

Counting More Than Kilowatts: Monetizing Utility Cost Savings from Reduced Arrearages and Collections

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ABSTRACT

Low-income customers who participate in energy efficiency and weatherization programs can have lower utility bills and experience fewer bill payment issues than they did prior to participation. In turn, utilities may realize reduced costs associated with arrearages and late payments, uncollectible bills and bad debt write-offs, service terminations and reconnections, bill-related customer calls, and the bill collections process.

This paper reports on the results of a study conducted in Pennsylvania that sought to quantify and monetize these utility cost savings, which, in turn, benefit all ratepayers. The study analyzed utility data on customer arrearages, shutoffs, and collections actions for income-eligible (IE) program participants to monetize utility cost savings. For the analysis, the treatment group consisted of customers who participated in the utilities' IE programs in 2021. To account for exogenous factors, the study used 2022 program participants as the comparison group. The analysis quantified the change in arrearages, collection notices, collection calls, and shutoffs and reconnects for the treatment and control group customers over the same study period.

The study showed that participation in low-income energy-efficiency programs led to lower utility costs by reducing arrearage carrying costs, bad debt write-offs, collection notices and calls, and service shutoffs—collectively considered utility non-energy benefits. The total annual monetized benefit per participant averaged \$5.82 statewide, with utility-level results ranging from \$0 to \$16. The study's methodology and results are useful for other jurisdictions aiming to incorporate a comprehensive set of non-energy benefits in their cost benefit analysis for low-income energy efficiency and weatherization programs.

Introduction and Background

Pennsylvania's Act 129 mandates electric distribution companies (EDCs) to implement energy efficiency and conservation programs, with a specific carve-out for low-income households. In the Phase IV Implementation Order, stakeholders pointed out that arrearages and uncollected debt were a cost of supplying electricity and suggested the Public Utility Commission (PUC) quantify potential reductions of these costs as benefits in the TRC Test for income-eligible programs. In its disposition, the PUC stated:

Therefore, we determined that PA-EEFA's comments regarding reduced arrearages and uncollected debt merit further investigation, particularly for programs offered to the low-income sector, and will direct the Phase IV Statewide Evaluator (SWE) to study the impacts of EDC low-income programs on collections. We will make, at a later time, recommendations regarding the appropriateness and magnitude of such a benefit for consideration in future TRC Test Orders.

The Act 129 SWE, referred to as the Phase IV SWE in the PUC disposition, monitors and verifies data collection, quality assurance and the results of each EDC's Energy Efficiency and Conservation Plan (EE&C Plan) and the EE&C program as a whole. Per the PUC's direction, the SWE conducted this study to quantify utility cost savings associated with reductions in arrearages and uncollected debt resulting from Pennsylvania's Act 129 income-eligible (IE) programs. This analysis was based on EDC data related to customer arrearages, shutoffs, and collection actions for Act 129 IE program participants. The goal of the

study was, to the extent that data were available from the EDCs, to estimate and monetize the following five types of savings:

- Reduced arrearage carrying costs
- Reduced bad debt write-offs
- Fewer shutoffs and reconnects
- Fewer notices
- Fewer collection calls

Data

To quantify and monetize EDC financial savings and to account for exogenous factors in the analysis, the study team requested the following types of customer data pertaining to financial and collections-related transaction histories from June 2020 through May 2023 for all customers who participated in the EDCs Act 129 IE programs in program year (PY)13 and PY14¹:

- Arrearages
- Bad debt write-offs
- Collections calls
- Terminations
- Reconnections
- Notices (related to late payments and collections)

To determine the monetary value of the pertinent financial impacts, the study team also requested the following information from the EDCs:

- EDC annual interest rate on short-term debt in PY14
- Percentage of total arrears written off in 2020, 2021, and 2022
- EDC cost per shutoff and reconnect
- EDC cost per notice
- EDC cost per collection call

Methodology

For the analysis, the treatment group consisted of customers who participated in the EDCs Act 129 IE programs in PY13. The study team compared the following indicators for these customers in the 12 months prior to their program participation to those in the 12 months after their program participation:

- Change in arrearages
- Change in collection notices
- Change in collection calls
- Change in shutoffs and reconnects

This represents the actual change in arrearages, shutoffs, reconnections, etc. for those customers who were served by the Act 129 IE programs during the analysis period. Some of these changes may be due to the participation in the Act 129 IE programs, and some of these changes may be due to other exogenous factors, such as participation in the Low Income Usage Reduction Program (LIURP), the Low Income Home Energy Assistance Program (LIHEAP), or the Customer Assistance Program (CAP), which is an arrearage

¹ This was to ensure that at least one year of pre-program and one year of post-program data for PY13 participants and two years of pre-program data for PY14 participants would be available for analysis. PY13 was implemented from June 1, 2021 – May 31, 2022, and PY14 was implemented from June 1, 2022 – May 31, 2023.

forgiveness program. To account for exogenous factors, the study team used PY14 program participants as the comparison group and assessed the changes in their indicators during the analysis period for the treatment group. Later program participants – also referred to as “future” participants – are particularly effective for comparison with prior participants, because they represent other customers that have made the same decision to opt into the same IE programs. Relative to a non-participant comparison group, future participants are expected to be more aligned with prior participants regarding unobservable characteristics than the general public.

As an example, for the treatment group (PY13) participants, the study defined arrears in the 12 months prior to participation as “Pre” and arrears in the 12 months after participation as “Post.” For the comparison group (PY14) participants, the study defined arrears in the 12 to 24 months prior to participation as “Quasi Pre” and arrears in the 12 months prior to participation as “Quasi Post.” This allowed for the assessment of the changes for both groups during the same period in time (“Analysis Period”). The net change, or difference in differences, is the change in arrears for the treatment group minus the change for the comparison group during the analysis period. To illustrate the difference-in-differences design, Figure 1 shows pre- and post-periods for a treatment group participant who participated in June 2021 and quasi-pre- and quasi-post-periods for a comparison group participant who participated in June 2022.

	June 2020	June 2021	June 2022
Treatment Group (A June 2021 participant)		Pre	Post
Comparison Group (A June 2022 participant)		Quasi Pre	Quasi Post

Net Change = (Post – Pre) – (Quasi Post – Quasi Pre)

Figure 1: Illustration of Difference-in-Differences Design

We calculated a statewide average for the net change in arrearages, collection notices, collection calls, and shutoffs as a weighted average. We used each EDC’s share of low-income households in Pennsylvania as the weights for this analysis.

To assess the comparability of the treatment group (PY13 participants) and comparison group (PY14 participants), the study team checked the participation rates in other programs, including LIHEAP, LIURP, and CAP programs, which may impact arrearages and bill affordability, and found that the two groups of participants had similar participation rates in these other programs during the analysis period for all EDCs. This means the comparison group in this analysis helps control for the confounding effects of other programs on arrearages and bill affordability. However, since this is not a randomized trial, the comparison group may not be fully comparable to the treatment group across all observable and unobservable factors.

Findings

This section presents the results of our analysis of changes in arrearages, collection notices, collection calls, shutoffs and reconnects. All monetary values presented in this paper are in 2023 dollars unless noted otherwise. For the treatment group (PY13) participants, the study defined arrearages, notices, calls, and shutoffs in the 12 months prior to participation as “Pre” and those in the 12 months after participation as “Post.” For the comparison group (PY14) participants, the study defined arrearages, notices, calls, and shutoffs between 12 and 24 months prior to participation as “Quasi Pre” and those in the 12 months prior to participation as “Quasi Post.”

Change in Arrearages

Arrearages are customer balances that are past due. Table 1 presents the results for the change in arrears by EDC and statewide. The net reduction in monthly average arrears per participant was found to be \$51.15 for PECO, \$98.76 for PPL, \$38.70 for Duquesne Light, and \$24.74 statewide. The study did not find a reduction in net monthly average arrears for FirstEnergy (FE) rate districts (Met-Ed, Penelec, Penn Power, and West Penn Power).² For these FE rate districts, the arrearages rose from the pre- to post-period for both treatment and comparison group participants. The increase for the comparison group participants was not large enough to offset the increase for the treatment group participants, resulting in a positive net change in arrears.

It is important to note that the pre mean arrears were significantly lower for the comparison group participants than the treatment group participants for the FE rate districts. This suggests that a greater share of PY13 participants may have had bill payment issues than PY14 participants prior to their program participation. Therefore, PY14 participants may not have served as an appropriate comparison group for PY13 participants. Given the observed differences between treatment and comparison group customers in FE rate districts, it may be inappropriate to conclude that participation in the EDC program had no effect on arrearage reduction. Further study may be warranted to more accurately estimate this impact in FE rate districts.

Table 1: Change in Arrears

EDC/Rate District	Study Group	n	Pre Mean Arrears per Participant	Post Mean Arrears per Participant	Gross Change (\$)¹	Net Change (\$)²
PECO	Treatment	50,224	\$216.19	\$188.50	(\$27.69)	(\$51.15)
	Comparison	44,269	\$190.24	\$213.70	\$23.46	
PPL	Treatment	23,838	\$230.57	\$230.31	(\$0.26)	(\$98.76)
	Comparison	23,017	\$108.46	\$206.96	\$98.50	
Duquesne Light	Treatment	4,167	\$162.11	\$106.05	(\$56.06)	(\$38.70)
	Comparison	6,919	\$180.30	\$162.94	(\$17.36)	
FE: Met-Ed	Treatment	9,004	\$124.12	\$230.24	\$106.12	\$56.57
	Comparison	8,405	\$36.35	\$85.90	\$49.55	
FE: Penelec	Treatment	12,382	\$121.16	\$189.89	\$68.73	\$36.32
	Comparison	6,860	\$54.62	\$87.03	\$32.41	
FE: Penn Power	Treatment	2,501	\$137.81	\$222.30	\$84.49	\$58.50
	Comparison	1,061	\$111.90	\$137.89	\$25.99	
FE: West Penn Power	Treatment	9,201	\$105.94	\$201.75	\$95.81	\$56.08
	Comparison	9,100	\$42.02	\$81.75	\$39.73	
	Treatment	111,317	\$176.77	\$196.16	\$19.39	

² During this study, the Pennsylvania Public Utility Commission (PUC) approved the consolidation of four EDCs (Metropolitan Edison Company (Met-Ed), Pennsylvania Electric Company (Penelec), Pennsylvania Power Company (Penn Power), and West Penn Power Company (West Penn)) into rate districts of a single EDC, FirstEnergy Pennsylvania Electric Company.

EDC/Rate District	Study Group	n	Pre Mean Arrears per Participant	Post Mean Arrears per Participant	Gross Change (\$)¹	Net Change (\$)²
Statewide	Comparison	99,631	\$115.18	\$159.30	\$44.12	(\$24.74)

¹ Gross Change may not equal the “post” minus “pre” columns due to rounding.

² Net Change may not equal “gross change” for treatment group minus the “gross change” for the comparison group due to rounding.

All gross and net change figures that are statistically significant at the 90% confidence level are in **bold**.

Change in Collection Notices

Collection notices are letters EDCs send to customers regarding collection actions. Table 2 presents the results for the analysis of the change in collection notices. The net reduction in the average number of collection notices per participant was found to be 0.68 for PECO, 0.99 for PPL, 0.27 for Duquesne Light, and 0.36 statewide. The study did not find a reduction in the net average number of collection notices sent for the FE rate districts.

Table 2: Change in Collection Notices

EDC/Rate District	Study Group	n	Pre Mean Notices per Participant	Post Mean Notices per Participant	Gross Change (#)¹	Net Change (#)²
PECO	Treatment	50,224	2.84	2.80	(0.04)	(0.68)
	Comparison	44,269	2.09	2.72	0.63	
PPL	Treatment	23,838	0.98	0.80	(0.18)	(0.99)
	Comparison	23,017	0.43	1.23	0.81	
Duquesne Light	Treatment	4,167	1.47	1.69	0.22	(0.27)
	Comparison	6,919	1.32	1.81	0.49	
FE: Met-Ed	Treatment	9,004	0.69	1.36	0.67	0.43
	Comparison	8,405	0.22	0.45	0.24	
FE: Penelec	Treatment	12,382	0.74	1.12	0.39	0.11
	Comparison	6,860	0.30	0.58	0.28	
FE: Penn Power	Treatment	2,501	0.73	1.30	0.56	0.22
	Comparison	1,061	0.61	0.95	0.34	
FE: West Penn Power	Treatment	9,201	0.58	1.11	0.53	0.31
	Comparison	9,100	0.23	0.45	0.22	
Statewide	Treatment	111,317	1.37	1.53	0.16	(0.36)
	Comparison	99,631	0.88	1.40	0.52	

¹ Gross Change may not equal the “post” minus “pre” columns due to rounding.

² Net Change may not equal “gross change” for treatment group minus the “gross change” for the comparison group due to rounding.

All gross and net change figures that are statistically significant at the 90% confidence level are in **bold**.

Change in Collection Calls

Collection calls are calls EDCs made to customers regarding collection actions. Table 3 presents the results for the change in collection calls. The net reduction in the average number of collection calls per participant was found to be 0.90 for PECO, 1.49 for PPL, 0.19 for Duquesne Light, and 0.07 statewide. The study did not find a reduction in the net average number of collection calls for the FE rate districts.

Table 3: Change in Collection Calls

EDC/Rate District	Study Group	n	Pre Mean Calls per Participant	Post Mean Calls per Participant	Gross Change (#) ¹	Net Change (#) ²
PECO	Treatment	50,224	3.93	5.04	1.11	(0.90)
	Comparison	44,269	3.16	5.17	2.01	
PPL	Treatment	23,838	1.18	1.00	(0.18)	(1.49)
	Comparison	23,017	0.48	1.78	1.30	
Duquesne Light	Treatment	4,167	0.58	0.45	(0.12)	(0.19)
	Comparison	6,919	0.63	0.69	0.06	
FE: Met-Ed	Treatment	9,004	1.36	3.72	2.36	1.84
	Comparison	8,405	0.50	1.02	0.52	
FE: Penelec	Treatment	12,382	1.47	3.28	1.80	1.25
	Comparison	6,860	0.70	1.25	0.56	
FE: Penn Power	Treatment	2,501	1.38	3.32	1.94	1.53
	Comparison	1,061	1.42	1.84	0.42	
FE: West Penn Power	Treatment	9,201	1.22	3.33	2.12	1.55
	Comparison	9,100	0.55	1.12	0.56	
Statewide	Treatment	111,317	1.83	2.79	0.97	(0.07)
	Comparison	99,631	1.20	2.24	1.04	

¹Gross Change may not equal the “post” minus “pre” columns due to rounding.

²Net Change may not equal “gross change” for treatment group minus the “gross change” for the comparison group due to rounding.

All gross and net change figures that are statistically significant at the 90% confidence level are in **bold**.

Change in Service Terminations and Reconnections

Table 4 presents the results for the change in service terminations. The net reduction in the average number of service terminations per participant was found to be 0.05 for PECO, 0.07 for PPL, and 0.05 for Duquesne Light. The study did not find a reduction in the net average number of service terminations for the FE rate districts.

Table 4: Change in Service Terminations

EDC/Rate District	Study Group	n	Pre Mean Shutoffs per Participant	Post Mean Shutoffs per Participant	Gross Change (#) ¹	Net Change (#) ²
PECO	Treatment	50,224	0.13	0.13	0.00	(0.05)
	Comparison	44,269	0.07	0.12	0.05	
PPL	Treatment	23,838	0.06	0.05	(0.02)	(0.07)
	Comparison	23,017	0.02	0.08	0.05	
Duquesne Light	Treatment	4,167	0.08	0.11	0.03	(0.05)
	Comparison	6,919	0.10	0.18	0.08	
FE: Met-Ed	Treatment	9,004	0.04	0.24	0.19	0.16
	Comparison	8,405	0.02	0.05	0.03	
FE: Penelec	Treatment	12,382	0.03	0.16	0.13	0.11
	Comparison	6,860	0.02	0.04	0.02	
FE: Penn Power	Treatment	2,501	0.02	0.11	0.09	0.07
	Comparison	1,061	0.02	0.04	0.02	
FE: West Penn Power	Treatment	9,201	0.02	0.16	0.14	0.11
	Comparison	9,100	0.01	0.04	0.03	
Statewide	Treatment	111,317	0.07	0.12	0.05	0.00
	Comparison	99,631	0.04	0.09	0.05	

¹Gross Change may not equal the “post” minus “pre” columns due to rounding.

²Net Change may not equal “gross change” for treatment group minus the “gross change” for the comparison group due to rounding.

All gross and net change figures that are statistically significant at the 90% confidence level are in **bold**.

The information that EDCs provided to the study team indicated that the reconnection fees charged to customers are structured to fully cover the EDCs’ cost of reconnection. Therefore, the study team did not analyze the change in the number of reconnections because the EDCs would not realize any financial savings from reduced reconnections. These savings would accrue solely to participants avoiding reconnection fees.

Monetization of Impacts

This section presents the monetization algorithms and monetized values of annual impacts of changes in arrearages, collection notices, collection calls, and shutoffs. All monetized values are in 2023 dollars.

Table 5 shows the calculation of the annual monetary values of the above EDC financial savings. The study did not monetize impacts where increases rather than reductions were observed in arrearages, notices, calls, or shutoffs, as it was not plausible that participation in low-income programs caused these increases.

Table 5: Monetized Annual Impact Calculations

Impact	Calculation
Reduced arrearage carrying cost	Reduction in net arrears per participant (\$) × EDC annual interest rate on short-term debt

Impact	Calculation
Reduced bad debt write-off	Reduction in net arrears per participant (\$) × EDCs' % arrears written off (2020-2022 annual average)
Fewer collection notices	Reduction in the number of collection notices per participant × EDC cost per notice (\$)
Fewer collection calls	Reduction in the number of collection calls per participant × EDC cost per call (\$)
Fewer shutoffs	Reduction in the number of shutoffs due to non-payment per participant × EDC cost per shutoff (\$)

Table 6 shows the calculations and the resulting monetized annual value for the reduced arrearage carrying cost. For the EDC annual interest rate, instead of using the interest rates reported by the EDCs, which varied significantly across years, the study team chose to use the Federal Funds rate projection for 2025, which would better reflect the typical interest rates in future years.³ The annual monetized impact per participant from reduced arrearage carrying cost is \$1.59 for PECO, \$3.06 for PPL, \$1.20 for Duquesne Light, \$0 for FE rate districts, and \$0.77 statewide.

Table 6: Reduced Arrearage Carrying Cost

EDC/Rate District	Average \$ reduction in arrearage per participant (A)	EDC annual interest rate on short-term debt* (B)	Annual monetized value per participant (A*B)
PECO	\$51.15	3.10%	\$1.59
PPL	\$98.76	3.10%	\$3.06
Duquesne Light	\$38.70	3.10%	\$1.20
FE: Met-Ed	\$0.00	3.10%	\$0.00
FE: Penelec	\$0.00	3.10%	\$0.00
FE: Penn Power	\$0.00	3.10%	\$0.00
FE: West Penn Power	\$0.00	3.10%	\$0.00
Statewide	\$24.74	3.10%	\$0.77

*Median Federal funds rate projection for 2025

Table 7 shows the calculations and the resulting monetized annual value for the reduced bad debt write-offs. The annual monetized impact per participant from reduced bad debt write-offs is \$12.62 for PECO, \$10.60 for PPL, \$7.47 for Duquesne Light, \$0 for FE rate districts, and \$4.77 statewide.

³ Federal Reserve Bank of St. Louis; U.S. Federal Open Market Committee via FRED. FOMC Summary of Economic Projections for the Fed Funds Rate, Median. <https://fred.stlouisfed.org/series/FEDTARM>

Table 7: Reduced Bad Debt Write-off

EDC/Rate District	Average \$ reduction in arrearage per participant (A)	EDC % of Arrears written off (Annual Average, 2020-2022) (B)	Annual monetized value per participant (A*B)
PECO	\$51.15	24.67%	\$12.62
PPL	\$98.76	10.74%	\$10.60
Duquesne Light	\$38.70	19.30%*	\$7.47
FE: Met-Ed	\$0.00	17.33%	\$0.00
FE: Penelec	\$0.00	17.33%	\$0.00
FE: Penn Power	\$0.00	17.33%	\$0.00
FE: West Penn Power	\$0.00	17.33%	\$0.00
Statewide	\$24.74	19.30%	\$4.77

*EDC was not able to provide this information. An average write-off % across all other EDCs is used.

Table 8 shows the calculations and the resulting monetized annual value for reduced collection notice cost per participant. The annual monetized impact per participant from fewer notices is \$0.49 for PECO, \$0.67 for PPL, \$0.18 for Duquesne Light, \$0 for FE rate districts, and \$0.26 statewide.

Table 8: Reduced Collection Notice Cost

EDC/Rate District	Reduction in number of notices per participant (A)	EDC cost per notice (B)	Annual monetized value per participant (A*B)
PECO	0.68	\$0.73	\$0.49
PPL	0.99	\$0.68	\$0.67
Duquesne Light	0.27	\$0.66	\$0.18
FE: Met-Ed	0.00	N/A*	\$0.00
FE: Penelec	0.00	N/A*	\$0.00
FE: Penn Power	0.00	N/A*	\$0.00
FE: West Penn Power	0.00	N/A*	\$0.00
Statewide	0.36	\$0.71	\$0.26

* EDC was not able to provide this cost information.

Table 9 shows the calculations and the resulting monetized annual value for reduced collection call cost per participant. The annual monetized impact per participant from fewer calls is \$0.05 for PECO, \$0.98 for PPL, \$0.07 for Duquesne Light, \$0 for FE rate districts, and \$0.02 statewide.

Table 9: Reduced Collection Call Cost

EDC/Rate District	Reduction in number of calls per participant (A)	EDC cost per call (B)	Annual monetized value per participant (A*B)
PECO	0.90	\$0.06	\$0.05
PPL	1.49	\$0.66	\$0.98

EDC/Rate District	Reduction in number of calls per participant (A)	EDC cost per call (B)	Annual monetized value per participant (A*B)
Duquesne Light	0.19	\$0.38	\$0.07
FE: Met-Ed	0.00	\$0.32	\$0.00
FE: Penelec	0.00	\$0.32	\$0.00
FE: Penn Power	0.00	\$0.32	\$0.00
FE: West Penn Power	0.00	\$0.32	\$0.00
Statewide	0.07	\$0.28	\$0.02

Table 10 shows the calculations and the resulting monetized annual value for the reduced service shutoff cost per participant. The annual monetized impact per participant from fewer shutoffs is \$1.05 for PECO, \$0.84 for PPL, \$0.86 for Duquesne Light, \$0 for FE rate districts, and \$0 statewide.

Table 10: Reduced Shutoff Cost

EDC/Rate District	Reduction in number of shutoffs per participant (A)	EDC cost per shutoff (B)	Annual monetized value per participant (A*B)
PECO	0.05	\$21.12	\$1.05
PPL	0.07	\$12.00	\$0.84
Duquesne Light	0.05	\$16.56*	\$0.86
FE: Met-Ed	0.00	N/A**	\$0.00
FE: Penelec	0.00	N/A**	\$0.00
FE: Penn Power	0.00	N/A**	\$0.00
FE: West Penn Power	0.00	N/A**	\$0.00
Statewide	0.00	\$18.10	\$0.00

*EDC was not able to provide this information. An average cost across all other EDCs is used.

** EDC was not able to provide this cost information.

Table 11 provides the total annual monetized value per participant of all five impacts quantified in the study. The total annual monetized impact per participant is \$15.80 for PECO, \$16.16 for PPL, \$9.78 for Duquesne Light, \$0 for the FE rate districts, and \$5.82 statewide.

Table 11: Total Annual Monetized Impact Per Participant

Annual Impact (\$ per Participant)	EDC/Rate District							Statewide
	PECO	PPL	Duquesne Light	FE: Met-Ed	FE: Penelec	FE: Penn Power	FE: West Penn Power	
Reduced arrearage carrying cost	\$1.59	\$3.06	\$1.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.77
Reduced bad debt write-off	\$12.62	\$10.60	\$7.47	\$0.00	\$0.00	\$0.00	\$0.00	\$4.77

Annual Impact (\$ per Participant)	EDC/Rate District							Statewide
	PECO	PPL	Duquesne Light	FE: Met- Ed	FE: Penelec	FE: Penn Power	FE: West Penn Power	
Reduced notice cost	\$0.49	\$0.67	\$0.18	\$0.00	\$0.00	\$0.00	\$0.00	\$0.26
Reduced collection call cost	\$0.05	\$0.98	\$0.07	\$0.00	\$0.00	\$0.00	\$0.00	\$0.02
Reduced service termination cost	\$1.05	\$0.84	\$0.86	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
TOTAL	\$15.80	\$16.16	\$9.78	\$0.00	\$0.00	\$0.00	\$0.00	\$5.82

The study team compared the monetized values of the arrearage- and collections-related impacts per participant in this study, which were presented in Table 11, to the range of per-participant impact values found in similar studies of low-income energy conservation and weatherization programs in other jurisdictions. Table 12 provides a comparison of this study's estimates to those found in the literature. The monetized values for Pennsylvania EDCs were generally within the range of the values found in the literature. A notable exception is the reduced bad debt write-off for which the monetized value in Pennsylvania was higher than the high end of the range. This suggests that a higher percentage of arrearages must be written off in Pennsylvania, on average, than those in jurisdictions examined in similar studies.

Table 12: A Comparison of Annual Monetized Impacts per Participant

Impact	PECO	PPL	Duquesne Light	Pennsylvania Statewide	The Literature*		
					Low	High	Typical
Reduced Arrearage Carrying Cost	\$1.59	\$3.06	\$1.20	\$0.77	\$1.50	\$4.00	\$2.50
Reduced Bad Debt Write-off	\$12.62	\$10.60	\$7.47	\$4.77	\$0.50	\$3.75	\$1.75
Reduced Collection Notice Cost	\$0.49	\$0.67	\$0.18	\$0.26	\$0.05	\$1.50	\$0.60
Reduced Collection Call Cost	\$0.05	\$0.98	\$0.07	\$0.02	\$0.40	\$1.50	\$0.90
Reduced Shutoff Cost	\$1.05	\$0.84	\$0.86	\$0.00	\$0.10	\$3.65	\$0.65
TOTAL	\$15.80	\$16.16	\$9.78	\$5.82	\$2.55	\$14.40	\$6.40

*Source: Northeast Energy Efficiency Partnerships. (2017). Non-Energy Impacts Approaches and Values: An Examination of the Northeast, Mid-Atlantic, and Beyond. Table 20: Weatherization Non-Energy Impact Value Ranges. Note that the monetized values for Pennsylvania are presented in 2023 dollars, while the literature values are taken directly from the 2017 study without adjusting for inflation.

Conclusions and Recommendations

This study estimated utility-side impacts of low-income energy efficiency programs on arrearages and customer notices, calls, and shutoffs for unpaid debt. It found that the energy-efficient technologies installed by the Pennsylvania EDCs' Act 129 energy-efficiency programs have resulted in reduced EDC costs for some, but not all, EDCs, through reduced arrearage carrying cost, reduced bad debt write-offs, fewer collection notices, fewer collection calls, and fewer shutoffs.

The EDC annual financial savings from the Act 129 IE energy-efficiency programs quantified in this study of EDC were incorporated into the PUC's 2026 TRC Test Final Order and the 2026 Avoided Cost

Calculator (ACC). These annual financial savings are assumed to persist over the effective useful life (EUL) of the installed measures. The study team recommended adopting EDC-specific results for PECO, PPL, and Duquesne Light.

The study team also recommended conducting an updated analysis in the future for FE rate districts. The absence of observed reductions in arrears, collection notices, calls, and shutoffs in these districts remains unexplained, although the team hypothesized that baseline differences between treatment and comparison groups—not observed in the other EDCs—may have contributed to this outcome. In the interim, rather than recommending zero annual financial savings for FirstEnergy (FE) rate districts, the study team proposed applying statewide average values, which were conservative (i.e., lower) due to the inclusion of FE district results in the average.

The study's methodology and results are useful for other jurisdictions looking to account for utility-side benefits from increased affordability and reduction in customer arrearages in their cost benefit analysis for low-income energy efficiency programs.

References

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