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August 21, 2018

VIA ELECTRONIC FILING

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street, 2nd Floor North
P.O. Box 3265
Harrisburg, PA 17105-3265

**Re: Petition of UGI Utilities, Inc. – Electric Division for Approval of Phase III of its
Energy Efficiency and Conservation Plan
Docket No. M-2018-**

Secretary Chiavetta:

Enclosed for filing on behalf of UGI Utilities, Inc. – Electric Division (“UGI Electric” or the “Company”) is Phase III of UGI Electric’s voluntary Energy Efficiency and Conservation Plan (“Phase III EE&C Plan”). UGI Electric is filing its Phase III EE&C Plan pursuant to the Pennsylvania Public Utility Commission’s (“Commission”) December 23, 2009 Secretarial Letter at Docket No. M-2009-2142851.

UGI Electric’s Phase III EE&C Plan follows the guidance provided by the Commission in its December 23, 2009 Secretarial Letter. The enclosed filing consists of the following documents:

1. Petition for Approval of UGI Electric’s Phase III EE&C Plan;
2. UGI Electric Exhibit 1 – UGI Electric’s Phase III EE&C Plan;
3. UGI Electric Exhibit 2 – *Pro forma* tariff pages for the Phase III Energy Efficiency and Conservation Rider;
4. UGI Statement No. 1 – Direct Testimony of Theodore M. Love; and
5. UGI Statement No. 2 – Direct Testimony of Tracy A. Hazenstab.

Rosemary Chiavetta, Secretary
August 21, 2018
Page 2

UGI Electric will be represented in this proceeding by the following counsel:

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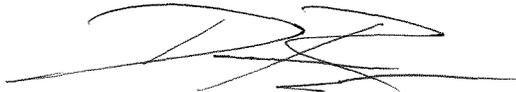
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UGI Electric's attorneys are authorized to receive all notices and communications regarding the above-captioned matter.

As shown on the attached Certificate of Service, UGI Electric has served copies of this filing upon the Commission's Bureau of Investigation & Enforcement, the Office of Consumer Advocate, and the Office of Small Business Advocate.

If you have any questions regarding the enclosed filing, please do not hesitate to contact me.

Respectfully submitted,



Devin Ryan

DTR/jl
Enclosures

cc: Certificate of Service

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing has been served upon the following persons, in the manner indicated, in accordance with the requirements of 52 Pa. Code § 1.54 (relating to service by a participant).

VIA FIRST CLASS MAIL

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Bureau of Investigation & Enforcement
Commonwealth Keystone Building
400 North Street, 2nd Floor West
PO Box 3265
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Date: August 21, 2018

A handwritten signature in black ink, appearing to read "Devin T. Ryan", written over a horizontal line.

Devin T. Ryan

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Petition of UGI Utilities, Inc. – Electric :
Division for Approval of Phase III of its : Docket No: M-2018-_____
Energy Efficiency and Conservation Plan :

**PETITION OF UGI UTILITIES, INC. – ELECTRIC DIVISION
FOR APPROVAL OF PHASE III OF ITS
ENERGY EFFICIENCY AND CONSERVATION PLAN**

Pursuant to 52 Pa. Code § 5.41, UGI Utilities, Inc. – Electric Division (“UGI Electric” or the “Company”) hereby files this voluntary petition (“Petition”) seeking approval of Phase III of its Energy Efficiency and Conservation Plan for the time period beginning June 1, 2019, through May 31, 2024 (“Phase III EE&C Plan”).

This voluntary EE&C Phase III Plan includes a portfolio of energy efficiency programs and conservation practices, fuel switching measures, and energy education initiatives that are designed to encourage energy efficiency. For the reasons set forth below, UGI Electric respectfully requests that the Commission approve this voluntary Phase III EE&C Plan as described herein and in the appended materials.

I. INTRODUCTION

1. UGI Electric is a “public utility” and an “electric distribution company” (“EDC”) as those terms are defined under the Public Utility Code, 66 Pa.C.S. §§ 102 and 2803, subject to the regulatory jurisdiction of the Commission, and provides electric distribution, transmission, and default electric supply services to customers located in its certificated service territory. UGI

Electric furnishes electric distribution service to approximately 62,000 total customers located in portions of Luzerne and Wyoming counties.

2. On November 14, 2008, Act 129¹ became law in the Commonwealth and was made applicable to EDCs with 100,000 or more customers. Although Act 129 is not applicable to EDCs with fewer than 100,000 customers, the Commission recognized in the EE&C Secretarial Letter that the implementation of energy efficiency and conservation measures can assist all electric customers in mitigating retail electric rate increases and ensuring affordable and available electric service. *See Re: Voluntary Energy Efficiency and Conservation Program*, Docket No. M-2009-2142851 (Dec. 23, 2009) (“EE&C Secretarial Letter”). The EE&C Secretarial Letter therefore encouraged smaller EDCs to file voluntary EE&C plans and provided guidance regarding the content and Commission review of such voluntary plans.

3. Pursuant to the Commission’s EE&C Secretarial Letter, UGI Electric voluntarily filed an initial “Phase I” EE&C Plan on November 9, 2010, assigned to Docket No. M-2010-2210316 by the Commission.

4. Pursuant to Commission order, entered October 19, 2011, UGI Electric’s Phase I EE&C was modified, and refiled in black-line on December 19, 2011. By order entered on March 16, 2012, this revised black-line version was approved by the Commission, subject to further modification.

5. On March 23, 2012 UGI Electric filed its revised Phase I EE&C Plan in accordance with the Commission’s March 16, 2012 order.

¹ Act 129 of 2008, P.L. 1592, 66 Pa.C.S §§ 2806.1 and 2806.2 (“Act 129”).

6. By Secretarial Letter dated April 10, 2012, the Secretary noted that the Commission's Bureau of Technical Utility Services found that the revised black-lined Phase I EE&C Plan was in compliance with the March 16, 2012 order.

7. UGI Electric began implementing its voluntary Phase I EE&C Plan on June 1, 2012.

8. On April 9, 2015, UGI Electric filed a Petition at Docket No. M-2010-2210316 to extend its Phase I EE&C Plan until its Phase II EE&C Plan was approved ("Phase I Extension Petition").

9. On April 16, 2016, the Company filed a Petition at Docket No. M-2015-2477174 seeking Commission approval of its Phase II EE&C Plan, which set forth EE&C programs for the three-year period of June 1, 2015, through May 31, 2018.

10. On May 19, 2015, the Commission entered an Order approving UGI Electric's Phase I Extension Petition.

11. On June 9, 2016, the Commission entered an Order approving the Phase II EE&C Plan.

12. On March 22, 2017, UGI Electric filed a Petition to extend its Phase II EE&C Plan by one year, *i.e.*, until May 31, 2019 ("Phase II Extension Petition").

13. On May 4, 2017, the Commission entered an Order approving the Phase II Extension Petition.

14. On August 31, 2017, UGI Electric filed a Petition for approval of changes to its Phase II EE&C Plan.

15. On December 21, 2017, the Commission entered an Order approving the proposed changes to the Phase II EE&C Plan, as clarified or modified by the Company in its comments.

II. APPLICABLE STANDARDS

16. In the EE&C Secretarial Letter, the Commission directed that petitions for approval of voluntary EE&C plans are to be filed in accordance with 52 Pa. Code § 5.41 and must contain the following components:

- A detailed plan and description of the measures to be offered;
- Sufficient supporting documentation and verified statements or testimony or both;
- Proposed energy consumption or peak demand reduction objectives or both, with proposed dates the objectives are to be met;
- A budget showing total planned expenditures by program and customer class;
- Tariffs and a section 1307² cost recovery mechanism; and
- A description of the method for monitoring and verifying plan results.

EE&C Secretarial Letter at 1.

17. Voluntary EE&C plans must measure and verify energy savings in the same manner as Act 129 mandated plans. For Phase III of Act 129, the evaluation, measurement and verification (“EM&V”) of energy savings must be performed using the Technical Reference Manual (“TRM”) established at Docket No. M-2015-2469311.³ In addition, voluntary plans, like

² 66 Pa.C.S. § 1307.

³ See *Implementation of the Alternative Energy Portfolio Standards Act of 2004: Standards for the Participation of Demand Side Management Resources – Technical Reference Manual 2016 Update*, Docket No. M-2015-2469311 (Order entered July 8, 2015).

their mandatory counterparts, must employ the Total Resource Cost (“TRC”) Test, as defined in Act 129⁴ and applied by the Commission to determine whether a certain proposed EE&C plan is cost-effective. Like the larger EDCs’ Phase III EE&C Plans, the Company employed the TRC Test established at Docket No. M-2015-2468992.⁵

18. The Commission encouraged the smaller EDCs that file voluntary EE&C plans to use the Act 129 targets as guiding principles in establishing energy consumption and peak demand reduction objectives. The voluntary consumption reduction objective is to be measured against the filing EDC’s annual historical load for June 1, 2007 through May 31, 2008. Furthermore, a voluntary EE&C plan’s peak demand reduction objective should be measured against the filing EDC’s historical peak load for the same time frame. The Commission stated that it will require all smaller EDCs that voluntarily file a plan to submit an annual report to the Commission detailing the results of the EE&C plan, its cost-effectiveness and any additional information required by the Commission.

III. UGI ELECTRIC’S PROPOSED PHASE III EE&C PLAN

A. OVERVIEW OF UGI ELECTRIC’S PHASE III EE&C PLAN

19. Phase III of UGI Electric’s EE&C Plan is described more fully below and attached hereto as **UGI Electric Exhibit 1**. The Company proposes to implement Phase III of the Plan over a five-year period, beginning June 1, 2019, and ending May 31, 2024. Phase III includes a variety of energy efficiency and conservation practices and peak load reduction and energy education initiatives that are anticipated to reduce customers’ energy consumption and reduce peak load on UGI Electric’s system.

⁴ *See id.*

⁵ *See 2016 Total Resource Cost (TRC) Test*, Docket No. M-2015-2468992 (Order entered June 22, 2015).

20. UGI Electric's portfolio of programs is designed to provide customer benefits and to meet targeted energy consumption reduction goals established by UGI Electric to be reasonably achievable. In particular, the overall energy consumption reduction goal for the five-year period has been set at 17,485 MWh (as measured against the Company's annual historical load for June 1, 2007, through May 31, 2008). To help ensure that the Company achieves this goal, the programs set forth in the Phase III EE&C Plan are designed to produce electric consumption savings of 18,120 MWh, or approximately 104% of the 17,485 MWh target. In addition, UGI Electric anticipates that its Plan will produce peak load reductions, although the Company did not design the EE&C programs with the intent of achieving specific peak load reduction targets.

21. UGI Electric's Phase III EE&C Plan addresses each of the requirements in the Commission's EE&C Secretarial Letter. The Plan is divided into the following six sections: (1) Plan Overview; (2) Program Descriptions; (3) Cost Effectiveness of Plan and Sector Summaries; (4) Implementation Strategy; and (5) Phase III Energy Efficiency and Conservation Rider ("Phase III EEC Rider").

22. In support of the Phase III EE&C Plan, UGI Electric has provided the following three statements of Direct Testimony:

- (1) **UGI Electric Statement No. 1** – the Direct Testimony of Theodore M. Love, Partner at Green Energy Economics Group, Inc., which addresses: (1) background on the Company's EE&C Plans and an overview of the Phase III EE&C Plan; (2) the development of the Phase III EE&C Plan, updates compared to the Phase II EE&C Plan, and details of the Phase III EE&C programs; (3) the projected savings and costs of the Phase III EE&C Plan,

including analysis of the benefit-cost ratios (“BCRs”) for the individual EE&C programs and the Phase III EE&C Plan overall; and (4) the implementation, administration, and evaluation, measurement, and verification (“EM&V”) of the Phase III EE&C Plan;

(2) **UGI Electric Statement No. 2** – the Direct Testimony of Tracy Hazenstab, Senior Analyst – Rates for UGI Utilities, Inc., which addresses the Phase III EEC Rider.

23. Included as **UGI Electric Exhibit 2** is the pro forma Phase III EEC Rider to UGI Tariff Electric – Pa. PUC No. 5. The Company currently has a Phase II EEC Rider that recovers all applicable design, development, and implementation costs related to its Phase II EE&C Plan. The Phase III EEC Rider is fully reconcilable and will apply to all customers who receive distribution service from the Company under Phase III of the EE&C Plan.

B. EE&C PLAN DEVELOPMENT PROCESS

24. In approaching the development of its EE&C Plan, UGI Electric constructed an in-house team with representatives from all affected areas of the Company to solicit input with regard to Plan development. In addition, UGI Electric retained Theodore M. Love, an experienced and independent economic consultant who has worked extensively in the energy conservation plan arena, to assist in the development and preparation of UGI Electric’s Phase III EE&C Plan.

25. As with the Company’s Phase I and Phase II EE&C Plans, the Phase III EE&C Plan is modeled to conform to the Commission’s EE&C Secretarial Letter and related provisions of Act 129. The Company used actual revenues and MWh sold for the twelve-month period, June 1, 2007 to May 31, 2008, which was referenced in the Commission’s EE&C Secretarial Letter, to determine the approximate 2% expenditure cap. The Company established an overall

five-year electric consumption savings target of 17,485 MWh based upon the annual historical load for June 1, 2007, through May 31, 2008. The Company used this savings target and the 2% spending cap as a baseline for constructing a portfolio of programs that is available to all customer classes. UGI Electric also assessed the potential savings for a variety of programs and constructed the portfolio it determined was most likely to serve customer needs and achieve its energy conservation targets.

26. UGI also met with the active parties from the Phase II EE&C Plan proceeding on June 6, 2018, to solicit feedback on its initial Phase III EE&C Plan findings. The feedback received during these meetings was incorporated into the Plan design where possible.

C. DESCRIPTION OF THE EE&C PLAN

27. UGI Electric's Plan is a comprehensive package of programs designed to allow customers to effectively and efficiently reduce their energy consumption. The Plan includes the following six programs:⁶

- 1) Appliance Rebate Program (Residential Sector/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) Commercial and Industrial Custom Incentive Program (Commercial and Industrial/Governmental Customers);
- 6) Emerging Technology and Outreach (ETO) Program (All Customers)

A full description of all of the programs and measures is found in Section 2 of the Phase III EE&C Plan.

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

28. UGI Electric's portfolio offers a diverse array of programs to all customer classes, including low-income customers. UGI Electric has designed its programs to achieve energy reductions for its low-income customer segment by providing free or reduced pricing for those customers. Specifically, the Company designed the Energy Efficient Lighting program with the low-income customer segment in mind. Other residential programs, like the Appliance Recycling Program, the Appliance Rebate Program, and the School Energy Education Program, and Emerging Technology and Outreach Program, likely will assist low-income customers to reduce their electricity consumption as well. These programs are in addition to UGI Electric's already robust low-income assistance programs outside the context of this Plan.

29. The Phase III EE&C Plan also includes procedures to measure, evaluate and verify the performance of the programs and the Plan as a whole. UGI Electric anticipates an annual review and report to the Commission on the status of Phase III, as described in Section 4 of the EE&C Plan.

30. Section 3 of the Phase III EE&C Plan describes the cost-effectiveness of the Plan based on the TRC Test criterion. Consistent with Act 129, the Plan allocates the cost of the measures to the customer class that will benefit from that measure. Appendix B to the Plan provides an illustration per program of key assumptions related to the measure-level savings anticipated.

31. UGI Electric proposes to limit its annual spending on EE&C measures to 2% of its jurisdictional revenues for the twelve months ending May 31, 2008, which was approximately \$125.3 million with gross receipts tax. UGI Electric will maintain the approximately 2% spending cap on EE&C programs and measures. For Phase III, UGI Electric proposes an annual budget of approximately \$1.44 million, which equates to a maximum of approximately \$7.22

million over the five years of the Plan. Further, the Company proposes an absolute cap on annual spending of \$2.5 million, while maintaining a five-year spending cap of approximately \$7.22 million.

32. UGI Electric proposes to implement a new Phase III reconcilable rate mechanism to recover costs for administration of the Phase III EE&C Plan, as explained more fully in Ms. Hazenstab's Direct Testimony. Plan cost recovery will be accomplished utilizing the Phase III EEC Rider, by which UGI Electric will calculate separately and recover the applicable EE&C Plan costs from its individual customer classes. The costs are expected to be incurred on a variable basis in each Plan year. As a result, UGI Electric will reconcile the costs annually. UGI Electric's Phase III EEC Rider will be in place for a six-year period to reconcile any over or under collection at the end of the five-year Plan.

D. IMPLEMENTATION STRATEGY

33. UGI Electric will implement modifications to its current EE&C Plan through its own internal staff and via the Conservation Service Providers ("CSPs") with which UGI Electric contracts. UGI Electric proposes to continue utilizing its current CSPs where possible to provide continuity to customers currently benefitting from Phase II programs. The selection process will occur through the issuance of an RFP to qualified CSPs.

E. PUBLIC INTEREST DETERMINATION AND REQUEST FOR RELIEF

34. UGI Electric submits that its Phase III EE&C Plan as proposed is consistent with the guidance set forth in the Commission's EE&C Secretarial Letter and that the Plan is in the public interest. The Plan includes a broad range of energy efficiency and conservation measures that are designed to meet the needs of all classes of customers. The Plan is cost-effective and is designed to achieve an energy consumption reduction target of 18,120 MWh in total over the

five-year period for Phase III. In addition, although the Company has not proposed specific peak load reduction targets, UGI Electric anticipates that its Plan will produce reductions to peak load.

35. Accordingly, UGI Electric respectfully requests that the Commission promptly approve UGI Electric's Phase III EE&C Plan as proposed, including the Phase III EEC Rider set forth in Section 6 of the Plan.

IV. CONCLUSION

WHEREFORE, UGI Utilities, Inc. – Electric Division, respectfully requests that the Pennsylvania Public Utility Commission approve Phase III of UGI Electric’s voluntary EE&C Plan, as set forth in this Petition and the attachments hereto. UGI Electric requests that, to the extent possible, the Commission issue an Order approving the voluntary Phase III EE&C Plan on or before April 30, 2019, so that the Company has sufficient time to implement the Phase III EE&C Plan before Phase II concludes on May 31, 2019. UGI Electric also requests that it be permitted to file a Phase III EEC Rider and rate schedules consistent with the Pro Forma Tariff Supplement attached hereto as **UGI Electric Exhibit 2**, effective on one (1) day’s advanced notice coincident with the effective date of the first quarterly default service rate filing following Commission approval of the Phase III EE&C Plan. This compliance filing will include updated tariff pages for any proposed rate schedules that include the current EEC Rider if such proposed rate schedules are effective on the date of the first quarterly default service rate filing following Commission approval of the Phase III EE&C Plan. The Company also notes that it is voluntarily filing this Plan. Therefore, to the extent that the Commission directs that modifications be made to the Company’s voluntarily-proposed Phase III EE&C Plan or adopts final rules that would require the Company to modify the voluntary Plan proposed in this Petition, the Company will evaluate any such modifications to determine whether to proceed with voluntarily instituting the Plan as modified.

Respectfully submitted,



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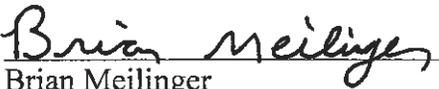
Dated: August 21, 2018

Counsel for UGI Utilities, Inc. – Electric Division

VERIFICATION

I, Brian J. Meilinger, hereby state that I am the Manager of Energy Efficiency & Conservation Programs for UGI Utilities, Inc. – Electric Division (“UGI Electric”), that I am duly authorized to and do make this Verification on behalf of UGI Electric, that the facts set forth above are true and correct to the best of my knowledge, information, and belief, and that I expect UGI Electric to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

Date: August 21, 2018


Brian Meilinger

UGI Electric

Exhibit 1

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

UGI Utilities, Inc. – Electric Division
Energy Efficiency and Conservation Plan
Phase III (June 1, 2019-May 31, 2024)

Docket No. M-2018-_____

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1 Plan Overview

UGI Utilities, Inc. – Electric Division (“UGI Electric” or the “Company”) hereby submits for approval Phase III of its Energy Efficiency and Conservation Plan (“EE&C Plan” or “Plan”) which will continue to offer many of the same effective energy efficiency measures contained within its existing Phase II EE&C Plan, along with several new measures to enhance and broaden customer participation during the term of Phase III (June 1, 2019, through May 31, 2024). The EE&C Plan includes a portfolio of energy efficiency, conservation, and consumption reduction measures, programs, and education initiatives. Unlike the major Electric Distribution Companies (“EDCs”), UGI Electric is not subject to Act 129 of 2008, P.L. 1592 (“Act 129”) because it serves fewer than 100,000 customers. 66 Pa. C.S. § 2806.1(l). However, with Phase III, UGI Electric continues to operate a voluntary EE&C Plan as suggested by the Pennsylvania Public Utility Commission (“the Commission”) in its Secretarial Letter of December 23, 2009, at Docket No. M-2009-2142851 (“Secretarial Letter”). The portfolio includes the following programs:

1. Appliance Rebate Program
2. School Energy Education Program
3. Energy Efficient Lighting Program
4. Appliance Recycling Program
5. Commercial and Industrial Custom Incentive Program
6. Emerging Technology and Outreach Program

The programs offer UGI Electric’s customers a wide range of energy efficiency and conservation measures to decrease electric consumption and, in turn, customers’ electric costs.

Phase III of UGI Electric’s EE&C Plan:

- Includes programs and individual measures designed to achieve 18,120 MWh of electric savings, meeting UGI Electric’s targeted electricity consumption reduction levels of approximately 1.66% energy savings, or 17,485 MWh, (as measured against the Company’s annual historical load for June 1, 2007, through May 31, 2008), by 2024.
- Is designed to expend no more than 2% of annual revenues for the 12-month period ended May 31, 2008, and is projected to cost approximately \$7.22 million over five years, with an average annual expenditure of \$1.44 million.
- Is cost-effective based on the Total Resource Cost (“TRC”) Test criterion, and provides TRC net benefits with a present value of \$1.37 million over the five-year life of the Plan, with a benefit-cost ratio (“BCR”) of 1.18.

- Continues to offer energy efficiency and conservation programs to all customer classes.
- Properly allocates the cost of individual measures to the customer class(es) that receive(s) the benefit of those measures.
- Uses internal UGI Electric Staff and Conservation Service Providers (“CSPs”), as necessary, to implement the programs, monitor the programs’ progress, and verify the Plan results.
- Includes procedures to measure, evaluate, and verify performance of the programs and the Plan as a whole.
- Includes a Section 1307 mechanism,¹ the Phase III Energy Efficiency and Conservation Rider (“Phase III EEC Rider”), for recovery of all applicable Phase III EE&C Plan costs.²

The Phase III EE&C Plan contains a variety of programs that are key components to achieving the desired energy consumption reductions. In choosing the portfolio of programs, UGI Electric considered the currently-approved energy efficiency programs utilized by other Pennsylvania EDCs, as well as other available cost-effective energy efficiency and conservation measures, and selected those best suited to UGI Electric’s size and service territory.

The current Phase III EE&C Plan is designed to phase out all residential lighting measures by January 2020, as federal lighting standards under the Energy Independence and Security Act (“EISA”) of 2007 come into effect. Due to uncertainty regarding the adoption of EISA standards in 2020 in Pennsylvania, UGI Electric will closely monitor planning efforts undertaken by other EDCs in Pennsylvania and may update the Plan to continue offering residential lighting measures as consensus regarding baseline assumptions, sell-through periods, and/or any other market conditions are reached.

In Phase III, UGI Electric has modified and eliminated certain programs due to underperformance in achieving energy reductions and has added programs that are expected to better address the needs of customers in UGI Electric’s service territory. A summary of these changes is set forth in the table below, to be more fully explained in the appropriate program sections:

¹ 66 Pa. C.S. § 1307.

² As discussed in more detail in Section 5, UGI Electric proposes to recover Phase III EE&C Plan costs through the Phase III EEC Rider.

Table 1: Residential & Commercial Program Summary

Residential Program Changes			
Phase II Program	Phase III Program	Disposition	Modification
Appliance Recycling	Appliance Recycling	Continued	Updated measures.
Appliance Rebates	Appliance Rebates	Continued	Adjusted Qualified Equipment & Rebates. Merged in Fuel Switching Program.
Energy-Efficient Lighting	Energy-Efficient Lighting	Continued	Winding down by January 2020.
Fuel Switching	None	Continued	Merged into Appliance Rebate Program.
School Energy Education	School Energy Education	Continued	Expanded to High Schools.
Customer Education	Emerging Technology and Outreach	Modified	Merged into Emerging Technology and Outreach.
Home Energy Audit	None	Ended	N/A
Residential Low Income Water Heater Replacement	None	Ended	N/A

Commercial/Industrial Program Changes			
Phase II Program	Phase III Program	Disposition	Modification
HVAC Tune-up	None	Ended	N/A
Small Commercial Fuel Switching	None	Ended	Merged into Custom Program.
Custom	Custom	Continued	Adjusted delivery and updated participation goals.

Crosscutting Program Changes			
Phase II Program	Phase III Program	Disposition	Modification
N/A	Emerging Technology and Outreach	New	N/A

To the extent possible, UGI Electric has attempted to incorporate reasonable ideas, insights, program features, and implementation details from best practices of the various EDCs subject to Act 129.

For Phase III, UGI Electric proposes to adopt a 1.66% total energy consumption reduction target in constructing a portfolio of measures and programs targeting all customer classes on

the UGI Electric system.³ For each customer segment, a set of programs was developed to provide a range of options for saving electricity, with the goal of meeting the energy reduction target while continuing successful programs from Phase II, providing new ways to engage with electric efficiency as markets shift, and maintaining a cost-effective portfolio from the TRC perspective. UGI Electric utilized the expertise of in-house staff, combined with the energy efficiency expertise of an external consultant, Green Energy Economics Group, Inc. (“GEEG”), who has worked in the energy efficiency and conservation field for many years.

The process for development of the Phase III EE&C Plan consisted of five basic elements:

1. Maintaining continuity with the existing Plan to the extent existing programs were deemed successful.
2. Assessing alternative energy efficiency and conservation resource potentials.
3. Developing and balancing the portfolio, while maintaining cost-effectiveness under the TRC Test at a sector and plan level.
4. Providing opportunities for stakeholders to participate and contribute to Plan development.
5. Refining the Plan consistent with the objectives set forth in the Commission’s Secretarial Letter and Act 129, generally.

Because UGI Electric is committed to a long-term investment in energy efficiency and conservation, the following guiding principles were part of the development of UGI Electric’s Phase III EE&C Plan content:

1. Customer Service – The Plan was developed in a way that is easy to understand and enables customers to adopt energy efficiency measures that will save money and support the environment.
2. Proven Solutions and Sustainable Savings – The Plan focuses on proven, cost-effective energy efficiency measures as part of an extensive path to long-term and sustainable energy efficiency.
3. Flexibility – The Plan provides customers flexibility by offering a wide variety of programs in which they can participate. To support customers’ actions, the Plan provides numerous measures, customer education initiatives, energy efficiency information, financial incentives, and services. For the Company, the Plan provides flexibility by allowing UGI Electric to consider the results of the programs and determine whether any adjustments are

³ The 1.66% energy consumption reduction target is based on the Company's previous Phase II target, adjusted for changes to the residential lighting market and opportunities that are no longer viable due to pressure from cost-effectiveness and low participation.

necessary to achieve the desired energy savings on a whole and/or maintain Plan cost-effectiveness, which may include re-allocating budgets within the same rate class to programs that are performing better than others. However, the Company will not, without Commission approval:

- a. Add new programs
- b. Eliminate existing programs
- c. Deviate significantly from the approved program parameters
- d. Exceed the total approved budget for the Plan

A summary of Phase III programs and anticipated savings by class is set forth below.

Table 2: Projected Energy Savings by Program⁴

Program Name	Program Market	Program Summary	Program Years Operated	Phase III MWh Savings	% of Portfolio MWh Savings
Appliance Recycling	Residential/Low-Income	Free pickup, recycling and disposal	2019-2024	3,174	17.5%
Appliance Rebates	Residential/Low-Income	Rebates for energy efficient appliances	2019-2024	3,258	18.0%
Energy Efficient Lighting	Residential/Low-Income	Up-stream incentives on Energy Star Lighting	2019-2020	1,423	7.9%
School Energy Education Program	Residential/Low-Income	Energy education and kits for students	2019-2024	1,355	7.5%
Residential Total				9,210	50.8%
C&I Custom	Commercial and Industrial/Governmental	Incentives for custom efficiency measures	2019-2024	8,910	49.2%
C&I Total				8,910	49.2%
Grand Total				18,120	100%

A summary of the total program budget is reflected below.

Table 3: Projected Budgets by Customer Class

Customer Class	Total Budget	% of Total EEC Budget
Residential*	\$3,205,794	44.4%
C&I*	\$2,660,200	36.7%
Portfolio-wide	\$1,350,000	18.7%
Total	\$7,215,994	100%

**Includes Emerging Technology and Outreach Program allocation*

⁴ The Emerging Technology and Outreach Program currently has no projected savings. If any verifiable savings do result from this program in the future, UGI Electric will provide details in future annual reports.

The chosen programs are detailed in Section 2 (Program Descriptions) of this Plan. The Plan is cost-effective under the TRC Test, as demonstrated in Section 3 of the Plan (Cost Effectiveness) and as shown in the following table.

Table 4: Cost Effectiveness Summary

Customer Class	TRC NPV Benefits	TRC NPV Cost	TRC Net Benefits	TRC Benefit/Cost Ratio
Residential*	\$4,423,512	\$2,901,421	\$1,522,091	1.52
C&I*	\$4,693,978	\$3,788,252	\$905,725	1.24
Portfolio-wide	\$0	\$1,059,671	-\$1,059,671	N/A
Total	\$9,117,490	\$7,749,344	\$1,368,146	1.18

**Includes Emerging Technology and Outreach Program allocation*

Assuming Commission approval, the new Plan will go into effect June 1, 2019, and run through May 31, 2024.

UGI Electric understands that customer engagement is critical to the success of the Plan and has developed several programs that provide tangible customer benefits. UGI Electric Staff and its CSPs will promote customer service throughout the Plan and coordinate with trade allies and other market participants through outreach, training, and education to raise customer awareness of UGI Electric’s available programs. A more complete description of UGI Electric’s implementation strategy is provided in Section 4 of this EE&C Plan.

UGI Electric will continue to employ tracking, reporting, and analyses of program data that will enable ongoing monitoring, management, analysis, and reporting. UGI Electric will focus on anticipation, prevention, and detection of problems or errors regarding Plan implementation to minimize impediments to Plan success. UGI Electric will continue working closely with its CSPs to ensure that qualified individuals are performing the required actions to carry out the Plan. In addition, UGI Electric will continue to submit an annual report to stakeholders three months after the end of each program year. Finally, UGI Electric has developed Phase III with the idea that updates or revisions to the Plan can be achieved on an ongoing basis to address customer participation levels and to achieve Plan success.

Cognizant of the guidelines in the Commission’s Secretarial Letter and the related requirements of Act 129, UGI Electric will continue to use 2% of 2008 revenue⁵, or \$2.5 million, as an absolute cap on annual spending.⁶ Spending for Phase III is projected to be

⁵ UGI Electric utilized annual revenues for the twelve-month period ended May 31, 2008.

⁶ While UGI Electric did not reach the 2% budget cap in Phase I or Phase II of its EE&C Plan, UGI Electric seeks to keep this current cap in place for Phase III, as it allows for Plan flexibility to accommodate increased customer demand.

under the 2%, with an average expected spending of approximately \$1.44 million per year. As in its Phase I and II Implementation Orders, the Commission found that EDCs should be permitted to recover the incremental costs incurred to design, create, and obtain Commission approval of a plan in Phase III.⁷ Thus, the total Plan cost of \$7.22 million also includes the costs that UGI Electric incurred or will incur to design, create, and obtain approval of the Phase III EE&C Plan.

Consistent with Act 129, UGI Electric has designed its Phase III EE&C Plan to provide that EE&C measures are paid for by the same customer class that receives the energy efficiency and conservation benefits of those measures by assigning the costs related to each measure to those classes that will receive the benefits. *See* 66 Pa. C.S. § 2806.1(a)(11). The cost recovery mechanism, the Phase III EEC Rider, is described in more detail in Section 5 of the Plan. UGI Electric has designed the Phase III EEC Rider to apply to all default service and choice customers.

Plan costs are likely to vary year-to-year, and UGI Electric proposes to recover those costs on an annual basis by way of a Section 1307 recovery mechanism designed to track actual yearly expenditures by customer class. Distribution of cost recovery is anticipated to be relatively even over the course of the Plan.

UGI Electric proposes to continue to reconcile the revenues collected under its cost recovery mechanism on an annual basis. In addition, UGI Electric proposes to conduct a final reconciliation of total revenue collected to total Plan expenditures (up to the budget caps) at the end of this five-year Plan and to recover any resulting over/under collections during the following year in the absence of any additional Plan extensions. The annual reconciliation and end-of-Plan reconciliation will be subject to Commission review and potential audit, as the Commission deems necessary.

⁷ *Energy Efficiency and Conservation Program*, Docket No. M-2014-2424864, at pp. 132, 135-36 (Order Entered June 19, 2015) (“*Phase III Implementation Order*”).

2 Program Descriptions

2.1 Residential Sector Programs⁸

2.1.1 Appliance Rebate Program

Objectives

The objectives of the 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 HVAC and electric appliances and to switch to natural gas from electricity.
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 5,579 installed measures through 2024, with a total reduction of approximately 3,258 MWh.

Target Market

UGI Electric’s Appliance Rebate Program will be available to all residential customers, including low-income customers and new residential construction using a consistent implementation strategy, incentive mechanism, and administrative process.

The table below outlines eligibility parameters for the residential sector.

Customer Eligibility Parameters

Customer type	Residential/Low-Income
Building Type	All
Building Vintage	All
Building ownership	Owner or tenant with owner approval

Program Description

The program promotes the purchase and installation of a wide range of high-efficiency equipment. The Appliance Rebate Program provides customers with financial incentives to

⁸ 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.

offset the higher purchase costs of energy-efficient equipment. Targeted equipment includes heating, cooling, water heating, and other appliances. Equipment must meet ENERGY STAR requirements if such standards exist.

Implementation Strategy

To provide a seamless continuation of the program, along with a positive customer experience, UGI Electric will continue to utilize a CSP for customer intake and rebate processing.

Customers will be required to submit a program application with documentation of the equipment purchase and installation(s) for verification and rebate processing.

Key steps in program participation

1. Customers may be directed to the program through UGI Electric's marketing activities, the Company's website, equipment dealers or equipment installation contractors.
2. Customers will generally work with the equipment/appliance retailer or installation contractor to fill out program applications and ensure the required documentation is submitted to the program CSP for processing.
3. The CSP will review documentation to verify that the applicant is a UGI Electric customer and that the installed equipment meets the minimum efficiency standard.
4. Customers installing eligible high-efficiency equipment will schedule the work directly with their equipment dealer or installation contractor.
5. The CSP will process rebates in the form of checks or check cards for qualified equipment.

Marketing Strategy

This program relies on both customer education and point-of-sale dealer and installer information for promotion. UGI Electric will work with retailers to promote the program. This strategy may include, but will not be limited to:

1. Promoting the program in UGI Electric's customer bill inserts.
2. Communicating and providing access to program information on the Company's website.
3. Educating customers through various media campaigns which may include radio and/or social media advertising.
4. Coordinating outreach to trade allies, including, but not limited to, HVAC and appliance dealers.

Eligible Measures and Incentive Strategy

The following table provides a list of measures, minimum eligibility requirements, and incentive levels.

Table 5: Eligible Measures⁹

Measure	Eligibility Requirement	Initial Incentive	Incentive Maximum
Central Air Conditioner	SEER 15 and above	N/A	\$350
	SEER 16 and above	\$150	
Room AC Unit	ENERGY STAR	\$20	\$50
Wi-Fi-enabled Thermostat	ENERGY STAR, electric heating	\$50	\$250
	ENERGY STAR, gas-heating, central A/C	\$25	
Ductless Mini Split Heat Pump	SEER 16 and above	\$150 per ton	\$350 per ton
	SEER 19 and above	\$200 per ton	
	SEER 21 and above	\$250 per ton	
Clothes Washer	ENERGY STAR	\$25	\$75
	ENERGY STAR Most Efficient (CEE Tier 1)	\$25	
	CEE Tier 2	\$25	
Dishwasher	ENERGY STAR	\$20	\$30
Refrigerator	ENERGY STAR	\$25	\$100
	CEE Tier 2	\$25	
	CEE Tier 3	\$25	
Dehumidifier	ENERGY STAR	\$25	\$50
Pool Pump (in-ground)	Variable Speed	\$350	\$500
Natural gas high efficiency central heat (from electric	ENERGY STAR	\$1,500	\$1,500

⁹ Measures with N/A for current incentive are not included in program projections at this time but may be offered to customers in the future if market conditions and/or cost-effectiveness analysis allow.

Measure	Eligibility Requirement	Initial Incentive	Incentive Maximum
heating)			
Natural gas water heater (from electric water heating)	ENERGY STAR	N/A	\$250
Natural gas clothes dryer (from electric clothes dryer)	ENERGY STAR	N/A	\$250
Heat Pump Water Heater	2.3 EF and above	N/A	\$500
Air-Source Heat Pump	SEER 15 and above	N/A	\$800
Manufactured Home	ENERGY STAR	N/A	\$1,500
Custom Measures / New Technologies	Must have a TRC benefit-cost ratio of at least 1.0	N/A	Minimum of \$0.14 per annual kWh Saved or 50% of total project cost.

UGI Electric will periodically review its programs and may adjust measures, rebate levels, performance criteria, and/or eligibility ratings in the future as market conditions change. UGI Electric will review results from this program and determine whether any adjustments are needed to achieve the desired energy savings on a whole and/or maintain Plan cost effectiveness.

Evaluation, Measurement, and Verification (“EM&V”)

UGI Electric will strive to continuously improve the success of its Plan to achieve program goals. UGI Electric and the CSP will enhance quality control, evaluate, measure and verify procedures to track program activities, monitor performance and progress toward targets, and take corrective action when warranted.

Quality control (“QC”) will be integral to the delivery of all programs in UGI Electric’s Phase III EE&C Plan. QC measures will be deployed at various stages of program implementation to ensure the highest industry standards of operational efficiency. These measures will include, but will not be limited to, the following:

- Ongoing tracking of program activities and costs through dedicated UGI Electric Staff and various CSPs.
- Applying rigorous screening and qualifying protocols in engaging CSPs.

QC processes will strive to:

- Prevent errors from beginning to end in any given program process.
- Detect and correct errors as early as possible.

- Eliminate the causes of errors as well as the errors themselves.
- Establish a correction plan based on best practices and lessons learned.

The program CSP, or UGI Electric Staff if no CSP involvement is indicated, will track the data necessary to verify program activities and outcomes. For the Appliance Rebate Program, this data will include:

- Participant information: account number, rate class, and contact information.
- Measure information: make and model number of new appliance, type and quantity of measures installed, and efficiency rating.
- A copy of a dated and paid invoice.
- New construction information: developer contact information, builder contact information, and confirmation of new account activation (most recent bill).

The CSP shall provide weekly and/or monthly reports to UGI Electric for measurement and verification.

Estimated Participation

Participation levels were developed based on current program participation rates and demand for new and/or modified offerings.

Table 6: Projected Participation

Measure	PY 8	PY 9	PY 10	PY 11	PY 12	Total
Central Air Conditioner	35	37	37	37	37	183
Room AC Unit	180	178	178	178	178	892
Wi-Fi-enabled Thermostat	100	100	100	100	100	500
Ductless Mini Split Heat Pump	86	85	85	85	85	426
Clothes Washer	180	178	178	178	178	892
Dishwasher	180	182	182	182	182	908
Refrigerator	250	247	247	247	247	1,238
Dehumidifier	80	82	82	82	82	408
Pool Pump (in-ground)	8	8	8	-	-	24
Gas high efficiency central heat (from electric heating)	20	20	20	20	20	100
Total	1,119	1,119	1,119	1,111	1,111	5,579

Program Budget, Costs and Cost-Effectiveness

Over the five-year Phase III EE&C Plan, the program is expected to achieve electricity consumption savings of approximately 3,258 MWh. The annual budget allocation, cumulative MWh savings through 2024 and overall program cost-effectiveness for the residential customer sector are shown in the table below.

Table 7: Program Savings and Costs

Benefit/Cost Component	PY 8	PY 9	PY 10	PY 11	PY 12	Total
Savings (MWh)	656	656	656	645	645	3,258
Capacity Savings (MW)	0.047	0.047	0.047	0.044	0.044	0.230
Total Resource Cost	\$358,325	\$361,951	\$365,644	\$364,140	\$367,884	\$1,817,943
Direct Participant Cost	\$108,175	\$111,801	\$115,494	\$117,290	\$121,034	\$573,793
Direct Utility Costs	\$250,150	\$250,150	\$250,150	\$246,850	\$246,850	\$1,244,150
Customer Incentives	\$87,550	\$87,550	\$87,550	\$84,750	\$84,750	\$432,150
Administration	\$138,600	\$138,600	\$138,600	\$138,100	\$138,100	\$692,000
Marketing	\$24,000	\$24,000	\$24,000	\$24,000	\$24,000	\$120,000

Table 8: Program Cost Effectiveness

TRC Test	Value (\$1,000)
NPV Benefits	\$973
NPV Costs	\$1,426
Net Benefits	\$(452)
TRC Benefit/Cost Ratio	0.68

2.1.2 School Energy Education Program

Objectives

The objectives of the Residential School Energy Education Program include:

1. Educate students on various energy types, generation and consumption, home energy use, and ways to increase energy efficiency in a home.
2. Provide customers with opportunities to reduce their energy costs and increase their energy efficiency.
3. Encourage customers to improve the efficiency of their homes by providing an energy efficiency toolkit.
4. Obtain participation of approximately 7,250 students, teachers and families through PY 12, with a total reduction of approximately 1,355 MWh.

Target Market

This program targets residential customers with students in 4th through 12th grade. Participants must have electric service. The table below outlines eligibility parameters.

Customer Eligibility Parameters

Customer type	Residential/Low-Income
Building Type	All
Building Vintage	All
Building ownership	Owner or tenant with owner approval

Program Description

The Residential School Energy Education Program is designed to educate 4th through 12th grade students on various energy types, energy consumption and generation, home energy use, and ways to save energy in a home.

The program is typically delivered through school presentations. Teachers and schools are recruited throughout UGI Electric's service territory. In consultation with the state department of education, presentations are scheduled to avoid testing schedules, vacation periods, and other school activities.

Students and teachers at one grade level in 4th through 7th grade, and one grade level in 9th through 12th grade, attend a one-hour presentation on energy literacy and energy efficiency. Under the direction of the CSP's instructors, students learn about energy. A PowerPoint presentation guides the discussion, and hands-on learning activities are employed to build understanding among students.

The culmination of the school presentation is the distribution of free, take-home energy efficiency kits. After the completion of the school presentation, teachers ensure that each

student who has returned a signed parent permission/participation slip receives a kit. As part of a homework assignment, students then install devices with a parent and record the installation and other home energy usage and behavior information on a form. Teachers are incentivized by a performance-based mini-grant to collect Household Report Cards and return the forms to the CSP by a predetermined deadline. The CSP analyzes and summarizes installation and usage information and reports back to UGI Electric.

Annual Implementation Outline

The implementation strategy for the program includes the following key components:

- Developing content aligned with grade-appropriate academic standards as defined by the state department of education.
- Determining school eligibility and targeting schools for participation.
- Recruiting teachers and conducting additional education activities.
- Registering teachers online and scheduling presentations.
- Preparing curriculum and presentation materials.
- Developing energy efficiency kits.
- Assembling and shipping energy efficiency kits.
- Conducting school presentations.
- Awarding incentives.
- Gathering and analyzing program data using the Household Report Card.
- Reporting estimated energy savings.
- Program evaluation and final reporting.

Implementation Strategy

The existing CSP will continue to oversee the School Energy Education program. UGI Electric and CSP staff will manage the program and will handle acquiring the materials, mailing, recordkeeping, and reporting.

Marketing Strategy

This program relies on both getting schools involved and generating awareness at the local level. UGI Electric already offers this program for middle schools and will now be rolling out additional services to include high school students.

1. Leverage UGI Electric's CSP to establish relationships and manage program enrollment with various schools in the service territory.
2. Communicate and provide access to program information on the Company's website.

Eligible Measures and Incentive Strategy

Participants in the program will receive a free take-home energy efficiency toolkit, with a variety of low-cost measures. LED light bulbs will be included in kits until January 2020.

UGI Electric will review the program and may adjust available measures or eligibility qualifications as warranted by changing market conditions or to manage program delivery, participation, and budgets.

Evaluation, Measurement and Verification

UGI Electric will strive to continuously improve the success of its Plan to achieve program goals. UGI Electric and the CSP will enhance quality control, evaluate, measure and verify procedures to track program activities, monitor performance and progress toward targets, and take corrective action when warranted.

QC is integral to the delivery of all programs in UGI Electric’s EE&C Plan. QC measures will be deployed at various stages of program design and implementation to ensure the highest industry standards of operational efficiency.

The CSP will track all the data necessary to verify program activities and outcomes. For the School Energy Education Program, this data will include:

- Participant information: contact information.
- School information: site (facility) location and teacher involved.
- Expenditures and energy savings.

QC processes will strive to:

- Prevent errors from beginning to end in any given program process.
- Detect and correct errors as early as possible.
- Eliminate the causes of errors as well as the errors themselves.
- Establish a correction plan based on best practices and lessons learned.

The CSP shall provide periodic reports to UGI Electric for measurement and verification.

Estimated Participation

Participation levels were developed based on achieved participation levels to date, along with anticipated school interest.

Table 9: Projected Participation

Measure	PY 8	PY 9	PY 10	PY 11	PY 12	Total
Middle School Kits	1,000	1,000	1,000	1,000	1,000	5,000
High School Kits	450	450	450	450	450	2,250
Total	1,450	1,450	1,450	1,450	1,450	7,250

Program Budget, Costs and Cost-Effectiveness

Over the five-year Plan, the program is expected to achieve electricity consumption savings of approximately 1,355 MWh. The annual budget allocation, MWh savings, and overall program cost-effectiveness for the residential customer sector are shown in the table below.

Table 10: Program Savings and Costs

Benefit/Cost Component	PY 8	PY 9	PY 10	PY 11	PY 12	Total
Savings (MWh)	372	246	246	246	246	1,355
Capacity Savings (MW)	0.046	0.031	0.031	0.031	0.031	0.168
Total Resource Cost	\$139,031	\$124,850	\$124,850	\$124,850	\$124,850	\$638,431
Direct Participant Cost	\$-	\$-	\$-	\$-	\$-	\$-
Direct Utility Costs	\$139,031	\$124,850	\$124,850	\$124,850	\$124,850	\$638,431
Customer Incentives	\$109,031	\$94,850	\$94,850	\$94,850	\$94,850	\$488,431
Administration	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$125,000
Marketing	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$25,000

Table 11: Program Cost Effectiveness

TRC Test	Value (\$1,000)
NPV Benefits	\$2,372
NPV Costs	\$491
Net Benefits	\$1,881
TRC Benefit/Cost Ratio	4.83

2.1.3 Energy Efficient Lighting

Objectives

The objectives of the Energy Efficient Lighting Program include:

1. Provide a mechanism for customers to easily obtain discounted ENERGY STAR–qualified LED Light Bulbs.
2. Increase consumer awareness and understanding of energy efficient LED products.
3. Aid in the market transition to new efficiency standards under the EISA in 2020.
4. Distribute approximately 38,000 LEDs through 2020, with a total reduction of approximately 1,423 MWh.

Target Market

This program will be available to all UGI Electric residential customers.

Customer Eligibility Parameters

Customer type	Residential/Low-income
Building Type	All
Building Vintage	All
Building ownership	Owner or tenant with owner approval

Program Description

This program encourages customers to purchase new ENERGY STAR-rated LED bulbs.

The program has two components:

1. A retail upstream lighting incentive that will significantly reduce the customer cost of ENERGY STAR LED bulbs.
2. Free LED distribution at various community events and to UGI Electric’s Customer Assistance Program (“CAP”) participants.

Implementation Strategy

UGI Electric intends to use the Company’s existing CSP for the first seven months of Program Year 8 and will then wind down the program as EISA standards take effect January 2020. The CSP will manage an upstream Energy Efficient Lighting Campaign, including negotiating bulk pricing, recruitment, coordination with retail stores, education and outreach to retailers, community events, and tracking and providing program reports. The CSP will target a broad range of retailers, including big box and chain stores as well as smaller local and independent stores throughout UGI Electric’s service territory. Also, the CSP will deliver free LEDs to low income residential customers in UGI Electric’s CAP program. UGI Electric staff will provide overall strategic direction to the CSP for this program:

1. Customers may purchase discounted LEDs at a participating retailer, where LED discounts are applied at the register; customers may become aware of the program through the CSP, UGI Electric, or retailer education and promotional activities.
2. Retailer provides documentation of LED sales results to the CSP.
3. The CSP tracks results and reports periodically to UGI Electric.
4. The CSP will provide free LEDs to low income residential customers in UGI Electric's CAP program.

Marketing Strategy

The marketing strategy may include, but will not be limited to:

1. Promoting the program in UGI Electric's customer bill insert.
2. Communicating and providing access to program information on the Company's website.
3. Educating customers through various media campaigns, which may include radio and/or social media advertising.
4. Partnering with retailers for in-store displays.

Eligible Measures and Incentive Strategy

The CSP will negotiate bulk pricing and manage the delivery of upstream incentives to participating LED manufacturers, which are expected to cover approximately 50-75% of the retail cost of LEDs and 100% of the cost of distribution of bulbs to CAP customers.

UGI Electric will review the program and may adjust available measures or eligibility qualifications as warranted by changing market conditions or to manage program delivery, participation, and budgets.

Evaluation, Measurement, and Verification

UGI Electric will strive to continuously improve the success of its Plan to achieve program goals. UGI Electric and the CSP will enhance quality control, evaluate, measure and verify procedures to track program activities, monitor performance and progress toward targets, and take corrective action when warranted.

QC will be integral to the delivery of all programs in UGI Electric's Phase III EE&C Plan. QC measures will be deployed at various stages of program design and implementation to ensure the highest industry standards of operational efficiency. These measures will include, but will not be limited to, the following:

- Ongoing tracking of program activities and costs through dedicated UGI Electric Staff and the program CSP.
- Applying rigorous screening and qualifying protocols in engaging new CSPs should that be necessary.

QC processes will strive to:

- Prevent errors from beginning to end in any given program process.
- Detect and correct errors as early as possible.
- Eliminate the causes of errors as well as the errors themselves.
- Establish a correction plan based on best practices and lessons learned.

The program CSP will track the data necessary to verify program activities and outcomes. For the Residential Energy Efficient Lighting program, this data will include:

- Expenditures and energy savings.
- Retailer information: retail location, contact information, type, and quantity of products sold.
- Customer information for the LED bulb distribution to CAP customers.

CSP shall provide weekly and/or monthly reports to UGI Electric for measurement and verification.

Estimated Participation

Program participation rates were developed based on past participation numbers and the anticipated number of LEDs purchased by residential customers and given away at community events and to residential CAP customers for free.

Table 12: Program Participation

Measure	PY 8	PY 9	PY 10	PY 11	PY 12	Total
LED Purchase	35,000	-	-	-	-	35,000
LED give-away (Includes an allocation for CAP)	3,000	-	-	-	-	3,000
Total	38,000	-	-	-	-	38,000

Program Budget, Costs, and Cost-effectiveness

Over the five-year plan, the program is expected to achieve electricity consumption savings of approximately 1,423 MWh due to the program only being available in Program Year 8. The annual budget allocation, savings, and overall program cost-effectiveness for the program are shown in the table below.

Table 13: Program Savings and Costs

Benefit/Cost Component	PY 8	PY 9	PY 10	PY 11	PY 12	Total
Savings (MWh)	1,423	-	-	-	-	1,423
Capacity Savings (MW)	0.178	-	-	-	-	0.178
Total Resource Cost	\$175,525	\$-	\$-	\$-	\$-	\$175,525
Direct Participant Cost	\$34,312	\$-	\$-	\$-	\$-	\$34,312
Direct Utility Costs	\$141,213	\$-	\$-	\$-	\$-	\$141,213
Customer Incentives	\$66,213	\$-	\$-	\$-	\$-	\$66,213
Administration	\$70,000	\$-	\$-	\$-	\$-	\$70,000
Marketing	\$5,000	\$-	\$-	\$-	\$-	\$5,000

Table 14: Program Cost Effectiveness

TRC Test	Value (\$1,000)
NPV Benefits	\$142
NPV Costs	\$57
Net Benefits	\$85
TRC Benefit/Cost Ratio	2.48

Other Information

Due to uncertainty regarding the adoption of EISA standards in 2020 in Pennsylvania, UGI Electric will closely monitor planning efforts undertaken by other EDCs in Pennsylvania and may update this program to reflect changes to baseline assumptions, sell-through periods, and/or any other market conditions that may affect the continued viability of this program. If the EISA standard does not fully go in to effect in 2020, UGI Electric may choose to continue offering the Energy Efficient Lighting program.

2.1.4 Appliance Recycling Program

Objectives

The objectives of the Appliance Recycling Program include:

1. Encourage customers to dispose of their existing, inefficient appliances when they purchase new 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. Decommissioning to ensure appliances are not resold in a secondary market.
5. Recycle approximately 2,725 refrigerators and freezers, 275 window air conditioning units, and 125 dehumidifiers through PY 12, with a total reduction of approximately 3,174 MWh.

Target Market

The program targets residential customers with a working, residential-sized refrigerator or freezer. Refrigerators must be at least 10 cubic feet in size. Window air conditioners and dehumidifiers will only be picked up in conjunction with a refrigerator or freezer pick-up.

Customer Eligibility Parameters

Customer type	Residential/Low-Income
Building Type	All
Building Vintage	All
Building ownership	Owner or tenant

Program Description

A customer incentive will be offered for customers who turn in eligible appliances. The program provides free pick-up and disposal of old, inefficient refrigerators, freezers, dehumidifiers and window air conditioning units. Units must be plugged in and functioning when picked up.

All units are disposed of in an environmentally responsible manner. This involves removing hazardous materials such as chlorinated fluorocarbons from the refrigerant and foam insulation, preparing refrigerant for reclamation, and recycling other materials such as metal and plastic.

Implementation Strategy

UGI Electric will continue to utilize a turn-key Appliance Recycling CSP to deliver this program. The CSP will be responsible for the following:

1. Call center services, including customer intake and scheduling.
2. Processing applications and rebates.
3. Tracking program data.
4. Providing customer and transaction information to UGI Electric.

UGI Electric EE&C Staff will provide overall strategic direction and program management for the program. Key steps in program participation may include the following:

1. CSP schedules and executes appliance collection.
2. CSP verifies customer and appliance eligibility.
3. CSP picks up and transports appliances to recycling facility.
4. CSP recycles applicable components and appropriately disposes of remaining components.
5. CSP tracks customer data and provides UGI Electric program data.
6. CSP processes rebate payments for customers.

Marketing Strategy

Marketing for this program will be conducted by UGI Electric with support from the CSP. The strategy may include, but not be limited to:

1. Promoting the program in UGI Electric customer bill inserts.
2. Communicating and providing access to program information on the Company's website.
3. Educating customers through various media campaigns which may include radio and/or social media advertising.
4. Including program information on ENERGY STAR "Find a Fridge or Freezer Recycling Program" web page.

Eligible Measures and Incentive Strategy

There are two distinct incentives associated with the program:

1. Free pick-up and disposal of refrigerator, freezer, window A/C unit, dehumidifier.
2. Appliance rebate.

There is a limit of two rebates per customer address per program year. Appliance eligibility parameters and rebates are shown in the table below.

Table 15: Eligible Measures*

Measure	Eligibility Rating	Initial Incentive	Maximum Incentive
Refrigerator	Working unit; ≥ 10 CU FT.	\$50	\$75
Freezer	Working Unit	\$50	\$75
Window Air Conditioner	Working Unit	\$20	\$50
Dehumidifier	Working Unit	\$20	\$50

*UGI Electric may offer other forms of incentives of equivalent value, such as low-flow devices, advanced power strips, or other measures at no cost to the participant.

UGI Electric will review the program and may adjust available measures or eligibility qualifications as warranted by changing market conditions or to manage program delivery, participation, and budgets.

Evaluation, Measurement, and Verification

UGI Electric will strive to continuously improve the success of its Plan to achieve program goals. UGI Electric and the CSP will enhance quality control, evaluate, measure and verify procedures to track program activities, monitor performance and progress toward targets, and take corrective action when warranted.

QC will be integral to the delivery of all programs in UGI Electric’s Phase III EE&C Plan. QC measures will be deployed at various stages of program design and implementation to ensure the highest industry standards of operational efficiency. These measures will include, but will not be limited to, the following:

- Ongoing tracking of program activities and costs through dedicated UGI Electric Staff and CSP
- Applying rigorous screening and qualifying protocols in engaging a new CSP, should that be deemed necessary

QC processes will strive to:

- Prevent errors from beginning to end in any given program process
- Detect and correct errors as early as possible
- Eliminate the causes of errors as well as the errors themselves
- Establish a correction plan based on best practices and lessons learned

The program CSP and UGI Electric Staff will track all the data necessary to verify program activities and outcomes. For the Residential Appliance Recycling Program, this data will include:

- Participant information: account number, rate class, and contact information.
- Measure information: make and model number of old appliance, type, size, and quantity.
- Expenditures and energy savings.

The CSP will provide weekly and/or monthly reports to UGI Electric for measurement and verification.

Estimated Participation

Program participation levels were developed based on: (1) actual experience with this program during Phase II; and (2) consultation with the CSP on participation rates within similarly operated programs. The appliance recycling projections are shown below.

Table 16: Projected Participation

Measure	PY 8	PY 9	PY 10	PY 11	PY 12	Total
Fridge	435	435	435	435	435	2,175
Freezer	110	110	110	110	110	550
Room AC	55	55	55	55	55	275
Dehumidifier	25	25	25	25	25	125
Total	625	625	625	625	625	3,125

Program Budget, Costs, and Cost-effectiveness

Over the five-year Phase III EE&C Plan, the program is expected to achieve electricity consumption savings of approximately 3,174 MWh. The annual budget allocation, MWh savings, and overall program cost-effectiveness are shown in the table below.

Table 17: Program Savings and Costs

Benefit/Cost Component	PY 8	PY 9	PY 10	PY 11	PY 12	Total
Savings (MWh)	635	635	635	635	635	3,174
Capacity Savings (MW)	0.087	0.087	0.087	0.087	0.087	0.436
Total Resource Cost	\$140,400	\$140,400	\$140,400	\$140,400	\$140,400	\$702,000
Direct Participant Cost	\$-	\$-	\$-	\$-	\$-	\$-
Direct Utility Costs	\$140,400	\$140,400	\$140,400	\$140,400	\$140,400	\$702,000
Customer Incentives	\$28,850	\$28,850	\$28,850	\$28,850	\$28,850	\$144,250
Administration	\$61,550	\$61,550	\$61,550	\$61,550	\$61,550	\$307,750
Marketing	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$250,000

Table 18: Program Cost Effectiveness

TRC Test	Value (\$1,000)
NPV Benefits	\$936
NPV Costs	\$551
Net Benefits	\$385
TRC Benefit/Cost Ratio	1.70

2.2 Commercial and Industrial Sector Programs

2.2.1 Commercial and Industrial Custom Incentive Program

Objectives

The objectives of the Commercial and Industrial (“C&I”) Custom Incentive Program include:

1. Encourage the installation of high-efficiency equipment by UGI Electric’s C&I customers in new and existing facilities.
2. Encourage equipment repairs, optimization and 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 energy efficient equipment.
5. Increase the market penetration of high-efficiency equipment.
6. Support emerging technologies and non-typical efficiency solutions in cost-effective applications, including Combined Heat and Power applications.
7. Obtain approximately 189 projects through PY 12, with a total energy reduction of approximately 8,910 MWh.

Target Market

UGI Electric’s C&I Custom Incentive Program targets all new and existing commercial and industrial facilities, including government and municipal customers. The program will be available for any type of new or replacement energy-efficient equipment that is not eligible for a prescriptive rebate through UGI Electric’s other EE&C Programs. The program also covers retro-commissioning, repairs, optimization, and operational or process changes. All measures, packages of measures, and process changes must be cost-effective, as substantiated through a technical analysis.

The target market is the C&I sector, which includes governmental customers. UGI Electric expects to use a consistent implementation strategy, incentive mechanism, and administrative process to deliver the program across these market sectors. The table below outlines participant eligibility parameters for this measure.

Customer Eligibility Parameters

Customer type	Commercial and Industrial
Building Type	Commercial and Industrial

Building Vintage	Existing and new construction
Building ownership	Owner or tenant with owner approval

Program Description

This Custom Incentive Program provides a delivery channel and financial incentives to customers installing a wide variety of custom measures suited to their business needs. To qualify for financial incentives, eligible customers will be required to provide documentation that their proposed efficiency upgrades pass UGI Electric’s cost-effectiveness threshold and technical criteria.

Implementation Strategy

The program CSP and UGI Electric Staff will work with customers to identify, evaluate and approve custom projects. UGI Electric will continue to build upon an outreach campaign to potential trade allies to promote the program.

Since the C&I Custom program is fluid by nature, the program CSP and UGI Electric will promote the program through a variety of marketing strategies. In addition, UGI Electric’s local area sales staff may reach out to C&I customers to inform them about program availability.

UGI Utilities, Inc. also operates a custom retrofit program for commercial and industrial customers who wish to save natural gas through its subsidiary, UGI Penn Natural Gas, Inc. (“UGI-PNG”). For those UGI Electric commercial and industrial customers that are also UGI-PNG customers, the Company will pursue an integration of the UGI Electric incentives with those offered for measures that save natural gas offered by UGI-PNG. This integration may include shared marketing materials, a common application process, single inspection for completed work, and/or a single rebate check.¹⁰

UGI Electric plans to retain its existing program CSP. The CSP will study the customer’s proposal and will provide an unbiased third-party opinion on feasibility, energy efficiency and savings, and the TRC project values. The CSP will operate on a performance basis, with compensation for program administration based on achieved kWh savings. Utilizing a qualified CSP with a performance contract ensures that projects meet TRC and QC standards.

The project development process for the Custom Incentive Program is more fluid than other programs and may not follow a precise work path. The following workflow is an example of a typical scenario through which an equipment-based custom efficiency project may proceed:

1. Customers may be directed to the program through advertising efforts, or other UGI Electric EE&C programs.

¹⁰ UGI Electric notes that subject to Commission approval of the proposed merger of UGI Utilities, Inc., UGI-PNG, and UGI Central Penn Gas, Inc. at Docket Nos. A-2018-3000381, *et al.*, UGI-PNG will become the UGI North rate zone of UGI Utilities, Inc.

2. A trade ally (*e.g.*, energy services firms, engineering firms, providers of energy efficiency products and services, etc.) works with the customer to evaluate the facility's energy efficiency opportunities and develop potential project ideas.
3. A professional engineering firm or other qualified contractor, under contract with the customer, performs a detailed technical study of potential projects and evaluates their cost-effectiveness.
4. The program CSP will evaluate the customer's technical study report to qualify projects, which involves confirming project incremental cost, potential energy and capacity savings data, and evaluating cost-effectiveness.
5. Customers will schedule installation of eligible high-efficiency equipment upgrades, operational or process changes, or other eligible measures directly with an installation contractor of their choosing or the program CSP, if selected.
6. The CSP will verify equipment installation, operational, or process changes or other eligible work for all participants, which will be a part of the measurement and verification process.
7. The CSP will then processing rebates for qualifying projects.

Customer incremental costs (*i.e.*, the cost differential between standard and high-efficiency measures) will vary depending on the type of equipment and scope of project.

Marketing Strategy

UGI Electric will continue to work with the program CSP to find ways to increase customer awareness and participation during Phase III. UGI Electric and the program CSP will continue to refine and expand program outreach which may include, but not be limited to:

1. Communicating and providing access to program information on the Company's website.
2. Coordinating education opportunities with trade allies.
3. Utilizing program case studies in direct mail and/or email campaigns.

Eligible Measures and Incentive Strategy

UGI Electric will offer a custom incentive of up to \$0.18 per kWh saved, with an initial incentive level of \$0.12 per kWh, which continues the levels used in the current program design. UGI Electric will limit the rebate amount to the lesser of \$100,000 or 50% of the customer project cost. Projects must save electricity and be cost-effective under the TRC Test (have a benefit-cost ratio of at least 1.0). Where possible, measure savings will be calculated using the current Act 129 TRM.¹¹

¹¹ UGI Electric will continue to use the Phase III Act 129 TRM until the Phase IV Act 129 TRM is made available and adopted.

UGI Electric will review the program and may adjust available measures or eligibility qualifications as warranted by changing market conditions or to manage program delivery, participation, and budgets.

Evaluation, Measurement, and Verification

UGI Electric will strive to continuously improve the success of its Plan to achieve program goals. UGI Electric and the CSP will enhance quality control, evaluate, measure and verify procedures to track program activities, monitor performance and progress toward targets, and take corrective action when warranted.

Quality control will be integral to the delivery of all programs in UGI Electric's Phase III EE&C Plan. QC measures will be deployed at various stages of program design and implementation to ensure the highest industry standards of operational efficiency. These measures will include, but will not be limited to, the following:

- Ongoing tracking of program activities and costs through dedicated UGI Electric Staff and various CSPs.
- Applying rigorous screening and qualifying protocols in engaging CSPs.
- Checking a significant percentage of custom projects to verify program compliance.

QC processes will strive to:

- Prevent errors from beginning to end in any given program process.
- Detect and correct errors as early as possible.
- Eliminate the causes of errors as well as the errors themselves.
- Establish a correction plan based on best practices and lessons learned.

The program CSP and UGI Electric Staff will track all the data necessary to verify program activities and outcomes. For the C&I Custom program, this data may include:

- Participant information: account number, rate class, copy of most recent electric bill, EE&C customer segment, and contact information.
- Project information: site (facility) location, project specifications, total project cost, project application date, project approval date, and project completion date.
- Measure information: make and model number of new appliance, type and quantity of measures installed, efficiency rating, and service rendered.
- Expenditures and energy savings.
- Trade ally information, if available: contact information, dates of program involvement, and installation standards used.
- New construction information: developer contact information, builder contact information, and confirmation of new account activation.

Before issuing a customer rebate, UGI Electric will make a determination of cost-effectiveness based on the customer's invoiced costs and the savings derived from the Act 129 TRM.

Estimated Participation

Participation levels were estimated based on experience with this program over the past two years.

Table 19: Projected Participation

Project	PY 8	PY 9	PY 10	PY 11	PY 12	Total
Small C&I Project	20	25	30	30	30	135
Large C&I Project	8	10	12	12	12	54
Total	28	35	42	42	42	189

Program Budget, Costs, and Cost-Effectiveness

Over the five-year Plan, the program is expected to achieve electricity consumption savings of approximately 8,910 MWh. The annual budget allocation, savings, and overall program cost-effectiveness for the program are shown below.

Table 20: Program Savings and Costs

Benefit/Cost Component	PY 8	PY 9	PY 10	PY 11	PY 12	Total
Savings (MWh)	1,320	1,650	1,980	1,980	1,980	8,910
Capacity Savings (MW)	0.157	0.196	0.235	0.235	0.235	1.059
Total Resource Cost	\$708,956	\$876,430	\$1,049,544	\$1,063,224	\$1,077,160	\$4,775,314
Direct Participant Cost	\$311,556	\$400,430	\$493,944	\$507,624	\$521,560	\$2,235,114
Direct Utility Costs	\$397,400	\$476,000	\$555,600	\$555,600	\$555,600	\$2,540,200
Customer Incentives	\$158,400	\$198,000	\$237,600	\$237,600	\$237,600	\$1,069,200
Administration	\$159,000	\$198,000	\$238,000	\$238,000	\$238,000	\$1,071,000
Marketing	\$80,000	\$80,000	\$80,000	\$80,000	\$80,000	\$400,000

Table 21: Program Cost Effectiveness

TRC Test	Value (\$1,000)
NPV Benefits	\$4,694
NPV Costs	\$3,694
Net Benefits	\$1,000
TRC Benefit/Cost Ratio	1.27

Other Information

Customers who submit qualified and approved projects to UGI Electric will receive a budget commitment for their proposal. Receipt of the rebate is contingent on project completion

during the life of the Plan and the availability of program funding. Customers submitting projects to UGI Electric will be placed on a waiting list for a potential Phase IV if funding runs out prior to the end of the Phase III EE&C Plan.

2.3 Crosscutting Programs

2.3.1 Emerging Technology and Outreach (ETO) Program

Objectives

The Emerging Technology and Outreach Program is designed to engage with customers across multiple programs and platforms and to promote new and emerging technologies and energy saving techniques. This program also will serve as a way for UGI Electric to test future program strategies and offerings that may eventually lead to additional stand-alone programs.

Target Market

The Emerging Technologies and Outreach program targets all of UGI Electric’s residential (including low income), small C&I, and large C&I customers. The program may specifically target some harder-to-reach customer groups, such as low-income customers, manufactured homes, small businesses, or government and non-profit entities.

Customer Eligibility Parameters

Customer type	All
Building Type	All
Building Vintage	All
Building ownership	Owner or tenant

Program Description

The Emerging Technologies and Outreach Program will fund crosscutting marketing activities for existing programs and pilot projects for new and emerging technologies or saving techniques. Generally, the program offerings will come at no cost to participating customers.

Implementation Strategy

The Emerging Technologies and Outreach Program is designed as a flexible option for UGI Electric to raise customer awareness of existing programs, as well as a way to explore new savings opportunities as they come up in the future. UGI Electric will conduct market research and monitor activity by other leading electric energy efficiency providers, both inside and outside Pennsylvania, to develop program initiatives. UGI Electric will develop new initiatives as opportunities arise and barriers to success for the portfolio and other programs are identified.

Eligible Measures and Incentive Strategy

There are three main categories of initiatives that UGI Electric may pursue under the ETO Program, which are described in the table below.

Program Initiatives

Category	Description	Example Initiatives
Crosscutting Marketing	Marketing activities that cut across multiple existing programs and work to further UGI Electric's overall efficiency message.	<ul style="list-style-type: none"> • Online audit through which customers can be steered to existing programs relevant to their needs. • Neighborhood canvassing to drive participation in all programs. • Energy efficiency kits and education for low income customers.
Behavioral Opportunities	Approaches to savings energy through changing customer behavior.	<ul style="list-style-type: none"> • Targeted home energy reports to include high use and/or low-income customers. • Online rewards program for pursuing efficiency. • Commercial building benchmarking assistance.
New and Emerging Technology	Direct installation of, or incentives for, new and emerging technologies that may not yet have fully vetted savings under Act 129's TRM.	<ul style="list-style-type: none"> • Residential connected lighting controls. • Direct install of solar water heaters for manufactured homes. • Energy saving initiatives for farms and dairies.

UGI Electric will review results from this program and determine whether any adjustments are needed to maintain Plan cost effectiveness.

Evaluation, Measurement, and Verification

UGI Electric will conduct an internal audit and review of customer outreach materials. UGI will collect and maintain activity relating to all initiatives such as invoice amounts, participant data, activity dates, and descriptions.

For initiatives where savings may be claimed, UGI Electric will use pre/post-billing analysis to determine any energy impacts.

Administrative Requirements

UGI Electric Staff will oversee this program and any CSP hired to implement specific pilot projects.

Program Budget, Costs, and Cost-Effectiveness

The annual budget allocation is shown in the table below. UGI Electric is allocating approximately 80% of the five-year budget to the residential customers and approximately 20% to commercial and industrial customers, based on anticipated activity.

Table 22: Program Savings and Costs:

Benefit/Cost Component	PY 8	PY 9	PY 10	PY 11	PY 12	Total
Savings (MWh)	-	-	-	-	-	-
Capacity Savings (MW)	-	-	-	-	-	-
Total Resource Cost	\$120,000	\$120,000	\$120,000	\$120,000	\$120,000	\$600,000
Direct Participant Cost	\$-	\$-	\$-	\$-	\$-	\$-
Direct Utility Costs	\$120,000	\$120,000	\$120,000	\$120,000	\$120,000	\$600,000
Customer Incentives	\$-	\$-	\$-	\$-	\$-	\$-
Administration	\$-	\$-	\$-	\$-	\$-	\$-
Marketing	\$120,000	\$120,000	\$120,000	\$120,000	\$120,000	\$600,000

Table 23: Program Cost Effectiveness

TRC Test	Value (\$1,000)
NPV Benefits	\$-
NPV Costs	\$471
Net Benefits	\$(471)
TRC Benefit/Cost Ratio	-

Other Information

The Emerging Technology and Outreach Program is designed to act as a supplement to and enhancement of other existing programs. Accordingly, no savings or benefits are being projected for the program at this time. However, if program activity in the future has verifiable savings or benefits (such as a from a direct install or behavior pilot project), the Company will provide savings and cost-effectiveness results in future annual reports.

3 Cost Effectiveness of Plan and Sector Summaries

UGI Electric designed its Phase III EE&C Plan to offer programs that, as a whole, meet the TRC Test. The overall Phase III EE&C Plan is cost-effective according to the TRC guidelines established by the Commission.

UGI Electric’s analysis indicates a TRC benefit-to-cost ratio of 1.18 for the overall Phase III portfolio. The analysis reveals that for the complement of Residential Programs, the TRC Benefit/Cost Ratio is 1.52. The TRC Benefit/Cost Ratio for the Commercial and Industrial Programs is 1.24. This benefit-to-cost ratio is more than the 1.0 minimum TRC Test parameter applied to the EE&C Plans in the Act 129 proceedings. The summary of the Plan’s cost effectiveness is provided in the table below.

Table 24: Cost Effectiveness/Net Benefits Summary

Customer Class	TRC PV Benefits	TRC PV Costs	TRC PV Net Benefits	TRC Benefit-Cost Ratio
Residential*	\$4,423,512	\$2,901,421	\$1,522,091	1.52
C&I*	\$4,693,978	\$3,788,252	\$905,725	1.24
Portfolio-wide	\$0	\$1,059,671	-\$1,059,671	N/A
Total	\$9,117,490	\$7,749,344	\$1,368,146	1.18

**Includes Emerging Technology and Outreach Program allocation*

The TRC Test methodology used follows the Act 129 Phase III TRC Test order. Present value figures are provided in 2018 dollars. Any participant costs shown are net of incentives. The analysis used a real discount rate (“RDR”) of 5.56%. The RDR was calculated using an assumption of a nominal discount rate (“NDR”) of 7.53%, based on UGI Electric’s weighted average cost of capital (“WACC”), and an inflation rate of 1.87%. The avoided costs used for the analysis can be found in Appendix A.

4 Implementation Strategy

UGI Electric anticipates that it will leverage a combination of internal staff and CSPs, to accomplish the goals of its Phase III EE&C Plan. For continuity purposes, UGI Electric intends to utilize its existing CSPs for Phase III; however, UGI the Company will utilize an RFP process to find and employ new CSPs as needed. UGI Electric has appropriately incorporated administrative costs into its Phase III EE&C Plan budget. The following table provides annual projections for portfolio-wide administration costs by category.

Table 25: Portfolio-wide Costs by Category and Year

Cost Component	PY 8	PY 9	PY 10	PY 11	PY 12	PY 8 - 12
Internal Labor and Other Resources	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$750,000
Tracking, Planning and Reporting	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$500,000
Miscellaneous Admin	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$100,000
Total Cost	\$270,000	\$270,000	\$270,000	\$270,000	\$270,000	\$1,350,000

Administrative costs for UGI Electric’s Phase III EE&C Plan constitute approximately \$1.35 million over five years, or 18.7% of the total Plan budget. These costs were developed based on UGI Electric’s best estimate and available information regarding the energy efficiency programs contained in its Plan.

Reporting

UGI Electric will continue to submit an EE&C Plan Annual Report by August 31st, no later than three months after the close of each program year. The reports will follow the same format as previous reports and include information on activity for the previous year and progress towards five-year goals, including, but not limited to:

- Spending
- Savings
- Participation
- Cost-effectiveness
- Highlights of portfolio and program activity
- Updates to program delivery and design

To tie savings and costs together as effectively as possible, results will be reported based on commitments made. Any measures that have been verified as installed within a program year along with any costs committed to these measures, including administration costs, will be counted for that Plan year.

5 Phase III Energy Efficiency and Conservation Rider

For Phase III, UGI Electric proposes an annual average budget of approximately \$1.44 million, which equates to a maximum of \$7.22 million over the five years of the Plan. The budget includes the annual spending limits for the sectors, as well as the Company's annual administrative costs to implement and administer Phase III of the Plan each year. UGI Electric proposes to limit its absolute annual spending on the EE&C portfolio to 2% of its jurisdictional revenues for the twelve months ending May 31, 2008, or \$2.5 million, while maintaining a five-year spending cap of \$7.22 million.

Consistent with the Commission's Secretarial Letter, UGI Electric proposes a Section 1307 mechanism to recover the budgeted costs for administration of Phase III of the Plan. Phase III EE&C Plan cost recovery will be accomplished utilizing the Phase III EEC Rider, described more fully below.

Act 129 requires larger EDCs to recover the costs of their EE&C plans through a reconcilable adjustment clause under Section 1307 of the Public Utility Code. *See* 66 Pa. C.S. § 2806.1(k)(1). In its *Phase III Implementation Order*, the Commission reemphasized this requirement and directed EDCs to implement "an annual cost recovery methodology based on the projected program costs that the EDC anticipates will be incurred over the surcharge application year to attain the energy reduction targets." *Phase III Implementation Order*, at p. 149. This Section 1307 surcharge would be annually reconciled annually based on the "actual expenses incurred" compared to "actual revenues received for the reconciliation period." *Id.*

Although UGI Electric is not subject to the Act 129 requirements and orders, the Company proposes to recover the costs of its Phase III EE&C Plan through a reconcilable Phase III EEC Rider established under Section 1307 of the Public Utility Code, consistent with Act 129 and the Commission's *Phase III Implementation Order*. The Phase III EEC Rider is reflected in the distribution charges for each customer class, rather than appearing as a separate line item on customers' bills.

The costs that will be recovered by the Phase III EEC Rider consist of all the costs of creating, designing, and implementing the Phase III EE&C programs included in the Plan, which include, but are not limited to: (1) labor costs incurred to manage and administer the programs on an ongoing basis; (2) the cost to measure and verify program results; and (3) the cost of incentives offered to customers to participate in the programs.

UGI Electric will recover the expenditures incurred under the Phase III EE&C Plan on a year-to-year basis. As a result, the Phase III EEC Rider was designed to track actual yearly expenditures. Act 129 and the Secretarial Letter require that EE&C programs be supported by the same customer classes that will receive the direct energy and conservation benefits of those programs. 66 Pa. C.S. § 2806.1(a)(11). Accordingly, under UGI Electric's Plan, the costs of Phase III EE&C programs that target specific customer classes are directly assigned to those classes for purposes of developing the recovery charges. UGI Electric will, therefore, continue to separately calculate the applicable EE&C costs and revenues for each

of the major customer classes on its system, including: (1) residential; (2) small non-residential; and (3) large non-residential including governmental customers.

The Company will adjust the Phase III EEC Rider for actual program expenses and revenues each year. UGI Electric also will submit a filing to reconcile previous revenues and expenses and will propose new rates effective for the subsequent year based on the projected budget and sales for that planning year, as well as to account for over and under collections incurred for the previous year.

Appendix A – Program Costs and Savings by Year

Table 26: Utility Costs (Nominal \$)

Program	PY 8	PY 9	PY 10	PY 11	PY 12	PY 8 - PY 12
Appliance Recycling	\$140,400	\$140,400	\$140,400	\$140,400	\$140,400	\$702,000
Appliance Rebates	\$250,150	\$250,150	\$250,150	\$246,850	\$246,850	\$1,244,150
Energy Efficient Lighting	\$141,213	\$-	\$-	\$-	\$-	\$141,213
School Energy Program	\$139,031	\$124,850	\$124,850	\$124,850	\$124,850	\$638,431
C&I Custom	\$397,400	\$476,000	\$555,600	\$555,600	\$555,600	\$2,540,200
Emerging Technology and Outreach	\$120,000	\$120,000	\$120,000	\$120,000	\$120,000	\$600,000
Portfolio-wide Administration	\$270,000	\$270,000	\$270,000	\$270,000	\$270,000	\$1,350,000
Total Portfolio	\$1,458,194	\$1,381,400	\$1,461,000	\$1,457,700	\$1,457,700	\$7,215,994

Table 27: Incremental First Year Savings (kWh)

Program	PY 8	PY 9	PY 10	PY 11	PY 12	PY 8 - PY 12
Appliance Recycling	634,704	634,704	634,704	634,704	634,704	3,173,521
Appliance Rebates	656,183	656,183	656,183	644,911	644,911	3,258,371
Energy Efficient Lighting	1,423,302	-	-	-	-	1,423,302
School Energy Program	371,941	245,806	245,806	245,806	245,806	1,355,164
C&I Custom	1,320,000	1,650,000	1,980,000	1,980,000	1,980,000	8,910,000
Emerging Technology and Outreach	-	-	-	-	-	-
Total Portfolio	4,406,131	3,186,693	3,516,693	3,505,421	3,505,421	18,120,358
<i>% of 2008 Sales</i>	<i>0.41%</i>	<i>0.30%</i>	<i>0.33%</i>	<i>0.33%</i>	<i>0.33%</i>	<i>1.69%</i>

Appendix B – Avoided Costs

Table 28: (2018\$)

Year	Electricity					Natural Gas					Other
	Summer Peak Energy \$/kWh	Summer Off-Peak Energy \$/kWh	Winter Peak Energy \$/kWh	Winter Off-Peak Energy \$/kWh	Summer Gener. Capacity \$/kW-yr.	Trans. Capacity \$/kW-yr.	Dist. Capacity \$/kW-yr.	NG Base \$/MMBtu	NG Space Heat \$/MMBtu	NG DHW \$/MMBtu	Water \$/gal
2019	\$0.0355	\$0.0225	\$0.0408	\$0.0319	\$47.984	\$27.549	\$78.431	\$4.725	\$9.809	\$5.996	\$0.0083
2020	\$0.0338	\$0.0214	\$0.0390	\$0.0294	\$42.284	\$27.549	\$78.431	\$5.024	\$10.105	\$6.294	\$0.0083
2021	\$0.0323	\$0.0211	\$0.0375	\$0.0294	\$56.213	\$27.549	\$78.431	\$5.512	\$10.611	\$6.787	\$0.0083
2022	\$0.0318	\$0.0209	\$0.0372	\$0.0291	\$56.213	\$27.549	\$78.431	\$6.042	\$11.164	\$7.323	\$0.0083
2023	\$0.0322	\$0.0211	\$0.0377	\$0.0295	\$56.213	\$27.549	\$78.431	\$6.246	\$11.356	\$7.524	\$0.0083
2024	\$0.0364	\$0.0239	\$0.0427	\$0.0334	\$56.213	\$27.549	\$78.431	\$6.602	\$11.715	\$7.880	\$0.0083
2025	\$0.0391	\$0.0257	\$0.0458	\$0.0359	\$56.213	\$27.549	\$78.431	\$7.097	\$12.235	\$8.381	\$0.0083
2026	\$0.0418	\$0.0274	\$0.0490	\$0.0384	\$56.213	\$27.549	\$78.431	\$7.823	\$13.017	\$9.122	\$0.0083
2027	\$0.0445	\$0.0293	\$0.0523	\$0.0410	\$56.213	\$27.549	\$78.431	\$7.765	\$12.938	\$9.058	\$0.0083
2028	\$0.0472	\$0.0310	\$0.0554	\$0.0434	\$56.213	\$27.549	\$78.431	\$7.810	\$12.973	\$9.101	\$0.0083
2029	\$0.0504	\$0.0331	\$0.0595	\$0.0466	\$56.213	\$27.549	\$78.431	\$7.860	\$13.014	\$9.149	\$0.0083
2030	\$0.0535	\$0.0351	\$0.0630	\$0.0494	\$56.213	\$27.549	\$78.431	\$7.856	\$12.994	\$9.140	\$0.0083
2031	\$0.0548	\$0.0360	\$0.0646	\$0.0506	\$56.213	\$27.549	\$78.431	\$7.796	\$12.914	\$9.075	\$0.0083
2032	\$0.0551	\$0.0362	\$0.0649	\$0.0508	\$56.213	\$27.549	\$78.431	\$7.825	\$12.932	\$9.101	\$0.0083
2033	\$0.0552	\$0.0363	\$0.0650	\$0.0509	\$56.213	\$27.549	\$78.431	\$7.751	\$12.837	\$9.022	\$0.0083
2034	\$0.0554	\$0.0364	\$0.0653	\$0.0511	\$56.213	\$27.549	\$78.431	\$7.725	\$12.795	\$8.992	\$0.0083
2035	\$0.0559	\$0.0367	\$0.0659	\$0.0516	\$56.213	\$27.549	\$78.431	\$7.673	\$12.726	\$8.937	\$0.0083
2036	\$0.0574	\$0.0377	\$0.0676	\$0.0529	\$56.213	\$27.549	\$78.431	\$7.656	\$12.694	\$8.916	\$0.0083
2037	\$0.0576	\$0.0378	\$0.0678	\$0.0531	\$56.213	\$27.549	\$78.431	\$7.575	\$12.592	\$8.829	\$0.0083
2038	\$0.0586	\$0.0385	\$0.0690	\$0.0540	\$56.213	\$27.549	\$78.431	\$7.499	\$12.496	\$8.748	\$0.0083
2039	\$0.0593	\$0.0389	\$0.0698	\$0.0547	\$56.213	\$27.549	\$78.431	\$7.584	\$12.577	\$8.832	\$0.0083
2040	\$0.0597	\$0.0392	\$0.0703	\$0.0551	\$56.213	\$27.549	\$78.431	\$7.593	\$12.575	\$8.838	\$0.0083

Electric avoided costs developed by Resource Insights Inc.

Natural gas and water avoided costs from UGI Penn Natural Gas, Inc “Five Year Energy Efficiency and Conservation Plan (January 19, 2017) - Appendix 3.1, inflated to 2018 dollars

Appendix C – Key Measure Assumptions

Table 29: Measure Characterizations

Program	Measure Name	Measure Life (Yr.)	Measure Cost	First Year Savings		Fossil Fuels (MMBtus)	Water (Gallons)
				Energy (kWh)	Demand (kW)		
Appliance Recycling	Fridge	8	\$50.00	1,146	0.13	-	-
Appliance Recycling	Freezer	8	\$50.00	1,015	0.11	-	-
Appliance Recycling	Room AC	4	\$20.00	112	0.26	-	-
Appliance Recycling	Dehumidifier	4	\$20.00	735	0.18	-	-
Appliance Rebates	CAC - 16 SEER	14	\$571.93	205	0.37	-	-
Appliance Rebates	ENERGY STAR Room AC	9	\$20.00	9	0.02	-	-
Appliance Rebates	Ductless Mini split Heat Pump	15	\$480.08	743	0.23	-	-
Appliance Rebates	ENERGY STAR Fridge	12	\$13.24	51	0.01	-	-
Appliance Rebates	ENERGY STAR Clothes Washer	11	\$19.19	60	0.01	0.22	1,659
Appliance Rebates	ENERGY STAR Dishwasher	10	\$10.00	41	0.00	0.05	490
Appliance Rebates	ENERGY STAR Dehumidifier	12	\$5.00	147	0.04	-	-
Appliance Rebates	Pool Pump w/ VFD	10	\$549.00	1,409	0.34	-	-
Appliance Rebates	ENERGY STAR Thermostat (Electric Heating)	11	\$154.00	1,010	-	-	-
Appliance Rebates	ENERGY STAR Thermostat (Gas Heating)	11	\$154.00	98	-	4.19	-
Appliance Rebates	Electric Heating to Gas Heat	20	\$4,850.00	23,706	-	(60.95)	-
School Energy Program	Middle School Kit (w/ LEDs)	11.1	\$62.78	220	0.03	3.72	1,722
School Energy Program	Middle School Kit (w/o LEDs)	8.6	\$53.00	133.27	0.02	3.72	1,722
School Energy Program	High School Kit (w/ LEDs)	9.0	\$102.78	337	0.04	3.72	1,722
School Energy Program	High School Kit (w/o LEDs)	6.9	\$93.00	250	0.03	3.72	1,722
Energy Efficient Lighting	ENERGY STAR LED	15	\$2.54	38	0.00	-	-
Energy Efficient Lighting	ENERGY STAR LED - Giveaway	15	\$3.26	32	0.00	-	-
C&I Custom	Small C&I Custom Project	15	\$12,427.28	38,000	3.38	-	-
C&I Custom	Large C&I Custom Project	15	\$26,152.05	70,000	11.16	-	-

Table 30: Measure Cost Effectiveness

TRC Test

Program	Measure Name	PV Benefits	PV Cost	PV Net	BCR
Appliance Recycling	Fridge	\$719,978	\$85,362	\$634,616	8.43
Appliance Recycling	Freezer	\$160,188	\$21,586	\$138,602	7.42
Appliance Recycling	Room AC	\$37,297	\$4,317	\$32,980	8.64
Appliance Recycling	Dehumidifier	\$18,925	\$1,962	\$16,962	9.64
Appliance Rebates	CAC - 16 SEER	\$95,895	\$83,477	\$12,418	1.15
Appliance Rebates	ENERGY STAR Room AC	\$20,393	\$15,013	\$5,380	1.36
Appliance Rebates	Ductless Mini split Heat Pump	251,683	172,175	\$79,508	1.46
Appliance Rebates	ENERGY STAR Fridge	\$26,740	\$13,806	\$12,935	1.94
Appliance Rebates	ENERGY STAR Clothes Washer	\$126,038	\$14,402	\$111,636	8.75
Appliance Rebates	ENERGY STAR Dishwasher	\$42,023	\$7,197	\$34,826	5.84
Appliance Rebates	ENERGY STAR Dehumidifier	\$32,805	\$1,668	\$31,137	19.67
Appliance Rebates	Pool Pump w/ VFD	\$16,624	\$11,577	\$5,046	1.44
Appliance Rebates	ENERGY STAR Thermostat (Electric Heating)	\$63,983	\$32,111	\$31,873	1.99
Appliance Rebates	ENERGY STAR Thermostat (Gas Heating)	\$126,750	\$32,111	\$94,640	3.95
Appliance Rebates	Electric Heating to Gas Heat	\$170,191	\$404,511	-\$234,320	0.42
School Energy Program	Middle School Kit (w/ LEDs)	\$327,523	\$42,379	\$285,144	7.73
School Energy Program	Middle School Kit (w/o LEDs)	\$1,276,378	\$166,408	\$1,109,970	7.67
School Energy Program	High School Kit (w/ LEDs)	\$156,743	\$33,199	\$123,544	4.72
School Energy Program	High School Kit (w/o LEDs)	\$611,802	\$131,399	\$480,402	4.66
Energy Efficient Lighting	ENERGY STAR LED+	\$131,943	-\$13,633	\$145,576	(9.68)
Energy Efficient Lighting	ENERGY STAR LED - Giveaway	\$18,878	\$10,143	\$8,735	1.86
C&I Custom	Small C&I Custom Project	\$2,492,055	\$1,385,038	\$1,107,017	1.80
C&I Custom	Large C&I Custom Project	\$2,201,923	\$1,165,873	\$1,036,049	1.89

+Deferral credit for shifting baseline leads to negative cost and BCR. Measure is still cost-effective, given positive net benefits.

UGI Electric

Exhibit 2

UGI UTILITIES, INC.
ELECTRIC DIVISION
ELECTRIC SERVICE TARIFF

LUZERNE COUNTY

City of Nanticoke, and Boroughs of Courtdale, Dallas, Edwardsville, Forty-Fort, Harvey's Lake, Kingston, Larksville, Luzerne, New Columbus, Plymouth, Pringle, Shickshinny, Sugar Notch, Swoyersville, Warrior Run, West Wyoming and Wyoming.

First Class Townships of Hanover and Newport, and Second Class Townships, of Conyngham, Dallas, Fairmount, Franklin, Hunlock, Huntington, Jackson, Kingston, Lake, Lehman, Plymouth, Ross and Union.

WYOMING COUNTY

Townships of Monroe and Noxen

Issued:

BY: Paul J. Szykman
Chief Regulatory Officer
2525 North 12th Street, Suite 360
Post Office Box 12677
Reading, Pennsylvania 19612-2677

Effective:

Issued in accordance with
the Order entered _____ at
Docket No. _____.

NOTICE

THIS TARIFF MAKES CHANGES TO EXISTING RATES, RULES AND REGULATIONS
(PAGES 2 - 3).

LIST OF CHANGES MADE BY THIS TARIFF

TABLE OF CONTENTS, PAGE NO. 4

Table of contents has been updated to reflect the addition of pages 43AA-43BB incorporating Rule 37B, Phase III Energy Efficiency and Conservation Rider.

ADDITION: RULE 37B – PHASE III ENERGY EFFICIENCY AND CONSERVATION RIDER, PAGE NOS. 43AA & 43AB:

The Phase III Energy Efficiency and Conservation rider has been added to include cost recovery for expenses related to the development and implementation of Phase III of the Energy Efficiency and Conservation Plan approved by the Pennsylvania Public Utility Commission by Order entered ____ at Docket No. _____.

RATE R – RESIDENCE SERVICE, PAGE NO. 44

Phase III Energy Efficiency and Conservation Rider has been added to this rate schedule.

RATE RWT – RESIDENTIAL SERVICE – WATER/SPACE HEATING, PAGE NO. 46

Phase III Energy Efficiency and Conservation Rider has been added to this rate schedule.

RATE RTU – RESIDENTIAL TIME-OF-USE SERVICE, PAGE NO. 49

Phase III Energy Efficiency and Conservation Rider has been added to this rate schedule.

RATE OL – OUTDOOR LIGHTING SERVICE, PAGE 51A

Phase III Energy Efficiency and Conservation Rider has been added to this rate schedule.

RATE SOL – SODIUM OUTDOOR LIGHTING SERVICE, PAGE 53

Phase III Energy Efficiency and Conservation Rider has been added to this rate schedule.

RATE MHOL – METAL HALIDE OUTDOOR LIGHTING SERVICE, PAGE 53C

Phase III Energy Efficiency and Conservation Rider has been added to this rate schedule.

RATE LED-OL – LIGHT-EMITTING DIODE OUTDOOR LIGHTING SERVICE, PAGE 53E

Phase III Energy Efficiency and Conservation Rider has been added to this rate schedule.

RATE CWH – CONTROLLED OFF-PEAK SERVICE FOR WATER HEATING, PAGE 54

Phase III Energy Efficiency and Conservation Rider has been added to this rate schedule.

RATE GS-1 – GENERAL SERVICE, PAGE 58

Phase III Energy Efficiency and Conservation Rider has been added to this rate schedule.

RATE GS-4 – GENERAL SERVICE, PAGE 61

Phase III Energy Efficiency and Conservation Rider has been added to this rate schedule.

RATE GS-5 – GENERAL SERVICE (VOLUNTEER FIRE COMPANY, NON-PROFIT SENIOR CITIZEN CENTER, NON-PROFIT RESCUE SQUAD, AND NON-PROFIT AMBULANCE SERVICE), PAGE 64

Phase III Energy Efficiency and Conservation Rider has been added to this rate schedule.

Issued:

Effective:

LIST OF CHANGES MADE BY THIS TARIFF

RATE TE – NON-RESIDENTIAL SERVICE – TOTAL ELECTRIC, PAGE 66

Phase III Energy Efficiency and Conservation Rider has been added to this rate schedule.

RATE GLP – GENERAL LIGHTING AND POWER SERVICE, PAGE 71

Phase III Energy Efficiency and Conservation Rider has been added to this rate schedule

RATE LP – LARGE POWER SERVICE, PAGE 75

Phase II Energy Efficiency and Conservation Rider has been added to this rate schedule.

RATE HTP – HIGH TENSION POWER SERVICE, PAGE 78

Phase III Energy Efficiency and Conservation Rider has been added to this rate schedule.

RATE SL – STREET LIGHTING SERVICE, PAGE 81A

Phase III Energy Efficiency and Conservation Rider has been added to this rate schedule.

RATE SSL – SODIUM STREET LIGHTING, PAGE 83

Phase III Energy Efficiency and Conservation Rider has been added to this rate schedule.

RATE MHSL – METAL HALIDE STREET LIGHTING SERVICE, PAGE 83C

Phase III Energy Efficiency and Conservation Rider has been added to this rate schedule.

RATE LED-SL – LIGHT-EMITTING DIODE STREET LIGHTING SERVICE, PAGE 83E

Phase III Energy Efficiency and Conservation Rider has been added to this rate schedule.

RATE LED-CO – CUSTOMER-OWNED LIGHT-EMITTING DIODE STREET LIGHTING SERVICE, PAGE 83H

Phase III Energy Efficiency and Conservation Rider has been added to this rate schedule.

RATE FCP – FLOOD CONTROL POWER SERVICE, PAGE 84

Phase III Energy Efficiency and Conservation Rider has been added to this rate schedule.

RATE BLR – BORDERLINE RESALE SERVICE, PAGE 85

Phase III Energy Efficiency and Conservation Rider has been added to this rate schedule.

RATE IH – INSTITUTIONAL HEATING SERVICE, PAGE 87

Phase III Energy Efficiency and Conservation Rider has been added to this rate schedule.

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(C) Indicates Change

Issued:

Effective:

RULES AND REGULATIONS (continued)

37B. PHASE III ENERGY EFFICIENCY AND CONSERVATION RIDER

37B-a General. The Company shall recover costs related to the Company’s Phase III Energy Efficiency and Conservation Plan (“Phase III EECP”) for 2019-2024 through a Phase III Energy Efficiency and Conservation Rider (“Phase III EEC Rider”). The rates under the Phase III EEC Rider shall be computed separately for each of the three customer classes listed below. The Phase III EEC Rider Rate for each class shall be as follows:

Customer Class	Rate Schedules	Phase III EEC Rider Rate (¢/kWh)
Class 1 – Residential	R, RWT, RTU, GS-5 and the residential portion of Rate Schedules CWH, OL, SOL, MHOL, or successor rate schedules	
Class 2 – Non Residential	All Non-Residential Rate Schedules except for Rate Schedules LP and IH	
Class 3 – Non Residential	LP and IH	

The Phase III EEC Rider shall apply to all customers whether they are receiving generation service from the Company or not, and shall be subject to the State Tax Surcharge.

37B-b Calculation. The Phase III EEC Rider shall be determined as follows:

1. Costs to be recovered shall include Company incurred costs to implement its Commission approved Phase III EECP during each plan year, including all costs incurred to develop and administer the Company’s Phase III EECP, from June 1, 2019 until May 31, 2024. The costs of each Phase III EECP program shall be directly assigned to the applicable customer class based upon projected spending levels.
2. The Residential Phase III EEC Rider rate shall be calculated in accordance with the formula below and shall be rounded to the third decimal:

$$\text{Residential Phase III EEC Rider Rate} = ((Cr / Sr) - (Er / Sr)) / (1-T) \text{ where}$$

Cr = Projected Annual Residential Phase III EECP Costs.

Sr = Projected Annual Residential Class Sales.

Er = Net over or under collection of the Residential Phase III EEC Rider resulting from the difference between the Phase III EEC Rider revenues received and the Phase III EECP costs incurred. The over or under collection shall be calculated annually and include the actual over or under collection for the reconciliation period.

T = Total Pennsylvania gross receipts tax rate as reflected in the Company’s base rates, expressed in decimal form.

Issued:

Effective:

RULES AND REGULATIONS (continued)

37B. PHASE III ENERGY EFFICIENCY AND CONSERVATION RIDER

3. The Non-Residential Phase III EEC Rider rates shall be calculated in accordance with the formula below and shall be rounded to the third decimal:

$$\text{Non-Residential Phase III EEC Rider Rate} = ((C_n / S_n) - (E_n / S_n)) / (1-T) \text{ where}$$

C_n = Projected Annual Non-Residential Phase III EEC Costs.

S_n = Projected Annual Non-Residential Class Sales.

E_n = Net over or under collection of the Non-Residential Phase III EEC Rider resulting from the difference between the Phase III EEC Rider revenues received and the Phase III EEC costs incurred. The over or under collection shall be calculated annually and include the actual over or under collection for the reconciliation period.

T = Total Pennsylvania gross receipts tax rate as reflected in the Company's base rates, expressed in decimal form.

Class 2 and Class 3 Non-Residential Phase III EEC Rider rates shall be calculated and reconciled separately.

4. The Residential and Non-Residential rates under the Phase III EEC Rider shall become effective on September 1. The Residential and Non-Residential rates under the Phase III EEC Rider shall be updated and reconciled annually thereafter and filed with the Commission effective on thirty (30) days' notice. The Company reserves the right to make an interim filing to adjust the rates under the Phase III EEC Rider to be effective on sixty (60) days' notice.
5. On June 30 of each year, the Company will file with the Commission, its annual Reconciliation Statement for the reconciliation period ending May 31. Any over or under collection at the end of the fifth plan year shall be recovered or refunded during the following year. Any remaining over or under collection after the sixth year shall be recovered or refunded through the default service rate by class.

**RATE R
RESIDENCE SERVICE**

AVAILABILITY

Available to Customers located on Company's distribution lines and desiring service for household and non-residential uses (where the non-residential use(s) is limited to less than 2 KW) in a single private dwelling, or an individual dwelling unit in a multiple dwelling structure, and its appurtenant detached buildings.

CHARACTER OF SERVICE

Alternating current, 60 cycles, single phase; 120 volts, 2 wire; 120-208 volts, 3 wire; or 120-240 volts, 3 wire.

RATE TABLE

Net rates per kilowatt-hour of energy used each month:

	Transmission (¢/KWH)	Distribution (¢/KWH)	Generation (¢/KWH)
Customer Charge	\$5.50		
First 500 KWH	0.370	3.165	See Generation Supply Rate below.
Next 500 KWH	0.370	2.684	See Generation Supply Rate below.
Over 1,000 KWH	0.370	1.971	See Generation Supply Rate below.

GENERATION SUPPLY RATE

The GSR rate stated in Section 29 in this Tariff is applicable to all customers served under this rate schedule and taking Default Service from the Company.

MINIMUM MONTHLY CHARGE

The Minimum Monthly Charge shall be the Customer Charge in the above Table.

TAX ADJUSTMENT SURCHARGE

The Tax Adjustment Surcharge included in this Tariff is applied to charges under this Rate.

EDUCATION CHARGE RIDER AND ENERGY EFFICIENCY AND CONSERVATION RIDER

The rates as set forth under the Education Charge Rider and the Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase II Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase III Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

(C)

CUSTOMER ASSISTANCE PROGRAM (CAP)

The CAP Charge as set forth in the Rules and Regulations shall apply to customers receiving service under this Rate.

In accordance with the Company's Customer Assistance Program (CAP), the above energy charges shall be reduced by no more than \$1,200 per year for qualifying low income residential heating customers and no more than \$700 per year for qualifying low income residential non-heating customers who take service under this Rate. CAP is available to a maximum of 2,500 customers.

PAYMENT TERMS

A late payment charge of 1.25% per month of the unpaid balance of all charges due on a bill will be made for failure to make payment in full by the due date. These charges are to be calculated on the overdue portions of the bill only. Such interest rate, when annualized, shall not exceed 15% simple interest per annum.

(C) Indicates Change

Issued:

Effective:

RATE RWT - (Continued)
RESIDENTIAL SERVICE - WATER/SPACE HEATING

WATER HEATING REQUIREMENTS

Water heaters shall be automatic of a type approved by the Company. The water heater shall be the exclusive source of hot water at all times. The Company will install automatic devices to control the operation of electric water heaters when deemed necessary by Company.

EQUAL MONTHLY PAYMENT PLAN

The Equal Monthly Payment Plan is available to Customers in accordance with Rule 13-e.

TAX ADJUSTMENT SURCHARGE

The Tax Adjustment Surcharge included in this Tariff is applied to charges under this Rate.

EDUCATION CHARGE RIDER AND ENERGY EFFICIENCY AND CONSERVATION RIDER

The rates as set forth under the Education Charge Rider and the Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase II Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase III Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

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PAYMENT TERMS

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(C) Indicates Change

Issued:

Effective:

RATE RTU - (Continued)
RESIDENTIAL TIME-OF-USE SERVICE

Service to electric heat pumps will be interrupted when the outside air temperature falls below 20 degrees F. Supplemental heating equipment must be provided using an independent fossil fuel furnace or a controlled electric thermal storage device.

EQUAL MONTHLY PAYMENT PLAN

The Equal Monthly Payment Plan is available to Customers in accordance with Rule 13-e.

TAX ADJUSTMENT SURCHARGE

The Tax Adjustment Surcharge included in this Tariff is applied to charges under this Rate.

EDUCATION CHARGE RIDER AND ENERGY EFFICIENCY AND CONSERVATION RIDER

The rates as set forth under the Education Charge Rider and the Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase II Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase III Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

(C)

CUSTOMER ASSISTANCE PROGRAM (CAP)

The CAP Charge as set forth in the Rules and Regulations shall apply to customers receiving service under this Rate.

In accordance with the Company's Customer Assistance Program (CAP), the above energy charges shall be reduced by no more than \$1,200 per year for qualifying low income residential heating customers and no more than \$700 per year for qualifying low income residential non-heating customers who take service under this Rate. CAP is available to a maximum of 2,500 customers.

PAYMENT TERMS

A late payment charge of 1.25% per month of the unpaid balance of all charges due on a bill will be made for failure to make payment in full by the due date. These charges are to be calculated on the overdue portions of the bill only. Such interest rate, when annualized, shall not exceed 15% simple interest per annum.

(C) Indicates Change

Issued:

Effective:

RATE OL - (Continued)
OUTDOOR LIGHTING SERVICE

APPROVAL

Customer shall obtain proper approval for lights to be located on public thoroughfares.

TAX ADJUSTMENT SURCHARGE

The Tax Adjustment Surcharge included in this Tariff is applied to charges under this Rate.

ENERGY EFFICIENCY AND CONSERVATION RIDER

The rates as set forth under the Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase II Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase III Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate. (C)

PAYMENT TERMS

RESIDENTIAL CUSTOMERS

A late payment charge of 1.25% per month of the unpaid balance of all charges due on a bill will be made for failure to make payment in full by the due date. These charges are to be calculated on the overdue portions of the bill only. Such interest rate, when annualized, shall not exceed 15% simple interest per annum.

NON-RESIDENTIAL CUSTOMERS

The Rates set forth above state net prices. Standard bills will show the net amount and a gross amount 3% greater than the net amount. If payment is made on or before the last day for payment as specified on the bill, prompt payment discount equal to the difference between the gross and net amounts will be allowed.

(C) Indicates Change

Issued:

Effective:

RATE SOL - (Continued)
SODIUM OUTDOOR LIGHTING SERVICE

REMOVAL OF MERCURY VAPOR

When, at the request of the Customer, a sodium vapor light replaces a fully operational mercury vapor light that has been installed for less than 10 years, the Customer shall pay the Company for the Company's estimated cost of removal and rehabilitation plus the estimated remaining value of the system. When, at the request of the Customer, a sodium vapor light replaces a failed mercury vapor light that can neither be repaired nor replaced, the installation will be completed at no charge to the Customer.

TAX ADJUSTMENT SURCHARGE

The Tax Adjustment Surcharge included in this Tariff is applied to charges under this Rate.

ENERGY EFFICIENCY AND CONSERVATION RIDER

The rates as set forth under the Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase II Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase III Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

(C)

PAYMENT TERMS RESIDENTIAL CUSTOMERS

A late payment charge of 1.25% per month of the unpaid balance of all charges due on a bill will be made for failure to make payment in full by the due date. These charges are to be calculated on the overdue portions of the bill only. Such interest rate, when annualized, shall not exceed 15% simple interest per annum.

NON-RESIDENTIAL CUSTOMERS

The Rates set forth above state net prices. Standard bills will show the net amount and a gross amount 3% greater than the net amount. If payment is made on or before the last day for payment as specified on the bill, prompt payment discount equal to the difference between the gross and net amounts will be allowed.

(C) Indicates Change

Issued:

Effective:

RATE MHOL - (Continued)
METAL HALIDE OUTDOOR LIGHTING SERVICE

REMOVAL OF MERCURY VAPOR & HIGH PRESSURE SODIUM

When, at the request of the Customer, a metal halide light replaces a fully operational mercury vapor or high pressure sodium light that has been installed for less than 1 or 2 years respectively, the Customer shall pay the Company for the Company's estimated cost of removal and rehabilitation plus the estimated remaining value of the system. When, at the request of the Customer, a metal halide light replaces a failed mercury vapor light that can neither be repaired nor replaced, the installation will be completed at no charge to the Customer.

TERMINATION

If Customer terminates outdoor lighting service under this schedule for any reason prior to expiration of the two-year term, Customer shall pay removal cost.

TAX ADJUSTMENT SURCHARGE

The Tax Adjustment Surcharge included in this Tariff is applied to charges under this Rate.

ENERGY EFFICIENCY AND CONSERVATION RIDER

The rates as set forth under the Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase II Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase III Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

(C)

PAYMENT TERMS

A late payment charge of 1.25% per month of the unpaid balance of all charges due on a bill will be made for failure to make payment in full by the due date. These charges are to be calculated on the overdue portions of the bill only. Such interest rate, when annualized, shall not exceed 15% simple interest per annum.

(C) Indicates Change

Issued:

Effective:

RATE LED-OL (continued)
LIGHT-EMITTING DIODE OUTDOOR LIGHTING SERVICE

- (b) If Customer requires an additional wood pole, or poles, to be installed for mounting heights up to 25 feet, a monthly charge of \$5.99 per pole shall be added to the above rates.
- (c) Any additional facilities other than specified herein and the cost of rearranging facilities required to change mounting height shall be paid by the Customer in advance.
- (d) Customer shall obtain proper approval for lights to be located on public thoroughfares.
- (e) Operation shall be from dusk to dawn, a total of approximately 4,000 hours per year. Lamp renewal service, during normal working hours, will be provided upon notice to Company for lamps burned out or broken and with no credit for outages. Company will supply, install, operate, and maintain necessary lighting facilities.

REMOVAL OF MERCURY VAPOR, HIGH PRESSURE SODIUM AND METAL HALIDE

When, at the request of the Customer, a LED light replaces a fully operational mercury vapor, high pressure sodium or metal halide light that has been installed for less than the applicable contract term, the Customer shall pay the Company for the Company's estimated cost of removal and rehabilitation plus the estimated remaining value of the system. When, at the request of the Customer, a LED light replaces a failed mercury vapor, high pressure sodium or metal halide light that can neither be repaired nor replaced, the installation will be completed at no charge to the Customer.

TERMINATION

If Customer terminates outdoor lighting service under this schedule for any reason prior to expiration of the two-year term, Customer shall pay removal cost.

TAX ADJUSTMENT SURCHARGE

The Tax Adjustment Surcharge included in this Tariff is applied to charges under this Rate.

ENERGY EFFICIENCY AND CONSERVATION RIDER

The rates as set forth under the Energy Efficiency and Conservation Rider included in this Tariff shall apply to the estimated kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase II Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase III Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

(C)

PAYMENT TERMS

For Residential Customers, a late payment charge of 1.25% per month of the unpaid balance of all charges due on a bill will be made for failure to make payment in full by the due date. These charges are to be calculated on the overdue portions of the bill only. Such interest rate, when annualized, shall not exceed 15% simple interest per annum. For non-residential Customers, bills are net if paid on or before the last day for payment as specified on bill. Bills of non-residential Customers who defer payment beyond the specified date will be increased three percent (3%).

(C) Indicates Change

Issued:

Effective:

**RATE CWH
CONTROLLED OFF-PEAK SERVICE FOR WATER HEATING**

AVAILABILITY

This Rate is available for the exclusive operation of heat storage water heating equipment located at premises where other service is supplied under Company's non-residential rates, subject to the provisions hereinafter set forth. Any residential Customer served prior to March 1, 1961 under former Rate WH shall have the option of continuing service under Rate CWH.

CHARACTER OF SERVICE

Alternating current, 60 cycles, single or three phase, 120-208 volts, 3 or 4 wire; 120-240 volts, 3 wire; or 240 volts, 2 or 3 wire.

CONTRACT TERM AND BILLING

Term of contract shall be not less than one (1) year, with monthly payments for service taken.

RATE TABLE

	Distribution (¢/KWH)	Residential Generation (¢/KWH)	Non-Residential Generation (¢/KWH)
Minimum Monthly Charge	\$2.86	See Generation Supply Rate below.	See Generation Supply Rate below.
For all Energy used	3.281	See Generation Supply Rate below.	See Generation Supply Rate below.

GENERATION SUPPLY RATE

The GSR rate stated in Section 29 in this Tariff is applicable to all customers served under this rate schedule and taking Default Service from the Company.

TAX ADJUSTMENT SURCHARGE

The Tax Adjustment Surcharge included in this Tariff is applied to charges under this Rate.

EDUCATION CHARGE RIDER AND ENERGY EFFICIENCY AND CONSERVATION RIDER

The rates as set forth under the Education Charge Rider and the Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase II Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase III Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

(C)

CUSTOMER ASSISTANCE PROGRAM (CAP)

The CAP Charge as set forth in the Rules and Regulations shall apply to residential customers receiving service under this Rate.

In accordance with the Company's Customer Assistance Program (CAP), the above energy charges shall be reduced by no more than \$700 per year for qualifying low income residential customers who take service under this Rate. CAP is available to a maximum of 2,500 customers.

PAYMENT TERMS RESIDENTIAL CUSTOMERS

A late payment charge of 1.25% per month of the unpaid balance of all charges due on a bill will be made for failure to make payment in full by the due date. These charges are to be calculated on the overdue portions of the bill only. Such interest rate, when annualized, shall not exceed 15% simple interest per annum.

(C) Indicates Change

Issued:

Effective:

RATE GS-1 (Continued)
GENERAL SERVICE

ANNUAL GUARANTEE

For customers taking generation service from the Company the Annual Guarantee for all service is \$234.50 when service has been supplied for a full twelve-month period ending with June bills. If the customer has taken generation service from an alternate electric supplier for this period the Annual Guarantee shall be \$120.00. If the net amount billed for service during such period aggregate less than the annual guarantee amount associated with the service being taken the difference shall become part of the bill for June.

TAX ADJUSTMENT SURCHARGE

The Tax Adjustment Surcharge included in this tariff is applied to charges under this Rate.

EDUCATION CHARGE RIDER AND ENERGY EFFICIENCY AND CONSERVATION RIDER

The rates as set forth under the Education Charge Rider and the Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase II Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase III Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

(C)

PAYMENT TERMS

Bills are net if paid on or before the last day for payment as specified on bill. Bills of Customers who defer payment beyond the specified date will be increased three (3) percent.

(C) Indicates Change

Issued:

Effective:

RATE GS-4 - (Continued)
GENERAL SERVICE
(5 kw minimum)

TAX ADJUSTMENT SURCHARGE

The Tax Adjustment Surcharge included in this Tariff is applied to charges under this Rate.

ENERGY EFFICIENCY AND CONSERVATION RIDER

The rates as set forth under the Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase II Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase III Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

(C)

PAYMENT TERMS

Bills are net if paid on or before the last day for payment as specified on bill. Bills of Customers who defer payment beyond the specified date will be increased three (3) per cent.

POWER FACTOR

The Power Factor Charge contained in this Tariff is applied to this Rate.

OFF-PEAK SERVICE

When it is mutually advantageous to both the Company and the Customer, the Customer's billing demand shall be adjusted for service supplied during off-peak hours for demands in excess of those supplied during on-peak hours. Customers applying for this Off-Peak Rider must meet the following requirements:

- (1) Customer must make a written request to Company for the application of this Rider, and Company shall in its sole judgement, determine whether or not sufficient reason exists for its application.
- (2) Company reserves the right to curtail or discontinue at any time, and without liability to Customer, Customer's use of the excess capacity.
- (3) The Customer's off-peak demand may exceed Customer's on-peak demand to the extent which Company shall determine that its facilities permit supplying such excess demand without disturbing service to its other Customers.
- (4) The Company is not required to provide additional delivery facilities for the delivery of power and energy exempted from the demand charge by this Rider.

DEFINITION OF PEAK HOURS

On-peak hours are defined as those hours between 7:00 A.M. and 11:00 P.M. Eastern Standard Time or Daylight Saving Time, whichever is in common use, daily except Saturdays and Sundays. Off-peak hours are defined as the hours other than those specified as on-peak hours. The Company reserves the right to change, from time to time, the hours specified above in accordance with the operating conditions of the Company's system.

(C) Indicates Change

Issued:

Effective:

RATE GS-5 (continued)
GENERAL SERVICE
(VOLUNTEER FIRE COMPANY, NON-PROFIT SENIOR CITIZEN CENTER, NON-PROFIT RESCUE SQUAD, AND NON-PROFIT AMBULANCE SERVICE)

RATE TABLE

Net rates per kilowatt-hour of energy used each month:

	Transmission (¢/KWH)	Distribution (¢/KWH)	Generation (¢/KWH)
Customer Charge	\$5.50		
First 500 KWH	0.370	3.165	See Generation Supply Rate below.
Next 500 KWH	0.370	2.684	See Generation Supply Rate below.
Over 1,000 KWH	0.370	1.971	See Generation Supply Rate below.

GENERATION SUPPLY RATE

The GSR rate stated in Section 29 in this Tariff is applicable to all customers served under this rate schedule and taking Default Service from the Company.

MINIMUM MONTHLY CHARGE

The Minimum Monthly Charge shall be the Customer Charge in the above Table.

TAX ADJUSTMENT SURCHARGE

The Tax Adjustment Surcharge included in this Tariff is applied to charges under this Rate.

EDUCATION CHARGE RIDER AND ENERGY EFFICIENCY AND CONSERVATION RIDER

The rates as set forth under the Education Charge Rider and the Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase II Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase III Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

(C)

PAYMENT TERMS

A late payment charge of 1.25% per month of the unpaid balance of all charges due on a bill will be made for failure to make payment in full by the due date. These charges are to be calculated on the overdue portions of the bill only. Such interest rate, when annualized, shall not exceed 15% simple interest per annum.

(C) Indicates Change

Issued:

Effective:

RATE TE - (Continued)
NON-RESIDENTIAL SERVICE - TOTAL ELECTRIC

MINIMUM MONTHLY CHARGE

The Minimum Monthly Charge shall be \$692.81 plus \$7.39 for each kilowatt of maximum monthly demand in excess of 35 kilowatts for energy supplied to customers from the Company prior to January 1, 2010. The Minimum Monthly Charge shall be \$97.91 plus \$1.05 for each kilowatt of maximum monthly demand in excess of 35 kilowatts for energy supplied to customers from the Company on and after January 1, 2010. For customers taking generation service from an alternate electric supplier the minimum monthly charge shall be \$75.55 plus \$0.81 for each kilowatt of maximum monthly demand in excess of 35 kilowatts.

DETERMINATION OF BILLING DEMAND

The Company shall set either indicating or recording meters, the choice being its option, to determine the demand. The demand shall be the highest fifteen (15) minute demand in kilowatts during the month.

TAX ADJUSTMENT SURCHARGE

The Tax Adjustment Surcharge included in this Tariff is applied to charges under this Rate.

ENERGY EFFICIENCY AND CONSERVATION RIDER

The rates as set forth under the Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase II Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase III Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

(C)

PAYMENT TERMS

Bills are net if paid on or before the last day for payment as specified on bill. Bills of Customers who defer payment beyond the specified date will be increased three (3) per cent.

(C) Indicates Change

Issued:

Effective:

RATE GLP - (Continued)
GENERAL LIGHTING AND POWER SERVICE

ANNUAL GUARANTEE

For customers taking generation service from the Company the Annual Guarantee for all service is \$278.87 when service has been supplied for a full twelve-month period ending with June bills. If the customer is taking generation service from an alternate electric supplier, the Annual Guarantee is \$86.38 when service has been supplied for a full twelve-month period ending with June bills. If the net amounts billed for service during such period aggregate less than the Annual Guarantee associated with the service being taken the difference shall become part of the bill for June.

TAX ADJUSTMENT SURCHARGE

The Tax Adjustment Surcharge included in this Tariff is applied to charges under this Rate except for charges made under the Energy Cost Rate.

EDUCATION CHARGE RIDER AND ENERGY EFFICIENCY AND CONSERVATION RIDER

The rates as set forth under the Education Charge Rider and the Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase II Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase III Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate. (C)

PAYMENT TERMS

Bills at the foregoing rates and discounts are due and payable on or before the last day for payments as specified on bill. Bills to Customers who defer payments beyond the specified date will be increased two (2) percent.

(C) Indicates Change

Issued:

Effective:

RATE LP - (Continued)
LARGE POWER SERVICE

DETERMINATION OF BILLING DEMAND FOR OFF-PEAK SERVICE

Customer's billing demand shall be taken as the highest of the following:

- (1) Customer's on-peak demand.
- (2) Customer's minimum demand.
- (3) Sixty-six and two-thirds ($66\frac{2}{3}$) per cent of Customer's off-peak demand established during the off-peak hours specified above.
- (4) Twenty-five (25) per cent of Customer's off-peak demand established when Customer limits excess demands to operation between 11:00 P.M. and 7:00 A.M.

That portion of any demand established during off-peak hours, which is above the off-peak demand allowed by the Company, shall be added to the highest demand established during on-peak hours for the purpose of determining billing demand.

TAX ADJUSTMENT SURCHARGE

The Tax Adjustment Surcharge included in this tariff is applied to charges under this Rate.

ENERGY EFFICIENCY AND CONSERVATION RIDER

The rates as set forth under the Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase II Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase III Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate. (C)

PAYMENT TERMS

Bills are net if paid on or before the last day for payment as specified on bill. Bills of Customers who defer payment beyond the specified date will be increased two (2) percent.

(C) Indicates Change

Issued:

Effective:

RATE HTP - (Continued)
HIGH TENSION POWER SERVICE

DEFINITION OF PEAK HOURS

On-peak hours are defined as those hours between 8:00 A.M. and 9:00 P.M. Eastern Standard Time or Daylight Saving Time, whichever is in common use, daily except Saturdays, Sundays and holidays.

Off-peak hours are defined as the hours other than those specified as on-peak hours. Holidays are New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.

The Company reserves the right to change from time to time, the hours specified above in accordance with the operating conditions of the Company's system.

DETERMINATION OF BILLING DEMAND FOR OFF-PEAK SERVICE

Customer's billing demand shall be taken as the highest of the following:

- (1) Customer's on-peak demand.
- (2) Customer's minimum demand.
- (3) Sixty-Six and two-thirds (66-2/3) percent of Customer's off-peak demand established during the off-peak hours specified above.
- (4) Twenty-five (25) percent of Customer's off-peak demand established when Customer limits excess demands to operate between 11:00 P.M. and 7:00 A.M.

That portion of any demand established during off-peak hours, which is above the off-peak demand allowed by the Company, shall be added to the highest demand established during on-peak hours for the purpose of determining billing demand.

TAX ADJUSTMENT SURCHARGE

The Tax Adjustment Surcharge included in this Tariff is applied to charges under this Rate.

ENERGY EFFICIENCY AND CONSERVATION RIDER

The rates as set forth under the Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase II Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase III Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

(C)

PAYMENT TERMS

Bills are net if paid on or before the last day for payment as specified on bill. Bills of Customers who defer payment beyond the specified date will be increased two (2) percent.

(C) Indicates Change

Issued:

Effective:

RATE SL - (Continued)
STREET LIGHTING SERVICE

ENERGY EFFICIENCY AND CONSERVATION RIDER

The rates as set forth under the Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase II Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase III Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate. (C)

PAYMENT TERMS

Bills for service taken will be rendered monthly, and if paid within thirty (30) days after date of bill the following discounts will be allowed:

Contracts, 5 years or more.....5% discount on first \$323.48 of monthly bill
plus 2% discount on balance

Contracts, less than 5 years.....1% discount on total monthly bill

No discount will be allowed where contract for service is not in effect or where payments are deferred beyond the thirty (30) day period herein specified.

(C) Indicates Change

Issued:

Effective:

RATE SSL - (Continued)
SODIUM STREET LIGHTING

SPECIAL CUSTOMER EQUIPMENT

Upon request, the Company may, at its option, operate and maintain special lighting equipment of a type not being offered by Company provided Customer installs equipment and supplies any nonstandard replacement parts at no cost to Company.

REMOVAL OF MERCURY VAPOR

When, at the request of the Customer, a sodium vapor light replaces a fully operational mercury vapor light that has been installed for less than 10 years, the Customer shall pay the Company for the Company's estimated cost of removal and rehabilitation plus the estimated remaining value of the system. When, at the request of the Customer, a sodium vapor light replaces a failed mercury vapor light that can neither be repaired nor replaced, the installation will be completed at no charge to the Customer.

TERMINATION

If Customer terminates street lighting service under this schedule for any reason prior to expiration of any 10-year term, Customer shall pay removal cost plus remaining value of system.

TAX ADJUSTMENT SURCHARGE

The Tax Adjustment Surcharge included in this Tariff is applied to charges under this Rate.

ENERGY EFFICIENCY AND CONSERVATION RIDER

The rates as set forth under the Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase II Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase III Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

(C)

PAYMENT TERMS

The rates set forth above state net prices. Standard bills will show the net amount and a gross amount 3% greater than the net amount. If payment is made on or before the last day for payment as specified on the bill, prompt payment discount equal to the difference between the gross and net amounts will be allowed.

(C) Indicates Change

Issued:

Effective:

RATE MHSL - (Continued)
METAL HALIDE STREET LIGHTING SERVICE

SPECIAL CUSTOMER EQUIPMENT

Upon request, the Company may, at its option, operate and maintain special lighting equipment of a type not being offered by Company provided Customer installs equipment and supplies any nonstandard replacement parts at no cost to Company.

REMOVAL OF MERCURY VAPOR AND HIGH PRESSURE SODIUM

When, at the request of the Customer, a metal halide light replaces a fully operational mercury vapor or high pressure sodium light that has been installed for less than 5 or 10 years respectively, the Customer shall pay the Company for the Company's estimated cost of removal and rehabilitation plus the estimated remaining value of the system. When, at the request of the Customer, a metal halide light replaces a fully operational mercury vapor light that can neither be repaired nor replaced, the installation will be completed at no charge to the customer.

TERMINATION

If Customer terminates street lighting service under this schedule for any reason prior to expiration of any 10-year term, Customer shall pay removal cost plus the estimated remaining value of system.

TAX ADJUSTMENT SURCHARGE

The Tax Adjustment Surcharge included in this Tariff is applied to charges under this Rate.

ENERGY EFFICIENCY AND CONSERVATION RIDER

The rates as set forth under the Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase II Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase III Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

(C)

PAYMENT TERMS

A late payment charge of 1.25% per month of the unpaid balance of all charges due on a bill will be made for failure to make payment in full by the due date. These charges are to be calculated on the overdue portions of the bill only. Such interest rate, when annualized, shall not exceed 15% simple interest per annum.

(C) Indicates Change

Issued:

Effective:

RATE LED-SL (continued)
LIGHT-EMITTING DIODE STREET LIGHTING SERVICE

- (c) The cost of any change of location of lamps, from the original location specified by Customer, shall be borne by the Customer and paid to the Company.
- (d) Company will provide underground and decorative systems of a type being offered by the Company at the time service is contracted for when the additional cost in excess of the estimated cost of a standard overhead system for the same application is paid by Customer. Company shall take title to this system and shall operate and maintain the facilities. At the termination, for any reason, of the useful life of these systems or designated components, a new system or component shall be installed under similar conditions.
- (e) Operation shall be from dusk to dawn, a total of approximately 4,000 hours per year. Lamp renewal service, during normal working hours, will be provided upon notice to Company for lamps burned out or broken and with no credit for outages.

SPECIAL CUSTOMER EQUIPMENT

Upon request, the Company may, at its option, operate and maintain special lighting equipment of a type not being offered by Company provided Customer installs equipment and supplies any nonstandard replacement parts at no cost to Company.

REMOVAL OF MERCURY VAPOR, HIGH PRESSURE SODIUM AND METAL HALIDE

When, at the request of the Customer, a LED light replaces a fully operational mercury vapor, high pressure sodium or metal halide light that has been installed for less than the applicable contract term, the Customer shall pay the Company for the Company's estimated cost of removal and rehabilitation plus the estimated remaining value of the system. When, at the request of the Customer, a LED light replaces a fully operational mercury vapor, high pressure sodium or metal halide light that can neither be repaired nor replaced, the installation will be completed at no charge to the Customer.

TERMINATION

If Customer terminates street lighting service under this schedule for any reason prior to expiration of any 10-year term, Customer shall pay removal cost plus the estimated remaining value of system.

TAX ADJUSTMENT SURCHARGE

The Tax Adjustment Surcharge included in this Tariff is applied to charges under this Rate.

ENERGY EFFICIENCY AND CONSERVATION RIDER

The rates as set forth under the Energy Efficiency and Conservation Rider included in this Tariff shall apply to the estimated kilowatt-hours of energy used each month under this Rate.

The rates as set forth under the Phase II Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase III Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

(C)

PAYMENT TERMS

A late payment charge of 1.25% per month of the unpaid balance of all charges due on a bill will be made for failure to make payment in full by the due date. These charges are to be calculated on the overdue portions of the bill only. Such interest rate, when annualized, shall not exceed 15% simple interest per annum.

(C) Indicates Change

Issued:

Effective:

RATE LED-CO (continued)
CUSTOMER-OWNED LIGHT-EMITTING DIODE STREET LIGHTING SERVICE

- (c) Any rearrangements, replacements or relocations of Company's electric distribution system required solely for the installation, operation or maintenance of Customer's street lighting equipment are at the Customer's expense.
- (d) All luminaires served hereunder are operated at alternating current, 60 hertz, single phase and are controlled by photo control for dusk to dawn operation every night, approximately 4,000 hours per year.
- (e) The Attachment Agreement for the Customer-owned lighting system on Company's poles shall include indemnification of Company by Customer and provide for purchase of public liability and property damage insurance by Customer.

REMOVAL OF COMPANY-OWNED LIGHTS

When, at the request of the Customer, a Customer-owned lighting system replaces a fully operational Company-owned mercury vapor, high pressure sodium, metal halide or LED light that has been installed for less than the applicable contract term, the Customer shall pay the Company for the Company's estimated cost of removal and rehabilitation plus the estimated remaining value of the system.

AUDITING

The Company has the right to periodically audit the number and size of lamps of Customer's street lighting system. The Customer agrees to cooperate with Company during such audits.

TERMINATION

If Customer terminates street lighting service under this schedule for any reason prior to expiration of any 10-year term, Customer shall pay removal cost plus the estimated remaining value of system.

TAX ADJUSTMENT SURCHARGE

The Tax Adjustment Surcharge included in this Tariff is applied to charges under this Rate.

ENERGY EFFICIENCY AND CONSERVATION RIDER

The rates as set forth under the Energy Efficiency and Conservation Rider included in this Tariff shall apply to the estimated kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase II Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase III Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate. (C)

PAYMENT TERMS

For municipalities and public authority Customers, a late payment charge of 1.25% per month of the unpaid balance of all charges due on a bill will be made for failure to make payment in full by the due date. These charges are to be calculated on the overdue portions of the bill only. Such interest rate, when annualized, shall not exceed 15% simple interest per annum. For non-residential Customers, bills are net if paid on or before the last day for payment as specified on bill. Bills of non-residential Customers who defer payment beyond the specified date will be increased three percent (3%).

(C) Indicates Change

Issued:

Effective:

**RATE FCP
FLOOD CONTROL POWER SERVICE**

AVAILABILITY

This Rate is available to municipalities and townships in Company's territory requiring power service for the operation of flood pumping stations during periods of public emergency, and for periodic testing of same as hereinafter provided.

CHARACTER OF SERVICE

Alternating current, 60 cycles, three phase, 13,800 volts.

CONTRACT TERM AND BILLING

Term of contract shall be not less than one (1) year, with monthly payments for service taken.

RATE TABLE

	Transmission (¢/KWH)	Distribution (¢/KWH)	Generation (¢/KWH)
First 100 KWH or less per month for each electrically driven pump installed	\$0.16	\$2.50	See Generation Supply Rate below.
All additional KWH	0.117	1.780	See Generation Supply Rate below.

GENERATION SUPPLY RATE

The GSR rate stated in Section 29 in this Tariff is applicable to all customers served under this rate schedule and taking Default Service from the Company.

TAX ADJUSTMENT SURCHARGE

The Tax Adjustment Surcharge included in this Tariff is applied to charges under this Rate.

ENERGY EFFICIENCY AND CONSERVATION RIDER

The rates as set forth under the Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase II Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase III Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate. (C)

PAYMENT TERMS

The above Rates are net and apply only when bills are paid within fifteen (15) days from the date thereof. When not so paid, the gross rate (being the net rate plus 5% on the first \$524.00 of monthly bill and 2% on the remainder thereof) applies.

SPECIAL PROVISIONS

- (1) The Customer shall own, install, operate and maintain the lines necessary to connect its pumping stations to the Company's existing facilities, and the transforming equipment and auxiliary apparatus necessary to secure voltages less than the supply voltage specified above.
- (2) Periodic testing shall be prearranged between the Customer and Company upon at least twenty-four (24) hours' notice to the Company, and shall occur on weekdays during the hours between 12 midnight and 6 A.M. unless otherwise justified by load conditions on Company's system, of which conditions the Company's judgment shall be final.
- (3) Supply lines at each pumping station shall normally be disconnected and shall be connected only when necessary during periods of public emergency and for periodic testing.

(C) Indicates Change

Issued:

Effective:

**RATE BLR
BORDERLINE RESALE SERVICE**

AVAILABILITY

Available under reciprocal agreements to neighboring public utilities supplying electric service for resale in territory immediately adjacent to the charter territory of the Company, provided the Company, in its opinion has available capacity over and above that required to meet the demands, present and prospective, for service in its own territory.

CHARACTER OF SERVICE

Alternating current, 60 cycles, single or three phase, 2,400 volts, 4,160 volts, 8,320 volts, or 13,800 volts.

CONTRACT TERM AND BILLING

Standard contracts are for a term of five (5) years with monthly payments for service taken.

RATE TABLE

Service will be provided under the appropriate Company Tariff Rate. The appropriate rate is that under which the Customer would be served if they were located within the Company's franchised service territory.

TAX ADJUSTMENT SURCHARGE

The Tax Adjustment Surcharge included in this Tariff is applied to charges under this Rate.

ENERGY EFFICIENCY AND CONSERVATION RIDER

The rates as set forth under the Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase II Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase III Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate. (C)

PAYMENT TERMS

Bills are due upon presentation and shall be paid within fifteen (15) days from the date of bill for service supplied during the preceding month.

POWER FACTOR

The Power Factor Charge contained in this Tariff is applied to this Rate.

(C) Indicates Change

Issued:

Effective:

RATE IH – (Continued)
INSTITUTIONAL HEATING SERVICE

DETERMINATION OF BILLING DEMAND

The Company shall set either indicating or recording meters, the choice being its option, to determine the demand. The demand shall be the highest 15-minute demand in kilowatts during the month.

TAX ADJUSTMENT SURCHARGE

The Tax Adjustment Surcharge included in this Tariff is applied to charges under this Rate.

ENERGY EFFICIENCY AND CONSERVATION RIDER

The rates as set forth under the Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase II Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

The rates as set forth under the Phase III Energy Efficiency and Conservation Rider included in this Tariff shall apply to the kilowatt-hour of energy used each month under this Rate.

(C)

PAYMENT TERMS

Bills are net if paid on or before the last day for payment as specified on bill. Bills of Customers who defer payment beyond the specified date will be increased three (3) percent.

(C) Indicates Change

Issued:

Effective:

UGI Electric
Statement No. 1

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

**PETITION OF UGI UTILITIES, INC. – ELECTRIC DIVISION
FOR APPROVAL OF PHASE III OF ITS
ENERGY EFFICIENCY AND CONSERVATION PLAN**

DOCKET NO. M-2018-_____

**TESTIMONY
OF
THEODORE M. LOVE**

UGI ELECTRIC STATEMENT NO. 1

August 21, 2018

1 **I. INTRODUCTION**

2 **Q. Please state your full name, occupation, and business address.**

3 A. My name is Theodore M. Love, and I am a Partner at Green Energy Economics
4 Group, Inc. (“GEEG”), an energy consulting firm founded in 2005. My business
5 address is 147 South Oxford Street, Brooklyn, New York, 11217.

6 **Q. On whose behalf are you testifying in this proceeding?**

7 A. I am appearing on behalf of UGI Utilities, Inc. – Electric Division (“UGI
8 Electric” or the “Company”).

9 **Q. Please briefly state your qualifications.**

10 A. I have been involved in the review and preparation of electric and natural gas
11 energy efficiency plans, as well as potential studies and cost-effectiveness
12 analyses, in nearly a dozen states, two Canadian Provinces, and China, since I
13 began working with GEEG in 2007. Most relevant to this proceeding, I have been
14 advising UGI Utilities, Inc. – Electric Division (“UGI Electric”) on the
15 implementation, analysis, and reporting on the current phase (“Phase II”) of its
16 Energy Efficiency and Conservation Plan (“EE&C Plan”). I have also been
17 assisting PECO Energy Company (“PECO”), in Pennsylvania, and
18 Commonwealth Edison Company (“ComEd”), in Illinois, on savings and cost-
19 effectiveness reporting relating to their electric energy efficiency programs. I
20 have also been advising UGI Utilities, Inc. – Penn Natural Gas (“UGI PNG”) on
21 its natural gas EE&C Plan since 2017, UGI Utilities, Inc. - UGI Gas Division
22 (“UGI Gas”) on its natural gas EE&C Plan since 2015 and Philadelphia Gas
23 Works (“PGW”) on its natural gas energy efficiency activities since 2008. Most

1 recently, I have been advising Peoples Natural Gas Company LLC (“Peoples
2 Natural Gas”) on its voluntary natural gas EE&C Plan filed in January of 2018.
3 My full resume is attached as UGI Electric Exhibit TML-1.

4 **Q. Have you previously provided expert testimony before the Pennsylvania
5 Public Utility Commission (“Commission”)?**

6 A. Yes. In 2018, I presented testimony on behalf of Peoples Natural Gas in support
7 of the approval of its EE&C Plan at Docket M-2017-2640306. In 2017, I
8 presented testimony on behalf of UGI PNG in support of the adoption of a
9 voluntary, five-year natural gas EE&C Plan as part of that utility’s base rate case
10 at Docket No. R-2016-2580030. In 2016, I presented testimony on behalf of UGI
11 Gas in support of the adoption of a voluntary, five-year natural gas EE&C Plan as
12 part of that utility’s base rate case at Docket No. R-2015-2518438. In 2015, I
13 presented testimony on behalf of PGW in support of the continuation of its
14 demand-side management (“DSM”) gas programs for a second five-year phase
15 under Docket No. P-2014-2459362.

16 **Q. What is the purpose of your testimony in this proceeding?**

17 A. The purpose of my testimony is to provide support for and information about
18 Phase III of UGI Electric’s Energy Efficiency and Conservation Plan (“Phase III
19 EE&C Plan” or the “Plan”). I will explain the goals, approach, and process that
20 UGI Electric applied to the preparation of its Phase III EE&C Plan. I will provide
21 details on the Plan’s benefits and costs and will explain UGI Electric’s proposal
22 for Plan implementation, program verification, and reporting and administrative
23 requirements.

1 **Q. Are you sponsoring any exhibits in the filing?**

2 A. Yes. I am sponsoring the following exhibits:

- 3 • UGI Electric Exhibit 1 – UGI Electric’s Phase III Energy Efficiency &
4 Conservation Plan, which is attached to the Petition for Approval of
5 the Phase III EE&C Plan; and
- 6 • UGI Electric Exhibit TML-1 – Resume of Theodore M. Love, which is
7 attached to this testimony.

8 **Q. Please summarize your testimony.**

9 A. I begin by describing the background for the Phase III EE&C Plan and provide an
10 overview of the Plan. I then describe how UGI Electric’s proposed EE&C Plan
11 was developed and discuss what changes are proposed for the Phase III EE&C
12 Plan. Next, I provide additional detail on the Plan’s benefits and costs. Finally, I
13 describe how the Plan will be administered as well as the proposed evaluation,
14 measurement, and verification (“EM&V”) activities for the Plan.

15

16 **II. BACKGROUND AND PLAN OVERVIEW**

17 **Q. Does the Company currently operate an EE&C Plan?**

18 A. Yes. UGI Electric currently operates its voluntary Phase II EE&C Plan, which is
19 approved through May 31, 2019. Phase I of UGI Electric’s EE&C Plan operated
20 from June 1, 2012, to May 31, 2015. Phase II of the UGI Electric EE&C Plan
21 was initially approved for operation from June 1, 2016, through May 31, 2018,
22 and was extended for an additional year by a Commission Order entered on May
23 4, 2017.

1 **Q. Is UGI Electric required to comply with Act 129 of 2008?**

2 A. No. I have been advised by counsel that because UGI Electric serves less than
3 100,000 customers (approximately 62,000), the Company is not subject to the
4 requirements of Act 129.

5 **Q. Why has the Company chosen to operate a voluntary EE&C Plan and to**
6 **offer energy efficiency and conservation (“EE&C”) programs to its**
7 **customers?**

8 A. The primary reasons for offering these programs are to address customer demands
9 for these types of EE&C programs and to continue to improve customer
10 satisfaction levels. Since UGI Electric’s service territory is surrounded by larger
11 electric distribution companies (“EDCs”) that offer energy efficiency programs
12 and rebates through Act 129, the Company continues to believe its customers
13 should have access to the same types of energy savings opportunities.
14 Additionally, UGI Electric sought to institute an EE&C Program for its customers
15 based on the guidance contained in the December 23, 2009 Secretarial Letter
16 issued at Docket No. M-2009-2142851 (“December 23, 2009 Secretarial Letter”),
17 which asked the smaller EDCs in Pennsylvania to consider voluntarily filing
18 EE&C Plans.

19 Moreover, UGI Electric has seen significant benefits from its existing
20 EE&C programs and believes that there are additional incremental opportunities
21 for customers to take advantage of revised or new incentives to assist with their
22 implementation of energy efficiency strategies and high efficiency equipment
23 purchases. The Company believes that the proposed Phase III EE&C Plan will

1 continue to provide meaningful benefits to customers, assist in overall load
2 reduction goals, and be implemented in a manner which does not disadvantage the
3 Company or its customers.

4 **Q. Why is UGI Electric filing a petition for approval of its Phase III EE&C**
5 **Plan?**

6 A. UGI Electric's current Phase II EE&C Plan is set to end on May 31, 2019. In this
7 proceeding, UGI Electric is seeking approval of a new five-year Phase III EE&C
8 Plan that, to the extent possible, would commence June 1, 2019, and end May 31,
9 2024. This would allow customers to continue taking advantage of energy
10 savings initiatives on an uninterrupted basis and would allow UGI Electric's
11 customers to stay competitive with other customers in Pennsylvania that have
12 access to electric efficiency programs offered under Act 129.

13 **Q. Please provide a summary of UGI Electric's Phase III EE&C Plan.**

14 A. The Phase III EE&C Plan provides a portfolio of EE&C programs that is targeted
15 to all UGI Electric's various customer segments and is designed to reduce overall
16 electricity consumption 1.66% by 2024 compared to the Company's annual
17 historic load for June 1, 2007, to May 31, 2008. These programs have been
18 designed as a portfolio to offer UGI Electric's customers a variety of cost-
19 effective options to reduce electricity consumption, which ultimately will help all
20 customers reduce their energy costs. These programs were developed in the
21 context of providing a workable plan for UGI Electric's small system and
22 continuing successful programs from UGI Electric's Phase II EE&C Plan. The
23 Plan is expected to save 18,120 MWh over five years and cost \$7.22 million

1 (approximately \$1.44 million per year). The Plan is expected to provide present
2 value net Total Resource Cost (“TRC”) benefits of \$1.37 million with an overall
3 TRC benefit-cost ratio (“BCR”) of 1.18.

4 UGI Electric’s Phase III EE&C Plan includes a number of changes from
5 its Phase II EE&C Plan, which are summarized below and addressed in more
6 detail in the following section. Changes from the Phase II to the Phase III Plan
7 include:

- 8 1. A proposed savings target of 1.66% of 2008 sales, or 17,485 MWh, by 2024.
- 9 2. A shift from a three-year plan term to a five-year plan term.
- 10 3. A phase out of residential lighting measures by January 2020 to address
11 upcoming changes to the residential lighting market due to the Energy
12 Independence and Security Act of 2007 (“EISA”) (this shift in the lighting
13 market in 2020 is hereto referenced as “EISA 2020”).
- 14 4. The consolidation of programs to streamline administration and reporting,
15 including merging the Residential Fuel Switching Program into the Appliance
16 Rebate Program and merging the commercial and industrial (“C&I”) Fuel
17 Switching Program into the C&I Custom Program.
- 18 5. The discontinuation of programs unable to achieve meaningful participation,
19 savings, and/or cost-effectiveness, such as the Residential Low-Income Water
20 Heater Pilot Program, the Residential Home Energy Audit Program, and the
21 C&I HVAC Tune-up Program.
- 22 6. The expansion of the Customer Education Program into the Emerging
23 Technology and Outreach Program to include the C&I market and provide a

1 wider range of opportunities for UGI Electric to explore emerging
2 technologies and techniques for saving electricity.

3 **Q. Are there any significant uncertainties that may affect UGI Electric’s Phase**
4 **III EE&C Plan?**

5 A. Yes. Uncertainty remains on enforcement mechanisms and sell-through periods
6 as well as the Commission’s treatment of lighting due to the EISA 2020
7 standards. As consensus is reached in Pennsylvania regarding Act 129’s
8 treatment of lighting due to EISA 2020 standards, UGI Electric may update its
9 EE&C Plan to continue offering residential lighting measures where feasible.

10 More generally, during Phase III of UGI Electric’s EE&C Plan, there will
11 be new potential studies, new policy goals, an updated Technical Reference
12 Manual (“TRM”), implementation and TRC Test orders, and EE&C Plan filings
13 for Phase IV of Act 129. Due to UGI Electric’s size, it is not subject to Act 129;
14 however, the Company’s EE&C Plan is designed along similar lines to Act 129,
15 and measure savings are calculated using the Act 129 TRM, where possible. UGI
16 Electric will keep a close eye on the Phase IV of Act 129 planning activities, as
17 they apply to residential lighting, and may need to update its Phase III EE&C Plan
18 to continue this alignment with statewide electric efficiency initiatives.

19 In addition, the effectiveness of the Company’s communication efforts and
20 associated customer willingness to implement EE&C measures impacts program
21 participation. The general state of the economy may adversely affect the ability
22 of customers, particularly C&I customers, to make investments in energy

1 efficiency projects. Notwithstanding, the incentives contained in the proposed
2 Plan should make such investment decisions easier for the customer.

3

4 **III. PLAN DEVELOPMENT AND UPDATES**

5 **Q. What are UGI Electric’s annual performance goals for energy savings and**
6 **allowed expenses over the course of the Plan, as suggested in the**
7 **Commission’s Secretarial Letter?**

8 A. UGI Electric is voluntarily attempting to reduce electric consumption 1.66% by
9 2024 (as measured against the Company’s annual historical load for June 1, 2007
10 to May 31, 2008). This represents a savings target of approximately 17,485 MWh,
11 and UGI Electric’s Phase III EE&C Plan is projected to achieve savings of 18,120
12 MWh, approximately 104% of this goal. As noted in the Commission’s
13 December 23, 2009 Secretarial Letter, UGI Electric is attempting to reach this
14 target while spending less than 2% of its annual jurisdictional revenues for the 12-
15 month period ended May 31, 2008, or \$2.5 million, for each program year. The
16 Company projects that it will cost \$7.22 million over five years, or approximately
17 \$1.44 million per year, to achieve its savings target.

18 **Q. What process did UGI Electric undertake to develop its Phase III EE&C**
19 **Plan?**

20 A. UGI Electric EE&C Staff worked closely with myself and other expert
21 consultants under my direction to carefully develop the Plan, while using the
22 Commission’s orders in the Act 129 proceedings as a basic framework upon
23 which to build its Phase III EE&C Plan. A savings target for Phase III was

1 developed based on the Company’s experience with successful programs in Phase
2 II, projected participation in Phase III, and market factors.

3 The UGI Electric EE&C team conducted an extensive review of the
4 performance of the Company’s Phase II EE&C programs as well as a
5 comprehensive list of energy efficiency and conservation measures and practices
6 from a number of other sources, primarily the Commission-approved EE&C
7 programs currently utilized by the Act 129 EDCs, and other available cost-
8 effective EE&C measures. This research also included a review of future federal
9 and state regulations that could affect EE&C programs and measures.

10 Data on technical specifications, energy use impacts, and measure costs
11 were compiled from various trusted sources. The Pennsylvania Act 129 TRM
12 from 2016, with errata update in February 2017, served as a default source for the
13 majority of measures. The UGI Electric team worked with Paul Chernick of
14 Resource Insight Inc. to develop updated projections for the avoided cost of
15 electricity. Together these assumptions were used to compute measure cost-
16 effectiveness from a TRC Test perspective.

17 The next step was to determine the potential for the existing programs in the
18 future and assess alternative sources for saving electricity. The UGI Electric team
19 began with the programs offered by the Company in its Phase II EE&C Plan but
20 considered the experiences of other EDCs in Pennsylvania with similar programs
21 and other outside sources to identify programs and measures with a high
22 likelihood of success. Working with UGI Electric EE&C staff and conservation
23 service providers (“CSPs”), participation rates and program spending assumptions

1 were developed, and potential program, sector, and portfolio savings costs, and
2 cost-effectiveness from the TRC perspective were determined.

3 UGI Electric balanced the portfolio by adjusting the number of
4 participants to develop a reasonable mix of programs likely to reach the Plan
5 savings and spending objectives, while maintaining cost-effectiveness under the
6 TRC Test at a sector and plan level.

7 UGI Electric met with the active parties from the Phase II EE&C Plan
8 proceeding on June 6, 2018, to solicit feedback on its initial Phase III EE&C Plan
9 findings. The feedback received during these meetings was incorporated into the
10 Plan design where possible.

11 Although UGI Electric is not subject to the requirements of Act 129, the
12 energy-saving targets, expenditure guidelines, cost-effectiveness, and the
13 customer equity guidelines outlined by Act 129 and the Commission's related
14 December 23, 2009 Secretarial Letter defined the major parameters and
15 constraints for developing the portfolio. Specifically, the Company established a
16 savings target and used actual revenues for the twelve-month period, June 2007
17 through May 2008, to determine its approximate 2% of annual revenue
18 expenditure level, which served as an upper boundary for Plan development. UGI
19 Electric also is seeking a five-year term for its Phase III EE&C Plan.

20 **Q. Why is UGI Electric seeking a five-year term for its Phase III Plan?**

21 A. Going to a five-year term will provide UGI Electric's Phase III EE&C Plan with
22 the same term length as the Act 129 Phase III EE&C Plans. In addition, less

1 frequent filings will reduce the administrative burden on UGI Electric, which is
2 appropriate, given the size of UGI Electric's operations.

3 **Q. What were some of the initial findings that affected the proposed Phase III**
4 **EE&C Plan?**

5 A. First, the avoided cost of energy will be significantly lower in Phase III than in
6 Phase II. These lower energy prices were somewhat offset by higher capacity
7 costs, but the overall effect was lower projected benefits for measures in Phase III
8 compared to Phase II. Second, changes to the residential lighting market due to
9 EISA 2020 had major impacts on the mix of programs and source of savings for
10 the residential sector.

11 **Q. What effect does EISA 2020 have on the Phase III EE&C Plan?**

12 A. EISA 2020 has a large effect on residential opportunities for Phase III. In Phase
13 II, the majority of benefits for the residential sector have come from light emitting
14 diode light bulbs ("LEDs"), either through upstream lighting rebates, giveaways,
15 or direct installation. As it currently stands, EISA 2020 would eliminate the vast
16 majority of savings that could be claimed from these activities, making programs
17 that rely on benefits from this measure no longer feasible.

18 The original EISA standards covered lamps with lumens ranging from 310
19 to 2,600 lumens and excluded 22 categories of specialty lamps. This meant that a
20 shift in focus to lamps excluded from EISA 2020 might have been able to sustain
21 a residential lighting program after 2020. However, in January 2017, the
22 Department of Energy ("DOE") issued two rules that greatly expanded the scope
23 of EISA 2020. This included increasing the lumen range of covered lamps to

1 3,300 lumens and the removal of seven categories of specialty lamps from
2 exclusion. Together, these updates eliminated approximately 90% of the
3 previously excluded lamps.¹ This development led to the decision to not include
4 any residential lighting measures in the Plan beyond January 2020.

5 **Q. Does the Phase III EE&C Plan contain any residential lighting programs or**
6 **savings?**

7 A. Yes. Phase III is projected to start June 1, 2019, which will allow for a seven-
8 month wind-down of the existing Residential Energy Efficient Lighting Program.
9 In addition, the energy savings kits from the School Energy Program will still
10 contain LEDs for the first year of Phase III, since they will be provided to
11 students before January 2020.

12 **Q. Are there any uncertainties regarding EISA 2020 that could affect the Plan?**

13 A. Yes. Significant questions remain around the treatment of lighting in
14 Pennsylvania due to the EISA 2020 standards, how long inventory of existing,
15 non-compliant lamps may be sold (the “sell-through period”), and the specific
16 enforcement mechanisms that will be utilized. UGI Electric will be looking to
17 future guidance provided by the Commission in the Phase IV Act 129 proceedings
18 to answer these questions. The Company may update the Plan to continue
19 offering residential lighting measures as consensus regarding baseline
20 assumptions, sell-through periods, and/or any other market conditions is reached
21 in Pennsylvania.

¹ An analysis of the January 2017 updates from DOE can be found at: <http://www.nmrgroupinc.com/wp-content/uploads/2017/09/Davids-poster-description.pdf>

1 **Q. Are there other changes to residential sector programs in Phase III?**

2 A. Yes. As discussed previously, the Residential Energy Efficient Lighting Program
3 will end in the first year of Phase III and stop operation by January 2020 to
4 account for EISA 2020. The residential Fuel Switching Program will be merged
5 into the Appliance Rebate Program, and the Home Energy Audit Program and
6 Residential Low-Income Water Heater Pilot Program will cease operations by
7 June 1, 2019. In addition, the Customer Education Program has been expanded
8 and reworked to become the Emerging Technology and Outreach Program.

9 **Q. Why is the Fuel Switching Program merging with the Appliance Rebate
10 Program?**

11 A. UGI Electric is merging the Residential Fuel Switching Program into the
12 Appliance Rebate Program to take advantage of streamlined administrative and
13 marketing efforts due to the similar nature of the two programs.

14 **Q. Why is the Home Energy Audit Program ending?**

15 A. The Home Energy Audit Program had a significant change in program design in
16 PY6 of Phase II, which allowed customers to participate in the program at no cost.
17 Preliminary results from this change have shown a significant uptake in
18 participation, which puts this program on more solid ground for the current phase.
19 That being said, a main component of the program is the direct installation of
20 LEDs in customer's homes. With this measure going away in 2020, the ability for
21 the program to deliver significant electric energy savings, as well as maintain
22 cost-effectiveness, is very uncertain. Therefore, UGI Electric has decided to not
23 continue offering this program for Phase III.

1 **Q. Why is the Residential Low-Income Water Heater Pilot Program ending?**

2 A. UGI Electric will cease offering this program by June 1, 2019, due to low
3 participation and cost-effectiveness. The Company has experienced low
4 participation in the Pilot LIURP Water Heater Replacement Program, even
5 though the Company offers the service at no cost to the customer. UGI Electric
6 has only seen two participants in PY6 and one participant in PY5 of Phase II. In
7 addition, the program has not been able to maintain a TRC BCR above 1.0, as it
8 was initially projected to, and its cost-effectiveness does not improve using Phase
9 III avoided costs.

10 **Q. Does the proposed Phase III EE&C Plan provide EE&C measures to low-**
11 **income customers on UGI Electric's system?**

12 A. Yes. UGI Electric was mindful in developing its Phase III EE&C Plan to include
13 programs and measures that will aid its low-income customers in reducing their
14 energy consumption, even though the Company is not subject to the requirements
15 of Act 129. Some examples include the Residential Appliance Recycling
16 Program, the Residential Appliance Rebate Program, the School Energy
17 Education Program, and the Emerging Technology and Outreach Program. UGI
18 Electric will facilitate a giveaway of free LEDs to CAP customers under the
19 Residential Energy Efficient Lighting Program in 2019 before EISA 2020 takes
20 effect. These programs should assist low-income customers in reducing their
21 energy costs going forward.

1 **Q. Other than the lighting changes discussed earlier, what changes were made**
2 **to residential sector measures in Phase III?**

3 A. A number of smaller adjustments were made to measures in residential sector
4 programs for Phase III. Dehumidifiers have been added to the Appliance
5 Recycling Program as an extra source of savings. The School Energy Efficiency
6 Program is being expanded to include a kit provided to high-school students as
7 well as middle-school students. Finally, the list of eligible measures and
8 incentives have been updated for the Appliance Rebate Program, including: (1)
9 adding in the measures previously covered under the Residential Fuel-Switching
10 Program; (2) adding incentives for variable-frequency drive (“VFD”) pool pumps
11 (until federal standards change in May 2021); (3) discontinuing incentives for air-
12 source heat pumps, heat pump water heaters, and fuel switching for water heaters
13 and clothes dryers due to cost-effectiveness concerns; and (4) generally adjusting
14 incentive ranges to be in line with the Act 129 EDCs in surrounding territories.
15 While UGI Electric does not currently project offering incentives for air-source
16 heat pumps, heat pump water heaters, fuel switching for water heaters, fuel
17 switching for clothes dryers, and ENERGY STAR® manufactured homes, an
18 incentive range has been included in the Plan for these measures in case UGI
19 Electric were to offer them in the future based on the need to meet proposed
20 targets, changes in customer demand, or market conditions.

1 **Q. Will UGI Electric offer a custom measure incentive under the Appliance**
2 **Rebate Program?**

3 A. Not initially. The Plan does provide criteria for custom measures under the
4 Appliance Rebate Program, including a requirement to have a TRC BCR of at
5 least 1.0 and an incentive maximum of the lesser of \$0.14 per kWh saved or 50%
6 of the measure cost. The Company will use these criteria for offering prescriptive
7 rebates in the future for new measures, such as those that have been evaluated
8 through the Emerging Technology and Outreach program, and that may make
9 sense as a prescriptive offering under the Appliance Rebate Program. Given the
10 longer term of Phase III and the administrative burden for a small EDC to file
11 EE&C Plan changes to add new measures, this approach provides crucial
12 flexibility for UGI Electric to address any future changes to the residential
13 equipment market.

14 **Q. Are there any changes to C&I sector programs in Phase III?**

15 A. Yes. The HVAC Tune-up Program will no longer be offered due to low
16 participation and poor cost-effectiveness results. The level of administrative costs
17 needed to reach participants, combined with pressure from lower avoided costs in
18 Phase III, led to the decision to stop offering this program in Phase III.

19 **Q. What other changes to C&I programs are included in the proposed Phase III**
20 **EE&C Plan?**

21 A. The Small Commercial Fuel Switching Program has been merged into the C&I
22 Custom Program to streamline administrative and reporting responsibilities.
23 Given that UGI Electric has yet to see any participation in this program, the

1 proposed Plan does not include any projections for these types of projects, but the
2 Company will continue to consider such opportunities as they arise.

3 The C&I sector was identified as an area with additional potential for cost-
4 effective savings. Along these lines, participation assumptions for the C&I
5 Custom Program are gradually ramped up over the first three years of Phase III to
6 capture this additional opportunity. C&I Custom Program design also is shifting
7 towards addressing more than just lighting opportunities for customers. Under the
8 program, the Company will work with UGI PNG's programs for nonresidential
9 customers to address both electric and gas savings opportunities at the same time.
10 Finally, the incentive maximum for C&I Custom projects was increased from
11 \$0.12 per kWh to \$0.18 per kWh.

12 **Q. Why is the incentive maximum for the C&I Custom Program being**
13 **increased to \$0.18 per kWh?**

14 A. This increase was included to provide flexibility for UGI Electric to capture the
15 additional savings opportunities identified in the C&I sector. The Company
16 projects that, overall, incentives for the C&I Custom Program will remain at the
17 current level of \$0.12 per kWh. However, the Company may in the future adjust
18 incentive levels higher or lower for individual projects based on the mix of
19 measures, financial characteristics, or other such considerations. UGI Electric
20 will still limit the rebate amount to the lesser of \$100,000 or 50% of the customer
21 project cost.

1 **Q. Are there any new programs in Phase III?**

2 A. Yes. The Customer Education Program has been reworked and expanded into a
3 new program called the Emerging Technology and Outreach Program. This
4 program will fund crosscutting marketing activities for existing programs and
5 pilot projects for new and emerging technologies or saving techniques. The
6 program is projected to cost \$600,000 over five years (an average of \$120,000 per
7 year), and the Company anticipates allocating 80% of this funding to the
8 residential sector, including-low income, and 20% to the C&I sector. A list of
9 initiatives that may be offered through this program is included on page 35 of the
10 Plan. While UGI Electric does not currently project any savings for this program,
11 if any verifiable savings do result from program activity, the Company will
12 include these results in future annual reports.

13 **Q. Why is UGI Electric proposing the Emerging Technology and Outreach**
14 **Program?**

15 A. UGI Electric believes this program is an excellent way to meet the goal of seeking
16 ways to provide new and improved opportunities for all its customers to save
17 energy. The energy efficiency landscape is constantly changing, and the next few
18 years will see significant shifts as administrators in Pennsylvania work to find
19 ways to replace savings from residential lighting and address the updated goals
20 and requirements from Phase IV of Act 129. UGI Electric will use this program
21 to address these challenges and stay competitive. This program also will serve as
22 a way to experiment with new ways to engage with low-income customers
23 without the pressure of maintaining cost-effectiveness from a TRC Test

1 perspective. Overall, the Emerging Technology and Outreach Program offers
2 UGI Electric a way to explore new energy saving and customer engagement
3 initiatives without filing costly plan updates but still maintaining overall sector
4 and portfolio cost-effectiveness.

5
6 **IV. PLAN BENEFITS AND COSTS**

7 **Q. What savings are projected for UGI Electric’s Phase III EE&C Plan**

8 A. UGI Electric anticipates annual savings to total 18,120 MWh by the fifth year of
9 the Plan, which is approximately 104% of its target of 17,485 MWh. Of these
10 savings, 9,210 MWh, or 50.8%, come from the residential sector, and 8,910
11 MWh, or 49.2% come from the C&I sector. These savings projections do not
12 include any savings that may be claimed under the Emerging Technology and
13 Outreach Program. Table 2 of the Plan provides a breakout of savings by
14 program, and the individual program sections in the Plan breakout projected
15 savings by year.

16 **Q. What are the projected costs to meet these savings?**

17 A. UGI Electric anticipates costs of approximately \$7.22 million over five years to
18 achieve the projected savings. Including projected allocations for the Emerging
19 Technology and Outreach Program, costs for the residential sector programs are
20 projected to be \$3.20 million over five years, and costs for the C&I sector
21 programs are expected to be \$2.66 million over five years. UGI Electric also
22 projects portfolio-wide administrative costs of \$1.35 million over five years. The

1 individual program sections in the Plan provide a breakout of costs by year and
2 category.

3 **Q. Does UGI Electric’s Phase III EE&C Plan meet the criteria for spending**
4 **caps outlined in the Commissions 2009 letter?**

5 A. Yes. UGI Electric is projecting annual spending of approximately \$1.44 million
6 per year, which is below the \$2.5 million per year cap derived from 2% of 2008
7 revenue.

8 **Q. Does UGI Electric’s proposed Phase III EE&C Plan provide a detailed**
9 **description of each program in the Plan and a calculation of benefits and**
10 **costs?**

11 A. Yes, it does. The Plan clearly delineates each program and all of its features as
12 well as the calculation of benefits and costs for each program and measure.

13 **Q. Does the proposed plan meet the Commission’s TRC Test?**

14 A. Yes. As a smaller EDC, UGI Electric is not subject to the requirements of Act
15 129, but the Commission’s December 23, 2009 Secretarial Letter indicated that
16 the voluntary programs offered by a smaller EDC should meet the TRC Test. The
17 Phase III EE&C Plan is cost-effective according to the TRC Test established by
18 the Commission. UGI Electric’s analysis indicates an overall TRC BCR of 1.18
19 for the proposed portfolio, a TRC BCR of 1.52 for the residential sector, and a
20 TRC BCR of 1.24 for the C&I sector.

1 **Q. Do all measures and programs provide positive net benefits from a TRC Test**
2 **perspective?**

3 A. No. The Residential Appliance Rebates Program, as well as certain measures
4 within it, is not cost-effective from a TRC Test perspective. The Appliance
5 Rebate Program was included in Phase III to continue offering a diverse set of
6 EE&C programs, to meet the Plan’s saving target, and to keep UGI Electric’s
7 offerings competitive with surrounding EDCs. Consistent with prior Commission
8 orders on this issue, the portfolio overall, as well as the residential programs
9 combined, is cost-effective on a TRC Test basis, as discussed above.

10

11 **V. IMPLEMENTATION, ADMINISTRATION, AND EM&V**

12 **Q. Please summarize UGI Electric’s strategy to implement the Phase III EE&C**
13 **Plan after Commission review and approval.**

14 A. Implementation of UGI Electric’s Phase III EE&C Plan will rely on the
15 performance of its internal staff in collaboration with CSPs, trade allies,
16 community agencies, and other entities engaged in energy efficiency activities to
17 promote, administer, and support the effective deployment of programs. Various
18 forms of communications, including the Company website, bill inserts, direct
19 mailings, print and radio advertisements, and social media will be utilized as
20 needed to reach customers with Plan details. While UGI Electric’s internal
21 EE&C Staff will administer many of the marketing aspects of the EE&C Plan,
22 UGI Electric will continue to rely heavily on its program CSPs to deliver services
23 in support of its Phase III EE&C Plan programs.

1 Since UGI Electric’s territory is completely encompassed by UGI PNG,
2 UGI Electric will explore opportunities to leverage the recently approved UGI
3 PNG EE&C Plan. This may include sharing marketing and administrative
4 resources, as well as integrating program offerings where possible. Specifically,
5 UGI Electric will look to address electric savings opportunities through the C&I
6 Custom Program and natural gas saving opportunities through UGI PNG
7 nonresidential programs when working with C&I customers.²

8 **Q. What is the Company proposing to evaluate, report, and update under the**
9 **Phase III EE&C Plan?**

10 A. In conjunction with CSP input, UGI Electric’s EE&C Staff will continue to verify
11 and quantify actual program participants savings for purposes of calculating total
12 program and Plan savings for evaluation and measurement against stated usage
13 reduction goals. UGI Electric’s internal EE&C Staff will compile periodic reports
14 showing overall Plan progress. These reports will serve as the basis for both
15 identification of programs having shortfall or excessive participation rates and an
16 annual Plan report to the Commission no later than three months after each Plan
17 Year is concluded.

18 After a reasonable amount of experience with the Phase I & II EE&C
19 Plans, many of the Company’s assumptions have been analyzed, refined, and,
20 where necessary, revised. The extent to which further revisions may be called for
21 and whether they will have a material effect on the design and outcome of the
22 Phase III EE&C Plan is difficult to predict. UGI Electric will continually monitor

² UGI Electric notes that subject to Commission approval of the proposed merger of UGI Utilities, Inc., UGI PNG, and UGI Central Penn Gas, Inc. at Docket Nos. A-2018-3000381, *et al.*, UGI PNG will become the UGI North rate zone of UGI Utilities, Inc.

1 results published by the Act 129 EDCs on their EE&C programs' effectiveness as
2 an early indicator of program successes and failures and will use this information
3 when considering potential program revisions. The results of this activity will be
4 used to identify those aspects of the Plan that work well and those that do not and
5 to adjust specific program features accordingly.

6 For the Company, the Phase III EE&C Plan provides flexibility by
7 allowing UGI Electric to evaluate the actual results of the programs and determine
8 whether any adjustments are necessary to achieve the desired energy savings on a
9 whole and/or maintain Plan cost-effectiveness. However, the Company will not,
10 without Commission approval, add new programs, eliminate existing programs,
11 deviate significantly from the approved program parameters, or exceed the total
12 approved budget for the plan.

13 **Q. Does this conclude your direct testimony?**

14 A. Yes, it does. I reserve the right to submit supplemental testimony during the
15 course of the proceeding. Thank you.

UGI Electric
Exhibit TML-1

Professional Experience

Green Energy Economics Group, Inc. – Cuttingsville, VT 2007 to Present
Partner

Providing research and technical assistance relating to the design, analysis, and implementation of energy utility demand-side management (DSM) programs for electric and natural gas service providers around the world; including ten states, two Canadian provinces, and China. Particularly focused on data analysis and building scalable tools to analyze everything from individual projects to programs to portfolios.

Alter & Rosen, LLP –New York, NY 2007 to 2010
Consultant

Managed the development of an online database management system for musical copyrights and brought on board paying beta users. Managed data entry, reporting, termination and reversion issues for transactions involving musical copyright catalogues valued at over \$100 million.

Exist Capital Management – New York, NY August 2007 to September 2007
Assistant Trader

Monitored market activity and active positions for main portfolio manager. Compiled daily research and reconciliation reports.

AllianceBernstein LP –White Plains, NY 2006 to 2007
Client Reporting Analyst

Oversaw the monthly and quarterly report process for clients domiciled outside the United States. Increased by 150% the amount of accounts that met a fifth business day deadline. Transferred firm’s quarterly reporting process to new system.

Complex Integrated Systems, Inc. LP – Framingham, MA 2005 to 2006
Database Systems Consultant

Designed and implemented custom modules for metal fabrication and finishing business management software. Recruited and trained a team of developers to aid in Complex Integrated System’s growth.

Education

Clark University – Worcester, MA

B.A. Magna cum Laude, *Mathematics and Computer Science*, 2006.

Kansai Gaidai University: Hirakata City, Osaka Japan.

Study Abroad Program, Spring Semester 2005

General Assembly: New York City, NY

Data Science Intensive Course, 2015

Recent Project Experience

Green Energy Economics Group, Inc.

Research on Leading Energy Efficiency Portfolios

Green Energy Economics Group - Vermont

(November 2007 – Present)

- Maintain research and proprietary analysis on actual and projected results from over a dozen electric and natural gas demand side management (DSM) portfolios throughout North America;

Natural Gas Efficiency Options and EE&C Plan for Peoples Natural Gas

Peoples Natural Gas, Inc. – Pennsylvania

(September 2017 – Present)

- Prepared report on program, sector, and portfolio-level cost and savings for 29 natural gas administrators in 11 States, and provided recommendations for potential natural gas DSM opportunities for Peoples Natural Gas
- Assist with stakeholder review process
- Developed five year \$42 million Energy Efficiency and Conservation (EE&C) Plan, and provided testimony to support the adoption of the Plan (ongoing).

Analytic and Technical Support for DSM Tracking Systems

PECO Energy Company – Pennsylvania

(September 2016 – Present)

Commonwealth Edison Company – Illinois

(August 2017 – Present)

- Subcontractor to ANB Systems Inc. to provide domain expertise and analytic support to rollout of enhanced tracking system.
- Developed dashboards and internal reports used by PECO's EM&V team, business planning, and various program and portfolio managers.
- Guided automation of PECO's six-month and annual reporting process.

Development and Implementation of Energy Efficiency and Conservation Plan

UGI Utilities, Inc. – Pennsylvania

(June 2015 – Present)

Assist UGI Utilities, Inc. and PNG with the development and approval of Energy Efficiency and Conservation (EE&C) Plans for their UGI Gas PNG Gas, and UGI Electric divisions, including:

- Developing an achievable efficiency scenarios for UGI Gas and PNG Gas.
- Designing a five-year, \$27 million energy efficiency and conservation plan for UGI Gas. Submitting direct testimony on behalf of UGI Gas, Inc. on the design and implementation of the proposed plan (Docket No. R-2015-2518438)
- Designing a five-year \$15 million energy efficiency and conservation plan for PNG Gas. Submitting direct testimony on behalf of PNG Gas, Inc. on the design and implementation of the proposed plan (Docket No. R-2016-2580030)
- Assisting with the design and implementation and reporting of the UGI Electric voluntary EE programs.

Strategic Planning and Implementation of Five-year DSM Portfolio

Philadelphia Gas Work's (PGW) - Philadelphia, Pennsylvania (August 2008 – Present)

- Designed Phase II plan with PGW and submitted direct testimony supporting the plan on behalf of PGW (Docket No. P-2014-2459362)
- Member of lead consulting team that aided in the design and approval of PGW's five-year, \$54 million portfolio of DSM programs;
- Providing ongoing technical assistance in the development of PGW's \$35 million Phase II five year plan.
- Providing ongoing technical support in program design and implementation, including the roll-out of six programs that, combined since inception, have saved 120,000 MMBtus at a cost of approximately \$17 million;
- Developed specifications for and currently collaborating with internal PGW staff on database system to track weatherization projects, rebate applications, and other information pertaining to PGW's DSM portfolio;
- Developed multiple Excel-based tools used by contractors to perform field audits, provide QA/QC, and track ongoing progress for contractors, programs, and the portfolio as a whole;
- Provided research and analysis support for multiple rounds of expert testimony before the Pennsylvania Public Utility Commission (Docket R-2009—2149884);
- Aided in the issuance of RFPs and selection of candidates for over \$40 million in contracts;
- Major contributor to PGW's ongoing formal reporting and evaluation process, including the issuance of five implementation plans, three annual reports, and two impact evaluations.

Technical Assistance for Energy Efficiency Program Planning

Green Mountain Power - Vermont (August 2012 – July 2017)

- Developed multivariable regression model and framework to estimate the cost per kW to address a reliability gap in the St. Albans region with targeted energy efficiency.
- Reviewed and analyzed program proposals for the \$20 million Community Energy & Efficiency Development Fund (CEED Fund), including the development of scoring and rebalancing mechanisms;
- Analyzed dataset of 5,000 custom business projects to establish models used for future planning exercises.

- Prepared report on uncounted benefits of renewable generation sources for Vermont.

Analysis of Energy Efficiency in British Columbia

BC Sustainable Energy Association & Sierra Club BC, *British Columbia (May 2011 – June 2014)*

- Provided comments and energy efficiency opportunities report for proceedings on FortisBC Gas and Electric's long-term DSM plans in December of 2013.
- Assisted on research for direct testimony on reasonableness of gas DSM Plan by Fortis Energy Utilities before the British Columbia Utilities Commission, BCUC Project No. 3698627;
- Technical support on assessment of FortisBC Electric's long-term DSM plan and corresponding expert testimony;
- Assistance with direct testimony and technical support on assessment of BC Hydro's long-term DSM plan, before the BCUC.

Technical Assistance for Energy Efficiency Programs

Focus on Energy - *Wisconsin*

(June 2011 – Present)

- Developed and customized cost-effectiveness calculators for Wisconsin's Focus on Energy portfolio of energy efficiency programs;
- Trained staff and other consultants on usage of tools and general economic analysis of energy efficiency programs;
- Provided QA/QC on cost-effectiveness analysis of 14 programs spending over \$160 million in two years.

Energy Efficiency Potential in Oklahoma

Sierra Club, *Oklahoma (April 2011 – November 2011, December 2013 – January 2014)*

- Provided updated report for energy efficiency in Oklahoma and additional comments on PUC rulemaking for electric and gas utility programs.
- Preparation of report on energy efficiency potential for Oklahoma;
- Assistance with research and drafting comments on the US regional haze Federal Implementation Plan for the State of Oklahoma;
- Research and formulation of energy efficiency potential projections provided as part of expert testimony for Oklahoma Gas & Electric's rate case before the Corporation Commission of Oklahoma, Cause No. PUD 201100087.

Chicagoland Energy Efficiency Portfolio

People's Gas - *Chicago, Illinois*

(September 2008 – January 2013)

- Providing ongoing regulatory support;
- Provided cost-benefit analysis of various program scenarios and aided in the analysis of contractor bids;
- Customized excel-based portfolio and project cost-effectiveness tools to client's specifications.

Testimony Support for Expanding Gas Energy Efficiency in Pennsylvania

Citizens for Pennsylvania's Future, *Pennsylvania* (July 2013 – September 2013)

- Provided support on preparation of testimony regarding Peoples Gas of Pennsylvania's DSM plans, including preparation of benchmarking report and alternative scenario projections.

Energy Efficiency Potential in Texas

Sierra Club, *Texas* (May 2012 – August 2012)

- Research and development of alternative energy efficiency potential scenarios for the ten investor owned utilities (IOUs) in Texas;
- Development of comments for the Public Utility Commission of Texas;
- Development of presentation before the Energy Efficiency Incentive Program Committee.

Austin Energy's Energy Efficiency Potential

Austin City Council Consumer Advocate, *Austin, Texas* (April 2012)

- Research and development of alternative energy efficiency potential scenarios for Austin Energy.

Nevada Power's Energy Efficiency Potential

Sierra Club, *Nevada* (November 2011 – June 2012)

- Research on Nevada Power's Integrated Resource Plan (IRP) and development of alternative energy efficiency potential projections.

Comments on EmPower Maryland Programs

Sierra Club, *Maryland* (September 2011 – October 2011)

- Research for and development of comments on EmPower Maryland's energy efficiency programs, including the development of alternative energy efficiency potential projections.

Ontario Power Authority Field Audit Support Tool

Green Communities Canada - *Ontario, Canada* (January 2011 – May 2011)

- Collected and implemented specifications for updating the tool used by Ontario Power Authority's low-income program field agents to collect data and determine project net present values;
- Added custom features including customer input forms, saving and closing routines, and database file importing.

Energy Efficiency Potential in Arkansas

Sierra Club/Audubon Society, *Arkansas* (September 2009 – March 2010)

- Research and drafting assistance for expert testimony on energy efficiency' as an alternative to the White Bluff Steam Electric Station before the Public Service Commission of Arkansas, Docket No. 09-024-U.

Training for NGOs Working on Energy Efficiency Projects in China

ISC and NRDC – United States and China

(August 2008 – September 2010)

- Developed training materials and provided remote and in-person training sessions on the economic and financial analysis of industrial retrofit projects for structuring and negotiating financial incentive offers to customers;
 - o Worked with the Institute for Sustainable Communities (ISC) to aid its efforts to promote energy efficiency in the Guangdong and Jiangsu Provinces (February 2009 – September 2010);
 - o Worked with the National Resource Defense Council (NRDC) to aid in its efforts in China, especially in conjunction with a \$100 million revolving loan fund from the Asia Development Bank (August 2008-January 2009).

Incentive Calculations for the Project Cost-effectiveness Analysis Tool (CAT)

Efficiency Vermont – Burlington, Vermont

(November 2008 – June 2010)

- Aided in the design of a new approach to calculating incentives for custom energy efficiency projects based on financing and reaching a desired rate of return;
- Modified CAT's cash-flow projection engine, an Excel VBA system, to accommodate the new approach to incentives.

Vermont's 20-year Forecast of Electricity Savings from Sustained Investment

Efficiency Vermont – Burlington, Vermont

(December 2008 – October 2009)

- Provided components of final report relating to long-term trends for the environment (climate change, land-use, and water-use), population growth, and governmental regulation;
- Provided additional technical support on electric demand-side savings potential.

Connecticut's Long Term Acquisition Plan

Connecticut Office of the Consumer Council – Connecticut

(August – October 2008)

- Provided research and support for expert testimony regarding long-range energy-efficiency procurement plan of the Energy Conservation Management Board, on behalf of the Connecticut Office of Consumer Counsel.

Energy Efficiency Plans of BC Hydro and Terasen Gas

BC Sustainable Energy Association and

The Sierra Club - British Columbia, Canada

(October 2008 – March 2009)

- Provided research and support for expert testimony and technical support on assessment of BC Hydro's long-term DSM plan, before the BCUC, on behalf of the BC Sustainable Energy Association and Sierra Club Canada (November 2008 – March 2009);
- Provided research and support for expert testimony on assessment of Terasen Gas conservation plans before the BCUC, on behalf of the BC Sustainable Energy Association and Sierra Club Canada (October 2008).

Testimony

1. **Pennsylvania PUC** P-2014-2459362, Philadelphia Gas Works Demand-Side Management Plan for FY 2016-202; Philadelphia Gas Works. May 2015.

Analysis of Phase I DSM Plan and design of Phase II DSM Plan.

2. **Pennsylvania PUC** P-2015-2518438, UGI Utilities, Inc.- Gas Division Rate Case; UGI Utilities, Inc. January 2016.

Energy efficiency & conservation plan and total resource cost implementation.

3. **Pennsylvania PUC** P-2016-2580030, UGI Penn Natural Gas, Inc. Rate Case; UGI Penn Natural Gas, Inc. January 2017.

Energy efficiency & conservation plan and total resource cost implementation.

4. **Pennsylvania PUC** M-2017-2640306, Petition of Peoples Natural Gas Company LLC for Approval of its Energy Efficiency and Conservation Plan; Peoples Natural Gas –Peoples Division, Peoples Natural Gas – Equitable Division; January 31, 2018.

Energy efficiency study, energy efficiency & conservation plan, and total resource cost implementation.

Publications

Love, Theodore. "Using Open Data to Predict Energy Usage: What tax lot data can tell us about energy usage intensity in New York City". *Behavior Energy, and Climate Change Conference 2015*. Sacramento, CA

Plunkett, John, Theodore Love, Francis Wyatt. "An Empirical Model for Predicting Electric Energy Efficiency Acquisition Costs in North America: Analysis and Application". In *Proceedings of the ACEEE 2012 Summer Study on Energy Efficiency in Buildings, #906*, Washington, D.C.: American Council for an Energy Efficient Economy.

Gold, Elliott, Marie-Claire Munnely, Theodore Love, John Plunkett, Francis Wyatt. "Comprehensive and Cost-Effective: A Natural Gas Utility's Approach to Deep Natural Gas Retrofits for Low Income Customers." In *Proceedings of the ACEEE 2012 Summer Study on Energy Efficiency in Buildings, #442*, Washington, D.C.: American Council for an Energy Efficient Economy.

UGI Electric
Statement No. 2

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

**PETITION OF UGI UTILITIES, INC. – ELECTRIC DIVISION
FOR APPROVAL OF PHASE III OF ITS
ENERGY EFFICIENCY AND CONSERVATION PLAN**

DOCKET NO. M-2018-_____

**TESTIMONY
OF
TRACY A. HAZENSTAB**

UGI ELECTRIC STATEMENT NO. 2

August 21, 2018

1 **Q. Please state your name and business address.**

2 A. My name is Tracy A. Hazenstab, and my business address is UGI Utilities, Inc., 2525
3 N. 12th Street, Suite 360, Reading, Pennsylvania 19605.

4

5 **Q. By whom are you employed and in what capacity?**

6 A. I am employed by UGI Utilities, Inc. as a Senior Analyst – Rates.

7

8 **Q. What is your educational background?**

9 A. I graduated from Pennsylvania State University in 1996 with a Bachelor of Arts
10 Degree in International Politics.

11

12 **Q. Please describe your professional experience.**

13 A. I was hired at PPL Gas Utilities Corporation (“PPL Gas”) in 2001 as a Contact Center
14 Analyst. My primary responsibilities involved reporting all aspects of performance at
15 the Company’s contact center, including the following metrics: grade of service,
16 meter reading performance, aging summaries, call handling statistics, billing reports,
17 bad debt collections, and customer satisfaction scores. In 2004, I became a Business
18 Analyst, responsible for contact center reporting, budget reporting, and operations
19 statistics, which developed into responsibility over the preparation of PPL Gas’ (UGI
20 CPG’s predecessor) Purchased Gas Cost (“PGC”) annual 1307(f) and quarterly rate
21 tariff filings and related computations. I joined the Rates Department of UGI
22 Utilities, Inc. (“UGI”) in 2008 when UGI acquired PPL Gas. Between 2008 and
23 2018, I have been significantly involved and/or primarily responsible for the

1 preparation of UGI Central Penn Gas, Inc.’s (“UGI CPG”) Purchased Gas Cost
2 (“PGC”) annual 1307(f) and quarterly rate tariff filings and related computations.
3 Since 2013, I have been primarily responsible for the preparation of UGI Penn
4 Natural Gas, Inc.’s (“UGI PNG”) PGC annual 1307(f) and quarterly rate tariff filings
5 and related computations. I also have been primarily responsible for the preparation
6 of rate tariff filings and related computations for the Universal Service Program
7 (“USP”) Rider and State Tax Adjustment Surcharge (“STAS”) on behalf of UGI CPG
8 since 2009 and UGI PNG since 2013. Additionally, since 2011, I have been
9 primarily responsible for the preparation of the Generation Supply Rate tariff filings
10 and related computations for UGI Utilities, Inc. – Electric Division. Also, since
11 2016, I have been primarily responsible for the preparation of rate tariff filings and
12 related computations for the Customer Assistance Program (“CAP”) Rider, STAS,
13 and Energy Efficiency and Conservation (“EEC”) Rider on behalf of UGI Utilities,
14 Inc. – Electric Division (“UGI Electric” or the “Company”). In addition, I have
15 assisted in the development of certain supporting schedules in the 2017 base rate
16 proceeding on behalf of UGI Electric at Docket No. R-2017-2640058, the 2016 base
17 rate proceeding on behalf of UGI PNG at Docket No. R-2016-2580030, the 2015 base
18 rate proceeding on behalf of UGI Utilities, Inc. – Gas Division (“UGI Gas”) at
19 Docket No. R-2015-2518438, the 2010 base rate case proceeding on behalf of UGI
20 CPG at Docket No. R-2010-2214415, the 2008 base rate case proceeding on behalf of
21 UGI PNG at Docket No. R-2008-2079660, and the 2008 base rate case proceeding on
22 behalf of UGI CPG at Docket No. R-2008-2079675. I have assisted in preparing the
23 initial and quarterly Distribution System Improvement Charge (“DSIC”) filings for

1 UGI CPG and UGI PNG, beginning October 1, 2014. Finally, I am primarily
2 responsible for the development and preparation of the Purchased Gas Adjustment
3 (“PGA”) and Actual Cost Adjustment (“ACA”) surcharge filings for UGI CPG’s
4 Maryland division, along with testifying in annual hearings concerning these charges
5 before an administrative law judge at the Maryland Public Service Commission.
6

7 **Q. Have you previously testified before the Pennsylvania Public Utility Commission**
8 **(“Commission”)?**

9 A. Yes. I testified before the Commission in UGI CPG’s PGC 1307(f) proceedings at
10 Docket Nos. R-2014-2420279, R-2015-2480937, R-2016-2543311, R-2018-3001631
11 and UGI PNG’s PGC 1307(f) proceeding at Docket Nos. R-2015-2480934, R-2016-
12 2543314 and R-2018-3001632. I also have testified before the Maryland Public
13 Service Commission in UGI CPG’s PGA hearings for the past eight years at Case
14 Numbers 9511(c), 9511(d), 9511(e), 9511(g), 9511(i), 9511(j), 9511(k) and 9511(l).
15

16 **Q. What is the subject matter of your testimony in this proceeding?**

17 A. I will describe how UGI Electric is proposing to recover the costs for developing and
18 implementing its five-year Phase III Energy Efficiency and Conservation Plan
19 (“Phase III EE&C Plan” or “Plan”), which is being proposed to become effective, to
20 the extent possible, on June 1, 2019, and last through May 31, 2024.
21

22 **Q. Are you sponsoring any exhibits in this proceeding?**

1 A. Yes. I am primarily responsible for and am sponsoring: (1) UGI Electric Exhibit 2,
2 the pro forma tariff supplement for the Phase III Energy Efficiency and Conservation
3 Rider (“Phase III EEC Rider”), which is attached to the Petition for Approval of the
4 Phase III EE&C Plan; and (2) UGI Electric Exhibit TAH-1, which is attached to my
5 testimony and shows the calculation of the proposed annual Phase III EEC Rider. In
6 addition, as explained in the testimony of Mr. Love, I am co-sponsoring UGI
7 Electric’s Phase III EE&C Plan, which has been identified as UGI Electric Exhibit 1.
8 Within UGI Electric Exhibit 1, I am primarily responsible for and am sponsoring
9 Section 5.

10

11 **Q. What rate mechanism is UGI Electric proposing in connection with its Phase III**
12 **EE&C Plan?**

13 A: UGI Electric proposes to utilize a separate rate mechanism to recover the budgeted
14 costs for development and implementation of the Plan. Plan cost recovery will be
15 accomplished utilizing the Phase III EEC Rider.

16

17 **I. Projection of EE&C Plan Costs**

18 **Q. What is UGI Electric’s projection of the annual costs for its EE&C Plan?**

19 A. The projected annual costs for the Company’s EE&C Plan are approximately \$1.44
20 million, which equates to a total budget of approximately \$7.22 million over the five-
21 year life of the Plan. This budget includes the Company’s annual spending target on
22 the Phase III EE&C Plan programs and measures and also includes \$270,000 per year

1 (on average) to cover the Company's annual administrative costs incurred to
2 implement and administer the Plan each year.

3

4 **Q. How was the Company's spending target for the Phase III EE&C Plan's**
5 **programs and measures calculated?**

6 A. Act 129 provides that the total costs of any EE&C Plan cannot exceed 2% of the
7 EDC's total annual revenues as of December 31, 2006. *See* 66 Pa. C.S. § 2806.1(g).
8 In its Phase I Implementation Order entered on January 16, 2009, at Docket No. M-
9 2008-2069887 ("*Phase I Implementation Order*"), the Commission concluded that
10 this limitation on the "total costs of any plan" should be interpreted as an annual
11 amount, rather than an amount for the full term of the Plan. The Commission
12 continued this level of cost recovery in its Phase II Implementation Order entered on
13 August 3, 2012, at Docket Nos. M-2012-2289411 and M-2008-2069887 ("*Phase II*
14 *Implementation Order*") and its Phase III Implementation Order entered on June 19,
15 2015, at Docket No. M-2014-2424864 ("*Phase III Implementation Order*"). In its
16 December 23, 2009 Secretarial Letter issued at Docket No. M-2009-2142851
17 ("*Secretarial Letter*"), the Commission recognized that while the cost limits contained
18 in Act 129 are not applicable to a voluntary EE&C Plan, an EDC submitting such a
19 plan must justify the level of expenditures using the twelve-month period ending May
20 31, 2008.

21 UGI Electric has constructed the Phase III EE&C Plan using the base period
22 specified in the Secretarial Letter (i.e., June 1, 2007, through May 31, 2008). The
23 jurisdictional revenues for this period were approximately \$125.3 million. Based on

1 this revenue level, the Company proposes an annual budget for expenditures on the
2 Phase III EE&C Plan programs and measures of approximately \$1.44 million, which
3 includes administrative costs of \$270,000 per year on average associated with the
4 design, development, and administration of the EE&C Plan. Specifically, the
5 administrative costs that comprise this amount include, among other things: (1) legal
6 costs, consulting and regulatory costs associated with developing, submitting, and
7 obtaining Commission approval of this Plan; (2) costs incurred to manage and
8 administer the programs on an ongoing basis; and (3) costs to measure and verify
9 program results.

10

11 **Q. How is the budget allocated among the customer classes?**

12 A. Of the \$7.22 million total Phase III budget, UGI Electric proposes to allocate
13 approximately \$3.90 million over the five years to the residential customer class and
14 approximately \$3.32 million over the five years to the non-residential customer class.
15 These allocations of the total budget amount include an allocation of the
16 administrative costs of \$270,000 per year based on the projected amount of incentives
17 for each rate class and are summarized in Table 25 of the EE&C Plan.

18

19 **Q. How does the Company propose to treat the costs to design and develop the
20 Company's Phase III EE&C Plan?**

21 A. The Commission provided in its *Phase I Implementation Order* that electric
22 distribution companies ("EDCs") should be permitted to recover the incremental costs
23 incurred to design, create, and obtain Commission approval of a plan. This practice

1 was continued in the Commission's *Phase II Implementation Order* and *Phase III*
2 *Implementation Order*. The design and development costs associated with the Phase
3 III EE&C Plan are estimated to be \$250,000 and are included within the \$7.22 million
4 spending target. The Company proposes to defer such development costs and to
5 amortize and recover those deferred costs ratably over the 60-month life of its Phase
6 III EE&C Plan. As a result, the Company proposes to recover \$50,000 during each
7 year of the Plan for plan design and development.

8

9 **Q. Did the Company propose a limit on annual expenditures for its Phase III**
10 **EE&C Plan programs?**

11 A. Yes. UGI Electric has proposed an annual spending cap of \$2.5 million, which
12 represents 2% of annual revenues for the 12-month period ended May 31, 2008.

13

14 **II. Cost Recovery**

15 **Q. Please describe the rate mechanism UGI Electric is proposing to use to recover**
16 **the costs of its Phase II EE&C Plan.**

17 A. Act 129 requires EDCs to recover the costs of their EE&C Plans through a
18 reconcilable adjustment clause under Section 1307 of the Public Utility Code. In its
19 *Phase I Implementation Order*, the Commission reiterated this requirement and also
20 directed that such cost recovery mechanisms be applicable to all electric customers
21 and not affect the EDC's price-to-compare, provided the EDC's plan benefits both
22 shopping and non-shopping customers. The Commission continued these
23 requirements for cost recovery and directed EDCs to implement a separate 1307

1 mechanism to recover Phase II EE&C Plan costs in its *Phase II Implementation*
2 *Order*. Further, in the *Phase III Implementation Order*, the Commission directed
3 that: (1) the “annual cost recovery methodology” must be “based on the projected
4 program costs that the EDC anticipates will be incurred over the surcharge
5 application year to attain the energy reduction targets”; and (2) every EDC must
6 “annually reconcile (*i.e.*, 1307(e) Statement) actual expenses incurred with actual
7 revenues received for the reconciliation period.” *Phase III Implementation Order*, p.
8 149.

9 Based on this Act 129 requirement and the Commission’s orders, UGI Electric
10 proposes to recover the costs of its Phase III EE&C Plan through the reconcilable
11 Phase III EEC Rider that will be imposed pursuant to Section 1307 of the Public
12 Utility Code. As in Phase I and II, the Company has designed its cost recovery
13 mechanism to be applicable to default service and choice customers because UGI
14 Electric’s Phase III EE&C Plan will benefit both shopping and non-shopping
15 customers. In this regard, UGI Electric proposes that, as with Phase I and II, the cost
16 recovery mechanism be included in the distribution charges for each customer class
17 rather than appear as a separate line item on customers’ bills. The pro forma tariff
18 supplement to implement the Phase III EEC Rider, which would become effective on
19 one day’s notice, is attached to UGI Electric’s Petition for Approval of the Phase III
20 EE&C Plan as UGI Electric Exhibit 2. The tariff language provides a description of
21 the cost recovery method, the formula for calculating the charge, and the charges
22 specific to each rate class. Attached to my testimony is Exhibit TAH-1, which shows
23 the calculation of the proposed annual Phase III EEC Rider.

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Q. How many customer classes will be reflected in its annual cost recovery mechanism?

A. As in Phases I and II, the Company proposes to calculate separately the applicable Phase III EE&C Plan costs for three general customer classes on its system: (1) residential; (2) non-residential customers (other than Rate Schedules LP and IH), which include small and large commercial and industrial (“C&I”) customers and governmental accounts, and (3) Rate Schedule LP and IH. The residential class includes low-income customers and customers served under Rate Schedules R, RWT, RTU, GS-5 and the residential portion of Rate Schedules CWH, OL, SOL, MHOL, or successor rate schedules. The non-residential class includes all other Company rate schedules not listed in the preceding sentence other than Rate Schedules LP and IH.¹

Q. What is UGI Electric’s overall approach for determining which customer class is responsible to pay for the programs in the Phase III EE&C Plan?

A. As stated previously, my understanding is that Act 129 and the Commission require that the EE&C Plan programs approved by the Commission be supported by the same customer classes that will receive the direct energy and conservation benefits. As a result, under the Company’s Plan, the costs of Phase III EE&C Plan programs that target specific rate classes are directly assigned to those classes for purposes of developing the recovery charge.

¹ In the Company’s base rate proceeding at Docket No. R-2017-2640058, the Company has proposed to eliminate rate schedules IH, RTW, RTU, and CWH, pending Commission approval.

1 **Q. What is the recovery period, and when will it begin and expire?**

2 A. The Company proposes that the Phase III EEC Rider become effective, to the extent
3 possible, on June 1, 2019. If that it is not possible, as in Phase II, the Company
4 proposes that the Phase III EEC Rider become effective on the date of the first
5 quarterly default service rate filing following Commission approval of the Plan. As
6 in Phases I and II, the Company proposes that the Phase III EEC Rider apply to all
7 usage on and after that date, through and until the last day of the respective month in
8 Year Five. As stated above, UGI Electric is proposing a five-year period for this
9 Plan. However, since Year Five of the Phase III EE&C Plan may result in over or
10 under collections of expenses, the rate recovery mechanism must continue through
11 Year Six, as in Phase I and II, so that the Company may fully recover any under
12 collection or refund any over collection incurred during Year Five. Also, at the end
13 of the Year Six, a minor amount to be recovered may exist. If this occurs, the
14 Company plans, as in Phase I and II, to roll this minor amount into a subsequent
15 default service filing.

16
17 **Q. Will the Company file for reconciliation each year?**

18 A. As in Phase I and II, the Company proposes to adjust the Phase III EEC Rider for
19 actual program expenses and revenues each year. Each year, the Company will
20 submit a filing to become effective on 30 days' notice to reconcile the previous
21 period's revenues and expenses and adjust the Phase III EEC Rider. In addition, as in
22 Phases I and II, the Company reserves the right to make an interim filing (to become
23 effective on 60 days' notice) to adjust the Phase III EEC Rider if it becomes evident

1 that the over or under recovery is significantly deviating from expected activity. The
2 net over or under collections will be based on the difference between the actual Phase
3 III EEC Rider revenues received and the actual Phase III EE&C Plan costs incurred.
4 The over or under collection calculation for each year of the Phase III EE&C Plan
5 will include the actual over or under collections for the period where the data is
6 known.

7

8 **Q. Does this conclude your Direct Testimony?**

9 A. Yes, although I reserve the right to submit supplemental testimony if other issues
10 arise during the course of the proceeding.

UGI Electric
Exhibit TAH-1

UGI Utilities, Inc. - Electric Division
Phase III Energy Efficiency and Conservation Plan
Development and Impact of Energy Efficiency and Conservation Rate
"Phase III EEC Rider"

Class 1 - Residential

<u>Plan Year</u>		<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>
Program Cost - Residential ¹		\$941,763	\$750,771	\$738,475	\$734,278	\$734,278
Declining Projected Residential Usage (kWh)		531,648,218	530,111,525	528,574,832	527,049,412	525,523,991
EEC Rate (¢/kWh) ²		0.185	0.148	0.146	0.146	0.146
Current Residential Rate (¢/kWh):	<u>Base Rate</u>³					
500 kWh Monthly Use	12.655	12.840	12.803	12.801	12.801	12.801
1,000 kWh Monthly Use	11.854	12.039	12.002	12.000	12.000	12.000
1,500 kWh Monthly Use	11.346	11.531	11.494	11.492	11.492	11.492
Cumulative Rate Impact:						
500 kWh Monthly Use		1.46%	1.17%	1.15%	1.15%	1.15%
1,000 kWh Monthly Use		1.56%	1.25%	1.23%	1.23%	1.23%
1,500 kWh Monthly Use		1.63%	1.30%	1.29%	1.29%	1.29%
Average EEC charge per Monthly Residential Bill		\$1.42	\$1.13	\$1.12	\$1.11	\$1.11

Class 2 - Non-Residential (All non-residential rates plans excluding LP and IH)

<u>Plan Year</u>		<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>
Program Cost - Class 2 ¹		\$297,339	\$363,090	\$415,999	\$416,516	\$416,516
Declining Projected Class 2 Usage (kWh)		164,551,622	163,601,622	162,461,622	161,321,622	160,181,622
Class 2 EEC Rate (¢/kWh) ²		0.189	0.232	0.268	0.270	0.272
Current Class 2 Rate (¢/kWh):	<u>Base Rate</u>³					
5 kW Demand 1,000 kWh Monthly Use	12.663	12.852	12.895	12.931	12.933	12.935
25 kW Demand 10,000 kWh Monthly Use	11.284	11.473	11.516	11.552	11.554	11.556
Cumulative Rate Impact:						
5 kW Demand 1,000 kWh Monthly Use		1.49%	1.83%	2.12%	2.13%	2.15%
25 kW Demand 10,000 kWh Monthly Use		1.67%	2.06%	2.38%	2.39%	2.41%
Average EEC charge per Monthly Class 2 Bill		\$2.98	\$3.64	\$4.17	\$4.17	\$4.17

Class 3 - Non-Residential (Rate Schedules LP and IH)

<u>Plan Year</u>		<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>
Program Cost - Class 3 ¹		\$219,092	\$267,540	\$306,526	\$306,906	\$306,906
Declining Projected Class 3 Usage (kWh)		292,049,524	291,349,524	290,509,524	289,669,524	288,829,524
Class 3 EEC Rate (¢/kWh) ²		0.078	0.096	0.110	0.111	0.111
Current Class 3 Rate (¢/kWh):	<u>Base Rate</u>³					
500 kW Demand 200,000 kWh Monthly Use	7.716	7.794	7.812	7.826	7.827	7.827
Cumulative Rate Impact:						
500 kW Demand 200,000 kWh Monthly Use		1.01%	1.24%	1.43%	1.44%	1.44%
Average EEC charge per Monthly Class 3 Bill		\$95.09	\$116.12	\$133.04	\$133.21	\$133.21

Footnotes:

¹ Administrative costs, including the costs associated with the preparation and obtaining Commission approval of the EEC Plan, are allocated between EEC classes based on projected incentive spending.

² Includes 4.4% applicable to Gross Receipts Tax.

³ Total rate as of July 1, 2018.