the GEP is implemented. [24]

Q. SHOULD OG&E'S $1.4 BILLION AVOIDED ECONOMIC HARM BENEFIT ESTIMATE BE CONSIDERED IN EVALUATING THE COST-EFFECTIVENESS OF THE COMPANY'S PROPOSED GEP?

A. Absolutely not. Major electric utility investments should be evaluated based on the direct economic impact of such investments on retail electricity costs as reflected in utility bills to customers. Utilities should not be allowed to justify major investments based on speculative estimates of non-electric benefits that may accrue to customers or other parties because of those investments. Unless specified by legislation, major electric utility investments should be justified based on the ability of the investment to deliver reliable electric service at the lowest reasonable cost to customers, and not on estimated non-electric societal benefits, such as the avoided electric harm benefit, which are very difficult to measure. Moreover, OG&E's $1.4 billion avoided economic harm benefit cannot be confirmed and therefore should not be used under any circumstance as the primary justification for the Company's proposed $810 million GEP.

Q. PLEASE SUMMARIZE YOUR CONCLUSIONS REGARDING THE COST-EFFECTIVENESS OF OG&E'S PROPOSED GEP?

A. OG&E has not provided the underlying data and calculations to confirm the results of the Company's CBA for the proposed GEP. However, OG&E's analysis indicates that the cost of the GEP is expected to exceed the forecasted electric cost of service benefits of the Project by $310 million. OG&E's proposal to included non-electric avoided economic harm benefits to justify the GEP should be rejected, because the Company has not provided underlying calculations necessary to confirm the reasonableness of the $1.4 billion

[24] *See* Exhibit SN-14, OG&E's response to OIEC 12-19.

economic harm benefit estimate, and because it would be inappropriate to use this speculative non-electric benefit as the primary economic justification for the $810 million GEP. For these reasons, and due to OG&E's failure to evaluate potentially lower cost alternatives to the GEP, the cost-effectiveness of the GEP has not been demonstrated.

VI. IMPACTS OF COVID-19 PANDEMIC

Q. DOES OG&E'S CBA FOR THE GEP CONSIDER POTENTIAL ECONOMIC IMPACTS OF THE COVID-19 PANDEMIC?

A. No. Although the ultimate impact of the pandemic is uncertain, the potential impacts of COVID-19 on Oklahomans and Oklahoma's utilities and industry are significant. Given this situation, it would be prudent for OG&E to delay any major discretionary investments, such as the GEP, until there is more certainty regarding impacts of the COVID-19 pandemic. Unfortunately, OG&E has not evaluated a delay of the GEP as an alternative to its plan to immediately proceed with the Project.[25]

Q. IS THERE ANY URGENT NEED FOR OG&E TO PROCEED WITH THE GEP BEFORE IMPACTS OF THE COVID-19 PANDEMIC ARE MORE CERTAIN?

A. No. As explained earlier in my testimony, OG&E already has very high T&D service reliability without the GEP, and has had very few customer complaints regarding service reliability. Moreover, the GEP is not forecasted to produce electric cost benefits for customers unless highly speculative customer avoided harm benefits are considered. Given these facts, there is no need or urgency for OG&E to rush to deploy the $810 million GEP in the middle of a pandemic. In fact, delay of the GEP would allow OG&E to conduct pilot programs to verify the estimated savings and other assumed benefits of the GEP to better assess whether the Project may be justified.

Q. WHAT IS YOUR RECOMMENDATION ON THIS ISSUE?

A. As explained earlier in my testimony, OG&E's proposed $810 million GEP is not necessary or required because: i) the Company already has excellent T&D service

[25] *See* Exhibit SN-11.

reliability; ii) the forecasted improvement in service reliability from the Project would be only approximately 0.03%; and iii) the cost-effectiveness of the GEP has not been demonstrated. Given these facts, and for other reasons discussed in my testimony, I recommend that the Commission deny OG&E's request to proceed with the GEP until the outcome of the COVID-19 pandemic is more certain.

VII. OG&E SUPPLEMENTAL TESTIMONY

Q. HAVE YOU REVIEWED OG&E'S SUPPLEMENTAL DIRECT TESTIMONY AND DISCOVERY RESPONSES ADDRESSING OG&E'S PROPOSED GEP INVESTMENTS FOR 2021?

A. Yes.

Q. DO OG&E'S SUPPLEMENTAL TESTIMONY AND DISCOVERY RESPONSES CHANGE YOUR CONCLUSIONS THAT THE $810 MILLION GEP IS NOT NEEDED OR COST-JUSTIFIED?

A. No. OG&E's supplemental testimony consists of 4 pages, which summarize the scope and planned investment level for GEP deployment during 2021.[26] This testimony does not in any way alter my conclusions that the GEP is not needed to improve OG&E's service reliability, is not cost-justified, and does not change my recommendation that the Commission deny OG&E's application requesting approval of a cost recovery mechanism for the GEP.

Q. DOES OG&E'S SUPPLEMENTAL TESTIMONY INDICATE THAT THE PROPOSED SPENDING FOR THE GEP IN 2021 WOULD MATERIALLY IMPROVE THE COMPANY'S SERVICE RELIABILITY IN OKLAHOMA?

A. No. The Company's supplemental testimony indicates that OG&E's proposed $164.9 million investment to implement the GEP during 2021 is expected to reduce system average customer outage time (i.e., SAIDI) by only approximately 29.6 minutes per year, including outage time due to major storm events. If achieved, this 29.6-minute reduction

[26] *See* Supplemental Direct Testimony of Kandace Smith.

in average outage time would improve OG&E's already very high (~99.95%) annual service reliability by only 0.006%. I am confident that most OG&E customers would not notice such a small improvement in system average service reliability.

Q. DOES OG&E'S SUPPLEMENTAL TESTIMONY DEMONSTRATE THAT THE COMPANY'S PROPOSED INVESTMENT FOR THE GEP IN 2021 WOULD BE COST-EFFECTIVE?

A. No. OG&E witness Smith asserts that the proposed 2021 GEP investment is expected to produce $108.4 million in electric cost of service benefits, plus another $362.8 million in avoided economic harm benefits. However, none of these claimed benefits can be confirmed due to the Company's failure to include underlying calculations and details for the 2021 GEP benefits in the Company's testimony and discovery responses.[27]

VIII. CONCLUSIONS AND RECOMMENDATIONS

Q. PLEASE SUMMARIZE YOUR PRIMARY CONCLUSIONS AND RECOMMENDATIONS REGARDING OG&E'S PROPOSED OKLAHOMA GEP?

A. My primary conclusions regarding OG&E's proposed GEP are as follows:

1) OG&E's proposed $810 million GEP is not necessary because the Company already provides extremely high service reliability (~99.95% including impacts of major storms). Moreover, the forecasted improvement in reliability because of the GEP is only approximately 0.03% per year, which is extremely small.

2) OG&E has not provided details of the calculations underlying the results of the CBA for the GEP. This prevents confirmation of the CBA benefits estimates; therefore, the cost-effectiveness of the GEP cannot be confirmed.

3) OG&E's CBA for the GEP did not evaluate potentially lower cost alternatives to the Project, such as optional tariffs for premium reliability service, or delay or scaling

[27] *See* Supplemental Direct Testimony of Kandace Smith.

back of the proposed GEP investment. Accordingly, the Company has not demonstrated that the GEP represents the lowest reasonable cost alternative to improve Oklahoma service reliability.

4) OG&E's unverified CBA results show that the GEP is not cost-effective, with costs of the Project exceeding forecasted electric cost savings by $310 million.

5) OG&E has not provided underlying calculations and data required to confirm the Company's $1.4 billion forecast of customer avoided harm benefits. In any event, these non-electric benefits are unduly speculative, are not guaranteed by OG&E, and should not be used to justify OG&E's proposed $810 million investment in the GEP.

6) OG&E has not fully evaluated the impact of the COVID-19 pandemic on the GEP, but should do so before proceeding with the GEP given the lack of urgency or need for the Project.

Based on the above facts, and due to the significant economic uncertainty caused by the COVID-19 pandemic, I recommend that the Commission reject OG&E's application requesting approval for a cost recovery mechanism for the GEP.

Q. DOES THAT CONCLUDE YOUR TESTIMONY?

A. Yes.

Exhibit SN-1

DON SCOTT NORWOOD

Norwood Energy Consulting, L.L.C.

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SUMMARY

Scott Norwood is an energy consultant with over 37 years of utility industry experience in the areas of regulatory consulting, resource planning and energy procurement. His clients include government agencies, publicly-owned utilities, public service commissions, municipalities and various electric consumer interests. Over the last 15 years Mr. Norwood has presented expert testimony on electric utility ratemaking, resource planning, and electric utility restructuring issues in over 200 regulatory proceedings in Arkansas, Georgia, Iowa, Illinois, Michigan, Missouri, New Jersey, Oklahoma, South Dakota, Texas, Virginia, Washington and Wisconsin.

Prior to founding Norwood Energy Consulting in January of 2004, Mr. Norwood was employed for 18 years by GDS Associates, Inc., a Marietta, Georgia based energy consulting firm. Mr. Norwood was a Principal of GDS and directed the firm's Deregulated Services Department which provided a range of consulting services including merchant plant due diligence studies, deregulated market price forecasts, power supply planning and procurement projects, electric restructuring policy analyses, and studies of power plant dispatch and production costs.

Before joining GDS, Mr. Norwood was employed by the Public Utility Commission of Texas as Manager of Power Plant Engineering from 1984 through 1986. He began his career in 1980 as Staff Electrical Engineer with the City of Austin's Electric Utility Department where he was in charge of electrical maintenance and design projects at three gas-fired power plants.

Mr. Norwood is a graduate of the college of electrical engineering of the University of Texas.

EXPERIENCE

The following summaries are representative of the range of projects conducted by Mr. Norwood over his 30-year consulting career.

Regulatory Consulting

Oklahoma Industrial Energy Consumers - Assisted client with technical and economic analysis of proposed EPA regulations and compliance plans involving control of air emissions and potential conversion of coal-to-gas conversion options.

Cities Served by Southwestern Electric Power Company – Analyzed and presented testimony regarding the prudence of a $1.7 billion coal-fired power plant and related settlement agreements with Sierra Club.

New York Public Service Commission - Conducted inter-company statistical benchmarking analysis of Consolidated Edison Company to provide the New York Public Service Commission with guidance in determining areas that should be reviewed in detailed management audit of the company.

Oklahoma Industrial Energy Consumers - Analyzed and presented testimony on affiliate energy trading transactions by AEP in ERCOT.

Virginia Attorney General – Analyzed and presented testimony regarding distribution tap line undergrounding program proposed by Dominion Virginia Power Company.

Cities Served by Southwestern Electric Power Company – Analyzed and presented testimony regarding the prudence of the utility's decision to retire the Welsh Unit 2 coal-fired generating unit in conjunction with a litigation settlement agreement with Sierra Club.

Georgia Public Service Commission - Presented testimony before the Georgia Public Service Commission in Docket 3840-U, providing recommendations on nuclear O&M levels for Hatch and Vogtle and recommending that a nuclear performance standard be implemented in the State of Georgia.

Oklahoma Industrial Energy Consumers - Analyzed and presented testimony addressing power production and coal plant dispatch issues in fuel prudence cases involving Oklahoma Gas and Electric Company.

Georgia Public Service Commission - Analyzed and provided recommendations regarding the reasonableness of nuclear O&M costs, fossil O&M costs and coal inventory levels reported in GPC's 1990 Surveillance Filing.

City of Houston - Analyzed and presented comments on various legislative proposals impacting retail electric and gas utility operations and rates in Texas.

New York Public Service Commission - Conducted inter-company statistical benchmarking analysis of Rochester Gas & Electric Company to provide the New York Public Service Commission with guidance in determining areas which should be reviewed in detailed management audit of the company.

Virginia Attorney General – Analyzed and presented testimony regarding an accelerated vegetation management program and rider proposed by Appalachian Power Company.

Oklahoma Attorney General – Analyzed and presented testimony regarding fuel and purchased power, depreciation and other expense items in Oklahoma Gas & Electric Company's 2001 rate case before the Oklahoma Corporation Commission.

City of Houston - Analyzed and presented testimony regarding fossil plant O&M expense levels in Houston Lighting & Power Company's rate case before the Public Utility Commission of Texas.

City of El Paso - Analyzed and presented testimony regarding regulatory and technical issues related to the Central & Southwest/El Paso Electric Company merger and rate proceedings before the PUCT, including analysis of merger synergy studies, fossil O&M and purchased power margins.

Residential Ratepayer Consortium - Analyzed Fermi 2 replacement power and operating performance issues in fuel reconciliation proceedings for Detroit Edison Company before the Michigan Public Service Commission.

Residential Ratepayer Consortium - Analyzed and prepared testimony addressing coal plant outage rate projections in the Consumer's Power Company fuel proceeding before the Michigan Public Service Commission.

City of El Paso - Analyzed and developed testimony regarding Palo Verde operations and maintenance expenses in El Paso Electric Company's 1991 rate case before the Public Utility Commission of Texas.

City of Houston - Analyzed and developed testimony regarding the operations and maintenance expenses and performance standards for the South Texas Nuclear Project, and operations and maintenance expenses for the Limestone and Parish coal-fired power plants in HL&P's 1991 rate case before the PUCT.

City of El Paso - Analyzed and developed testimony regarding Palo Verde operations and maintenance expenses in El Paso Electric Company's 1990 rate case before the Public Utility Commission of Texas. Recommendations were adopted.

Energy Planning and Procurement Services

Virginia Attorney General – Review and provide comments or testimony regarding annual integrated resource plan filings made by Dominion Virginia Power and Appalachian Power Company.

Dell Computer Corporation – Negotiated retail power supply agreement for Dell's Round Rock, Texas facilities producing annual savings in excess of $2 million.

Texas Association of School Boards Electric Aggregation Program – Serve as TASB's consultant in the development, marketing and administration of a retail electric aggregation program consisting of 2,500 Texas schools with a total load of over 300 MW. Program produced annual savings of more than $30 million in its first year.

Oklahoma Industrial Energy Consumers - Analyzed and drafted comments addressing integrated resource plan filings by Public Service Company of Oklahoma and Oklahoma Gas and Electric Company.

S.C. Johnson - Analyzed and presented testimony addressing Wisconsin Electric Power Company's $4.1 billion CPCN application to construct three coal-fired generating units in southeast Wisconsin.

Oklahoma Industrial Energy Consumers - Analyzed wind energy project ownership proposals by Oklahoma Gas and Electric Company and presented testimony addressing project economics and operational impacts.

City of Chicago, Illinois Attorney General, Illinois Citizens' Utility Board - Analyzed Commonwealth Edison's proposed divestiture of the Kincaid and State Line power plants to SEI and Dominion Resources.

Georgia Public Service Commission - Analyzed and presented testimony on Georgia Power Company's integrated resource plan in a certification proceeding for an eight unit, 640 MW combustion turbine facility.

South Dakota Public Service Commission - Evaluated integrated resource plan and power plant certification filing of Black Hills Power & Light Company.

Shell Leasing Co. - Evaluated market value of 540 MW western coal-fired power plant.

Community Energy Electric Aggregation Program – Served as Community Energy's consultant in the development, marketing and start-up of a retail electric aggregation program consisting of major charitable organizations and their donors in Texas.

Austin Energy – Conducted competitive solicitation for peaking capacity. Developed request for proposal, administered solicitation and evaluated bids.

Austin Energy - Provided technical assistance in the evaluation of the economic viability of the City of Austin's ownership interest in the South Texas Project.

Austin Energy - Assisted with regional production cost modeling analysis to assess production cost savings associated with various public power merger and power pool alternatives.

Sam Rayburn G&T Electric Cooperative - Conducted competitive solicitation for peaking capacity. Developed request for proposal, administered solicitation and evaluated bids.

Rio Grande Electric Cooperative, Inc. - Directed preparation of power supply solicitation and conducted economic and technical analysis of offers.

Virginia Attorney General – Review and provide comments or testimony regarding annual demand-side management program programs and rider proposals made by Dominion Virginia Power and Appalachian Power Company.

Austin Energy – Conducted modeling to assess potential costs and benefits of a municipal power pool in Texas.

Electric Restructuring Analyses

Electric Power Research Institute - Evaluated regional resource planning and power market dispatch impacts on rail transportation and coal supply procurement strategies and costs.

Arkansas House of Representatives – Critiqued proposed electric restructuring legislation and identified suggested amendments to provide increased protections for small consumers.

Virginia Legislative Committee on Electric Utility Restructuring – Presented report on status of stranded cost recovery for Virginia's electric utilities.

Georgia Public Service Commission – Developed models and a modeling process for preparing initial estimates of stranded costs for major electric utilities serving the state of Georgia.

City of Houston – Evaluated and recommended adjustments to Reliant Energy's stranded cost proposal before the Public Utility Commission of Texas.

Oklahoma Attorney General – Evaluated and advised the Attorney General on technical, economic and regulatory policy issues arising from various electric restructuring proposals considered by the Oklahoma Electric Restructuring Advisory Committee.

State of Hawaii Department of Business, Economics and Tourism – Evaluated electric restructuring proposals and developed models to assess the potential savings from deregulation of the Oahu power market.

Virginia Attorney General - Served as the Attorney General's consultant and expert witness in the evaluation of electric restructuring legislation, restructuring rulemakings and utility proposals addressing retail pilot programs, stranded costs, rate unbundling, functional separation plans, and competitive metering.

Western Public Power Producers, Inc. - Evaluated operational, cost and regional competitive impacts of the proposed merger of Southwestern Public Service Company and Public Service Company of Colorado.

Iowa Department of Justice, Consumer Advocate Division - Analyzed stranded investment and fuel recover issues resulting from a market-based pricing proposal submitted by MidAmerican Energy Company.

Cullen Weston Pines & Bach/Citizens' Utility Board - Evaluated estimated costs and benefits of the proposed merger of Wisconsin Energy Corporation and Northern States Power Company (Primergy).

City of El Paso - Evaluated merger synergies and plant valuation issues related to the proposed acquisition and merger of El Paso Electric Company and Central & Southwest Company.

Rio Grande Electric Cooperative, Inc. - Analyzed stranded generation investment issues for Central Power & Light Company.

Power Plant Management

City of Austin Electric Utility Department - Analyzed the 1994 Operating Budget for the South Texas Nuclear Project (STNP) and assisted in the development of long-term performance and expense projections and divestiture strategies for Austin's ownership interest in the STNP.

City of Austin Electric Utility Department - Analyzed and provided recommendations regarding the 1991 capital and O&M budgets for the South Texas Nuclear Project.

Sam Rayburn G&T Electric Cooperative - Developed and conducted operational monitoring program relative to minority owner's interest in Nelson 6 Coal Station operated by Gulf States Utilities.

KAMO Electric Cooperative, City of Brownsville and Oklahoma Municipal Power Agency - Directed an operational audit of the Oklaunion coal-fired power plant.

Sam Rayburn G&T Electric Cooperative - Conducted a management/technical assessment of the Big Cajun II coal-fired power plant in conjunction with ownership feasibility studies for the project.

Kamo Electric Power Cooperative - Developed and conducted operational monitoring program for client's minority interest in GRDA Unit 2 Coal Fired Station.

Northeast Texas Electric Cooperative - Developed and conducted operational monitoring program concerning NTEC's interest in Pirkey Coal Station operated by Southwestern Electric Power Company and Dolet Hills Station operated by Central Louisiana Electric Company.

Corn Belt Electric Cooperative/Central Iowa Power Cooperative - Perform operational monitoring and budget analysis on behalf of co-owners of the Duane Arnold Energy Center.

PRESENTATIONS

Quantifying Impacts of Electric Restructuring: Dynamic Analysis of Power Markets, 1997 NARUC Winter Meetings, Committee on Finance and Technology.

Quantifying Costs and Benefits of Electric Utility Deregulation: Dynamic Analysis of Regional Power Markets, International Association for Energy Economics, 1996 Annual North American Conference.

Railroad Rates and Utility Dispatch Case Studies, 1996 EPRI Fuel Supply Seminar.

Oklahoma Industrial Energy Consumers
Data Request OIEC-4
Cause No. PUD 202000021

4-8 Reference page 6, lines 6-8 of OG&E witness Gladhill's direct testimony, provide the annual cost for each year of the System Hardening program along with documentation that describes the number and line-miles of circuits that were hardened.

Response*:

	System Hardening I	System Hardening I	System Hardening I	System Hardening I	System Hardening II	**Total**
	2009	2010	2011	2012	2013	
Cost	$988,303	$8,484,636	$13,571,875	$10,936,174	$12,816,292	$46,797,280
Circuits Completed		58	28	12	5	103

Line Miles for System Hardening I: 1,515 miles

Line Miles for System Hardening II: 62.7 miles, includes one circuit started during SHI that was completed in SHII

Response provided by: Zachary Gladhill
Response provided on: March 25, 2020
Contact & Phone No: Jill Butson 405-553-3285

*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 SN-3

Oklahoma Industrial Energy Consumers
Data Request OIEC-4
Cause No. PUD 202000021

4-13 Reference page 6, lines 9-12 of OG&E witness Gladhill's direct testimony, provide the annual cost for each major component of the Technology Growth phase for each year of this initiative.

Response*:
The Technology Growth phase is representative of a time period in which the Company focused on evaluating and growing technology. The Technology Growth phase was not a specific initiative and was not tracked as a comprehensive plan. There were many different activities and projects during this time period. The four largest projects implemented during this time are outlined below along with their associated cost.

Verified Service Outage - $1.0 million
Customer Notification Platform - $2.8 million
Distribution Management System - $6.1 million
Outage Management System - $14.7 million

Response provided by:	Zachary Gladhill
Response provided on:	March 25, 2020
Contact & Phone No:	Jill Butson 405-553-3285

*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 Industrial Energy Consumers
Data Request OIEC-7
Cause No. PUD 202000021

7-5 Compare the cost and scope of OG&E's Arkansas grid modernization project to the proposed cost and scope of the Company's proposed Oklahoma Grid Enhancement Project and describe primary differences between the scope of investments for the two programs.

Response*: Currently the Company is forecasting just under $100 million in spend for the Arkansas Grid Modernization Plan compared to an estimated $810 million in spend for the Oklahoma Grid Enhancement Plan. The scope of the Arkansas Grid Modernization plan is focused on Grid Resiliency and Grid Automation for the circuits and substations in Arkansas. In comparison, while the scope of the Oklahoma Grid Enhancement plan is also focused on Grid Resiliency and Grid Automation for the circuits and substations, it also includes Communication Systems and Technology Platforms and Applications.

Response provided by:	Zachary Gladhill
Response provided on:	April 01, 2020
Contact & Phone No:	Jill Butson 405-553-3285

*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 Industrial Energy Consumers
Data Request OIEC-2
Cause No. PUD 202000021

2-3 Provide OG&E's SAIDI and SAIFI for distribution system outages only, including major storms, for Oklahoma, for Arkansas and for the entire OG&E system for each year since 2010.

Response*: OG&E does not have the data for the category of distribution system only prior to 2015. Included is the data from 2015 to 2019 as requested. Please see attachment OIEC 2-3_Att.

Response provided by:	Bobby Shaffer
Response provided on:	March 19, 2020
Contact & Phone No:	Jill Butson 405-553-3285

*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.

OIEC 2-3

Provide OG&E's SAIDI and SAIFI for distribution system outages only, including major storms, for Oklahoma, for Arkansas and for the entire OG&E system for each year since 2010.

Entire OGE System		
Distribution - INCLUDING major storms		
Year	SAIDI	SAIFI
2015	535.29	0.60
2016	198.06	0.47
2017	161.15	0.45
2018	105.98	0.43
2019	308.48	0.57

Oklahoma		
Distribution - INCLUDING major storms		
Year	SAIDI	SAIFI
2015	569.94	0.59
2016	168.79	0.46
2017	152.16	0.43
2018	101.54	0.41
2019	314.55	0.56

Arkansas		
Distribution - INCLUDING major storms		
Year	SAIDI	SAIFI
2015	153.64	0.63
2016	523.52	0.55
2017	261.48	0.69
2018	155.70	0.64
2019	239.97	0.63

Note: OG&E does not have the data for the category of Distribution System Outages Only prior to 2015 that includes major storms.

Exhibit SN-6

Oklahoma Industrial Energy Consumers
Data Request OIEC-2
Cause No. PUD 202000021

2-23 Provide documentation of the total number of complaints due to distribution reliability problems in OG&E's Oklahoma service area for each of the last ten years.

Response*:

2010 - 81
2011 - 101
2012 - 70
2013 - 56
2014 - 41
2015 - 123
2016 - 157
2017 - 136
2018 - 111
2019 - 128
2020 - 4
Please note, 2020 represents complaints as of 3/18/2020.

Response provided by: Grady Wood
Response provided on: March 19, 2020
Contact & Phone No: Jill Butson 405-553-3285

*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 Industrial Energy Consumers
Data Request OIEC-3
Cause No. PUD 202000021

3-6 Identify and provide copies of any OG&E tariffs or terms and conditions available to customers in the Company's Oklahoma service area that provide for customers to obtain higher than standard transmission or distribution service reliability, and identify the number of customers in each rate class who requested and were served under such tariffs or terms for each of the last five calendar years.

Response*: OG&E does not have a tariff or terms and conditions neither offering nor prohibiting for a rental service agreement or any other type of agreement for facilities on the Utility's side of the Point of Delivery for "higher than standard reliability service."
However, in its Terms and Conditions of Service, Section 307 "ELECTRIC SERVICE AND POWER QUALITY", Sheet Nos. 133 through 137, OG&E address issues related to service quality.
In its Terms and Conditions of Service, Section 231 "FACILITIES RENTAL SERVICE AND AGREEMENT", Sheet Nos. 122 through 128, OG&E offers its customers the ability to rent transformers and other facilities for use on the customer side of the Point of Delivery. While this is not offered specifically for the purpose of "higher than standard reliability service" a customer may choose to take advantage of this offering for that purpose. To date, no customers have requested this service.

Response provided by:	Gwin Cash	
Response provided on:	March 23, 2020	
Contact & Phone No:	Jill Butson	405-553-3285

*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 Industrial Energy Consumers
Data Request OIEC-12
Cause No. PUD 202000021

12-17 Is OG&E guaranteeing the estimated level of O&M or capital expenditure benefits included in the Company's cost/benefit analysis supporting the proposed 2020 and 2021 Grid Enhancement Plans. If not, explain why not.

Response*: No, OG&E is not guaranteeing an estimated level of O&M or capital expenditure benefits. OG&E bears in future rate cases the ultimate burden of proving these investments are prudent and beneficial to customers; therefore, guarantees are unnecessary.

Response provided by: Donald Rowlett
Response provided on: August 21, 2020
Contact & Phone No: Jill Butson 405-553-3285

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Oklahoma Industrial Energy Consumers
Data Request OIEC-12
Cause No. PUD 202000021

12-18 Is OG&E guaranteeing the estimated level of customer outage reduction benefits included in the Company's cost/benefit analysis supporting the proposed 2020 and 2021 Grid Enhancement Plans. If not, explain why not.

Response*: No, OG&E is not guaranteeing outage reduction benefits. OG&E bears in future rate cases the ultimate burden of proving these investments are prudent and beneficial to customers; therefore, guarantees are unnecessary.

Response provided by: Donald Rowlett
Response provided on: August 21, 2020
Contact & Phone No: Jill Butson 405-553-3285

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Oklahoma Industrial Energy Consumers
Data Request OIEC-2
Cause No. PUD 202000021

2-2 Provide cost/benefit analyses supporting each major component of OG&E's grid modernization plan, including all calculations and underlying assumptions.

Response*: Please see Witness Smith workpaper - Oklahoma Cost Benefit Model Summary. The model is within the SAS VA tool, the information provided is a summarization of the calculations in the model.

Response provided by:	Kandace Smith
Response provided on:	March 19, 2020
Contact & Phone No:	Jill Butson 405-553-3285

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Attorney General
Data Request AG-7
Cause No. PUD 202000021

7-12 Please provide the SAS VA tool's cost-benefit model in Excel-compatible format with all formulas fully functional and intact. If this model cannot be provided, please explain why OGE's personnel lack the expertise to recreate the model in Excel-compatible format.

Response*: The SAS VA model cannot be provided in an Excel-compatible format. While it is feasible to provide an example, it is not feasible for the Company to re-create in or transfer to Excel the exact model that is built within SAS VA, as it is comprised of very complex and voluminous calculations. For a narrative explaining the cost benefit model in SAS VA, please see Witness Smith Workpaper OGE Oklahoma Cost Benefit Model Summary. For an example calculation, please see response to AG 7-11. Upon request, the Company will also provide a virtual meeting to demo the SAS VA model.

Response provided by:	Kandace Smith
Response provided on:	April 13, 2020
Contact & Phone No:	Jill Butson 405-553-3285

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OGE Assumptions

Oklahoma Global Assumptions

Assumption	Value
Average O&M Costs for Major Storms, Oklahoma	$ 9,363,747
Average O&M Costs for Minor Storms, Oklahoma	$ 5,068,172
Average Capital Costs for Major Storms, Oklahoma	$ 12,486,788
Average Capital Costs for Minor Storms, Oklahoma	$ 3,344,855
% of Minor Storm savings	50%
% of Savings within Metro	75%
Oklahoma Sum of Circuit SAIDI (including storms)	227,890
Arkansas Sum of Circuit SAIDI (no storms)	131,556
3-year average total Oklahoma Interruptions	17,692
Average Number of poles replaced for system hardened circuits after storms:	0.78
Average number of poles replaced for non-system hardened circuits after storms:	1.74
Sustained Interruption Reduction (% Improv)	60%
Momentary Interruption Reduction (% Improv)	60%
CMI Reduction (% Improv)	60%
SAIDI Reduction (Circuit Based) (% improv)	60%
Average cost of capital work orders:	$2,403
Average Cost of O&M Truck Roll:	$500
Average cost of Call center call:	$5.31
Percent of momentary outages that are called in:	0.24%
Percent of the time we roll a truck for momentary called in:	16%
Average Kva per circuit	1640
Isolation Reduction	20%
Average Isolation Duration (minutes)	30
Oklahoma ICE savings with major events/storms	$1,915,931,882
Total analyze time minutes per ticket	14.6
Total dispatch time minutes per ticket	10.5
Total waiting time minutes per ticket	61.0
Total travel time minutes per ticket	22.7
Total work time minutes per ticket	24.9
Total wrap-up time minutes per ticket	2.9
WACC	*7.55%*
# of Years for NPV	30
Degradation (after 10 years)	2%
Inflation	2.50%
% of ICE Calculation to Include	0%

Circuit Specific Assumptions

Example Circuit Specific Characteristics	
Circuit Number	530521
Circuit Name	HEALDTON 21
Customers	1241
Total Miles	106.43
Poles on Circuit	3129
3 Yr. Avg SAIDI	170
3 Yr. Avg CMI	210,393
3 Yr. Avg Incidents/Sustained outages	72
3 Yr. Avg SAIDI including storms	4,345
3 Yr. Avg Outages Including storms	82
3 Yr. Avg Momentary outages	29,829
Storm CMI	5,181,175
Storm SAIDI	4,175

Benefit Calculations

Circuit specific assumptions are in red font. Global assumptions are in green font. The rest of the values (in black font) are derived from calculations involving several circuit and global assumptions.

Affordability

Benefit	Calculation
O&M Savings Oklahoma, Major Storm Related	Possible Oklahoma O&M Storm Costs (Major Storms) * Percentage of Reduced Storm Customer Minutes Interrupted (CMI) due to Resilience Investments
O&M Savings Oklahoma, Minor Storm Related	Possible Oklahoma O&M Storm Costs (Minor Storms) * Percentage of Reduced Storm Customer Minutes Interrupted (CMI) due to Resilience Investments * Percentage of Minor Storm Savings
Capital Savings Oklahoma, Major Storm Related	Possible Oklahoma Capital Storm Costs (Major Storms) * Percentage of Reduced Storm Customer Minutes Interrupted (CMI) due to Resilience Investments
Capital Savings Oklahoma, Minor Storm Related	Possible Oklahoma Capital Storm Costs (Minor Storms) * Percentage of Reduced Storm Customer Minutes Interrupted (CMI) due to Resilience Investments * Percentage of Minor Storm Savings
Capital Spending Reduction for Sustained Interruptions (inside metro)	3 Year Average Incidents/ Sustained Outages * Sustained Interruption Reduction (% Improvement) * Average Cost of Capital Work Orders * Percentage of Savings within Metro
Capital Spending Reduction for Sustained Interruptions (outside metro)	3 Year Average Incidents/ Sustained Outages * Sustained Interruption Reduction (% Improvement) * Average Cost of Capital Work Orders

O&M Spending Reduction for Sustained Interruptions (inside metro)	3 Year Average Incidents/ Sustained Outages * Sustained Interruption Reduction (% Improvement) * Average Cost of O&M Truck Roll * Percentage of Savings within Metro
O&M Spending Reduction for Sustained Interruptions (outside metro)	3 Year Average Incidents/ Sustained Outages * Sustained Interruption Reduction (% Improvement) * Average Cost of O&M Truck Roll
Capital Spending Reduction for Momentary Interruptions (inside metro)	3 Year Average Momentary Outages * Momentary Interruption Reduction (% Improvement) * Average Cost of Call Center Call * Percentage of Momentary Outages that are Called In * Percentage of Savings within Metro
Capital Spending Reduction for Momentary Interruptions (outside metro)	3 Year Average Momentary Outages * Momentary Interruption Reduction (% Improvement) * Average Cost of Call Center Call * Percentage of Momentary Outages that are Called In
O&M Spending Reduction for Momentary Interruptions (inside metro)	3 Year Average Momentary Outages * Momentary Interruption Reduction (% Improvement) * Percentage of Momentary Outages that are Called In * Average Cost of O&M Truck Roll * Percent of the time OGE rolls a truck for a momentary called in * Percentage of Savings within Metro
O&M Spending Reduction for Momentary Interruptions (outside metro)	3 Year Average Momentary Outages * Momentary Interruption Reduction (% Improvement) * Percentage of Momentary Outages that are Called In * Average Cost of O&M Truck Roll * Percent of the time OGE rolls a truck for a momentary called in

Reliability

Benefit	Calculation
Avoided Incidents Due to project improvements	3 Year Average Incidents/ Sustained Outages * Sustained Interruption Reduction (% Improvement)
Avoided CMI Due to project improvements	3 Year Average CMI * CMI Reduction (% Improvement)
Avoided Momentaries Due to project improvements	3 Year Average Momentary Outages * Momentary Interruption Reduction (% Improvement)
Avoided SAIDI (circuit) Due to project improvements	3 Year Average SAIDI * SAIDI Reduction (Circuit Based) (% Improvement)

Resilience

Benefit	Calculation
Storm Incidents Reduced	Sustained Interruption Reduction (% Improvement) * (3 Yr. Avg Outages Including storms – 3 Yr. Avg Incidents/Sustained outages)
Storm SAIDI Reduction	Storm CMI Reduction, Resilience/ Customers
Reduced Storm CMI %, Resilience	1 – (Remaining storm CMI / Storm CMI this circuit)
Storm CMI reduction, Resilience	Storm CMI this circuit – Remaining Storm CMI

Flexibility

Benefit	Calculation
Reduction in Isolation Time (minutes)	3 Yr. Avg Incidents/Sustained outages * Average Isolation Duration (minutes) * Isolation Reduction
Reduction in Isolation Time (% Improvement)	Reduction in Isolation Time (minutes)/ (3 Yr. Avg Incidents/Sustained outages * Average Isolation Duration (minutes))

Efficiency

Benefit	Calculation
Avoided O&M Work (hours)	3 Yr. Avg Momentary outages * Momentary Interruption Reduction (% Improv) * ((total_analyze_time_minutes per ticket + total_dispatch_time_minutes per ticket + total_travel_time_minutes per ticket)/ 60) * Percent of momentary outages that are called in * Percent of the time we roll a truck for momentary called in + 3 Yr. Avg Incidents/Sustained outages * (1-Sustained Interruption Reduction (% Improv)) * (Average Isolation Duration (minutes)/60) * Isolation Reduction
Avoided CAP Work (hours)	3 Yr. Avg Incidents/Sustained outages * Sustained Interruption Reduction (% Improv) * ((total_analyze_time_minutes per ticket + total_dispatch_time_minutes per ticket + total_travel_time_minutes per ticket + total_work_time_minutes per ticket + total_wrapup_time_minutes per ticket)/60)
Avoided Truck Rolls (count)	(3 Yr. Avg Incidents/Sustained outages * Sustained Interruption Reduction (% Improv) + (3 Yr. Avg Momentary outages * Momentary Interruption Reduction (% Improv) * Percent of momentary outages that are called in * Percent of the time we roll a truck for momentary called in)

Customer Engagement

Benefit	Calculation
Customer Interruption Cost Reduction (ICE calculation) - includes storms	Oklahoma ICE savings with major events/storms * (3 Yr. Avg Incidents/Sustained outages/ 3-year average total Oklahoma Interruptions)

Oklahoma Industrial Energy Consumers
Data Request OIEC-12
Cause No. PUD 202000021

12-6 Please provide cost/benefit analyses for each project or the total of projects included in the Company's proposed 2020 Grid Enhancement Plan, including underlying assumptions, calculations and results for each year of the analysis.

Response*: The information requested resides in a SAS VA model. For the narrative of the calculations, please see Witness Smith's Workpaper OGE Oklahoma Cost-Benefit Model Summary. For example, calculations, please see the attachment in supplemental response to AG 7-11, which provides an example project with one circuit and an example project with two circuits. For the total benefits in the proposed 2020 Plan, please see Witness Smith's Direct Exhibit KS-5 at page 4.

Response provided by:	Kandace Smith
Response provided on:	August 21, 2020
Contact & Phone No:	Jill Butson 405-553-3285

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Oklahoma Industrial Energy Consumers
Data Request OIEC-12
Cause No. PUD 202000021

12-7 Please provide cost/benefit analyses for each project or the total of projects included in the Company's proposed 2021 Grid Enhancement Plan, including underlying assumptions, calculations and results for each year of the analysis.

Response*: The information requested resides in the SAS VA model. For the narrative of the calculations, please see Witness Smith's Workpaper titled OGE Oklahoma Cost-Benefit Model Summary. For example calculations, please see the attachment in supplemental response to AG 7-11, which provides an example project with one circuit and an example project with two circuits. Please see attachment OIEC 12-7_Att, for information needed specific to 2021 projects. For the total benefits in the proposed 2021 Plan, please see Witness Smith's Supplemental Direct Exhibit KS-2 at page 2.

Response provided by:	Kandace Smith
Response provided on:	August 14, 2020
Contact & Phone No:	Jill Butson 405-553-3285

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Attorney General
Data Request AG-7 Supplemental Response
Cause No. PUD 202000021

7-11 Please refer to the Company's response to AG-OGE-3-4. Please provide a detailed narrative describing how the SAS VA tool calculates avoided cost benefits. Please explain how the tool differentiates between operations and maintenance expense savings and capital expenditure savings. Please include example calculations.

Supplemental Response*: Please see attachments AG 7-11_Att_Supplement, for a more detailed example of a project with one circuit and a project with two circuits.

Response provided by:	Kandace Smith
Response provided on:	July 09, 2020
Contact & Phone No:	Jill Butson 405-553-3285

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AG 7-11 SUPPLEMENT, ATTACHMENT

Healdton 21 Example Calculations

Possible O&M Storm Costs (Major Storms)	$405,794
Possible O&M Storm Costs (Minor Storms)	$109,819
AG 7-11 ATT. SUPPLEMENT	$541,136
Possible CAP Storm Costs (Minor Storms)	$72,477
% of Reduced Storm CMI	87.6%
Circuit Remaining Storm CMI	641,479
Circuit NEW Storm CMI	145,791
Circuit Storm Avg CMI per Outage	471,016
Ratio of Non-Hardened Performance to Hardened Performance	2.23
Circuit Storm Events	11
Circuit Storm Events Reduced	6.6
Inside Metro	No
Off Work Hour Ratio	0.87

Avoided O&M - Major Storm	$355,552
Avoided O&M - Minor Storm	$96,222
Avoided O&M - Non-Storm (Sustained Outages)	$18,600
Avoided O&M - Non-Storm (Momentary Interruptions)	$3,001
Total Avoided O&M	**$473,375**
Avoided CAP - Major Storm	$474,138
Avoided CAP - Minor Storm	$63,504
Avoided CAP - Non-Storm (Sustained Outages)	$89,392
Avoided CAP - Non-Storm (Momentary Interruptions)	$199
Total Avoided CAP	**$627,233**
Total Avoided Cost of Service	**$1,100,608**

Exhibit SN- 11

Oklahoma Industrial Energy Consumers
Data Request OIEC-11
Cause No. PUD 202000021

11-7 Please identify each alternative to the investments and schedule proposed in OG&E's Grid Enhancement Plan that were evaluated in the Company's cost/benefit analysis of the Plan, including more limited investment, delayed investment, replacement of existing assets as needed, and any other alternatives.

Response*: The majority of investments in the 2020 Grid Enhancement Plan are not a new type of investment for the distribution system, but rather, are a more focused and accelerated deployment of equipment and technology that is in use today. The accelerated component of these investments allows customer benefits to be realized sooner and have a larger impact on reliability and resiliency on circuits than replacing components individually. Since the type of investments aren't new, the primary alternative to the program would be to allow assets to fail, which has a higher cost of repair than proactive replacement. The Company has not performed scenario analysis based on varying levels of timing of these investments.

Response provided by: Zachary Gladhill
Response provided on: May 07, 2020
Contact & Phone No: Jill Butson 405-553-3285

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Attorney General
Data Request AG-3
Cause No. PUD 202000021

3-8 Please refer to the direct testimony of Zachary Gladhill, page 18, lines 27 through 30. Please provide all workpapers supporting the referenced calculation. Please provide the workpapers in Excel-compatible format with all formulas fully functional and intact. Where necessary, please provide workpapers that show the inputs to the DOE ICE model with clear notes showing how values were used as inputs and how the ICE model was used.

Response*: The Company used the DOE ICE calculator to develop total potential Oklahoma ICE savings. Please see attachment AG 3-8_Att, for the inputs used for determining that assumption. Please see Witness Smith Workpaper Oklahoma Cost Benefit Model Summary for how the Company applied the total potential Oklahoma ICE savings to calculate Avoided Economic Harm benefits for each project. The cost benefit model is within the SAS VA tool, the information provided is a summarization of the calculations in the model.

Response provided by:	Kandace Smith
Response provided on:	March 17, 2020
Contact & Phone No:	Jill Butson 405-553-3285

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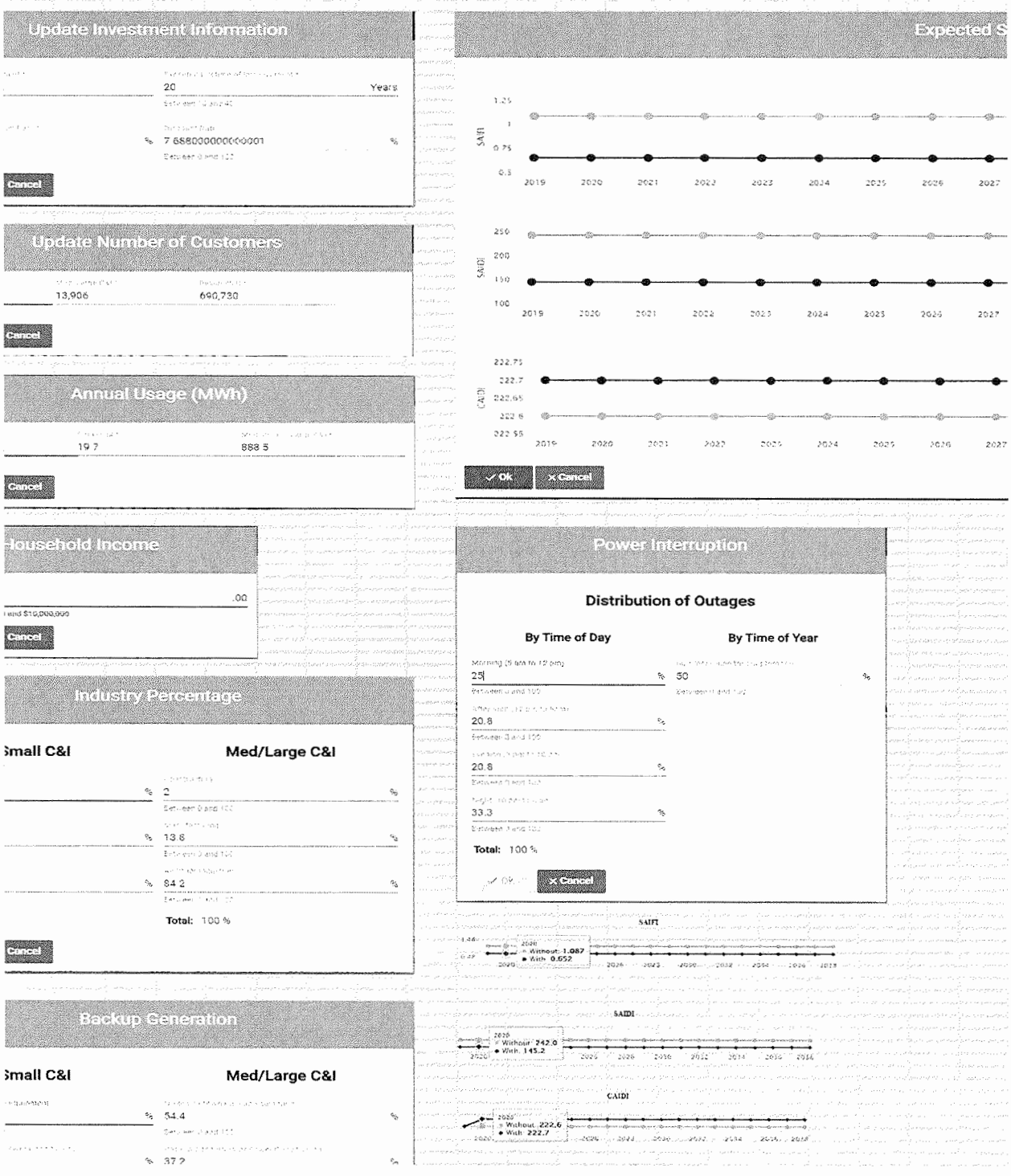
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Years
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%
Cancel
Update Number of Customers
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690,730
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Annual Usage (MWh)
19.7
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Household Income
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Cancel
Industry Percentage
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Med/Large C&I
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13.6
84.2
Total: 100 %
Cancel
Backup Generation
Small C&I
Med/Large C&I
54.4
37.2
Expected S
SAIFI
SAIDI
CAIDI
✓ OK
✗ Cancel
Power Interruption
Distribution of Outages
By Time of Day
By Time of Year
25
%
50
%
20.8
%
20.8
%
33.3
%
Total: 100 %
✓ OK
✗ Cancel
SAIFI
Without: 1.087
With: 0.652
SAIDI
Without: 242.0
With: 145.2
CAIDI
Without: 222.6
With: 222.7

Exhibit SN- 13

Oklahoma Industrial Energy Consumers
Data Request OIEC-7
Cause No. PUD 202000021

7-1 Provide a breakdown of the estimated total $1.4 billion in customer cost savings by rate class that are attributable to OG&E's estimate of the value of reduced outages to customers who take service at transmission voltages.

Response*: The requested information has not been prepared by the Company. Please see response to AG 3-7. As the Grid Enhancement Plan is focused on distribution investments and does not include any significant transmission investments, the Company did not quantify avoided economic harm for this service level specifically. Any separately unquantified avoided economic harm related to this service level would be above the $1.4 billion cited in the Company's application.

Response provided by:	Zachary Gladhill	
Response provided on:	April 01, 2020	
Contact & Phone No:	Jill Butson	405-553-3285

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Exhibit SN- 14

Oklahoma Industrial Energy Consumers
Data Request OIEC-12
Cause No. PUD 202000021

12-19 Is OG&E guaranteeing the estimated level of avoided economic harm benefits included in the Company's cost/benefit analysis supporting the proposed 2020 and 2021 Grid Enhancement Plans. If not, explain why not.

Response*: No, OG&E is not guaranteeing avoided economic harm benefits. OG&E bears in future rate cases the ultimate burden of proving these investments are prudent and beneficial to customers; therefore, guarantees are unnecessary.

Response provided by:	Donald Rowlett
Response provided on:	August 21, 2020
Contact & Phone No:	Jill Butson 405-553-3285

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CERTIFICATE OF MAILING

This is to certify that on this 25th day of August, 2020, a true and correct copy of the above and foregoing was emailed, addressed to:

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