



July 20, 2021

Via Efiling

Rosemary Chiavetta, Secretary
PA Public Utility Commission
P.O. Box 3265
Harrisburg, PA 17105-3265

Re: PECO Energy Company's 2019-2024 Universal Service and Energy Conservation Plan, Docket Nos. M-2018-3005795, P-2020-3020727 and P-2020-3022154

Dear Secretary Chiavetta:

Enclosed for electronic filing please find the **Comments of the Tenant Union Representative Network (TURN) and the Coalition for Affordable Utility Services and Energy Efficiency in Pennsylvania (CAUSE-PA) (collectively, Low Income Advocates)**, to the Commission's May 6, 2021 Tentative Order in the above referenced proceeding.

Due to the ongoing COVID-19 pandemic, a copy of these Comments is being served via email, as indicated on the attached Certificate of Service.

Sincerely,

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BEFORE THE PENNSYLVANIA PUBLIC UTILITY COMMISSION

PECO Energy Company's 2019- 2024 Universal : Docket Nos. M-2018-3005795
Service and Energy Conservation Plan : P-2020-3020727

CERTIFICATE OF SERVICE

I hereby certify that I have, on this day, served copies of the **Comments of the Tenant Union Representative Network (TURN) and the Coalition for Affordable Utility Services and Energy Efficiency in Pennsylvania (CAUSE-PA) (collectively, Low Income Advocates)**, in the above captioned matter upon the following persons and in accordance with the requirements of 52 Pa. Code § 1.54.

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BEFORE THE PENNSYLVANIA PUBLIC UTILITY COMMISSION

PECO Energy Company Universal Service and Energy Conservation Plan for 2019-2024 Submitted in Compliance with 52 Pa. Code §§ 54.74 and 62.4. : : Docket No. M-2018-3005795
: :
: :
Petition of PECO Energy Company to amend its Amended Proposed 2019-2024 Universal Service and Energy Conservation Plan – filed July 8, 2020 : : Docket No. P-2020-3020727
: :
: :
Petition of PECO Energy Company to amend its Amended Proposed 2019-2024 Universal Service and Energy Conservation Plan – filed September 25, 2020 : : Docket No. P-2020-3022154
: :
: :

**JOINT COMMENTS OF
TENANT UNION REPRESENTATIVE NETWORK
AND
THE COALITION FOR AFFORDABLE UTILITY SERVICES AND ENERGY
EFFICIENCY IN PENNSYLVANIA**

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I. INTRODUCTION

The Tenant Union Representative Network (TURN) and the Coalition for Affordable Utility Service and Energy Efficiency in Pennsylvania (CAUSE-PA) (collectively the Low Income Advocates) file these comments to PECO Energy Company (PECO)'s proposed Universal Service and Energy Conservation Plan (USECP) for 2019 – 2024,¹ the Public Utility Commission (PUC)'s Tentative Order issued May 6, 2021,² and PECO's Supplemental Responses to that Tentative Order.³

II. BACKGROUND

PECO filed its first proposed Universal Service and Energy Conservation Plan (USECP) for 2019-2021 on November 1, 2018.⁴ That plan was amended multiple times over the subsequent three years because of two primary factors. First, PECO's independent third-party Universal Services Program evaluation showed major flaws in the design of PECO's Customer Assistance Program (CAP), that were causing CAP rates – especially for the lowest income customers – to exceed PECO's applicable energy burden standards, which were modeled on the Commission's

¹ As detailed in Section II, below, PECO's USECP was amended multiple times prior to review by the Commission. See PECO Energy Company Universal Service and Energy Conservation Plan for 2019-2024, PUC Docket No. M-2018-3005795; PECO Energy Company Universal Service and Energy Conservation Plan for 2019-2024, Petition of PECO Energy Company to amend its Amended Proposed 2019-2024 Universal Service and Energy Conservation Plan – filed July 8, 2020, PUC Docket No. P-2020-3020727; Petition of PECO Energy Company to amend its Amended Proposed 2019-2024 Universal Service and Energy Conservation Plan – filed September 25, 2020, PUC Docket No. P-2020-3022154. All references to PECO's Amended Proposed 2019 USECP are to the clean version submitted on September 25, 2020, available at <https://www.puc.pa.gov/pcdocs/1678652.pdf> (hereinafter Amended Proposed 2019 USECP).

² See PECO Energy Company Universal Service and Energy Conservation Plan for 2019-2024, PUC Docket Nos. M-2018-3005795, P-2020-3020727, P-2020-3022154, Tentative Order (May 6, 2021) (hereinafter Tentative Order or TO).

³ PECO Energy Company Universal Service and Energy Conservation Plan for 2019-2024, PUC Docket Nos. M-2018-3005795, P-2020-3020727, P-2020-3022154, Responses of PECO Energy Company to the Supplemental Data Requests contained in the Pennsylvania Public Utility Commission's Tentative USECP Order Entered May 6, 2021 (June 10, 2021)(hereinafter PECO Responses).

⁴ PECO's initial plan filing was docketed at PUC Docket No. M-2018-3005795.

prior energy burden standards. Second, the Commission updated its CAP Policy Statement, changing the standards by which PECO's CAP was to be evaluated by the Commission.

a. Fixed Credit Option (FCO) Evaluation

On June 28, 2019, PECO filed its Universal Services Program Six-Year Evaluation Report.⁵ As noted in PECO's filing letter, the evaluation had reviewed the Fixed Credit Option (FCO) design for PECO's Customer Assistance Program (CAP) and found that additional work was necessary to improve affordability for PECO's CAP customers. Specifically, the FCO did not produce a level of affordability consistent with the affordability standards in the Commission's *prior* CAP Policy Statement, particularly its lowest income customers (those in the 0-50% Federal Poverty Level income tier).⁶

The APPRISE evaluation showed that for CAP participants with incomes below 50% FPL, the *mean* energy burden was 46% of income for electric heating customers, 30% of income for electric non-heating customers, and 45% of income for electric and gas combined.⁷ All of those energy burdens far exceeded the targets set in the *prior* CAP Policy Statement. Those mean energy burdens did not go down by a significant amount even when excluding customers with estimated usage, maximum credits, and minimum bills.⁸ The APPRISE Evaluation also looked at the *percent* of customers that exceeded the targeted energy burdens.⁹ For the 0-50% FPL group, 82% of

⁵ Applied Public Policy Research Institute for Study and Evaluation (APPRISE), PECO Energy Universal Services Program Final Evaluation Report, PUC Docket No. M-2019-3011281 (Jun. 28, 2019), available at <http://www.puc.state.pa.us/pdocs/1626073.pdf> (hereinafter APPRISE Evaluation).

⁶ 52 Pa. Code § 69.265(2)(i)(A)

⁷ APPRISE Evaluation at 123-124.

⁸ APPRISE Evaluation at 124, Table VIII-6D.

⁹ APPRISE Evaluation at 131, Table VIII-8F.

electric heating, 82% of electric baseload, 82% of electric and gas (for their electricity) and 73% of electric and gas (for their gas) customers exceeded the targeted energy burdens in 2018.¹⁰

While these numbers are most shocking for the lowest income CAP customers, CAP customers at all income tiers had energy burdens exceeding the FCO targets in 2018. For the 51-100% FPL tier, 22% of electric heating, 42% of electric baseload, 39% of electric and gas (for their electricity) and 8% of electric and gas (for their gas) customers exceeded the targeted energy burdens in 2018.¹¹ For the 101-150% FPL tier, 3% of electric heating, 15% of electric baseload, 11% of electric and gas (for their electricity) and 1% of electric and gas (for their gas) customers exceeded the targeted energy burdens in 2018.¹² The APPRISE Evaluation showed both a breadth of unaffordability and a depth of unaffordability. For those 0-50% FPL CAP Customers who received an unaffordable bill relative to the energy burden targets, most customers were more than \$100 above the target energy burden, with a significant percentage more than \$1000 above the target burden.¹³ As a result of these findings, APPRISE recommended that PECO re-assess the calculation of the annual credit for the lowest poverty level group.¹⁴

In its June 28, 2019 letter, PECO proposed several next steps, including briefings and discussions with the other signatories to the Joint Petition for Settlement that established PECO's FCO CAP design.¹⁵ PECO further proposed that by March 31, 2020, PECO would file with the Commission a proposal to revise the FCO to improve affordability. On June 30, 2020, PECO filed

¹⁰ Id.

¹¹ Id.

¹² Id.

¹³ APPRISE Evaluation at 132-133.

¹⁴ APPRISE Evaluation at 171.

¹⁵ See PECO Cover Letter to PECO Energy Universal Services Program Final Evaluation Report (June 28, 2019), Docket No. M-2019- 3011281 at 3, <http://www.puc.state.pa.us//pcdocs/1626073.pdf>.

a subsequent letter with the Commission, indicating that it was working with stakeholders to address the structure and efficacy of the FCO and that PECO intended to file its 2019-2024 USECP shortly thereafter.¹⁶

b. CAP Policy Statement Amendment and Final Order

On April 6, 2017, the Commission initiated two statewide proceedings to review the effectiveness of Pennsylvania’s universal service programs and to examine the affordability of energy services to low income households in Pennsylvania.¹⁷ Numerous stakeholder meetings, working groups, formal comments, reports, and orders followed over the next two years, culminating in revisions to the Commission’s formal CAP Policy Statement, codified at section 69.265 of the Commission’s regulations, and directives to initiate a formal rulemaking to enshrine the CAP Policy Statement into regulation.¹⁸

On October 3, 2019, as part of the Commission’s statewide review of universal service programs, the Commission issued an Order extending the USECP filing schedule from three to five years and directing each utility – including PECO – to file updated enrollment and budget projections for the additional years of their currently-effective USECP.¹⁹ As part of this Order, the Commission extended PECO’s pending USECP from 2021 to 2024.²⁰

¹⁶ See PECO Letter of June 30, 2020, PUC Docket No. M-2018-3005795 at 2, <http://www.puc.state.pa.us/pdocs/1668316.pdf>.

¹⁷ Review of Universal Service and Energy Conservation Programs, Docket M-2017-2596907; Energy Affordability for Low Income Customers, Docket M-2017-2587711.

¹⁸ 2019 Amendments to CAP Policy Statement, Final Policy Statement and Order, Docket No. M-2019-3012599 (order entered Nov. 5, 2019) (hereinafter Final CAP Policy Statement and Order).

¹⁹ See Universal Service and Energy Conservation Plan (USECP) Filing Schedule and Independent Evaluation Filing Schedule, Docket No. M-2019-3012601, at 15-16 (order entered Oct. 3, 2019).

²⁰ See *id.*

A month later, on November 5, 2019, the Commission entered a Final CAP Policy Statement and Order (Final CAP Policy Statement and Order), adopting and implementing a number of critical reforms to the Commission’s formal Customer Assistance Program (CAP) Policy Statement at 52 Pa. Code §§ 69.261-.267.²¹ In its Final CAP Policy Statement and Order, the Commission found that, based on extensive data, analysis, and information in the underlying proceedings,²² the current CAP energy burden standards were both unreasonable and unaffordable.²³ The Commission further found that the current standards did not fulfill the Commission’s statutory obligation to ensure that universal service programming is appropriately funded and accessible to ensure that low income customers can reasonably afford to maintain service to their home.²⁴ Accordingly, the Commission amended its Policy Statement to reduce the energy burden standards for customers enrolled in a utility-run CAP, setting a maximum *combined* energy burden for electric and heating of 10% for households with income between 51-150% of the Federal Poverty Level (FPL) and 6% for households with income between 0-50% FPL.²⁵ For electric baseload (non-heating) customers, the maximum was set at 4% for customers with income between 51-150% FPL and 2% for customers with income between 0-50% FPL.²⁶ In doing so, the Commission found that the existing maximum energy burden standards, “do not reflect reasonable or affordable payments for many low-income customers” - especially for those with income at or below 50% FPL.²⁷

²¹ See Final CAP Policy Statement and Order.

²² Energy Affordability for Low-Income Customers, Docket No. M-2017-2587711, and Review of Universal Service and Energy Conservation Programs, Docket No. M-2017-2596907.

²³ Final CAP Policy Statement and Order at 27.

²⁴ Final CAP Policy Statement and Order at 27; see also 66 Pa. Code § 2802, 2203.

²⁵ Id. at 32-33.

²⁶ Id.

²⁷ Id. at 27, 29-30.

In addition to adjusting the maximum energy burden standards, the Commission made a number of other reforms to its CAP Policy Statement to improve the accessibility and affordability of the program. These changes included adoption of tiered maximum CAP credits, amendment to various standards related to income verification and recertification; exemption of CAP customers from late payment charges and other fees that increase unaffordability; elimination of “payment troubled” requirements; standards for CAP customers who relocate; elimination of Social Security Number requirements; expectations that utilities will launch online applications; requirements for periodic assessment of CAP rates; and outreach and education planning.²⁸ The Commission also discussed several other key issues, including the appropriate threshold for maximum CAP credit limits, imposition of minimum bill thresholds, and recovery of universal service costs from non-CAP customers.²⁹ However, the Commission deferred further resolution of these additional issues for assessment in the context of each utility’s USECP and/or general base rate proceedings.³⁰

As part of its Final CAP Policy Statement and Order, the Commission directed each utility to file and serve an addendum to their existing or proposed Universal Service and Energy Conservation Plan (USECP) within 60 days of entry date of the order to indicate whether the utility’s existing or pending USECP was consistent with the amended CAP Policy Statement and, if not, whether and how the utility would implement the policy changes specified in the amended CAP Policy Statement.³¹ On November 26, 2019, PECO submitted a revised USECP and on January 16, 2020, PECO submitted an extended USECP for 2019-2024.

²⁸ Id. at 5-7, 101-104.

²⁹ Id. at 36-37, 60-61, 90-97.

³⁰ See id.

³¹ Id. at 106.

On March 12, 2020, the Commission issued an Order regarding CAP final billing methods as part of a separate proceeding that had earlier been instituted as part of the Commission's 2017 statewide proceedings.³²

On July 8, 2020, PECO submitted a proposed amended USECP for program years 2019-2024, which was docketed with the Commission as a formal Petition at docket P-2020-3020727. Through its amended USECP, PECO sought approval to implement a number of proposed amendments to its currently pending USECP, many (though not all) of which are consistent with the Commission's revised CAP Policy Statement. A central feature of PECO's July 8 Amended USECP is its proposal to transition its current FCO CAP design to a Percentage of Income Payment Plan (PIPP) CAP design. On July 28, 2020, the Low Income Advocates each filed a separate Answer to PECO's July 8 Petition.³³ We incorporate those Answers by reference herein.

On September 25, 2020, PECO filed another Petition for approval of an amendment to its amended USECP (hereinafter Amended Proposed 2019 USECP).³⁴ This new filing was separately docketed as well, at docket P-2020-3022154. In its Petition, PECO requested that the Commission provide final approval for the Company to utilize the energy burdens set forth in the Commission's revised CAP Policy Statement³⁵ as a part of its current CAP FCO until PECO completes its

³² Staff Review of Customer Assistance Program (CAP) Final Billing Methods, Order, Docket No. M-2019-3010190 (March 12, 2020).

³³ PECO Energy Company's 2019-2024 Universal Service and Energy Conservation Plan, Answer of CAUSE-PA Docket Nos. M-2018-3005795, P-2020-3020727, (filed July 28, 2020); PECO Energy Company's 2019-2024 Universal Service and Energy Conservation Plan, Answer of TURN et al., Docket Nos. M-2018-3005795, P-2020-3020727 (filed July 28, 2020).

³⁴ All references to PECO's Amended Proposed 2019 USECP are to the clean version submitted on September 25, 2020, available at <https://www.puc.pa.gov/pcdocs/1678652.pdf>.

³⁵ 52 Pa. Code § 69.261–69.267.

proposed transition to a PIPP. The Low Income Advocates each filed a separate Answer to PECO's September 25 Petition.³⁶ We incorporate those Answers by reference herein.

On May 6, 2021, the Commission entered a Tentative Order (TO) addressing PECO's Amended Proposed 2019 USECP, as filed on September 25, 2020. The TO addressed concerns with various design and programmatic elements of PECO's Universal Service programs. PECO filed Supplemental Responses to the TO on June 10, 2021, and Comments of interested parties are due July 20, 2021. The Low Income Advocates file these Comments in response to PECO's Amended Proposed 2019 USECP, the Commission's TO, and PECO's Responses to the TO.

III. CUSTOMER ASSISTANCE PROGRAM

According to the CAP Policy Statement, Customer Assistance Programs (CAPs) are alternative to traditional collection methods for low-income customers.³⁷ CAP customers make monthly payments based on household size and gross household income.³⁸ In its Amended Proposed 2019 USECP, PECO proposes to transition the design of its CAP from its current Fixed Credit Option (FCO) to a Percentage of Income Payment Plan (PIPP).³⁹ PECO proposes to implement the PIPP no later than 8 months following Commission approval of the proposed USECP.⁴⁰ Each month, PECO will bill CAP customers the lower of their PIPP bill, based on a fixed percentage of income, or a customer's actual bill.⁴¹ As described in the Amended Proposed 2019 USECP and Addendum G thereto, PECO will use a customer's household income and

³⁶ PECO Energy Company's 2019-2024 Universal Service and Energy Conservation Plan, Answer of CAUSE-PA Docket Nos. M-2018-3005795, P-2020-3022154, (filed Oct. 15, 2020); PECO Energy Company's 2019-2024 Universal Service and Energy Conservation Plan, Answer of TURN et al., Docket Nos. M-2018-3005795, P-2020-3022154, (filed Oct. 15, 2020).

³⁷ 52 Pa. Code § 69.261

³⁸ Id.

³⁹ Amended Proposed 2019 USECP at 3.

⁴⁰ Id.

⁴¹ PECO Responses at 11.

determine a household's allowable energy burden with regard to that household's Federal Poverty Level (FPL).⁴²

PECO proposes to use the following energy burdens in its PIPP:

FPL	Electric Non-Heating	Electric Heating	Gas
0-50%	2%	6%	4%
51-100%	4%	10%	6%
101-150%	7%	17%	10%

PECO's proposal reflects the current energy burdens in the CAP Policy Statement for the 0-50% FPL and 51-100% FPL tiers, but retains the outdated energy burden standard households with income between 101-150% FPL. As a result, PECO proposes requiring CAP households with income between 101-150% FPL to continue to pay up to 17% of gross annual household income for energy services, an energy burden which the Commission has already found to be unreasonable and unaffordable.

PECO proposes to calculate a customer's annual PIPP bill by multiplying a customer's household income with the appropriate percentage of income, and then divide that number by 12 to get a customer's monthly PIPP bill.⁴³ As noted in our respective Answers to PECO's September 25 Petition, the Low Income Advocates support the transition to a percentage of income plan, given the documented unaffordability of PECO's Fixed Credit Option.⁴⁴ However, there are a

⁴² Amended Proposed 2019 USECP at 55.

⁴³ Amended Proposed 2019 USECP at 55.

⁴⁴ PECO Energy Company's 2019-2024 Universal Service and Energy Conservation Plan, Answer of CAUSE-PA Docket Nos. M-2018-3005795, P-2020-3022154, (filed Oct. 15, 2020); PECO Energy Company's 2019-2024 Universal Service and Energy Conservation Plan, Answer of TURN *et al.*, Docket Nos. M-2018-3005795, P-2020-3022154, (filed Oct. 15, 2020).

number of critical issues with PECO’s proposal that must be resolved before approving its proposed Amended USECP.

a. Proposed PIPP Energy Burdens

The Commission expressed concern in its TO about PECO’s proposal to use a 17% energy burden standard for households at the 101-150% FPL tier.⁴⁵ The Commission asks PECO for additional information on how many CAP customers in the 101-150% FPL income tier, under its proposal, would exceed the Commission’s currently effective energy burden standards.⁴⁶ In response, PECO indicates that 62% of electric baseload customers, 29% of electric heating customers and 10% of gas customers would exceed the Commission’s currently effective energy burden standards.⁴⁷ The Commission also requested that PECO project the average CAP PIPP rate at each income tier under PECO’s proposal, compared to the CAP PIPP rate using the Commission’s energy burden standards.⁴⁸ As shown below, the difference in average bills at the 101-150% FPL tier is significant, especially for electric baseload customers.⁴⁹

Table 1: Average Projected Monthly Bills for 101-150% Federal Poverty Level⁵⁰

	PECO’s Proposal	CAP Policy Statement
Electric Baseload	\$90	\$69
Electric Heating	\$145	\$130
Gas	\$67	\$64

⁴⁵ TO at 24 (“We have concerns that proposed energy burdens in PECO’s CAP PIPP will not protect customers with incomes between 101% to 150% of the FPL from high monthly bills.”).

⁴⁶ TO at 25.

⁴⁷ PECO Responses at 4-5.

⁴⁸ TO at 25, PECO Responses at 7.

⁴⁹ These averages appear to include both households that would receive an undiscounted bill due to low usage and households that would receive a PIPP bill, so likely understate the benefit of the lower, CAP Policy Statement energy burdens for those households with higher usage who would receive a PIPP bill.

⁵⁰ PECO Responses at 7.

These are *average* monthly bills, and do not account for potential wide variations in rates within the income group.

A family of four with income between 101-150% FPL has a gross annual income of between \$26,501 and \$39,750, while a family of four at 50% FPL has a gross annual income of \$13,250.⁵¹ Table 2 shows household income levels by percentage of FPL and household size.

Table 2: Federal Poverty Level by Household Size⁵²

Household/ Family Size	25%	50%	75%	100%	125%	150%	200%
1	\$3,220	\$6,440	\$9,660	\$12,880	\$16,100	\$19,320	\$25,760
2	\$4,355	\$8,710	\$13,065	\$17,420	\$21,775	\$26,130	\$34,840
3	\$5,490	\$10,980	\$16,470	\$21,960	\$27,450	\$32,940	\$43,920
4	\$6,625	\$13,250	\$19,875	\$26,500	\$33,125	\$39,750	\$53,000

For context, a full-time (40 hour/week) worker making minimum wage (\$7.25/hour) has a gross annual income of \$15,080 - assuming no time off. This would be 69% FPL for a single parent with two children or 114% FPL for a family of four with two parents working minimum wage jobs. This is substantially less than a household needs to meet their basic expenses in any of the counties in PECO’s service territory.⁵³ As PECO noted in its responses, many households in the 101-150% FPL tier have usage low enough to receive undiscounted bills rather than a PIPP bill – even using the CAP Policy Statement energy burdens. However, for those households with

⁵¹ U.S. Dept. of Health and Human Services, 2021 U.S. Federal Poverty Guidelines, available at <https://aspe.hhs.gov/poverty-guidelines>.

⁵² *Id.*

⁵³ See PathWays PA, *Overlooked and Undercounted 2019 Brief: Struggling to Make Ends Meet in Pennsylvania*, available at <http://www.selfsufficiencystandard.org/Pennsylvania>.

high usage who would receive a PIPP bill, using the outdated energy burdens for the highest income tier could dramatically change a household's CAP bill with just a small increase in income.

A household of four with a gross income of \$26,000 for the year would be at 98% FPL. If that household was on Rate RH for electric heating, based on the 10% energy burden for the 51-100% FPL tier, that household's PIPP bill would be \$2,600/year – or \$216/month. If that same household of four instead had gross income of \$27,000, it would be at 102% FPL. The electric heating PIPP bill at the proposed 17% of household income would be \$4,590/year – or \$383/month. This is \$167/month or \$1,990/year more than households at 100% FPL. The increase from \$2,600 to \$4,590 is \$1990 – nearly doubling the household's increase in gross annual household income. We note that a household at this rate would have very high usage to meet the PIPP threshold. But that is part and parcel to this analysis – a PIPP amount, set too high, will not provide a benefit to households, and CAP customers would lack affordable bills. In its responses to the Commission's Tentative Order, PECO projected that 22% of Electric Heating customers would have a bill that falls between the 10% percentage of income target in the CAP Policy Statement and the 17% percentage of income target proposed by PECO.⁵⁴ An additional 6% of Electric Heating customers would be projected to receive bills at the 17% of income target, and 1% would receive bills above the proposed 17% target.⁵⁵

Similarly, that same household of four with an electric non-heating (baseload) account at \$26,000 a year and 98% FPL would have a \$1070 annual PIPP bill and an \$87 monthly PIPP bill. Meanwhile, if that household had a gross income of \$27,000 a year and 102% FPL, the annual PIPP bill would be \$1890 and the monthly PIPP bill would be \$158. For baseload customers,

⁵⁴ PECO Responses at 5.

⁵⁵ Id.

PECO projects that 33% of customers would have a bill that falls between the 4% percentage of income target in the CAP Policy Statement and the 7% percentage of income target proposed by PECO.⁵⁶ An additional 27% of baseload customers would be projected to receive bills at the 7% of income target, and 2% would receive bills above the proposed 7% target.⁵⁷

For low-income households, these differences in monthly bills are striking. A benchmark often used to assess how much income a household needs to live without assistance in Pennsylvania is called the Self Sufficiency Standard. This tool measures the income that a family must earn to meet their basic needs and consists of the combined cost of six basic needs – housing, childcare, food, health care, transportation, and taxes – without the help of public subsidies.⁵⁸ Unlike the Federal Poverty Level, which does not change based on geographic location or family composition, the Self Sufficiency Standard accounts for the varied costs of these six basic needs in different geographical areas and for differently aged household members.⁵⁹ For reference, the *average* Self Sufficiency Standard in PECO’s service territory for a family of four with two adults and two school-aged children is approximately \$75,464 per year – nearly twice the income of a family of four with income at 150% FPL.⁶⁰

⁵⁶ PECO Responses at 5.

⁵⁷ *Id.*

⁵⁸ Self Sufficiency Standard, <http://www.selfsufficiencystandard.org/Pennsylvania>.

⁵⁹ See PathWays PA, *Overlooked and Undercounted, How the Great Recession Impacted Household Self-Sufficiency in Pennsylvania*, <http://www.selfsufficiencystandard.org/sites/default/files/selfsuff/docs/PA2012.pdf>.

⁶⁰ Average Self Sufficiency Standard of all six Pennsylvania counties served by PECO for four-person households that include two adults, one infant, and one school aged child. See 2021 Pennsylvania Sufficiency Standard, available at <http://www.selfsufficiencystandard.org/Pennsylvania>.

County	2 Adults, 2 School Aged Children	2 Adults, 2 Preschoolers
Bucks	\$77,782	\$86,350
Chester	\$79,223	\$90,729
Montgomery	\$78,624	\$89,292
Philadelphia	\$70,445	\$61,533
Delaware	\$75,843	\$84,811
York	\$70,864	\$64,100
Avg. Self-Sufficiency Standard	\$75,464	\$79,469

The income level for PECO’s confirmed low-income customers does not even approach these levels. According to the APPRISE evaluation, as of 2017, the average annual income for the Company’s electric only confirmed low-income customers was just \$18,214 and the average income for the Company’s electric only CAP customers is just \$13,375.⁶¹ These customers have far less than the amount needed to be self-sufficient and to live without financial assistance.

High energy burdens for low-income households make it difficult to pay for other basic necessities such as housing, food, and medicine; threaten stable and continued employment and education; have a substantial and long-term impact on mental and physical health;⁶² create serious risks to the household and the larger community; and negatively impact the greater economy.⁶³ According to the US Energy Information Administration, roughly 1 in 5 households in 2015 – when the economy was experiencing a relatively prosperous economic period – reported that they reduce or forego other critical necessities like food and medicine to afford their home energy costs, and more than 1 in 10 reported keeping their home at an unsafe or unhealthy temperature.⁶⁴ Even with financial assistance, low-income households are still unable to afford the cost of energy. According to a survey conducted by the National Energy Assistance Directors’ Association (“NEADA”), 72% of LIHEAP recipients reported that they forego other necessities to afford

⁶¹ APPRISE Evaluation at 86-87. Similarly, for electric and gas customers, as of 2017, the average annual income for the Company’s electric and gas confirmed low-income customers was just \$15,193 and the average income for the Company’s electric and gas CAP customers is just \$15,661. *Id.*

⁶² Diana Hernández, Yumiko Aratani, Yang Jiang, *Energy Insecurity among Families with Children*, National Center for Children in Poverty, January 2014, at 3, available at http://www.nccp.org/publications/pub_1086.html.

⁶³ US EIA, *Residential Energy Consumption Survey* (2015), <https://www.eia.gov/consumption/residential/reports/2015/energybills/>; see also NEADA, *2018 National Energy Assistance Survey*, at 17, 20 (Dec. 2018), available at <http://neada.org/wp-content/uploads/2015/03/liheapsurvey2018.pdf> (hereinafter NEADA Survey).

⁶⁴ US EIA, *Residential Energy Consumption Survey* (2015), available at <https://www.eia.gov/consumption/residential/reports/2015/energybills/>.

energy, and 26% reported keeping their home at unsafe or unhealthy temperatures.⁶⁵ As recent research and data has continually showed, vulnerable low-income families simply cannot afford the cost of energy services. Using outdated energy burden standards for CAP rates will likely result in increased strain on those households and an increased rate of service termination.

The Commission found in its Energy Affordability review that the outdated CAP Policy Statement energy burdens “do not reflect reasonable or affordable payments for many low-income customers.”⁶⁶ The Commission specifically found that a maximum 10% energy burden for CAP households with incomes between 51% and 150% of FPL would be reasonable as maximum ceilings for CAP payments.⁶⁷ To ensure that PECO CAP customers receive an affordable and reasonable bill, the Low Income Advocates strongly urge the Commission to require PECO to use the current CAP Policy Statement energy burdens in its PIPP for the 101-150% FPL tier – 4% for electric non-heating, 6% for gas and 10% for electric heating.

PECO proposes that if it were ordered to adopt the energy burden standards established in the CAP Policy Statement, it would propose a CAP participation limit of 142,000 customers as a cost containment mechanism.⁶⁸ The Low Income Advocates strongly oppose the implementation of such a limit, given the documented need for affordable bills in PECO’s service territory. Imposition of a CAP participation limit would arbitrarily exclude those in need of assistance to maintain service to their home, and would contradict the Commission’s statutory universal service obligations. Similarly arbitrary participation limits have been struck down in the past, and should

⁶⁵ NEADA Survey at 17, 20.

⁶⁶ Final CAP Policy Statement and Order at 27.

⁶⁷ *Id.* at 29.

⁶⁸ PECO Responses at 9.

not be resurrected now.⁶⁹ In requiring UGI to Petition for the elimination of its CAP enrollment limits within 90 days, rather than some future date, the Commission explained:

We are not aware of any other NGDC or EDC that maintains CAP enrollment limits. Low-income households within UGI's service territory should not be denied CAP because the maximum number of customers has been reached and the Company is in the process of petitioning the Commission for an increase to its enrollment limit.⁷⁰

The Low Income Advocates assert that, in addition to imposing an arbitrary limitation on relief, a CAP enrollment limit would frustrate the purpose of requiring CAP outreach and education, and PECO's own, stated goal of increasing participation in its low income programs.⁷¹ Again, the Commission has previously recognized that enrollment limits frustrate efforts to reach those in need, questioning how an enrollment limit squares with its efforts to "encourage[] utilities to increase CAP enrollment."⁷²

Nevertheless, the CAP Policy Statement does permit participation limits under certain narrow circumstances, if based on careful and detailed assessment of need, and states the following:

CAPs should be targeted to low-income customers. The participation limit for CAP should reflect a needs assessment, consideration of the estimated number of low-income households in the utility's service territory, the number of participants currently enrolled in the CAP, participation rates for assistance programs and the resources available to meet the needs of the targeted population. A utility may use payment-troubled status to prioritize CAP enrollments and to control CAP costs if necessary and only if approved to do so by the Commission.⁷³

⁶⁹ UGI Utilities, Inc. – Gas Division, UGI Utilities, Inc. – Electric Division, and UGI Central Penn Gas, Inc., Universal Service and Energy Conservation Plan for 2014-2017 Submitted in Compliance with 52 Pa. Code 54.74 and 62.4, Docket No. M-2013-2371824, at 13 (order entered Jan. 15, 2015).

⁷⁰ *Id.* at 13.

⁷¹ PECO Responses at 19.

⁷² UGI Utilities, Inc. – Gas Division, UGI Utilities, Inc. – Electric Division, and UGI Central Penn Gas, Inc., Universal Service and Energy Conservation Plan for 2014-2017 Submitted in Compliance with 52 Pa. Code 54.74 and 62.4, Docket No. M-2013-2371824, at 13 (order entered Jan. 15, 2015).

⁷³ 52 Pa Code § 69.264.

PECO has made no showing that a participation limit would be necessary or effective to contain costs. Nor has PECO identified why its needs assessments, estimated number of low-income households, or current participation rates support such a limit. PECO, in response to the Commission's TO, estimated that 274,966 households are income-eligible for CAP, and stated that 161,795 households are *confirmed* to be income eligible for CAP.⁷⁴ Implementing a limit on participation – especially one that is lower even than PECO's confirmed low-income customer population – runs counter to the idea that a Customer Assistance Program is supposed to provide affordable bills so that households can remain connected to electric and gas service. PECO's proposed CAP includes several other cost containment features, including a maximum CAP credit and minimum bills.

Ultimately, a participation limit is arbitrary and unduly punitive to households that are harder to reach or who are newly eligible for the program. Essentially, given PECO's proposed participation limit falls tens of thousands of households short of serving demonstrated need, PECO's proposal will create long wait lists for assistance – leaving low-income households at every income tier to struggle profoundly while awaiting assistance through CAP. Furthermore, PECO's proposal would penalize CAP customers who, for whatever reason, are unable to submit recertification information, by making it harder to return to CAP. It is not in the public interest to create long waiting lists for households to obtain critical assistance with energy costs, and will undermine other goals of CAP to help reduce uncollectible expenses and collections costs and improve bill payment and coverage rates.

⁷⁴ PECO Responses at 26.

b. Calculation of Monthly PIPP Payment

In the TO, the Commission expresses concern about how PECO will calculate monthly PIPP payments.⁷⁵ As discussed above, PECO proposes to use a household's annual income to determine the appropriate energy burden, then determine the annual PIPP bill by multiplying the annual household income by the energy burden. A customer's monthly bill would be 1/12th the annual PIPP bill (or a minimum CAP payment, whichever is greater).⁷⁶ The Commission's concern about PECO's proposal was that CAP customers should be charged the most affordable payments – which could be a percentage of income bill or the customer's average or actual bill.⁷⁷ The Commission also expresses concern that PECO does not propose quarterly recalculations.⁷⁸

As noted by the Commission, the CAP Policy Statement recommends that utilities evaluate CAP participant bills on a quarterly basis.⁷⁹ In response to the Commission's concerns, PECO states that each month, PECO will charge a CAP customer the lower of (i) the PIPP fixed bill or (ii) their actual charges – with the CAP minimum bill as a floor.⁸⁰ PECO states that this monthly evaluation will ensure the CAP customer is receiving the most affordable bill. The Low Income Advocates believe a monthly review is better than a quarterly review, and ensures that low income customers are always charged “the rate most advantageous to the patron” – consistent with the Public Utility Code.⁸¹ The Low Income Advocates support PECO's proposal to charge the lower of a customer's PIPP bill or actual charges on a monthly basis, and notes that this proposal is

⁷⁵ TO at 27.

⁷⁶ Id.

⁷⁷ See TO at 27.

⁷⁸ Id.

⁷⁹ TO at 29; 52 Pa. Code § 69.265(8)(vii).

⁸⁰ PECO Responses at 11.

⁸¹ 66 Pa. C.S. § 1303.

consistent with the monthly CAP rate assessment conducted by Peoples Gas.⁸² The Low Income Advocates suggest that PECO should state this explicitly in its USECP.

c. Transitioning CAP from a FCO to a PIPP

The Low Income Advocates support the transition of PECO’s CAP from a Fixed Credit Option (FCO) to a PIPP. As the Commission notes in its TO, PECO proposes to make that transition within eight months of a final Commission approval of the proposed USECP.⁸³ PECO has separately petitioned the Commission to reduce the energy burden standards applied through the FCO while it transitions to a PIPP.⁸⁴ Specifically, PECO proposes using the energy burden standards in the current CAP Policy Statement in its operation of the FCO.⁸⁵ The Low Income Advocates strongly support PECO’s proposal. Nevertheless, we note that further Commission approval of this proposal is unnecessary, given PECO is already under an independent legal obligation – previously approved by the Commission - to adopt the Commission’s energy burden standards following issuance of the Commission’s Final CAP Policy Statement and Order.⁸⁶ PECO itself had previously acknowledged this obligation, stating in comments to the Commission on proposed energy burden changes that “PECO notes, however, that if the Commission-established

⁸² Peoples Natural Gas Company, LLC Universal Service and Energy Conservation Plan for 2015-2018 Submitted in Compliance with 52 Pa. Code § 62.4, Final Order, Docket M-2014-2432515, at 13 (order entered Dec, 17, 2015).

⁸³ TO at 30.

⁸⁴ September 25 Petition; TO at 30.

⁸⁵ September 25 Petition.

⁸⁶ See Amended Proposed 2019 USECP at 32 n. 3 (“If the Commission changes the energy burden ranges set forth in its Policy Statement, PECO will utilize the new maximum allowable energy burden for each poverty level.”). The Low Income Advocates note for informational purposes that use of the current CAP Policy Statement energy burdens in the FCO is also required by PECO’s currently active 2016-2018 USECP. PECO Energy Company Universal Service and Energy Conservation Plan 2016-2018, Docket No. M-2015-2507139 (filed Feb. 17, 2017) at 30 n.3, <https://www.puc.pa.gov/pcdocs/1510970.pdf> (hereinafter 2016-2018 USECP). However, PECO’s obligations under its current USECP are not the subject of this proceeding, and are being litigated in other forums.

energy burden is changed, PECO’s CAP FCO program has a ‘pass through’ clause allowing for automatic implementation.”⁸⁷

The Commission expressed its concern that PECO would reduce the energy burdens within the FCO for all FPL tiers, and then - upon transition to a PIPP - would use the outdated energy burdens for the 101-150% FPL tier.⁸⁸ Doing so could cause significant variance in CAP bills for customers in that income tier and could cause confusion for customers.⁸⁹ As discussed above, the Low Income Advocates strongly support the use of the current CAP Policy Statement energy burdens for all income tiers in PECO’s proposed PIPP. Such a change would eliminate the Commission’s concern about variance in CAP bills. The Low Income Advocates also agree with PECO that because CAP customer bills will be different under the CAP PIPP regardless of the energy burdens, some customer confusion is likely, and additional outreach and education will be important.⁹⁰

d. Accepting 30 Days or 12 Months of Income

The CAP Policy Statement establishes standards for income verification, and provides that utilities should accept income documentation of at least the last 30 days or 12 months for the purpose of CAP enrollment and recertification.⁹¹ Further, the CAP Policy Statement provides that CAP applications and recertification letters should specify these options, and explain how each can be beneficial.⁹² As noted by the Commission in its TO, PECO’s Amended Proposed 2019 USECP does not explicitly adopt this provision, despite PECO’s indication in a previous filing

⁸⁷ Energy Affordability for Low-Income Customers, Docket No. M-2017-2587711, Initial Comments of PECO Energy Company (May 11, 2019) at 8, <https://www.puc.pa.gov/pdocs/1618633.pdf>.

⁸⁸ TO at 32-33.

⁸⁹ TO at 33.

⁹⁰ See PECO Responses at 12.

⁹¹ 52 Pa. Code § 69.265(8)(ii)(B)(I).

⁹² Id.

that it was already in compliance.⁹³ The CAP Application/ Enrollment Process section of PECO's Amended Proposed 2019 USECP also fails to specify what income timeframes PECO will accept.⁹⁴ PECO's CAP application does provide further guidance with regard to income determination, but suggests that PECO only accepts income from the past 30 days and not the past 12 months. PECO stated that the second page of its CAP application which reads "CAP Acceptable Proof of Income Documents – Last 30 Days of Gross Income" will be included as an addendum to its final plan.⁹⁵

The Commission asks PECO to confirm whether its Amended Proposed 2019 USECP allows customers to provide 30 days or 12 months of income, whichever is more beneficial.⁹⁶ In response, PECO asserts that it will "accommodate individual situations on a case by case basis."⁹⁷ PECO goes on to say that if a customer indicates that their last 30 days of income is not representative of their annual income, then PECO will accept documentation for the year.⁹⁸ PECO also provides two reasons for why it believes it does not need to modify its application: the application lists annual tax return as an acceptable form of documentation and the list provided is not intended to be comprehensive.⁹⁹

PECO's response is not sufficient. The Low Income Advocates assert that the income documentation flexibility allowed by the CAP Policy Statement is critical to ensuring that the maximum number of customers in need of assistance are able to enroll in and benefit from PECO's CAP to ensure they can maintain service to their home. PECO's assertion that it will accommodate

⁹³ TO at 34; January 16 Cover Letter at 1.

⁹⁴ Amended Proposed 2019 USECP at 5.

⁹⁵ PECO Response to TO at 18.

⁹⁶ TO at 34.

⁹⁷ PECO Responses at 13.

⁹⁸ Id.

⁹⁹ Id.

individual situations on a case by case basis leaves open the distinct possibility that it will exclude eligible households from CAP - accepting income documentation from the past 12 months for some customers but not others, based only on the assertiveness of the applicant to challenge their default denial.

In addition, PECO does not explain what, if any, criteria it will use to decide when to accept 12 months of income. Nor does PECO explain how it will notify customers of the ability to provide 12 months of income as an alternative to 30 days of income. The only explanation that PECO provides to this point is that if a customer indicates their income from the last 30 days is not representative of the year, PECO will accept documentation for the past 12 months. PECO's explanation puts the burden on the customer to request flexibility if they believe their 30-day income is not representative, but the CAP application gives no indication that such flexibility is available. In addition, it is unclear whether PECO would accept income documentation from a customer for the last 12 months of income without that customer first indicating that their last 30 days of income is not representative – without any knowledge that another timeframe may be accepted.

PECO should provide the option to all customers to submit income documentation from either the previous 30 days or the previous 12 months, regardless of the source of income, and without requiring additional information from the customer about why a customer's previous 30 days income is not representative.

In addition, PECO should make customers aware of the option to provide either 30 days or 12 months income on the CAP application itself. PECO suggests that the application does not need to be modified because the list of acceptable forms of documentation provided is not intended to

be comprehensive.¹⁰⁰ However, PECO gives no indication in either its Plan or its CAP application that the list is not comprehensive. Indeed, the top of the CAP application reads – in bold red ink - “CAP Acceptable Proof of Income Documents – Last 30 Days of Gross Income.” This line suggests that these are the only documents accepted and that the documents are intended to verify the last 30 days of income. There is no asterisk or additional line which explains that other forms of documentation may also be acceptable or that 12 months of income documentation can be used. PECO should be required to state clearly in the Plan and on its CAP application that all customers can provide proof of income for either the last 30 days or last 12 months. This flexibility is critical to maximizing participation in CAP and ensuring that all eligible customers are able to enroll. Given this would constitute a change in current practice, PECO should provide training to all call center and universal service program staff and/or third party program administrators to ensure they are aware of the option for income documentation and that they incorporate that information in any CAP screening processes.

e. CAP Recertification Timelines

In its Amended Proposed 2019 USECP, PECO proposes to recertify CAP customers reporting no income every six months, annual LIHEAP recipients every four years, and all other CAP customers every two years.¹⁰¹ By comparison, the current version of PECO’s Plan requires zero income customers to recertify every two years and LIHEAP recipients every three years.¹⁰² The CAP Policy Statement recommends that utilities recertify zero income customers every six months, LIHEAP recipients every three years, and fixed income customers (social security, SSI

¹⁰⁰ PECO Responses at 13.

¹⁰¹ Amended Proposed 2019 USECP at 6.

¹⁰² PECO 2016-2018 USECP at 7-8.

and pension recipients) every three years.¹⁰³ In its TO, the Commission asks that PECO explain why it increased the recertification timeline for LIHEAP recipients from three years to four years.¹⁰⁴ In its response, PECO highlighted that providing the documentation for CAP recertification can be burdensome for low-income customers.¹⁰⁵

The Low Income Advocates agree with PECO's assessment that income documentation requirements are burdensome, and can be a barrier to recertification for *all* eligible customers – not just LIHEAP recipients. Thus, in addition to a four-year recertification timeline for LIHEAP recipients, PECO should extend the recertification timeline to three years for fixed income customers. Low-income customers struggle to gather and submit documents, as they often lack access to the internet, printers, fax machines, and other communication tools necessary to comply with income documentation requirements. Extending recertification timelines ensures that customers who need CAP to afford their bills are not unnecessarily removed from the program.

The Commission has noted concerns about extended recertification timelines resulting in customers not receiving the appropriate benefits.¹⁰⁶ Rather than requiring more frequent recertification, PECO should request updated income information more frequently without threatening to remove customers from the program. PECO could obtain this up to date income information via verbal attestation from customers, in between official recertification timelines, to as whether their income information has changed.

The Low Income Advocates note that modifying the timeline for zero income customers from two years to six months will likely result in removal of customers who are financially eligible

¹⁰³ See 52 Pa. Code § 69.265(8)(viii).

¹⁰⁴ TO at 36.

¹⁰⁵ PECO Responses at 13.

¹⁰⁶ TO at 35.

from the program. PECO should allow zero income customers to provide updated information and recertify through a verbal attestation that their financial situation has not changed. A verbal attestation can include all of the information that would be included on the Commission's no-income form. Requiring the completion of a physical form serves no additional purpose in this context and would only impose an additional burden on zero income customers as well as an administrative burden on PECO. In addition, only customers who truly have zero income should be required to recertify every 6 months. Customers who provide letters of financial support, or other documentation that shows they do have earned or unearned income, should be moved to the standard recertification timeframes. A recertification timeline of four years for annual LIHEAP recipients and three years for customers on fixed incomes will allow PECO to ensure that customers who are demonstrably income eligible remain on CAP. PECO could request updated income information more frequently but only remove the participants for failure to recertify after the maximum recertification windows have expired.

f. Payment Arrangements for CAP customers

PECO's Amended Proposed 2019 USECP allows CAP customers to enter into payment arrangements.¹⁰⁷ In its TO, the Commission expresses concern that payment arrangements may not be an effective means of addressing in-program arrears and that the use of payment arrangements for in-program arrears suggests program unaffordability.¹⁰⁸

The Low Income Advocates agree that program unaffordability is most likely the driving factor for the accrual of in-program arrears, but the solution is to fix the program unaffordability – not to prohibit payment arrangement options. This would only serve to further harm low-income

¹⁰⁷ Amended Proposed 2019 USECP at 8.

¹⁰⁸ TO at 37.

customers who have already faced the undue burden of unaffordable bills. Payment agreements can be a lifeline for customers facing special hardships, even if CAP affordability is improved. Low-income customers may experience significant medical bills, home repair issues or other unavoidable expenses that strain an already dire financial situation and limit their ability to keep up with bills – even those that are otherwise affordable. Households that exceed the maximum CAP credit limit may also experience hardship keeping up with full tariff rates until the end of the program year when their CAP rates resume. If PECO adopts a PIPP that offers maximum CAP rates consistent with the Commission’s energy burden standards, the Low Income Advocates submit that the number of CAP payment arrangements is likely to substantially decline. But there will always be a need for some subset of CAP customers to access payment arrangements if and when they fall behind – either because they have exceeded their maximum CAP credits and/or encounter a unique hardship that may set them back from their normal payments.

While the Commission is statutorily prohibited from issuing CAP payment arrangements, PECO – and other public utilities – can and should retain the discretion to issue payment arrangements to CAP customers to avoid termination. But allowing PECO to continue offering payment arrangements to CAP customers should not excuse PECO from fully addressing the underlying issue of serious and sustained unaffordability of PECO’s CAP rates which has compounded CAP debts for many years. As discussed below, PECO should implement an in-program arrearage forgiveness program to address the documented affordability failures of the FCO, and should allow customers to reenroll in CAP by paying the CAP price for the months that they spent outside of the program – similar to the process for CAP reenrollment in other utility service territories.

g. In-Program Arrearage Forgiveness (InPA)

When PECO transitioned its CAP to the FCO, pre-FCO in-program arrears were placed into what was called In-Program Arrearage Forgiveness or InPA. Customers were enrolled into a special five-year payment arrangement in October 2016, which will conclude in October 2021. In the TO, the Commission expressed concern that remaining pre-FCO InPA forgiveness balances after October 2021 could impact the affordability of customer CAP bills, and requested an update on the status of the InPA forgiveness.

In response, PECO provided data showing that just over \$4 million of the original \$30.8 million currently remains.¹⁰⁹ Approximately 25,000 customers have an average InPA balance of \$162.¹¹⁰ PECO states that any remaining balances as of November 2021 will be put back into a customer's balance.

The Low Income Advocates share the Commission's concern that these remaining balances could impact CAP bill affordability. PECO's FCO has proven to be unaffordable, with many CAP customers exceeding even the *former* CAP energy burden standards – which the Commission found to be neither reasonable nor affordable.¹¹¹ PECO's experiment with the FCO program design has failed. The FCO delivered bills that substantially exceeded the Commission's *prior* energy burden standards and actually increased in-program arrears. Those with in-program arrears from the previous CAP structure did not get a fair shot to earn forgiveness on those arrears – which originally stemmed from PECO's previous unaffordable CAP design.¹¹² PECO's transition to a PIPP has the potential to substantially improve CAP affordability, and in turn to increase bill

¹⁰⁹ PECO Responses at 16.

¹¹⁰ PECO Responses at 17.

¹¹¹ See APPRISE Evaluation; see also Final CAP Policy Statement and Order at 27.

¹¹² See PECO Energy Company Universal Service and Energy Conservation Plan for 2013-2015, Joint Petition for Settlement, Docket No. M-2012-2290911, (March 20, 2015), <https://www.puc.pa.gov/pcdocs/1349218.pdf>.

coverage and payment frequency rates – while reducing CAP arrears, terminations, and collections costs. It is important that PECO’s CAP customers start fresh with the PIPP – and not carry over substantial arrears from the failed CAP designs. As such, the Low Income Advocates suggest that any remaining pre-FCO In Program Arrearage balance instead be rolled into the FCO In Program Arrearage Forgiveness, discussed below.

h. CAP Final Billing

In its TO, the Commission asked stakeholders to comment on PECO’s final CAP billing policy, noting “that a CAP customer’s final bill is based on residential tariff rate charges minus CAP credits that are prorated based on the number of days in the billing period.” TO at 41. In its supplemental filing, PECO notes that its final bill “is prorated based upon the amount of days billed, compared to the full month bill.” PECO Responses at 17. No further information was provided at this docket, though PECO did provide some additional information about its CAP final billing policy in its Comments to the Commission’s Staff Review of Customer Assistance Program (CAP) Final Billing Methods.¹¹³ We note that PECO’s final billing methods remain somewhat opaque. To the extent further clarification of PECO’s policies reveal further questions, we urge the Commission to allow for stakeholders to file additional brief supplemental reply comments.

In Joint Comments to the Commission’s Staff Review of CAP Final Billing Methods, the Low Income Advocates set forth a series of overarching principles, which we believe should guide decisions regarding CAP final bill policies:

- (1) Affordability must be the primary goal of any CAP final bill policy solution.
- (2) Charges on a final CAP bill should not exceed actual usage.

¹¹³ Staff Review of Customer Assistance Program (CAP) Final Billing Methods, Order, Docket No. M-2019-3010190, (order entered March 12, 2020).

- (3) CAP customers should remain in CAP after service is terminated or discontinued.
- (4) CAP final bills should not include a budget bill true-up amount.
- (5) CAP final bills should clearly indicate the amount needed to restore service.¹¹⁴

In those Joint Comments, we noted that a household remains a customer of a public utility for 30 days after service is terminated or discontinued, and that CAP customers should remain in CAP and should receive the full benefits of CAP on their final bill.¹¹⁵ It is through this policy lens that we recommend changes and/or clarification of PECO's CAP final bill policy.

i. Final CAP Bill Calculation

The Low Income Advocates support PECO's final CAP bill calculation method, as it pertains to PECO's current FCO CAP design. With the FCO, CAP credits are applied on a monthly basis to reduce the full tariff rate, and it is logical for PECO to prorate that credit to proportionally reduce the CAP customer's full tariff bill for the number of days service was connected in the final bill month.

That said, in transitioning to a PIPP, PECO's final bill calculation will require some additional clarification and possible amendment to arrive at a just and reasonable final bill rate. Unlike the FCO, CAP credits through the PIPP are tied to a percentage of household income – not the tariff rate. It would be unfair (and likely unaffordable) for CAP customers with partial monthly usage to simply compare the *monthly* PIPP rate to the actual bill rate for the days service was connected. Rather, PECO should compare a prorated PIPP rate (based on the number of days service was connected) to the actual bill for the number of days service was connected, and charge the lesser of the two.

¹¹⁴ Id. at 15.

¹¹⁵ Id.

Similarly, if a minimum bill CAP customer disconnects service or is terminated early in the final bill cycle, actual usage may be less than the minimum bill – but may still exceed the *prorated* minimum bill amount. In Comments to the Commission’s Staff Review of CAP Final Billing Methods, at docket M-2019-3010190, PECO indicated that, “if the billing period is less than the normal billing cycle, CAP minimum bill requirements would not be applied.”¹¹⁶ However, it is unclear whether PECO conducts the same prorated analysis of the final bill amount for minimum bill customers that it conducts for other CAP customers. Minimum bill customers are often the very lowest income households, with the fewest resources, and should have the same right to prorated CAP rates as other CAP customers.

The Low Income Advocates recommend that in calculating a final CAP bill after transitioning to a PIPP CAP design, PECO should apply the following steps:

- (1) Determine the prorated daily PIPP rate for the final billing month.
- (2) Determine the actual bill for the final billing month.
- (3) For minimum bill customers, determine the prorated daily minimum bill rate for the final billing month.
- (4) Charge the lesser of the actual bill, the daily prorated PIPP, or (if applicable) the daily prorated minimum bill for the number of days service was connected during the final billing cycle

We recognize that this may well be PECO’s intent, as it is consistent with the information PECO provided to the Commission at this docket regarding its final bill policies. But the lack of specificity regarding how and at what step in the process the proration occurs must be addressed to ensure that the final bill calculation is clear and transparent for PECO, the Commission, and CAP customers to understand and apply.

¹¹⁶ *Id.* at 7.

ii. Treatment of Pre-Program or In-Program Arrears on Final Bill

There is no information in PECO's Amended Proposed 2019 USECP or its responses to the Commission's TO regarding how PECO applies any remaining pre-program arrearages (PPA) that were not yet forgiven – or any remaining in-program arrearages that were eligible for forgiveness through PECO's In-PA Forgiveness Program implemented in 2016 when PECO's FCO was first launched. In Comments to the Commission's Staff Review of CAP Final Billing Methods, PECO indicated that any unforgiven PPA balance is added to the CAP customer's final bill – though it is unclear how those balances appear on the bill, and there was no information provided regarding application of remaining In-PA Forgiveness Program balances.¹¹⁷

Many CAP customers who receive a final bill may still be in need of service, and will look to the final bill to determine the amount to pay to restore service and/or to establish service at a new residence in PECO's service territory. It is critically important that PECO's final bill clearly advise CAP participants of the amount due to reestablish service following an involuntary termination – including both the total amount due and the sum of any unpaid CAP bills that, if paid, would allow the customer to reinstate CAP enrollment. The Low Income Advocates submit that PECO's final bill should clearly advise CAP customers that any remaining PPA or In-PA balances may be eligible for re-deferral if the customer pays any missed CAP payments to restore service to their home.

Finally, in Comments to the Commission's Staff Review of CAP Final Billing Methods, PECO indicated that it does apply forgiveness to a CAP customer's final bill amount.¹¹⁸ However, it is unclear in the context of this docket whether PECO intends to retain that policy. It is also

¹¹⁷ *Id.* at 8.

¹¹⁸ *Id.* at 9.

unclear how the forgiveness is calculated, whether it is automatically applied, and how it appears on the bill. For instance, does PECO automatically apply forgiveness for payment of the final bill, presuming that the final bill will be paid? Or does the final bill include the full amount due, with forgiveness applied after payment of the total final bill – resulting in a credit to the customer if they pay the final CAP bill, less any PPA or In-PA that was returned to the customers’ final bill? As a practical matter, application of arrearage forgiveness to the final CAP bill can create a number of complications.

For simplicity, and in furtherance of the overarching goals identified above, the Low Income Advocates support a final CAP bill process that applies arrearage forgiveness to the final billing month, given the customer will have to pay for the final bill to reestablish service with PECO. We recommend that PECO be required to adopt this policy regarding application of forgiveness for the final bill (to the extent it is not already applying this methodology), and to clarify this policy in its final approved USECP. If PECO is not applying forgiveness for the final bill, we recommend that PECO be required to further clarify how forgiveness is earned when a CAP customer makes a final bill payment – and how the CAP customer is final bill amount, less the earned forgiveness. We urge the Commission to allow for supplemental reply comments, as needed, in response to any further clarifications of PECO’s policies with regard to its final billing practices.

i. CAP Reenrollment

The Commission requested in its TO that PECO identify whether customers are asked to pay the residential tariff rate or the CAP price (often referred to as a cure payment) when re-

enrolling in CAP.¹¹⁹ For context, the Commission highlighted Columbia Gas' program, which allows customers to pay the CAP rate for months spent outside the program and subsequently catch up on the months of forgiveness that they were unable to earn while outside the program.¹²⁰ Other utilities offer similar reenrollment terms.¹²¹ PECO's response was simply that it does not plan to offer this option.¹²²

The Low Income Advocates suggest that PECO offer a cure option for customers re-enrolling in CAP. Doing so would improve affordability, help prevent the need for customers to enter into unaffordable payment arrangements, and prevent unnecessary shutoff activity. Every year, PECO removes tens of thousands of customers from CAP. In response to discovery, PECO noted that in 2018, there were 48,431 removals from CAP, and in 2019, there were 34,030.¹²³ As noted above, PECO acknowledged in its response to the TO that providing documentation can be difficult for CAP customers. As a result, many customers who remain eligible for CAP are removed from the program. This can be seen in the APPRISE Evaluation, which showed that in 2018, of customers removed from CAP, 70% of electric only and 61% of electric and gas customers were removed because income verification was not returned.¹²⁴ In 2018, 48,431 CAP customers were removed from the program for failure to recertify, and 34,030 were removed in 2019.¹²⁵ In 2020, there were fewer removals for failure to recertify (15,802), but this was most

¹¹⁹ TO at 42.

¹²⁰ TO at 42.

¹²¹ See, e.g., Philadelphia Gas Works Universal Service Plan for 2017-2020, PUC Docket No. M-2016-2542415 at 5,15, <https://www.puc.pa.gov/pdocs/1660096.pdf>.

¹²² PECO Responses at 17.

¹²³ PECO to CAUSE-PA I-6. The APPRISE Evaluation also shows that across all income tiers, only 59% of CAP customers successfully recertified in 2018. APPRISE Evaluation at 90 (Table VII-8). For the lowest income CAP customers, only 43% of CAP customers successfully recertified. *Id.*

¹²⁴ APPRISE Evaluation at 90 (Table VII-7). The Low Income Advocates note that while the APPRISE Evaluation was able to break down removals from CAP by removal type, PECO responded to discovery from the Low Income Advocates that it does not track removals by reason type. See PECO to CAUSE-PA I-11; PECO to TURN I-6.

¹²⁵ PECO to CAUSE-PA I-11.

likely attributable to the fact that PECO did not enforce its recertification requirements for most of the year as a result of the pandemic.¹²⁶ Customers removed from CAP for failure to recertify are likely to develop new arrearages at full tariff rates because they are no longer receiving an affordable bill. A cure option would ensure that customers are given a second chance to enroll in CAP and earn preprogram arrearage forgiveness.

j. Documentation of Income

In its TO, the Commission identifies that PECO’s proposed Plan does not specify what income documentation PECO will accept for the purpose of verifying income for CAP. Rather, the list of acceptable income is included on the second page of PECO’s CAP application. In its response, PECO committed to adding the list on its CAP application as an addendum to its final USECP. PECO further clarified that the list is “inclusive of all acceptable documentation types.”¹²⁷ However, elsewhere in its Responses, PECO asserts that the list on its application is “not intended to be comprehensive and therefore affords the above-mentioned flexibility.”¹²⁸ It is unclear how the list can be both inclusive of all acceptable documentation types and simultaneously not comprehensive.

For the purpose of affording flexibility, the Low Income Advocates suggest that the list include a note stating that it is not comprehensive, and that PECO may accept alternative forms of documentation. PECO should clarify both on its application and in the addendum to the USECP that the list is not comprehensive.

¹²⁶ Id.

¹²⁷ PECO Responses at 18.

¹²⁸ PECO Responses at 13.

k. Outreach and Education Program

In its TO, the Commission requested PECO provide clarification about its Outreach and Education Plan – specifically, which initiatives were new and which represented existing, ongoing practices to help the most vulnerable customers (customers with income at or below 50% FPL, customers who have limited English proficiency, and households impacted by COVID-19).¹²⁹ In response, PECO noted that it works with external partners, including Community Based Organizations (CBOs), to improve awareness and access to its low-income programming.¹³⁰ PECO states that it targets zip codes with high concentrations of customers at or below 50% FPL with outreach events and materials.¹³¹ PECO further explains that it continues to expand engagement with community partners, including enrolling social service agencies as CAP enrollment sites.¹³²

The Low Income Advocates commend PECO on its efforts to increase awareness of its programs, and offer a few suggestions that could improve PECO’s outreach and education.

First, PECO should conduct an updated needs assessment that examines the impact of COVID-19 on households in its service territory. In recent months, the COVID-19 virus continues to spread across disadvantaged communities, with low-income households and the working poor continuing to endure economic instability, job insecurity, housing instability, and disparities in access to health care amongst other systemic inequities. The true societal impact of the COVID-19 pandemic may be unknown for many years to come. However, there are numerous indicators of what may be. Many employers have already announced that they will never reopen, and those that do plan to reopen face tremendous hurdles to doing so safely - resulting in long-term job losses

¹²⁹ TO at 45.

¹³⁰ PECO Responses at 18.

¹³¹ PECO Responses at 19.

¹³² Id.

and ongoing reductions in staffing, especially for low wage, hourly workers. The resulting increase in the level of poverty in PECO's service territory and across the state is not yet clear. That said, it is undeniable that the pandemic has had and will continue to have deep and lasting impacts on the disadvantaged sectors of our communities. Nevertheless, PECO has indicated that it has not done any updated needs assessment due to the COVID-19 pandemic. Nor has PECO created or reviewed any studies or reports that look at the impact of COVID-19 on poverty in PECO's service territory.¹³³ To support a robust and targeted outreach and education program, PECO must review the impact of COVID-19 on its service territory.

Second, PECO should look at its own zip code and neighborhood based data on indicators of need that go beyond concentrations of poverty. For example, PECO should look at its own zip code level data on arrears, payment arrangements, shutoff notices and terminations, and CAP enrollment. PECO could look to target outreach to neighborhoods with low levels of CAP enrollment but high levels of arrears, shutoff notices, and/or terminations.

Third, in response to discovery, PECO stated that it does not track rejections from CAP or removals from CAP by reason type.¹³⁴ Nor does PECO keep data on the number of customers who applied for MEAF grants or were denied MEAF grants.¹³⁵ PECO should track, geographically and by reason, application approvals and denials for CAP, LIURP and MEAF, as well as program removals for CAP. Doing so would allow PECO to assess the barriers that application requirements impose on low-income customers who are attempting to access its universal service programs. Further, PECO could examine to what extent the denials and removals are due to customers being ineligible (over income) and to what extent customers are being denied or removed because of

¹³³ PECO to TURN I-22.

¹³⁴ PECO to CAUSE-PA I-10; PECO to CAUSE-PA I-11.

¹³⁵ PECO to CAUSE-PA I-3.

documentation issues or failure to complete their applications. If a significant portion of PECO's application denials and program removals are due to application issues or document requirements, then PECO should examine how it can improve the accessibility of its application and streamline documentation requirements. This could include accepting verbal attestation of income for recertification, and increased flexibility in the types of documentation of income accepted. As part of its outreach work, PECO should also solicit feedback from community groups and stakeholders, including the CBOs that perform CAP enrollment, on how they can make their applications more accessible.

Finally, PECO should do targeted outreach to limited English proficient households, through neighborhood-based outreach and in partnership with community organizations that work with LEP households – including households that are not English or Spanish speaking. Census data shows that in the five major counties in PECO's service territory, fifteen percent of the population speaks a language other than English.¹³⁶ As shown in the table below, there is a substantial limited English population in each of the five major counties served by PECO, with many individuals speaking a language other than English or Spanish.¹³⁷

¹³⁶ This estimate is based on the following table: Detailed Languages Spoken at Home and Ability to Speak English for the Population 5 Years and Over: 2009-2013, available at <https://www.census.gov/data/tables/2013/demo/2009-2013-lang-tables.html>.

¹³⁷ All data in this table was pulled from the US Census Bureau. Detailed Languages Spoken at Home and Ability to Speak English for the Population 5 Years and Over: 2009-2013, available at <https://www.census.gov/data/tables/2013/demo/2009-2013-lang-tables.html>.

TABLE 3: LEP population in each of the five major counties served by PECO

	Bucks County	Chester County	Delaware County	Montgomery County	Philadelphia County	Total
Total Population	592,917	472,720	525,912	757,832	1,432,316	3,781,697
Speak a language other than English	64,469	55,795	60,875	94,713	308,605	584,457
Speak a language other than English (percent)	11%	12%	12%	12%	22%	15%
Spanish Speaking	17,665	25,610	13,241	24,105	141,766	222,387
Spanish Speaking (percent)	3%	5%	3%	3%	10%	6%
Speak a language other than English or Spanish	46,804	30,185	47,634	70,608	166,839	362,070
Speak a language other than English or Spanish (percent)	8%	6%	9%	9%	12%	10%

Given the variety of languages spoken by LEP households in PECO’s service territory, PECO should conduct a needs assessment that, at a minimum, examines the top 10 languages spoken across its service territory – overall, at the county-level, and in each zip code or census tract. This geographic-specific look at the population will help PECO to better identify concentrations of specific LEP populations, which will in turn help PECO to better target outreach

to LEP households. PECO's needs assessment should also examine which universal service documents should be translated (such as CAP Applications, CAP approval and denial letters, recertification documents, LIURP outreach documents), which languages those documents should be translated to, and how to best disseminate translated information to LEP households. At a minimum, these documents should be translated into the top three languages spoken in each county within PECO's service territory.

The Low Income Advocates also recommend that PECO identify and connect with organizations that serve specific LEP populations across its service territory, and should recruit those organizations to assist with and process applications for PECO's universal service programs. These organizations – regardless of whether they ultimately assist in program administration – should be included in PECO's Universal Service Advisory Committee to provide ongoing feedback for how PECO can continue to improve the accessibility of its universal service programs to LEP customers.

1. CAP Issues Not Addressed in the Tentative Order

i. CAP Credit Exemptions

In its Amended Proposed 2019 USECP, PECO proposes an increase to the maximum CAP Credits. The Low Income Advocates believe this increase is appropriate, and further suggest that PECO include in its plan that it will follow the CAP Policy Statement guidelines for exemptions to the maximum CAP Credits.

The CAP Policy Statement sets forth the following exemptions:

- (A) The household experienced the addition of a household member.
- (B) A member of the household experienced a serious illness.

- (C) Energy consumption was beyond the household's ability to control.
- (D) The household is located in housing that is or has been condemned or has housing code violations that negatively affect energy consumption.
- (E) Energy consumption estimates have been based on consumption of a previous occupant.¹³⁸

PECO projects that few CAP customers will hit these maximum CAP Credits, even under a PIPP structure.¹³⁹ However, for those CAP customers who face special hardships like a serious illness, or are unable to control their usage for reasons beyond their control, these exemptions allow CAP customers to continue to receive an affordable bill. This is especially important given PECO's poor track record in targeting maximum CAP credit households for LIURP services. PECO stated in response to discovery that of the 3,880 customers who met or exceeded the CAP maximum credits in 2018, 2019, and 2020, approximately 36% received a LIURP audit.¹⁴⁰ Allowing exemptions to the maximum CAP credit limits will ensure that customers who are facing serious illness, medical usage, or do not have control over their usage will be able to receive an affordable bill. We urge the Commission to require PECO to incorporate the maximum CAP credit exemptions into its USECP.

ii. *Maximum CAP Credit Notifications*

In the Amended Proposed 2019 USECP, PECO sets out that it will notify customers as they approach their annual maximum credit amounts – at a minimum when they have receive 75% and 90% of their annual credit.¹⁴¹ The Low Income Advocates support the use of such notices and offer a few additional suggestions.

¹³⁸ 52 Pa. Code § 69.265 (3)(vi).

¹³⁹ See PECO Responses at 4 (projecting between 1% and 8% of CAP customers will reach the maximum CAP credits, depending on rate type and FPL tier).

¹⁴⁰ PECO to TURN I-12.

¹⁴¹ Amended Proposed 2019 USECP at 4.

First, the notifications should identify the available maximum CAP credit exemptions, and clearly explain how a customer can request an exemption. In addition, the notifications should be paired with affirmative outreach from PECO to engage the customer with LIURP services, as well as energy efficiency education and information about other state, federal, or utility-level conservation and efficiency programs. As noted above, currently, only 36% of customers who have reached the maximum CAP credit limit (and are therefore receiving full tariff bills) have received a LIURP *audit*.

The Low Income Advocates also suggest that PECO provide earlier notifications for customers it predicts will reach their maximum CAP credit before the end of the year, due to high historical usage by the customers or at the property. All households that exceed 25% and 50% of their usage before the first and second quarter of the program year, respectively, should be advised that they *may* reach their CAP credit limit before the end of the year if their usage patterns do not change. Again, information about all available conservation and efficiency programs should be provided – along with energy efficiency education. It is important that high users are notified as early in the program year as possible so that they have a reasonable opportunity – to the extent feasible – to reduce their usage through conservation and energy efficiency.

PECO should work with stakeholders – including consumer advocates and community based organizations – to develop the notification language. PECO should also track the language of its LEP CAP customers and, where feasible, send out notifications in languages other than English.

iii. Exhaustion of Maximum CAP Credits

PECO fails to explain how it will bill customers following the exhaustion of Maximum CAP Credits. As noted above, the Low Income Advocates support exemptions to the Maximum CAP Credits for those customers who are unable to control their usage or have experienced specific hardships – consistent with the Commission’s CAP Policy Statement. For customers who do not meet those criteria, the Low Income Advocates suggest that PECO offer customers the option of either the actual bill or the average bill amount for any remaining months on CAP before the customer reaches the end of the program year and is able to receive a PIPP bill again. Doing so would be in line with PECO’s proposal to charge the lesser of either the PIPP bill or the actual bill on a monthly basis.

iv. CAP FCO In Program Arrearage Forgiveness

Given the documented unaffordability of the FCO, PECO should be required to provide in-program arrearage forgiveness for debts accrued by CAP customers while receiving unaffordable rates in excess of the Commission’s *prior* energy burden standards.¹⁴² In program arrears are past-due charges that CAP customers have accumulated on their account following enrollment in CAP. As PECO has recognized in multiple proceedings, the current CAP FCO has failed to deliver affordable bills to CAP customers.¹⁴³ In a letter that PECO filed with the Commission on June 30, 2020, PECO said that the results of its expert external evaluation had determined that “in the first two operational years of the FCO program (calendar years 2017 and

¹⁴² See APPRISE Evaluation at 121-133.

¹⁴³ See generally APPRISE Evaluation.

2018), unaffordability in the 50% of the Federal Poverty Level group remained high.”¹⁴⁴ As a result of its evaluation findings, and the Commission’s actions regarding statewide CAP affordability, PECO indicated that it had “reevaluated the structure and efficacy of the FCO.”¹⁴⁵

PECO CAP customers have accumulated significant arrears on their accounts. According to discovery responses, more than 41,000 PECO customers currently owe more than \$29 million in in-CAP arrears.¹⁴⁶ Despite this unprecedented level of arrears accrued by PECO’s CAP customers, PECO has not proposed any program in this or any proceeding that will provide CAP customers with relief for the accumulated CAP in-program arrears. Absent such a program, those arrears will continue to threaten the affordability of service for low-income customers and place them at risk for termination when they are unable to pay for service. The Low Income Advocates recommend that PECO adopt an in program arrearage forgiveness for CAP FCO bills that is comparable to, and runs in tandem with, the preprogram arrearage forgiveness CAP enrollees can receive.

v. Restoration

Under PECO’s Amended Proposed 2019 USECP, customers with CAP arrears can restore service and enter into a payment arrangement as part of a reduced restoration agreement (but only if one or fewer broken payment arrangements).¹⁴⁷ The Low Income Advocates support PECO’s efforts to aid low-income customers in restoring service by enrolling in CAP and suggest that

¹⁴⁴ See June 30, 2020 PECO Letter, filed at PECO Energy Company Universal Service and Energy Conservation Plan for 2013-2015 (Docket No. M-2012-2290911); PECO Energy Company Universal Service and Energy Conservation Plan for 2016-2018 (Docket No. M-2015-2507139); PECO Energy Company Universal Service and Energy Conservation Plan for 2019-2024 (Docket No. M-2018-3005795); PECO Energy Company Universal Services Program Six-Year Evaluation Report (M-2019-3011281).

¹⁴⁵ *Id.*

¹⁴⁶ PECO to TURN I-20; I-21.

¹⁴⁷ Amended Proposed 2019 USECP at 8.

PECO offer customers the option to restore service and enter into a payment arrangement without requiring an initial restoration payment. The Low Income Advocates also encourage PECO to institute a cure option for customers to restore, if they are able to pay that reduced amount. Doing so would allow a customer to earn retroactive arrearage forgiveness and avoid entering a payment arrangement, and improve a customer's ability to keep up with their bills moving forward as they would not need make monthly payments on their arrears on top of their regular charges.

PECO should also remove the limitation on which customers can receive restoration and a payment arrangement. As written, PECO limits the offering of payment arrangements to customers restoring service to those who have broken one or fewer past arrangements. However, CAP customers with payment arrangements are required to make payments on top of their normal charges. Given the documented unaffordability of the FCO, CAP customers with payment arrangements may have been asked to make payments on top of already unaffordable bills. Customers should not be penalized for being unable to afford bills that PECO has acknowledged were unaffordable.

vi. Zero Income

PECO's Amended Proposed 2019 USECP states that "PECO considers income verified when the customer provides proof of income or submits a no-income form for all adult household members (18 years of age or older). Acceptable forms of income are listed on the back of the CAP application."¹⁴⁸ PECO goes on to say that it will utilize the no-income form provided by the Commission in its CAP Policy Statement. The no-income form asks that the customer state that

¹⁴⁸ Amended Proposed 2019 USECP at 5.

no member of their household has income. The form then asks the customer to explain how they meet household expenses.

It is unclear from PECO's Plan how a household in which some adult members have income and some do not is supposed to verify its income status. PECO's Plan appears to require that the household members with income to submit their proof of income and the members without income to complete a no-income form. The purpose of the no-income form – to verify how the household meets living expenses – is unnecessary in this situation because the answer would undoubtedly be that the household relies on the member who does have income.

To resolve this potential confusion, PECO should clarify that no-income forms are only required when no adult household member has income. In those households, a single form would verify that no member has income and explain how the household as a whole meets living expenses. PECO should further clarify that in households without income, only one household member is required to complete the no-income form.

PECO also stated in response to discovery that it does ask for follow up documentation when a household submits a no-income form, depending on what is put on the form.¹⁴⁹ For example, PECO will ask for a benefits printout to show that a household is not receiving cash benefits. However, these additional documentation requirements are burdensome, and serve little purpose. The no income form should be sufficient on its own to show no income, without further documentation.

¹⁴⁹ See PECO to TURN I-15.

vii. *Fraud*

PECO, in its Amended Proposed 2019 USECP, states that it will conduct investigations of any CAP account if PECO becomes aware of potential “fraud, theft of service, or other misappropriations of service.”¹⁵⁰ Asked to define “misappropriations of service” PECO agreed to remove that language when it files its final USECP.¹⁵¹ PECO proposes to analyze customer information for potential fraud - including a credit check along with a probe into how the customer pays living expenses.¹⁵² PECO further states in its Amended Proposed 2019 USECP “when PECO’s investigation includes the use of credit report information, PECO will provide the customer with adverse action notification in accordance with the Fair Credit Reporting Act.”¹⁵³ PECO acknowledges, however, that it has not sent any adverse action notifications. Asked to provide an example adverse action notification, PECO indicated it would remove that language from its final USECP.¹⁵⁴ The Low Income Advocates note that if PECO is relying on credit reports to take adverse actions against its customers, it should be sending notifications pursuant to the Fair Credit Reporting Act. It is unclear what other methods outside of credit checks PECO does or could use to conduct these investigations, as the Amended Proposed 2019 USECP only states that “PECO will follow its normal practices for investigation.”¹⁵⁵ In its final plan filing, PECO should confirm what other methods, if any, it utilizes to investigate customers and how those customers are able to challenge an adverse determination as a result of any investigation. This is especially important, as the result will be removal from CAP and a one-year stay out of CAP.

¹⁵⁰ Amended Proposed 2019 USECP at 9.

¹⁵¹ PECO to TURN I-24.

¹⁵² Amended Proposed 2019 USECP at 9.

¹⁵³ Id.

¹⁵⁴ PECO to TURN I-24.

¹⁵⁵ Amended Proposed 2019 USECP at 9.

IV. LOW INCOME USAGE REDUCTION PROGRAM (LIURP)

LIURP is a usage reduction program for low income, residential customers with high usage, established to help low income customers to reduce their bills and, in turn, decrease payment delinquencies and reduce uncollectible expenses.¹⁵⁶ PECO's LIURP helps low-income customers reduce energy usage by providing direct weatherization/conservation measures and in-home education.¹⁵⁷ Robust energy efficiency and weatherization through LIURP can play an important role in mitigating unaffordability for low income consumers by reducing energy bills for low income households over the long term. LIURP can also reduce the amount of CAP credits needed to provide affordable bills, lowering the cost of the CAP program for the ratepayers who pay into it.

PECO's LIURP is not adequately funded to achieve these goals. For LIURP to effectively help remediate the rate unaffordability suffered by PECO's high usage, low-income customers, PECO must make critical changes to its policies, procedures, and budget to expand services to more households and make a greater investment in the households it serves. PECO must take steps to serve additional households through its LIURP, including tenants and multifamily residents. In addition, PECO must improve its health and safety program to remediate issues in the home that prevent PECO from performing comprehensive usage reduction services. Finally, PECO must ensure that it is able to provide services to those with an inoperable heating system who do not meet the high usage threshold but may be relying on inefficient or unsafe alternatives that are exacerbating other household energy costs.

¹⁵⁶ 52 Pa. Code § 58.1 (“The programs are intended to assist low-income customers conserve energy and reduce residential energy bills. The reduction in energy bills should decrease the incidence and risk of customer payment delinquencies and the attendant utility costs associated with uncollectible accounts expense, collection costs and arrearage carrying costs.”).

¹⁵⁷ TO at 46.

a. Tenant Eligibility

The Low Income Advocates are concerned that PECO's LIURP is overly restrictive regarding tenant eligibility for LIURP measures, which has resulted in low income, high usage tenants in its service territory being underserved by LIURP. Just 989 tenants received LIURP services in 2019, accounting for only 12% of LIURP jobs.¹⁵⁸ This stands in stark contrast to the number of low income renters in PECO's service territory. PECO should address this issue by allowing tenants with at least one full billing cycle to use historical usage data for the residence for purposes of meeting the threshold usage criteria. PECO should also make efforts to determine what LIURP services it may be able to provide to tenants without necessitating landlord permission. For example, audits, education, LED bulbs, smart strips, and other non-fixture measures can help tenants achieve energy efficiency without making physical changes to the property the property and should be provided to tenants without the need for landlord approval. Households that receive an energy audit and basic baseload measures will be better able to demonstrate the value of their participation in the program to the landlord, helping to obtain landlord permission for PECO to install additional energy saving measures. PECO should also look for ways to improve its efforts to contact landlords for approval, and should provide education and resources to housing provider groups and associations about the availability of the programs and the need for landlord approval.

Additionally, in the TO, the Commission notes that in PECO's Amended Proposed 2019 USECP, CAP customers who refuse a LIURP audit, including tenants, are subject to removal from CAP. The Commission requested PECO clarify its procedures regarding tenant CAP customers

¹⁵⁸ *Id.* at 47.

with landlords who refuse a LIURP audit.¹⁵⁹ PECO responded that the Company does not remove a CAP customer for failure to receive a LIURP audit if this is due to a landlord's failure to provide permission to receive the audit.¹⁶⁰ The Low Income Advocates recommend the Commission require PECO to include PECO's policy regarding landlord refusal and removal from CAP in the language of its USECP. Including this specificity in the Plan could prevent the erroneous removal of tenant CAP customers from the program.

b. Tiered High Usage Threshold

To qualify for LIURP, a customer must have minimum monthly usage of 600 kWh for electric base load, 1,400 kWh for electric heat, or 50 ccf for gas heat.¹⁶¹ Smaller homes, such as apartments in individually metered multifamily buildings, are often excluded from participation due to the minimum usage requirement, even if usage in the home is high compared to similarly sized homes. The number of multifamily residences served by LIURP bears this out: in 2019, only 253 multifamily units received LIURP services, accounting for only 3% of LIURP jobs.¹⁶² The Low Income Advocates therefore recommend PECO revise its high usage eligibility threshold to account for situations where a customer displays high usage on a per-square foot basis, rather than evaluating high usage strictly based on a flat usage threshold in all situations. This would help to ensure that low-income consumers who reside in smaller homes and multifamily units with comparatively high usage on a square foot basis are not foreclosed from receiving critical usage reduction services. We recommend PECO consult with its Universal Service Advisory Committee,

¹⁵⁹ TO at 47.

¹⁶⁰ PECO Responses at 23-24.

¹⁶¹ Amended Proposed 2019 USECP at 14.

¹⁶² PECO to TURN I-3, Attachment TURN I-3(a), 2019 LIURP Evaluation Report at 48 (hereinafter 2019 LIURP Eval.).

examine applicable usage data, and develop a tiered high usage eligibility threshold that will more equitably serve those in need of LIURP services to help control their energy costs.

c. Health and Safety

The Commission has encouraged utilities to establish an allowance for the installation of routine health and safety measures.¹⁶³ The Low Income Advocates recommend PECO expand its health and safety pilot to assist low income, high usage households who are unable to access LIURP services due to health and safety issues in the home. In 2019, only 225 jobs received health and safety remediation measures.¹⁶⁴ For the homes serviced through this pilot, installation of health and safety measures was highly effective.¹⁶⁵ To not expand the program would be a missed opportunity. The savings for jobs that received health and safety measures – excluding carbon monoxide detectors and smoke alarms and batteries – had high pre-treatment usage and high energy savings, averaging 1,105 kWh for baseload jobs, 2,373 kWh for electric heating jobs, and 75 ccf for gas heating jobs.¹⁶⁶ The inclusion of advanced health and safety measures led to savings of 9.4% savings compared to 6.2 % for all electric baseload jobs.¹⁶⁷ Gas heating jobs with these health and safety measures had 6.9 % savings compared to overall gas heating savings of 4.9%. The evaluator noted that the 11.4% savings for electric heating jobs receiving advanced health and safety measures – compared to 5.2% for all electric heat jobs – was not statistically significant due to the small sample size.¹⁶⁸ Unfortunately, only 146 households received such services, accounting for merely 1.8% of LIURP jobs.¹⁶⁹

¹⁶³ TO at 48.

¹⁶⁴ 2019 LIURP Eval. at 40.

¹⁶⁵ *Id.* at 73, 86.

¹⁶⁶ *Id.* at 73.

¹⁶⁷ *Id.* at 86

¹⁶⁸ *Id.* at 73

¹⁶⁹ *Id.* at 73, Table IV-13B.

The Low Income Advocates further recommend the Commission require PECO to abide by the recommendations of the independent evaluator and, “continue to provide the new health and safety measures as part of LIURP.”¹⁷⁰ One possible reason for the limited number of advanced health and safety jobs is that discussion of applicable health and safety issues is not included in the statement of work for PECO’s LIURP contractor.¹⁷¹ We therefore recommend PECO specify that audits should always include an assessment of needed health and safety measures, and that PECO should ensure that its contractors allocate enough time for each audit to include this evaluation.¹⁷² Further, PECO should require its subcontractor to track and report critical health and safety issues which are addressed through LIURP, that prevent the installation of certain measures, and/or that altogether prevent the household from receiving LIURP services.¹⁷³ As the independent evaluator succinctly stated, “PECO should track these issues to highlight **potentially life-saving LIURP services** in the LIURP evaluation.”¹⁷⁴ Closer monitoring of health and safety issues will also help shape policy and program decisions over the longer term to help better remediate high usage for low income customers while holistically improving the health and safety of the home.

The Low Income Advocates note that PECO’s Amended Proposed 2019 USECP does not include these valuable advanced health and safety measures. The Plan only states that PECO will provide smoke detectors and carbon monoxide alarms and will remediate carbon monoxide or combustion appliance hazards. The Plan does not indicate that the Company may remediate other health and safety issues. We recommend the Commission require PECO to amend its plan to provide an explanation of these important measures.

¹⁷⁰ Id. at 86.

¹⁷¹ Id. at 85.

¹⁷² Id. at 84-85.

¹⁷³ Id. at 85.

¹⁷⁴ Id. (emphasis added).

The current budget for PECO's LIURP Health and Safety Pilot is \$1,000,000 per year.¹⁷⁵ The budget is inadequate to serve the need for health and safety remediation.¹⁷⁶ The Low Income Advocates recommend an increase of the budget to \$2,000,000, with the extra money earmarked for advanced health and safety measures specifically targeting electric heating customers. Doing so would establish a statistically significant sample size so the savings from jobs including these measures can be accurately tracked.

d. LIURP Needs Assessment and Budget

Currently, PECO's LIURP only serves a small portion of those in need of comprehensive energy efficiency and usage reduction services. According to PECO's needs assessment, 411,542 households in PECO's service territory were estimated to be income eligible for LIURP services.¹⁷⁷ As of March 2021, PECO had identified 146,142 confirmed low income customers who met the income qualifications for LIURP,¹⁷⁸ out of which, 76,437 customers (or 52%) qualified for LIURP based on both income and usage.¹⁷⁹ If 52% of PECO's estimated income eligible households also meet the Company's LIURP minimum usage requirements, then an estimated 193,240 households would qualify to be treated through LIURP.¹⁸⁰

According to PECO's most recent LIURP evaluation, the Company provided LIURP services to approximately 8,058 households in 2019, though there has been a significant slowdown in 2020 and 2021 due to the COVID-19 pandemic.¹⁸¹ At PECO's average rate of 7,900 LIURP

¹⁷⁵ Amended Proposed 2019 USECP at 15.

¹⁷⁶ See 2019 LIURP Eval. at 40 (Only 225 jobs received health and safety measures).

¹⁷⁷ Amended Proposed 2019 USECP at 55, Addendum E, Table III-2A.

¹⁷⁸ PECO to CAUSE-PA I-8.

¹⁷⁹ PECO to CAUSE-PA I-8.

¹⁸⁰ PECO to CAUSE-PA I-8.

¹⁸¹ 2019 LIURP Eval. Report at 5.

audits a year, it would take approximately 10 years to serve all 76,437 households that are already confirmed to be LIURP eligible- and approximately 28 years to treat all 193,240 *estimated* eligible households.¹⁸² PECO must pick up the pace in identifying and serving eligible households.

As it stands, PECO has a disproportionately low LIURP budget compared to other electric distribution companies (EDCs) and natural gas distribution companies (NGDCs), which makes it particularly questionable why PECO’s budget is set to serve such a small percentage of identified need each year. Despite having the most electric customers in the state, PECO’s LIURP budget provides the lowest LIURP funding per customer among all EDCs.

TABLE 4: EDC 2020 Projected LIURP Budget¹⁸³

EDC	LIURP Budget (2020)	Residential Customers (2019)	Est. Annual LIURP Cost per Residential Customer	Est. Monthly LIURP Cost per Residential Customer
Duquesne	\$3,053,500	538,534	\$5.67	\$0.47
Met-Ed	\$5,442,000	504,684	\$10.78	\$0.90
PECO-Electric	\$5,600,000	1,488,812	\$3.76	\$0.31
Penelec	\$6,126,000	500,877	\$12.23	\$1.02
Penn Power	\$3,643,161	146,017	\$24.95	\$2.08
PPL	\$10,000,000	1,233,836	\$8.10	\$0.68
West Penn	\$6,426,697	627,499	\$10.24	\$0.85

Likewise, despite having the most natural gas customers in the state, PECO’s gas LIURP budget is the second lowest overall – and the lowest level proportionate to PECO’s customer base.

¹⁸² PECO to TURN I-2.

¹⁸³ 2019 Universal Service Report at 5, 46.

TABLE 5: NGDC 2020 Projected LIURP Budget⁷⁰

NGDC	LIURP Budget (2020)	Residential Customers (2019)	Est. Annual LIURP Cost per Residential Customer	Est. Monthly LIURP Cost per Residential Customer
Columbia Gas	\$4,955,929	400,043	\$12.38	\$1.03
NFG	\$2,129,300	196,778	\$10.82	\$0.90
PECO Gas	\$2,250,000	484,678	\$4.64	\$0.39
Peoples	\$3,244,097	335,583	\$9.67	\$0.81
PGW	\$7,988,818	480,347	\$16.63	\$1.39
UGI South	\$2,359,612	367,175	\$6.42	\$0.54
UGI North	\$1,470,997	157,025	\$9.37	\$0.78

To better serve identified need within a reasonable amount of time, the Low Income Advocates recommend PECO increase its Electric LIURP budget by \$4,400,000, bringing its annual LIURP budget for electric customers to \$10,000,000; and increase its Gas LIURP budget by \$5,750,000, bringing the gas budget to \$8,000,000. This will bring greater parity to PECO’s LIURP budget (consistent with similarly sized EDCs and NGDCs)¹⁸⁴ and will better meet the identified need for LIURP services within a more reasonable timeframe.

e. De Facto Heating Program

Finally, PECO should be required to continue its De Facto Heating Program with funding at \$1 million annually. These funds should be separate from and supplemental to PECO’s LIURP budget. This will help address affordability challenges for families with inoperable heating systems who are reliant on electric space heaters for warmth in winter – which causes electric-only and gas heating customers to fully expend their maximum CAP credits far more quickly, needlessly exacerbating unaffordability and accrual of arrears in this uniquely

¹⁸⁴ See Table 5, above, citing 2019 Universal Service Report at 5, 46.

vulnerable group. There must be funds available to remediate these uniquely high use customers.

V. HARDSHIP FUND (MEAF)

In its Amended Proposed 2019 USECP, PECO did not provide amendments to its hardship program: the Matching Energy Assistance Fund (MEAF), compared to its 2016 plan.

Through the existing and proposed MEAF, PECO customer households with incomes at or below 175% FPL may qualify for a grant of up to \$500 if they are in imminent danger of service termination or if their service has already been terminated.¹⁸⁵ Customers cannot have received a MEAF grant in the past 24 months to qualify to receive this funding.¹⁸⁶ Also, the MEAF grant must bring the balance owed, excluding CAP pre-program arrears, to zero – regardless of whether the customer may be eligible to enroll in CAP and earn forgiveness on any remaining arrears that the MEAF grant is unable to cover.¹⁸⁷

Due to the COVID-19 pandemic bringing significant economic challenges to many PECO customers – especially those most vulnerable households who were already struggling to pay utility bills prior to the pandemic – PECO filed a petition in September 2020 to make parts of its USECP programs more accessible. These temporary changes included raising the annual income limits for MEAF to 200% FPL, waiving the requirement that a customer must be in imminent danger of losing service or had already lost service, and waiving the two-year period between grant receipts. The Commission approved the petition in December 2020.¹⁸⁸ These amendments expired on March 31, 2021. Given that economic recovery is ongoing and will continue for an indefinite

¹⁸⁵ Amended Proposed 2019 USECP at 14.

¹⁸⁶ Id.

¹⁸⁷ Id.

¹⁸⁸ On September 24, 2020, PECO filed a petition, requesting temporary changes to the eligibility requirements of its Matching Energy Assistance Fund (MEAF), PECO's hardship fund, through March 31, 2021. Docket No. P-2020-3022124.

amount of time, especially for low-income households, the Low Income Advocates recommend PECO incorporate into its USECP the changes to MEAF eligibility approved in their petition.

In 2020, PECO awarded just 13 MEAF grants, a staggeringly low number in comparison to the unprecedented level of arrears accrued by residential customers in this same timeframe.¹⁸⁹ It is true that 2020 is an atypical year due to the emergence of the COVID-19 pandemic and the Commission's resultant termination moratorium; however, even prior to the pandemic, PECO did not have grant recipient rates anywhere close to its projections. In 2018 and 2019, PECO only provided 525 and 653 grants, respectively,¹⁹⁰ well short of PECO's projected 1,000 grants per year.¹⁹¹ For reference, over those same two years, PECO performed approximately 219,241 residential service terminations, 53,462 of which were confirmed low-income terminations.¹⁹²

These low numbers indicate that eligibility requirements for MEAF are unduly restrictive. PECO does not track how many customers applied for MEAF grants and were denied, nor do they track reasons for denial of grants to customers,¹⁹³ so we can only surmise from low participation numbers that eligibility requirements are, at least in part, responsible for limiting participation. Therefore, the Low Income Advocates strongly urge the Commission to require PECO to amend its USECP to make permanent the temporary changes approved through PECO's September 24 Petition. Further, the Low Income Advocates urge the Commission to require PECO to track the number of applicants and the reasons customers are denied in order to better plan for MEAF spending in future USECP proceedings.

¹⁸⁹ PECO to CAUSE-PA I-3.

¹⁹⁰ PECO to CAUSE-PA I-3.

¹⁹¹ Amended Proposed 2019 USECP at 18.

¹⁹² 2019 Universal Service Report at 11-12.

¹⁹³ PECO to CAUSE-PA I-3.

Additionally, PECO's unreasonable policies regarding its acceptance of grant assistance to stop or delay termination unduly limit the ability of the MEAF to help vulnerable customers avoid termination. PECO will only suspend termination activity upon notification by a grant agency of an *approved* grant or when PECO is aware of a specific delay in remitting approved customer grant money. This process does not allow adequate time to account for application processing and can lead to qualified customers being terminated while their applications are being processed. The Low Income Advocates therefore recommend that PECO be required to suspend termination activity for any customer who reports that they have submitted an application to a MEAF administrator, and/or upon confirmation from the MEAF administrator that the customer has completed the application. The suspension should remain in place until the customer's application for assistance is either denied (at which time termination procedures may resume) or the application is approved, and funds are applied to the customer's account. Termination and subsequent reconnection is costly, adding fees to the customer's already unaffordable bill and causing other severe financial consequences to the family – including the loss of refrigeration and possible eviction from the home. A temporary delay to allow an application for hardship fund assistance to process is critical to avoid these compounding costs on low-income families.

Another issue that prevents vulnerable households from accessing MEAF assistance is PECO's policy that customers with a medical certification hold are not considered at risk of termination for purposes of applying for a MEAF grant. Medical certifications only provide *temporary* holds for medically vulnerable households who are at risk of termination. Households with a medical certificate must be provided opportunities while protected by a medical certificate to equitably resolve the debt. This is not only good policy; the Commission's regulations require consumers protected by a medical certificate to make equitable payments to address the underlying

debts while protected by a medical certificate.¹⁹⁴ We therefore additionally recommend that PECO amend its plan to indicate that any customer who has a hold on termination with a duration less than 60 days should still be considered at risk of termination for purposes of applying for MEAF.

The total MEAF dollars PECO distributes each year evidences a clear need to relax the strict eligibility requirements imposed by PECO on MEAF applicants. Since 2010, PECO has consistently – and substantially – underspent the budget available for MEAF.

TABLE 6: MEAF Total Benefits Disbursed, Electric 2010-2019¹⁹⁵

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Dollars Distributed	\$374,944	\$349,669	\$328,989	\$366,519	\$324,076	\$296,313	\$293,530	\$400,205	\$254,814	\$316,174
Total Contributions	\$589,173	\$567,501	\$576,138	\$586,107	\$566,220	\$563,533	\$564,755	\$609,798	\$505,869	\$544,166
Difference	\$214,229	\$217,832	\$247,149	\$219,588	\$242,194	\$267,220	\$271,225	\$209,593	\$251,055	\$227,992

TABLE 7: MEAF Total Benefits Disbursed, Gas 2010-2019

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Dollars Distributed	\$71,418	\$66,604	\$53,556	\$54,767	\$52,319	\$48,237	\$47,784	\$65,150	\$44,967	\$55,795
Total Contributions	\$112,223	\$114,250	\$93,789	\$93,956	\$91,410	\$91,738	\$91,937	\$99,269	\$89,271	\$96,029
Difference	\$40,805	\$47,646	\$40,233	\$39,189	\$39,091	\$43,501	\$44,153	\$34,119	\$44,304	\$40,234

It is not clear what happens to the remaining unspent MEAF budget each year. We recognize some of these funds are likely to support administration of the program. But if the entirety of the difference is spent on administration (well over 30% of total contributions each year – and approaching 50% in some years), that would raise questions about the reasonableness of PECO’s

¹⁹⁴ 52 Pa. Code §§ 56.114(1), 56.116.

¹⁹⁵ See Pa. PUC, BCS, 2010-2019 Reports on Universal Service Programs and Collections Performance, available at <https://www.puc.pa.gov/filing-resources/reports/universal-service-reports/>.

MEAF administrative costs. PECO should be required to explain this consistent underspending, and take steps to improve the accessibility of the program to those in need.

The sizeable underspending of MEAF funds year after year is not due to a lack of need – PECO’s confirmed low-income customers carry a substantial level of debt, and face astounding levels of termination. In 2019, 21,081 confirmed low-income electric customers were involuntarily terminated in PECO’s service territory – a 15.1% termination rate.¹⁹⁶ In the same year, 4,734 confirmed low income gas customers were terminated – a 19% termination rate.¹⁹⁷

The Low Income Advocates also note that – at the same time that PECO is underspending available funds – its MEAF contributions have been in decline for many years. While the decline has somewhat leveled off in more recent years, average contributions to MEAF (voluntary and shareholder contributions) have gone from between \$700,000 to over \$1 million in the early 2000s to between \$500-600,000 in more recent years.¹⁹⁸ Attached as Appendix B is a chart, showing this decline.

The Low Income Advocates submit that this decline in contributions is likely driven by the fact that MEAF donations are limited by the fact that PECO uses MEAF paper bill inserts as its primary vehicle for customer outreach and contribution solicitation. This is a substantive limitation for a number of reasons, primarily because many customers utilize PECO’s paperless billing option, and do not receive the solicitation.

Customers with the means and the desire to give may not realize there is an opportunity to do so. In addition, customers are more likely to give online if a convenient tool is made available to them. There are abundant such applications that would be cost effective to implement, not using

¹⁹⁶ 2019 Universal Service Report at 12, 13.

¹⁹⁷ Id.

¹⁹⁸ See Appendix B.

more resources to administer than a manual paper system. We therefore strongly recommend the use of online fundraising tools to enhance solicitation and fundraising efforts for MEAF. With the implementation of online fundraising tools and loosening overly restrictive eligibility qualifiers, PECO could enhance their collection capacity and enhance their ability to better assist and serve their low-income customers.

VI. CONCLUSION

The Low Income Advocates are grateful to the Commission for its thoughtful consideration of the issues raised above and for the opportunity to submit comments concerning the November 19, 2020 Tentative Order regarding PECO's proposed Amended USECP. We urge the Commission to act in accordance with these Comments to help ensure that all customers – regardless of income – are able to access safe and affordable services within the PECO's service territory.

Respectfully Submitted,

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Appendix A: Discovery Responses

PECO to CAUSE-PA I-3
PECO to CAUSE-PA I-6
PECO to CAUSE-PA I-8
PECO to CAUSE-PA I-10
Attachment CAUSE-PA I-10(a)
PECO to CAUSE-PA I-11
PECO to TURN I-2
PECO to TURN I-3
Attachment TURN I-3(a)
PECO to TURN I-6
PECO to TURN I-12
PECO to TURN I-15
PECO to TURN I-20
PECO to TURN I-21
PECO to TURN I-22
PECO to TURN I-24

Pennsylvania Public Utility Commission

v.

PECO Energy Company

Docket No. P-2020-3020727, M-2018-3005795

Response of PECO Energy Company
to Interrogatories of
The Coalition for Affordable Utility Services and Energy Efficiency in Pennsylvania
CAUSE-PA Set I

Response Date: 05/10/2021

CAUSE-PA-I-3

For each month from January 2018 to present, please provide the following information, disaggregated by county. To the extent monthly numbers are unavailable for any of the below subparts, please provide yearly numbers.

- a. How many customers applied for MEAF grants?
- b. How many customers received MEAF grants?
- c. How many applicants were denied MEAF grants, disaggregated by the reason for denial (i.e. over income, failure to provide documents, inability to “bring the bill to zero”)?
- d. How much was the average grant?

RESPONSE:

PECO does not have data on the number of customers who applied for or were denied by the MEAF agencies. Please see Attachment CAUSE-PA-I-3(a) for the answers to subparts b and d.

Responsible Witness: Mark Kehl

BUCKS COUNTY OPPORTUNITY COUNCIL		AVERAGE GRANT RECEIVED	AMOUNT
18-Jan	0		\$0.00
18-Feb	0		\$0.00
18-Mar	0		\$0.00
18-Apr	20		\$308.46
18-May	41		\$293.63
18-Jun	33		\$280.70
18-Jul	16		\$230.50
18-Aug	21		\$279.07
18-Sep	1		\$127.39
18-Oct	0		\$0.00
18-Nov	0		\$0.00
18-Dec	0		\$0.00
TOTAL	132		
19-Jan	0		\$0.00
19-Feb	0		\$0.00
19-Mar	0		\$0.00
19-Apr	0		\$0.00
19-May	36		\$241.00
19-Jun	21		\$242.00
19-Jul	21		\$278.00
19-Aug	0		\$0.00
19-Sep	0		\$0.00
19-Oct	0		\$0.00
19-Nov	0		\$0.00
19-Dec	0		\$0.00
TOTAL	78		
20-Jan	0		\$0.00
20-Feb	0		\$0.00
20-Mar	0		\$0.00
20-Apr	0		\$0.00
20-May	0		\$0.00
20-Jun	1		\$494.29
20-Jul	0		\$0.00
20-Aug	0		\$0.00
20-Sep	0		\$0.00
20-Oct	0		\$0.00
20-Nov	0		\$0.00
20-Dec	0		\$0.00
TOTAL	1		

CHESTER COUNTY (Torres)	RECEIVED	AVERAGE GRANT AMOUNT
18-Jan	0	\$0.00
18-Feb	0	\$0.00
18-Mar	1	\$250.00
18-Apr	22	\$279.12
18-May	55	\$276.98
18-Jun	13	\$278.19
18-Jul	5	\$213.12
18-Aug	2	\$589.51
18-Sep	5	\$278.66
18-Oct	0	\$0.00
18-Nov	0	\$0.00
18-Dec	0	\$0.00
TOTAL	103	
19-Jan	0	\$0.00
19-Feb	0	\$0.00
19-Mar	2	\$375.00
19-Apr	19	\$342.28
19-May	48	\$310.66
19-Jun	9	\$224.18
19-Jul	3	\$333.33
19-Aug	3	\$398.30
19-Sep	0	\$0.00
19-Oct	11	\$274.53
19-Nov	1	\$250.00
19-Dec	0	\$0.00
TOTAL	96	
20-Jan	0	\$0.00
20-Feb	0	\$0.00
20-Mar	1	\$500.00
20-Apr	1	\$250.00
20-May	1	\$137.81
20-Jun	0	\$0.00
20-Jul	0	\$0.00
20-Aug	0	\$0.00
20-Sep	0	\$0.00
20-Oct	0	\$0.00
20-Nov	0	\$0.00
20-Dec	0	\$0.00
TOTAL	3	

DELAWARE COUNTY COMMUNITY ACTION AGENCY	RECEIVED	AVERAGE GRANT AMOUNT
18-Jan	0	\$0.00
18-Feb	0	\$0.00
18-Mar	0	\$0.00
18-Apr	92	\$382.75
18-May	2	\$218.85
18-Jun	0	\$0.00
18-Jul	0	\$0.00
18-Aug	1	\$249.50
18-Sep	0	\$0.00
18-Oct	0	\$0.00
18-Nov	0	\$0.00
18-Dec	0	\$0.00
TOTAL	95	
19-Jan	0	\$0.00
19-Feb	0	\$0.00
19-Mar	3	\$320.71
19-Apr	71	\$382.98
19-May	58	\$386.88
19-Jun	2	\$244.67
19-Jul	1	\$239.79
19-Aug	0	\$0.00
19-Sep	0	\$0.00
19-Oct	0	\$0.00
19-Nov	0	\$0.00
19-Dec	0	\$0.00
TOTAL	135	
20-Jan	0	\$0.00
20-Feb	0	\$0.00
20-Mar	0	\$0.00
20-Apr	0	\$0.00
20-May	0	\$0.00
20-Jun	0	\$0.00
20-Jul	0	\$0.00
20-Aug	0	\$0.00
20-Sep	0	\$0.00
20-Oct	0	\$0.00
20-Nov	0	\$0.00
20-Dec	0	\$0.00
TOTAL	0	

COMMUNITY ACTION DEVELOPMENT OF MONTGOMERY COUNTY		AVERAGE GRANT RECEIVED AMOUNT
18-Jan	1	\$324.60
18-Feb	0	\$0.00
18-Mar	0	\$0.00
18-Apr	30	\$338.75
18-May	26	\$347.53
18-Jun	7	\$234.29
18-Jul	8	\$217.12
18-Aug	0	\$0.00
18-Sep	6	\$293.71
18-Oct	6	\$291.91
18-Nov	8	\$331.00
18-Dec	1	\$500.00
TOTAL	93	
19-Jan	1	\$250.00
19-Feb	0	\$0.00
19-Mar	1	\$250.00
19-Apr	5	\$312.99
19-May	47	\$346.78
19-Jun	16	\$268.72
19-Jul	7	\$342.54
19-Aug	1	\$500.00
19-Sep	8	\$314.84
19-Oct	13	\$276.13
19-Nov	1	\$253.63
19-Dec	0	\$0.00
TOTAL	100	
20-Jan	0	\$0.00
20-Feb	0	\$0.00
20-Mar	0	\$0.00
20-Apr	2	\$272.74
20-May	0	\$0.00
20-Jun	0	\$0.00
20-Jul	0	\$0.00
20-Aug	0	\$0.00
20-Sep	0	\$0.00
20-Oct	0	\$0.00
20-Nov	0	\$0.00
20-Dec	0	\$0.00
TOTAL	2	

UTILITY EMERGENCY SERVICES FUND (Philadelphia)	RECEIVED	AVERAGE GRANT AMOUNT
18-Jan	0	\$0.00
18-Feb	5	\$147.48
18-Mar	5	\$161.23
18-Apr	2	\$183.44
18-May	22	\$193.41
18-Jun	25	\$187.49
18-Jul	21	\$176.50
18-Aug	3	\$234.59
18-Sep	3	\$200.88
18-Oct	7	\$182.26
18-Nov	0	\$0.00
18-Dec	2	\$124.50
TOTAL	95	
19-Jan	0	\$0.00
19-Feb	0	\$0.00
19-Mar	1	\$182.44
19-Apr	7	\$225.00
19-May	86	\$212.25
19-Jun	92	\$208.92
19-Jul	23	\$204.10
19-Aug	3	\$200.77
19-Sep	0	\$0.00
19-Oct	10	\$218.29
19-Nov	12	\$219.33
19-Dec	3	\$230.38
TOTAL	237	
20-Jan	0	\$0.00
20-Feb	1	\$203.75
20-Mar	4	\$250.00
20-Apr	0	\$0.00
20-May	1	\$250.00
20-Jun	0	\$0.00
20-Jul	0	\$0.00
20-Aug	1	\$130.00
20-Sep	0	\$0.00
20-Oct	0	\$0.00
20-Nov	0	\$0.00
20-Dec	0	\$0.00
TOTAL	7	

MASON-DIXON COMMUNITY SERVICES	RECEIVED	AVERAGE GRANT AMOUNT
18-Jan	0	\$0.00
18-Feb	0	\$0.00
18-Mar	0	\$0.00
18-Apr	2	\$138.67
18-May	2	\$129.15
18-Jun	1	\$239.98
18-Jul	0	\$0.00
18-Aug	1	\$250.00
18-Sep	0	\$0.00
18-Oct	1	\$211.06
18-Nov	0	\$0.00
18-Dec	0	\$0.00
TOTAL	7	
19-Jan	0	\$0.00
19-Feb	0	\$0.00
19-Mar	0	\$0.00
19-Apr	0	\$0.00
19-May	4	\$174.59
19-Jun	1	\$100.00
19-Jul	1	\$171.82
19-Aug	0	\$0.00
19-Sep	0	\$0.00
19-Oct	1	\$79.77
19-Nov	0	\$0.00
19-Dec	0	\$0.00
TOTAL	7	
20-Jan	0	\$0.00
20-Feb	0	\$0.00
20-Mar	0	\$0.00
20-Apr	0	\$0.00
20-May	0	\$0.00
20-Jun	0	\$0.00
20-Jul	0	\$0.00
20-Aug	0	\$0.00
20-Sep	0	\$0.00
20-Oct	0	\$0.00
20-Nov	0	\$0.00
20-Dec	0	\$0.00
TOTAL	0	

Pennsylvania Public Utility Commission

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PECO Energy Company

Docket No. P-2020-3020727, M-2018-3005795

Response of PECO Energy Company
to Interrogatories of
The Coalition for Affordable Utility Services and Energy Efficiency in Pennsylvania
CAUSE-PA Set I

Response Date: 05/10/2021

CAUSE-PA-I-6

Please identify the methods by which customers pay PECO bills (e.g. by mail, online, in person). For each method, identify the percentage of PECO customers that paid via that method in the most recent billing month.

RESPONSE:

Please see table below.

Mar-21	%
Authorized payment centers/locations	1.7%
Agencies (Collections, Low Income Grants)	0.5%
Mail	24.1%
Electronic (online banking, check free, direct debits, credit cards,...)	73.7%
Total	100.0%

Responsible Witness: Mark Kehl

Pennsylvania Public Utility Commission

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PECO Energy Company

Docket No. P-2020-3020727, M-2018-3005795

Response of PECO Energy Company
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The Coalition for Affordable Utility Services and Energy Efficiency in Pennsylvania
CAUSE-PA Set I

Response Date: 05/10/2021

CAUSE-PA-I-8

For all customers for whom PECO has obtained information that would reasonably place the customer in a low-income designation, how many are currently eligible for LIURP based on income and usage?

RESPONSE:

At the end of March 2021, there were 146,142 customers who had confirmed income at or below 200% FPL, which is the FPL designation for LIURP. Confirmed low income includes any customer that has enrolled in a low-income program and/or has verified financial information with the Company within the last two years.

At the end of March 2021, there were 76,437 customers, or 52% of all customer with a confirmed income at or below 200% of FPL, who were eligible for LIURP based on income and usage.

Responsible Witness: Mark Kehl

Pennsylvania Public Utility Commission

v.

PECO Energy Company

Docket No. P-2020-3020727, M-2018-3005795

Response of PECO Energy Company
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The Coalition for Affordable Utility Services and Energy Efficiency in Pennsylvania
CAUSE-PA Set I

Response Date: 05/10/2021

CAUSE-PA-I-10

For each of the years 2018 through 2020, how many CAP applications were rejected and how many were approved?

- a. For rejections, please disaggregate by the application type (i.e. online, by mail, CBO) and by reason for rejection (i.e. over income, failure to provide documents)?

RESPONSE:

Please see Attachment CAUSE-PA-10(a). PECO does not track rejections by reason type. Due to the transition to a new vendor, there is no data available for August and September 2019.

Responsible Witness: Mark Kehl

CAP Approvals by month and by application type

Enrollment	Fax	Online	Email	Mail	Total
Jan-18	402	96	197	322	1,017
Feb-18	440	64	209	278	991
Mar-18	408	87	252	347	1,094
Apr-18	508	52	221	250	1,031
May-18	410	69	267	400	1,146
Jun-18	249	29	150	181	609
Jul-18	179	17	234	115	545
Aug-18	447	37	225	287	996
Sep-18	261	20	237	220	738
Oct-18	294	40	159	187	680
Nov-18	207	8	142	153	510
Dec-18	200	19	98	130	447
Total	4,005	538	2,391	2,870	9,804

Recertification	Fax	Online	Email Mail	Mail	Total
Jan-18	816	124	250	2,218	3,408
Feb-18	669	67	203	1,332	2,271
Mar-18	708	83	252	1,728	2,771
Apr-18	782	58	273	854	1,967
May-18	667	67	346	1,497	2,577
Jun-18	598	48	258	1,238	2,142
Jul-18	333	27	274	628	1,262
Aug-18	1,017	43	393	1,922	3,375
Sep-18	753	27	399	1,641	2,820
Oct-18	730	53	224	1,161	2,168
Nov-18	595	10	155	1,538	2,298
Dec-18	679	42	163	1,422	2,306
Total	8,347	649	3,190	17,179	29,365

Re-enrollment	Fax	Online	Email	Mail	Total
Jan-18	110	14	60	100	284
Feb-18	104	14	35	72	225
Mar-18	127	14	42	100	283
Apr-18	250	16	85	71	422
May-18	151	18	111	78	358
Jun-18	163	8	66	66	303
Jul-18	83	5	85	48	221
Aug-18	210	12	95	110	427
Sep-18	191	13	102	121	427
Oct-18	184	20	81	76	361
Nov-18	125	2	58	65	250
Dec-18	83	2	29	58	172
Total	1,781	138	849	965	3,733

Reinstatement	Fax	Online	Email	Mail	Total
Jan-18	326	58	139	360	883
Feb-18	323	33	103	301	760
Mar-18	311	34	148	396	889
Apr-18	502	27	149	241	919
May-18	405	24	194	325	948
Jun-18	282	25	119	182	608
Jul-18	116	14	114	100	344
Aug-18	493	29	190	356	1068
Sep-18	308	10	166	196	680
Oct-18	257	10	96	101	464
Nov-18	147	3	80	111	341
Dec-18	100	3	36	65	204
Total	3,570	270	1,534	2,734	8,108

Enrollment	Fax	Online	Email	Mail	Total
Jan-19	264	49	197	171	681
Feb-19	247	41	163	43	494
Mar-19	287	52	162	227	728
Apr-19	328	54	185	190	757
May-19	354	76	222	199	851
Jun-19	218	26	69	153	466
Jul-19	244	3	0	111	358
Aug-19					0
Sep-19					0
Oct-19	155	11	40	109	315
Nov-19	351	87	194	238	870
Dec-19	170	78	180	304	732
Total	2,618	477	1,412	1,745	6,252

Recertification	Fax	Online	Email Mail	Mail	Total
Jan-19	756	83	311	2,099	3,249
Feb-19	647	64	275	356	1,342
Mar-19	623	60	215	1,209	2,107
Apr-19	593	68	228	934	1,823
May-19	654	67	214	1,268	2,203
Jun-19	502	39	111	1,243	1,895
Jul-19	601	6	2	806	1,415
Aug-19					0
Sep-19					0
Oct-19	246	17	38	441	742
Nov-19	602	66	221	1,484	2,373
Dec-19	340	44	227	1,626	2,237
Total	5,564	514	1,842	11,466	19,386

Re-enrollment	Fax	Online	Email	Mail	Total
Jan-19	88	15	66	73	242
Feb-19	101	12	72	23	208
Mar-19	147	9	70	89	315
Apr-19	215	27	105	83	430
May-19	249	27	133	91	500
Jun-19	136	16	38	67	257
Jul-19	122	1	1	57	181
Aug-19					0
Sep-19					0
Oct-19	15	0	0	52	67
Nov-19	0	8	0	2	10
Dec-19	0	7	0	7	14
Total	1,073	122	485	544	2,224

Reinstatement	Fax	Online	Email	Mail	Total
Jan-19	142	17	71	118	348
Feb-19	186	27	91	74	378
Mar-19	251	32	103	322	708
Apr-19	257	21	102	240	620
May-19	215	29	106	158	508
Jun-19	145	8	48	123	324
Jul-19	172	1	0	110	283
Aug-19					0
Sep-19					0
Oct-19	0	4	5	35	44
Nov-19	189	21	86	193	489
Dec-19	86	27	66	140	319
Total	1,643	187	678	1,513	4,021

Enrollment	Fax	Online	Email	Mail	Total
Jan-20	206	76	229	360	871
Feb-20	96	32	99	155	382
Mar-20	172	54	200	424	850
Apr-20	83	71	135	281	570
May-20	56	65	100	189	410
Jun-20	73	102	166	387	728
Jul-20	83	112	148	276	619
Aug-20	45	76	124	213	458
Sep-20	63	79	114	175	431
Oct-20	82	85	134	285	586
Nov-20	78	176	148	211	613
Dec-20	81	259	174	195	709
Total	1,118	1,187	1,771	3,151	7,227

Recertification	Fax	Online	Email Mail	Mail	Total
Jan-20	417	59	277	1,761	2,514
Feb-20	227	35	172	875	1,309
Mar-20	365	74	292	2,037	2,768
Apr-20	204	91	231	1,219	1,745
May-20	211	105	211	1,048	1,575
Jun-20	208	101	276	1,771	2,356
Jul-20	227	112	256	1,334	1,929
Aug-20	277	109	274	1,483	2,143
Sep-20	315	100	262	1,397	2,074
Oct-20	285	119	236	1,197	1,837
Nov-20	332	287	300	1,493	2,412
Dec-20	273	292	289	1,082	1,936
Total	3,341	1,484	3,076	16,697	24,598

Re-enrollment	Fax	Online	Email	Mail	Total
Jan-20	3	3	0	0	6
Feb-20	0	1	0	0	1
Mar-20	0	0	0	0	0
Apr-20	0	0	0	0	0
May-20	0	0	0	0	0
Jun-20	0	0	0	0	0
Jul-20	0	0	0	0	0
Aug-20	0	0	0	0	0
Sep-20	0	0	0	0	0
Oct-20	0	0	0	0	0
Nov-20	0	0	0	0	0
Dec-20	0	0	0	0	0
Total	3	4	0	0	7

Reinstatement	Fax	Online	Email	Mail	Total
Jan-20	96	23	76	181	376
Feb-20	22	5	33	75	135
Mar-20	73	13	47	163	296
Apr-20	32	13	53	112	210
May-20	17	14	28	56	115
Jun-20	32	12	46	109	199
Jul-20	28	18	34	91	171
Aug-20	25	15	27	54	121
Sep-20	20	15	28	56	119
Oct-20	15	8	27	90	140
Nov-20	18	22	19	51	110
Dec-20	19	32	18	35	104
Total	397	190	436	1,073	2,096

Enrollment	Fax	Online	Email	Mail	Total
Jan-21	68	97	116	201	482
Feb-21	119	133	160	244	656
Mar-21	107	205	159	320	791
Apr-21					0
May-21					0
Jun-21					0
Jul-21					0
Aug-21					0
Sep-21					0
Oct-21					0
Nov-21					0
Dec-21					0
Total	294	435	435	765	1,929

Recertification	Fax	Online	Email Mail	Mail	Total
Jan-21	299	111	213	1,272	1,895
Feb-21	391	251	219	1,362	2,223
Mar-21	334	242	243	1,358	2,177
Apr-21					0
May-21					0
Jun-21					0
Jul-21					0
Aug-21					0
Sep-21					0
Oct-21					0
Nov-21					0
Dec-21					0
Total	1,024	604	675	3,992	6,295

Re-enrollment	Fax	Online	Email	Mail	Total
Jan-21	0	0	0	0	0
Feb-21	0	0	0	0	0
Mar-21	0	0	0	0	0
Apr-21					0
May-21					0
Jun-21					0
Jul-21					0
Aug-21					0
Sep-21					0
Oct-21					0
Nov-21					0
Dec-21					0
Total	0	0	0	0	0

Reinstatement	Fax	Online	Email	Mail	Total
Jan-21	21	16	17	47	101
Feb-21	33	22	20	48	123
Mar-21	26	18	25	45	114
Apr-21					0
May-21					0
Jun-21					0
Jul-21					0
Aug-21					0
Sep-21					0
Oct-21					0
Nov-21					0
Dec-21					0
Total	80	56	62	140	338

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Response of PECO Energy Company
to Interrogatories of
The Coalition for Affordable Utility Services and Energy Efficiency in Pennsylvania
CAUSE-PA Set I

Response Date: 05/10/2021

CAUSE-PA-I-11

For each of the years 2018 through 2020, how many CAP customers were removed from CAP, disaggregated by the reason for removal (i.e. failure to recertify, non-payment)?

RESPONSE:

The table below has the number of CAP customers who left (failure to recertify) or were removed from CAP (theft of service, refusal to participate in LIURP). It also includes those removed for being over income guidelines. PECO cannot further breakdown this data. PECO does not remove customers from CAP for non-payment. Due to the pandemic, PECO has not removed customers from CAP since March 23, 2020.

	# of removals
2018	48,431
2019	34,030
2020	15,802

Responsible Witness: Mark Kehl

Pennsylvania Public Utility Commission

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Docket No. P-2020-3020727, M-2018-3005795

Response of PECO Energy Company
to Interrogatories of
Tenant Union Representative Network
TURN Set I

Response Date: 06/10/2021

TURN-I-2

Reference PECO Response to CAUSE-PA I-8.

- a) Please disaggregate the 76,437 customers who PECO identifies as eligible for LIURP by service type, Federal Poverty Level tier (0-50% FPL; 50-100% FPL; 100 -150% FPL; 150 – 200% FPL) and county.
- b) At current funding levels and assuming no change in cost of measures, how many years would it take to serve 76,437 households with LIURP services?

RESPONSE:

- a. See Attachment TURN-I-2(a).
- b. At an average of 7,900 LIURP audits a year, it would take less than 10 years to serve all 76,437 households.

Responsible Witness: Mark Kehl

Number of LIURP eligible customers by service type, FPL and County

Number of Accounts Service / FPL	County						TOTAL
	BUCKS	CHESTER	DELAWARE	MONTGOMERY	PHILADELPHIA	YORK	
Gas	39	64	604	292			999
0-50	11	14	227	110			362
51-100	13	24	203	92			332
101-150	7	18	122	74			221
151-200	8	8	52	16			84
Residential Electric	3,257	2,756	10,228	5,015	48,737	105	70,098
0-50	806	761	3,534	1,497	15,876	23	22,497
51-100	1,136	994	3,603	1,726	20,831	33	28,323
101-150	916	712	2,257	1,294	9,529	34	14,742
151-200	399	289	834	498	2,501	15	4,536
Residential Electric Heat	720	545	355	703	2,985	32	5,340
0-50	188	181	131	212	1,116	8	1,836
51-100	249	188	122	242	1,169	14	1,984
101-150	207	126	73	178	502	5	1,091
151-200	76	50	29	71	198	5	429
Grand Total	4,016	3,365	11,187	6,010	51,722	137	76,437

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Docket No. P-2020-3020727, M-2018-3005795

Response of PECO Energy Company
to Interrogatories of
Tenant Union Representative Network
TURN Set I

Response Date: 06/10/2021

TURN-I-3

Reference PECO Response to CAUSE-PA I-9.

- a) Please identify each LIURP measure available through PECO's LIURP contractor and indicate which service type(s) the measure is potentially available for.
- b) For each measure identified in subpart (a), please identify, by month from 2018 to date in 2021, the number of customers who received each measure.
- c) For each measure identified in subpart (a), please identify the average usage reduction associated with that measure for the most recent year of data PECO has available.

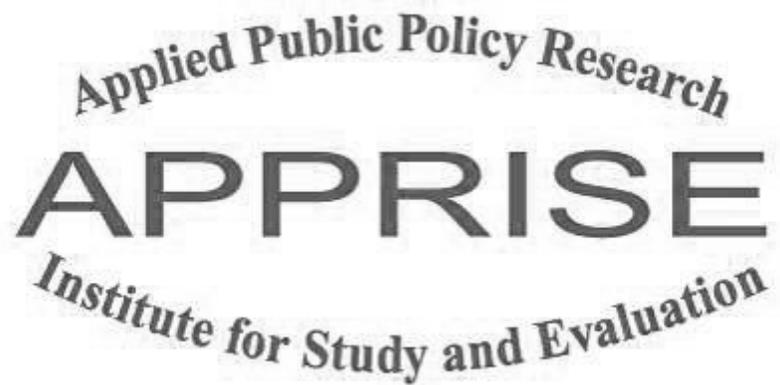
RESPONSE:

The CMC vendor, who provided the response to CAUSE-PA-I-9, cannot provide the details requested. However, please see the 2019 and 2018 Annual LIURP evaluations – Attachments TURN-I-3(a) and (b), respectively. PECO does not have data for 2020 or 2021.

- a. See Attachment TURN-I-3(a), Section III (Program and Participant Statistics), Subpart B (LIURP Services) – which starts on Page 34 and continues through Page 45 – has details on the types of measures installed.
- b. See Attachment TURN-I-3(a), Section III (Program and Participant Statistics), Subpart B (LIURP Services) – which starts on Page 34 and continues through Page 45 – has details on the numbers of each measure installed.

- c. See Attachment TURN-I-3(a), Table IV-12 (on Page 71) shows usage reduction by the types of measures installed.

Responsible Witness: Mark Kehl



PECO Energy
2019 LIURP Evaluation
Final Report

April 2021

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Executive Summary

This report presents the findings from the Evaluation of PECO's 2019 Low Income Usage Reduction Program (LIURP). LIURP provides energy efficiency services and energy education to PECO's low-income customers to help them reduce their energy usage and increase the affordability of their energy bills. The Program addresses both electric and gas energy usage. This report describes the LIURP services and analyzes the impact of the Program on customers' energy usage, energy bills, and payments.

Evaluation

The goals of the evaluation were to analyze the LIURP services provided and the impacts of the services on participating customers. The following activities were undertaken.

- *Process Evaluation:* We reviewed and updated the LIURP description.
- *Program Database Analysis:* We conducted analysis of 2019 LIURP services, homes, and customer characteristics.
- *Program Impacts Analysis:* We conducted analysis of LIURP's impact on energy usage, energy costs, and bill payment.

PECO's LIURP

The Low Income Usage Reduction Program (LIURP) provides education, conservation, and weatherization measures to reduce electric and gas usage. Customers must meet the following usage and income eligibility criteria for program participation.

- Household usage levels at or above 600 kWh per month for electric baseload, 1,400 kWh average seasonal heating usage for electric heat, or 150 ccf average seasonal heating usage for gas heat.
- Residential customers with household income at or below 150 percent of the federal poverty level (FPL), or special needs residential customers with an arrearage and household income between 151 percent and 200 percent of the FPL.

CAP customers are targeted for Program services, but participation in CAP is not required for LIURP services. The CAP rate definition of high usage is 500 kWh. CAP customers are required to participate in LIURP if they are identified as high users.

The number of customers who receive LIURP services each year is largely determined by the annual program budget established in the settlement agreement of PECO's electric restructuring case (PUC Docket Numbers R-00973953 and P-00971265). The annual budget

for 2019 was \$5.6 million for electric and \$2.25 million for gas. In 2019, 8,058 customers received LIURP services.¹

PECO contracts with CMC Energy Services to administer LIURP. PECO provides CMC with a list of potentially eligible customers and their energy usage data. CMC recruits these households in descending order based on highest usage and largest arrearages. CMC also contacts households who are directly referred from external organizations, including social and governmental agencies. CMC conducts an energy audit to determine the behavioral changes and program measures required for usage reduction. Following the audit, CMC technicians and CMC subcontractors schedule appointments to install measures. For one year after LIURP services have been provided, PECO and CMC monitor the customer’s monthly energy usage. CMC mails monthly progress letters to customers to highlight any changes in monthly usage, as compared to the customer’s individual goal.

Program Statistics

In 2019, 33,219 customers were evaluated for LIURP services. There were 24,880 customers who were cancelled and 281 customers who were ineligible for the program. The cancellations were primarily due to customers’ lack of response to contact attempts, refusals, and moves.² In total, 8,058 customers received LIURP services in 2019, though 260 customers received only education services and no measures, as there were no LIURP opportunities in these homes.

Table ES-1 displays how program funds were expended in 2019. In total \$7.85 million were spent. Approximately 62 percent was for weatherization measures, 30 percent was for audit and education, and eight percent was for program administration.

**Table ES-1
2019 LIURP Expenditures
By Category**

Category	Amount Spent	Percent of Funds
Weatherization Measures	\$4,857,188	62%
Audit/Education	\$2,378,979	30%
PECO Administration	\$613,833	8%
TOTAL	\$7,850,000	100%

Table ES-2 displays the distribution of 2019 LIURP jobs by job type, for both electric and gas accounts. The table shows that 72 percent of jobs were classified as baseload, meaning that measures primarily address electric baseload usage. However, the baseload jobs have lower job costs and represent only 27 percent of total costs. The average cost for measures on these

¹ 260 customers did not receive measures. These customers only received education.

² See Table III-3.

jobs was \$230. Gas heating jobs represented 17 percent of jobs and 51 percent of costs, averaging \$1,918 in measure costs per home. Electric heating jobs averaged \$1,744 per home.

Table ES-2
2019 LIURP Service Delivery and Expenditures
By Job Type

Job Type	# of Jobs	% of Jobs	Total Cost	% of Costs	Average Job Cost
Baseload	5,823	72%	\$1,338,731	27%	\$230
Electric Heating	628	8%	\$1,095,317	22%	\$1,744
Gas Heating	1,347	17%	\$2,584,181	51%	\$1,918
No LIURP Measure Costs*	260	3%	\$0	0%	\$0
TOTAL	8,058	100%	\$5,018,229	100%	\$623

*There were 260 accounts that received education only.

Participant Characteristics

PECO's LIURP database allows for extensive analysis of home and participant characteristics. Some of the important findings from this analysis include the following.

- *Supplemental heating:* Overall, 27 percent of customers who were treated by LIURP used supplemental heat. Twenty-five percent of the customers who had baseload LIURP services used electric supplemental heat.
- *Health and safety:* Over 7,400 smoke detectors were provided in 3,477 homes. Carbon monoxide detectors were provided in 3,511 homes.
- *LED bulbs:* LEDs were provided to 89 percent of the homes serviced. On average, 13.1 bulbs were provided to each home serviced.
- *Refrigerator replacement:* Refrigerators were replaced in 850 homes.
- *Air conditioner replacement:* Window air conditioners were replaced in 1,093 homes.
- *Aerators and showerheads:* A total of 1,744 aerators were provided in 1,037 homes, and 1,055 showerheads were provided in 872 homes.
- *Water heaters:* Electric water heater timers were provided in eight homes, and water heater replacements were provided in 155 homes.
- *Air sealing:* Air sealing was provided in 652 homes. However, only 356 received a blower door test.
- *Insulation:* Insulation was provided in 319 homes.

-
- *Door Sweeping/Weatherstripping*: Door stripping/weatherstripping was provided in 1,619 homes.
 - *Heat system repair*: Heating system repair work was provided to 686 homes.
 - *Heating system replacement*: Heat pumps were replaced in 33 homes, furnaces in 57 homes, and boilers in 83 homes.

Usage Impacts

Energy usage was analyzed for the year prior to the LIURP visit and for the year after service delivery was completed. The analysis included as close to a full year of data pre- and post-treatment as possible. Data were available for approximately 33 to 91 percent of the treated households, depending on the job type.

Energy usage data were weather-normalized in the pre- and the post-usage periods to ensure that changes in energy usage were due to changes in usage patterns, rather than due to changes in weather. We used a degree-day normalization process to conduct this analysis.

Table ES-3 summarizes the overall usage impact results.

- *Baseload jobs* had average annual savings of approximately 640 kWh, or 6.2 percent of pre-treatment usage. Our preferred savings estimate that uses a comparison group and weights for data attrition is 878 kWh, or 6.5 percent of pre-treatment usage.
- *Electric heat jobs* had average annual savings of approximately 981 kWh, or 5.2 percent of pre-treatment usage. Our preferred savings estimate that uses a comparison group and weights for data attrition is 1,755 kWh, or 9.3 percent of pre-treatment usage.
- *Gas heat jobs* had savings of 51 ccf, or 4.9 percent of pre-treatment usage. Our preferred savings estimate that uses a comparison group and weights for data attrition is 52 ccf, or 5.1 percent of pre-treatment usage.

Table ES-3
Average Annual Usage and Savings

	#	Total Savings				LIURP Savings		Act 129 Savings	
		Usage		Annual Savings	% Savings	Annual Savings	% Savings	Annual Savings	% Savings
		Pre	Post						
Electric Baseload (kWh)									
Non-Normalized	4,773	10,323	9,571	752***	7.3%	635	6.1%	117	1.1%
Degree Day Normalized	4,773	10,399	9,760	640***	6.2%	523	5.1%	117	1.1%
Electric Heat (kWh)									
Non-Normalized	378	19,319	17,346	1,973***	10.2%	1,853	9.6%	120	0.6%
Degree Day Normalized	378	18,909	17,928	981***	5.2%	861	4.6%	120	0.6%
Gas Heat (ccf)									
Non-Normalized	698	1,020	907	112***	11.0%	112	11.0%	-	-
Degree Day Normalized	698	1,025	975	51***	4.9%	51	4.9%	-	-

We compared the usage impact results to historical savings results.³

- Electric Baseload Jobs: The 2019 jobs had savings that were lower than the 1999-2018 average savings. Savings were 6.2 percent in 2019 compared to the historical average of 8.3 percent.
- Electric Heating Jobs: The 2019 jobs had savings that were lower than the 1999-2018 average. Savings were 5.2 percent in 2019 compared to the historical average of 7.4 percent.
- Gas Heating Jobs: The 2019 gas heating jobs saved 4.9 percent of pre-treatment usage, compared to average savings of 7.8 percent from 1999-2018.

Measure Savings

The analysis also estimated the impact of specific LIURP measures on kWh and ccf savings. Table ES-4 displays results from this analysis. Savings were computed by running a regression model that predicted savings based on the measures provided. Costs are not listed for LEDs, because this measure was funded through Act 129.

³ Tables IV-3A, 3B, and 3C provide the historical comparison of energy savings by job type.

**Table ES-4
Measure Savings Estimates**

	Savings	Cost/Home	\$/Unit Saved	Measure Life	\$/Unit Saved Over Lifetime
Electric Baseload (kWh)					
LED Only ¹	534 (±126)	\$295 ²	\$0.55	10	\$0.07
LED	10 (±8)	--	--	10	--
Refrigerator	658 (±247)	\$790	\$1.20	12	\$0.14
Freezer	319 (±314)	\$235	\$0.74	12	\$0.08
Gas Heat (ccf)					
Gas Furnace	257 (±76)	\$3,771	\$14.70	15	\$1.42
Boiler	116 (±62)	\$4,568	\$39.51	15	\$3.81
Blower Door Air Sealing and Insulation	87 (±42)	\$2,221	\$25.60	15	\$2.47
Electric Heat (kWh)					
Blower Door Air Sealing and Insulation	1,137 (±1,315)	\$2,242	\$1.97	15	\$0.19
Heat Pump	2,035 (±1,959)	\$6,911	\$3.40	15	\$0.33

¹The average number of LEDs provided to these customers was 10.9, for an average savings of 49 kWh per LED.

²This is the cost for the audit and education of customers who only received LEDs. The cost for the LEDs is paid for by the Act 129 Program.

LIURP Cost Effectiveness

We also analyzed the cost-effectiveness of LIURP by job type. Table ES-5 estimates the cost per unit saved based on different assumptions about measure life. These costs should be compared to retail rates to evaluate the cost-effectiveness of the program at different measure lives. The most reasonable assumption for electric baseload reduction is a ten-year measure life. This table shows that the electric baseload investments were cost-effective at current retail rates if the measures have a life of at least ten years.

Gas heat savings have a 15-year measure life. Under the 15-year measure life assumption, the cost per ccf saved is \$2.73, which is not cost-effective with current gas prices. The cost to save a ccf of gas would need to be lower than the price for a ccf for the program to be cost-effective. Since the current cost per ccf of gas is approximately \$0.76 per ccf, the cost of services would need to be significantly lower or savings would need to be significantly greater for the program to be cost-effective. To increase cost-effectiveness, the program would need to reduce spending on gas heating measures and/or increase the savings that were obtained from the measures that were installed.

**Table ES-5
Cost Per Unit Saved
By Measure Life Assumption**

	#	Average Savings	Average Total Cost	Cost Per Unit Saved	5-Year Measure Life	10-Year Measure Life	15-Year Measure Life
Electric Baseload							
Electric (kWh)	4,773	640	\$495	\$0.77	\$0.18	\$0.10	\$0.07
Electric Heat							
Electric (kWh)	378	981	\$1,485	\$1.51	\$0.35	\$0.20	\$0.15
Gas Heat							
Electric (kWh)	666	506	\$160	\$0.32	\$0.07	\$0.04	\$0.03
Gas (ccf)	698	51	\$1,443	\$28.30	\$6.54	\$3.67	\$2.73

Bill and Payment Impacts

The evaluation also included an analysis of the charges and payments made by customers in the pre- and post-treatment periods. Table ES-6 summarizes the results of this analysis. While total bills and charges declined by an average of \$58, total payments and credits declined by an average of \$67 from the pre to post period. The total bill coverage rate decreased by an average of 1.2 percentage points.⁴ Customers were paying an average of 104.6 percent of their bills prior to LIURP treatment and an average of 103.4 percent of their bills following LIURP treatment.

**Table ES-6
Bills, Payments, and Coverage Rates
Pre and Post-LIURP Treatment**

	#	Pre	Post	Change	Percent Change
Electric Baseload					
Total Bills and Charges	4,531	\$906	\$844	-\$62***	-6.8%
Total Payments and Credits		\$903	\$828	-\$75***	-8.3%
Total Coverage Rate		105.1%	103.7%	-1.4%	-1.4%
Electric Heat					
Total Bills and Charges	289	\$1,669	\$1,544	-\$125***	-7.5%
Total Payments and Credits		\$1,612	\$1,478	-\$134***	-8.3%
Total Coverage Rate		103.0%	100.2%	-2.8%	-2.7%

⁴ The total coverage rate is the total of all customer payments, customer assistance, and other credits divided by the bill.

	#	Pre	Post	Change	Percent Change
Gas Heat					
Total Bills and Charges	567	\$1,653	\$1,641	-\$13	-0.8%
Total Payments and Credits		\$1,597	\$1,635	\$38	2.4%
Total Coverage Rate		98.9%	103.5%	4.6%***	4.6%
Education Only					
Total Bills and Charges	223	\$896	\$883	-\$13	-1.4%
Total Payments and Credits		\$945	\$872	-\$73**	-7.7%
Total Coverage Rate		112.0%	102.8%	-9.2%**	-8.2%
All Job Types					
Total Bills and Charges	5,610	\$1,020	\$962	-\$58***	-5.7%
Total Payments and Credits		\$1,012	\$945	-\$67***	-6.6%
Total Coverage Rate		104.6%	103.4%	-1.2%	-1.1%

***Denotes significance at the 99 percent level. **Denotes significance at the 95 percent level. *Denotes significance at the 90 percent level.

Key Findings and Recommendations

PECO’s LIURP delivered usage reduction services and energy education to over eight thousand customers in 2019, many of whom had vulnerable household members. Savings from electric baseload jobs increased compared to 2016 through 2018 (when accounting for the comparison group change) but was lower than the historical average. Savings for electric heating jobs increased compared to 2014 through 2018 and the historical average when accounting for the comparison group changes. Savings from gas heating jobs increased as compared to 2014 through 2018 (even when accounting for comparison group savings) but declined as compared to the historical average.

The 2019 savings showed an improvement over several previous years, but we have the following recommendations to improve energy savings further.

- *Outreach:* CMC is not able to reach 70 percent of targeted customers because these customers make no response to contact attempts. This is significantly higher than the 62 percent of customers in 2018 and 54 percent of customers in 2017 that CMC was unable to reach. CMC’s current procedure is to make at least three phone calls and send a follow-up letter.⁵ CMC should increase the number of calls to potential customers and pilot additional methods including outreach to targeted neighbors when they are in the field and leaving door hangers when they are in the neighborhood where additional customers are targeted. PECO is working with CMC to expand and improve their outreach and is also considering rebranding LIURP to a name that would be better recognized by customers.

⁵ This is PECO’s minimum standard for the number of contact attempts.

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- *Previously Treated Customers:* PECO allows customers who were treated more than two years ago to be re-treated by LIURP. Customers in the same home who were treated within the past five years are unlikely to have significant energy-saving opportunities. PECO should consider expanding the length of time before CMC can return to the home to deliver LIURP again.
 - *Audits:* These recommendations should be considered based on previous audit observations.
 - Provide an LED at the beginning of the visit. Providing one free LED right at the beginning of the audit and talking about the benefits of the LED may create more buy-in for the rest of the audit.
 - Specify audit requirements for CMC. We recommend that the audit should always include the following elements and PECO should ensure that CMC allocates enough time for each audit to include these elements. While some of these elements are included in CMC's statement of work (SOW), some are not explicitly included and we recommend that they are added. Below we note which elements are not specifically included in the SOW.
 - ✓ LIURP Explanation: Discussion of the Program's goals and benefits.
 - ✓ Partnership: Development of a partnership with the customer, including a discussion of the auditor's responsibility and the customer's responsibility. (Not included in SOW)
 - ✓ Energy Bills: Review of the PECO energy bills. (Not included in SOW)
 - ✓ Health and Safety: Discussion of applicable health and safety issues. (Not included in SOW)
 - ✓ Comfort: Discussion of comfort in the winter and summer. Even if the customer does not have the heating fuel supplied by PECO, discomfort in the winter can result in high electric space heating usage and bills. (Not included in SOW)
 - ✓ Walkthrough: Encouraging all customers who are able to accompany the auditor on the walkthrough. Require auditors to inspect every room of the home unless the customer objects. (Not included in SOW)
 - ✓ Lighting: Require CMC to ask about hours of use prior to replacing bulbs. Specify that only incandescent bulbs should be replaced with LEDs as opposed to CFLs and unused fixtures. (Not included in SOW)
 - ✓ Refrigerator Metering: Auditors should be required to meter refrigerators and freezers that are considered for replacement. (Not included in SOW)

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- Use customer's energy bills to supplement recommendations. Showing the customer how their energy behavior is impacting their energy bills may encourage customers to follow through on any energy saving actions discussed during the audit.
 - Require the auditor to review the education materials. At a minimum, the auditor should review what is included in the folder and show the customer where to locate CMC contact information, referral information, and education tips.
 - Require an individualized written action plan for each customer. The auditor should summarize the actions that were identified during the walkthrough, discuss which ones have the potential for saving the most energy with the customer, discuss which ones the customer is willing to undertake, and obtain a customer commitment to take a set of actions. These actions should then be provided to the customer on a written document that the customer signs.
 - Require CMC to track and report critical health and safety issues. PECO should track these issues to highlight potentially life-saving LIURP services in the LIURP evaluation.
 - Conduct periodic observations of LIURP services. PECO should periodically observe audits and installations to ensure that high-quality, comprehensive services are delivered.
 - *Quality Control:* Increase the number of observations and inspections that are conducted by the third-party quality control contractor.
 - *CMC Inspections:* CMC aims to inspect all comprehensive jobs and five percent of other jobs. The comprehensive inspections are expected to include blower door testing, zonal pressure diagnostics, combustion appliance zone testing, combustion testing on all appliances in the home, visual inspections for health and safety issues, and infrared cameras to look at moisture levels and if there were missed thermal opportunities, and also may include the use of gas sniffers and moisture meters. Inspections also include customer communication and education. Inspectors reported that these inspections take 30 to 60 minutes to complete, and that these tests are not always conducted. PECO should re-assess whether the time allocated for CMC inspections is adequate and consider shifting more of the reviews to their third-party quality control contractor.
 - *Measure Opportunities:* Installation of electric heating major measures remained steady between 2018 and 2019, while the installation of gas heating major measures increased. Electric heating jobs with at least two major measures experienced more than three times the savings that jobs with no major measures experienced. Gas heating jobs with at least two major measures experienced more than five times the savings that jobs with no major measure achieved. PECO should ensure that CMC is pursuing all cost-effective energy saving opportunities including installation of major measures. Other energy saving opportunities include blower door tests which have declined from 30 percent to 16 percent

and insulation which declined from 32 percent to 17 percent from 2016 to 2019 on electric heating jobs. Rates of these major measures on gas heating jobs had similar declines.

- *Health and Safety Measures:* The percentage of homes that received smoke detectors increased from 24 percent in 2017 to 43 percent in 2019. The percentage of homes that received carbon monoxide detectors also increased, from eight percent in 2017 to 44 percent in 2019.

PECO implemented a health and safety pilot beginning in 2019. Electric baseload jobs with health and safety measures other than carbon monoxide detectors and smoke alarms and batteries had 9.4 percent savings compared to 6.2 percent for all electric baseload jobs. Gas heating jobs with these health and safety measures had 6.9 percent savings compared to overall gas heating savings of 4.9 percent. PECO should continue to provide the new health and safety measures as part of LIURP.

- *Virtual Energy Assessments:* CMC began conducting Virtual Energy Assessments in 2020. This was needed due to the COVID pandemic, but CMC already had a plan to introduce these assessments prior to the pandemic. PECO should evaluate these assessments since CMC plans to continue this method. It is important to understand if these assessments achieve the results that are expected from LIURP.

I. Introduction

This report presents the findings from the 2019 PECO LIURP evaluation. PECO's LIURP provides energy efficiency services and energy education to low-income households to help them reduce their energy usage and increase the affordability of their energy bills. This report describes the Program services and analyzes the impact of the Program on customers' energy usage, energy bills, and payments.

A. *Background*

PECO Energy has implemented a set of Universal Services Programs to meet requirements set by Pennsylvania's electric and gas restructuring legislation and various Public Utility Commission orders and agreements. The Universal Service goals are as follows.

- To protect consumers' health and safety by helping low-income customers maintain affordable utility service.
- To provide affordable utility service by making available payment assistance to low-income customers.
- To help low-income customers conserve energy and reduce residential utility bills.
- To ensure utilities operate universal service and energy conservation programs in a cost-effective and efficient manner.

The Universal Services Programs include the following four initiatives.

- A CAP payment assistance Program that is designed to make energy bills more affordable by furnishing payment subsidies.
- A LIURP Program that is designed to make energy bills more affordable by helping to reduce usage.
- A CARES Program that is designed to assist households in developing appropriate strategies for maintaining energy service.
- A MEAF hardship fund Program that is designed to furnish emergency payments to households that cannot pay their energy bills.

B. Evaluation Objectives and Activities

The goals of the evaluation were to analyze the LIURP services provided and the impacts of the services on participating customers. Three key activities were undertaken as part of this evaluation.

- *Process Evaluation:* We conducted interviews with CMC staff and updated the LIURP program description.
- *Program Database Analysis:* We conducted analysis of the 2019 LIURP Program database, which included data on services delivered, homes serviced, and customers served.
- *Program Impacts Analysis:* We analyzed billing and transactions data to estimate the impact of the Program on energy usage, energy costs, and bill payment.

C. Organization of the Report

Five sections follow this introduction.

- Section II – Low Income Usage Reduction Program: This section describes PECO’s LIURP design and implementation.
- Section III – Program and Participant Statistics: This section provides descriptive statistics on LIURP services delivered in 2019 and the customers who received these services.
- Section IV – Usage Impacts: This section analyzes the impacts of LIURP on customers’ electric and gas usage.
- Section V – Payment Impacts: This section analyzes changes in customers’ bills, payments, and arrearages after receiving Program services.
- Section VI – Summary of Findings and Recommendations: This section provides a summary of the key findings and furnishes recommendations for PECO’s LIURP based on the analyses in this report.

APPRISE prepared this report under contract to PECO. PECO facilitated this research by furnishing Program data to APPRISE. Any errors or omissions in this report are the responsibility of APPRISE. Further, the statements, findings, conclusions, and recommendations are solely those of analysts from APPRISE and do not necessarily reflect the views of PECO.

II. Low Income Usage Reduction Program

PECO has implemented a set of Universal Service Programs to comply with Public Utility Commission Regulations. The Programs are designed for low-income, residential customers. One of these Programs is the Low-Income Usage Reduction Program (LIURP).

The Pennsylvania Public Utility Commission (PUC) requires that all electric and gas utilities in the state offer a Low-Income Usage Reduction Program (LIURP) to their customers. PECO has contracted with CMC Energy Services (CMC) to administer LIURP since the implementation of the Program in 1991. PECO and CMC worked together to create Program procedures that complied with Chapter 58 guidelines and continue to work together to design and implement Program changes when necessary. CMC works with subcontractors to install major Program measures and deliver energy efficient refrigerators.

The total 2019 LIURP budget was \$7.85 million with \$5.6 million for electric usage reduction and \$2.25 million for gas usage reduction.

A. Program Management and Administration

CMC's Portfolio Program Manager is responsible for the oversight of LIURP and the Act 129 Program. The Program Managers and Associate Program Managers oversee the daily operations and report to the Portfolio Program Manager.

The Portfolio Program Manager manages final contract requirements and tracks key performance indicators (KPIs). Reporting to him are the Program Managers and Associate Program Managers. They have a greater focus on daily operations. The Program Managers and Associate Program Managers are also responsible for client management. They interact frequently with their equivalents at PECO to ensure smooth operations.

Other staff are part of several different business units.

- Customer Care
- Marketing
- IT
- Finance
- Subcontractor Management
- Program Support

In addition to these business units, there are the field teams made up of Technicians, each led by a Field Supervisor. The Field Supervisor is responsible for carefully reviewing work orders and coordinating the field team. These field teams are made up of Technicians at three different levels. Technicians at Level 1 perform baseload visits only. A Level 3 Technician performs gas heating jobs, and jobs involving hazardous procedures such as combustion tests, although they can also do baseload jobs as needed.

Customer care staff conduct inbound and outbound calling with customers and schedule appointments. Within this business unit there are also levels, or tiers, of expertise. The team is cross-program, meaning they perform calling duties for various utilities and programs unaffiliated with PECO.

There is a QA Manager, who overlaps with other programs such as Act 129. This QA Manager is responsible for the inspection staff, who carry out field inspections.

The program support team also plays an important role in LIURP, managing the backend data. A primary responsibility of the program support is ensuring that all of the necessary information for invoicing is recorded.

CMC auditors collect data in the home, install smoke detectors and water-saving devices as needed, install ACT 129 measures, educate the customer, and generate work orders for other measures. Subcontractors usually perform heating service, insulation, weatherization, and other major measures, but there is also an internal HVAC technician who completes jobs which are urgent or need a quick turnaround.

Subcontractors do all the service and replacement of heating systems and water heating. They perform weatherization, air sealing, and insulation. They also replace refrigerators and air conditioning units, deliver and install the new appliances, and recycle the old ones. Subcontractors will also perform electrical work such as service upgrades, thermostats on baseboards, and health and safety measures. Health and safety measures were piloted in 2019. They play an important role in the LIURP program because they often provide a bridge to the installation of other LIURP measures.

CMC provides oversight and support to the subcontractors. When there is a customer who is not satisfied with the scope of work that is called for based on the energy-saving opportunities, CMC will speak with the customer and visit the job site if needed.

CMC receives and answers questions from subcontractors daily. Subcontractors can call CMC program support, or they can interact with CMC through the ERMS portal. This portal allows subcontractors to upload documentation, provide notes about a job, or apply for a change to the work order. CMC receives questions and feedback from subcontractors on a daily basis. Each week there is also a scheduled meeting between each subcontractor and the QA manager.

B. LIURP Eligibility and Benefits

PECO customers must meet the following criteria to participate in the Program.

- Residential customer who is not planning to move in the next 12 months
- Income at or below 200 percent of the Federal Poverty Level (FPL)⁶
- Usage requirements

⁶ Since 1998, LIURP regulations have permitted companies to spend up to 20 percent of their annual Program budgets on customers with income between 150 and 200 percent of the FPL.

- At least 500 kWh average monthly usage for CAP customers
- At least 600 kWh average monthly usage for baseload customers
- At least 1,400 kWh average seasonal heating usage for electric heating customers
- At least 150 ccf average seasonal heating usage for gas heating customers

LIURP provides weatherization and conservation measures to promote usage reduction. Energy education tailored to the individual household's energy use is also provided to facilitate usage reduction.

The following measures may be provided.

- Insulation
- Air sealing
- Heating system repair or replacement
- Air conditioner replacement
- Refrigerator replacement
- Freezer replacement
- Water heater timer installation
- Water heater and pipe wraps
- Line voltage thermostats
- Faucet aerators
- Showerheads
- Smoke detectors
- Carbon monoxide detectors
- LED bulbs (All lighting installations are paid for as part of Act 129 funding.)

The following new measures were recently implemented.

- Aerosol duct sealing
- Expanded heat pump service
- Efficient heating systems
- On-demand water heaters
- Health and safety measures

PECO and the PUC have pre-approved all of the LIURP measures. They have placed no cap on the amount of money spent per home. Smoke detectors and LEDs are much more commonly provided than some of the more costly measures.

C. Qualification of Leads

PECO sends a quarterly download of high usage, low-income customers to CMC. Customers are also referred to LIURP through the following mechanisms.

- PECO Universal Services staff

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- CAP call center
 - Community Based Organizations (CBOs)
 - Government agencies
 - Prior Program recipients
 - Universal Services Cares Unit

The electronic file downloaded from PECO contains high energy users who are also LIHEAP recipients, Customer Assistance Program (CAP) participants, payment-troubled customers, or customers with multiple payment agreements. CMC reviews the lists and eliminates customers who have received LIURP within the past two years, refused Program services, or moved within the past six months. Typically, after these removals, the remaining customers on the downloaded file are eligible for and receive services from LIURP.

CMC screens all referrals from other sources to determine Program eligibility. If income and usage history are available and the customer is determined to be eligible, CMC enrolls the customer immediately. If income eligibility cannot be determined from PECO's system, CMC mails income documentation forms to the customer. Typically, 25 to 30 percent of customers referred through other sources are determined to be eligible for and receive services from LIURP.

Referred customers may not receive LIURP services because of one of the following reasons.

- Refusal of LIURP services
- Insufficient usage history⁷
- Inactive account
- Income over the eligibility limit
- Non-responsive to CMC contacts
- Recently moved or is planning to move within one year
- Deceased
- Usage below the required level⁸
- Tenant with a landlord who will not provide consent

CMC is required to obtain consent from the landlord to provide services to a tenant. A landlord may not provide approval because he or she wants to choose Program measures, is evicting the tenant, or is concerned about potential housing code violations.⁹ Some landlords never respond to CMC inquiries. CMC is able to obtain landlord consent for more than 50 percent of renters.

Approximately 90 percent of customers who receive LIURP services are identified through the downloaded list, and about ten percent through other referrals.

⁷ This may be the case if the customer recently moved into the home.

⁸ There are some hardship cases where PECO makes exceptions to the usage requirement.

⁹ Landlords are not required to contribute to the cost of LIURP services.

D. Customer Outreach

CMC's customer service representatives contact potential Program participants by telephone to explain Program services, obtain customer information, and confirm or determine eligibility.

If the customer is eligible, an appointment is scheduled for the energy audit. CMC will attempt to make this contact three times by telephone and a minimum of one time by mail over a 90-day period.¹⁰ Information collected during this contact includes the following.

- Name of person responsible for bill payment
- Age of each household member
- Income sources for each household member
- Income amounts for each household member
- Property status and, if applicable, landlord contact information
- Housing type
- Occupation
- Employment status, marital status and level of education

CMC assigned technical resources to the customer service desk to provide assistance on technical questions and a resource for customer care representatives. CMC also provided regular trainings with some elements of building science, reinforced Program guidelines, and retrained on what to do in particular situations.

One of the most challenging responsibilities the customer care representatives have is convincing the customer to allow a stranger to enter their home. Hesitation has increased since COVID, as customers have health and safety concerns about allowing people into their homes. CMC feels that their call center representatives do a good job of preparing the customer and making sure that the auditor will have access to all areas of the home.

E. Job Types

There are two different LIURP job types: Baseload and Heating. Baseload jobs focus on a household's lighting and appliances. Heating jobs include weatherization, insulation, and heating system repair or replacement. Both heating and baseload issues in a household are addressed when necessary. Renters do not receive appliance replacement through LIURP, but they do through Act 129.

F. Service Delivery

CMC prioritizes CAP participants for LIURP service delivery. All CAP participants with monthly usage at or above 500 kWh are considered for LIURP. Those with the lowest income

¹⁰This is PECO's minimum standard for the number of contact attempts.

and the greatest CAP benefits receive the highest priority. CMC prioritizes remaining LIURP participants by energy use and income.

The first step in direct service delivery is the Program audit, performed by CMC staff. The auditor verifies the previously reported household characteristics, including income, number of household occupants, age of home, and years of occupancy. He or she also calculates the average household energy use per day, the energy use for each household appliance, temperature settings, and water temperature. Based on this information, the auditor may wrap the water heater and pipes, and install aerators, smoke detectors, showerheads, and LEDs during this initial audit visit.

CMC provided additional training to their audit staff to increase the thoroughness of directions given to subcontractors and to provide more documentation for each appointment. CMC started requiring the auditors to provide additional notes, documentation, and photos (if the customer agreed). Because they began using tablets in the field, it became easier to take photos and attach them to the work orders. This provided subcontractors with better information to address each home.

One of the major changes in 2020 was the introduction of the Virtual Energy Assessments. This was accelerated significantly out of necessity following the COVID pandemic, but there was already a plan to introduce these assessments. The first virtual assessments were completed in a ten-unit pilot in May 2020. Subsequently, the process was refined, and the virtual assessment program was launched fully in August 2020, with 122 appointments completed that month.

PECO's virtual option allows customers to meet with their energy advisor via video or by phone. If customers have a smart phone or tablet device, CMC can provide the virtual experience through secure telehealth-designed web apps. Customers must be in the home for the duration of the appointment.

The virtual assessments work similarly to in-home audits. At the beginning of the appointment, auditors introduce themselves to the customer, explain LIURP, and explain what they will be doing during the appointment. Auditors may ask additional questions to assess the condition of the customer's home including asking if there are any roof leaks, broken windows, or any medical equipment in use.

During the meeting, customers will walk through the home with their mobile device. If the appointment is conducted via video technicians will direct customers to point the camera to specific objects. For example, technicians may ask customers to point the camera at the refrigerator or the heating system. Throughout the appointment, technicians may take snapshots of the screen for documentation purposes and can also generate work orders. If the appointment is conducted via phone, customers will be asked to verbally explain the characteristics of their home and their appliances.

During the assessment, customers receive energy education and tips on how to reduce energy consumption. Once the appointment is complete, a free customized energy saving package is

mailed to the customer's home with items selected by the energy advisor. This energy kit may contain lightbulbs, power strips, aerators, low-flow showerheads, thermal-restrictive valves, nightlights, smoke detectors, carbon monoxide detectors, motions sensors for lightbulbs, and/or a PECO-branded blanket.

While there are several similarities between in-home audits and virtual appointments, there are also several differences. These differences can present both unique challenges and advantages. Some of the challenges that auditors have faced are as follows.

- Customers may experience a poor Wi-Fi connection.
- Customers may have challenges operating their mobile device.
- Customers cannot always access areas of the home that an auditor would typically be able to access.
- Customers may be unable to take accurate measurements of their house or appliances.
- Auditors are unable to smell gas leaks or other health and safety risks.

Some of the advantages that auditors have encountered are as follows.

- Auditors have an easier time keeping customers engaged during the energy education.
- Virtual audits allow auditors to meet with shut-ins.
- Virtual audits nullify inclement weather as a barrier to conducting audits.

In the event that an in-person or virtual audit requires follow up, CMC schedules the appropriate subcontractors to complete any necessary major measures, such as insulation, heating system repair or replacement, or new appliances. A work order is sent to the subcontractor to communicate the work that is needed. CMC aims for the subcontractor to install the measures within 30 days of the initial audit.

CMC instituted a process where the subcontractors could talk to a quality control supervisor in a timely fashion about any questions they had on the work orders. Additionally, the work orders were improved because every work order was vetted at the supervisor level to look for missing information and needed documentation or photos. CMC makes sure that the auditor provides notes to help the subcontractor do a better job.

CMC developed requirements for the timing of when the subcontractor had to schedule an appointment with the customer and when the subcontractor was required to invoice for the work performed. CMC recommends that subcontractors contact customers with work orders on the day that the work orders are received. This has been successful with the subcontractors that are able to do so. When the customer is contacted within days of their audit, the work is fresh in the customer's mind and they are excited to have it done. This makes it more likely that the subcontractor will get back into the home. They have greater success getting appointments and improved customer satisfaction.

G. Energy Education

PECO and CMC designed the energy education portion of LIURP to facilitate customers' clear understanding of the reasons for high energy use and to communicate how their behaviors contribute to energy use and energy bills. The auditor provides the primary LIURP energy education session during the initial audit visit. This session lasts at least 30 minutes. Further education is often provided by subcontractors when measures are installed and by other CMC quality control inspectors during quality control inspections and follow-up telephone calls.

During the initial education session, the auditor reviews the customer's audit results and identifies ways that the customer can modify the behaviors of household members to save energy and money. The auditor and the customer set a monthly usage and bill reduction goal for the household. The auditor also provides the customer with an education package, which includes the following materials.

- Tips for saving energy
- An energy calculator
- 'Hazards of Space Heating' pamphlet
- A brochure on LEDs that includes information on how to safely dispose of them
- Energy Savers calendar
- Energy cost estimate form
- Energy saving recommendations list based on the household's energy use
- 'Does Your Money Run Out' booklet
- Referrals to CAP rate and other programs that the customer may be eligible for

PECO also developed additional education materials that began to be used in 2016.

The auditor reviews these educational materials with the customer and compares the household's energy cost estimate form to the household's actual energy bill. Additionally, the auditor refers the customer to programs and agencies that might help him or her meet household needs, and answers any questions the customer may have about the Program or the education session. The auditor reviews the measures that have been installed and those that will be installed by subcontractors. In addition, the auditor reviews the LIURP follow-up procedures that the customer can expect.

CMC has made some changes to the education component of the program. One change was to use the gift of a blanket during audits as a tool for education around setting thermostat temperatures. CMC also worked with a marketing team to completely update the education materials that are used for the program, and these changes are currently awaiting PECO approval.

For one year after LIURP services have been provided, PECO and CMC monitor the customer's monthly energy usage. CMC mails monthly progress letters to customers to highlight any changes in monthly usage, as compared to the customer's individual goal. Each

quarter CMC revises the letters to emphasize energy saving tips that are specific to the current season.

H. Quality Control

Three methods are primarily used for LIURP quality control.

- An annual evaluation, conducted by an independent program evaluator.
- Customer satisfaction surveys administered by CMC.
- Inspections by the CMC Quality Control Manager and a third-party inspector.

Third-Party Inspections and Observations

Performance System Development (PSD) has been conducting quality control for PECO’s LIURP since April 2019. In response to a request for all assessments performed in the past year, PSD sent six inspection reports and three virtual quality assurance surveys.

We analyzed the three virtual quality assurance surveys that PSD provided. These surveys included ten survey questions that asked the customer to confirm aspects of the virtual energy assessment. Each of these ten survey questions was considered an “item” for the sake of analysis. If fewer than three items were missed in the job, we rated the customer’s assessment as “good”. If between three and five items were missed, the customer’s assessment was deemed “fair”, and a survey that reported at least six missed items was deemed a “poor” assessment.

Table II-1 provides a summary of PSD’s findings. While PSD gave five of the six inspections a straight pass, one had an action required. Of the three surveys regarding the virtual energy assessments, all of them had the highest rating, “good”.

**Table II-1
Inspection Summary**

Inspections		
Assessment	Number	Percent
Passed	5	83%
Passed with Action Required	1	17%
Total	6	100%

Virtual QA Surveys		
Assessment	Number	Percent
Good	3	100%
Fair	0	0%
Poor	0	0%
Total	3	100%

Table II-2 provides data on each of the survey questions relating to the quality of the virtual energy assessment. As the table shows, every question but one was answered affirmatively by all three customers. One customer said they did not feel that the virtual auditor clearly explained the purpose of LIURP.

**Table II-2
Summary of Survey Responses**

Virtual QA Surveys		
Question	Customer Response	
	Yes	No
Scheduler spoke clearly and professionally	3	0
Received a confirmation email prior to virtual audit	3	0
Auditor clearly explained the purpose of LIURP	2	1
Auditor acted professional during audit	3	0
Auditor involved customer in determining measures	3	0
Auditor answered all energy saving questions	3	0
Auditor recommended other programs for home issues which were beyond the scope of LIURP	3	0
Auditor provided examples of energy saving behaviors	3	0
Auditor discussed advantages of LIURP measures	3	0
Auditor provided instructions on how to install measures	3	0
Total	29	1

Table II-3 provides a summary of issues noted during the inspections and surveys. On average, 0.2 areas were not completed effectively on the inspections and 6.8 areas were completed effectively. On average, 0.3 items were not completed effectively on the surveys and 9.7 items were completed effectively on the surveys. In both the inspections and the surveys, 97 percent of items were completed effectively.

**Table II-3
Inspection and Survey Findings**

Statistic	Inspections	Surveys
Number of Audits	6	3
Mean # Items Passed	6.8	9.7
Mean # Items Missed	0.2	0.3
% of Items Passed	98%	98%

In all the inspection reports and surveys, a total of two items were marked as missing.

- One of the inspection reports stated that the customer did not receive the invoiced smart strips.
- One of the customer surveys said the virtual energy advisor did not clearly explain the purpose of LIURP.

Aside from those two items, every item in these reports was marked as satisfactory. However, the notes section of one of the surveys stated that the customer was expecting, but did not receive, a CO₂ detector in their energy kit.

Table II-4 shows the distribution of how many items were missed in the inspections and in the surveys.

**Table II-4
Distribution of Missed Items**

Number of Missed Items	Inspections	Surveys
Customers	6	3
0	83%	67%
1	17%	33%
Total	100%	100%

CMC Quality Control

CMC tries to get customer satisfaction survey from at least ten percent of customers. The surveys give customers an opportunity to score Technicians on a scale. Questions on the survey include how courteous the Technicians were and how well they were able to answer customers' questions. The responses are combined into an overall score.

CMC inspects a minimum of five percent of the baseload jobs and tries to inspect all of the heating jobs. A minimum of three attempts are made to schedule an inspection with heating customers. Auto-generated letters are sent to customers to encourage them to make an appointment. CMC tries to communicate to customers that this inspection is an important part of the process.

It can be challenging to persuade the customer to permit another visit once the installation work has been completed. PECO has worked with CMC to try to reduce the lag time between job completion and inspection to try to increase customer acceptance of the inspection visit.

In 2020, 103 percent of gas heat customers were inspected (due to low production, inspections were done for jobs completed in years prior). In 2020, 52 percent of electric heating jobs were inspected and 46 percent of baseload jobs were inspected. The baseload figure was significantly higher than previous years due to the lockdown.

The inspector works from an inspection checklist and has the customer satisfaction survey, the home's audit results, and the completed work order to assist in the inspection. The inspector also conducts blower door, heating, and carbon monoxide testing, and confirms the presence of all invoiced measures. In addition to post-completion inspections, the inspector sometimes accompanies CMC staff on audits and subcontractor staff on installations. CMC has access to the subcontractors' schedules, so if the inspectors have cancelled appointments, they go to observe the work of a subcontractor.

If a problem can be fixed immediately by an inspector, they will correct the issue at the time of the inspection. If there were issues such as leaving a mess or behavior that upset a customer, these will be raised with the subcontractor in feedback, but would not require them to return to the home. Where a measure was incorrectly installed or there was other work that needed to be done, an “action required” notice will be issued and the subcontractor will be required to return to the home.

Inspectors are assessed primarily through metrics but also through shadowing. CMC will look at the historical data on the number of inspections that pass or fail, the number of additional work orders, and other metrics. This analysis is used to assess whether an inspector is within the normal range for these metrics. Qualitatively, their work is assessed through shadowing by the QA Manager, who will accompany inspectors and evaluate their performance in the field. One important metric is what level of work order items they are flagging — i.e., complex items or basic items.

PECO Quality Control

The PECO LIURP manager validates LIURP invoices. She will be selecting random homes for site visits to further assess the invoices.

PECO worked with CMC to improve customer satisfaction. CMC started to trend their customer service problems by attaching codes to every call. For example, a call may be coded as a work order inquiry. CMC can see the time from the audit to when the customer called. CMC has codes for every type of call that comes in, such as an air conditioner service required or a refrigerator service required. They can report on the number of each type of problem and see if it is increasing or decreasing. CMC tracks the issues that arise and works to root out the problems.

PECO also worked with CMC to provide additional training to call center staff on handling customer disputes and dealing with difficult customers. CMC monitors call center representatives each month to assess the quality of their interactions.

I. Data and Reporting

LIURP databases contain the following information.

- Personal and household demographics
- Landlord contact information
- Audit results
- Quantity and costs of installed measures
- Referrals made to other programs
- Post treatment follow-up outreach results
- Completion dates and usage history
- Performance scorecard

CMC and PECO check the database for completeness and accuracy. These data are used to generate regular reports, including the following.

- Completed audits compared to projected audits
- Completed jobs compared to projected jobs
- Program costs by category
- Average cost per job
- Completed jobs by type
- Outreach call volume
- Customer demographics

CMC uses tablets in the field to improve the accuracy of data collection. There are checks programmed into the data entry fields, and there is also additional post-entry data validation that is conducted.

CMC and PECO monitor Program data monthly and the independent evaluator monitors Program data annually. In addition to this report, CMC and PECO produce an annual report to the PUC.

J. LIURP Training

PECO states in their contract with CMC that they require LIURP staff members to be adequately trained. CMC's Quality Control Manager assesses the training needs of the CMC field and sub-contractor staff. The CMC Office Manager assesses the training needs of the CMC administrative staff. CMC provides full training to each LIURP staff member at the time of hire, as well as ongoing training.

CMC provides monthly training for all staff in an online format. Training areas include safety training, anti-bias training, and active shooter training. Each week there are also field meetings where information and feedback from QA from the previous week is discussed with staff.

During these meetings, key metrics and goals are reinforced. Important metrics include the number of measures per appointment, work orders generated, and errors with revisions needed to work orders. The most important goals are the number of appointments completed and percentage of inspections (there is a 100 percent goal for heating inspections and a five percent goal for baseload inspections). For customer care staff an important metric is whether enough appointments are being generated to hit participation goals.

Technicians also receive training to obtain Building Performance Institute (BPI) certification, and customer service representatives receive training in communications. Cross training is promoted as much as possible. Technicians also train in communications, and customer service staff receive some training in building performance, though not to the level of BPI certification.

During COVID, all field work was halted for several months, and during this time CMC developed a library of resources. These included resources on customer service, building science, communications, and other subjects. During the period that no field work could be done, no CMC staff were laid off. The first three months of this period, from mid-March to June of 2020, was used entirely for training. Through that training program, CMC employees have completed upwards of 4,000 hours of professional development training on topics such as CEUs for advanced building science, HVAC service, enhanced customer service, and sales skills.

CMC performs vetting of potential subcontractors and ensures that they have the proper certifications to perform the work. After the subcontractor is approved, CMC has an onboarding process to ensure that the subcontractor understands the process, inspections, work orders, line items, and invoicing.

Subcontractors are initially given a small number of work orders, often just one. For the first job, CMC will go out to the site with the subcontractor to evaluate them. The inspectors check that the subcontractor is badged and follows all the correct rules and regulations when performing their work. If there are no issues, more work orders are issued, although the monitoring may continue to be more rigorous for a while until the subcontractor has demonstrated that they are reliable.

CMC has field demonstrations where one of the subcontractors will do a demonstration for CMC out in the field. Both auditors and subcontractors benefit from the demonstrations because it shows the subcontractors that their work is valuable and it makes subcontractors feel more appreciated.

K. Program Coordination

CMC maintains a LIURP referral list consisting of other Universal Services Programs and state and county agencies that provide assistance to low-income customers. CMC staff make referrals during the initial energy audit, as well as during inspection and post-treatment follow-up calls. During the follow-up call, CMC staff members ask customers whether they were able to obtain any benefits from the referrals they were given. Additionally, the CMC auditor provides CAP and LIHEAP applications to customers at the time of the LIURP audit.

Participation in LIURP is a requirement of PECO's CAP. CAP participants who refuse LIURP receive two letters to remind them of the CAP requirements. Most customers respond to the second letter. PECO's LIURP manager sends the list of customers who do not respond to the second letter (not including tenants) to the CAP Program Manager and Supervisor for a telephone follow-up. If the customer does not respond to this outreach, the customer is removed from CAP. The LIURP refusal rate among CAP participants has declined dramatically since this process was put into place.

L. Challenges

CMC's recent challenges have primarily been COVID-related issues. All field work was shut down, so there were no home visits from mid-March 2020 until mid-October.

On October 15, 2020, field work was able to gradually resume with additional safety measures, but the virtual energy assessments have continued. With the home visits, there were challenges to determine if certain work interacted with COVID safety. One of the biggest concerns was how the blower door test would interact with COVID. CMC took the following measures to mitigate the risk of spreading the disease while conducting these tests.

- Asked all customers and personnel to wear personal protective equipment, including a mask. If customers refused to wear a mask, CMC could refuse to provide services.
- Screened customers prior to the appointment to see if anyone in the home was exhibiting any COVID-related symptoms.
- Only conducted blower door tests for detached single family dwellings. Connected dwellings posed a risk because they could have passages that would allow a current to flow between the homes.
- Required all customers and personnel to stand as far away as possible from the home while conducting the blower door test to avoid being in the direct path of the of airflow.
- Conducted the blower door tests early in the audit to provide better air quality for the duration of the home visit.
- Had additional trainings and discussions with technicians so that they understood the new procedures for the blower door test.

In addition to work challenges, there were serious effects on the supply chain. Prices have gone up, and there are shortages or delays.

Although field work has resumed, customer participation has not yet returned to pre-COVID levels. This has made it difficult to achieve participation goals. A key challenge currently is the need to alter customers' perceptions of LIURP, emphasizing its online aspects whenever possible.

One of the COVID-related challenges is LIURP households with a high number of occupants, which can make social distancing difficult during the job and increase COVID risks. To address this, CMC has communicated with customers ahead of visits to let them know they should try to minimize the number of people in the home at the time of the field visit. Another less common issue has been customers who are unwilling to follow COVID guidelines. Although this does not happen often, it is a significant issue when it happens and there have been cases where Technicians had to leave without completing the job.

Outside of COVID, there are some challenges in working in LIURP homes that are dilapidated to the point of being hazardous. Another challenge that can occur is where the primary account holder is not home at the time of the visit. They may have a relative or another household member stand in for them. This can make education less effective if information is not being directly communicated to the head of the household.

Reaching customers is one of the greatest challenges faced. CMC is working to address this by improving or providing new self-scheduling and self-service tools.

CMC feels that improvements to marketing and branding of the Program should be made to get more customers into the pipeline for services. This is currently a challenge because little funding is earmarked specifically for marketing purposes. In the past, CAP was used as a gateway to enroll customers, but CMC believes that LIURP needs to do market segmentation of customers who are not part of CAP.

III. Program and Participant Statistics

This section provides statistics on the LIURP services that were provided in 2019, as well as the characteristics of the homes and the customers who were served by the Program.

A. Participation

PECO screened 33,219 customers for LIURP services in 2019. Table III-1 shows that 24,880 were cancelled, 281 customers were not eligible, and 8,058 received Program services.

**Table III-1
Customers Evaluated for Program Services**

Category	Number	Percent of Total
Cancelled	24,880	75%
Ineligible	281	1%
Treated	8,058	24%
TOTAL	33,219	100%

Table III-2 displays the reasons why customers were deemed ineligible for LIURP. While 60 percent were ineligible because they were over the income eligibility limit, 27 percent were ineligible because the scope of work was beyond the Program's guidelines, and six percent were commercial accounts.

**Table III-2
Ineligible Customers**

Category	Number	Percent of Total
Over Income	170	60%
Scope of Work Beyond Guidelines	77	27%
Commercial Account	16	6%
Usage Below Guidelines	7	2%
Insufficient Usage History	7	2%
Previously Treated in LIURP	4	1%
TOTAL	281	100%

Table III-3 displays reasons why customers were cancelled. The largest group of customers, 93 percent, made no response to contact attempts.

**Table III-3
Cancelled Customers**

Category	Number	Percent of Total
No Response to Contact Attempts	23,085	93%
Customer Moving	801	3%
Customer Refused	456	2%
Inactive Account	404	2%
Renovations in Progress	77	< 1%
Do Not Contact	26	< 1%
No Landlord Consent	22	< 1%
Cancelled Due to Unsafe Environment	7	< 1%
Office Cancelled Due to Miscellaneous Reasons	1	< 1%
Cancelled at The Door Due to Inactive Account	1	< 1%
TOTAL	24,880	100%

B. LIURP Services

This section describes LIURP services that were delivered in 2019. The total budget was \$7.85 million with \$5.6 million for electric usage reduction and \$2.25 million for gas usage reduction. Table III-4 shows the distribution of the spending. Sixty-two percent was spent on weatherization measures and labor, 30 percent was spent on audits and education, and eight percent was spent on PECO administration.

**Table III-4
2019 LIURP Expenditures
By Category**

Category	Amount Spent	Percent of Funds
Weatherization Measures	\$4,857,188	62%
Audit/Education	\$2,378,979	30%
PECO Administration	\$613,833	8%
TOTAL	\$7,850,000	100%

Table III-5 displays the distribution of LIURP jobs and expenditures by job type. Jobs are classified as baseload, electric heating, or gas heating. While 72 percent of the jobs were classified as baseload, they represented 27 percent of the total costs. The average cost for measures on these jobs was \$230. Gas heating jobs represented 17 percent of jobs and 51 percent of costs, averaging \$1,918 in measure costs per home. Electric heating jobs averaged \$1,744 per home.

Table III-5
2019 LIURP Service Delivery and Expenditures
By Job Type

Job Type	# of Jobs	% of Jobs	Total Cost	% of Costs	Average Job Cost
Baseload	5,823	72%	\$1,338,731	27%	\$230
Electric Heating	628	8%	\$1,095,317	22%	\$1,744
Gas Heating	1,347	17%	\$2,584,181	51%	\$1,918
No LIURP Measure Costs*	260	3%	\$0	0%	\$0
TOTAL	8,058	100%	\$5,018,229	100%	\$623

*There were 260 accounts that received education only.

Table III-6 provides a more detailed breakdown of the type of work done in LIURP jobs, based on CMC's classification of measure types. Many jobs received more than one type of service. Ninety-five percent of the customers received baseload services; but only 15 percent received refrigerator replacement measures, which included refrigerator replacement, refrigerator removal, and freezer replacement. Six percent received air sealing, six percent received weatherization, and four percent received insulation. Eight percent received a heating system tune-up, and 14 percent received an air conditioner replacement.

Table III-6
2019 LIURP Service Delivery and Expenditures

Work Type	# of Jobs	% of Jobs	Total Cost	% of Costs	Average Cost
Baseload*	7,690	95%	\$354,699	7%	\$63
Refrigerator Replacement**	1,230	15%	\$782,024	16%	\$660
Air Sealing	496	6%	\$449,889	9%	\$907
Weatherization	472	6%	\$189,708	4%	\$402
Insulation	295	4%	\$299,215	6%	\$1,014
Electrical	201	2%	\$207,716	4%	\$1,033
Heating System Tune Up	682	8%	\$279,266	6%	\$438
Heating System Replacement	191	2%	\$1,022,912	20%	\$5,356
Air Conditioner Replacement	1,093	14%	\$724,862	14%	\$663
Water Heater Replacement	153	2%	\$179,443	4%	\$1,173
Water Heater Service	256	3%	\$53,590	1%	\$209

Work Type	# of Jobs	% of Jobs	Total Cost	% of Costs	Average Cost
Health and Safety***	276	3%	\$474,903	9%	\$1,721
TOTAL	8,058	100%	\$5,018,229	100%	\$623

*5,605 of the 7,690 jobs with baseload measures had one or more baseload measures funded through LIURP. The other jobs had all baseload measures funded through Act 129. Average costs for the 13,219 baseload measures funded through LIURP are shown in this table.

**Measures that fall under the refrigerator replacement work type include refrigerator replacement, refrigerator removal, and freezer replacement. 1,184 of the 1,230 jobs with one of these measures had one or more of the measures funded through LIURP. The other jobs had all refrigerator replacement measures funded through Act 129. Average costs for the 1,289 refrigerator replacement measures funded through LIURP are shown in this table.

*** Health and Safety includes H&S appliance replacement, H&S basement waterproofing, H&S electric, H&S extermination, H&S heating system replacement, H&S miscellaneous repair, H&S roof work, H&S site visit, H&S ventilation, and H&S window replacement.

Table III-7A provides information on the frequency of individual measures installed through LIURP. Some of the key pieces of information from this table are described below.

- *Health and safety:* Over 7,400 smoke detectors were provided in 3,477 homes. Carbon monoxide detectors were provided in 3,511 homes.
- *LED bulbs:* LEDs were provided to 89 percent of the homes serviced. On average, 13.1 bulbs were provided to each home serviced.
- *Refrigerator replacement:* Refrigerators were replaced in 850 homes.
- *Air conditioner replacement:* Window air conditioners were replaced in 1,093 homes.
- *Aerators and showerheads:* A total of 1,744 aerators were provided in 1,037 homes, and 1,055 showerheads were provided in 872 homes.
- *Water heaters:* Electric water heater timers were provided in eight homes, and water heater replacements were provided in 155 homes.
- *Air sealing:* Air sealing was provided in 652 homes. However, only 356 received a blower door test.
- *Insulation:* Insulation was provided in 319 homes.
- *Door Sweeping/Weatherstripping:* Door stripping/weatherstripping was provided in 1,619 homes.
- *Heat system repair:* Heating system repair work was provided to 686 homes.
- *Heating system replacement:* Heat pumps were replaced in 33 homes, furnaces in 57 homes, and boilers in 83 homes.

Table III-7A
2019 LIURP Service Delivery and Expenditures
By Measure Type

Measure Category	Measure	Number of Jobs	% of Jobs	Total Number
Health and Safety	Carbon Monoxide Detectors	3,511	44%	3,566
	Smoke Detector	3,477	43%	7,405
	Smoke Detector Battery	479	6%	808
	H&S Appliance Replacement	20	<1%	21
	H&S Basement Waterproofing	1	<1%	1
	H&S Electrical	45	1%	46
	H&S Extermination	29	<1%	29
	H&S Heating System Replacement	32	<1%	32
	H&S Ventilation	3	<1%	4
	H&S Window Replacement	45	1%	814
	Other Health and Safety*	139	2%	225
Electric Measure	LEDs	7,150	89%	93,602
	Refrigerator Replacement	850	11%	858
	Air Conditioner Replacement	1,093	14%	3,144
	AC Maintenance	2	<1%	2
	Power Strip	2,249	28%	4,289
	Freezer	489	6%	490
Water Heating	Aerator	1,037	13%	1,744
	Showerhead	872	11%	1,055
	Water Heater Pipe Insulation	606	8%	606
	Electric Water Heater Timer	8	<1%	8
	Water Heater Labor	307	4%	307
	Water Heater Part	51	1%	56
	Shower Valve	168	2%	190
	Electric Water Heater	41	1%	41
	Gas Water Heater	114	1%	114
Insulation & Sealing	Air Sealing	652	8%	652
	Blower Door Test	356	4%	705
	Insulation	319	4%	319
	Weatherization	238	3%	238
	Duct/Pipe Insulation	136	2%	167
	Door Sweep/Weatherstripping	1,619	20%	3,818

Measure Category	Measure	Number of Jobs	% of Jobs	Total Number
	AC Sealing	358	4%	580
	Window Seal/Caulk	151	2%	1,122
	Dryer Venting	103	1%	103
	Door/Lock	30	<1%	35
Electrical	Electric Labor	71	1%	275
	Electric Part	73	1%	104
Thermostat	Line Voltage Thermostat	157	2%	572
	Manual Thermostat	10	<1%	10
	Programmable Thermostat	83	1%	92
	Other Thermostat	156	2%	165
Heating	Clean and Tune	373	5%	373
	Heating System Labor	686	9%	1,379
	Heating System Part	108	1%	321
	Electric Baseboard	35	<1%	82
	Gas Boiler	83	1%	83
	Furnace	57	1%	57
	Furnace Filter	13	<1%	13
	Heat Pump	33	<1%	33

* The measures that constitute this category are shown in Table III-7C

Table III-7B displays the measure installation rates by job type. The table shows that 35 percent of gas heat jobs and 26 percent of electric heat jobs received air sealing and that 16 percent of gas heat jobs and 17 percent of electric heat jobs received insulation.

Table III-7B
2018 LIURP Service Delivery
Measure Frequency by Job Type

Measure	All Participants			Analysis Group		
	Baseload	Electric Heat	Gas Heat	Baseload	Electric Heat	Gas Heat
Number of Customers	5,823	628	1,347	4,773	378	698
Carbon Monoxide Detector	47%	18%	50%	46%	13%	47%
Smoke Detector	44%	46%	48%	43%	44%	47%
Smoke Detector Battery	4%	8%	15%	4%	7%	16%
H&S Appliance Replacement	<1%	1%	<1%	<1%	1%	<1%
H&S Basement Waterproofing	<1%	0%	0%	<1%	0%	0%

Measure	All Participants			Analysis Group		
	Baseload	Electric Heat	Gas Heat	Baseload	Electric Heat	Gas Heat
H&S Electrical	<1%	1%	2%	<1%	1%	1%
H&S Extermination	<1%	2%	<1%	<1%	2%	<1%
H&S Heating System Replacement	0%	<1%	2%	0%	<1%	1%
H&S Ventilation	0%	0%	<1%	0%	0%	<1%
H&S Window Replacement	<1%	2%	2%	<1%	1%	1%
Other Health and Safety	1%	5%	5%	<1%	4%	4%
LEDs	92%	91%	89%	93%	91%	90%
Refrigerator Replacement	10%	16%	14%	7%	11%	8%
Air Conditioner Replacement	14%	15%	15%	3%	6%	4%
AC Maintenance	0%	<1%	<1%	-	-	-
Power Strip	26%	43%	37%	23%	44%	39%
Freezer	6%	8%	8%	4%	6%	6%
Aerator	3%	45%	41%	3%	48%	42%
Showerhead	3%	37%	36%	2%	36%	36%
Water Heater Pipe Insulation	2%	22%	25%	2%	21%	21%
Electric Water Heater Timer	<1%	1%	<1%	<1%	<1%	0%
Water Heater Labor	<1%	7%	19%	<1%	4%	15%
Water Heater Part	0%	1%	3%	0%	0%	1%
Shower Valve	2%	8%	1%	2%	10%	1%
Electric Water Heater	<1%	4%	1%	<1%	1%	1%
Gas Water Heater	<1%	2%	8%	0%	1%	4%
Air Sealing	<1%	26%	35%	<1%	17%	27%
Blower Door Test	0%	16%	19%	0%	9%	13%
Insulation	0%	17%	16%	0%	10%	11%
Weatherization	0%	11%	13%	0%	6%	8%
Duct/Pipe Insulation	<1%	3%	8%	0%	2%	3%
Door Sweep/Weatherstripping	12%	52%	45%	9%	47%	39%
AC Sealing	2%	9%	13%	1%	8%	11%
Window Seal/Caulk	0%	9%	7%	0%	6%	5%
Dryer Venting	0%	4%	6%	0%	3%	4%
Door/Lock	0%	1%	2%	0%	1%	1%
Electric Labor	<1%	9%	1%	<1%	8%	<1%
Electric Part	<1%	7%	1%	<1%	5%	<1%
Line Voltage Thermostat	<1%	21%	1%	<1%	20%	1%
Manual Thermostat	0%	<1%	1%	0%	<1%	1%

Measure	All Participants			Analysis Group		
	Baseload	Electric Heat	Gas Heat	Baseload	Electric Heat	Gas Heat
Programmable Thermostat	0%	3%	5%	0%	2%	3%
Other Thermostat	0%	1%	11%	0%	1%	9%
Clean and Tune	0%	3%	26%	0%	2%	20%
Heating System Labor	1%	25%	34%	1%	21%	26%
Heating System Part	0%	1%	7%	0%	<1%	3%
Electric Baseboard	<1%	4%	<1%	<1%	4%	<1%
Gas Boiler	0%	<1%	6%	0%	0%	4%
Furnace	0%	1%	4%	0%	<1%	3%
Furnace Filter	0%	<1%	1%	0%	0%	<1%
Heat Pump	0%	5%	<1%	0%	3%	0%

Table III-7C shows that 225 jobs received health and safety measures. These included roof repairs, water heating, heating, and roof replacement.

**Table III-7C
Other Health and Safety Measures**

Measure	Number of Jobs	% of Jobs	Total Number of Measures
Total Number of Measures	225		
H&S Materials	96	1%	99
H&S Labor	74	1%	74
Site Visit	34	< 1%	34
Roof Repair	9	< 1%	9
Water Heating	5	< 1%	5
Heating	2	< 1%	2
Roof Replacement	2	< 1%	2

Table III-7D displays the key measure installation rates for electric baseload jobs from 2011 through 2019. The table shows that the refrigerator replacement rate has declined since its increase in 2014, while the LED installation rate and average number of LEDs per job has increased since 2016.

Table III-7D
2011-2019 LIURP Measure Frequency
Electric Baseload Jobs – All Customers

Measure	Electric Baseload – All Customers								
	2011	2012	2013	2014	2015	2016	2017	2018	2019
# Customers	4,175	5,475	6,163	6,159	6,688	5,029	5,639	4,782	5,823
Refrigerator Removal	<1%	<1%	<1%	<1%	0%	<1%	<1%	0%	0%
Refrigerator Replacement	11%	9%	15%	27%	26%	22%	21%	20%	10%
LEDs	88%	86%	85%	79%	71%	79%	93%	94%	92%
Avg. # LEDs	8.0	7.0	4.7	6.6	4.4	6.3	10.5	11.9	12.5

Table III-7E displays electric baseload measures for the analysis group. This table shows the same general trends as the full sample shown in the previous table.

Table III-7E
2011-2019 LIURP Measure Frequency
Electric Baseload Jobs – Analysis Group

Measure	Electric Baseload – Analysis Group								
	2011	2012	2013	2014	2015	2016	2017	2018	2019
# Customers	2,440	3,982	4,781	4,798	4,971	3,876	4,787	3,800	4,773
Refrigerator Removal	<1%	<1%	<1%	<1%	0%	<1%	<1%	0%	0%
Refrigerator Replacement	12%	10%	16%	25%	16%	18%	18%	18%	7%
LEDs	87%	86%	84%	79%	73%	81%	94%	95%	93%
Avg. # LEDs	7.9	7.1	4.6	6.6	4.6	6.2	10.7	12.1	12.4

Table III-7E shows that electric heating jobs with a blower door test declined from 30 percent in 2016 to 24 percent in 2017, and further declined to 16 percent in 2019. Insulation rates have similarly declined, from 32 percent in 2016 to 18 percent in 2017 and 17 percent in 2019.

Table III-7F
2011-2019 LIURP Measure Frequency
Electric Heating Jobs – All Customers

Measure	Electric Heating – All Customers								
	2011	2012	2013	2014	2015	2016	2017	2018	2019
# of Customers	265	494	743	981	777	710	782	695	628
LEDs	68%	82%	71%	67%	64%	59%	81%	88%	91%
Refrigerator Removal	0%	0%	0%	0%	0%	<1%	0%	0%	0%

Measure	Electric Heating – All Customers								
	2011	2012	2013	2014	2015	2016	2017	2018	2019
Refrigerator Replacement	12%	6%	11%	21%	22%	19%	20%	19%	16%
Blower Door	40%	32%	30%	27%	20%	30%	24%	18%	16%
Air Sealing*	49%	48%	42%	45%	45%	56%	45%	28%	26%
Duct/Pipe Insulation	3%	3%	4%	5%	2%	3%	2%	5%	3%
Weatherization	28%	24%	21%	21%	17%	26%	14%	10%	11%
Insulation	39%	37%	29%	31%	23%	32%	18%	17%	17%
LV Therm.	36%	30%	29%	29%	33%	25%	16%	14%	21%
Heat. Labor	19%	10%	9%	12%	16%	19%	23%	17%	25%
Heat. Sys. Part	2%	2%	1%	2%	1%	1%	1%	1%	1%
Elec. Baseboard	7%	9%	10%	5%	5%	2%	1%	2%	4%
Heat Pump	7%	3%	4%	3%	3%	3%	4%	5%	5%

*In 2018, the air sealing measure classification was updated to exclude certain non-air sealing measure descriptions. AC Sealing, Door Sweep/Weatherstripping, Window Seal/Caulk and Door/Lock were counted as air sealing in previous years but not in 2018. This explains the decline in air sealing measure frequency between 2017 and 2018.

Table III-7G shows the same trends for the electric heating analysis group, although the analysis group had somewhat lower levels of installations.

Table III-7G
2011-2019 LIURP Measure Frequency
Electric Heating Jobs – Analysis Group

Measure	Electric Heating – Analysis Group								
	2011	2012	2013	2014	2015	2016	2017	2018	2019
# of Customers	134	309	485	593	373	367	501	384	378
LEDs	65%	84%	71%	64%	67%	54%	82%	89%	91%
Refrigerator Removal	0%	0%	0%	0%	0%	<1%	0%	0%	0%
Refrigerator Replacement	14%	7%	11%	19%	12%	16%	17%	16%	11%
Blower Door	48%	34%	30%	28%	10%	19%	16%	10%	9%
Air Sealing*	54%	49%	41%	44%	31%	41%	36%	16%	17%
Duct/Pipe Insulation	3%	4%	4%	6%	1%	1%	1%	3%	2%
Weatherize	26%	22%	19%	21%	8%	16%	7%	6%	6%
Insulation	44%	37%	27%	32%	9%	23%	14%	10%	10%
LV Therm.	33%	28%	27%	25%	24%	22%	15%	13%	20%
Heat. Labor	23%	12%	8%	11%	10%	13%	18%	10%	21%
Heat. Sys. Part	1%	2%	1%	2%	0%	0%	<1%	0%	<1%
Elec. Baseboard	8%	8%	9%	4%	3%	2%	1%	1%	4%

Measure	Electric Heating – Analysis Group								
	2011	2012	2013	2014	2015	2016	2017	2018	2019
Heat Pump	7%	4%	4%	3%	1%	1%	2%	3%	3%

*In 2018, the air sealing measure classification was updated to exclude certain non-air sealing measure descriptions. AC Sealing, Door Sweep/Weatherstripping, Window Seal/Caulk and Door/Lock were counted as air sealing in previous years but not in 2018. This explains the decline in air sealing measure frequency between 2017 and 2018.

Table III-7H shows that gas heating job installation rates also declined in 2019. Insulation declined from 35 percent in 2014 to 16 percent in 2019, and weatherization declined from 32 percent in 2014 to 13 percent in 2019.

Table III-7H
2011-2019 LIURP Measure Frequency
Gas Heating Jobs – All Participants

Measure	Gas Heating – All Participants								
	2011	2012	2013	2014	2015	2016	2017	2018	2019
# of Customers	1,668	1,282	1,623	1,222	1,303	1,624	1,188	1,359	1,347
Blower Door Test	60%	60%	41%	40%	35%	35%	28%	20%	19%
Air Sealing*	76%	74%	57%	61%	64%	65%	51%	30%	35%
Duct/Pipe Insulation	12%	15%	13%	15%	12%	8%	5%	8%	8%
Weatherize	45%	41%	31%	32%	28%	29%	18%	11%	13%
Insulation	54%	46%	30%	35%	27%	26%	19%	14%	16%
Heating Labor	30%	23%	17%	23%	28%	28%	23%	24%	34%
Heating Part	25%	20%	13%	12%	8%	9%	8%	8%	7%
Furnace	14%	10%	4%	4%	5%	5%	5%	6%	4%
Gas Boiler	13%	7%	5%	4%	5%	7%	5%	6%	6%

*In 2018, the air sealing measure classification was updated to exclude certain non-air sealing measure descriptions. AC Sealing, Door Sweep/Weatherstripping, Window Seal/Caulk and Door/Lock were counted as air sealing in previous years but not in 2018. This explains the decline in air sealing measure frequency between 2017 and 2018.

Table III-7I shows that the analysis group also had lower rates of insulation and weatherization in 2019 than in many of the previous years.

Table III-7I
2011-2019 LIURP Measure Frequency
Gas Heating Jobs – Analysis Group

Measure	Gas Heating – Analysis Group								
	2011	2012	2013	2014	2015	2016	2017	2018	2019
# of Customers	1,211	833	1,170	845	551	577	728	667	698
Blower Door Test	60%	59%	38%	39%	25%	21%	20%	8%	13%
Air Sealing*	76%	74%	55%	58%	51%	50%	43%	13%	27%
Duct/Pipe Insulation	12%	15%	13%	12%	7%	4%	4%	3%	3%
Weatherize	45%	42%	30%	30%	15%	14%	13%	3%	8%
Insulation	54%	45%	30%	33%	15%	17%	16%	6%	11%
Heating Labor	31%	22%	15%	17%	19%	18%	14%	13%	26%
Heating Part	25%	21%	11%	7%	5%	5%	3%	3%	3%
Furnace	14%	10%	3%	3%	3%	2%	2%	2%	3%
Gas Boiler	13%	6%	4%	3%	2%	2%	2%	2%	4%

*In 2018, the air sealing measure classification was updated to exclude certain non-air sealing measure descriptions. AC Sealing, Door Sweep/Weatherstripping, Window Seal/Caulk and Door/Lock were counted as air sealing in previous years but not in 2018. This explains the decline in air sealing measure frequency between 2017 and 2018.

Table III-7J displays the number of major measures installed in electric heating jobs from 2011 through 2019. Electric major measures include refrigerator replacement, freezer replacement, air conditioner replacement, water heater replacement, heat pumps, electric baseboards, insulation, and blower door guided air sealing. The table shows that the percentage of electric heating jobs with no major measures remained around 66 percent for the past three years.

Table III-7J
2011-2019 Number of Major Measures Installed
Electric Heating Jobs

# Maj. Meas.	Electric Heating Jobs								
	2011	2012	2013	2014	2015	2016	2017	2018	2019
Obs.	134	309	485	593	373	367	501	384	378
0	37%	49%	51%	50%	73%	59%	64%	68%	66%
1	17%	17%	23%	21%	17%	21%	22%	20%	20%
2	35%	27%	18%	23%	8%	17%	10%	9%	11%
3+	11%	8%	8%	6%	1%	4%	4%	3%	3%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table III-7K displays the number of major measures installed in gas heating jobs from 2011 through 2019. Gas major measures include furnace replacement, water heater replacement, insulation, and blower door guided air sealing. The table shows an increase in the percent with major measures from 16 percent in 2018 to 22 percent in 2019.

Table III-7K
2011-2019 Number of Major Measures Installed
Gas Heating Jobs

# Maj. Meas.	Gas Heating Jobs								
	2011	2012	2013	2014	2015	2016	2017	2018	2019
Obs.	1,211	833	1,170	845	552	577	728	667	698
0	17%	27%	49%	49%	67%	68%	73%	84%	78%
1	28%	29%	25%	23%	18%	17%	15%	10%	11%
2+	54%	44%	26%	28%	15%	15%	12%	6%	11%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%

C. Home Characteristics

CMC collects detailed information on customers who receive LIURP services, which allows for an in-depth analysis of the homes treated by the Program. We first examine the weather-normalized pre-treatment usage of customers who received LIURP treatments. Table III-8 shows that customers who received baseload services had average usage of 10,399 kWh, electric heating customers had average usage of 18,909 kWh, and gas heating customers had average gas usage of 1,025 ccf.

Table III-8
Pre-Treatment Weather Normalized Usage

Job Type	Number of Jobs	Jobs with Usage Data	Average Electric Usage (kWh)	Average Gas Usage (ccf)
Baseload	5,823	4,773	10,399	694 ¹
Electric Heating	628	378	18,909	881 ²
Gas Heating	1,347	698	8,630 ³	1,025
Total Excluding Those Without LIURP Measures	7,798	5,849	10,750	1,000
No LIURP Measures	260	237	10,794 ⁴	854 ⁵
Total Including Those Without LIURP Measures	8,058	6,086	10,751	999

¹There are only 38 baseload jobs with gas usage. ²There are only 49 electric heating jobs with gas usage. ³There are only 666 gas heating jobs with electric usage. ⁴There are only 236 no LIURP measures jobs with electric usage. ⁵There are only five education-only jobs which have gas usage.

Table III-9 displays the primary heating source for LIURP jobs by job type and overall. Approximately 87 percent of all homes served had utility gas as their primary heating source. Five percent used fuel oil and eight percent had electric heat. Baseload jobs were distributed similarly, though only two percent had electric heat.

**Table III-9
Primary Heating Source**

Primary Heating Source	Baseload		Electric Heat		Gas Heat		All Jobs	
	# of Jobs	% of Jobs	# of Jobs	% of Jobs	# of Jobs	% of Jobs	# of Jobs	% of Jobs
Gas	5,505	91%	135	21%	1,352	> 99%	6,992	87%
Fuel Oil	402	7%	9	1%	0	0%	411	5%
Electric	128	2%	490	77%	3	< 1%	621	8%
Other	28	< 1%	2	< 1%	1	< 1%	31	< 1%
TOTAL	6,063*	100%	636	100%	1,356	100%	8,055	100%

*Three baseload jobs were missing primary heating source information.

Table III-10 describes the use of supplemental heating by job type. Overall, 27 percent of the customers who were treated by LIURP used supplemental heat, virtually all of whom used electric supplemental heat. Twenty-five percent of the customers who had baseload services used electric supplemental heat.

**Table III-10
Supplemental Heating**

Supp. Heating Source	Baseload		Electric Heat		Gas Heat		All Jobs	
	# of Jobs	% of Jobs	# of Jobs	% of Jobs	# of Jobs	% of Jobs	# of Jobs	% of Jobs
None Used	4,530	75%	415	65%	957	71%	5,902	73%
Electric	1,518	25%	196	31%	343	25%	2,057	26%
Other	18	< 1%	25	4%	56	4%	99	1%
TOTAL	6,066	100%	636	100%	1,356	100%	8,058	100%

Table III-11 displays the type of air conditioning that LIURP recipients used. The most common type, with 66 percent, was a window unit. Nineteen percent had central air conditioning.

**Table III-11
Air Conditioning**

Air Conditioning	Number of Jobs	% of Jobs
Window Unit	5,278	66%
Central	1,534	19%
Wall Unit	479	6%
Central Heat Pump	187	2%
Portable Unit	170	2%
None Used	410	5%
TOTAL	8,058	100%

Table III-12 shows the home ownership characteristics of LIURP recipients. This table shows that 12 percent of the LIURP recipients were renters. Renters are not eligible for refrigerator replacement, air conditioner replacement, or furnace replacement.

**Table III-12
Home Ownership**

	Number of Jobs	% of Jobs
Own	7,069	88%
Rent	989	12%
TOTAL	8,058	100%

Homes treated by LIURP were fairly old. The average age of homes treated was 83 years, and 73 percent were more than 75 years old.

**Table III-13
Home Age**

	Number of Jobs	% of Jobs
≤ 25 Years	188	2%
26 – 50 Years	422	5%
51 – 75 Years	1,564	19%
76 Years or Older	5,881	73%
TOTAL	8,055*	100%
Mean	83	

*Three jobs were missing home age information.

Table III-14A displays the dwelling type for the homes served under LIURP. The most common type was a row home, with 84 percent of homes served. Eleven percent lived in other types of single-family homes, and three percent lived in multi-family homes.

**Table III-14A
Dwelling Type**

	Number of Jobs	% of Jobs
Row	6,786	84%
Other Single Family	854	11%
Multi	253	3%
Duplex	73	1%
Mobile	78	1%
Other	11	< 1%
TOTAL	8,055*	100%

*Three jobs were missing dwelling type information.

Table III-14B displays the housing structure type for the homes served under LIURP. The most common type was wood with a full basement and an open joist attic.

**Table III-14B
Type of Housing Structure**

	Number of Jobs	% of Jobs
Wood, full basement, open joist attic	6,902	86%
Wood, slab foundation, open joist attic	260	3%
Wood, crawl space, open joist attic	258	3%
Wood, full basement, knee wall attic	101	1%
Wood, combination crawl space/basement, open joist attic	95	1%
Mobile home, post foundation	29	< 1%
Other	413	5%
TOTAL	8,058	100%

Table III-15 describes the heated square footage of the homes treated by LIURP. Homes averaged 1,273 square feet. Forty-two percent of the homes were greater than 1,200 square feet.

**Table III-15
Heated Square Footage**

	Number of Jobs	% of Jobs
≤ 800	448	6%
801 - 1,000	1,132	14%
1,001 - 1,200	3,076	38%
1,201 or More	3,399	42%
TOTAL	8,055*	100%
Mean	1,273	

*Three jobs were missing heated square footage information.

D. Participant Characteristics

The Program also captures detailed information on the characteristics of participating households. Table III-16 shows that 78 percent of the households were female-headed, 37 percent contained at least one child, and 41 percent contained at least one elderly member.

**Table III-16
Household Composition**

	Number of Jobs*	% of Jobs
Female Household Head	6,244	78%
Male Household Head	1,810	22%
Child in Household (<18)	2,989	37%
Elderly in Household (>62)	3,313	41%

*Four customers were missing information about gender. Three customers were missing information about children and elderly in the household.

Table III-17 shows that the mean annual household income level was \$11,844. Approximately 47 percent of the households served had annual income at or below \$10,000. Only 12 percent had gross annual income above \$20,000.

**Table III-17
Annual Income**

	Number of Jobs	% of Jobs
≤ \$5,000	1,118	14%
\$5,001 - \$10,000	2,693	33%
\$10,001 - \$15,000	2,294	28%
\$15,001 - \$20,000	1,009	13%
\$20,001 or More	941	12%

	Number of Jobs	% of Jobs
TOTAL	8,055*	100%
Mean	\$11,844	

*Three customers were missing income information.

Table III-18 displays the household poverty level. Approximately 30 percent of the households had income below 50 percent of the Federal Poverty Level (FPL) and approximately three percent had income above 150 percent of the FPL.

**Table III-18
Poverty Level**

	Number of Jobs	% of Jobs
≤ 25%	1,136	14%
26% - 50%	1,314	16%
51% - 100%	4,003	50%
101% - 150%	1,363	17%
151% - 175%	162	2%
>175%	77	1%
TOTAL	8,055*	100%
Mean	69%	

*Three customers were missing income information.

Table III-19 describes the account type of households who participated in the Program. Approximately 85 percent were CAP participants and four percent were Customer Choice participants.

**Table III-19
Account Type**

	Number of Jobs	% of Jobs
CAP	6,862	85%
Customer Choice	342	4%

Table III-20 displays the education level of the head of household. The majority of participants, 72 percent, had a high school education. Six percent had some high school, nine percent had some college, and nine percent had a college degree.

**Table III-20
Education Level**

	Number of Jobs	% of Jobs
No Formal Education	134	2%
Some Grade School	78	1%
Grade School	30	< 1%
Some High School	458	6%
High School	5,786	72%
Some College	704	9%
College Degree	760	9%
Some Graduate Work	9	< 1%
Graduate Degree	92	1%
TOTAL	8,051	100%

*Seven customers were missing education level information.

Table III-21 displays the primary income source for the LIURP participants. The table shows that the most common sources of income were public assistance, pension or retirement, and work. Forty percent had public assistance as their primary source of income, 20 percent had a pension and/or retirement, 12 percent had full-time work, 11 percent had part-time work, and eight percent were dependent on another.

**Table III-21
Income Source**

	Number of Jobs	% of Jobs
Public Assistance	3,218	40%
Pension/Retirement	1,639	20%
Full Time	956	12%
Part-Time Work	872	11%
Dependent on Another	671	8%
Self-Employment	79	1%
Seasonal Employment	16	< 1%
Other	604	8%
TOTAL	8,055*	100%

*Three customers were missing income source information.

IV. Usage Impacts

This section of the report provides analysis of the impacts of LIURP on participants' annual electric and gas usage. The section describes the methodology for the analysis, the results for all participants by job type, and the results by type of service. We then provide estimates of the impacts of individual measures and the cost-effectiveness of LIURP.

A. Methodology

Customers who received LIURP services in 2019 were treated as the analysis group for this evaluation. We focus on the electric impacts for customers who were treated as electric baseload and electric heating jobs, and the gas impacts for customers who were treated as gas heating jobs.

Energy usage was analyzed for the year prior to the LIURP audit visit and the year after service delivery was completed. The analysis included as close to a full year of data pre- and post-treatment as possible. Table IV-1 displays the attrition statistics for the usage analysis. Customers were included in the analysis if their pre- and post-usage data each spanned between 270 and 390 days. Some additional customers were removed from the analysis if their usage was below 1,200 kWh or 300 ccf, or if their change in usage was greater than 65 percent. After these eliminations, we included 52 to 91 percent of the treated population in the usage analysis, other than education only. Only 15 natural gas customers received energy education only, and only one third of these had enough data to be included in the analysis.

**Table IV-1A
Usage Impact Data Attrition**

	Electric Baseload	Electric Heating	Gas Heating	Education Only (kWh)	Education Only (ccf)
Original Population*	5,820	627	1,347	260	15
Not Enough Pre-Treatment Days	789	207	536	9	2
Not Enough Post-Treatment Days	140	28	49	8	0
All Estimated Reads in Pre or Post	1	0	2	0	1
Pre-Usage Below 1200 kWh or 300 ccf	1	0	21	1	2
Post-Usage Below 1200 kWh or 300 ccf	0	0	14	0	0
Change in Total Usage > 65%	110	9	25	5	1
Additional Outliers	6	5	2	1	4
Final Sample	4,773	378	698	236	5
% Included in Analysis	82%	60%	52%	91%	33%

*As Program data did not furnish rate types (electric or gas), only the customers with usage data were included in the number of original population for Education Only groups.

Table IV-1B displays the attrition for the comparison group of 2020 participants. These customers had 74 to 92 percent included in the analysis.

**Table IV-1B
Comparison Group Data Attrition**

	Electric Baseload	Electric Heating	Gas Heating
Original Population*	2,283	227	71
Not Enough Pre-Treatment Days	285	40	2
Not Enough Post-Treatment Days	46	3	3
All Estimated Reads in Pre or Post	0	0	0
Pre-Usage Below 1200 kWh or 300 ccf	0	0	0
Post-Usage Below 1200 kWh or 300 ccf	0	0	0
Change in Total Usage>65%	48	7	1
Additional Outliers	47	10	0
Final Sample	1,857	167	65
% Included in Analysis	81%	74%	92%

Energy usage data were weather normalized in the pre- and the post-usage period to ensure that changes in energy usage were due to changes in usage patterns, rather than due to changes in weather. We used a degree-day normalization process to conduct this analysis. This process involved the following steps.

1. Calculate the heating and cooling degree-days that are included in each usage period.
2. Determine whether periods should be classified as baseload periods, heating periods, or cooling periods, based on the number of usage and heating and cooling degree-days in the period.
3. Calculate the total baseload period usage, heating period usage, and cooling period usage.
4. Calculate the relationship between heating usage minus baseload usage and degree- days. Use that slope and the average long-term heating degree-days to calculate normalized heating period usage.
5. Follow the same method to calculate normalized cooling period usage.
6. Add up the baseload usage, heating period usage, and cooling period usage to obtain the normalized annual usage.

For comparison, we also produced weather normalized results using PRISM analysis. We discuss differences between the degree day and PRISM results in the following section. The degree-day approach allowed for a higher percentage of cases to be included, due to fewer

restrictions on data availability and the fact that cases did not need to be removed because the model did not run or the model had a poor fit.

While the PUC does not require that baseload usage is normalized, we conducted the normalization process on the baseload usage as well as the heating and cooling usage. Baseload usage may vary with weather because of the use of air conditioning, the gas furnace’s electric fan, the refrigerator, and use of electric space heaters.

B. Energy Savings Impacts

This section of the report provides the average weather-normalized usage for the pre- and post-treatment periods and the average energy savings. Table IV-2A displays these results by job type.

The table shows the following degree-day normalized savings.

- Baseload jobs had average annual savings of approximately 640 kWh, or 6.2 percent of pre-treatment usage.
- Electric heat jobs had average annual savings of approximately 981 kWh, or 5.2 percent of pre-treatment usage.
- Gas heat jobs had savings of 51 ccf, or 4.9 percent of pre-treatment usage. Gas heat jobs also had electric savings of 506 kWh, or 5.9 percent of pre-treatment usage.
- Education only jobs had average savings of 570 kWh, or 5.3 percent of pre-treatment usage.

**Table IV-2A
Average Annual Usage and Savings**

	#	Total Savings				LIURP Savings		Act 129 Savings	
		Usage		Annual Savings	% Savings	Annual Savings	% Savings	Annual Savings	% Savings
		Pre	Post						
Electric Baseload (kWh)									
Non-Normalized	4,773	10,323	9,571	752***	7.3%	635	6.1%	117	1.1%
Degree Day Normalized	4,773	10,399	9,760	640***	6.2%	523	5.1%	117	1.1%
Degree Day-PRISM cases	4,643	10,397	9,733	664***	6.4%	547	5.3%	117	1.1%
PRISM Normalized	4,643	10,331	9,855	476***	4.6%	359	3.5%	117	1.1%
Electric Heat (kWh)									
Non-Normalized	378	19,319	17,346	1,973***	10.2%	1,853	9.6%	120	0.6%
Degree Day Normalized	378	18,909	17,928	981***	5.2%	861	4.6%	120	0.6%
Degree Day-PRISM cases	370	18,925	17,908	1,017***	5.4%	897	4.7%	120	0.6%

	#	Total Savings				LIURP Savings		Act 129 Savings	
		Usage		Annual Savings	% Savings	Annual Savings	% Savings	Annual Savings	% Savings
		Pre	Post						
PRISM Normalized	370	18,588	18,161	427**	2.3%	307	1.7%	120	0.6%
Gas Heat (ccf)									
Non-Normalized	698	1,020	907	112***	11.0%	112	11.0%	-	-
Degree Day Normalized	698	1,025	975	51***	4.9%	51	4.9%	-	-
Degree Day-PRISM cases	692	1,026	974	52***	5.0%	52	5.0%	-	-
PRISM Normalized	692	1,011	976	35***	3.4%	35	3.4%	-	-
Gas Heat (kWh)									
Non-Normalized	666	8,649	8,021	628***	7.3%	483	5.6%	145	1.7%
Degree Day Normalized	666	8,630	8,124	506***	5.9%	361	4.2%	145	1.7%
Degree Day-PRISM cases	648	8,644	8,131	514***	5.9%	369	4.3%	145	1.7%
PRISM Normalized	648	8,649	8,256	393***	4.5%	248	2.9%	145	1.7%
Education Only (kWh)									
Non-Normalized	236	10,657	10,012	645***	6.1%	645	6.1%	-	-
Degree Day Normalized	236	10,794	10,224	570***	5.3%	570	5.3%	-	-
Degree Day-PRISM cases	228	10,811	10,198	613***	5.7%	613	5.7%	-	-
PRISM Normalized	228	10,740	10,302	438***	4.1%	438	4.1%	-	-
Education Only (ccf)									
Non-Normalized	5	833	800	33	4.0%	33	4.0%	-	-
Degree Day Normalized	5	854	855	- <1	-0.1%	- <1	-0.1%	-	-
PRISM Normalized	5	861	875	-14	-1.6%	-14	-1.6%	-	-

Note: All Education Only (ccf) accounts survived PRISM attrition, so the results for "Degree Day-PRISM cases" are the same as the results listed in the Degree Day Normalized rows.

***Denotes significance at the 99 percent level. **Denotes significance at the 95 percent level.

The COVID-19 Pandemic beginning in mid-March 2020 resulted in many households spending more time at home because they were working at home or were unemployed, which resulted in higher energy usage. We also found that the PRISM savings estimate was not as reliable during the pandemic because of these changes in energy usage. Table IV-2B compare results for LIURP participants whose post-LIURP analysis period ended before the end of March 2020, and those that ended after March 2020. The results for these two groups were very different.

- Electric Baseload: Jobs that had analysis periods prior to the pandemic had higher savings and the PRISM results were more aligned with the degree day analysis. While jobs that were not impacted by the pandemic saved an average of 942 kwh or 8.6 percent of pre-treatment usage, jobs that were impacted saved an average of 533 kWh or 5.2 percent of pre-treatment usage.

- Electric Heating: While jobs that were not impacted by the pandemic saved an average of 1,979 kwh or 10.9 percent of pre-treatment usage, jobs that were impacted saved an average of 869 kWh or 4.6 percent of pre-treatment usage.
- Gas Heating: Gas heating jobs had the opposite impact on natural gas usage. Jobs with analysis periods during the pandemic had higher savings. While jobs that were not impacted by the pandemic saved an average of 27 ccf or 3.1 percent of pre-treatment usage, jobs that were impacted saved an average of 66 ccf or 6.0 percent of pre-treatment usage. One reason for the difference is that the jobs that were impacted by the pandemic had 24 percent higher pre-treatment usage, and higher pre-treatment usage leads to higher savings. Another reason for this difference is likely due to the additional heat created in the home by use of lighting and appliances when customers were at home, and reduced the heat needed to get the home to the desired temperature.
- Gas Heating – Electric Usage: While jobs that were not impacted by the pandemic saved an average of 579 kwh or 7.1 percent of pre-treatment usage, jobs that were impacted saved an average of 454 kWh or 5.1 percent of pre-treatment usage.
- Education Only – Electric Usage: While jobs that were not impacted by the pandemic saved an average of 775 kwh or 6.8 percent of pre-treatment usage, jobs that were impacted saved an average of 454 kWh or 4.3 percent of pre-treatment usage.

Table IV-3B
Average Annual Usage and Savings
By Time of Treatment

	Pre-COVID End Date					Post-COVID End Date				
	#	Usage		Annual Savings	% Savings	#	Usage		Annual Savings	% Savings
		Pre	Post				Pre	Post		
Electric Baseload (kWh)	Pre-COVID End Date					Post-COVID End Date				
Non-Normalized	1,251	10,740	9,766	974***	9.1%	3,522	10,175	9,502	674***	6.6%
Degree Day Normalized	1,251	10,903	9,961	942***	8.6%	3,522	10,220	9,688	533***	5.2%
Degree Day-PRISM cases	1,213	10,913	9,957	956***	8.8%	3,430	10,214	9,653	561***	5.5%
PRISM Normalized	1,213	11,061	10,053	1,008***	9.1%	3,430	10,073	9,784	288***	2.9%
Electric Heat (kWh)	Pre-COVID End Date					Post-COVID End Date				
Non-Normalized	38	16,858	14,873	1,985***	11.8%	340	19,594	17,622	1,972***	10.1%
Degree Day Normalized	38	18,091	16,113	1,979***	10.9%	340	19,000	18,131	869***	4.6%
Degree Day-PRISM cases	38	18,091	16,113	1,979***	10.9%	332	19,020	18,114	907***	4.8%
PRISM Normalized	38	17,965	16,477	1,488**	8.3%	332	18,659	18,354	305	1.6%
Gas Heat (ccf)	Pre-COVID End Date					Post-COVID End Date				
Non-Normalized	282	782	753	29***	3.7%	416	1,181	1,012	169***	14.3%
Degree Day Normalized	282	895	868	27***	3.1%	416	1,114	1,048	66***	6.0%

	Pre-COVID End Date					Post-COVID End Date				
	#	Usage		Annual Savings	% Savings	#	Usage		Annual Savings	% Savings
		Pre	Post				Pre	Post		
Degree Day-PRISM cases	279	893	867	26 ^{***}	2.9%	413	1,115	1,047	69 ^{***}	6.2%
PRISM Normalized	279	887	869	18 ^{**}	2.0%	413	1,094	1,048	46 ^{***}	4.2%
Gas Heat (kWh)	Pre-COVID End Date					Post-COVID End Date				
Non-Normalized	277	8,155	7,505	649 ^{***}	8.0%	389	9,001	8,388	613 ^{***}	6.8%
Degree Day Normalized	277	8,151	7,572	579 ^{***}	7.1%	389	8,971	8,516	454 ^{***}	5.1%
Degree Day-PRISM cases	272	8,214	7,688	527 ^{***}	6.4%	376	8,999	8,532	467 ^{***}	5.2%
PRISM Normalized	272	8,154	7,575	578 ^{***}	7.1%	376	8,963	8,666	296 ^{***}	3.3%
Education Only (kWh)	Pre-COVID End Date					Post-COVID End Date				
Non-Normalized	85	11,033	10,298	734 ^{***}	6.7%	151	10,445	9,851	594 ^{***}	5.7%
Degree Day Normalized	85	11,339	10,564	775 ^{***}	6.8%	151	10,487	10,033	454 ^{**}	4.3%
Degree Day-PRISM cases	84	11,284	10,608	676 ^{***}	6.0%	144	10,536	9,960	576 ^{***}	5.5%
PRISM Normalized	84	11,368	10,722	645 ^{**}	5.7%	144	10,373	10,057	316 [*]	3.1%

^{***}Denotes significance at the 99 percent level. ^{**}Denotes significance at the 95 percent level. ^{*}Denotes significance at the 90 percent level.

Table IV-2C uses the comparison group of later program participants to control for the impact of COVID-19 and other factors exogenous to LIURP that may have impacted usage. As expected, the comparison group adjusted electric baseload and electric heating savings are greater than the treatment group savings because customers who were not treated by the program had an increase in their electric usage. While these savings were higher than the treatment group overall, they were not as high as the savings only for those customers who were not impacted by the pandemic (shown in the above table). As discussed above, the comparison group of untreated household had some gas savings due to the increased heat output from the increased electric use in the home. This results in lower net savings for gas when making the comparison group adjustment.

Table IV-4C
Average Annual Usage and Savings
With Comparison Group

	Treatment Group Savings					Comparison Group Savings					Net Savings	
	#	Usage		Annual Savings		#	Usage		Annual Savings			
		Pre	Post	kWh/ccf	%		Pre	Post	kWh/ccf	%	kWh/ccf	%
Elec BL (kWh)	4,773	10,399	9,760	640 ^{***}	6.2%	1,857	11,148	11,325	-177 ^{***}	-1.6%	817 ^{***}	7.9%
Elec Heat (kWh)	378	18,909	17,928	981 ^{***}	5.2%	167	19,452	19,920	-468 [*]	-2.4%	1,449 ^{***}	7.7%
Gas Heat (ccf)	698	1,025	975	51 ^{***}	4.9%	65	1,368	1,361	7	0.5%	43 ^{**}	4.2%
Gas Heat (kWh)	666	8,630	8,124	506 ^{***}	5.9%	62	9,162	9,031	131	1.4%	375	4.3%

^{***}Denotes significance at the 99 percent level. ^{**}Denotes significance at the 95 percent level. ^{*}Denotes significance at the 90 percent level.

Table IV-2D displays average heating and cooling degree days in the pre- and post-treatment usage periods for the 2019 LIURP participants, compared to the 20-year average that was used in the normalization process. The table shows that the post-treatment heating degree days were five to six percent lower than the pre-treatment heating degree days for the electric and education only jobs. However, there was an increase in the cooling degree days. The warmer winter in the post-treatment year resulted in reduced heating usage after LIURP services, and a non-normalized saving estimate that overestimated the savings from LIURP. This led to a weather-normalization adjustment to savings for the heating jobs.

Table IV-2D
Average Heating and Cooling Degree Days
Relative to 20-year Average

Job Type	#	Pre-CDD	Post-CDD	CDD Difference		Pre-HDD	Post-HDD	HDD Difference	
				#	%			#	%
Electric Baseload	4,773	802	824	21***	3%	4,032	3,803	-229***	-6%
Electric Heat	378	699	802	103***	15%	4,099	3,905	-194***	-5%
Gas Heat	698	804	846	43***	5%	3,720	3,752	32	1%
Education Only (kWh)	236	816	817	1	<1%	4,042	3,805	-237***	-6%
Education Only (ccf)	5	857	825	-31	-4%	3,654	3,587	-67	-2%
20-Year Average (2001-2020)		830				4,384			

***Denotes significance at the 99 percent level. **Denotes significance at the 95 percent level. *Denotes significance at the 90 percent level.

Another important factor in estimating energy savings is the degree to which the final analysis group, with enough usage data to include in the results, is comparable to the full population of treated households. The previous section showed that the customers in the analysis group were less likely to have major measures installed than the overall treatment group. This can bias the savings results downward.

While a later section in the report provides a detailed analysis of savings by several population subgroups, this section includes an analysis of how differential attrition provides a downward bias to the savings estimates. This should be taken into account when assessing the overall savings results.

Table IV-2E shows that electric baseload customers with major measures are underrepresented in the analysis group. While 24 percent of all electric baseload jobs had a major measure, only 13 percent of the electric baseload analysis group had a major measure. When accounting for this difference, the savings estimate increases from 640 kWh or 6.1 percent to 688 kWh or 6.5 percent. We adjusted the net savings that factored in the comparison group change by the same percentage to develop a comparison group adjusted, weighted savings estimate of 878 kWh or 8.4 percent of pre-treatment usage. This is our best estimate of savings for the electric baseload jobs.

Table IV-2E
Electric Baseload Savings
By Level of Service

Savings Estimate	Measure Type	All Customers		Analysis Group		Savings		Unweighted Savings		Weighted Savings	
		#	%	#	%	kWh	%	kWh	%	kWh	%
Gross Savings	Basic	4,444	76%	4,135	87%	581***	5.6%	640	6.1%	688	6.5%
	Major	1,379	24%	638	13%	1,025***	9.5%				
Net Savings								817***	7.9%	878	8.4%

***Denotes significance at the 99 percent level.

Table IV-2F shows that electric heating customers with major measures are underrepresented in the analysis group. While 25 percent of all electric heating jobs had one major measure and 25 percent had two or more major measures, only 20 percent of the electric heating analysis group had one major measure and only 13 percent had two or more major measures. When accounting for this difference, the savings estimate increases from 980 kWh or 5.1 percent to 1,187 kWh or 6.0 percent.

We adjusted the net savings that factored in the comparison group change by the same percentage to develop a comparison group adjusted, weighted savings estimate of 1,755 kWh or 9.3 percent of pre-treatment usage. This is our best estimate of savings for the electric heating jobs.

Table IV-2F
Electric Heating Customers Savings
By Number of Major Measures

Savings Estimate	Number of Major Measures	All Customers		Analysis Group		Savings		Unweighted Savings		Weighted Savings	
		#	%	#	%	kWh	%	kWh	%	kWh	%
Gross Savings	0	320	51%	250	66%	691***	3.8%	980	5.1%	1,187	6.0%
	1	154	25%	77	20%	1,063**	5.2%				
	2 or More	154	25%	51	13%	2,275***	11.1%				
Net Savings								1,449***	7.7%	1,755	9.3%

***Denotes significance at the 99 percent level. **Denotes significance at the 95 percent level.

Table IV-2G shows that gas heating customers with major measures are underrepresented in the analysis group. While 16 percent of all gas heating jobs had one major measure and 16 percent had two or more major measures, only 11 percent of the gas heating analysis group had one major measure and only 11 percent had two or more major measures. Accounting for this change increases the savings estimate from 50 ccf or 4.8 percent to 61 ccf or 5.7 percent.

We adjusted the net savings that factored in the comparison group change by the same percentage to develop a comparison group adjusted, weighted savings estimate of 52 ccf or 5.1 percent of pre-treatment usage. This is our best estimate of savings for the gas heating jobs.

**Table IV-2G
Gas Heating Customers Savings
By Number of Major Measures**

Savings Estimate	Number of Major Measures	All Customers		Analysis Group		Savings		Unweighted Savings		Weighted Savings	
		#	%	#	%	ccf	%	ccf	%	ccf	%
Gross Savings	0	907	67%	546	78%	28***	2.8%	50	4.8%	61	5.7%
	1	219	16%	76	11%	103***	8.6%				
	2 or More	221	16%	76	11%	158***	15.5%				
Net Savings								43**	4.2%	52	5.1%

The rest of the report focuses on the degree day normalized savings. Tables IV-3A, 3B, and 3C provide the historical comparison of energy savings by job type.

Table IV-3A displays historical savings of electric baseload jobs. The table shows that the 2019 jobs had savings that were lower than the 1999-2018 average savings. Savings were 6.2 percent in 2019 compared to the historical average of 8.3 percent (not accounting for the comparison group change). The 2019 jobs had pre-treatment usage that was about the same as the historical average but spending that was 39 percent lower than the historical average.

**Table IV-3A
Time-Series Comparison of Annual Usage and Savings
Electric Baseload Jobs**

	Pre-Use	Post-Use	Savings	Percent Savings	Wx Cost
2019	10,399	9,760	640	6.2%	\$128
1999-2018 Average	10,557	9,687	870	8.3%	\$209
2018	10,010	9,336	674	6.7%	\$223
2017	10,508	9,888	620	5.9%	\$184
2016	10,557	9,885	673	6.4%	\$213
2015	10,035	9,226	809	8.1%	\$173
2014	9,969	9,120	849	8.5%	\$161
2013	10,707	9,877	830	7.7%	\$182
2012	11,461	10,911	550	4.8%	\$161
2011	10,758	10,148	610	5.7%	\$258

	Pre-Use	Post-Use	Savings	Percent Savings	Wx Cost
2010	11,370	10,147	1,223	10.8%	\$201
2009	12,144	11,090	1,054	8.7%	\$186
2008	10,990	10,276	714	6.5%	\$191
2007	10,919	10,032	887	8.1%	\$240
2006	10,695	9,953	742	6.9%	\$214
2005	11,188	10,073	1,115	10.0%	\$208
2004	9,309	8,384	925	9.9%	\$215
2003	10,040	8,679	1,361	13.6%	\$214
2002	10,591	9,687	904	8.5%	\$192
2001	10,821	9,722	1,099	10.2%	\$296
2000	9,741	8,843	898	9.2%	\$268
1999	9,324	8,460	864	9.3%	\$206

Table IV-3B displays historical savings of electric heating jobs. The table shows that the 2019 jobs had savings that were lower than the 1999-2018 average. Savings were 5.2 percent in 2019 compared to the historical average of 7.4 percent (not accounting for the comparison group change). The electric heating pre-treatment usage was lower than in the past, averaging 18,909 kWh, compared to the historical average of 20,249 kWh. Additionally, the cost of measures was 28 percent lower than the historical average.

Table IV-3B
Time-Series Comparison of Annual Usage and Savings
Electric Heating Jobs

	Pre-Use	Post-Use	Savings	Percent Savings	Wx Cost
2019	18,909	17,928	981	5.2%	\$1,131
1999-2018 Average	20,249	18,727	1,521	7.4%	\$1,576
2018	16,041	15,064	977	6.1%	\$772
2017	15,920	15,152	767	4.8%	\$831
2016	17,180	16,182	998	5.8%	\$991
2015	14,760	13,653	1,106	7.5%	\$622
2014	16,263	15,150	1,113	6.8%	\$1,301
2013	21,350	19,416	1,934	9.1%	\$1,310
2012	20,700	19,465	1,235	6.0%	\$1,430
2011	19,402	17,899	1,503	7.7%	\$1,798
2010	19,662	18,534	1,128	5.7%	\$2,094
2009	23,179	21,493	1,686	7.3%	\$2,514
2008	20,786	18,614	2,172	10.4%	\$2,332

	Pre-Use	Post-Use	Savings	Percent Savings	Wx Cost
2007	21,017	19,888	1,129	5.4%	\$1,735
2006	21,890	20,458	1,433	6.5%	\$1,643
2005	21,956	20,326	1,629	7.4%	\$1,824
2004	23,449	21,148	2,301	9.8%	\$1,782
2003	22,510	20,220	2,290	10.2%	\$1,646
2002	22,745	21,441	1,304	5.7%	\$1,753
2001	22,825	20,469	2,356	10.3%	\$2,234
2000	21,368	19,724	1,644	7.7%	\$1,521
1999	21,970	20,251	1,719	7.8%	\$1,377

Table IV-3C displays historical savings of gas heating jobs. The 2019 gas heating jobs saved an average of 51 ccf, compared to average savings of 90 ccf from 1999-2018 (not accounting for the comparison group change). Pre-treatment usage in 2019 was about six percent lower than the historical average, and spending in 2019 was 22 percent lower than the historical average. However, the 2019 LIURP gas savings were higher than the savings in 2014 to 2018 and significantly more was spent in the average home.

Table IV-3C
Time-Series Comparison of Annual Usage and Savings
Gas Heating Jobs

	Pre-Use	Post-Use	Savings	Percent Savings	Wx Cost
2019	1,025	975	51	4.9%	\$1,233
1999-2017 Average	1,092	1,002	90	7.8%	\$1,582
2018	904	888	16	1.8%	\$666
2017	968	944	24	2.5%	\$912
2016	944	914	31	3.3%	\$918
2015	977	946	31	3.2%	\$934
2014	906	879	27	2.9%	\$1,117
2013	1,022	945	77	7.5%	\$1,086
2012	989	924	65	6.6%	\$1,820
2011	1,025	959	67	6.5%	\$2,410
2010	1,052	991	61	5.8%	\$2,253
2009	1,090	998	92	8.4%	\$2,100
2008	1,087	984	103	9.5%	\$2,016
2007	1,054	965	89	8.4%	\$1,914
2006	1,128	1,037	91	8.0%	\$1,640
2005	1,206	1,039	168	13.9%	\$1,643

	Pre-Use	Post-Use	Savings	Percent Savings	Wx Cost
2004	1,205	1,037	168	13.9%	\$1,789
2003	1,227	1,086	141	11.5%	\$1,422
2002	1,253	1,159	94	7.5%	\$1,488
2001	1,262	1,097	165	13.1%	\$2,003
2000	1,265	1,106	159	12.6%	\$1,763
1999	1,273	1,148	125	9.8%	\$1,741

Table IV-4 displays the seasonal analysis of energy savings by job type. The table shows that jobs achieved savings from baseload, heating, and cooling usage.

Table IV-4
Seasonal Usage Analysis

	#	Total Savings					LIURP Savings		Act 129 Savings	
		Usage		Annual Savings	% Savings	Share of Savings	Annual Savings	% Savings	Annual Savings	% Savings
		Pre	Post							
Electric Baseload (kWh)										
Baseload	4,773	6,126	5,784	343***	5.6%	53.5%	226	3.7%	117	1.9%
Heating		2,174	1,949	225***	10.4%	35.2%	225	10.4%	0	0.0%
Cooling		2,099	2,027	72***	3.4%	11.3%	72	3.4%	0	0.0%
Electric Heating (kWh)										
Baseload	378	8,280	8,050	230*	2.8%	23.5%	110	1.3%	120	1.5%
Heating		9,250	8,557	693***	7.5%	70.7%	693	7.5%	0	0.0%
Cooling		1,378	1,322	57	4.1%	5.8%	57	4.1%	0	0.0%
Gas Heat (ccf)										
Baseload	698	208	204	4	1.8%	7.3%	4	1.8%	-	-
Heating		818	771	47***	5.7%	92.7%	47	5.7%	-	-
Education Only (kWh)										
Baseload	236	6,272	6,033	239**	3.8%	41.9%	239	3.8%	-	-
Heating		2,364	2,148	216**	9.1%	37.9%	216	9.1%	-	-
Cooling		2,158	2,043	115**	5.3%	20.2%	115	5.3%	-	-

Energy efficiency program savings are often found to correlate with the level of pre-treatment usage. This is because households with higher pre-treatment usage have greater opportunities for energy savings and often receive greater energy efficiency investments. Table IV-5 shows that the 2019 savings were generally consistent with this expectation.

- Baseload jobs with pre-treatment usage over 12,000 kWh had savings of 8.5 percent, compared to savings of 5.3 percent for baseload jobs with pre-treatment usage between 8,000 and 12,000 kWh, and savings of 3.4 percent for baseload jobs with pre-treatment usage below 8,000 kWh.
- Electric heat jobs with pre-treatment usage over 26,000 kWh had average savings of 6.4 percent, while those jobs with pre-treatment usage between 16,000 and 26,000 kWh had savings of 5.8 percent, and jobs with usage below 16,000 kWh had savings of 2.6 percent.
- Gas heat jobs with pre-treatment usage over 1,400 ccf saved an average of 131 ccf or 7.7 percent, those with pre-treatment usage between 800 and 1,400 ccf saved an average of 4.7 percent, and those with pre-treatment usage below 800 ccf had average savings of 1.7 percent.

**Table IV-5
Change in Annual Usage
By Pre-Program Usage**

	#	Total Savings					LIURP Savings		Act 129 Savings	
		Usage		Annual Savings	% Savings	Measure Cost	Annual Savings	% Savings	Annual Savings	% Savings
		Pre	Post							
Electric Baseload (kWh)										
< 8,000 kWh	1,581	6,890	6,658	232***	3.4%	\$120	112	1.6%	120	1.7%
8,000 – 12,000 kWh	1,978	9,730	9,211	519***	5.3%	\$119	402	4.1%	117	1.2%
> 12,000 kWh	1,214	16,060	14,692	1,368***	8.5%	\$151	1,253	7.8%	115	0.7%
Electric Heat (kWh)										
< 16,000 kWh	154	11,658	11,355	303*	2.6%	\$784	183	1.6%	120	1.0%
16,000 – 26,000 kWh	156	20,240	19,063	1,177***	5.8%	\$1,373	1,048	5.2%	129	0.6%
> 26,000 kWh	68	32,274	30,209	2,065***	6.4%	\$1,364	1,967	6.1%	98	0.3%
Gas Heat¹ (ccf)										
< 800 ccf	237	616	606	11*	1.7%	\$645	11	1.7%	-	-
800 – 1,400 ccf	342	1,070	1,020	50***	4.7%	\$1,122	50	4.7%	-	-
> 1,400 ccf	119	1,713	1,582	131***	7.7%	\$1,994	131	7.7%	-	-

¹Measure costs for gas heat jobs exclude the costs for the measures targeted at reducing electric usage.

Table IV-6 displays usage impacts by job type and by whether the household participated in CAP in the pre- or post-treatment period. Electric heating savings were higher for the non-CAP participants, who had significantly higher pre-treatment usage and average measure cost than CAP participants. Education only savings were much higher for non-CAP participants, but this was only about nine percent of those in this group.

**Table IV-6
Change in Annual Usage
By CAP Participation**

	#	Total Savings					LIURP Savings		Act 129 Savings	
		Usage		Annual Savings	% Savings	Measure Cost	Annual Savings	% Savings	Annual Savings	% Savings
		Pre	Post							
Electric Baseload (kWh)										
CAP	4,229	10,323	9,676	646***	6.3%	\$122	528	5.1%	118	1.1%
Non-CAP	544	10,996	10,407	589***	5.4%	\$173	473	4.3%	116	1.1%
Electric Heat (kWh)										
CAP	322	18,664	17,854	811***	4.3%	\$1,048	690	3.7%	121	0.6%
Non-CAP	56	20,314	18,354	1,960***	9.6%	\$1,608	1,843	9.1%	117	0.6%
Gas Heat¹ (cf)										
CAP	524	1,005	958	47***	4.7%	\$987	47	4.7%	-	-
Non-CAP	174	1,086	1,024	61***	5.7%	\$1,478	61	5.7%	-	-
Education Only (kWh)										
CAP	214	10,780	10,281	498***	4.6%	--	498	4.6%	-	-
Non-CAP	22	10,934	9,670	1,264*	11.6%	--	1,264	11.6%	-	-

¹Measure costs for gas heat jobs exclude the costs for the measures targeted at reducing electric usage.

Table IV-7 displays the change in usage by whether the customer had selected an alternate supplier in the pre or post period. Only a small percentage of customers served by LIURP were Customer Choice. The gas heating Choice jobs had higher pre-treatment usage, much higher measure costs, and greater savings than the Non-Choice customers.

**Table IV-7
Change in Annual Usage
By Customer Choice**

	#	Total Savings					LIURP Savings		Act 129 Savings	
		Usage		Annual Savings	% Savings	Measure Cost	Annual Savings	% Savings	Annual Savings	% Savings
		Pre	Post							
Electric Baseload (kWh)										
Choice	142	10,951	10,178	773***	7.1%	\$167	663	6.1%	110	1.0%
Non-Choice	4,631	10,383	9,747	636***	6.1%	\$126	518	5.0%	118	1.1%
Electric Heat (kWh)										
Choice	12	22,058	20,109	1,949	8.8%	\$1,661	1,821	8.3%	128	0.6%
Non-Choice	366	18,805	17,856	949***	5.0%	\$1,114	829	4.4%	120	0.6%

	#	Total Savings					LIURP Savings		Act 129 Savings	
		Usage		Annual Savings	% Savings	Measure Cost	Annual Savings	% Savings	Annual Savings	% Savings
		Pre	Post							
Gas Heat¹ (ccf)										
Choice	51	1,141	1,035	107***	9.3%	\$2,049	107	9.3%	-	-
Non-Choice	647	1,016	970	46***	4.5%	\$1,035	46	4.5%	-	-
Education Only (kWh)										
Choice	7	12,011	11,002	1,010	8.4%	--	1,010	8.4%	-	-
Non-Choice	229	10,757	10,201	556***	5.2%	--	556	5.2%	-	-

¹Measure costs for gas heat jobs exclude the costs for the measures targeted at reducing electric usage.

Table IV-8 displays the change in usage by home ownership status. Baseload, electric heat, and education only job owners had higher savings than renters. Gas heat renters had higher savings than owners, even though they had much lower measure costs.

**Table IV-8
Change in Annual Usage
By Home Ownership**

	#	Total Savings					LIURP Savings		Act 129 Savings	
		Usage		Annual Savings	% Savings	Measure Cost	Annual Savings	% Savings	Annual Savings	% Savings
		Pre	Post							
Electric Baseload (kWh)										
Owner	4,355	10,426	9,769	657***	6.3%	\$135	538	5.2%	119	1.1%
Renter	418	10,125	9,663	462***	4.6%	\$52	362	3.6%	100	1.0%
Electric Heat (kWh)										
Owner	267	19,943	18,885	1,058***	5.3%	\$1,341	925	4.6%	133	0.7%
Renter	111	16,420	15,625	796***	4.8%	\$627	706	4.3%	90	0.5%
Gas Heat¹ (ccf)										
Owner	542	1,040	994	46***	4.4%	\$1,291	46	4.4%	-	-
Renter	156	974	908	66***	6.8%	\$478	66	6.8%	-	-
Education Only (kWh)										
Owner	213	10,848	10,245	603***	5.6%	--	603	5.6%	-	-
Renter	23	10,297	10,038	258	2.5%	--	258	2.5%	-	-

¹Measure costs for gas heat jobs exclude the costs for the measures targeted at reducing electric usage.

Table IV-9 displays energy savings by whether the customer used supplemental heat. Average savings for electric baseload customers with supplemental heat were 8.3 percent, compared to 5.3 percent for baseload jobs without supplemental heat. Electric savings for gas heating jobs

with supplemental heat were 8.0 percent compared to savings of 4.6 percent for those without supplemental heating. Education only electric savings were also greater for those with supplemental heat.

**Table IV-9
Change in Annual Usage
By Supplemental Heat**

	#	Total Savings					LIURP Savings		Act 129 Savings	
		Usage		Annual Savings	% Savings	Measure Cost	Annual Savings	% Savings	Annual Savings	% Savings
		Pre	Post							
Electric Baseload (kWh)										
Supplemental Heat	1,202	11,919	10,927	992***	8.3%	\$128	884	7.4%	108	0.9%
No Supp Heat	3,571	9,888	89,367	521***	5.3%	\$128	401	4.1%	120	1.2%
Electric Heat (kWh)										
Supplemental Heat	134	20,213	19,368	846***	4.2%	\$1,083	741	3.7%	105	0.5%
No Supp Heat	244	18,192	17,137	1,055***	5.8%	\$1,158	927	5.1%	128	0.7%
Gas Heat¹ (cf)										
Supplemental Heat	190	1,116	1,068	47***	4.2%	\$1,200	47	4.2%	-	-
No Supp Heat	508	992	940	52***	5.2%	\$1,075	52	5.2%	-	-
Gas Heat² (kWh)										
Supplemental Heat	184	11,288	10,382	906***	8.0%	\$1,227	734	6.5%	172	1.5%
No Supp Heat	482	7,615	7,261	353***	4.6%	\$989	226	3.0%	127	1.7%
Education Only (kWh)										
Supplemental Heat	30	12,538	11,428	1,111**	8.9%	--	1,111	8.9%	-	-
No Supp Heat	206	10,540	10,049	491***	4.7%	--	491	4.7%	-	-
Education Only (cf)										
Supplemental Heat	2	1,001	982	19	1.9%	--	19	1.9%	-	-
No Supp Heat	3	756	770	-14	-1.8%	--	-14	-1.8%	-	-

¹Measure costs for gas heat jobs exclude the costs for the measures targeted at reducing electric usage.

²Measure costs for gas heat (kWh) jobs exclude the costs for the measures targeted at reducing gas usage.

C. Measure Specific Savings

This section attributes savings to specific measures that were provided through LIURP. We begin by analyzing savings by whether major measures are provided. Major measures are defined as the following.

- **Baseload Jobs:** Major measures include refrigerator replacement, freezer replacement, air conditioner replacement, and water heater replacement.

- Electric Heat Jobs: Major measures include refrigerator replacement, freezer replacement, air conditioner replacement, water heater replacement, heat pumps, electric baseboards, insulation, and blower door guided air sealing.
- Gas Heat Jobs – Gas Measures: Major measures include furnace replacement, water heater replacement, insulation, and blower door guided air sealing.
- Gas Heat Jobs – Electric Measures: Major measures include refrigerator replacement, freezer replacement, and air conditioner replacement.

Homes that did not receive one of the major measures listed above were considered to have basic measures.

Table IV-10 displays energy savings by whether the job received one or more major measures.

- Baseload Jobs: Savings for baseload jobs with major measures averaged 9.5 percent, as compared to savings that averaged 5.6 percent for baseload jobs that did not receive major measures.
- Electric Heat Jobs: Savings for jobs that received major measures averaged 7.6 percent, compared to average savings of 3.8 percent for jobs that did not receive major measures. Spending on jobs that received major measures averaged \$2,740, compared to average spending of \$307 for jobs that did not receive major measures.
- Gas Heat Jobs – Gas Measures: Gas savings for jobs with major measures averaged 11.7 percent, compared to savings of 2.8 percent for jobs that did not receive major measures. Costs for gas jobs with major measures averaged \$3,870 compared to average costs of \$340 for jobs that did not receive major measures.
- Gas Heat Jobs – Electric Measures: Electric savings for gas heat jobs that received major electric measures were 11.9 percent compared to 4.6 percent for those who received only basic electric measures.

**Table IV-10
Change in Annual Usage
By Level of Service**

	#	Total Savings					LIURP Savings		Act 129 Savings	
		Usage		Annual Savings	% Savings	Measure Cost	Annual Savings	% Savings	Annual Savings	% Savings
		Pre	Post							
Electric Baseload (kWh)										
Basic	4,135	10,347	9,766	581***	5.6%	\$38	465	4.5%	116	1.1%
Major	638	10,742	9,718	1,025***	9.5%	\$708	896	8.3%	129	1.2%

	#	Total Savings					LIURP Savings		Act 129 Savings	
		Usage		Annual Savings	% Savings	Measure Cost	Annual Savings	% Savings	Annual Savings	% Savings
		Pre	Post							
Electric Heat (kWh)										
Basic	250	18,167	17,476	691***	3.8%	\$307	589	3.2%	102	0.6%
Major	128	20,357	18,811	1,546***	7.6%	\$2,740	1,390	6.8%	156	0.8%
Gas Heat¹ (ccf)										
Basic	546	1,001	973	28***	2.8%	\$340	28	2.8%	-	-
Major	152	1,113	982	131***	11.7%	\$3,870	131	11.7%	-	-
Gas Heat² (kWh)										
Basic	562	8,433	8,047	387***	4.6%	\$8	247	2.9%	140	1.7%
Major	104	9,690	8,540	1,150***	11.9%	\$744	978	10.1%	172	1.8%

¹Measure costs for gas heat (ccf) jobs exclude the costs for the measures targeted at reducing electric usage.

²Measure costs for gas heat (kWh) jobs exclude the costs for the measures targeted at reducing gas usage.

Table IV-11A displays savings for electric heat jobs by the number of major measures installed. The table shows that customers who received more major measures had higher pre-treatment usage and higher savings.

Table IV-11A
Change in Annual Electric Heat Usage (kWh)
By Number of Major Measures

Major Measures	#	Total Savings					LIURP Savings		Act 129 Savings	
		Usage		Annual Savings	% Savings	Measure Cost	Annual Savings	% Savings	Annual Savings	% Savings
		Pre	Post							
0	250	18,167	17,476	691***	3.8%	\$307	589	3.2%	102	0.6%
1	77	20,310	19,246	1,063**	5.2%	\$1,748	912	4.5%	151	0.7%
2 or More	51	20,429	18,154	2,275***	11.1%	\$4,238	2,113	10.3%	162	0.8%

Table IV-11B displays savings for gas heat jobs by the number of major measures installed. The table shows that customers who received two or more major measures did not have higher pre-treatment usage than the other groups, but had savings averaging 15.5 percent, compared to much lower savings for the other groups.

Table IV-11B
Change in Annual Gas Heat Usage (ccf)
By Number of Major Measures

Major Measures	#	Pre-Use	Post-Use	Savings	% Savings	Measure Cost ¹
0	546	1,001	973	28***	2.8%	\$340
1	76	1,203	1,100	103***	8.6%	\$3,453
2 or More	76	1,022	864	158***	15.5%	\$4,286

¹Measure costs for gas heat (ccf) jobs exclude the costs for the measures targeted at reducing electric usage.

Table IV-12 displays energy savings by whether or not participants received particular measures. Some of the key findings were as follows.

- *Air Conditioner*: Baseload customers who received an air conditioner had higher savings (7.1%) than those who did not (6.1%). Gas heating customers who received an air conditioner also had higher electric savings (10.5%) than those who did not (5.6%).
- *Refrigerator*: Baseload participants who received a refrigerator had higher savings (11.8%) than those who did not (5.7%). Gas heat customers who received a refrigerator had higher electric savings (14.6%) than those who did not (5.0%).
- *Blower Door Guided Air Sealing*: Gas heating customers who received blower door guided air sealing had savings of 12.1 percent compared to savings of 3.9 percent for those who did not. Electric heating customers who received blower door guided air sealing had higher savings (7.7%) than those who did not (4.9%).
- *Insulation*: Gas heating customers who received insulation had savings of 15.2 percent compared to savings of 3.6 percent for those who did not receive insulation. Electric heating customers who received insulation had higher savings (11.1%) than those who did not (4.5%).
- *Furnace*: Gas heating customers who received a new furnace had savings of 22.8 percent compared to 4.3 percent for those who did not.

**Table IV-12
Change in Annual Usage
By Major Measures**

	#	Total Savings					LIURP Savings		Act 129 Savings	
		Usage		Savings	% Savings	Total Measure Cost	Annual Savings	% Savings	Annual Savings	% Savings
		Pre	Post							
Electric Baseload (kWh)										
Air Conditioner	162	10,426	9,686	740***	7.1%	\$821	626	6.0%	114	1.1%
No Air Conditioner	4,611	10,399	9,762	636***	6.1%	\$103	518	5.0%	118	1.1%
Refrigerator	337	10,710	9,444	1,266***	11.8%	\$893	1,130	10.5%	136	1.3%
No Refrigerator	4,436	10,376	9,784	592***	5.7%	\$69	476	4.6%	116	1.1%
Air Conditioner/ Refrigerator	17	11,877	10,820	1,057	8.9%	\$1,542	883	7.4%	174	1.5%
Air Conditioner/ No Refrigerator	145	10,256	9,553	703***	6.9%	\$736	596	5.8%	107	1.0%
No Air Conditioner/ Refrigerator	320	10,648	9,371	1,277***	12.0%	\$859	1,143	10.7%	134	1.3%
No Air Conditioner/ No Refrigerator	4,291	10,380	9,791	589***	5.7%	\$47	473	4.6%	116	1.1%
Electric Heat (kWh)										
Refrigerator	41	20,703	19,375	1,328***	6.4%	\$2,075	1,073	5.2%	255	1.2%
No Refrigerator	337	18,690	17,752	939***	5.0%	\$1,016	835	4.5%	104	0.6%
Blower Door Test/Air Sealing	35	20,443	18,868	1,575*	7.7%	\$4,477	1,444	7.1%	131	0.6%
No Blower Door Test or No Air Sealing	343	18,752	17,832	920***	4.9%	\$790	801	4.3%	119	0.6%
Insulation	38	19,611	17,426	2,185***	11.1%	\$4,560	2,059	10.5%	126	0.6%
No Insulation	340	18,830	17,984	846***	4.5%	\$748	727	3.9%	119	0.6%
Gas Heat¹ (ccf)										
Blower Door Test and Air Sealing	89	979	861	119***	12.1%	\$3,371	119	12.1%	-	-
No Blower Door Test or No Air Sealing	609	1,032	992	41***	3.9%	\$778	41	3.9%	-	-
Insulation	80	1,002	849	152***	15.2%	\$3,878	152	15.2%	-	-
No Insulation	618	1,028	991	37***	3.6%	\$751	37	3.6%	-	-
Furnace	18	1,390	1,073	317***	22.8%	\$6,239	317	22.8%	-	-
No Furnace	680	1,016	972	44***	4.3%	\$973	44	4.3%	-	-
Gas Heat² (kWh)										
Refrigerator	55	9,726	8,304	1,423***	14.6%	\$885	1,244	12.8%	179	1.8%
No Refrigerator	611	8,531	8,107	424***	5.0%	\$54	282	3.3%	142	1.7%

	#	Total Savings					LIURP Savings		Act 129 Savings	
		Usage		Savings	% Savings	Total Measure Cost	Annual Savings	% Savings	Annual Savings	% Savings
		Pre	Post							
Air Conditioner	28	9,834	8,805	1,030***	10.5%	\$906	858	8.7%	172	1.7%
No Air Conditioner	638	8,577	8,094	483***	5.6%	\$88	340	4.0%	143	1.7%

¹Measure costs for gas heat (ccf) jobs exclude the costs for the measures targeted at reducing electric usage.

²Measure costs for gas heat (kWh) jobs exclude the costs for the measures targeted at reducing gas usage.

Table IV-13A displays measure-specific savings estimates. These savings were calculated by running a regression model that predicted savings based on the measures that were provided.

In 2019, savings averaged 534 kWh for customers who only received LEDs and no other measures. These customers received 10.9 bulbs on average. The resulting estimate of average LED savings was 49 kWh per LED. The costs for the LEDs were paid by the Act 129 Program. We estimated cost and cost-effectiveness using the audit/education costs. When using the entire education and audit cost, the cost per kWh saved over the lifetime of the bulbs was \$0.07.

A regression-based estimate of LED savings was also developed, as there was variation in the number of LEDs provided to Program participants. The regression-based estimate was ten kWh per bulb. This estimate is lower than the other estimate because it does not include the savings that accrue from education. We don't show costs for this measure because the LEDs are provided through Act 129.

The table also shows that refrigerators saved an average of 658 kWh per home. (Only a few refrigerators were funded through Act 129. The vast majority were funded through LIURP.) Insulation and blower door guided air sealing provided in electric heat homes was highly effective, saving an average of 1,137 kWh.

Table IV-13A
Measure Savings Estimates

	Savings	Cost/Home	\$/Unit Saved	Measure Life	\$/Unit Saved Over Lifetime
Electric Baseload (kWh)					
LED Only ¹	534 (±126)	\$295 ²	\$0.55	10	\$0.07
LED	10 (±8)	--	--	10	--
Refrigerator	658 (±247)	\$790	\$1.20	12	\$0.14
Freezer	319 (±314)	\$235	\$0.74	12	\$0.08
Gas Heat (ccf)					
Gas Furnace	257 (±76)	\$3,771	\$14.70	15	\$1.42
Boiler	116 (±62)	\$4,568	\$39.51	15	\$3.81

	Savings	Cost/Home	\$/Unit Saved	Measure Life	\$/Unit Saved Over Lifetime
Blower Door Air Sealing and Insulation	87 (±42)	\$2,221	\$25.60	15	\$2.47
Electric Heat (kWh)					
Blower Door Air Sealing and Insulation	1,137 (±1,315)	\$2,242	\$1.97	15	\$0.19
Heat Pump	2,035 (±1,959)	\$6,911	\$3.40	15	\$0.33

¹The average number of LEDs provided to these customers was 10.9, for an average savings of 49 kWh per LED.

²This is the cost for the audit and education of customers who only received LEDs. The cost for the LEDs is paid for by the Act 129 Program.

Table IV-13B displays the savings for jobs that received health and safety measures other than carbon monoxide detectors and smoke alarms and batteries. The table shows that these jobs had high pre-treatment usage and high energy savings, average 1,105 kWh for baseload jobs, 2,373 kWh for electric heating jobs (not statistically significant due to the small sample size), and 75 ccf for gas heating jobs.

Table IV-13B
Degree Day-Normalized Usage and Savings
Jobs with Health & Safety Measures

Job Type	#	Pre	Post	Savings	
				#	%
Electric Baseload (kWh)	97	11,820	10,715	1,105***	9.4%
Electric Heat (kWh)	7	20,790	18,416	2,373	11.4%
Gas Heat (ccf)	42	1,092	1,017	75**	6.9%

D. Cost Effectiveness

This section examines the cost-effectiveness of the Program services delivered by job type. Audit and administrative costs were assigned to electric and gas costs in the same proportion as the measure costs. Table IV-14 shows the measure costs, audit/education costs, and administrative costs by job type and electric and gas reduction. Cost per unit saved was calculated as the average total cost divided by the unit savings. The cost per kWh saved was \$0.77 for baseload jobs, \$1.51 for electric heat jobs, and \$0.32 for gas heat jobs. The cost per ccf saved was \$28.30 for gas heat jobs.

**Table IV-14
Cost per Unit Saved**

	#	Average Savings	Average Measure Cost	Average Audit/Education Cost	Average Admin Cost	Average Total Cost	Cost Per Unit Saved
Electric Baseload							
Electric (kWh)	4,773	640	\$125	\$294	\$74	\$495	\$0.77
Electric Heat							
Electric (kWh)	378	981	\$1,114	\$295	\$76	\$1,485	\$1.51
Gas Heat							
Electric (kWh)	666	506	\$123	\$29	\$8	\$160	\$0.32
Gas (ccf)	698	51	\$1,109	\$266	\$69	\$1,443	\$28.30

The previous analysis displayed the total job cost divided by the total savings as an indicator of how cost-effective the services were. Table IV-15 displays the discounted present value of the job savings under 5-year, 10-year and 15-year measure life assumptions. The costs per unit saved should be compared to retail rates to evaluate the cost-effectiveness of the Program at different measure lives.

The most reasonable assumption for electric baseload reduction is a ten-year measure life. The current cost per kWh of electricity is approximately \$.13 per kWh. This table shows that the electric baseload investments were cost-effective at current retail rates if the measures have a life of at least ten years.

Gas heat savings have a 15-year measure life. Under the 15-year measure life assumption, the cost per ccf saved is \$2.73, which is not cost-effective with current gas prices. The cost to save a ccf of gas would need to be lower than the price for a ccf for the program to be cost-effective. Since the current cost per ccf of gas is approximately \$.76 per ccf, the cost of services would need to be significantly lower or savings would need to be significantly greater for the program to be cost-effective. To increase cost-effectiveness, the program would need to reduce spending on gas heating measures and/or increase the savings that were obtained from the measures that were installed.

**Table IV-15
Cost Per Unit Saved
By Measure Life Assumption**

	#	Average Savings	Average Total Cost	Cost Per Unit Saved	5-Year Measure Life	10-Year Measure Life	15-Year Measure Life
Electric Baseload							
Electric (kWh)	4,773	640	\$495	\$0.77	\$0.18	\$0.10	\$0.07
Electric Heat							

	#	Average Savings	Average Total Cost	Cost Per Unit Saved	5-Year Measure Life	10-Year Measure Life	15-Year Measure Life
Electric (kWh)	378	981	\$1,485	\$1.51	\$0.35	\$0.20	\$0.15
Gas Heat							
Electric (kWh)	666	506	\$160	\$0.32	\$0.07	\$0.04	\$0.03
Gas (ccf)	698	51	\$1,443	\$28.30	\$6.54	\$3.67	\$2.73

V. Bill and Payment Impacts

This section of the report examines the bill and payment impacts for the 2019 LIURP participants. We review the methodology used in the analysis, and then analyze the billing and payment impacts.

A. Methodology

Billing and payment transactions data were used to analyze the pre- and post-treatment billing and payment statistics. Accounts were required to have between 300 and 390 days of transactions data in both the pre and post periods to be included in the analysis.

Table V-1 displays the data attrition statistics. Overall, sufficient data were available for 70 percent of Program participants. A lower percentage were available for the heating participants as many of these customers did not have sufficient data prior to the LIURP treatments.

Table V-1
Payment Impact Data Attrition

	Electric Baseload	Electric Heating	Gas Heating	Education Only	All Jobs
Original Population	5,819	626	1,347	260	8,052
Not Enough Pre-Treatment Days	1,048	302	729	15	2,094
Not Enough Post-Treatment Days	157	23	44	14	238
Data Outliers	83	12	7	8	110
Final Sample	4,531	289	567	223	5,610
% Included in Analysis	78%	46%	42%	86%	70%

B. Billing and Payment Impacts

Table V-2 displays the billing revenue data obtained from the usage file. These data show the changes in charges that were associated with electric and gas usage only. For example, charges related to service agreements or late payment charges would not be included in this table.

Table V-2 shows that electric revenue declined by an average of \$49 for baseload jobs and declined by \$128 for electric heat jobs. Gas revenue remained approximately the same.

**Table V-2
Billing Revenue**

	#	Pre	Post	Change	Percent Change
Electric Baseload					
Electric Revenue	4,531	\$802	\$753	-\$49***	-6.1%
Gas Revenue		\$5 ¹	\$5 ¹	<\$1	3.5%
Total Revenue		\$808	\$758	-\$49***	-6.1%
Electric Heat					
Electric Revenue	289	\$1,409	\$1,281	-\$128***	-9.1%
Gas Revenue		\$94	\$84	-\$9*	-10.0%
Total Revenue		\$1,503	\$1,365	-\$137***	-9.1%
Gas Heat					
Electric Revenue	567	\$791	\$821	\$30*	3.8%
Gas Revenue		\$626	\$620	-\$6	-0.9%
Total Revenue		\$1,417	\$1,441	\$24	1.7%
Education Only					
Electric Revenue	223	\$857	\$776	-\$81***	-9.4%
Gas Revenue		\$24	\$24	<\$1	1.3%
Total Revenue		\$881	\$800	-\$81***	-9.1%
All Job Types					
Electric Revenue	5,610	\$835	\$788	-\$47***	-5.6%
Gas Revenue		\$73	\$72	-\$1	-1.2%
Total Revenue		\$908	\$860	-\$47***	-5.2%

***Denotes significance at the 99 percent level. **Denotes significance at the 95 percent level. *Denotes significance at the 90 percent level.

¹Only 57 Electric Baseload accounts have gas usage data.

Table V-3A displays the change in customer electric and gas bills and total charges, between the pre- and the post-treatment periods, based on analysis of the transactions file. Total charges declined by 6.8 percent for electric baseload jobs, declined by 7.5 percent for electric heat jobs, and remained approximately the same for gas heat jobs.

**Table V-3A
Bills and Total Charges**

	#	Pre	Post	Change	Percent Change
Electric Baseload					
Electric and Gas Charges	4,531	\$889	\$831	-\$57***	-6.5%
Other Charges		\$17	\$13	-\$4***	-26.0%
Total Charges		\$906	\$844	-\$62***	-6.8%
Electric Heat					
Electric and Gas Charges	289	\$1,645	\$1,532	-\$113***	-6.8%
Other Charges		\$24	\$12	-\$12***	-50.5%
Total Charges		\$1,669	\$1,544	-\$125***	-7.5%
Gas Heat					
Electric and Gas Charges	567	\$1,633	\$1,621	-\$12	-0.7%
Other Charges		\$20	\$20	- <\$1	-2.5%
Total Charges		\$1,653	\$1,641	-\$13	-0.8%
Education Only					
Electric and Gas Charges	223	\$866	\$874	-\$12	-1.3%
Other Charges		\$10	\$9	-\$1	-12.2%
Total Charges		\$896	\$883	-\$13	-1.4%
All Job Types					
Electric and Gas Charges	5,610	\$1,003	\$949	-\$54***	-5.4%
Other Charges		\$17	\$13	-\$4***	-24.7%
Total Charges		\$1,020	\$962	-\$58***	-5.7%

***Denotes significance at the 99 percent level. **Denotes significance at the 95 percent level. *Denotes significance at the 90 percent level.

Table V-3B displays bills and total charges for customers who had CAP rates for the full pre-period and for the full post-treatment period. The table shows that across all job types, total charges declined by 8.6 percent for this population, compared to the 5.7 percent decline overall, as shown in the previous table.

**Table V-3B
Bills and Total Charges
Customers with CAP Rates In All Pre and Post Periods**

	#	Pre	Post	Change	Percent Change
Electric Baseload					
Electric and Gas Charges	3,917	\$841	\$761	-\$80***	-9.5%
Other Charges		\$16	\$12	-\$5***	-29.7%
Total Charges		\$857	\$773	-\$85***	-9.9%
Electric Heat					
Electric and Gas Charges	237	\$1,524	\$1,378	-\$146***	-9.6%
Other Charges		\$23	\$12	-\$11**	-46.9%
Total Charges		\$1,548	\$1,390	-\$157***	-10.2%
Gas Heat					
Electric and Gas Charges	416	\$1,556	\$1,528	-\$28	-1.8%
Other Charges		\$18	\$15	-\$4	-19.7%
Total Charges		\$1,574	\$1,542	-\$32*	-2.0%
Education Only					
Electric and Gas Charges	194	\$830	\$795	-\$35	-4.2%
Other Charges		\$10	\$9	-\$1	-9.4%
Total Charges		\$840	\$804	-\$36	-4.3%
All Job Types					
Electric and Gas Charges	4,764	\$937	\$860	-\$77***	-8.2%
Other Charges		\$17	\$12	-\$5***	-29.5%
Total Charges		\$954	\$872	-\$82***	-8.6%

***Denotes significance at the 99 percent level. **Denotes significance at the 95 percent level. *Denotes significance at the 90 percent level.

Differences in results between the revenue analysis from the billing data (shown in Table V-2) and the billing analysis from the transactions data (shown in Table V-3A) are due to the fact that the transactions data include all charges, while the revenue data only include charges for electric and gas usage.

Table V-4 displays payment statistics for the 2019 LIURP participants. Across all job types, credits declined by \$67 from the pre-treatment year to the post-treatment year.

**Table V-4
Annual Payments
Pre and Post-LIURP Treatment**

	#	Pre	Post	Change	Percent Change
Electric Baseload					
# Payments	4,531	8.9	8.7	-0.2***	-1.9%
Cash Payments		\$845	\$784	-\$61***	-7.2%
Assistance Payments		\$42	\$32	-\$9***	-22.9%
Other Credits		\$16	\$12	-\$5***	-28.0%
Total Credits		\$903	\$828	-\$75***	-8.3%
Electric Heat					
# Payments	289	8.7	8.5	-0.2	-2.3%
Cash Payments		\$1,418	\$1,315	-\$103***	-7.3%
Assistance Payments		\$160	\$138	-\$22	-13.7%
Other Credits		\$34	\$25	-\$9**	-27.4%
Total Credits		\$1,612	\$1,478	-\$134***	-8.3%
Gas Heat					
# Payments	567	9.1	9.0	-<0.1	-0.3%
Cash Payments		\$1,429	\$1,481	\$52**	3.6%
Assistance Payments		\$147	\$133	-\$14	-9.6%
Other Credits		\$21	\$21	<\$1	1.8%
Total Credits		\$1,597	\$1,635	\$38	2.4%
Education Only					
# Payments	223	9.1	9.0	-0.2	-2.0%
Cash Payments		\$875	\$818	-\$56*	-6.4%
Assistance Payments		\$53	\$43	-\$10	-18.2%
Other Credits		\$17	\$10	-\$7***	-39.6%
Total Credits		\$945	\$872	-\$73**	-7.7%
All Job Types					
# Payments	5,610	8.9	8.7	-0.2***	-1.8%
Cash Payments		\$935	\$883	-\$51***	-5.5%
Assistance Payments		\$59	\$48	-\$11***	-18.1%
Other Credits		\$18	\$13	-\$4***	-24.8%
Total Credits		\$1,012	\$945	-\$67***	-6.6%

***Denotes significance at the 99 percent level. **Denotes significance at the 95 percent level. *Denotes significance at the 90 percent level.

Table V-5 displays payments for CAP and Non-CAP customers in the year prior to and after receipt of LIURP. Both groups had small changes in these indicators.

Table V-5
Payments for CAP Customers
Pre and Post-LIURP Treatment

	#	Pre	Post	Change	Percent Change
CAP Customers – All Job Types					
# Payments	4,933	8.8	8.7	-0.1***	-1.6%
Cash Payments		\$865	\$813	-\$52***	-6.1%
Assistance Payments		\$62	\$47	-\$14***	-23.0%
Other Credits		\$17	\$13	-\$4***	-25.5%
Total Credits		\$944	\$873	-\$71***	-7.5%
Non-CAP Customers – All Job Types					
# Payments	677	9.4	9.1	-0.3**	-2.9%
Cash Payments		\$1,442	\$1,397	-\$45*	-3.1%
Assistance Payments		\$38	\$54	\$15**	39.1%
Other Credits		\$22	\$17	-\$5**	-21.2%
Total Credits		\$1,502	\$1,468	-\$35	-2.3%

***Denotes significance at the 99 percent level. **Denotes significance at the 95 percent level. *Denotes significance at the 90 percent level.

Table V-6 displays a more detailed analysis of the types of assistance payments received by the 2019 LIURP participants in the pre- and the post-treatment periods. The table shows that, overall, the assistance payments remained approximately the same from the pre-treatment year to the post-treatment year.

Table V-6
Assistance Payments
Pre and Post-LIURP Treatment

	#	Pre	Post	Change	% Change
Electric Baseload					
LIHEAP Cash	4,531	\$26	\$21	-\$6***	-21.3%
LIHEAP Crisis		\$15	\$12	-\$4**	-25.0%
MEAF		<\$1	\$0	<-\$1	-100%
Total Assistance		\$42	\$32	-\$9***	-22.9%
Electric Heat					
LIHEAP Cash	289	\$127	\$88	-\$38***	-30.3%
LIHEAP Crisis		\$34	\$50	\$16*	48.6%
MEAF		-	-	-	-

	#	Pre	Post	Change	% Change
Total Assistance		\$160	\$138	-\$22	-13.7%
Gas Heat					
LIHEAP Cash	567	\$120	\$114	-\$6	-5.4%
LIHEAP Crisis		\$26	\$19	-\$7	-27.3%
MEAF		\$1	<\$1	-\$1	-67.6%
Total Assistance		\$147	\$133	-\$14	-9.6%
Education Only					
LIHEAP Cash	223	\$43	\$33	-\$10	-22.9%
LIHEAP Crisis		\$10	\$10	<\$1	2.6%
MEAF		-	-	-	-
Total Assistance		\$53	\$43	-\$10	-18.2%
All Job Types					
LIHEAP Cash	5,610	\$41	\$34	-\$8***	-18.1%
LIHEAP Crisis		\$17	\$14	-\$3**	-17.3%
MEAF		<\$1	<\$1	<-\$1	-83.6%
Total Assistance		\$59	\$48	-\$11***	-18.1%

***Denotes significance at the 99 percent level. **Denotes significance at the 95 percent level. *Denotes significance at the 90 percent level.

Table V-7 displays changes in cash and total bill coverage¹¹ rates between the pre- and the post-treatment periods. These rates increased by approximately 4.6 percentage points for the gas heating customers following LIURP services. However, on average, the rates remained about the same for all job types.

**Table V-7
Coverage Rates
Pre and Post-LIURP Treatment**

	#	Pre	Post	Change	Percent Change
Electric Baseload					
Cash Coverage Rate	4,531	97.0%	96.5%	-0.4%	-0.5%
Total Coverage Rate		105.1%	103.7%	-1.4%	-1.4%
Electric Heat					
Cash Coverage Rate	289	85.2%	84.3%	-0.9%	-1.1%
Total Coverage Rate		103.0%	100.2%	-2.8%	-2.7%
Gas Heat					
Cash Coverage Rate	567	85.0%	89.7%	4.6%***	5.5%

¹¹ The cash coverage rate is the amount of cash payments made divided by the bill. The total coverage rate is the total of all customer payments, customer assistance, and other credits divided by the bill.

	#	Pre	Post	Change	Percent Change
Total Coverage Rate		98.9%	103.5%	4.6%***	4.6%
Education Only					
Cash Coverage Rate	223	103.7%	95.8%	-7.9%*	-7.6%
Total Coverage Rate		112.0%	102.8%	-9.2%**	-8.2%
All Job Types					
Cash Coverage Rate	5,610	95.4%	95.2%	-0.2%	-0.3%
Total Coverage Rate		104.6%	103.4%	-1.2%	-1.1%

***Denotes significance at the 99 percent level. **Denotes significance at the 95 percent level. *Denotes significance at the 90 percent level.

Table V-8 displays changes in customer balances. Overall, balances increased slightly during the post-treatment period.

**Table V-8
Change in Customer Balance**

	#	Start	End	Change	Percent Change
Electric Baseload					
Pre Balance	4,531	\$155	\$158	\$3	1.8%
Post Balance		\$154	\$167	\$13***	8.2%
Electric Heat					
Pre Balance	289	\$212	\$230	\$18	8.4%
Post Balance		\$220	\$259	\$39	17.9%
Gas Heat					
Pre Balance	567	\$237	\$317	\$80***	33.7%
Post Balance		\$298	\$288	-\$10	-3.3%
Education Only					
Pre Balance	223	\$196	\$149	-\$47**	-24.0%
Post Balance		\$141	\$159	\$18	12.4%
All Job Types					
Pre Balance	5,610	\$168	\$177	\$9**	5.6%
Post Balance		\$172	\$184	\$12**	7.0%

***Denotes significance at the 99 percent level. **Denotes significance at the 95 percent level. *Denotes significance at the 90 percent level.

VI. Summary of Findings and Recommendations

PECO's LIURP delivered usage reduction services and energy education to over eight thousand customers in 2019, many of whom had vulnerable household members. Savings from electric baseload jobs increased compared to 2016 through 2018 when accounting for the comparison group change but was lower than the historical average. Savings for electric heating jobs increased compared to 2014 through 2018 and compared to the historical average when accounting for the comparison group changes. Savings from gas heating jobs increased as compared to 2014 through 2018 (even when accounting for comparison group savings) but declined as compared to the historical average.

The 2019 savings showed an improvement over several previous years, but we have the following recommendations to improve energy savings further.

- *Outreach:* CMC is not able to reach 70 percent of targeted customers because these customers make no response to contact attempts. This is significantly higher than the 62 percent of customers in 2018 and 54 percent of customers in 2017 that CMC was unable to reach. CMC's current procedure is to make at least three phone calls and send a follow-up letter.¹² CMC should increase the number of calls to potential customers and pilot additional methods including outreach to targeted neighbors when they are in the field and leaving door hangers when they are in the neighborhood where additional customers are targeted. PECO is working with CMC to expand and improve their outreach and is also considering rebranding LIURP to a name that would be better recognized by customers.
- *Previously Treated Customers:* PECO allows customers who were treated more than two years ago to be re-treated by LIURP. Customers in the same home who were treated within the past five years are unlikely to have significant energy-saving opportunities. PECO should consider expanding the length of time before CMC can return to the home to deliver LIURP again.
- *Audits:* These recommendations should be considered based on previous audit observations.
 - Provide an LED at the beginning of the visit. Providing one free LED right at the beginning of the audit and talking about the benefits of the LED may create more buy-in for the rest of the audit.
 - Specify audit requirements for CMC. We recommend that the audit should always include the following elements and PECO should ensure that CMC allocates enough time for each audit to include these elements. While some of these elements are included in CMC's statement of work (SOW), some are not explicitly included and we recommend that they are added. Below we note which elements are not specifically included in the SOW.
 - ✓ LIURP Explanation: Discussion of the Program's goals and benefits.

¹² This is PECO's minimum standard for the number of contact attempts.

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- ✓ Partnership: Development of a partnership with the customer, including a discussion of the auditor's responsibility and the customer's responsibility. (Not included in SOW)
 - ✓ Energy Bills: Review of the PECO energy bills. (Not included in SOW)
 - ✓ Health and Safety: Discussion of applicable health and safety issues. (Not included in SOW)
 - ✓ Comfort: Discussion of comfort in the winter and summer. Even if the customer does not have the heating fuel supplied by PECO, discomfort in the winter can result in high electric space heating usage and bills. (Not included in SOW)
 - ✓ Walkthrough: Encouraging all customers who are able to accompany the auditor on the walkthrough. Require auditors to inspect every room of the home unless the customer objects. (Not included in SOW)
 - ✓ Lighting: Require CMC to ask about hours of use prior to replacing bulbs. Specify that only incandescent bulbs should be replaced with LEDs as opposed to CFLs and unused fixtures. (Not included in SOW)
 - ✓ Refrigerator Metering: Auditors should be required to meter refrigerators and freezers that are considered for replacement. (Not included in SOW)
 - Use customer's energy bills to supplement recommendations. Showing the customer how their energy behavior is impacting their energy bills may encourage customers to follow through on any energy saving actions discussed during the audit.
 - Require the auditor to review the education materials. At a minimum, the auditor should review what is included in the folder and show the customer where to locate CMC contact information, referral information, and education tips.
 - Require an individualized written action plan for each customer. The auditor should summarize the actions that were identified during the walkthrough, discuss which ones have the potential for saving the most energy with the customer, discuss which ones the customer is willing to undertake, and obtain a customer commitment to take a set of actions. These actions should then be provided to the customer on a written document that the customer signs.
 - Require CMC to track and report critical health and safety issues. PECO should track these issues to highlight potentially life-saving LIURP services in the LIURP evaluation.
 - Conduct periodic observations of LIURP services. PECO should periodically observe audits and installations to ensure that high-quality, comprehensive services are delivered.
 - *Quality Control*: Increase the number of observations and inspections that are conducted by the third-party quality control contractor.

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- *CMC Inspections:* CMC aims to inspect all comprehensive jobs and five percent of other jobs. The comprehensive inspections are expected to include blower door testing, zonal pressure diagnostics, combustion appliance zone testing, combustion testing on all appliances in the home, visual inspections for health and safety issues, and infrared cameras to look at moisture levels and if there were missed thermal opportunities, and also may include the use of gas sniffers and moisture meters. Inspections also include customer communication and education. Inspectors reported that these inspections take 30 to 60 minutes to complete, and that these tests are not always conducted. PECO should re-assess whether the time allocated for CMC inspections is adequate and consider shifting more of the reviews to their third-party quality control contractor.
 - *Measure Opportunities:* Installation of electric heating major measures remained steady between 2018 and 2019, while the installation of gas heating major measures increased somewhat. Electric heating jobs with at least two major measures experienced more than three times the savings that jobs with no major measures experienced. Gas heating jobs with at least two major measures experienced more than five times the savings that jobs with no major measure achieved. PECO should ensure that CMC is pursuing all cost-effective energy saving opportunities including installation of major measures. Other energy saving opportunities include blower door tests which have declined from 30 percent to 16 percent and insulation rates which declined from 32 percent to 17 percent from 2016 to 2019 on electric heating jobs. Rates of these major measures on gas heating jobs had similar declines.
 - *Health and Safety Measures:* The percentage of homes that received smoke detectors increased from 24 percent in 2017 to 43 percent in 2019. The percentage of homes that received carbon monoxide detectors also increased, from eight percent in 2017 to 44 percent in 2019.

PECO implemented a health and safety pilot beginning in 2019. Electric baseload jobs with health and safety measures other than carbon monoxide detectors and smoke alarms and batteries had 9.4 percent savings compared to 6.2 percent for all electric baseload jobs. Gas heating jobs with these health and safety measures had 6.9 percent savings compared to overall gas heating savings of 4.9 percent. PECO should continue to provide the new health and safety measures as part of LIURP.

- *Virtual Energy Assessments:* CMC began conducting Virtual Energy Assessments in 2020. This was needed due to the COVID pandemic, but CMC already had a plan to introduce these assessments prior to the pandemic. PECO should evaluate these assessments since CMC plans to continue this method. It is important to understand if these virtual assessments achieve the results that are expected from LIURP.

Pennsylvania Public Utility Commission

v.

PECO Energy Company

Docket No. P-2020-3020727, M-2018-3005795

Response of PECO Energy Company
to Interrogatories of
Tenant Union Representative Network
TURN Set I

Response Date: 06/10/2021

TURN-I-6

Reference PECO Response to CAUSE-PA I-11. Please explain why PECO does not track removals by reason type. Please provide any memos, studies, or other documents that PECO has prepared or reviewed to examine the feasibility of tracking CAP removals by reason type.

RESPONSE:

PECO does not track removals by type as the Company has not evaluated the benefit of that further level of detail. PECO has not examined the feasibility of tracking removals by reason type.

Responsible Witness: Mark Kehl

Pennsylvania Public Utility Commission

v.

PECO Energy Company

Docket No. P-2020-3020727, M-2018-3005795

Response of PECO Energy Company
to Interrogatories of
Tenant Union Representative Network
TURN Set I

Response Date: 06/10/2021

TURN-I-12

For the customers identified in TURN I-11, please identify the percentage of these customers that received LIURP services in 2018, 2019, 2020 and 2021.

RESPONSE:

The sum of distinct accounts in TURN I-11 was 3,880 customers who met or exceeded the CAP maximum credits in 2018-2020. 1,426, or 35.7%, of those customers received a LIURP audit between 2018 and 2020.

Responsible Witness: Mark Kehl

Pennsylvania Public Utility Commission

v.

PECO Energy Company

Docket No. P-2020-3020727, M-2018-3005795

Response of PECO Energy Company
to Interrogatories of
Tenant Union Representative Network
TURN Set I

Response Date: 06/10/2021

TURN-I-15

Are customers who specify on PECO's zero income form that they receive financial support from their friends/ family/ community required to obtain additional documentation verifying that support?

RESPONSE:

Yes, a customer who specifies on PECO's zero income form that they receive financial support from their friends/ family/ community is required to provide additional documentation verifying that support. A follow-up request would be made asking for a letter from the income provider that states the amount and frequency of the support.

Responsible Witness: Mark Kehl

Pennsylvania Public Utility Commission

v.

PECO Energy Company

Docket No. P-2020-3020727, M-2018-3005795

Response of PECO Energy Company
to Interrogatories of
Tenant Union Representative Network
TURN Set I

Response Date: 06/10/2021

TURN-I-20

What is the total amount of in-CAP arrears currently owed by PECO customers?

RESPONSE:

The total amount of in-CAP arrears currently owed by PECO customers is \$29,436,475.

Responsible Witness: Mark Kehl

Pennsylvania Public Utility Commission

v.

PECO Energy Company

Docket No. P-2020-3020727, M-2018-3005795

Response of PECO Energy Company
to Interrogatories of
Tenant Union Representative Network
TURN Set I

Response Date: 06/10/2021

TURN-I-21

What is the total number of customers with in-CAP arrears?

RESPONSE:

There are 41,240 customers with in-CAP arrears.

Responsible Witness: Mark Kehl

Pennsylvania Public Utility Commission

v.

PECO Energy Company

Docket No. P-2020-3020727, M-2018-3005795

Response of PECO Energy Company
to Interrogatories of
Tenant Union Representative Network
TURN Set I

Response Date: 06/10/2021

TURN-I-22

Reference PECO Proposed Universal Service and Energy Conservation Plan (2019 – 2024) at 2.

- a) Has PECO updated its Needs Assessment due to the COVID-19 pandemic? If so, please provide the updated Needs Assessment.
- b) Please provide any studies, memos, reports or other documents created by or reviewed by PECO that examine the impact of COVID-19 on poverty in all or part of PECO's service territory.

RESPONSE:

- a. No, PECO has not updated its Needs Assessment due to the COVID-19 pandemic.
- b. PECO has not created or reviewed any studies that examined the impact of COVID-19 on poverty in all or part of PECO's service territory.

Responsible Witness: Mark Kehl

Pennsylvania Public Utility Commission

v.

PECO Energy Company

Docket No. P-2020-3020727, M-2018-3005795

Response of PECO Energy Company
to Interrogatories of
Tenant Union Representative Network
TURN Set I

Response Date: 06/10/2021

TURN-I-24

Reference PECO's Proposed USECP at 8-9 (dismissal from CAP).

- a) Please define "other misappropriations of service."
- b) Please provide an example of an "adverse action notification in accordance with the Fair Credit Reporting Act."
- c) How many "adverse action notifications" did PECO send to customers, yearly from 2018 to date in 2021.

RESPONSE:

- a. PECO believes this language can be removed when the Company files its final USECP after the PUC's final order. It is not additive to the remaining language in this section.
- b. PECO believes this language can be removed when the Company files its final USECP after the PUC's final order. PECO added this language for a pilot program the Company performed in 2015.
- c. PECO did not send any adverse action notifications from 2018 to the present.

Responsible Witness: Mark Kehl

Joint Comments of the Low Income Advocates, Appendix B

MEAF Contributions, PECO Electric - 2002 to 2019																		
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Utility and Shareholder	\$ 1,652,242	\$ 150,000	\$ 822,871	\$ 641,382	\$ 550,503	\$ 244,420	\$ 689,733	\$578,815	\$401,337	\$382,938	\$382,284	\$400,889	\$384,086	\$396,826	\$394,518	\$448,336	\$371,099	\$402,697
Voluntary Ratepayer	\$ 276,013	\$ 715,616	\$ 235,009	\$ 231,129	\$ 224,014	\$ 227,107	\$ 214,730	\$193,725	\$187,836	\$184,563	\$193,854	\$185,218	\$182,134	\$166,707	\$170,237	\$161,462	\$134,770	\$141,469
Total	\$1,928,255	\$865,616	\$1,057,880	\$872,511	\$774,517	\$471,527	\$ 904,463	\$772,540	\$589,173	\$567,501	\$576,138	\$586,107	\$566,220	\$563,533	\$564,755	\$609,798	\$505,869	\$544,166

MEAF Contributions, PECO Gas - 2002 to 2019																		
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Utility and Shareholder	\$ 204,209	\$ 74,171	\$ 29,693	\$ 112,100	\$ 111,447	\$ 84,248	\$ 141,274	\$ 118,553	\$ 76,445	\$ 72,941	\$ 62,232	\$ 59,903	\$ 62,006	\$ 64,600	\$ 64,224	\$ 72,985	\$ 65,488	\$ 71,064
Voluntary Ratepayer	\$ 34,114	\$ 32,293	\$ 38,172	\$ 37,496	\$ 39,319	\$ 42,304	\$ 53,551	\$ 39,679	\$ 35,778	\$ 41,309	\$ 31,557	\$ 34,053	\$ 29,404	\$ 27,138	\$ 27,713	\$ 26,284	\$ 23,783	\$ 24,965
Total	\$ 238,323	\$ 106,464	\$ 67,865	\$ 149,596	\$ 150,766	\$ 126,552	\$ 194,825	\$ 158,232	\$ 112,223	\$ 114,250	\$ 93,789	\$ 93,956	\$ 91,410	\$ 91,738	\$ 91,937	\$ 99,269	\$ 89,271	\$ 96,029

**Data from Annual Reports on Universal Service and Credit Performance, available at <https://www.puc.pa.gov/filing-resources/reports/universal-service-reports/>