

**BEFORE THE CORPORATION COMMISSION OF THE STATE OF OKLAHOMA**

APPLICATION OF OKLAHOMA NATURAL )  
GAS COMPANY, A DIVISION OF ONE GAS, )  
INC., FOR APPROVAL OF ITS )  
PERFORMANCE BASED RATE CHANGE )  
PLAN CALCULATIONS FOR THE TWELVE )  
MONTHS ENDING DECEMBER 31, 2021, )  
ENERGY EFFICIENCY TRUE-UP AND )  
UTILITY INCENTIVE ADJUSTMENTS FOR )  
PROGRAM YEAR 2021, AND CHANGES OR )  
MODIFICATIONS TO ITS TARIFFS )

CAUSE NO. PUD 202200023

**FILED**  
MAR 15 2022

COURT CLERK'S OFFICE - OKC  
CORPORATION COMMISSION  
OF OKLAHOMA

**DIRECT TESTIMONY**

**OF**

**PAUL H. RAAB**

**ON BEHALF OF**

**OKLAHOMA NATURAL GAS**

**March 15, 2022**

1 **INTRODUCTION**

2 Q. PLEASE STATE YOUR NAME, OCCUPATION AND BUSINESS ADDRESS.

3 A. My name is Paul H. Raab and my business address is 5313 Portsmouth Road,  
4 Bethesda, MD 20816. I am an independent economic consultant.

5

6 **I. QUALIFICATIONS**

7 Q. WHAT IS YOUR EDUCATIONAL BACKGROUND?

8 A. I have a B.A. in Economics from Rutgers University and an M.A. from the State  
9 University of New York at Binghamton with a concentration in Econometrics.  
10 While attending Rutgers, I studied as a Henry Rutgers Scholar.

11

12 Q. PLEASE DESCRIBE YOUR BUSINESS EXPERIENCE.

13 A. I have been providing consulting services to the utility industry for my entire  
14 career, having assisted electric, gas, telephone, and water utilities; Commissions;  
15 and intervenor clients in a variety of areas. I am trained as a quantitative  
16 economist so that most of this assistance has been in the form of mathematical  
17 and economic analysis and information systems development. My areas of focus  
18 are planning issues, costing and rate design analysis, and depreciation and life  
19 analysis. I began my career with the professional services firm that is now known  
20 as Ernst & Young, where I was employed for ten years.

21

1 Q. WHAT IS YOUR SPECIFIC EXPERIENCE WITH THE DESIGN AND  
2 IMPLEMENTATION OF CONSERVATION AND ENERGY EFFICIENCY  
3 PROGRAMS?

4 A. Since 1990, I have assisted numerous natural gas utilities in the design,  
5 implementation and evaluation of conservation and energy efficiency programs.  
6 These include Washington Gas in the District of Columbia, Maryland, and  
7 Virginia; Atmos Energy and Kansas Gas Service in Kansas; UGI Utilities, Inc. in  
8 Pennsylvania; Piedmont Natural Gas Company in South Carolina; Texas Gas  
9 Service in Texas; and Virginia Natural Gas Company in Virginia. I have also  
10 spoken on natural gas conservation and energy efficiency programs and related  
11 topics at several industry conferences.

12  
13 I have worked with Oklahoma Natural from the beginning of its efforts to develop  
14 a conservation and energy efficiency capability within the Company. This has  
15 included the rulemaking process in Oklahoma and the design, implementation,  
16 and evaluation of its current Demand Portfolio. In addition to this natural gas  
17 industry-specific experience, I have also assisted electric utilities in the design  
18 and implementation of conservation and energy efficiency programs, and I have  
19 evaluated many electric utility programs throughout the last 20 years.

20  
21 Q. HAVE YOU TESTIFIED PREVIOUSLY BEFORE COMMISSIONS IN  
22 REGULATORY PROCEEDINGS?

1 A. Yes. I have previously provided expert testimony before this Commission in  
2 numerous causes and have also provided expert testimony in over 25 state  
3 regulatory jurisdictions over my career. In addition, I have presented expert  
4 testimony before the Federal Energy Regulatory Commission, the Pennsylvania  
5 House Consumer Affairs Committee, the Michigan House Economic  
6 Development and Energy Committee, the Province of Saskatchewan, and the  
7 United States Tax Court.

8

9 Q. MR. RAAB, ARE YOU ASKING THAT YOUR CREDENTIALS AS AN EXPERT  
10 WITNESS IN MATTERS PRESENTED BEFORE THE OKLAHOMA  
11 CORPORATION COMMISSION BE ACCEPTED?

12 A. Yes, I am.

13

14 **II. PURPOSE OF TESTIMONY**

15 Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

16 A. Within the current Application, the Company is seeking to adjust its Energy  
17 Efficiency Program Rate, consistent with Tariff 1201, to include recovery of  
18 projected energy efficiency program costs for Program Year 12 (Calendar Year  
19 2022), the level of incentive to which the Company is entitled as a result of its  
20 Program Year 11 (Calendar Year 2021) efforts and the under-collection of  
21 program expenses through Program Year 11. The purpose of my testimony is to  
22 present the new Energy Efficiency Program Rate and supporting documentation,

1 as well as the Annual Report of the performance of the Company's Demand  
2 Programs as required by the Commission's rules.

3  
4 **III. IDENTIFICATION OF EXHIBITS**

5 Q. DO YOU SPONSOR ANY EXHIBITS IN SUPPORT OF YOUR TESTIMONY?

6 A. Yes, I sponsor two exhibits. Exhibit PHR-1 is a summary of the new Energy  
7 Efficiency Program Rate, presented in the form of Exhibit B as required by the  
8 Company's PBRC Tariff. Exhibit PHR-2 is the Company's Annual Report for  
9 Program Year 11. This Report provides the information required by §165:45-23-7  
10 and §165:45-23-8 of the Commission's rules. Consistent with rules that went into  
11 effect on January 1, 2017, the Company has contracted with an independent  
12 third-party evaluator to conduct its EM&V, as required by §165:45-23-6 of the  
13 rules. This evaluation is attached as Exhibit CMS-4 to the testimony of Company  
14 Witness Cory Slaughter. The Company has selected ADM Associates, Inc.  
15 ("ADM") as the evaluation contractor for its PY11 programs. ADM's savings  
16 estimates and benefit/cost calculations support the net Total Resource Cost  
17 ("TRC") benefits that are needed to determine the level of incentive to which the  
18 Company is entitled as a result of its Program Year 11 efforts. Exhibit PHR-2  
19 also summarizes the updated cost effectiveness results of the Company's  
20 programs and the associated incentive calculation details. The above-  
21 designated exhibits were prepared by me or under my direction and supervision.

1 **IV. ORGANIZATION OF TESTIMONY**

2 Q. HOW IS YOUR TESTIMONY ORGANIZED?

3 A. The following section of my testimony describes the calculation of the new  
4 Oklahoma Natural Gas Energy Efficiency Program Rate. It contains four  
5 subsections that describe (a) the determination of energy savings for each  
6 program; (b) the updated benefit/cost evaluations of the Company's programs;  
7 (c) the incentive calculation; and (d) the true-up adjustment.

8  
9 **V. THE ENERGY EFFICIENCY PROGRAM RATE**

10 Q. PLEASE DESCRIBE THE COMPANY'S NEW ENERGY EFFICIENCY  
11 PROGRAM RATE.

12 A. As detailed in Exhibit PHR-1, the Company's new Energy Efficiency Program  
13 Rates for the upcoming year are \$1.66/residential customer/month, \$1.34/small  
14 commercial customer/month, \$3.68/large commercial customer/month, and  
15 \$26.56/eligible transportation customer/month. The residential rate is higher than  
16 the current rate by \$0.26/residential customer/month, the small commercial rate  
17 is higher than the current rate by \$0.22, the large commercial rate is lower than  
18 the current rate by \$0.15/large commercial customer/month and the  
19 transportation rate is lower than the current rate by \$2.84/eligible transportation  
20 customer/month. These rates are developed as the sum of the current year  
21 unadjusted rate, shown on Line No. 3 of Exhibit PHR-1; the utility incentive rate,  
22 shown on Line No. 5 of Exhibit PHR-1; the current year true-up rate shown on

1 Line No. 7 of Exhibit PHR-1; and the carryover true-up adjustment rate, shown on  
2 Line No. 9 of Exhibit PHR-1.

3  
4 Q. PLEASE DESCRIBE THE COMPONENTS OF THE COMPANY'S NEW  
5 ENERGY EFFICIENCY PROGRAM RATE IN GREATER DETAIL.

6 A. Referencing Exhibit PHR-1, the current year unadjusted rate (Line No. 3) is  
7 simply the Commission-approved Year 11 program budget of \$15,884,000,  
8 allocated or assigned to residential, small commercial, large commercial and  
9 small transportation customers, divided by the 2021 customer counts in each of  
10 these classes. The utility incentive rate (Line No. 5) is dependent upon updated  
11 benefit/cost evaluations and the updated evaluations are described in the ADM  
12 EM&V Report, filed in this docket, in Exhibit PHR-2 and in the subsections below.

13  
14 The current year true-up adjustment is the difference between collections in the  
15 program year and expenditures. For this program year, the Company under-  
16 collected expenditures for energy efficiency by \$2,578,731 and this under-  
17 collection requires an increase to the new current year true-up rate (Line No. 7).  
18 The carryover true-up adjustments (Line No. 9) are the cumulative difference  
19 between collections in prior program years and expenditures. The net effect of  
20 all these components results in the new Energy Efficiency Program Rates, shown  
21 on Line No. 10 of Exhibit PHR-1.

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**a. Program Energy Savings**

Q. PLEASE DESCRIBE THE ENERGY SAVINGS REALIZED AS A RESULT OF THE COMPANY'S EFFORTS IN THE CURRENT PROGRAM YEAR.

A. Realized energy savings by customer sector and program support the revised TRC benefit/cost evaluations, which are an important input to the calculation of the level of incentive to which the Company is entitled as a result of its Program Year 11 efforts. Consistent with rules that went into effect on January 1, 2017, the Company has contracted with ADM Associates, Inc. as the evaluation contractor for its PY11 programs. ADM's savings estimates are provided in its EM&V Report filed pursuant to these rules in this docket, which contains the details supporting these metrics.

**b. Program Benefit/Cost Evaluations**

Q. WHAT ARE THE RESULTS OF THE UPDATED BENEFIT/COST EVALUATIONS?

A. ADM Associates, Inc. also provided updated benefit/cost evaluations of the Company's programs. ADM's benefit/cost test results are provided in its EM&V Report, which also contains the details supporting these calculations. The TRC results from that report are summarized for all the Company's programs for Program Year 11 in column (D) of Schedule 11 of Exhibit PHR-2.

1 As can be seen from these results, each one of Oklahoma Natural's programs  
2 that results in energy savings is TRC cost-effective, as is Oklahoma Natural's  
3 total Demand Portfolio.

4  
5 **c. The Incentive Calculation**

6 Q. WHY ARE THE TRC TEST RESULTS IMPORTANT?

7 A. Because they are needed to calculate the Company incentive. §165:45-23-8 of  
8 the Commission's rules allow the Company to receive an incentive for successful  
9 implementation of its Demand Portfolio only if the Company's Demand Portfolio  
10 achieves a total resource cost test benefit/cost ratio (TRC: B/CR) that is greater  
11 than one.

12  
13 Q. ARE THERE OTHER THRESHOLD CONDITIONS THAT MUST BE SATISFIED  
14 BEFORE THE COMPANY IS ENTITLED TO RECEIVE AN INCENTIVE FOR  
15 SUCCESSFUL IMPLEMENTATION OF ITS DEMAND PORTFOLIO?

16 A. Yes. In addition to the requirement that the Demand Portfolio achieves a TRC: B/  
17 CR that is greater than one, the Demand Portfolio must also achieve a minimum  
18 of 80% of the company's goal ratio (Verified savings divided by Projected  
19 savings). As shown in Exhibit PHR-2, both threshold conditions are satisfied.  
20 The Company achieved approximately 121% of projected savings and the  
21 programs produce a net benefit of \$31,983,542, which is more than enough to  
22 absorb all the program administrative expenses of \$1,205,998 and still produce a  
23 TRC: B/CR greater than 1.00.

1 This result is confirmed by the Incentive Calculation shown on Schedule 11 of  
2 Exhibit PHR-2, which determines the incentive to which the Company is entitled  
3 based on the Commission's rules as 15 percent of total Program Costs, or  
4 \$2,382,727. As required by the Commission's rules, this calculation includes all  
5 costs incurred for implementation of Demand Programs including all program  
6 costs, education or outreach program costs, Administrative costs, and EM&V  
7 costs and, by its very calculation, does not exceed 15 percent of Demand  
8 Portfolio costs inclusive of program delivery costs, education, and/or marketing  
9 outreach costs, Administrative costs, and EM&V costs.

10  
11 **d. The True-Up Adjustment**

12 Q. HOW MUCH DID THE COMPANY COLLECT FROM CUSTOMERS DURING  
13 THIS PROGRAM YEAR FOR CONSERVATION AND ENERGY EFFICIENCY  
14 ACTIVITIES?

15 A. The Company collected a total of \$15,750,764 from customers during Program  
16 Year 11 for conservation and energy efficiency activities. Of this total,  
17 \$12,743,727 was collected from residential customers, \$654,314 was collected  
18 from small commercial customers, \$1,289,760 was collected from large  
19 commercial customers and \$1,062,964 was collected from transportation  
20 customers. Adjusted for prior year earned incentives, net collections from these  
21 customer classes are \$10,708,355 from residential customers, \$536,645 from  
22 small commercial customers, \$1,222,779 from large commercial customers, and  
23 \$1,052,185 from transportation customers.

1 Q. AND WHAT ARE THE TOTAL PROGRAM COSTS BY CUSTOMER SECTOR?

2 A. Total program costs are \$16,098,695. The amount attributable to residential  
3 customers is \$13,354,140, the amount attributable to small commercial  
4 customers is \$667,418, the amount attributable to large commercial customers is  
5 \$1,187,439, and the amount attributable to small transportation customers is  
6 \$889,698.

7

8 Thus, the Company under-collected its costs during Program Year 10 by  
9 \$2,578,731. This under-collection, by class, is summarized on Line No. 6 of  
10 Exhibit PHR-1 and changes the 2021 Energy Efficiency Rate by the amounts  
11 shown on Line No. 7 of Exhibit PHR-1.

12

13 In addition, there remains a cumulative over-collection of \$1,414,568 as a result  
14 of the Company's activities in Program Years 1 through 10. This over-collection,  
15 by class, is summarized on Line No. 8 of Exhibit PHR-1 and is used to change  
16 the Energy Efficiency Rates by the amounts shown on Line No. 9 of Exhibit  
17 PHR-1 for the upcoming Program Year.

18

19 Q. DOES THAT COMPLETE YOUR DIRECT TESTIMONY AT THIS TIME?

20 A. Yes, it does.

OKLAHOMA NATURAL GAS  
ENERGY EFFICIENCY  
EXHIBIT B

Line No.	Description	Total	Residential	Small Commercial	Large Commercial	Transportation
1	Budgeted Energy Efficiency Program Costs - Current Period	\$ 15,884,000	\$ 12,797,013	\$ 2,064,454	\$ 880,792	\$ 141,741
2	Projected Annual Number of Bills	10,636,980	9,705,132	561,072	319,380	51,396
3	Current Year Unadjusted Rate		<u>\$ 1.32</u>	<u>\$ 3.68</u>	<u>\$ 2.76</u>	<u>\$ 2.76</u>
4	Utility Incentive	\$ 2,382,727	\$ 2,173,989	\$ 125,682	\$ 71,542	\$ 11,513
5	New Incentive Rate		0.22	0.22	0.22	0.22
6	Current Year True-up Adjustment	\$ 2,578,731	\$ 2,645,785	\$ 130,773	\$ (35,340)	\$ (162,487)
7	Current Year True-up Rate		0.27	0.23	(0.11)	(3.16)
8	Carryover Over/Under Energy Efficiency Program Adjustment	\$ (1,414,568)	\$ (1,481,672)	\$ (1,565,474)	\$ 258,313	\$ 1,374,265
9	Carryover Over/Under Energy Efficiency Program Rate		(0.15)	(2.79)	0.81	26.74
10	Total Effective Energy Efficiency Rate	<u>\$ 19,430,890</u>	<u>\$ 1.66</u>	<u>\$ 1.34</u>	<u>\$ 3.68</u>	<u>\$ 26.56</u>

**ANNUAL REPORT**  
**on the**  
**CONSERVATION AND ENERGY EFFICIENCY PROGRAMS**  
**of**  
**OKLAHOMA NATURAL GAS**  
**PROGRAM YEAR 11**

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§165:45-23-7. Reporting..... 8

    §165:45-23-7(a) Each utility shall submit an annual report by May 1 of each year on the performance of Demand Portfolio for the preceding program year and cumulative program performance which shall include the information enumerated in this section..... 8

    §165:45-23-7(b) The annual report shall be submitted with Verified savings information in order for PUD to evaluate incentives levels to be recovered from consumers. PUD will provide Company with written notification of incentive levels, confirming or identifying disputed amounts with rationale for dispute by September 1. Any undisputed incentives may be included in recovery according to formula rate or other tariff terms. Any disputed incentives amounts will be resolved during the subsequent formula rate filing or other tariff recovery reviews. True-up mechanisms and recovery for all other Demand Program Costs shall be included with formula rate filings or other tariff recovery mechanisms. .... 8

    §165:45-23-7(c) The report shall contain a Demand Portfolio summary reflecting the scale of each program as a part of the Demand Portfolio and will include the following: ..... 9

        §165:45-23-7(c)(1) The name of Demand Program listed by customer category; ..... 9

        §165:45-23-7(c)(2) The date program was started or date the Demand Program was revised; ..... 9

        §165:45-23-7(c)(3) The number of participating customers per Demand Program; ..... 9

        §165:45-23-7(c)(4) By Demand Program, approved projected energy savings (in decatherms) as approved; ..... 9

        §165:45-23-7(c)(5) The gross energy savings (in decatherms) and performance of each Demand Program;..... 10

        §165:45-23-7(c)(6) The verified energy savings (in decatherms) by Demand Program and methods used to verify; ..... 10

        §165:45-23-7(c)(7) For Education programs measurements of outreach efforts, including pre-program and post-program results and copies of evaluations, surveys, focus group results, and other measurement techniques used to gauge the effectiveness of education efforts; ..... 10

        §165:45-23-7(c)(8) The levelized cost per decatherm for the Demand Portfolio, Demand Programs, and by customer sector, including all assumptions used to make the calculation; ..... 11

        §165:45-23-7(c)(9) The amount of reduced emissions and water consumption experienced by the utility, including all assumptions and calculations details, during the Demand Program period for the current program year; ..... 11

        §165:45-23-7(c)(10) The Demand Portfolio funding as a percent of total annual gas revenue;..... 12

        §165:45-23-7(c)(11) The Demand Portfolio Net source energy savings as a percent of total gas annual usage; ..... 12

§165:45-23-7(c)(12) The projected program costs;..... 12

§165:45-23-7(c)(13) The actual program costs;..... 13

§165:45-23-7(c)(14) Projected incentives – including projected cost effectiveness tests; ..... 14

§165:45-23-7(c)(15) Actual calculated incentives – including workpapers and working spreadsheets (formulas, calculations, linkages, and assumptions) for updated cost effectiveness tests, in sufficient detail to allow review of cost effectiveness calculations; ..... 14

§165:45-23-7(c)(16) The utility's annual growth in metered energy for the previous three years, with a calculation of the average growth rate over that entire period by customer class or major customer class segments; ..... 14

§165:45-23-7(c)(17) The most current information available comparing the base line and milestones to be achieved under market transformation programs with actual conditions in the market;..... 15

§165:45-23-7(c)(18) By Demand Program, provide a summary of spending, including the following: (A) Administrative costs; (B) Inducements, including direct payments and other inducements; (C) Education and marketing costs; (D) Program Delivery Costs; and (E) EM&V costs..... 15

§165:45-23-7(c)(19) A statement of any funds that were committed but not spent during the year, by program, with an explanation for non-spending; ..... 15

§165:45-23-7(c)(20) A detailed description of each Demand Program reflecting the scale of the program as a part of the Demand Portfolio that includes the following: (A) Number of customers served by each Demand Program or program category; (B) Program or program category expenditures; (C) Verified energy and peak demand savings achieved by the Demand Program or program category, when available; and (D) A description of proposed changes in the Demand Program plans. .... 16

§165:45-23-7(c)(21) A list of research and development activities included in the Demand Portfolio, their status, and a report on the connection between each activity and effective Demand Program; and ..... 17

§165:45-23-7(c)(22) Identification of Demand Program implementers, including names, job titles, business postal addresses, business electronic mail addresses, and business telephone numbers.. 17

§165:45-23-8. Incentives ..... 19

**ANNUAL REPORT**  
**for the**  
**CONSERVATION AND ENERGY EFFICIENCY PROGRAMS**  
**of**  
**OKLAHOMA NATURAL GAS**  
**PROGRAM YEAR 11**

**Introduction**

Consistent with Chapter 45, Subchapter 23 of the Commission's rules governing gas service utilities, this report is filed in response to the Commission requirement that each utility shall report by May 1 of each year on the performance of energy efficiency programs for the preceding program year and cumulative program performance. The reporting requirements can be found in §165:45-23-6 and §165:45-23-7 of the Commission's rules.

The requirements outlined by the Commission in §165:45-23-6 of its rules support what is commonly referred to as "Evaluation, Measurement, and Verification (EM&V)" of conservation and energy efficiency programs. The Commission defines EM&V in §165:45-23-3 as "a systematic, objective study conducted periodically to authenticate, assess, and report how well a program is achieving its objectives, including identification and quantification of inputs, outputs, outcomes, and unintended effects." The intent of the evaluation, measurement, and verification process as specified in §165:45-23-6 is:

- (1) To provide a reliable calculation of the net savings produced by Demand Programs<sup>1</sup>;
- (2) To assess the effects of Demand Programs on the market for energy efficient products and services; and
- (3) To assess the effectiveness of the administration and implementation of Demand Programs.

§165:45-23-6 further requires that “EM&V should be conducted by an independent third party evaluator.” The Company has selected ADM Associates, Inc. (“ADM”) as the evaluation contractor for its PY11 programs. ADM’s evaluation report is filed separately in this docket.

Several other reporting requirements are outlined in §165:45-23-7 of the Commission’s rules and are the subject of the next section of this report. Also, the specifics of the calculation of the Company’s earned incentive for programs implemented during PY11 are outlined in §165:45-23-8 of the Commission’s rules and are the subject of a final section of this report.

In addition to the reporting requirements documented in the Commission’s rules, this report also responds to the recommendations for program and administrative changes made by ADM in their EM&V Report for the Company’s PY10 energy efficiency program offerings, filed as an exhibit to Direct Testimony of Paul Raab Cause No. PUD 202100062. The eleven recommendations that were made in that report are summarized here in Schedule 1.

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<sup>1</sup> “Demand Programs” are defined in §165:45-23-3 to mean “the Energy Efficiency programs offered or proposed by a natural gas utility. Collectively, the Demand Programs make up the company’s Demand portfolio.”

The Company is either in the process of implementing or has already implemented the four recommendations marked with a Company response of “Accept.” The reasons for the Company to “Reject” a specific recommendation are provided more fully below.

The Company rejects ADM’s recommendation numbers 1, 3, 5, and 7 that the Company consider offering a midstream program for residential appliances because of the difficulty and additional costs necessary to confirm participation eligibility for such a program. Furthermore, the Company already has excellent working relationships with its local retailers as witnessed by the high levels of participation in and satisfaction with its existing appliance programs among participants, contractors, and retailers.

The Company also rejects ADM recommendation number 2 for two reasons. First, implementation of this recommendation would not affect natural gas usage, so this does not appear to be a market segment in which ONG should get involved. Second, the clothes dryer program does not lack for participation as currently structured. Therefore, ONG does not see the need to make program changes unless those changes make the program more administratively efficient. In ONG’s view, the recommendation does not make the program more administratively efficient.

The Company also rejects ADM recommendations 6 and 8 that it consider target marketing of non-condensing water heating and space heating units, due to cost-effectiveness concerns. Incentives for these types of units have been previously offered and were determined to be cost-ineffective. The Company believes that it has an obligation to spend ratepayer funds for conservation and energy efficiency programs in the most cost-effective manner possible. One of the ways to ensure that this is done is

by promoting only cost-effective technologies. Based on the Company's prior experience and evaluations of these technologies, they are not.

The Company does accept ADM's recommendation numbers 4, 9, 10, and 11, primarily because it has already taken steps to accomplish the goals of the recommendations. For example, with respect to ADM recommendation number 4 that it increase marketing activities and explore additional opportunities to increase awareness of the range program, the Company continually explores additional opportunities to increase awareness of its programs, even though the range program does not lack for participation as currently structured. ONG does not see the need to make program changes unless those changes make the program more administratively efficient. With respect to ADM recommendation number 9 that the Company continue to send email blasts promoting the water conservation kits in waves throughout the year to control the number of requests received, the Company agrees that this is good practice and will continue doing so.

Finally, with respect to ADM's recommendations related to the Company's Commercial Custom programs (numbers 10 and 11), while the Company accepts the recommendations, it should be noted that these programs are administered by a third-party vendor and have been since the start of ONG's conservation activities 11 years ago. This vendor is responsible for marketing the programs and is provided with financial incentives to achieve savings targets associated with full participation. The programs are over-subscribed, indicating that these incentives are working properly without the need to spend additional ratepayer funds to increase program awareness and participation. However, this is not to suggest that ONG will not adopt program changes to increase

awareness of the Custom Commercial programs when opportunities present themselves. For example, to increase program awareness, ONG has allocated education funds to the Strategic Energy Management pilot program for local schools during the current program year.

### **§165:45-23-7. Reporting**

**§165:45-23-7(a) Each utility shall submit an annual report by May 1 of each year on the performance of Demand Portfolio for the preceding program year and cumulative program performance which shall include the information enumerated in this section.**

This exhibit is the Company's annual report on the performance of Demand Portfolio for the preceding program year and cumulative program performance. It addresses all the information enumerated in §165:45-23-7 of the Commission's rules.

**§165:45-23-7(b) The annual report shall be submitted with Verified savings information in order for PUD to evaluate incentives levels to be recovered from consumers. PUD will provide Company with written notification of incentive levels, confirming or identifying disputed amounts with rationale for dispute by September 1. Any undisputed incentives may be included in recovery according to formula rate or other tariff terms. Any disputed incentives amounts will be resolved during the subsequent formula rate filing or other tariff recovery reviews. True-up mechanisms and recovery for all other Demand Program Costs shall be included with formula rate filings or other tariff recovery mechanisms.**

As indicated above, the Company has conducted an EM&V study of its Demand Portfolio, the requirements of which are outlined by the Commission in §165:45-23-6 of its rules. This EM&V report is being filed with the Commission in this docket in support of the Company's estimates of verified savings which in turn support the Company's calculated incentive. Calculation of the Company's incentive for Demand Program performance in PY11 is described in the following section of this exhibit. True-up

mechanisms and recovery for all other Demand Program Costs are included with the testimony and exhibits supporting the Company's Performance Based Rate Change ("PBRC") filing.

**§165:45-23-7(c) The report shall contain a Demand Portfolio summary reflecting the scale of each program as a part of the Demand Portfolio and will include the following:**

**§165:45-23-7(c)(1) The name of Demand Program listed by customer category;**

Schedule 2 provides a list of the programs approved by the Commission and implemented by Oklahoma Natural Gas during PY11. As required, it also reflects the scale of each program as a part of the Demand Portfolio in the final column entitled "Percent of Total Cost." These programs are listed by customer category on Schedule 3.

**§165:45-23-7(c)(2) The date program was started or date the Demand Program was revised;**

Schedule 3 provides, for each Demand Program approved by the Commission and implemented by Oklahoma Natural Gas during PY11, the date the Demand Program was started or revised.

**§165:45-23-7(c)(3) The number of participating customers per Demand Program;**

The numbers of participating Residential, Small Commercial, Large Commercial and Small Transport customers for each Demand Program are provided in Schedule 4.

**§165:45-23-7(c)(4) By Demand Program, approved projected energy savings (in decatherms) as approved;**

Approved projected energy savings (in decatherms) as approved are provided by Demand Program in Schedule 5. These savings values are ex-ante savings values taken

directly from the ADM EM&V Report. Schedule 5 also includes ex-post energy savings. As can be seen by comparing ex-ante energy savings of 390,698 Dth to ex-post energy savings of 471,105 Dth, the Company was able to achieve approximately 121% of projected energy savings with its PY11 Demand Programs.

**§165:45-23-7(c)(5) The gross energy savings (in decatherms) and performance of each Demand Program;**

The gross energy savings (in decatherms) of each Demand Program are provided in Schedule 5. Performance of each Demand Program as measured by participation is provided in Schedule 4. Performance of each Demand Program as measured by savings is provided in Schedule 5. Performance of each Demand Program as measured by water savings and by greenhouse gas emissions reductions is provided in Schedule 6. Performance of each Demand Program as measured by cost-effectiveness is provided in the ADM EM&V Report and summarized in Schedule 12.

**§165:45-23-7(c)(6) The verified energy savings (in decatherms) by Demand Program and methods used to verify;**

The verified energy savings (in decatherms) by Demand Program and the methods used to verify those savings are discussed in the EM&V report prepared by ADM Associates, Inc. and filed in this docket. Summaries of those savings estimates are reported in various schedules of this Annual Report, including Schedule 4, Schedule 5, Schedule 6, and Schedule 7.

**§165:45-23-7(c)(7) For Education programs measurements of outreach efforts, including pre-program and post-program results and copies of evaluations, surveys, focus group results, and other measurement techniques used to gauge the effectiveness of education efforts;**

Measurements of outreach efforts, including pre-program and post-program results and copies of evaluations, surveys, focus group results, and other measurement techniques used to gauge the effectiveness of education efforts are provided in the EM&V report prepared by ADM Associates, Inc. and filed in this docket.

**§165:45-23-7(c)(8) The levelized cost per decatherm for the Demand Portfolio, Demand Programs, and by customer sector, including all assumptions used to make the calculation;**

The levelized cost per decatherm for the Demand Portfolio, Demand Programs, and by customer sector are provided in Schedule 7. The following assumptions support the calculations summarized there:

- Expenditures – from the GL;
- Discount rate – the latest authorized return, 7.20315%;
- Verified savings – from the ADM Associates, Inc. EM&V Report;
- Measure Life – from the ADM Associates, Inc. EM&V Report.

**§165:45-23-7(c)(9) The amount of reduced emissions and water consumption experienced by the utility, including all assumptions and calculation details, during the Demand Program period for the current program year;**

The amount of reduced water consumption experienced by the utility is summarized by Demand Program on Schedule 6. The assumptions and calculation details used to develop the water savings estimates can be found in the ADM EM&V Report.

The amounts of reduced emissions experienced by the utility by Demand Program are also summarized on Schedule 6. All assumptions and calculation details are provided in the workpapers filed in support of this annual report. The reduced emissions data from Schedule 6 are developed using the Source Energy and Emissions Analysis Tool

("SEEAT"), which was developed by the Gas Technology Institute ("GTI") and is available free to the public at [www.cmictools.com](http://www.cmictools.com). SEEAT allows calculation of the source energy and GHG emissions related to appliance site energy consumption by fuel type for each energy-consuming device and for the whole building. SEEAT includes a source energy and carbon emission calculation methodology that accounts for primary energy consumption and related emissions for the full-fuel-cycle of extraction, processing, transportation, conversion, distribution, and consumption of energy.

**§165:45-23-7(c)(10) The Demand Portfolio funding as a percent of total annual gas revenue;**

The Demand Portfolio funding is 4.90% of total annual gas revenue of eligible customer classes. It is calculated as PY11 (2021) expenditures of \$16,098,695, divided by 2021 revenues for Residential, Small Commercial, Large Commercial and Small Transportation customers of \$328,757,347.

**§165:45-23-7(c)(11) The Demand Portfolio Net source energy savings as a percent of total gas annual usage;**

The Demand Portfolio first year net source energy savings is 0.519% of eligible customer class total gas annual usage in 2021 (77,614,258 Dth). The Demand Portfolio net source energy savings over the measure life of the measures installed is 7.265% of eligible customer class total gas annual usage in 2021.

**§165:45-23-7(c)(12) The projected program costs;**

The projected program costs for PY11 were approved by the Commission on November 13, 2019 in its Order No. 705112 in Cause No. PUD 201900021 and are summarized in Schedule 2. As required by this section of the Commission's rules, these

costs are separated into administrative costs, inducements, education and marketing costs, program delivery costs; and EM&V costs to allow review of spending. Administrative costs are the sum of Program Administration (\$634,000 per year), Program Expenses and Travel (\$66,000), Program Consultation (\$72,000) and R&D expenses (\$100,000), or \$872,000/year. Inducements by program are the product of the cost per participant and projected participants on Schedule 2, or \$12,462,000 per year. Education and marketing costs are projected at \$1,950,000. EM&V costs are projected to be \$600,000. The total program budget approved by the Commission for PY11 is \$15,884,000 as shown on Schedule 2.

The other required information (workpapers to allow review and reconciliation of accounting information with working formulas, calculations, and linkages to support all costs; a copy of, or access to, the general ledger and subledgers; and a schedule of, or access to, comparative trial balances detailed by account for the test year and the first preceding year) is either filed in this docket or is being made available to Staff to assist in its review of the Company's PBRC application.

**§165:45-23-7(c)(13) The actual program costs;**

The actual program costs incurred in the current program year are summarized in Schedules 8 and 9. As required, these costs are separated into administrative costs, inducements, education and marketing costs, program delivery costs, and EM&V costs to allow review of spending. Also, as required, the Company's filing in this docket contains workpapers with working formulas, calculations, and linkages to support all costs and to allow review and reconciliation of accounting information; a copy of, or access to, the

general ledger and subledgers; and a schedule of, or access to, comparative trial balances detailed by account for the test year and the first preceding year.

**§165:45-23-7(c)(14) Projected incentives – including projected cost effectiveness tests;**

Schedule 10 contains the requested information for the projected incentives. Program Costs and the corresponding projection of participants used in this exhibit are at Commission-approved budget levels for PY12. Projected Net TRC Benefits are calculated by scaling the current year Net TRC Benefits per participant, as calculated by ADM Associates, Inc., using projected participants for PY12.

**§165:45-23-7(c)(15) Actual calculated incentives – including workpapers and working spreadsheets (formulas, calculations, linkages, and assumptions) for updated cost effectiveness tests, in sufficient detail to allow review of cost effectiveness calculations;**

Schedule 11 summarizes the requested information for the actual calculated incentive. Program Costs are taken from the Company's General Ledger. Net TRC Benefits are calculated by ADM Associates, Inc. and described in detail in the 2021 EM&V Report, filed separately in this docket.

Supporting workpapers and working spreadsheets (formulas, calculations, linkages, and assumptions) for all the updated cost effectiveness tests, in sufficient detail to allow review of cost effectiveness calculations, are also being filed separately in this docket.

**§165:45-23-7(c)(16) The utility's annual growth in metered energy for the previous three years, with a calculation of the average growth rate over that entire period by customer class or major customer class segments;**

The requested information is summarized for both actual and weather-normalized volumes in Schedule 12. As can be seen in that schedule, metered natural gas to residential customers decreased at a compound annual growth rate of -3.15% from 2019 to 2021. Metered sales to small commercial customers decreased at an average annual rate of -3.68%, while sales to large commercial customers decreased at an average annual rate of -5.63% per year and sales to small transportation customers decreased at an average annual rate of -4.44% per year. Similar information related to weather normalized sales is also shown on Schedule 12.

**§165:45-23-7(c)(17) The most current information available comparing the base line and milestones to be achieved under market transformation programs with actual conditions in the market;**

This information can be found in the Company's 2021 EM&V Report, prepared by ADM Associates, Inc., and filed separately in this docket.

**§165:45-23-7(c)(18) By Demand Program, provide a summary of spending, including the following: (A) Administrative costs; (B) Inducements, including direct payments and other inducements; (C) Education and marketing costs; (D) Program Delivery Costs; and (E) EM&V costs.**

A summary of spending on each of the Company's Demand Programs is provided on Schedule 8. This schedule contains a summary of (B) Inducements, including direct payments and other inducements; (C) Education and marketing costs; and (D) Program Delivery Costs by Demand Program. A summary of spending on (A) Administrative costs and (E) EM&V costs is provided on Schedule 9.

**§165:45-23-7(c)(19) A statement of any funds that were committed but not spent during the year, by program, with an explanation for non-spending;**

Schedule 8 and Schedule 9, introduced previously, provide the Commission-approved budget level of expenditures, the amount that was spent within each category of expense and the variance from budget during PY11. With respect to total portfolio costs, the Company exceeded the Commission-approved budget levels by a small amount, approximately 3%. A review of Schedule 8 indicates both positive and negative variances on a program-by-program basis, although there is general agreement between Commission-authorized budgets and realized expenditures by Demand Program. Non-spending can be explained by program participation at levels less than those projected by the Company over two years ago, when PY11 budgets were prepared for Commission approval.

With respect to administration expenses, the Company spent about 82% of its Commission-approved program administration budget.

**§165:45-23-7(c)(20) A detailed description of each Demand Program reflecting the scale of the program as a part of the Demand Portfolio that includes the following: (A) Number of customers served by each Demand Program or program category; (B) Program or program category expenditures; (C) Verified energy and peak demand savings achieved by the Demand Program or program category, when available; and (D) A description of proposed changes in the Demand Program plans.**

Detailed descriptions of each Demand Program approved by the Commission for implementation in PY11 can be found in the Company's 2021 EM&V Report, prepared by ADM Associates, Inc., and filed separately in this docket. The required information on (A) Number of customers served by each Demand Program or program category; and (B) Program or program category expenditures is provided in Schedule 4. (C) Verified energy and peak demand savings achieved by the Demand Program or program category can be found in the ADM Associates, Inc. EM&V Report and are summarized in this annual

report in Schedules 4, 5 and 6. (D) A description of proposed changes in the Demand Program plans, since program inception is provided in Schedule 3.

**§165:45-23-7(c)(21) A list of research and development activities included in the Demand Portfolio, their status, and a report on the connection between each activity and effective Demand Program; and**

In PY11, Oklahoma Natural funded two specific projects that it hopes will eventually lead to additional energy-efficient natural gas technologies that it can offer to its customers. These projects are:

- Gas Technology Institute's Gas Heat Pump Market and Technology Development Roadmap – The objective of this project is to develop a technology roadmap to identify opportunities, information gaps, impediments, and strategies to accelerate the commercialization and market acceptance of Gas Heat Pumps (GHPs) in North America. Goals of the roadmap include:
  - Technical Assessment - a summary overview of domestic and international GHP products and technologies
  - Market Assessment - a summary overview of domestic and international GHP market conditions, prospects, and barriers
  - Collect stakeholder input from manufacturers, market partners and utilities to understand drivers and goals
  - Technology and Market Development Priorities - synthesizing the information and data gathered through the technical and market assessments, suggest a set of next steps to support the following near and long-term gas industry goals:
    - Near-term (<5 years): Market viable GHP product(s) for space and/or water heating, in residential and/or commercial applications, available for purchase in North American markets through standard supply chains.
    - Long-term (>5 years): Mature and cost-effective portfolio of GHP products for space and water heating, in residential and commercial applications, sold and supported by multiple OEMs readily available and adopted throughout standard supply chains.
- ACT Inc. D'MAND KONTROLS Pump Control Technology Assessment - In 2014, GTI issued a white paper summarizing the state of the art for on-demand controls applied to central hot water systems in multi-family buildings. The white paper served as a starting draft for utilities considering incorporating this technology into their EEP. The report served well for companies like CLEAResult in defining installation requirements to help

them meet their contractual obligations of savings as implementers of utility EEPs.

Advanced Conservation Technologies, Inc. (ACT Inc.) has since evolved their D'MAND KONTROLS® product technology, changing the installation requirements by eliminating a flow switch and introducing a new operational algorithm to reduce installed cost and maintenance. These changes have put the product out of compliance with CLEAResult's installation requirements, thereby making it ineligible in the EEP it manages.

Specifically, CLEAResult had developed a calculator to evaluate the savings potential of the on-demand measure. The calculator uses the same savings methodologies outlined in the GTI white paper and requires that all installation follow the same methods:

1. Demand controls must be able to activate the operation of hot water recirculation based on changes in real-time hot water demand.
2. Demand controls must be able to terminate the operation of hot water recirculation based on a setpoint temperature for the recirculation return line.
3. The demand controls will not activate the recirculation pump unless there is BOTH a demand for hot water AND the temperature of the return line is below set point.

In the original product configuration, flow switch activation indicated "demand for hot water". Eliminating the flow switch makes the third method unachievable, therefore the new product configuration no longer qualifies as a measure in ONG Energy Efficiency Program.

In this assessment, GTI and CLEAResult will:

- Modify four (4) existing D'MAND KONTROLS® installations in the ONG service territory with the new control strategy configuration and loggers to collect data over a test period for two (2) installations in multifamily buildings and two (2) installations in hotel/motel buildings.
- Collect data over a 9-month period alternating between control measure and no control.
- Analyze and report the data in the form of a GTI white paper with CLEAResult providing the Field Evaluation of the D'MAND KONTROLS® Pump Control Technology and an addendum to an existing GTI report, On-Demand Controls for Central Hot Water Systems White Paper (Kerr, Sweeney 2014).

If this evaluation shows positive findings, the ONG Energy Efficiency could requalify the new product configuration as an EEP measure and update its calculator.

**§165:45-23-7(c)(22) Identification of Demand Program implementers, including names, job titles, business postal addresses, business electronic mail addresses, and business telephone numbers.**

Name of program implementer: Ms. Crystal LeFlore  
Job Title: Energy Efficiency Supervisor  
Business Postal Address: Oklahoma Natural Gas  
Energy-Efficiency Program  
P.O. Box 401  
Oklahoma City, OK 73101-0401  
Business Electronic Mail Address: [Crystal.LeFlore@onegas.com](mailto:Crystal.LeFlore@onegas.com)  
Business Telephone Number: 405.551.6609

**§165:45-23-8. Incentives**

§165:45-23-8 of the Commission's rules allow the Company to receive an incentive for successful implementation of its Demand Portfolio, so long as: (1) The Demand Portfolio achieves a minimum of 80% of the company's goal ratio (Verified savings divided by Projected savings); and (2) the Demand Portfolio achieves a total resource cost test benefit/cost ratio (TRC: B/CR) that is greater than one. Both threshold conditions are satisfied. As discussed above, the Company achieved approximately 121% of projected savings and the ADM EM&V Report indicates that the overall TRC: B/CR for programs implemented during PY11 is 2.96.

Schedule 11 shows that the programs produce a net benefit of about \$32.0M, which is more than enough to absorb all the program administrative expenses of \$1,205,998 and still produce a TRC: B/CR greater than 1.00. This result is further confirmed by the Incentive Calculation shown on Schedule 11, which determines the incentive to which the Company is entitled based on the Commission's rules as 15 percent of Program Costs, or \$2,382,727. As required by the Commission's rules, this calculation

includes all costs incurred for implementation of Demand Programs including all program costs, education or outreach program costs, Administrative costs, and EM&V costs and does not exceed 15 percent of Demand Portfolio costs inclusive of program delivery costs, education, and/or marketing outreach costs, Administrative costs, and EM&V costs.

Schedule 1  
ONG Response to ADM Program and Administrative Recommendations Related to PY11 Program Implementation

	Recommendation	Company Response
<b>Clothes Dryer Program</b>		
1	Consider offering a midstream program for residential appliances, where participating retailers offer already-discounted energy efficient appliances in an effort to further develop working relationships with local retailers.	Reject
2	Market with “recommended pairings” of Energy Star or Energy Star Most-Efficient clothes washers. Such a marketing effort would provide an avenue for program-attributable spillover.	Reject
<b>Range Program</b>		
3	Consider offering a midstream program for residential appliances, where participating retailers offer already-discounted energy efficient appliances in an effort to further develop working relationships with local retailers.	Reject
4	Increase marketing activities and explore additional opportunities to increase awareness of the program.	Accept
<b>Water Heater Program</b>		
5	Consider offering a midstream program for residential appliances, where participating retailers offer already-discounted energy efficient appliances in an effort to further develop working relationships with local retailers.	Reject
6	Consider targeted marketing of non-condensing models (.81 - .89 UEF). Though not as efficient as condensing models, non-condensing models have lower installation costs and marketing efforts towards these units could potentially make headway with non-adopters.	Reject
<b>Heating System Program</b>		
7	Consider offering a midstream program for residential appliances, where participating retailers offer already-discounted energy efficient appliances in an effort to further develop working relationships with local retailers.	Reject
8	Consider targeted marketing of non-condensing models (90%-92% AFUE). Though not as efficient as condensing models, non-condensing models have lower installation costs and marketing efforts towards these units could potentially make headway with non-adopters.	Reject
<b>Water Conservation Kits</b>		
9	Continue to send email blasts promoting the water conservation kits in waves throughout the year to control the number of requests received.	Accept
<b>Commercial Custom Program</b>		
10	Increase marketing activities and explore new opportunities to increase awareness of the Custom Commercial programs (e.g., social media campaigns that target C&I businesses).	Accept
11	Increase communication and networking opportunities with contractors to keep them up-to-date with the activities and progress of the Custom Commercial programs.	Accept

Schedule 2  
The Scale of the Company's Programs as a Part of the Demand Portfolio as Proposed for Program Years 10-12

Program	Cost per Participant	Universe	Projected Participation Rate	Projected Participants	Projected Total Cost	Percent of Total Cost
Energy Efficiency Education Program	-	849,504	-	-	\$ 1,950,000	12.28%
Low Income Energy Efficiency Assistance Program	\$ 875	18,076	4.43%	800	\$ 800,000	5.04%
Energy Efficiency Rebates						
Water Heater Replacement Program						
Tank - Gas to Gas - 67% Efficient	\$ 50	77,228	0.00%	0	\$ -	0.00%
Tankless - Gas to Gas	\$ 300	42,475	2.94%	1,250	\$ 375,000	2.36%
Condensing - Gas to Gas	\$ 300	56,634	0.04%	20	\$ 6,000	0.04%
Electric to Gas	\$ 900	-	-	200	\$ 180,000	1.13%
Water Conservation Program	\$ 12	84,950	7.80%	6,623	\$ 80,000	0.50%
Heating System Replacement Program						
78% to 95%+ Efficient	\$ 600	42,475	16.48%	7,000	\$ 4,200,000	26.44%
Electric Furnace to Gas Standard Efficiency	\$ 2,000	-	-	300	\$ 600,000	3.78%
Electric Furnace to Gas High Efficiency	\$ 2,600	-	-	300	\$ 780,000	4.91%
Natural Gas Clothes Dryer Replacement Program						
Standard Efficiency Unit	\$ 400	60,679	4.12%	2,500	\$ 1,000,000	6.30%
Energy Star® Unit	\$ 450	60,679	0.82%	500	\$ 225,000	1.42%
Event Promotion	\$ 100	-	-	500	\$ 50,000	0.31%
Natural Gas Range Replacement Program	\$ 100	56,634	5.30%	3,000	\$ 300,000	1.89%
New Homes Program						
2009 IBC Upgrades	\$ 750	10,124	19.76%	2,000	\$ 1,500,000	9.44%
Dryer Stub	\$ 100	10,124	16.40%	1,660	\$ 166,000	1.05%
Commercial Custom Program	-	-	-	-	\$ 2,200,000	13.85%
EM&V					\$ 600,000	3.78%
<b>Subtotal Energy Efficiency</b>					<b>\$ 15,012,000</b>	<b>94.51%</b>
Program Administration					\$ 634,000	3.99%
Program Expenses and Travel					\$ 66,000	0.42%
Program Consultation					\$ 72,000	0.45%
R&D					\$ 100,000	0.63%
<b>Total</b>					<b>\$ 15,884,000</b>	<b>100.00%</b>

Schedule 3  
Programs and Start Dates

Program	Customer Sector(s) 1/	Start Date	Modification Date(s) 2/,3/,4/,5/	Nature of Modification
Energy Efficiency Education Program	R, SC, LC	15-Sep-11	3-Oct-16	Budget Reduced
Low Income Energy Efficiency Assistance Program	R	1-Jan-12	1-Jan-15 3-Oct-16 13-Nov-19	Changed Implementers Budget Expanded Budget Expanded
Energy Efficiency Rebates				
Water Heater Replacement Program				
Tank - Gas to Gas	R, SC	15-Sep-11	18-Jun-13 3-Oct-16 13-Nov-19	Budget Modification Budget Expanded Program Eliminated
Tankless - Gas to Gas	R, SC	15-Sep-11	2-Feb-12 18-Jun-13 3-Oct-16 13-Nov-19	Budget Modification Budget Modification Budget Expanded Budget Expanded
Condensing - Gas to Gas	R, SC	15-Sep-11	2-Feb-12 18-Jun-13 13-Nov-19	Added Measure to the Program Budget Modification Budget Expanded
Electric to Gas	R, SC	15-Sep-11	18-Jun-13 3-Oct-16 13-Nov-19	Budget Modification Budget Reduced Budget Reduced
Water Conservation Program	R, SC	3-Oct-16	- 13-Nov-19	Program Initiated Budget Expanded
Heating System Replacement Program 78% to 95%+ Efficient	R, SC	15-Sep-11	18-Jun-13 3-Oct-16 13-Nov-19	Budget Modification Budget Expanded Budget Expanded
Electric Furnace to Gas Standard Efficiency	R, SC	15-Sep-11	18-Jun-13 3-Oct-16	Budget Modification Budget Expanded
Electric Furnace to Gas High Efficiency	R, SC	3-Oct-16	-	Program Initiated
Clothes Dryer Replacement Program				
Natural Gas Hookup Required 6/	R, SC	15-Sep-11	2-Feb-12 3-Oct-16 13-Nov-19	Inducement Reduction Budget Expanded Budget Reduced
No Natural Gas Hookup Required 6/	R, SC	15-Sep-11	2-Feb-12 18-Jun-13 3-Oct-16 13-Nov-19	Inducement Reduction Budget Modification Budget Expanded Budget Reduced
Event Promotion	R, SC	18-Jun-13	3-Oct-16	Budget Expanded
Range Replacement Program				
Natural Gas Hookup Required	R, SC	18-Jun-13	-	
No Natural Gas Hookup Required	R, SC	18-Jun-13	-	
New Homes Program	R	15-Sep-11	18-Jun-13 3-Oct-16	Budget Modification Budget Expanded
Commercial Custom Program	LC, ST	15-Sep-11	2-Feb-12 3-Oct-16 13-Nov-19	Eliminated per participant expenditure cap Budget Expanded Budget Expanded

Notes

- 1/ R= Residential; SC=Small Commercial; LC=Large Commercial; ST=Small Transport
- 2/ 2-Feb-12 = Order No. 593650 in Cause No. PUD 201100170
- 3/ 18-Jun-13 = Order No. 612837 in Cause No. PUD 201300007
- 4/ 3-Oct-16 = Order No. 656769 in Cause No. PUD 201600132
- 5/ 13-Nov-19 = Order No. 705112 in Cause No. PUD 201900021
- 6/ The separate incentive for natural gas hookups was dropped after PY9, pursuant to Order No. 705112 in Cause No. PUD 201900021.

Schedule 4  
Program Results by Sector

Customer Sector/Program	Current Year Results				Cumulative Results			
	Participants	Expenditures	Energy Savings (Dth)		Participants	Expenditures	Energy Savings (Dth)	
			Annual	Over Measure Life			Annual	Over Measure Life
<b>Residential</b>								
Energy Efficiency Education Program	-	\$ 1,688,978.19	-	-	-	\$ 20,645,735.83	-	-
Heating System Checkup	-	\$ -	-	-	176,441	\$ 5,126,678.36	486,541	1,459,624
Low Income Energy Efficiency Assistance Program	890	\$ 746,020.64	28,475	462,599	4,848	\$ 4,595,238.32	207,921	3,513,782
Energy Efficiency Rebates								
Water Heater Replacement Program	2,408	\$ 752,500.00	13,459	250,555	14,085	\$ 4,361,668.72	89,126	1,497,582
Water Conservation Kits	6,328	\$ 98,518.78	11,366	113,660	27,657	\$ 361,569.83	32,139	321,392
Heating System Replacement Program	7,425	\$ 5,045,700.00	133,132	2,662,632	60,705	\$ 39,182,718.62	831,677	16,467,942
Clothes Dryer Replacement Program	2,319	\$ 1,030,652.74	9,599	134,392	33,354	\$ 14,040,409.41	128,871	2,039,639
Range Replacement Program	2,955	\$ 295,700.00	585	8,779	21,757	\$ 2,700,332.01	20,815	336,729
New Homes Program	3,316	\$ 2,583,900.00	77,694	1,165,404	19,934	\$ 15,356,650.00	630,870	10,840,744
Administration	-	\$ 1,100,346.65	-	-	-	\$ 8,663,376.61	-	-
<b>Total Residential</b>	<b>25,641</b>	<b>\$ 13,342,317.00</b>	<b>274,310</b>	<b>4,798,020</b>	<b>358,781</b>	<b>\$ 115,034,377.71</b>	<b>2,427,961</b>	<b>36,477,434</b>
<b>Small Commercial</b>								
Energy Efficiency Education Program	-	\$ 97,643.02	-	-	-	\$ 1,223,856.38	-	-
Heating System Checkup	-	\$ -	-	-	5,103	\$ 251,271.64	26,597	79,792
Low Income Energy Efficiency Assistance Program	-	\$ 43,128.86	-	-	-	\$ 270,960.96	1,368	19,087
Energy Efficiency Rebates								
Water Heater Replacement Program	1	\$ 250.00	4	88	88	\$ 69,382.64	1,599	24,610
Water Conservation Kits	-	\$ -	-	-	-	\$ -	-	-
Heating System Replacement Program	40	\$ 27,250.00	986	19,718	928	\$ 918,164.71	21,914	425,986
Clothes Dryer Replacement Program	10	\$ 4,444.50	41	580	234	\$ 443,589.53	4,858	82,697
Range Replacement Program	3	\$ 300.00	1	9	43	\$ 52,368.04	900	14,997
Commercial Custom Program	13,119	\$ 430,105.32	50,157	554,836	27,164	\$ 888,929.53	99,556	1,114,239
Administration	-	\$ 63,613.12	-	-	-	\$ 513,437.34	-	-
<b>Total Small Commercial</b>	<b>13,173</b>	<b>\$ 666,734.82</b>	<b>51,190</b>	<b>575,231</b>	<b>33,560</b>	<b>\$ 4,631,960.79</b>	<b>156,792</b>	<b>1,761,408</b>
<b>Large Commercial</b>								
Energy Efficiency Education Program	-	\$ 55,581.51	-	-	-	\$ 657,866.27	-	-
Heating System Checkup	-	\$ -	-	-	442	\$ 13,260.00	1,859	5,578
Low Income Energy Efficiency Assistance Program	-	\$ 24,550.32	-	-	-	\$ 148,422.90	700	9,715
Energy Efficiency Rebates								
Water Heater Replacement Program	93	\$ 23,300.00	427	8,308	317	\$ 83,448.65	1,658	29,466
Water Conservation Kits	-	\$ -	-	-	-	\$ -	-	-
Heating System Replacement Program	151	\$ 111,900.00	2,472	49,435	663	\$ 472,016.66	10,961	217,085
Clothes Dryer Replacement Program	14	\$ 5,594.36	58	811	172	\$ 74,126.38	525	7,178
Range Replacement Program	81	\$ 8,100.00	16	241	272	\$ 31,598.94	136	2,035
Commercial Custom Program	24,484	\$ 921,813.26	98,283	1,108,918	470,329	\$ 8,565,866.55	917,729	9,733,551
Administration	-	\$ 36,210.61	-	-	-	\$ 277,986.57	-	-
<b>Total Large Commercial</b>	<b>24,823</b>	<b>\$ 1,187,050.06</b>	<b>101,255</b>	<b>1,167,713</b>	<b>472,195</b>	<b>\$ 10,324,592.92</b>	<b>933,568</b>	<b>10,004,607</b>
<b>Small Transport</b>								
Energy Efficiency Education Program	-	\$ 8,944.41	-	-	-	\$ 28,083.19	-	-
Heating System Checkup	-	\$ -	-	-	-	\$ -	-	-
Low Income Energy Efficiency Assistance Program	-	\$ 3,950.74	-	-	-	\$ 11,531.33	-	-
Energy Efficiency Rebates								
Water Heater Replacement Program	2	\$ 500.00	9	176	7	\$ 1,750.00	35	696
Water Conservation Kits	-	\$ -	-	-	-	\$ -	-	-
Heating System Replacement Program	29	\$ 17,550.00	302	6,038	64	\$ 41,200.00	785	15,700
Clothes Dryer Replacement Program	1	\$ 449.11	4	58	2	\$ 898.21	8	114
Range Replacement Program	-	\$ -	-	-	-	\$ -	-	-
Commercial Custom Program	7,360	\$ 865,371.68	44,034	560,991	29,580	\$ 2,625,252.65	161,700	2,175,398
Administration	-	\$ 5,827.17	-	-	-	\$ 17,664.66	-	-
<b>Total Small Transport</b>	<b>7,392</b>	<b>\$ 902,593.11</b>	<b>44,349</b>	<b>567,263</b>	<b>29,653</b>	<b>\$ 2,726,380.05</b>	<b>162,528</b>	<b>2,191,908</b>
<b>Total All Programs</b>	<b>71,029</b>	<b>\$ 16,098,694.98</b>	<b>471,104</b>	<b>7,108,228</b>	<b>894,188</b>	<b>\$ 132,717,311.47</b>	<b>3,680,849</b>	<b>50,435,357</b>

Schedule 5  
Projected vs. Realized Savings Results by Program In Current Year

Program	Ex-Ante Energy Savings (Dth)	Ex-Post Energy Savings (Dth)
Energy Efficiency Education Program	-	-
Heating System Checkup	-	-
Low Income Energy Efficiency Assistance Program	25,437	28,475
Energy Efficiency Rebates		
Water Heater Replacement Program		
Tank - Gas to Gas	-	-
Tankless - Gas to Gas	10,453	10,254
Condensing	38	117
Electric to Gas Storage	1,531	1,979
Electric to Gas Tankless	1,282	1,550
Water Conservation Program	7,074	11,367
Heating System Replacement Program		
78% to 92% Efficient	-	-
78% to 95%+ Efficient	40,594	74,949
Electric Furnace to Standard Efficiency Gas	11,009	20,326
Electric Furnace to High Efficiency Gas	22,540	41,616
Clothes Dryer Replacement Program	7,900	9,703
Range Replacement Program	1,612	602
New Homes Program	73,867	77,694
Commercial Custom	187,361	192,474
Total	<u>390,698</u>	<u>471,105</u>

Schedule 6  
Annual Therm and Water Savings and Emissions Reductions by Program

Program	Annual Site Therms Saved	Annual Source Therms Saved	Annual Site kWh Saved	Annual Source MMBtu Saved	Water Saved (gallons/year)	Annual Green House Gas Reductions (CO2e, 1000 lbs)	Annual SO2 Reductions (lbs)	Annual NOx Reductions (lbs)
Low Income	284,749	310,376	-	-	-	4,147.65	825.77	4,897.68
Water Heater								
Tankless - Gas	102,535	111,763	-	-	-	1,493.52	297.35	1,763.60
Condensing	1,167	1,272	-	-	-	17.00	3.38	20.07
Electric to Gas	19,793	21,574	-	-	-	288.30	57.40	340.44
Electric to Tankless Gas	15,501	16,896	-	-	-	225.79	44.95	266.62
Water Conservation Program	113,660	123,889	-	-	17,326,333	1,655.57	329.61	1,954.95
Space Heating								
78% to 95%+ Efficient	749,488	816,942	-	-	-	10,917.04	2,173.52	12,891.19
Electric Furnace to Standard Efficiency Gas	203,261	221,554	-	-	-	2,960.70	589.46	3,496.09
Electric Furnace to High Efficiency Gas	416,163	453,618	-	-	-	6,061.83	1,206.87	7,158.00
Clothes Dryers - Standard Efficiency	53,565	58,385	-	-	-	780.23	155.34	921.32
Clothes Dryers - Energy Star	43,464	47,376	-	-	-	633.10	126.05	747.58
Ranges	6,019	6,561	-	-	-	87.67	17.46	103.53
New Homes	776,936	846,860	-	-	-	11,316.85	2,253.11	13,363.30
Commercial Custom								
Custom	360,344	392,774	308,650	1,043,237	207,790	5,950.46	1,576.39	6,902.12
Direct Install	1,564,397	1,705,193	739,691	2,500,156	-	24,150.56	5,569.36	28,276.06
Totals	4,711,041	5,135,035	1,048,341	3,543,393	17,534,123	70,686.27	15,226.02	83,102.55

Schedule 7  
Levelized Cost per Decatherm

Customer Sector/Program	Expenditures	Savings Discounted at Utility Cost of Capital 7.203%	Levelized Cost per Decatherm
<b>Residential</b>			
Energy Efficiency Education Program	\$ 1,688,978.19	-	\$ -
Heating System Checkup	\$ -	-	\$ -
Low Income Energy Efficiency Assistance Program	\$ 746,020.64	2,441,672.07	\$ 0.31
Energy Efficiency Rebates			
Water Heater Replacement Program	\$ 752,500.00	493,467.80	\$ 1.52
Water Conservation Kits	\$ 98,518.78	721,095.47	\$ 0.14
Heating System Replacement Program	\$ 5,045,700.00	5,755,162.08	\$ 0.88
Clothes Dryer Replacement Program	\$ 1,030,652.74	499,727.82	\$ 2.06
Range Replacement Program	\$ 295,700.00	38,437.04	\$ 7.69
New Homes Program	\$ 2,583,900.00	6,750,266.48	\$ 0.38
Administration	\$ 1,100,346.65	-	\$ -
<b>Total Residential</b>	<b>\$ 13,342,317.00</b>	<b>16,699,828.77</b>	<b>\$ 0.80</b>
<b>Small Commercial</b>			
Energy Efficiency Education Program	\$ 97,643.02	-	\$ -
Heating System Checkup	\$ -	-	\$ -
Low Income Energy Efficiency Assistance Program	\$ 43,128.86	141,157.67	\$ 0.31
Energy Efficiency Rebates			
Water Heater Replacement Program	\$ 250.00	169.12	\$ 1.48
Heating System Replacement Program	\$ 27,250.00	42,620.49	\$ 0.64
Clothes Dryer Replacement Program	\$ 4,444.50	2,154.93	\$ 2.06
Range Replacement Program	\$ 300.00	39.02	\$ 7.69
Commercial Custom Program	\$ 430,105.32	3,733,194.95	\$ 0.12
Administration	\$ 63,613.12	-	\$ -
<b>Total Small Commercial</b>	<b>\$ 666,734.82</b>	<b>3,919,336.18</b>	<b>\$ 0.17</b>
<b>Large Commercial</b>			
Energy Efficiency Education Program	\$ 55,581.51	-	\$ -
Heating System Checkup	\$ -	-	\$ -
Low Income Energy Efficiency Assistance Program	\$ 24,550.32	80,351.43	\$ 0.31
Energy Efficiency Rebates			
Water Heater Replacement Program	\$ 23,300.00	16,097.64	\$ 1.45
Heating System Replacement Program	\$ 111,900.00	106,852.44	\$ 1.05
Clothes Dryer Replacement Program	\$ 5,594.36	3,016.90	\$ 1.85
Range Replacement Program	\$ 8,100.00	1,053.60	\$ 7.69
Commercial Custom Program	\$ 921,813.26	7,383,872.99	\$ 0.12
Administration	\$ 36,210.61	-	\$ -
<b>Total Large Commercial</b>	<b>\$ 1,187,050.06</b>	<b>\$ 7,591,245.00</b>	<b>\$ 0.16</b>
<b>Small Transport</b>			
Energy Efficiency Education Program	\$ 8,944.41	-	\$ -
Heating System Checkup	\$ -	-	\$ -
Low Income Energy Efficiency Assistance Program	\$ 3,950.74	12,930.50	\$ 0.31
Energy Efficiency Rebates			
Water Heater Replacement Program	\$ 500.00	338.24	\$ 1.48
Heating System Replacement Program	\$ 17,550.00	13,051.70	\$ 1.34
Clothes Dryer Replacement Program	\$ 449.11	215.49	\$ -
Range Replacement Program	\$ -	-	\$ -
Commercial Custom Program	\$ 865,371.68	3,511,213.56	\$ -
Administration	\$ 5,827.17	-	\$ -
<b>Total Large Commercial</b>	<b>\$ 902,593.11</b>	<b>\$ 3,537,749.49</b>	<b>\$ 0.26</b>
<b>Total All Programs</b>	<b>\$ 16,098,694.98</b>	<b>31,748,159.43</b>	<b>\$ 0.51</b>

Schedule 8  
Projected vs. Realized Expenditures by Program

	Expenditures		
	Projected	Realized	Variance
Energy Efficiency Education Program	\$ 1,950,000	\$ 1,851,147	\$ (98,853)
Low Income Energy Efficiency Assistance Program	\$ 800,000	\$ 817,651	\$ 17,651
Energy Efficiency Rebates			
Water Heater Replacement Program			
Tank - Gas to Gas - 67% Efficient	\$ -	\$ -	\$ -
Tankless - Gas to Gas	\$ 375,000	\$ 628,200	\$ 253,200
Condensing - Gas to Gas	\$ 6,000	\$ 2,350	\$ (3,650)
Electric to Gas	\$ 180,000	\$ 146,000	\$ (34,000)
Total Water Heater Replacement Program	\$ 561,000	\$ 776,550	\$ 215,550
Water Conservation Program	\$ 80,000	\$ 98,519	\$ 18,519
Heating System Replacement Program			
78% to 94.9%+ Efficient	\$ -	\$ -	\$ -
78% to 95%+	\$ -	\$ 4,239,700	\$ 39,700
Electric Furnace to Gas Standard Efficiency	\$ 600,000	\$ 603,150	\$ 3,150
Electric Furnace to Gas High Efficiency	\$ 780,000	\$ 359,550	\$ (420,450)
Total Heating System Replacement Program	\$ 5,580,000	\$ 5,202,400	\$ (377,600)
Natural Gas Clothes Dryer Replacement Program			
Standard Efficiency	\$ 1,000,000	\$ 517,079	\$ (482,921)
Energy Star®	\$ 225,000	\$ 471,562	\$ 246,562
Event Promotion	\$ 50,000	\$ 52,500	\$ 2,500
Total Natural Gas Clothes Dryer Replacement Program	\$ 1,275,000	\$ 1,041,141	\$ (233,859)
Natural Gas Range Replacement Program	\$ 300,000	\$ 304,100	\$ 4,100
New Homes Program	\$ 1,666,000	\$ 2,583,900	\$ 917,900
Commercial Custom	\$ -	\$ 2,217,290	\$ 17,290
Total	\$ 14,412,000	\$ 14,892,697	\$ 480,697

Schedule 9  
Program Administration Expenditures

<b>Administration Category</b>	<b>Budgeted</b>	<b>Spent</b>	<b>Variance</b>
Program Administration (Inc. Travel Expenses)	\$ 700,000	\$ 680,640	\$ (19,360)
Program Consultation	\$ 72,000	\$ 72,000	\$ -
EM&V	\$ 600,000	\$ 290,311	\$ (309,689)
R&D	\$ 100,000	\$ 163,046	\$ 63,046
<b>Total</b>	<b>\$ 1,472,000</b>	<b>\$ 1,205,998</b>	<b>\$ (266,002)</b>

Schedule 10  
Oklahoma Natural Gas Company  
Projected Incentive Calculation Detail

(A) Line No.	(B) Program	(C) Program Costs	(D) Projected Participants	(E) Projected Net TRC Benefits
1	Energy Efficiency Education Program	\$ 1,950,000	-	\$ -
2	Low Income Energy Efficiency Assistance Program	\$ 800,000	-	\$ 3,199,109
3	Energy Efficiency Rebates			
4	Water Heater Replacement Program			
5	Tank - Gas to Gas	\$ -	-	-
6	Tankless - Gas to Gas	\$ 375,000	1,250	\$ 162,753
7	Condensing - Gas to Gas	\$ 6,000	20	\$ 3,238
8	Electric to Gas	\$ 180,000	200	\$ 155,796
9	Total Water Heater Replacement Program	\$ 561,000	1,470	\$ 321,787
10	Total Water Conservation Program	\$ 80,000	6,623	\$ 943,874
11	Heating System Replacement Program			
12	78% to 94.9%+ Efficient	\$ -	-	\$ -
13	78% to 95%+ Efficient	\$ 4,200,000	7,000	\$ 3,237,279
14	Electric Furnace to Standard Efficiency Gas	\$ 600,000	300	\$ 2,614,887
15	Electric Furnace to High Efficiency Gas	\$ 780,000	300	\$ 2,700,093
16	Total Heating System Replacement Program	\$ 5,580,000	7,600	\$ 8,552,259
17	Natural Gas Clothes Dryer Replacement Program	\$ 1,275,000	3,500	\$ 489,191
18	Total Natural Gas Range Replacement Program	\$ 300,000	3,000	\$ 287,908
19	New Homes Program			
20	2009 IBC Upgrades	\$ 1,500,000	2,000	\$ 2,621,005
21	Dryer Stub	\$ 166,000	1,660	\$ -
22	Total New Homes Program	\$ 1,666,000	3,660	\$ 2,621,005
23	Total Commercial Custom Program	\$ 2,200,000	-	\$ 15,149,447
24	Total Annual Overhead Costs	\$ 1,472,000	-	\$ -
25	Total Program Cost/TRC Benefit	\$ 15,884,000	25,853	\$ 31,564,580
26	15% of Total	\$ 2,382,600		\$ 2,352,087
27	Incentive			\$ 2,352,087

Schedule 11  
Oklahoma Natural Gas  
Program Year 11 Incentive Calculation Detail

(A) Line No.	(B) Program	(C) Program Costs	(D) Net TRC Benefit
1	Energy Efficiency Education Program	\$ 1,851,147	\$ -
2	Natural Gas Heating System Checkup	\$ -	\$ -
3	Low Income Energy Efficiency Assistance Program	\$ 817,651	\$ 3,199,109
4	Energy Efficiency Rebates		
5	Water Heater Replacement Program		
6	Tank - Gas to Gas	\$ -	\$ -
7	Tankless - Gas to Gas	\$ 628,200	\$ 301,548
8	Condensing - Gas to Gas	\$ 2,350	\$ 1,457
9	Electric to Gas	\$ 146,000	\$ 131,647
10	Total Water Heater Replacement Program	\$ 776,550	\$ 434,653
11	Water Conservation Program	\$ 98,519	\$ 985,361
12	Heating System Replacement Program		
13	78% to 92% Efficient	\$ -	\$ -
14	78% to 95%+ Efficient	\$ 4,239,700	\$ 3,322,373
15	Electric Furnace to Standard Efficiency Gas	\$ 603,150	\$ 2,658,469
16	Electric Furnace to High Efficiency Gas	\$ 359,550	\$ 1,269,044
17	Total Heating System Replacement Program	\$ 5,202,400	\$ 7,249,886
18	Total Clothes Dryer Replacement Program	\$ 1,041,141	\$ 327,618
19	Range Replacement Program	\$ 304,100	\$ 291,842
20	New Homes Program	\$ 2,583,900	\$ 4,345,626
21	Total Commercial Custom Program	\$ 2,217,290	\$ 15,149,447
22	Total Program Cost/TRC Benefit	\$ 14,892,697	\$ 31,983,542
23	Annual Overhead Costs	\$ 1,205,998	\$ -
24	Total	\$ 16,098,695	\$ 31,983,542
25	15% of Total	\$ 2,414,804	\$ 2,382,727
26	Incentive		\$ 2,382,727

Schedule 12  
Historical Metered Sales by Sector

Customer Sector/Program	Metered Natural Gas Sales (Dth)			CAGR
	2019	2020	2021	
Residential	60,251,004	53,670,197	56,516,903	-3.15%
Small Commercial	4,336,795	3,570,957	4,023,176	-3.68%
Large Commercial	12,592,612	10,421,775	11,214,809	-5.63%
Small Transport	9,278,667	7,878,907	8,472,252	-4.44%
Customer Sector/Program	Weather Normalized Natural Gas Sales (Dth)			CAGR
	2019	2020	2021	
Residential	54,263,574	55,627,737	54,516,065	0.23%
Small Commercial	3,872,221	3,743,542	3,811,987	-0.78%
Large Commercial	11,426,606	10,794,766	10,813,954	-2.72%
Small Transport	9,278,667	7,878,907	8,472,252	-4.44%