

**Report to the
Pennsylvania Public Utility Commission**

UGI Utilities, Inc. – Electric Division
Energy Efficiency and Conservation Plan Program Year 5
(June 1, 2016-May 31, 2017)

Docket No. M-2015-2477174

Prepared by UGI Electric
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1 INTRODUCTION

Act 129 of 2008, P.L. 1592 (Act 129) amended the Pennsylvania Public Utility Code, 66 Pa. C.S. §§ 101 et seq., to, *inter alia*, require the Pennsylvania Public Utility Commission (“PUC” or “Commission”) to develop and adopt an Energy Efficiency and Conservation (“EE&C”) program by January 15, 2009. Under Act 129, the Commission’s EE&C program requires electric distribution companies (“EDCs”) serving 100,000 customers and greater to adopt and implement cost-effective energy efficiency and conservation plans to reduce energy demand and energy consumption within the service territory of each EDC. UGI Electric, which serves approximately 62,000 electric customers, is not mandated under Act 129 to implement an EE&C Plan.

In December 2009, a Secretarial Letter was issued by the PUC at Docket No. M-2009-2142851 directing EDCs with fewer than 100,000 customers to consider the voluntary adoption of EE&C Plans similar to those mandated by Act 129 (“EE&C Secretarial Letter”). In November 2010, UGI Utilities, Inc. – Electric Division (“UGI Electric” or the “Company”) filed a voluntary EE&C Plan (“Phase I”) with the PUC in response to the EE&C Secretarial Letter. Because UGI Electric’s EE&C Plan was voluntary, it was not subject to Act 129 energy and demand savings requirements. However, UGI Electric did use the Act 129 requirements as a guide when developing its Phase I EE&C Plan.

On April 9, 2015, UGI Electric filed a Petition at Docket No. M-2010-2210316 to continue its Phase I EE&C Plan until its Phase II was approved (“Phase I Continuation Petition”). On April 16, 2015, UGI Electric filed its Phase II EE&C Plan for approval by the PUC at Docket No. M-2015-2477174. The Phase II EE&C Plan is designed to expend no more than 2% of annual revenues for the 12-month period ended May 31, 2008, on an annual basis, which totals approximately \$7.5 million for the duration of Phase II. By its order entered May 19, 2015, the PUC approved the Company’s Phase I Continuation Petition. The Commission approved the Phase II Plan (as amended by settlement in the proceeding) by its order entered June 9, 2016. UGI Electric submitted its Phase II EE&C Compliance Plan with the PUC on August 9, 2016.

On March 21, 2017, UGI Electric filed its Petition to extend its Phase II EE&C Plan for one year. There were no changes to the overall or Residential and Commercial/Industrial budget caps. However, UGI Electric proposed to move funding between programs within the same customer class based on participation. The PUC approved the Extension Petition on May 4, 2017. Accordingly, UGI Electric’s EE&C Phase II Plan is set to expire on May 31, 2019. The Company intends to submit a new, multi-year Phase III filing in advance of that deadline.

UGI Electric respectfully submits this report documenting the results of its EE&C Plan for Program Year 5 (June 1, 2016 through May 31, 2017). The results set forth below represent a portfolio of cost-effective energy efficiency programs that benefit the customer through decreased energy costs while maintaining a cost-effective TRC value. Program Year 5 resulted in a TRC value of **2.64** for residential customer classes and **2.301.95** for commercial customer classes. When accounting for administrative overhead, the overall portfolio TRC value is **2.2518**. Concurrent with this report, the Company is filing a Petition for Modification of the Phase II plan to eliminate the commercial HVAC Tune-up program and eliminate the customer contribution to the residential Home Energy Assessment.

2 OVERVIEW

UGI Electric has constructed its EE&C Plan in accordance with the EE&C Secretarial Letter. The Company's EE&C Plan includes a portfolio of energy efficiency, conservation, and consumption reduction measures, programs, and education initiatives. During Program Year 5, the EE&C portfolio included the following programs:

1. Appliance Rebate Program (Residential/Low Income Customers)
2. School Energy Education Program (Residential/Low Income Customers)
3. Energy Efficient Lighting Program (Residential/Low Income Customers)
4. Appliance Recycling Program (Residential/Low Income Customers)
5. Fuel Switching Program (Residential /Low Income Customers)
6. Home Energy Assessment Program (Residential Customers/Low Income Customers)
7. Low Income Water Heater Pilot Program (Low Income Customers)
8. Custom Incentive Program (Commercial/Industrial/Governmental Customers)
9. HVAC Tune-up Program (Commercial/Industrial/Governmental Customers)
10. Fuel Switching Program (Small Commercial Customers)
11. Customer Energy Education Program (Residential/Small Commercial Customers)¹

These eleven programs were designed to meet the goals and guidelines established in the Commission's Secretarial Letter. All of the EE&C programs are voluntary and offer UGI Electric customers a wide range of energy efficiency and conservation measures to decrease electric consumption and, in turn, customer's annual energy costs. In Program Year 5, year-over-year customer participation increased while the combined portfolio of residential and commercial/industrial programs maintained a positive Total Resource Cost ("TRC") Benefit Cost Ratio ("BCR").

¹ For the purpose of this report, the Customer Energy Education Program is listed under the Residential Programs. However, on a monthly basis, costs are allocated to both Residential and Small Commercial Customer classes.

2.1 Portfolio Summary

In summary, UGI Electric offered eleven energy efficiency programs to approximately 63,000 customers within the service territory. The combined portfolio of programs had TRC Net Benefits of \$2,458,297,395,251, TRC BCR of 2.2518, and total spending of \$1,429,139. UGI Electric increased participation in Program Year 5 compared to the prior program year and will continue marketing and educating customers to drive continued participation in future years.

Table 1. Portfolio Savings and Costs:

Benefits/Cost Component	Residential	Commercial/ Industrial	Portfolio Wide	Portfolio Total
Annual Savings (MWh)	3,719	1,030		4,749
Capacity Savings (MW)	0.406	0.089		0.494
Total Resource Cost	\$1,301,858	<u>\$374,877,442,593</u>	\$266,645	<u>\$1,943,380,201,095</u>
Direct Participant Costs	\$923,409	<u>\$179,924,247,640</u>	\$0	<u>\$1,103,333,71,049</u>
Direct Utility Costs	\$868,824	\$293,670	\$266,645	\$1,429,139
Customer Incentives	\$490,375	\$98,717	\$0	\$589,092
CSP Labor	\$315,983	\$194,953	\$266,645	\$777,581
CSP Materials and Supplies	\$0	\$0	\$0	0
Communications	\$62,466	\$0	\$0	\$62,466

Table 2. Portfolio Cost-Effectiveness:

Benefits/Cost Component (2016\$) ²	Residential	Commercial	Portfolio Wide	Portfolio
TRC NPV Benefits	\$3,626,397	\$803,540	\$0	\$4,429,937
TRC NPV Costs ³	\$1,374,353	<u>\$349,028,412,075</u>	\$248,259	<u>\$1,971,640,203,4,686</u>
TRC Net Benefits	\$2,252,044	<u>\$454,512,391,465</u>	(\$248,259)	<u>\$2,458,297,395,251</u>
TRC Benefit/Cost Ratio	2.64	<u>2.301.95</u>	0.00	<u>2.1825</u>

² Net present value benefits and costs are discounted and deflated to 2016 dollars.

³ The NPV Costs include increased fuel costs for fuel-switching measures.

2.2 Residential Program Summary

During Program Year 5, the UGI Electric EE&C Portfolio offered eight different programs, (including the Customer Education Program) to residential customers. As outlined below, UGI Electric’s residential sector programs were cost-effective, with a TRC BCR of 2.64 and approximately \$2.3 million in net benefits. Additionally, customer feedback received at various outreach events throughout the year, has been positive.

Spending on the residential portfolio was \$868,824, which is within PUC-approved program budget.

Table 3. Residential Program Participation and Energy Savings:

Program Year 5 Actuals					
Program	Participants	Energy Savings MWh	NPV Benefits	NPV Costs	TRC Value
Appliance Rebate Program	611	98	\$83,746	\$144,663	0.58
School Energy Education Program	951	273	\$503,151	\$58,606	8.59
Energy Efficient Lighting Program	72,865	2,663	\$2,510,053	\$779,635	3.22
Appliance Recycling Program	254	278	\$157,973	\$47,588	3.32
Fuel Switching Program	35	403	\$368,575	\$256,501	1.44
Home Energy Assessment Program	12	1	\$665	\$33,446	0.02
Low Income Water Heater Pilot Program	1	3	\$2,233	\$3,088	0.72
Customer Education	0	0	0	\$50,826	0
TOTAL	74,729	3,719	3,626,397	\$1,374,353	2.64

Table 4. Residential Program Savings and Costs:

Benefits/Cost Component	Appliance Rebate	School Energy Education	Energy Efficient Lighting	Appliance Recycling	Fuel Switching	Home Energy Assessment	Low Income Water Heater Pilot	Customer Education	Total
Annual Savings (MWh)	98	273	2,663	278	403	1	3	0	3,719
Capacity Savings (MW)	0.012	0.049	0.307	0.035	0.003	0.000	0.000	0.000	0.406
Total Resource Cost	\$155,377	\$62,946	\$837,375	\$51,112	\$102,163	\$35,923	\$2,372	\$54,591	\$1,301,858
Direct Participant Costs	\$67,252	\$48,878	\$677,645	\$29,580	\$98,160	\$323	\$1,572	\$0	\$923,409
Direct Utility Costs	\$135,559	\$63,946	\$505,018	\$33,707	\$37,223	\$36,409	\$2,372	\$54,591	\$868,824
Customer Incentives	\$47,434	\$49,878	\$345,288	\$12,175	\$33,220	\$809	\$1,572	\$0	\$490,375
CSP Labor	\$88,125	\$12,789	\$157,136	\$21,532	\$0	\$35,600	\$800	\$0	\$315,983
CSP Materials and Supplies	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Communications	\$0	\$1,279	\$2,594	\$0	\$4,003	\$0	\$0	\$54,591	\$62,466

Table 5. Residential Program Cost Effectiveness:

Benefits/Cost Component (2016\$ ⁴)	PY5 Actual
TRC NPV Benefits	\$3,626,397
TRC NPV Costs ⁵	\$1,374,353
TRC Net Benefits	\$2,252,044
TRC Benefit/Cost Ratio	2.64

2.3 Commercial/Industrial Program Summary

During Program Year 5, the UGI Electric EE&C portfolio offered four different programs, (including the Customer Education Program), to commercial and industrial customers. UGI Electric's commercial sector programs were cost-effective, with a TRC BCR of 2.301.95 and approximately ~~\$450,000~~ \$391,000 in net benefits.

Spending on the commercial portfolio was \$293,670, which is within PUC-approved program budget.

Table 6. Commercial/Industrial Program Actuals:

Program Year 5 Actuals					
Program	Participants	Energy Savings MWh	NPV Benefits	NPV Costs	TRC Value
Custom Incentive Program	9	812	\$732,028	\$233,60896,654	<u>3.132.47</u>
HVAC Tune-Up Program	187	218	\$71,513	\$115,420	0.62
Fuel Switching Program	0	0	\$0	\$0	0
Total	196	1030	\$803,540	\$349,028412,075	<u>2.301.95</u>

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Table 7: Commercial Savings and Program Costs:

Benefits/Cost Component	C&I Custom Incentive	C&I HVAC Tune-up	Small Commercial Fuel Switching	Total
Annual Savings (MWh)	812	218	0	1,030
Capacity Savings (MW)	0.089	0.000	0.000	0.089
Total Resource Cost	<u>\$250,909318,625</u>	\$123,968	\$0	<u>\$374,877442,593</u>
Direct Participant Costs	<u>\$156,789224,505</u>	\$23,135	\$0	<u>\$179,924247,640</u>
Direct Utility Costs	\$182,077	\$111,593	\$0	\$293,670
Customer Incentives	\$87,957	\$10,760	\$0	\$98,717
CSP Labor	\$94,119	\$100,833	\$0	\$194,953
CSP Materials and Supplies	\$0	\$0	\$0	\$0
Communications	\$0	\$0	\$0	\$0

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⁴ Net present value benefits and costs are discounted and deflated to 2016 dollars.

⁵ The NPV Costs include increased fuel costs for fuel-switching measures.

Table 8. Commercial/Industrial Program Cost Effectiveness:

Benefits/Cost Component (2016\$)	PY5 Actual
TRC NPV Benefits	\$803,540
TRC NPV Costs	\$349,028,412,075
TRC Net Benefits	\$454,512,391,465
TRC Benefit/Cost Ratio	2.301.95

3 RESIDENTIAL PROGRAMS⁶

3.1 Appliance Rebate Program

(Residential/Low Income Customers)

Program Objectives:

The objectives of the Residential Appliance Rebate Program include:

1. Provide customers with opportunities to reduce their energy costs and increase their energy efficiency
2. Encourage customers to install high-efficiency appliances
3. Encourage the use of high-efficiency/ENERGY STAR-rated equipment
4. Promote strategies that encourage and support market transformation for high-efficiency appliances and equipment
5. Achieve approximately 4,927 installed measures through 2019, with a total reduction of approximately 605 MWh

Program Description:

The Appliance Rebate Program promotes the purchase and installation of a wide range of ENERGY STAR equipment and provides customers with financial incentives to offset the higher purchase costs of energy-efficient equipment. Targeted equipment includes electric heating, cooling, water heating and various other appliances.

Program Review:

Hawk Incentives, formally Blackhawk Engagement Solutions, the Conservation Service Provider (“CSP”), manages customer intake, eligibility verification, rebate processing, and program participation tracking for the Appliance Rebate program. Customers are required to submit an application with documentation of the equipment purchase(s) and installation(s) for verification and rebate processing. UGI Electric provides overall strategic direction and program management for the program, as well as promotional, educational, trade ally support, and other administrative functions.

⁶ It should be noted that all Residential Sector programs also apply to governmental entities and the following non-profit entities: firehouses, ambulance providers, and senior centers.

Marketing to residential customers is managed through various media and marketing channels to increase customer awareness in targeted areas. UGI Electric utilizes bill inserts and social media to encourage residential customers to purchase energy efficient appliances. Although the Appliance Rebate Program's TRC BCR is less than 1.0 for Program Year 5, the overall UGI Electric EE&C Residential Portfolio maintains its cost-effectiveness, with a TRC BCR well above 1.0.

Table 9. Program Participation:

Total Measures		
Measure	PY5 Actual	PY5 Budget
Central Air Conditioners	15	20
Clothes Washer	130	200
Room Air Conditioners	50	274
Programmable Thermostats	43	54
Air-Source Heat Pumps	12	22
Ductless Mini-Split Heat Pumps	40	24
Dishwasher	152	364
Refrigerator	138	587
Dehumidifier	31	98
Total	611	1643

Table 10. Program Savings and Costs:

Benefits/Cost Component	Appliance Rebate Program	
	PY5 Actual	PY5 Budget
Savings (MWh)	98	204
Capacity Savings (MW)	0.012	0.061
Total Resource Cost	\$155,377	\$243,558
Direct Participant Costs	\$67,252	\$189,058
Direct Utility Costs	\$135,559	\$141,175
Customer Incentives	\$47,434	\$86,675
CSP Labor	\$88,125	\$24,000
CSP Materials and Supplies	\$0	\$20,500
Communications	\$0	\$10,000

Table 11. Program Cost Effectiveness:

Benefits/Cost Component (2016\$)	PY5 Actual	PY5 Budget
TRC NPV Benefits	\$83,746	\$154,553
TRC NPV Costs	\$144,663	\$218,760
TRC Net Benefits	(\$60,917)	(\$64,207)
TRC Benefit/Cost Ratio	0.58	0.71

3.2 School Energy Education Program

(Residential/Low Income Customers)

Program Objectives:

The objectives of the School Energy Education Program include:

1. Provide customers with opportunities to reduce their energy costs and increase their energy efficiency
2. Educate students on various energy types, energy generation and consumption, home energy use, and ways to increase energy efficiency in a home
3. Distribute energy efficiency toolkits to 4th through 7th grade students in UGI Electric's service territory
4. Obtain participation of approximately 2,850 customers through 2019, with a total reduction of approximately 1,756 MWh

Program Description:

The School Energy Education Program is designed to educate 4th through 7th grade students on various energy types, energy consumption and generation, home energy use, and ways to save energy.

Think! Energy is typically delivered through school presentations. Teachers and schools are recruited throughout UGI Electric's service territory. In consultation with the Pennsylvania Department of Education, presentations are scheduled to avoid testing schedules, vacation periods and other school activities.

Students and teachers attend a one-hour presentation on energy efficiency. Under the direction of two National Energy Foundation ("NEF") professional instructors, students learn how to "Think!" about energy, then "Talk" with others about what they have learned, and ultimately "Take Action!" in their own homes to use energy more efficiently. A customized PowerPoint presentation guides the discussion, and hands-on learning activities are employed to build understanding among students.

Program Review:

National Energy Foundation (NEF), the CSP for this program, registers participating schools, facilitates a PowerPoint presentation to students, and distributes energy efficiency toolkits which contain various energy efficient measures. All participating students are asked to return a *Household Report Card* providing data on household behaviors and device installations. NEF compiles the information from the Household Report Card Scantron forms to create a customized report with program results for UGI Electric.

For Program Year 5, NEF partnered with 27 teachers while presenting to five different schools (grades 4th-7th) within the UGI Electric territory. Once the presentations were completed, 951 energy efficiency toolkits were distributed to the students. The School Energy Education Program continues to be very cost effective with a TRC BCR of 8.59 and net benefits of \$444,545, including gas and water savings in addition to the electric savings.

Table 12. Program Participation:

Total Measures		
Measure	PY5 Actual	PY5 Budget
Energy Efficiency Toolkit	951	950
Total	951	950

Table 13. Program Savings and Costs:

Benefits/Cost Component	School Energy Education Program	
	PY5 Actual	PY5 Budget
Savings (MWh)	273	585
Capacity Savings (MW)	0.049	0.057
Total Resource Cost	\$62,946	\$73,500
Direct Participant Costs	\$48,878	\$0
Direct Utility Costs	\$63,946	\$76,750
Customer Incentives	\$49,878	\$61,750
CSP Labor	\$12,789	\$13,000
CSP Materials and Supplies	\$0	\$0
Communications	\$1,279	\$2,000

Table 14. Program Cost Effectiveness:

Benefits/Cost Component (2016\$)	PY5 Actual	PY5 Budget
TRC NPV Benefits	\$503,151	\$385,238
TRC NPV Costs	\$58,606	\$72,887
TRC Net Benefits	\$444,545	\$312,351
TRC Benefit/Cost Ratio	8.59	5.29

3.3 Energy Efficient Lighting Program

(Residential/Low Income Customers)

Program Objectives:

The objectives of the Energy Efficient Lighting Program include:

1. Provide a mechanism for customers to easily obtain discounted ENERGY STAR-qualified LEDs
2. Develop and execute strategies aimed at transforming the market for ENERGY STAR-qualified LEDs with the goal of increasing the number of qualified products purchased and installed in UGI Electric's service territory
3. Increase consumer awareness and understanding of the energy-efficiency of LEDs
4. Promote consumer awareness and understanding of the ENERGY STAR label
5. Distribute approximately 91,800 LEDs through 2019, with a total reduction of approximately 3,465 MWh

Program Description:

The Energy Efficient Lighting Program encourages customers to purchase new ENERGY STAR-rated LED bulbs. The program has two components:

1. A retail upstream lighting incentive that significantly reduces the customer cost of ENERGY STAR LED bulbs
2. LED distribution to UGI Electric's Customer Assistance Program ("CAP") participants. UGI Electric distributes a package of LEDs to CAP participants each year at no cost to the customer, utilizing the same CSP as the retail upstream lighting incentive

Program Review:

ECOVA, the CSP for this program, manages the upstream LED Lighting Program, including negotiating bulk pricing, education, recruitment, and coordination with retail stores, as well as tracking program data and providing monthly and annual program reports to UGI Electric. ECOVA targets a range of retailers throughout UGI Electric's territory. ECOVA also delivers free LEDs to low income residential customers who participate in CAP, food banks and senior centers.

Marketing to residential customers is managed through various media and marketing channels to increase customer awareness in targeted areas. The marketing strategy includes a mix of social media and outreach events, some of which are focused primarily on low-income customers. In addition, UGI Electric utilizes bill inserts to encourage residential customers to purchase ENERGY STAR-rated LED bulbs. The Energy Efficient Lighting Program exceeded its annual goals in Program Year 5 and was very cost effective with a TRC BCR of 3.22 and net benefits of \$1,730,419.

Table 15. Program Participation:

Measure	Total LEDs	
	PY5 Actual	PY5 Budget
LED Purchase	67,365	23,000
*LED Give-Away	5,500	7,600
Total LEDs	72,865	30,600

*This number includes the Customer Assistance Program (CAP) recipients and other low income Give-Away events.

Table 16. Program Savings and Costs:

Benefits/Cost Component	Energy Efficient Lighting Program	
	PY5 Actual	PY5 Budget
Savings (MWh)	2,663	1,155
Capacity Savings (MW)	0.307	0.151
Total Resource Cost	\$837,375	\$651,400
Direct Participant Costs	\$677,645	\$581,400
Direct Utility Costs	\$505,018	\$407,140
Customer Incentives	\$345,288	\$337,140
CSP Labor	\$157,136	\$55,000
CSP Materials and Supplies	\$0	\$8,000
Communications	\$2,594	\$7,000

Table 17. Program Cost Effectiveness:

Benefits/Cost Component (2016\$)	PY5 Actual	PY5 Budget
TRC NPV Benefits	\$2,510,053	\$1,070,855
TRC NPV Costs	\$779,635	\$618,614
TRC Net Benefits	\$1,730,419	\$452,242
TRC Benefit/Cost Ratio	3.22	1.73

3.4 Appliance Recycling Program

(Residential/Low Income Customers)

Program Objectives:

The objectives of the Appliance Recycling Program include:

1. Encourage customers to dispose of their existing, inefficient appliances when they purchase a new appliance or eliminate a second unit that may not be needed
2. Reduce the use of secondary, inefficient appliances
3. Ensure appliances are disposed of in an environmentally responsible manner
4. Recycle approximately 2,250 refrigerators and freezers and 600 window air conditioning units through 2019, with a total reduction of approximately 2,509 MWh

Program Description:

This Program provides free pick-up and disposal of old, inefficient refrigerators, freezers, and room air conditioners. Units must be between 10 and 30 cubic feet, plugged in, and functioning when picked up in order to be eligible. Incentives of \$50 are paid to customers who recycle eligible refrigerators and freezers, and \$15 for eligible room air conditioners.

All units are disposed of in an environmentally responsible manner. This involves safely disposing of hazardous materials such as chlorofluorocarbon gases found in foam insulation, preparing refrigerant for reclamation, and recycling other materials such as metal and plastic.

Program Review:

Reclim, the CSP for this Program, provides customer intake, eligibility verification, appliance collection, recycling, rebate processing, and participation tracking for the Program.

Marketing to residential customers is managed through various media and marketing channels to increase customer awareness in targeted areas. UGI Electric utilizes bill inserts and social media to encourage residential customers to recycle eligible appliances.

The program was very cost effective in Program Year 5, with a TRC BCR of 3.32 and net benefits of \$110,385.

Table 18. Program Participation:

Total Measures		
Measure	PY5 Actual	PY5 Budget
Refrigerators and Freezers	239	750
Room Air Conditioners	15	200
Total	254	950

Table 19. Program Savings and Costs:

Benefits/Cost Component	Appliance Recycling Program	
	PY5 Actual	PY5 Budget
Savings (MWh)	278	836
Capacity Savings (MW)	0.035	0.128
Total Resource Cost	\$51,112	\$182,000
Direct Participant Costs	\$29,580	\$102,000
Direct Utility Costs	\$33,707	\$120,500
Customer Incentives	\$12,175	\$40,500
CSP Labor	\$21,532	\$48,000
CSP Materials and Supplies	\$0	\$12,000
Communications	\$0	\$20,000

Table 20. Program Cost Effectiveness:

Benefits/Cost Component (2016\$)	PY5 Actual	PY5 Budget
TRC NPV Benefits	\$157,973	\$448,275
TRC NPV Costs	\$47,588	\$172,840
TRC Net Benefits	\$110,385	\$275,435
TRC Benefit/Cost Ratio	3.32	2.59

3.5 Fuel Switching Program

(Residential/Low Income Customers)

Program Objectives:

The objectives of the Fuel Switching Program include:

1. Contribute to UGI Electric's energy savings goals
2. Encourage a "full fuel cycle" approach to energy efficiency
3. Obtain participation of approximately 264 customers through 2019, with a total reduction of approximately 741 MWh

Program Description:

UGI Electric encourages energy efficiency on a total fuel cycle basis by promoting the use of natural gas appliances, where such appliances are more cost-effective under the TRC test than electric counterparts.

Natural gas appliances such as furnaces, water heaters, and clothes dryers use less energy and emit less carbon than electric appliances. In addition, natural gas appliances have an annual operating cost advantage over their electric counterparts.

Fuel Switching Program Components:

- Water heating fuel switching (natural gas and solar thermal)
- Space heating fuel switching
- Clothes dryer fuel switching

Program Review:

UGI Electric conducts customer intake, eligibility verification, rebate processing, and tracking. Customers are required to submit an application with documentation of the equipment purchase(s) and installation(s) for verification and rebate processing. UGI Electric provides overall strategic direction and program management, as well as promotional, educational, trade ally support, and other administrative functions.

Marketing to residential customers is managed through various media and marketing channels to increase customer awareness in targeted areas. UGI Electric utilizes bill inserts, social media, and marketing flyers to HVAC supply houses and contractors to encourage residential customers to consider switching to more economical natural gas space heating, water heating, and clothes drying.

The Fuel Switching program exceeded MWh savings and cost-effectiveness goals for Program Year 5. The program had a TRC BCR of 1.44 and provided \$112,074 in net benefits.

Table 21. Program Participation:

Total Measures		
Measure	PY5 Actual	PY5 Budget
Water Heater Fuel Switching	11	25
Water Heater Solar	0	1
Dryer Fuel Switching	7	40
Space Heating Fuel Switching	17	22
Total	35	88

Table 22. Program Savings and Costs:

Benefits/Cost Component	Fuel Switching Program	
	PY5 Actual	PY5 Budget
Savings (MWh)	403	247
Capacity Savings (MW)	0.003	0.789
Total Resource Cost	\$102,163	\$173,300
Direct Participant Costs	\$98,160	\$163,300
Direct Utility Costs	\$37,223	\$59,890
Customer Incentives	\$33,220	\$49,890
CSP Labor	\$0	\$0
CSP Materials and Supplies	\$0	\$0
Communications	\$4,003	\$10,000

Table 23. Program Cost Effectiveness:

Benefits/Cost Component (2016\$)	PY5 Actual	PY5 Budget
TRC NPV Benefits	\$368,575	\$323,588
TRC NPV Costs ⁵	\$256,501	\$329,320
TRC Net Benefits	\$112,074	(\$5,732)
TRC Benefit/Cost Ratio	1.44	0.98

3.6 Home Energy Assessment Program

(Residential Sector/Low Income Customers)

Program Objectives:

The objectives of the Residential Home Energy Assessment Program include:

1. Provide customers with opportunities to reduce their energy costs and increase their energy savings;
2. Encourage customers to install high-efficiency HVAC, lighting equipment, and electric appliances;
3. Provide customers with energy-saving solutions and home energy audits;
4. Provide immediate energy savings to customers by installing energy saving measures; and
5. Achieve approximately 780 audits through 2019, with a total reduction of approximately 586 MWh.

Program Description:

The Home Energy Assessment Program provides the selected CSP with financial incentives to offset the cost of home assessments to UGI Electric customers. The cost of the assessment (including direct install measures) is approximately \$500, but the cost to the customer is only \$50. During the assessment, the CSP educates the customer on how to save money based on the customer's usage, as well as educate the customer on the benefits of upgrading to energy-efficient equipment. In addition, the Home Energy Assessment Program provides immediate energy savings to the customer in the form of direct install energy saving measures. The measures are paid for by UGI Electric and include the installation of six LEDs, two faucet aerators, one smart strip plug, water pipe insulation and water heater thermostat setback.

Program Review:

During the program year, UGI Electric hired Franklin Energy Services as the qualified CSP to provide customer intake, eligibility verification, customer invoicing, marketing and program participation for the Home Energy Assessment Program.

Marketing to residential customers is managed through various media and marketing channels, including social media, radio, Pandora, email blasts and bill inserts. Two direct mail campaigns were also conducted, targeting specific areas within the service territory. Franklin Energy also has been participating in Community Events to educate customers on the effectiveness of the assessments and the energy efficiency benefits of direct install measures.

Although UGI Electric and Franklin Energy have been actively marketing this program over the past six months, actual participation was lower than expected, resulting in a TRC BCR of 0.02 and net benefits of (\$32,781) for Program Year 5. While the Home Energy Assessment Program was not cost-effective, its impact on the UGI Electric Residential Programs' overall cost-effectiveness was minimal. Based on its experience, UGI Electric believes low participation is attributed to not only the challenges of start-up for a new program, but also the overall cost of the assessment. Therefore, UGI Electric is concurrently filing a Petition with the Commission requesting approval of an EE&C Plan change to eliminate the \$50.00 customer co-pay, in an effort to increase future participation.

Table 24. Program Participation:

Total Audits		
Measure	PY5 Actual	PY5 Budget
Home Energy Assessment	12	260

Table 25. Program Savings and Costs:

Benefits/Cost Component	Home Energy Assessment Program	
	PY5 Actual	PY5 Budget
Savings (MWh)	1	195
Capacity Savings (MW)	0.000	0.022
Total Resource Cost	\$35,923	\$150,000
Direct Participant Costs	\$323	\$13,000
Direct Utility Costs	\$36,409	\$137,000
Customer Incentives	\$809	\$0
CSP Labor	\$35,600	\$85,080
CSP Materials and Supplies	\$0	\$31,920
Communications	\$0	\$20,000

Table 26. Program Cost Effectiveness:

Benefits/Cost Component (2016\$)	PY5 Actual	PY5 Budget
TRC NPV Benefits	\$665	\$141,327
TRC NPV Costs	\$33,446	\$142,450
TRC Net Benefits	(\$32,781)	(\$1,123)
TRC Benefit/Cost Ratio	0.02	0.99

3.7 Low Income Water Heater Pilot Program

(Residential Sector/Low Income Customers)

Program Objectives:

The objectives of the Residential Low Income Water Heater Pilot Program include:

1. Provide 15 low income customers, in Phase II, participating in UGI Electric’s Low Income Usage Reduction Program (“LIURP”) with an ENERGY STAR rated natural gas water heater where natural gas is already present and their current electric water heaters are less efficient
2. Provide LIURP participants with opportunities to reduce their energy costs and increase their energy efficiency
3. Achieve approximately 15 installed measures through 2019, with a total reduction of approximately 50 MWh.

Program Description:

The program provides 15 low income customers, in Phase II, participating in UGI Electric’s LIURP with a high efficiency natural gas water heater where natural gas is present and their current electric water heater is not efficient. The LIURP offers free energy conservation measures to high usage, low income households to help make energy bills more affordable. UGI Electric’s EE&C Staff partners with UGI Electric’s LIURP Team to offer this energy saving measure to prequalified LIURP customers.

Program Review:

UGI Electric partnered with the Scranton-Lackawanna Human Development Agency (“SLHDA”), who also partners with UGI Electric’s LIURP Team to reach out to various UGI Electric customers who have participated in LIURP and also have natural gas present. One customer qualified for this program. The TRC BCR for this Program was 0.72, but the impact on net benefits was only (\$855). Going forward, the Company will continue to canvass for low income customers who may be a good fit for this pilot program.

Table 27. Program Participation:

Total Measures		
Measure	PY5 Actual	PY5 Budget
Gas Water Heater	1	5
Total	1	5

Table 28. Program Savings and Costs:

Benefits/Cost Component	Low Income Water Heater Pilot Program	
	PY5 Actual	PY5 Budget
Savings (MWh)	3	17
Capacity Savings (MW)	0.000	0.001
Total Resource Cost	\$2,372	\$7,500
Direct Participant Costs	\$1,572	\$7,500
Direct Utility Costs	\$2,372	\$7,500
Customer Incentives	\$1,572	\$0
CSP Labor	\$800	\$7,500
CSP Materials and Supplies	\$0	\$0
Communications	\$0	\$0

Table 29. Program Cost Effectiveness:

Benefits/Cost Component (2016\$)	PY5 Actual	PY5 Budget
TRC NPV Benefits	\$2,233	\$17,641
TRC NPV Costs	\$3,088	\$13,285
TRC Net Benefits	(\$855)	\$4,356
TRC Benefit/Cost Ratio	0.72	1.33

3.8 Customer Energy Education

(Residential/Low Income Customers/Small Commercial Customers)

Program Objectives:

1. The objectives of the Customer Education Program include: Communicate conservation tips to UGI Electric customers; emphasize that there are many simple low-cost or no-cost steps to help residential homes become more energy efficient
2. Communicate the prices to compare and how they are calculated so that customers can make an informed choice when shopping for an electric generation supplier
3. Increase awareness regarding specific rebate programs in which customers may be eligible to participate

Program Description:

UGI Electric utilizes radio ads, bill inserts and social media to inform customers of energy savings tips, rebate programs, and choices for selecting an electric supplier. UGI Electric’s energy efficiency website, www.ugi.com/savesmart also offers customers energy saving tips and energy use calculators.

Program Review:

In Program Year 5, UGI Electric conducted a comprehensive media campaign throughout the Electric service territory which featured radio and digital banner advertising focused on energy conservation tips and rebate programs. There were not any savings directly associated with these activities.

Table 30. Program Budget and Actuals:

Benefits/Cost Component	Customer Education Program	
	PY5 Actual	PY5 Budget
Savings (MWh)	\$0	\$0
Capacity Savings (MW)	\$0	\$0
Total Resource Cost	\$54,591	\$60,000
Direct Participant Costs	\$0	\$0
Direct Utility Costs	\$54,591	\$60,000
Customer Incentives	\$0	\$0
CSP Labor	\$0	\$0
CSP Materials and Supplies	\$0	\$0
Communications	\$54,591	\$60,000

Table 31. Program Cost Effectiveness:

Benefits/Cost Component (2016\$)	PY5 Actual	PY5 Budget
TRC NPV Benefits	0	0
TRC NPV Costs	\$50,826	\$60,000
TRC Net Benefits	(\$50,826)	(\$60,000)
TRC Benefit/Cost Ratio	0	0

4 COMMERCIAL PROGRAMS

4.1 Custom Incentive Program

(Commercial/Industrial Governmental Customers)

Program Objectives:

The objectives of the Custom Incentive Program include:

1. Encourage the installation of high-efficiency equipment not included in UGI Electric's other EE&C Programs by Commercial & Industrial (C&I) customers in new and existing facilities
2. Encourage equipment optimization, operational, or process changes that reduce electricity consumption
3. Encourage a "whole facility" approach to energy-efficiency
4. Increase customer awareness of the features and benefits of electric energy efficient equipment
5. Support emerging technologies and non-typical efficiency solutions in cost-effective applications
6. Obtain approximately 60 participants through 2019, with a total reduction of approximately 7,812 MWh

Program Description:

The Custom Incentive Program provides a delivery channel and financial incentives to customers installing a variety of custom measures suited to their particular business needs. To qualify for financial incentives, eligible customers are required to provide documentation that their proposed efficiency upgrades pass the TRC test for cost-effectiveness.

Included within the Custom Program is a Combined Heat & Power ("CHP") Program. If a customer inquires about a CHP project, UGI Electric will pre-screen the project and will only pay a rebate if the project is determined to be cost effective.

Program Review:

Due to unforeseen circumstances, the CSP (SmartWatt) who had been managing this program terminated its contract with UGI Electric. This caused a brief pause of approximately six months during Program Year 5. In December 2016, an RFI was sent out to two current UGI Electric CSPs to manage the Custom Incentive Program. UGI Electric hired Franklin Energy as the qualified CSP to provide customer intake, eligibility verification, rebate processing, program participation tracking, verification, and auditing of customer projects. Although there was a brief pause in the Program, there were a total of 9 customers that participated. The program was very cost effective with a TRC BCR of ~~3.132.47~~, and net benefits of ~~\$498,42035.373~~. Franklin Energy is currently working a pipeline of potential projects to further drive participation in this program.

None of the Custom Projects that were completed involved CHP. However, CHP projects will continue to be available to customers for which this type of project may be a good fit.

Table 32. Program Budget and Actuals:

Total Measures		
Measure	PY5 Actual	PY5 Budget
Custom Projects	9	20
Total	9	20

Table 33. Program Savings and Costs:

C&I Custom Incentive Program		
Benefits/Cost Component	PY5 Actual	PY5 Budget
Savings (MWh)	812	3,141
Capacity Savings (MW)	0.089	0.000
Total Resource Cost	<u>\$250,909,318,625</u>	\$2,188,800
Direct Participant Costs	<u>\$156,789,224,505</u>	\$1,940,000
Direct Utility Costs	\$182,077	\$750,120
Customer Incentives	\$87,957	\$501,320
CSP Labor	\$94,119	\$247,800
CSP Materials and Supplies	\$0	\$0
Communications	\$0	\$1,000

Table 34. Program Cost Effectiveness:

Benefits/Cost Component (2016\$)	PY5 Actual	PY5 Budget
TRC NPV Benefits	\$732,028	\$2,907,657
TRC NPV Costs	<u>\$233,608,96,654</u>	\$2,180,928
TRC Net Benefits	<u>\$498,420,35,373</u>	\$726,729
TRC Benefit/Cost Ratio	<u>3.132.47</u>	1.33

4.2 HVAC Tune-Up Program

(Commercial/Industrial/Governmental Customers)

Program Objectives:

The objectives of the HVAC Tune-up Program include:

1. Optimize HVAC unit performance
2. Assist commercial customers in lowering their energy bills and operating costs
3. Obtain participation by approximately 1,632 rebate applications through 2019, with a total reduction of approximately 2,004 MWh

Program Description:

The HVAC Tune-Up Program is designed to increase the operating performance of electric HVAC systems in commercial buildings. The program offers financial incentives to HVAC contractors to diagnose performance inefficiencies and make energy-saving retrofits. Customers are eligible for a HVAC tune-up once every three years with areas of focus including the following:

1. Refrigeration components
2. Air distribution system
3. Controls

Program Review:

ECOVA, the CSP for this program, manages HVAC contractor recruitment, contractor training, providing ongoing contractor field support, education, processing applications and rebates, tracking program data, and reporting to UGI Electric. HVAC Contractors provide technical assessments and install energy efficiency improvements for commercial customers. UGI Electric provides overall strategic direction and program management for the program, while the CSP manages customer education, trade ally support, evaluation, and other administrative functions. During Program Year 5, the HVAC Tune-Up Program did not perform as well as expected, resulting in a TRC BCR of 0.62 and net benefits of (\$43,908). Although the TRC reflects a value less than 1.0, the UGI Electric EE&C Commercial/Industrial Portfolio, as a whole, maintains its cost-effectiveness under the TRC.

Based on performance in Program Year 5, UGI Electric is concurrently filing a Petition with the Commission seeking approval of an EE&C Plan change to discontinue this program for the remainder of Phase II.

Table 35. Program Participation:

Total Measures and Costs		
Measure	PY5 Actual	PY5 Budget
Basic diagnostic testing (no economizer)	39	90
Basic diagnostic testing (economizer is present)	18	90
Refrigerant/Airflow (Single Compressor)	45	90
Refrigerant/Airflow (Multiple Compressors)	12	45
Thermostat Modification	57	135
Economizer Adjustment	16	65
Thermostat Replacement	0	28
Economizer Control Package	0	1
Total	187	544

Table 36. Program Savings and Costs:

Benefits/Cost Component	C&I HVAC Tune-up Program	
	PY5 Actual	PY5 Budget
Savings (MWh)	218	668
Capacity Savings (MW)	0.000	0.000
Total Resource Cost	\$123,968	\$164,100
Direct Participant Costs	\$23,135	\$73,100
Direct Utility Costs	\$111,593	\$126,575
Customer Incentives	\$10,760	\$35,575
CSP Labor	\$100,833	\$65,000
CSP Materials and Supplies	\$0	\$25,000
Communications	\$0	\$1,000

Table 37. Program Cost Effectiveness:

Benefits/Cost Component (2016\$)	PY5 Actual	PY5 Budget
TRC NPV Benefits	\$71,513	\$159,126
TRC NPV Costs	\$115,420	\$155,841
TRC Net Benefits	(\$43,908)	\$3,285
TRC Benefit/Cost Ratio	0.62	1.02

4.3 Small Commercial Fuel Switching Program

(Small Commercial Sector)

Program Objective:

The Small Commercial Fuel Switching program has several objectives:

1. Make significant contribution to UGI Electric's energy savings goals
2. Encourage a "full fuel cycle" approach to energy efficiency
3. Obtain participation of approximately 99 customers through 2018, with a total reduction of approximately 375 MWh

Program Description:

UGI Electric encourages energy efficiency on a total fuel cycle basis by promoting the use of natural gas appliances, where such appliances are more cost-effective under the TRC test than electric counterparts.

Natural gas appliances such as furnaces, water heaters, and clothes dryers use less energy and emit less carbon than electric appliances. In addition, natural gas appliances have an annual operating cost advantage over their electric counterparts.

Fuel Switching Program Components:

- ENERGY STAR rated water heater (natural gas and solar thermal)
- ENERGY STAR rated natural gas furnace or boiler
- Natural Gas Clothes dryer fuel switching

Program Review:

UGI Electric conducts customer intake, eligibility verification, rebate processing, and tracking. Customers are required to submit an application with documentation of the equipment purchase(s) and installation(s) for verification and rebate processing. UGI Electric provides overall strategic direction and program management, as well as promotional, educational, trade ally support, and other administrative functions.

Marketing to small commercial customers is the same as the residential marketing efforts since the equipment and rebates are the same. The strategy is managed through various media and marketing channels to increase customer awareness in targeted areas. UGI Electric utilizes bill inserts, social media, and marketing flyers to HVAC supply houses and contractors to encourage small commercial customers to consider switching to more economical natural gas space heating, water heating, and clothes drying.

Program Participation:

Although UGI Electric continues to market this program to our Small Commercial Customers, there were no participants in Program Year 5.

Table 38. Program Savings and Costs:

Benefits/Cost Component	Small Commercial Fuel Switching Program	
	PY5 Actual	PY5 Budget
Savings (MWh)	0.000	125
Capacity Savings (MW)	0.000	0.291
Total Resource Cost	\$0	\$88,960
Direct Participant Costs	\$0	\$69,060
Direct Utility Costs	\$0	\$40,940
Customer Incentives	\$0	\$21,040
CSP Labor	\$0	\$0
CSP Materials and Supplies	\$0	\$0
Communications	\$0	\$19,900

Table 39. Program Cost Effectiveness:

Benefits/Cost Component (2016\$)	PY5 Actual	PY5 Budget
TRC NPV Benefits	\$0	\$184,063
TRC NPV Costs	\$0	\$171,884
TRC Net Benefits	\$0	\$12,179
TRC Benefit/Cost Ratio	0	1.07