



Pepco Arrearage Management Program Evaluation

Final Report

May 2021

Table of Contents

Executive Summary i

- Arrearage Management Program i
- Enrollment Analysis..... i
- Participant Survey ii
- Six-Month Impact Analysis iii
- One-Year Impact Analysis..... iv
- Recommendationsv

I. Introduction 1

- A. Research Goals..... 1
- B. Organization of the Report..... 1

II. Arrearage Management Program 3

- A. Background 3
- B. Eligibility 3
- C. Outreach and Enrollment 4
- D. AMP Benefits..... 4

III. Enrollment Analysis..... 6

- A. Customer Characteristics 6
- B. Program Enrollment..... 11
- C. Arrearages 12
- D. Summary 14

IV. Participant Survey 15

- A. Overview and Methodology 15
- B. Participant Characteristics 16
- C. Enrollment and Program Understanding 17
- D. Program Impact..... 21
- E. Participant Satisfaction 22
- F. Summary 25

V. Six-Month Impact Analysis27

- A. Methodology27
- B. Arrearage Analysis.....31
- C. Payment & Billing Impacts.....35
- D. Collections Impact40
- E. Summary42

VI. One-Year Impact Analysis43

- A. Methodology43
- B. Arrearage Analysis.....47
- C. Payment & Billing Impacts.....51
- D. Collections Impact57
- E. Summary59

VII. Findings and Recommendations60

Executive Summary

This report presents the findings from an evaluation of Potomac Electric Power Company's (Pepco's) Arrearage Management Program (AMP). The AMP provides monthly arrearage forgiveness to qualifying low-income Pepco customers who make timely payments on their electric bills.

Arrearage Management Program

The objective of AMP is to help Pepco customers meet their energy needs by providing arrearage forgiveness. The goals are as follows.

- Reduce or eliminate existing arrearages.
- Bring accounts current.
- Put customers in a position to avoid disconnection and remain current in their payment obligations to Pepco going forward.
- Benefit nonparticipating Pepco customers by reducing Pepco's uncollectible expenses and other costs of service, such as those related to collection and disconnection.

AMP eligibility is determined through processes in place to screen and approve customers for the Residential Aid Discount Program (RAD). To be eligible for the AMP, customers must also be enrolled in the RAD. RAD furnishes eligible low-income customers with a monthly credit, known as the Residential Aid Credit (RAC), toward their distribution charges.

The AMP provides the following benefits.

- Each month, customers receive a credit or matching payment toward their unpaid account balances with Pepco.
- Customers who enter the program with arrearages of \$3,600 and under receive monthly credits equivalent to 1/12 of their arrearages, allowing for complete arrearage forgiveness within 12 months.
- Customers who enter the program with arrearages of over \$3,600 receive monthly credits via a different calculation, and their time in the program may be extended to allow for full arrearage forgiveness.
- The \$35 reconnection fee for terminated customers is waived.

Enrollment Analysis

Key findings on the characteristics of customers who enrolled in the AMP are summarized below.

- Heating Type: Sixty-three percent of AMP participants were electric non-heating customers, while 37 percent were electric heating.

- **Third Party Supplier:** Over half of the AMP participants and nonparticipants had a third-party supplier at some point in the six months following enrollment.
- **Household Income:** Forty percent of AMP participants had annual household income of \$10,000 or less. The average annual household income was \$15,653 for the AMP participants.
- **Poverty Level:** Fifty-three percent of the AMP participants had income at or below 50 percent of the poverty level. The mean poverty level for AMP participants was 64 percent.
- **AMP Enrollment Month:** Sixty-four percent of AMP participants enrolled in October or November 2019. The remainder enrolled between December 2019 and May 2020.
- **Program Status:** Ninety-three percent of the AMP participants were active as of August 2020. Twenty-two percent of the participants were removed from the program but were later re-enrolled due to COVID-19. Seven percent of customers moved out during the program.
- **Arrearages:** Seventy percent of participants had monthly AMP credits between \$51 and \$150. The average monthly arrearage credit for all enrolled customers was \$122.

Participant Survey

APPRISE conducted telephone surveys with 42 AMP participants in October 2020. The purpose of the survey was to assess participants' motivation for participation; their awareness and understanding of AMP parameters; the impact of the program on bill payment; and program satisfaction.

Enrollment and Program Understanding

- **Source of Program Information:** When asked how they first learned about AMP, 52 percent of respondents reported that they learned about the program from a letter or handout from Pepco, 26 percent reported that they learned about the program from calling Pepco about billing, and 12 percent said they learned about it from a local agency.
- **Reasons for Enrolling:** Sixty percent said they wanted to pay off arrearages, 19 percent said they needed bill assistance, ten percent said they needed to prevent service terminations, and ten percent said they wanted to try it out.
- **Current Understanding of Program:** Forty percent reported a very good understanding of the program, 45 percent reported a good understanding of the program, 12 percent said they somewhat understand the program, and two percent said they do not understand the program.

- **Most Important Benefit of AMP:** Fifty-five percent said that the program reduced the amount they owed to Pepco, 33 percent said the fixed monthly payments were the most important benefit, and 14 percent said the restoration of service was the most important benefit.

Program Impact

- **Shutoff Status at Enrollment:** Twenty-six percent of respondents reported that their electricity was shut off at the time of enrollment.
- **Pepco Bill Payment:** Eighty-three percent of respondents reported that they felt it is now easier to pay their Pepco bills each month than before they were on AMP, and 90 percent reported that they make a greater effort now to pay their Pepco bills than before they were on AMP.
- **Arrearage Reduction:** Eighty-one percent of respondents said they felt they had a large reduction in arrearages as a result of AMP.

Customer Satisfaction

- **Overall Satisfaction with AMP:** Eighty-one percent of respondents reported that they were very satisfied with the program, 17 percent said they were somewhat satisfied, and no respondents reported dissatisfaction with the program.
- **Recommendations to Improve AMP:** Twelve percent of respondents recommended providing more information to enrollees, five percent recommended conducting more outreach about the program, five percent recommended improving customer service, and 73 percent had no recommendations to offer.

Six-Month Impact Analysis

Following six months of program implementation, APPRISE conducted an initial analysis to estimate the impact of the AMP on payments, arrearages, collections actions and costs, and terminations. The comparison group was comprised of program-eligible customers who participated in RAD in 2017, 2018, or 2019 but did not enroll in the AMP.

For AMP participants, we analyzed customer data in the first six months following AMP enrollment and the same six calendar months in the year prior to enrollment. We looked at the same calendar months in the pre- and post-enrollment periods to control for seasonal effects. Customers with less than six months of post-enrollment data were also included in our analysis. However, the pre-program analysis period for these customers was adjusted to examine the same calendar months in the year prior to enrollment.

Key findings are summarized below.

- **Mean Arrearage Credits:** The average AMP participant had arrears of \$1,469 at program enrollment, received 3.3 arrearage credits through the AMP, and reduced their arrears by \$389.

- **Expected Percent of Arrears Forgiven vs Actual Percent of Arrears Forgiven:** Of the 95 AMP participants analyzed, ten who were enrolled for six months received all the expected arrearage credits. The average percent of arrears forgiven was 28 percent, compared to the expected weighted average of 45 percent based on the number of months they participated in AMP
- **Payment Impacts:** Customers were encouraged by the incentives of the AMP to make on-time payments. Late payment charges decreased significantly after program enrollment while the number of cash payments increased significantly. Bill coverage rates also improved as compared to the nonparticipants. AMP participants did especially well compared to the nonparticipant comparison group during the COVID-19 economic crisis.
- **Collections Actions:** AMP participants had an average of 19.8 collection actions in the pre-period and 1.9 collection actions in the post-period, a reduction of 17.9 actions compared to a reduction of 10.8 actions for the comparison group. This shows that the AMP program was effective at reducing the number of collections actions for AMP participants, particularly the number of calls and late payment charges.
- **Collections Costs:** The average total collections costs increased by \$15 for the AMP participants as compared to the comparison group. However, these results are difficult to interpret given the shutoff moratoriums that were in place.

One-Year Impact Analysis

The one-year analysis examined a full year of bills, payments, arrears, collections actions, and terminations before and after enrollment.

For AMP participants, we analyzed customer data in the first twelve months following AMP enrollment and the same twelve calendar months in the year prior to enrollment. Customers with less than twelve months of post-enrollment data were also included in the analysis. However, the pre-program analysis period for these customers was adjusted to examine the same calendar months in the year prior to enrollment.

Key findings are summarized below.

- **Mean Arrearage Credits:** The average AMP participant had arrears of \$1,451 at program enrollment, received 7.6 arrearage credits through AMP, and reduced their arrears by \$897. AMP participants had an average of \$553 in arrears remaining at the end of the 12-month analysis period.
- **Credits Received on Time:** The average AMP participant received 6.4 credits on time and made up 1.2 credits by bringing their account current at a later point.
- **Expected Percent of Arrears Forgiven vs Actual Percent of Arrears Forgiven:** Of the 97 AMP participants, only 29 received all of their expected arrearage credits. The average percent of arrears forgiven was 63 percent, compared to the 81 percent that was expected based on the number of months they participated in AMP.

- **Payment Impacts:** Customers were encouraged by the incentives of the AMP to make on-time payments. Late payment charges decreased and the number of cash payments increased. Bill coverage rates increased by 16 percentage points compared to the nonparticipants. Shortfall declined by \$370 compared to the nonparticipants.
- **Collections Actions:** AMP participants had an average of 36.7 collection actions in the pre-enrollment period and 1.8 collection actions in the post-enrollment period. Compared to the nonparticipant group, AMP participants had a statistically significant reduction of 4.2 collections actions.
- **Collections Costs:** The average total collections costs increased by \$32 for the AMP participants as compared to the nonparticipant group. However, these results are difficult to interpret given the shutoff moratoriums that were in place.

Recommendations

Based on the research presented in this report, we make the following recommendations.

- **Continue AMP:** The analysis showed that the AMP had positive impacts on participants' payment behavior. This is especially important during the current period of economic crisis. We recommend that Pepco continue to enroll additional customers in the AMP and extend the program beyond the pilot.
- **Expand Eligibility and Outreach:** Just over 100 customers enrolled in AMP. We recommend that Pepco expand eligibility beyond RAD and increase outreach to make customers aware of AMP. This will be especially important as customers begin to recover from the economic fallout of COVID-19.
- **Extend Arrearage Forgiveness Period:** Most customers did not receive all arrearage forgiveness payments. We recommend that Pepco continue providing monthly arrearage forgiveness when customers pay their bills to enable customers to have all of their arrearages forgiven.

I. Introduction

This report presents the findings from an evaluation of Potomac Electric Power Company's (Pepco's) Arrearage Management Program (AMP). The AMP provides monthly arrearage forgiveness to qualifying low-income Pepco customers who make timely payments on their electric bills.

A. *Research Goals*

The research had the following goals.

- **Program Enrollment:** Assess the characteristics of customers who enroll in the AMP.
- **Payment Analysis:** Estimate the impact of the AMP on customers' payment practices, energy assistance received, and arrearages after six and 12 months of program participation.
- **Collections Analysis:** Estimate the impact of the AMP on collections actions and terminations after six and 12 months of program participation.
- **Participant Experience and Satisfaction:** Survey participants to understand reasons for participation, marketing effectiveness, program understanding, and program satisfaction.

B. *Organization of the Report*

Six sections follow this introduction.

- **Section II – Arrearage Management Program:** This section provides a description of the program design and implementation.
- **Section III – Enrollment Analysis:** This section provides an analysis of the characteristics of customers who enrolled in the program.
- **Section IV – Participant Survey:** This section provides a description of the survey methodology and findings with respect to reasons for participation, marketing effectiveness, program understanding, and program satisfaction.
- **Section V – Six-Month Analysis:** This section provides an analysis of the impacts of the program on arrearages, payments, and collections actions and costs after six months of program participation.
- **Section VI – One-Year Analysis:** This section provides an analysis of the impacts of the program on arrearages, payments, and collections actions and costs after one year of program participation.
- **Section VII – Findings and Recommendations:** This section provides the key findings and recommendations for the program.

APPRISE prepared this report under contract to Pepco. Pepco 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 Pepco.

II. Arrearage Management Program

This section provides information on the design and implementation of Pepco's Arrearage Management Program (AMP).

A. Background

The objective of AMP is to help Pepco customers meet their energy needs by providing arrearage forgiveness. The goals are as follows.

- Reduce or eliminate existing arrearages.
- Bring accounts current.
- Put customers in a position to avoid disconnection and remain current in their payment obligations to Pepco going forward.
- Benefit nonparticipating Pepco customers by reducing Pepco's uncollectible expenses and other costs of service, such as those related to collection and disconnection.

AMP costs will be recovered through an estimated surcharge to be paid by all non-AMP customers. The surcharge will be calculated and modified on an annual basis. Pepco projected that the surcharge would cost approximately \$0.48 per year for an average customer using 675 kWh per month.

B. Eligibility

AMP eligibility is determined through processes in place to screen and approve customers for the Residential Aid Discount Program (RAD). Customers must meet the following criteria to be eligible for the AMP.

- RAD participant
- District of Columbia resident
- Pepco customer
- Active customer or recently disconnected customer
- Minimum balance of \$300 that is a minimum of 60 days past due
- Enrolled or willing to enroll in budget billing

To be eligible for the AMP, customers must also be enrolled in the RAD. This program furnishes eligible low-income customers with a monthly credit, known as the Residential Aid Credit (RAC), toward their distribution charges.

RAD customers receive a discount of approximately 25 to 30 percent on their overall Pepco bill. The RAD is funded by District of Columbia electric distribution customers through a surcharge that has been approved by the D.C. Public Service Commission.

Customers may apply for the RAD by submitting an online application through the Department of Energy and Environment (DDOE) website or by submitting an in-person application at one of DDOE's Energy Centers. Once admitted into the RAD, customers receive the RAC each month for 18 months and may reapply to remain in the program annually.

To qualify for the RAD, customers must pay utility bills in their own name and fall under income guidelines specified by DDOE. The FY21 income guidelines for the program are displayed in Table II-1. Though the RAD is offered by Pepco, customers who receive their energy supply from a competitive supplier and are otherwise qualified for the RAD are also eligible to join the program.

**Table II-1
RAD Income Guidelines**

Household Size	Maximum Annual Income
1	\$37,575
2	\$49,137
3	\$60,698
4	\$72,260
5	\$83,822
6	\$95,383
7	\$97,551
8	\$99,719

C. Outreach and Enrollment

Pepco conducted outreach to inform potential participants of the program and encourage them to enroll. The outreach consisted of the following activities.

- **Community Presentations:** Pepco added AMP to the programs included in their community outreach presentations. These presentations had previously been conducted to educate customers about LIHEAP and RAD. Groups included senior centers, community groups, the Department of Aging, Veterans groups, and high-density buildings with Pepco accounts. Between September 2019 and March 2020, 20 presentations were made at in-person meetings prior to the COVID-19 restrictions. Following that time, additional virtual presentations were made.
- **Mailings:** When AMP was first launched, Pepco sent a letter to RAD recipients with a flyer that provided information on the AMP.
- **Website:** Pepco posted AMP information on their website.

Customers call or email Pepco's Energy Assistance Department to enroll in AMP.

Pepco began enrolling participants in October 2019. Between October 2019 and May 2020, 107 Pepco customers enrolled in AMP.

D. AMP Benefits

The AMP provides the following benefits.

- Each month, customers receive a credit or matching payment toward their unpaid account balances with Pepco. Credits are provided to the customer every month for one year if the customer makes full payments on the monthly Pepco bill.
- Customers who enter the program with arrearages of \$3,600 and under receive monthly credits equivalent to 1/12 of their arrearages, allowing for complete arrearage forgiveness within 12 months.
- Customers who enter the program with arrearages of over \$3,600 receive monthly credits via a different calculation, and their time in the program may be extended to allow for full arrearage forgiveness.
- The \$35 reconnection fee for terminated customers is waived.

III. Enrollment Analysis

In this section, we analyze the characteristics of customers who enrolled in the AMP as of August 1, 2020. Where possible, we compare their characteristics to a comparison group of Pepco customers who participated in RAD, were eligible for AMP, but did not enroll in AMP.

A. Customer Characteristics

Table III-1 displays the number and percentage of AMP participants and nonparticipants by heating type. Sixty-three percent of AMP participants were electric non-heating customers, while 37 percent were electric heating. The percentage of electric non-heating and electric heating is similar across the two groups.

**Table III-1
Heating Type**

Heating Type	AMP Participants		Comparison Group	
	#	%	#	%
Electric Non-Heating	67	63%	395	66%
Electric Heating	40	37%	204	34%
Total	107	100%	599	100%

Note: One customer in the comparison group is a Pepco DC GS Non-demand customer. The customer is excluded from this table.

Table III-2 shows that over half of AMP participants and nonparticipants had a third-party supplier in the post-AMP enrollment period. Customers were denoted as having a third-party supplier if they had at least one supplier bill in the six months following AMP enrollment (or during that same time period for the comparison group).

**Table III-2
Third Party Supplier**

Third Party Supplier	AMP Participants		Comparison Group	
	#	%	#	%
Yes	47	56%	319	53%
No	60	44%	281	47%
Total	107	100%	600	100%

Table III-3 displays the number and percentage of AMP participants and nonparticipants by annual household income. Forty percent of AMP participants and 58 percent of nonparticipants had annual household income of \$10,000 or less. The average annual household income was \$15,653 for the AMP participants and \$13,106 for the nonparticipant comparison group.

Table III-3
Total Household Income

Total Household Income	AMP Participants		Comparison Group	
	#	%	#	%
≤ \$10,000	38	40%	346	58%
\$10,001 - \$20,000	27	28%	110	18%
\$20,001 - \$30,000	18	19%	70	12%
\$30,001 - \$40,000	9	9%	39	7%
> \$40,000	3	3%	30	5%
Total	95	100%	595	100%
Mean	\$15,653		\$13,106	

Note: Twelve AMP participants and five comparison group customers were excluded from this table due to missing income data.

Table III-4 displays the Federal Poverty Level (FPL) for the AMP participants and nonparticipants. Fifty-three percent of the AMP participants and 61 percent of the comparison group had income at or below 50 percent of the FPL. The mean FPL for AMP participants was 64 percent, and the mean FPL for nonparticipants was 57 percent.

Table III-4
Percent of Poverty Level

Percent of Poverty Level	AMP Participants		Comparison Group	
	#	%	#	%
≤ 50% FPL	50	53%	362	61%
51% - 100% FPL	21	22%	140	24%
101% - 150% FPL	16	17%	49	8%
> 150% FPL	7	7%	43	7%
Total	94	100%	594	100%
Mean	64%		57%	

Note: Thirteen AMP participants and six comparison group customers were excluded from this table due to missing poverty level data.

Table III-5 displays the number and percentage of AMP participants and nonparticipants by age group. Over 40 percent of the customers were between 31 and 45 years old. The average

age of AMP participants was 45 years old, and the average age of nonparticipants was 42 years old.

Table III-5
Age of Applicant

Age of Applicant	AMP Participants		Comparison Group	
	#	%	#	%
≤ 30 Years	17	18%	135	23%
31-45 Years	39	41%	261	44%
46-60 Years	26	27%	136	23%
> 60 Years	13	14%	63	11%
Total	95	100%	595	100%
Mean	45 Years		42 Years	

Note: Twelve AMP participants and five comparison group customers were excluded from this table due to missing age data.

Table III-6 displays the number and percentage of vulnerable household members. AMP participants were more likely to have vulnerable household members. Forty-eight percent of AMP participants had a young child (5 years or younger) compared to 36 percent of nonparticipants.

Table III-6
Vulnerable Household Members

Vulnerable Household Members	AMP Participants		Comparison Group	
	#	%	#	%
Observations	94	100%	595	100%
Child 2 Year or Younger	20	21%	83	14%
Child 3 to 5 Years	25	27%	129	22%
Seniors Over 60 Years	15	16%	67	11%
Disabled	9	10%	36	6%

Note: Thirteen AMP participants and five comparison group customers were excluded from this table due to missing household members data.

Table III-7 displays the participation statistics of AMP participants and nonparticipants in other utility discount programs. Some customers were missing utility discount program information and were excluded from the table. By definition, all customers participated in the Residential Aid Discount (RAD) Program. Over 30 percent participated in Washington Gas's Residential Essential Service (RES) Program.

Table III-7
Utility Discount Program Participation

Utility Discount Program Participation	AMP Participants		Comparison Group	
	#	%	#	%
Observations	95	100%	595	100%
Residential Aid Discount (RAD)	95	100%	595	100%
Residential Essential Service (RES)	29	31%	225	38%

Note: Twelve AMP participants and five comparison group customers were excluded from this table due to missing utility discount program participation data.

Table III-8 displays the type of LIHEAP assistance received by AMP participants and nonparticipants. Most AMP participants and nonparticipants received LIHEAP heating assistance. Very few customers received cooling assistance.

Table III-8
LIHEAP Service Type

LIHEAP Service Type	AMP Participants		Comparison Group	
	#	%	#	%
Heating	90	96%	579	97%
Cooling	2	2%	5	1%
Unknown	2	2%	11	2%
Total	94	100%	595	100%

Note: Thirteen AMP participants and five comparison group customers were excluded from this table due to missing LIHEAP data.

Table III-9 displays the LIHEAP program type for AMP participants and nonparticipants. All AMP participants and over 99 percent of the nonparticipants received regular LIHEAP grants. Sixty-nine percent of AMP participants and 64 percent of nonparticipants received emergency LIHEAP grants and 15 percent of AMP participants and nonparticipants received special LIHEAP grants.

**Table III-9
LIHEAP Program Type**

LIHEAP Program Type	AMP Participants		Comparison Group	
	#	%	#	%
Observations	94	100%	595	100%
Regular	94	100%	594	> 99%
Emergency	65	69%	381	64%
Special	14	15%	91	15%

Note: Thirteen AMP participants and five comparison group customers were excluded from this table due to missing LIHEAP data.

Table III-10 displays the shutoff status of AMP participants at the time of enrollment. Ninety-three percent had active accounts and seven percent had their service terminated at the time of AMP enrollment.

**Table III-10
Shutoff Status at AMP Enrollment**

Shutoff Status	#	%
Service On	100	93%
Service Terminated	7	7%
Total	107	100%

Table III-11 displays the program status of AMP participants as of August 1, 2020. Ninety-nine of the 107 customers were active participants. Note that 23 of these 99 active customers were previously removed from the program but were later re-enrolled due to COVID-19. Unless otherwise specified, the tables in the following sections of the report include program data from the first time that these 23 customers enrolled in the AMP, not the second time.

**Table III-11
AMP Status**

AMP Status	#	%
Active*	99	93%
Moved Out During Program	8	7%
Total	107	100%

Note: Twenty-three of the 99 active customers were previously removed from AMP point but were subsequently re-enrolled due to COVID-19.

B. Program Enrollment

Table III-12 displays the AMP enrollment month. Sixty-four percent of AMP participants enrolled in October or November 2019. The remainder enrolled between December 2019 and May 2020.

**Table III-12
AMP Enrollment Month**

Enrollment Month	Heating Type					
	Electric Non-Heating		Electric Heating		Total	
	#	%	#	%	#	%
10/2019	26	39%	15	38%	41	38%
11/2019	16	24%	12	30%	28	26%
12/2019	7	10%	2	5%	9	8%
01/2020	9	13%	3	8%	12	11%
02/2020	5	7%	6	15%	11	10%
03/2020	3	4%	0	0%	3	3%
04/2020	0	0%	2	5%	2	2%
05/2020	1	1%	0	0%	1	1%
Total	67	100%	40	100%	107	100%

Table III-13 displays the number of months that customers participated in AMP as of the data download date, August 1, 2020. Half of the customers participated for at least seven months, 41 percent participated for between four and six months, and nine percent participated for less than four months. Participants averaged over six months of participation at the time of data download.

**Table III-13
Months Enrolled in AMP**

Months Enrolled	Heating Type					
	Electric Non-Heating		Electric Heating		Total	
	#	%	#	%	#	%
< 4 Months	6	9%	4	10%	10	9%
4-6 months	26	39%	18	45%	44	41%
> 6 months	35	52%	18	45%	53	50%
Total	67	100%	40	100%	107	100%
Mean Months Enrolled	6.5		6.2		6.4	

Table III-14 displays the number and percentage of customers removed from the program. Twenty-three customers were removed. All customers who were removed were later re-enrolled because of the Coronavirus.

Table III-14
Percent Removed from AMP

Removed From AMP	Heating Type					
	Electric Non-Heating		Electric Heating		Total	
	#	%	#	%	#	%
Removed	12	18%	11	28%	23	22%
Not Removed	55	82%	29	73%	84	79%
Total	67	100%	40	100%	107	100%

C. Arrearages

Table III-15 displays the monthly AMP arrearage credits. Seventy percent of participants had monthly credits between \$51 and \$150. The average monthly arrearage credit for all enrolled customers was \$122.

Table III-15
Monthly AMP Arrearage Credit

Monthly AMP Credit	Heating Type					
	Electric Non-Heating		Electric Heating		Total	
	#	%	#	%	#	%
≤ \$50	2	3%	3	8%	5	5%
\$51 - \$100	31	46%	18	45%	49	46%
\$101 - \$150	19	28%	7	18%	26	24%
\$151 - \$200	8	12%	4	10%	12	11%
\$201 - \$250	3	4%	4	10%	7	7%
> \$250	4	6%	4	10%	8	7%
Total	67	100%	40	100%	107	100%
Mean Credit	\$120		\$126		\$122	

Table III-16 displays the amount of arrears at the time of AMP enrollment. (For the 23 customers that were removed and later re-enrolled, the table includes their arrearages when they enrolled in the program for the first time.) Almost half had total arrears between \$601 and \$1,200 at the time of enrollment. The average arrears at enrollment for all AMP participants was \$1,465.

**Table III-16
Arrears at AMP Enrollment**

Arrears	Heating Type					
	Electric Non-Heating		Electric Heating		Total	
	#	%	#	%	#	%
\$300 - \$600	2	3%	3	8%	5	5%
\$601 - \$1,200	31	46%	18	45%	49	46%
\$1,201 - \$1,800	19	28%	7	18%	26	24%
\$1,801 - \$2,400	8	12%	4	10%	12	11%
\$2,401 - \$3,000	3	4%	4	10%	7	7%
> \$3,000	4	6%	4	10%	8	7%
Total	67	100%	40	100%	107	100%
Mean Arrears	\$1,435		\$1,514		\$1,465	

Table III-17 displays the arrears at the time of the first and the second AMP enrollment for the 23 customers who were removed and later re-enrolled. The table shows that arrearages increased between the first and second enrollment. The average arrears at the first enrollment was \$1,466 and the average arrears at the second enrollment was \$1,826.

**Table III-17
Arrears at AMP Enrollment
Removed Customers**

Arrears	First Enrollment/Second Enrollment			
	First Enrollment		Second Enrollment	
	#	%	#	%
\$300 - \$600	1	4%	3	13%
\$601 - \$1,200	10	43%	2	9%
\$1,201 - \$1,800	5	22%	7	30%
\$1,801 - \$2,400	5	22%	7	30%
\$2,401 - \$3,000	0	0%	0	0%
> \$3,000	2	9%	4	17%
Total	23	100%	23	100%
Mean Arrears	\$1,466		\$1,826	

D. Summary

This section provides a summary of key findings from the program enrollment analysis.

- Heating Type: Sixty-three percent of AMP participants were electric non-heating customers, while 37 percent were electric heating.
- Third Party Supplier: Over half of the AMP participants and nonparticipants had a third-party supplier at some point in the six months following enrollment.
- Household Income: Forty percent of AMP participants had annual household income of \$10,000 or less. The average annual household income was \$15,653 for the AMP participants.
- Poverty Level: Fifty-three percent of the AMP participants had income at or below 50 percent of the poverty level. The mean poverty level for AMP participants was 64 percent.
- Program Status: Ninety-three percent of the AMP participants were active as of August 2020. Twenty-two percent of the participants were removed from the program but were later re-enrolled due to COVID-19. Seven percent of customers moved out during the program.
- AMP Enrollment Month: Sixty-four percent of AMP participants enrolled in October or November 2019. The remainder enrolled between December 2019 and May 2020.
- Arrearages: Seventy percent of participants had monthly AMP credits between \$51 and \$150. The average monthly arrearage credit for all enrolled customers was \$122.

IV. Participant Survey

This section describes findings from telephone surveys conducted with participants in Pepco's Arrearage Management Program (AMP).

A. Overview and Methodology

APPRISE conducted telephone surveys with participants in Pepco's Arrearage Management Program (AMP) in October 2020. The purpose of the survey was to assess participants' motivation for participation; their awareness and understanding of AMP parameters; the impact of the program on bill payment; and program satisfaction.

There were 108 AMP participants, and all were included in the survey sample. All customers in the sample were sent an advance letter that notified them that they would be called to participate in the survey, explained the purpose of the survey, and provided the option to call a toll-free number to complete the survey at their convenience (though most surveys were completed through outbound calling). The survey took approximately five minutes to complete.

Table IV-1 furnishes information on the final disposition for each AMP participant. Surveys were conducted with program participants who confirmed that they had participated in the program. A total of four participants were marked as ineligible for the survey because they did not remember the program.

Surveys were completed with 39 percent of the AMP participants. The most common non-interview reasons were that there was no response from the participant, the respondent indicated it was the wrong number, or there was another phone problem. The cooperation rate, the completion rate for customers who were contacted and who were eligible for the survey, was 88 percent. The response rate was 64 percent.

**Table IV-1
Survey Response**

Survey Response Status	#	%
AMP Participants	108	100%
Voicemail / No Answer	24	22%
Wrong Number/Phone Problem	19	18%
Refusal	6	6%
Callback Requested	2	2%
Non-Working Number	10	9%
Hearing/Language Barrier	1	1%
Not Eligible	4	4%
Complete	42	39%

Survey Response Status	#	%
AMP Participants	108	100%
Cooperation Rate	-	88%
Response Rate	-	64%

Findings from the survey are presented in the following sections.

- AMP Participant Characteristics and Demographics
- Enrollment and Program Understanding
- Program Impact
- Participant Satisfaction
- Summary of Findings and Recommendations

B. Participant Characteristics

This section provides information on participants' characteristics and demographics. Demographic data were obtained from the Washington D.C. Department of Energy & Environment (DOEE). The data are from Fiscal Years 2019 and 2020.

The statistics in this section are shown for two groups: individuals with whom a survey was completed, and for whom demographic data were available; and all AMP participants who had demographic data available. Two of the 42 respondents with whom a survey was completed had no demographic data available. Fourteen of the 108 total participants had incomplete demographic data.

Table IV-2 shows the number of participants with vulnerable household members. The table shows that 23 percent of respondents had a child aged two or younger, 20 percent had a child between three and five, and 20 percent had a household member 60 years or older. Nearly half of respondents, 48 percent, had no vulnerable household members. These characteristics are similar to the full sample of AMP participants.

**Table IV-2
Vulnerable Household Members
DOEE Data (FY19 & FY20)**

Vulnerable Household Members	Survey Respondents		Full Sample	
	#	%	#	%
Observations	40		94	
Child 2 Year or Younger	9	23%	20	21%
Child 3 to 5 Years	8	20%	25	27%
Seniors 60 Years or Older	8	20%	15	16%
Disabled	4	10%	9	10%
No Vulnerable Household Members	19	48%	38	40%

Table IV-3 shows the total annual household income for AMP participants and for those who completed a survey. The table shows that the average income for all participants was \$15,653, while the average income for survey respondents was \$17,783. Among all participants, 40 percent had incomes at or below \$10,000, while only 28 percent of respondents had incomes at or below \$10,000.

Table IV-3
Household Income
DOEE Data (FY19 & FY20)

Total Household Income	Survey Respondents		Full Sample	
	#	%	#	%
≤ \$10,000	11	28%	38	40%
\$10,001 - \$20,000	12	30%	27	28%
\$20,001 - \$30,000	10	25%	18	19%
\$30,001 - \$40,000	6	15%	9	9%
> \$40,000	1	3%	3	3%
Total	40	100%	95	100%
Mean	\$17,783		\$15,653	

Table IV-4 displays the poverty level category for respondents and the full sample of participants. The table shows that 38 percent of respondents had income at or below 50 percent of the poverty level, compared to 53 percent of all AMP participants.

Table IV-4
Household Poverty Level
DOEE Data (FY19 & FY20)

Percent of Poverty Level	Survey Respondents		Full Sample	
	#	%	#	%
≤ 50% FPL	15	38%	50	53%
51% - 100% FPL	11	28%	21	22%
101% - 150% FPL	10	25%	16	17%
> 150% FPL	4	10%	7	7%
Total	40	100%	94	100%
Mean	78%		64%	

C. Enrollment and Program Understanding

This section addresses how participants learned about the program, their level of understanding, and their reasons for enrolling. Respondents were asked how they first learned about AMP. Table IV-5 shows that 52 percent of respondents reported that they

learned about the program from a letter or handout from Pepco, 26 percent reported that they learned when they called Pepco about billing, and 12 percent said their source of information was a local agency.

Table IV-5
Source of AMP Information

How did you learn about PEPCO's Arrearage Management Program, also known as AMP?		
Sources of Information	#	%
Letter or Handout from Pepco	22	52%
Called Pepco about Billing/Arrearages	11	26%
Local Agency	5	12%
E-mail from Pepco	1	2%
Pepco's Website	1	2%
Other	1	2%
Don't Know	1	2%
Total	42	100%

Respondents were asked if they reviewed any written materials about AMP. Table IV-6 shows that 62 percent of respondents reported that they had reviewed written materials.

Table IV-6
AMP Material Review

Did you review any written materials about AMP?		
Reviewed Material	#	%
Reviewed Materials	26	62%
Did Not Review Materials	15	36%
Don't Know	1	2%
Total	42	100%

Respondents who indicated that they reviewed AMP materials were asked about the readability of those materials. Table IV-7 shows that 69 percent of those who had reviewed materials considered the materials very clear, 15 percent said the materials were somewhat clear, and 12 percent said the materials were not at all clear.

**Table IV-7
Clarity of AMP Materials**

Did those materials provide an explanation of the program that was Very Clear, Somewhat Clear, or Not at All Clear?		
Clarity of Written Materials	#	%
Very Clear	18	69%
Somewhat Clear	4	15%
Not at All Clear	3	12%
Don't Know	1	4%
Total	26	100%

Respondents were asked to provide their reason(s) for enrolling in AMP. Table IV-8 shows that the most common answer, provided by 60 percent of participants, was that the customer wanted to pay off arrearages as soon as possible. Nineteen percent said they wanted to save money, ten percent said they wanted to keep their service from being shut off, and ten percent wanted to try the program out.

**Table IV-8
AMP Participation Reasons**

Why did you decide to enroll in AMP?		
Reasons for Enrollment	#	%
Observations	42	
Pay Off Arrearages	25	60%
Bill Assistance	8	19%
Prevent Service Termination	4	10%
Curiosity / Wanted to Try it Out	4	10%
Budget Billing	3	7%
Convenient	1	2%
Other	2	5%
Don't Know	2	5%

Note: Respondents could provide more than one response.

Respondents were asked to rate their level of program understanding. Table IV-9 shows that 40 percent reported that they had a very good understanding of the program, 45 percent reported they had a good understanding of the program, and 12 percent said they somewhat understand the program.

**Table IV-9
AMP Understanding**

How would you rate your current understanding of AMP? Would you say you have a very good understanding, a good understanding, that you somewhat understand, or that you do not understand AMP?		
Current Understanding of AMP	#	%
Very Good Understanding	17	40%
Good Understanding	19	45%
Somewhat Understand	5	12%
Do Not Understand	1	2%
Total	42	100%

Respondents who did not report a good or very good understanding of the program were asked to elaborate on which topics they did not understand. Table IV-10 shows that ten percent of respondents overall said they were generally confused about the program, five percent said they did not know what they did not understand about AMP, and 86 percent reported at least a good understanding of the program.

**Table IV-10
AMP Lack of Understanding**

What do you not understand about AMP?		
Do Not Understand...	#	%
General Confusion	4	10%
Don't Know	2	5%
Good Understanding of Program	36	86%
Total	42	100%

Respondents were asked to report the most important AMP benefit. Table IV-11 shows that 55 percent of respondents thought the program's most important benefit was that it reduced the amount they owed to Pepco, 33 percent said the fixed monthly payments were the most important benefit, and 14 percent said it was getting their service turned back on.

**Table IV-11
Most Important AMP Benefit**

What do you think is the most important benefit of AMP?		
Most Important Benefit	#	%
Observations	42	
Reduced Amount Owed to Pepco	23	55%
Fixed Monthly Payments	14	33%

What do you think is the most important benefit of AMP?		
Most Important Benefit	#	%
Restore Service	6	14%
Saves Money	3	7%
Prevent Shutoff	3	7%
Other	2	5%
Don't Know	2	5%

Note: Respondents could provide more than one response.

D. Program Impact

This section addresses the impact of the program on participants' energy usage, arrearages, and shutoffs. Respondents were asked if their electricity was disconnected at the time that they enrolled in AMP. Table IV-12 shows that 26 percent of respondents reported that their Pepco service was shut off at the time of enrollment.

Table IV-12
Shutoff Status at AMP Enrollment

Was your electricity disconnected at the time that you enrolled in AMP?		
Shutoff Status at Enrollment	#	%
Shutoff	11	26%
Not Shutoff	30	71%
Don't Know	1	2%
Total	42	100%

Respondents were asked if they felt that paying their Pepco bills is easier now than it was before AMP. Table IV-13 shows that 83 percent indicated it is easier to pay their Pepco bills while participating in AMP.

Table IV-13
AMP Impact on Pepco Bill Payment

Do you feel it is easier to pay your Pepco bills each month than before you were on AMP?		
Bill Payment Difficulty	#	%
Easier to Pay Bills	35	83%
Not Easier to Pay Bills	5	12%
Don't Know	2	5%
Total	42	100%

Respondents were asked if they made a greater effort to pay their Pepco bills each month now that they are on AMP. Table IV-14 shows that 90 percent of respondents reported that they make a greater effort after enrolling in AMP.

Table IV-14
AMP Impact on Pepco Bill Payment Effort

Do you make a greater effort to pay your Pepco bills each month than you did before the program so that you can reduce the amount that you owe to Pepco?		
Bill Payment Effort	#	%
Greater Effort to Pay Bills	38	90%
No Greater Effort to Pay Bills	4	10%
Total	42	100%

Respondents were asked if they perceived a large reduction in their arrearages as a result of AMP. Table IV-15 shows that 81 percent of respondents felt that they had a large reduction in arrears.

Table IV-15
AMP Impact on Arrearages

Do you feel that you have had a large reduction in past Pepco bills that were not paid as a result of AMP?		
Arrearage Reduction Impact	#	%
Large Reduction in Arrears	34	81%
Did Not Have Large Reduction in Arrears	5	12%
Don't Know	3	7%
Total	42	100%

E. Participant Satisfaction

This section addresses respondents' satisfaction with Pepco's customer service and the Arrearage Management Program in general. Respondents were asked if they had received help from Pepco customer service, specifically for AMP. Table IV-16 shows that 62 percent of respondents reported that they received help from customer service.

Table IV-16
Pepco Customer Service Representative Assistance

Did you receive help from Pepco customer service representatives for the Arrearage Management Program?		
Received Help	#	%
Received Help from Representatives	26	62%
Did Not Receive Help from Representatives	13	31%

Did you receive help from Pepco customer service representatives for the Arrearage Management Program?		
Received Help	#	%
Don't Know	2	5%
Refused	1	2%
Total	42	100%

Respondents who reported that they received help from Pepco customer service were asked to describe the type of assistance that they received. Table IV-17 shows that 41 percent of participants reported that they received help with enrollment. Seventeen percent reported that they received a general explanation of the program.

Table IV-17
Pepco Customer Service Representative Type of Assistance

What kind of help did you receive from Pepco customer service representatives?		
Type of Help Received	#	%
Observations	42	
Enrollment	17	41%
General Program Explanation	7	17%
Other	2	5%
Don't Know	3	7%
Did not Receive Help from Representatives	16	38%

Respondents who reported that they received customer service assistance were asked about their level of satisfaction with the experience. Table IV-18 shows that 77 percent of customers who received assistance were very satisfied and 12 percent were somewhat satisfied.

Table IV-18
Satisfaction with Customer Assistance

How satisfied or dissatisfied were you with the customer assistance you received for AMP from PEPCO?		
Satisfaction with Help Received	#	%
Very Satisfied	20	77%
Somewhat Satisfied	3	12%
Somewhat Dissatisfied	2	8%
Very Dissatisfied	1	4%
Total	26	100%

Respondents were asked to report their overall level of satisfaction with AMP. Table IV-19 shows that 81 percent of participants reported that they were very satisfied, 17 percent reported they were somewhat satisfied, and no customers reported dissatisfaction.

**Table IV-19
AMP Satisfaction**

Overall, how satisfied are you with the Arrearage Management Program?		
Satisfaction with AMP	#	%
Very Satisfied	34	81%
Somewhat Satisfied	7	17%
Somewhat Dissatisfied	0	0%
Very Dissatisfied	0	0%
Refused	1	2%
Total	42	100%

Respondents were asked if they had any recommendations for Pepco to improve the Arrearage Management Program. Table IV-20 shows that 12 percent of participants recommended providing more information to enrollees, five percent recommended conducting more outreach, five percent recommended improving customer service, two percent recommended the program continue. A substantial proportion of respondents, 71 percent, said they had no recommendations for improving the program.

**Table IV-20
AMP Recommendations**

Do you have any recommendations for Pepco to improve the Arrearage Management Program that you would like to share?		
Recommendations	#	%
Provide More Information to Enrollees	5	12%
Conduct More Outreach	2	5%
Improve Customer Service	2	5%
Continue Program	1	2%
Other	1	2%
Refused	1	2%
No Recommendations	30	71%
Total	42	100%

F. Summary

APPRISE conducted a telephone survey with participants in Pepco's Arrearage Management Program to understand participants' satisfaction with the program and the impact of the program on customers' bill payment. Key findings from the survey are summarized below.

Enrollment and Program Understanding

- **Source of Program Information:** When asked how they first learned about AMP, 52 percent of respondents reported that they learned about the program from a letter or handout from Pepco, 26 percent reported that they learned about the program from calling Pepco about billing, and 12 percent said they learned about it from a local agency.
- **Reviewed Written Materials:** Sixty-two percent of respondents reported that they had reviewed written materials about AMP. Of the customers who reported that they reviewed materials, 69 percent found those materials to be very clear in their explanation of the program, 15 percent found them somewhat clear, and 12 percent said the explanation was not clear.
- **Reasons for Enrolling:** Respondents were asked to provide their reasons for enrolling in the program. Sixty percent said they wanted to pay off arrearages, 19 percent said they needed bill assistance, ten percent said they needed to prevent service terminations, and ten percent said they wanted to try it out.
- **Current Understanding of Program:** Forty percent reported a very good understanding of the program, 45 percent reported a good understanding of the program, 12 percent said they somewhat understand the program, and two percent said they do not understand the program.
- **Most Important Benefit of AMP:** Respondents were asked to provide what they thought was the most important benefit of AMP. Fifty-five percent said that the program reduced the amount they owed to Pepco, 33 percent said the fixed monthly payments were the most important benefit, and 14 percent said the restoration of service was the most important benefit.

Program Impact

- **Shutoff Status at Enrollment:** Twenty-six percent of respondents reported that their electricity was shutoff at the time of enrollment.
- **Pepco Bill Payment:** Eighty-three percent of respondents reported that they felt it is now easier to pay their Pepco bills each month than before they were on AMP, and 90 percent reported that they make a greater effort now to pay their Pepco bills than before they were on AMP.
- **Arrearage Reduction:** Eighty-one percent of respondents said they felt they had a large reduction in arrearages as a result of AMP.

Customer Satisfaction

- Overall Satisfaction with AMP: Eighty-one percent of respondents reported that they were very satisfied with the program, 17 percent said they were somewhat satisfied, and no respondents reported dissatisfaction with the program.
- Recommendations to Improve AMP: Twelve percent of respondents recommended providing more information to enrollees, five percent recommended conducting more outreach about the program, five percent recommended improving customer service, and 73 percent had no recommendations to offer.

V. Six-Month Impact Analysis

This section presents findings from the six-month billing and collections analysis.

A. Methodology

This section describes the evaluation data and the selection of participants for the impact analysis.

Evaluation Data

Pepco provided APPRISE with customer data, AMP participation data, billing and payment data, and collections data from 2018 through 2020. Pepco also provided data for a comparison group of program-eligible customers who participated in RAD in 2017, 2018, or 2019 but did not enroll in the AMP.

Analysis

Following six months of program implementation, APPRISE conducted an initial analysis to estimate the impact of the AMP on payments, arrearages, collections actions and costs, and terminations. To mitigate the effects of extraneous factors such as changes in weather and changes in the economy, we conducted a differences-in-differences analysis that assessed the average change for the AMP participants compared to the nonparticipant comparison group.

For AMP participants, we analyzed customer data in the first six months following AMP enrollment and the same six calendar months in the year prior to enrollment. We looked at the same calendar months in the pre- and post-enrollment periods to control for seasonal effects. Customers with less than six-months of post-enrollment data were also included in our analysis. However, the pre-program analysis period for these customers was adjusted to examine the same calendar months in the year prior to enrollment. Customers had less than six months of post-enrollment data for one of the following reasons.

- They moved out of their home.
- They enrolled too late to have six months of AMP participation data in August 2020.

For the nonparticipant comparison group, we analyzed the data in the first six months following the quasi enrollment dates of 11/15/2019 and 02/15/2020. These quasi-enrollment dates were selected based on the enrollment dates for the AMP participants. All nonparticipants included in the analysis had data for the six months following the quasi-enrollment dates and for the same six calendar months in the previous year.

AMP Participants

All Pepco customers who enrolled in the AMP through August 1, 2020 were included as potential members of the study group.

When measuring the impact of an intervention, it is necessary to recognize other exogenous factors that can impact changes in outcomes. Changes in a client's payment behavior and bill coverage rate, between the year preceding program enrollment and the year following enrollment, may be affected by many factors other than program services received. Some of

these factors include changes in household composition or health of family members, changes in utility prices, changes in weather, and changes in the economy, and most notably for this analysis, the impact of an event such as COVID-19.

The ideal way to control for other factors that may influence payment behavior would be to randomly assign low-income customers to a treatment or control group. The treatment group would be given the opportunity to participate in the program first. The control group would not be given an opportunity to participate in the program until one full year later. This would allow evaluators to determine the impact of the program by subtracting the change in behavior for the control group from the change in behavior for the treatment group. Such random assignment is rarely done in practice because of a desire to include all eligible customers in the benefits of the program or to target a program to those who are most in need. Therefore, we constructed a comparison group to match the treatment group as well as possible.

Nonparticipant Comparison Group

The nonparticipant comparison group was constructed to control for exogenous factors. The comparison group was designed to be as similar as possible to the treatment group, those who received services and who we are evaluating, so that the exogenous changes for the comparison groups are as similar as possible to those of the treatment group. The comparison group was a random sample of customers who had an arrearage balance of at least \$300 that was 60 days past due and who participated in RAD in 2017, 2018, or 2019 but did not enroll in the AMP. These customers were replicated to represent customers who enrolled in AMP in the last quarter of 2019 and in the first quarter of 2020 and were matched with the participants based on enrollment date.

Summary of Groups

Table V-1 describes the AMP participants and nonparticipant comparison groups that were included in the analyses. For the program impact analysis, we examined pre- and post-treatment statistics. The difference between the pre- and post-treatment statistics for the AMP participants is considered the gross change. This is the actual change in behaviors and outcomes for those participants who were served by the program. Some of these changes may be due to the program, and some of these changes are due to other exogenous factors, but this is the customer's actual experience. The net change is the difference between the gross change for the AMP participants and the gross change for the comparison groups, and represents the actual impact of the program, controlling for other exogenous changes.

**Table V-1
AMP Participants and Comparison Group**

	AMP Participants	Nonparticipant Comparison Group
Group	All AMP Participants	2017,2018,2019 RAD Participants
AMP Participation	Participated in AMP	Did not participate in AMP
Arrearages	Minimum balance of \$300 or more that is at least 60 days past due.	Minimum balance of \$300 or more that is at least 60 days past due.
Pre-Participation	Six months (or fewer) in the year prior to enrollment that match the months of AMP participation.	Six months in the year prior to the quasi-enrollment dates of 11/15/19 and 02/15/20.
Post-Participation	Six months (or fewer) after enrollment.	Six months after the quasi-enrollment dates of 11/15/19 and 02/15/20.

Table V-2 provides the attrition analysis for the AMP participants. All Pepco customers who enrolled in the program through August 1, 2020 and who participated in AMP for at least one month were considered for inclusion in the analysis. One customer was deemed ineligible for analysis because the customer was final billed before the program started. One eligible customer was excluded from the final analysis group because the customer had a move-in date after the program enrollment date. Eleven additional customers were excluded because they had less than three months of pre- and post-billing data or were extreme outliers in billing and credit amounts. The table shows that 89 percent of eligible AMP participants were included in the analysis. This high rate of inclusion provides confidence that the results are representative of the full population of AMP participants.

**Table V-2
AMP Impact Analysis Data Attrition
AMP Participants**

Inclusion Reason	AMP Participants
Included in AMP Program Data	108
Participated in AMP in at Least One Month of Post-Period	107
All Eligible	107
Had Transactions Data in Analysis Period	107
Had Move in Date Before Enrollment Date	106
Had at least 3 Months of Pre- and Post-Billing Data	99
No Outliers	95
% of Eligible	89%

Table V-3 provides the attrition analysis for the Nonparticipant Comparison Group. This group was a random sample of Pepco customers who had an arrearage balance of at least \$300 that was 60 days past due and who participated in RAD in 2017, 2018, or 2019 but did not enroll in AMP. These customers were replicated to represent customers who enrolled in AMP in the last quarter of 2019 (2019Q4) and in the first quarter of 2020 (2020Q1) since this

is when most AMP participants enrolled in the program. The nonparticipants were matched with AMP participants based on date of AMP enrollment. The table shows that 96 percent of eligible 2019Q4 Nonparticipants and 97 percent of eligible 2020Q1 Nonparticipants were included in the analysis.

Table V-3
AMP Impact Analysis Data Attrition
Nonparticipant Comparison Group

Inclusion Reason	Nonparticipant Comparison Group Quasi Enrollment Date	
	11/15/19	02/15/20
RAD Participant in 2017, 2018, or 2019	600	600
Did Not Participate in AMP	600	600
All Eligible	600	600
Had Transactions Data in Analysis Period	600	600
Had At Least 3 Months of Pre- and Post-Billing Data	600	600
No Outliers	574	581
% of Eligible	96%	97%

Table V-4 compares the characteristics of the AMP participants and Nonparticipant Comparison Group with those who had enough data to be included in the analyses that follow (labelled “Analysis Group”). In general, the “All” groups and the “Analysis Group” were very similar in terms of all observed characteristics. This provides confidence that the impacts estimated in the following tables can be attributed to the entire population.

Table V-4
Customer Characteristics Comparison

Characteristics	AMP Participants		Nonparticipant Comparison Group	
	All	Analysis Group	All	Analysis Group
Observations	107	95	1,200	1,155
Senior (60+)	16%	18%	11%	11%
Children (≤ 5)	40%	37%	30%	30%
Annual Income				
\leq \$10,000	40%	43%	58%	58%
\$10,001-\$20,000	28%	24%	18%	18%
\$20,001-\$30,000	19%	20%	12%	12%
\$30,001-\$40,000	9%	11%	7%	7%
$>$ \$40,000	3%	2%	5%	5%

Characteristics	AMP Participants		Nonparticipant Comparison Group	
	All	Analysis Group	All	Analysis Group
Poverty Group				
≤ 50%	53%	53%	61%	61%
51% – 100%	22%	22%	24%	24%
101% – 150%	17%	18%	8%	8%
≥ 151%	7%	7%	7%	7%
Electric Heating	37%	37%	34%	35%
Electric Non-Heating	63%	63%	66%	65%
Third Party Supplier	44%	45%	53%	52%
RAD	100%	100%	100%	100%
RES	31%	32%	38%	38%

Note: Customers missing demographic data were excluded from the table. All customers had information on electric heating and third-party supplier status, but between 12 and 13 customers were missing information on vulnerable household members, income, poverty level, and utility discount program participation.

B. Arrearage Analysis

Table V-5 displays the arrearage credits received by the number of months enrolled in the AMP. The average AMP participant had arrears of \$1,469 at program enrollment, received 3.3 arrearage credits through the AMP, and reduced their arrears by \$389. The table also shows that 35 AMP participants did not participate for a full six months. These customers moved out of their home or enrolled too late to have six months of post-enrollment data by August 2020.

The table shows that the average AMP participant did not receive an arrearage forgiveness credit for every month enrolled in the program. For example, the average customer enrolled in the program for six months received 4.2 arrearage forgiveness credits and the average customer enrolled in the program for five months received 2.8 arrearage forgiveness credits.

Table V-5
Arrearage AMP Credits Received

Months Enrolled in AMP	Arrearage Credits in 6-Months After Enrollment								
	Obs.	% Received Arrearage Credits	Mean # Arrearage Credits	\$ Forgiven		% Forgiven		Arreages	
				Mean	Median	Mean	Median	Initial Amount	Final Amount
3-Months in AMP	3	33%	0.7	\$48	\$0	6%	0%	\$1,811	\$1,762
4-Months in AMP	21	81%	1.3	\$174	\$132	11%	17%	\$1,453	\$1,279
5-Months in AMP	11	100%	2.8	\$384	\$304	23%	25%	\$1,665	\$1,281
6-Months in AMP	60	100%	4.2	\$482	\$424	35%	38%	\$1,421	\$939
Total	95	94%	3.3	\$389	\$327	28%	25%	\$1,469	\$1,080

Table V-6 displays the amount of arrearages forgiven by the end of the post-analysis period. Eighty-three percent of customers had less than \$600 forgiven. The mean arrears forgiven was \$389.

**Table V-6
Arrearages Forgiven**

Arrearages Forgiven	Obs.	%
≤ \$300	41	43%
\$301 - \$600	38	40%
\$601 - \$900	10	11%
\$901 - \$1,200	5	5%
\$1,201 - \$1,500	1	1%
Total	95	100%
Mean Forgiven	\$389	

Table V-7 displays the amount of arrears remaining at the end of the post-analysis period. Fifty-one percent of customers had more than \$900 in arrears remaining. The mean arrears remaining was \$1,080.

**Table V-7
Arrearages Remaining**

Arrearages Remaining	Obs.	%
≤ \$300	3	3%
\$301 - \$600	23	24%
\$601 - \$900	20	21%
\$901 - \$1,200	22	23%
\$1,201 - \$1,500	27	28%
Total	95	100%
Mean Remaining	\$1,080	

Table V-8 shows that the AMP arrearage forgiveness was usually made for on-time payments. The average AMP participant received 3.0 credits on time and made up 0.3 credits by bringing their account current at a later point.

Table V-8
Arrearage AMP Credits Received on Time and Made Up

Months Enrolled in AMP	Arrearage Credits in 6-Months after Enrollment			
	Obs.	Mean # Arrearage Credits	Mean # Credits on Time	Mean # Credits Made Up
3-Months in AMP	3	0.7	0.7	0.0
4-Months in AMP	21	1.3	1.2	0.1
5-Months in AMP	11	2.8	2.6	0.2
6-Months in AMP	61	4.2	3.8	0.4
Total	95	3.3	3.0	0.3

Table V-9 shows that AMP participants who have annual household income at or below 50 percent of the FPL received the fewest arrearage credits. Participants in that group received an average of 2.9 AMP credits, while customers with income between 101 and 150 percent of the FPL received an average of 4.5 AMP credits.

Table V-9
Mean Arrearage Credits by Poverty Level

Poverty Level	Observations	Mean # Arrearage Credits	Mean Arrearages Forgiven
≤ 50%	44	2.9	\$414
51%-100%	18	3.9	\$400
101%-150%	15	4.5	\$438
> 150%	6	3.7	\$277
Total	83	3.4	\$400

Note: Twelve customers were excluded from this table due to missing poverty level data.

Table V-10 shows that electric heating and electric non-heating customers received similar levels of arrearage forgiveness. Both groups received an average of just over three arrearage credits and an average of approximately \$400 in arrearage forgiveness.

Table V-10
Mean Arrearage Credits by Heating Type

Heating Type	Observations	Mean # Arrearage Credits	Mean Arrearages Forgiven
Electric Heat	35	3.2	\$401
Electric Non-Heating	60	3.4	\$382
Total	95	3.3	\$389

Table V-11 displays arrearage forgiveness by third-party supplier status. On average, customers who did not have a third-party supplier received 3.7 arrearage credits and \$484 in arrearage forgiveness. In comparison, customers who had a third-party supplier received an average of three arrearage credits and \$311 in arrearage forgiveness.

Table V-11
Mean Arrearage Credits by Supplier Status

Third Party Supplier	Observations	Mean # Arrearage Credits	Mean Arrearages Forgiven
Yes	43	3.0	\$311
No	52	3.7	\$484
Total	95	3.3	\$389

Table V-12 compares the expected percent of arrearages forgiven, based on the number of months of AMP participation, to the actual percent of arrearages forgiven. Ten of the 60 who were enrolled for six months received all the expected arrearage credits. None of the customers enrolled in the program for less than six months received all of the expected arrearage credits. The average percent of arrears forgiven was 28 percent, compared to the expected weighted average of 45 percent based on the number of months they participated in AMP.

Table V-12
Expected vs Actual Percent Arrears Forgiven

Months Enrolled in AMP	Observations	# of Customers Who Received All Credits	Percent Expected to be Forgiven	Percent Actually Forgiven
3-Months in AMP	3	0	25%	6%
4-Months in AMP	21	0	33.33%	11%
5-Months in AMP	11	0	41.67%	23%
6-Months in AMP	60	10	50%	35%
Total	95	10	45%	28%

C. Payment & Billing Impacts

This section provides an analysis of bills and payments. Table V-13 shows the following positive payment results for the AMP participants.

- Late payment charges decreased significantly in the post-analysis period. AMP customers experienced a \$33 decrease in late payment charges compared to the nonparticipant group.
- The number of cash payments increased by 1.0 for AMP participants compared to the nonparticipant group.
- The shortfall (difference between total charges and total credits) decreased for AMP participants and increased for nonparticipants. The net change, a decrease of \$204, was statistically significant at the 95 percent level.

Table V-13
Payment Impacts

	AMP Participants			Nonparticipants			Net Change
	Pre	Post	Change	Pre	Post	Change	
# of Customers	95			1,155			
Electric Charges	\$1,136	\$946	-\$190**	\$790	\$748	-\$41**	-\$149**
Late Payment Charges	\$52	\$3	-\$49**	\$44	\$28	-\$16**	-\$33**
Other Charges [†]	\$19	\$16	-\$3	\$17	\$8	-\$9**	\$6
Total Charges	\$1,207	\$966	-\$241**	\$851	\$785	-\$66**	-\$175**
Cash Payments	\$317	\$319	\$3	\$213	\$127	-\$85**	\$88*
LIHEAP Credits	\$392	\$282	-\$110 [#]	\$430	\$308	-\$121**	\$11
RAD Credits	\$144	\$138	-\$6	\$106	\$150	\$44**	-\$50*
Other Energy Assistance	\$32	\$9	-\$22	\$8	\$5	-\$4	-\$19
Other Credits	\$3	\$3	< \$1	\$1	\$2	\$1**	-\$1
Total Credits	\$888	\$752	-\$136 [#]	\$757	\$592	-\$165**	\$29
# Cash Payments	1.6	2.0	0.5 [#]	1.2	0.7	-0.5**	1.0**
# Total Payments	7.2	5.4	-1.8**	6.6	6.2	-0.3**	-1.4**
# Bills Paid on Time	3.8	3.7	-0.1	3.9	3.2	-0.7**	0.6 [#]
Cash Coverage Rate	28%	33%	5%	25%	16%	-9%**	13%*
Total Coverage Rate	84%	81%	-3%	95%	78%	-18%**	15%
Shortfall	\$320	\$214	-\$106	\$94	\$193	\$99**	-\$204*
Arrears Forgiveness	\$0	\$389	\$389**	-	-	-	-

[†] The "Other Charges" category includes transfers, returned check fees, billing adjustments, connection charges, return fees, cash deposit requests, and reset cleared item charges.

**Denotes significance at the 99 percent level. *Denotes significance at the 95 percent level. [#]Denotes significance at the 90 percent level.

Table V-13A displays the payment impacts for AMP participants and nonparticipants who enrolled (or had a quasi-enrollment date) in 2019. The net change in payment impacts was similar to the results displayed in the table above. The decrease in late payment charges and the increase in cash payments and on-time payments were consistent with the result above. For the most part, these participants had pre- and post-AMP data prior to the COVID-19 impact on the economy (although part of the post-AMP data did include the COVID-19 economic impact).

- Late payment charges decreased significantly in the post-analysis period. AMP customers experienced a \$32 decrease in late payment charges compared to the nonparticipant group.
- The number of cash payments increased by 1.0 for AMP participants compared to the nonparticipant group.

Table V-13A
Payment Impacts – 2019Q4 Comparison Group

	AMP Participants			Nonparticipants			Net Change
	Pre	Post	Change	Pre	Post	Change	
# of Customers	72			574			
Electric Charges	\$1,100	\$931	-\$169**	\$815	\$766	-\$48**	-\$120**
Late Payment Charges	\$45	\$4	-\$41**	\$44	\$35	-\$9**	-\$32**
Other Charges [†]	\$20	\$18	-\$2	\$17	\$10	-\$7*	\$5
Total Charges	\$1,165	\$953	-\$212**	\$876	\$811	-\$65**	-\$147**
Cash Payments	\$270	\$303	\$33	\$215	\$144	-\$70**	\$103*
LIHEAP Credits	\$398	\$272	-\$127*	\$418	\$359	-\$60*	-\$67
RAD Credits	\$139	\$141	\$2	\$103	\$153	\$50**	-\$48**
Other Energy Assistance	\$14	\$5	-\$9	\$8	\$2	-\$6*	-\$2
Other Credits	\$4	\$2	-\$1	\$1	\$3	\$2**	-\$3*
Total Credits	\$824	\$723	-\$101	\$745	\$660	-\$85**	-\$17
# Cash Payments	1.4	2.0	0.6*	1.3	0.8	-0.5**	1.0**
# Total Payments	7.1	5.5	-1.7**	6.7	6.7	0.1	-1.7**
# Bills Paid on Time	3.8	3.7	-0.2	3.9	3.5	-0.4 [#]	0.2
Cash Coverage Rate	26%	30%	4%	25%	18%	-7%**	11% [#]
Total Coverage Rate	85%	78%	-7%	92%	85%	-6%	- <1%
Shortfall	\$340	\$230	-\$111	\$131	\$151	\$20	-\$131
Arrears Forgiveness	\$0	\$360	\$360**	-	-	-	-

[†] The “Other Charges” category includes transfers, returned check fees, billing adjustments, connection charges, return fees, cash deposit requests, and reset cleared item charges.

**Denotes significance at the 99 percent level. *Denotes significance at the 95 percent level. [#]Denotes significance at the 90 percent level.

Table V-13B shows the payment impacts for AMP participants and nonparticipants who enrolled (or had a quasi-enrollment date) in 2020. These customers had pre-AMP data prior to the start of the COVID-19 economic impact and post-AMP data following the start of the COVID-19 economic impact. Therefore, we may expect these customers to not have the positive impacts seen for the other group. However, the table shows that these customers had better results than the other group. A large part of this difference was due to the fact that this comparison group was more negatively affected by COVID-19 than the other comparison group. This shows that the AMP helped customers to maintain good payments during the crisis, as compared to the non-AMP comparison group. The table shows the following payment results for the AMP participants.

- The number of cash payments increased by 0.8 for AMP participants compared to the nonparticipants group.
- The shortfall decreased for AMP participants and increased for nonparticipants. The net change, a decrease of \$422, was significant at the 99 percent level.

In comparison to the two tables above, there was a relatively large increase in the net change for the cash coverage rate (percent of the bill covered by cash) and the total coverage rate (percent of the bill covered by cash and assistance payments). The cash coverage rate increased by 21 percentage points and the total coverage rate increased by 59 percentage points. These large increases are due in large part to a decrease in cash payments and energy assistance payments for the 2020Q1 nonparticipants.

Table V-13B
Payment Impacts – 2020Q1 Comparison Group

	AMP Participants			Nonparticipants			Net Change
	Pre	Post	Change	Pre	Post	Change	
# of Customers	23			581			
Electric Charges	\$1,251	\$995	-\$256*	\$715	\$695	-\$20#	-\$236**
Late Payment Charges	\$75	\$2	-\$72**	\$45	\$9	-\$36**	-\$36**
Other Charges [†]	\$15	\$11	-\$5	\$17	\$3	-\$14**	\$9
Total Charges	\$1,341	\$1,008	-\$333**	\$778	\$708	-\$70**	-\$263**
Cash Payments	\$463	\$371	-\$92	\$207	\$77	-\$129**	\$38
LIHEAP Credits	\$374	\$316	-\$58	\$463	\$159	-\$304**	\$246#
RAD Credits	\$161	\$129	-\$33	\$113	\$140	\$27**	-\$60**
Other Energy Assistance	\$87	\$22	-\$65	\$10	\$13	\$4	-\$69*
Other Credits	\$0	\$5	\$5	\$1	\$1	< \$1	\$4#
Total Credits	\$1,086	\$843	-\$243	\$793	\$391	-\$402**	\$159
# Cash Payments	2.2	2.3	0.1	1.2	0.5	-0.7**	0.8*
# Total Payments	7.4	5.4	-2.0**	6.2	4.7	-1.6**	-0.5

	AMP Participants			Nonparticipants			Net Change
	Pre	Post	Change	Pre	Post	Change	
# Bills Paid on Time	3.8	3.9	< 0.1	4.0	2.4	-1.6**	1.7#
Cash Coverage Rate	36%	43%	7%	25%	10%	-15%**	21%*
Total Coverage Rate	83%	90%	7%	107%	55%	-52%**	59%**
Shortfall	\$255	\$165	-\$90	-\$15	\$317	\$332**	-\$422**
Arrears Forgiveness	\$0	\$480**	\$480**	-	-	-	-

† The “Other Charges” category includes transfers, returned check fees, billing adjustments, connection charges, return fees, cash deposit requests, and reset cleared item charges.

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

Table V-14 displays the distribution of total bill coverage rates for AMP participants and nonparticipants in the pre- and post-analysis periods. The bill coverage rates decreased from the pre- to the post-period. However, the nonparticipants experienced a larger decrease in the mean bill coverage rate.

Table V-14
Analysis of Total Bill Coverage Rates

Coverage Rate	AMP Participants		Nonparticipants	
	Pre	Post	Pre	Post
Observations	95		1,155	
≥ 100%	32%	31%	42%	28%
90%-99%	6%	8%	6%	4%
80%-89%	6%	3%	6%	4%
< 80%	56%	58%	46%	64%
Total	100%	100%	100%	100%
Mean Coverage Rate	84%	81%	95%	78%

Table V-14A displays the distribution of total bill coverage rates for AMP participants and nonparticipants who enrolled (or had a quasi-enrollment date) in 2019. The average total bill coverage rates declined for both groups. However, while the percent with total coverage rates below 80 percent remained the same for the AMP participants, it increased by 11 percentage points for the nonparticipant comparison group.

Table V-14A
Analysis of Total Bill Coverage Rates – 2019Q4 Comparison Group

Coverage Rate	AMP Participants		Nonparticipants	
	Pre	Post	Pre	Post
Observations	72		574	
≥ 100%	29%	32%	40%	32%
90%-99%	7%	10%	6%	5%
80%-89%	7%	1%	6%	5%
< 80%	57%	57%	48%	59%
Total	100%	100%	100%	100%
Mean Rate	85%	78%	92%	85%

Table V-14B displays the distribution of total bill coverage rates for AMP participants and nonparticipants who enrolled (or had a quasi-enrollment date) in 2020. The AMP participants experienced an increase in the average total bill coverage rates while the nonparticipants saw a considerable decrease in the average bill coverage rates. These results are similar to those in the previous tables that showed the AMP participants were much less negatively impacted by the COVID-19 economic crisis than the nonparticipants.

Table V-14B
Analysis of Total Bill Coverage Rates – 2020Q1 Comparison Group

Coverage Rate	AMP Participants		Nonparticipants	
	Pre	Post	Pre	Post
Observations	23		581	
≥ 100%	39%	26%	50%	17%
90%-99%	4%	4%	4%	1%
80%-89%	4%	9%	5%	2%
< 80%	52%	61%	41%	81%
Total	100%	100%	100%	100%
Mean Rate	83%	90%	107%	55%

Table V-15 displays the percentage of AMP participants and nonparticipants who received LIHEAP and RAD credits in post-analysis period. The table also shows the average LIHEAP grant and RAD credit for all the customers in the analysis group and for the customers who received a LIHEAP grant or a RAD credit in the pre- or post-analysis periods. The table shows that both groups had a reduction in assistance in the post-analysis period, likely due to the shutoff moratorium. However, AMP participants were less likely to receive LIHEAP and RAD credits in the period following program enrollment. Sixty percent of the AMP participants received LIHEAP in the pre-period compared to 38 percent in the post-period.

Similarly 100 percent of the AMP customers received RAD credits in the pre-period compared to 76 percent in the post-period.

**Table V-15
LIHEAP & RAD Credit Receipt**

LIHEAP Receipt	Obs.	AMP Participants			Obs.	Nonparticipants			Net Change
		Pre	Post	Change		Pre	Post	Change	
Percent Received LIHEAP	95	60%	38%	-22%**	1,155	47%	33%	-14%**	-7%
Mean LIHEAP Grant – All Analysis Group	95	\$392	\$282	-\$110 [#]	1,155	\$430	\$308	-\$121**	\$11
Mean LIHEAP Grant – Received in Pre or Post	68	\$548	\$395	-\$154 [#]	724	\$675	\$484	-\$191**	\$37
RAD Credit Receipt	Obs.	AMP Participants			Obs.	Nonparticipants			Net Change
		Pre	Post	Change		Pre	Post	Change	
Percent Received RAD Credit	95	100%	76%	-24%**	1,155	99%	97%	-2%**	-21%**
Mean RAD Credit – All Analysis Group	95	\$144	\$138	-\$6	1,155	\$106	\$150	\$44**	-\$50*
Mean RAD Credit – Received in Pre or Post	95	\$144	\$138	-\$6	1,152	\$106	\$150	\$44**	-\$50*

**Denotes significance at the 99 percent level. *Denotes significance at the 95 percent level. [#]Denotes significance at the 90 percent level.

D. Collections Impact

Table V-16 displays the number of collection actions for AMP participants and nonparticipants in the pre- and post-analysis periods. AMP participants had an average of 19.8 collection actions in the pre-period and 1.9 collection actions in the post-period. This change is statistically significant at the 99 percent level. The comparison group customers had an average of 22.7 collection actions in the pre-period and 11.9 collection actions in the post-period. This shows that the AMP program was effective at reducing the number of collections actions for AMP participants, particularly the number of calls and the number of late payment charges.

**Table V-16
Collection Impacts – Number of Actions**

Collections Actions	AMP Participants			Nonparticipants			Net Change
	Pre	Post	Change	Pre	Post	Change	
Observations	95			1,155			
Three-Day Visit	0	0	0	0	< 0.1	< 0.1**	- < 0.1**
Call	8.2	1.0	-7.2**	8.9	4.9	-4.0**	-3.3**
Deactivate Installment Plans	0.5	< 0.1	-0.5**	0.3	0.2	-0.1**	-0.4**
Reconnection	0.1	0.1	- < 0.1	0.2	0.1	-0.1**	0.1
Disconnection	0.1	0.1	- < 0.1	0.2	0.1	-0.1**	0.1
Disconnection Notice	2.5	0.2	-2.3**	3.1	1.7	-1.4**	-0.9**
Late Payment Charge	4.5	0.2	-4.3**	5.1	2.9	-2.2**	-2.1**

Collections Actions	AMP Participants			Nonparticipants			Net Change
	Pre	Post	Change	Pre	Post	Change	
Observations	95			1,155			
Notice	< 0.1	0	- < 0.1	< 0.1	< 0.1	- < 0.1	- < 0.1
Security Deposit Request	2.6	0.2	-2.3**	3.1	1.7	-1.4**	-0.9**
Service Order Visit	1.2	0.1	-1.1**	1.7	0.2	-1.5**	0.4*
Other	0.1	0	- 0.1#	< 0.1	< 0.1	- < 0.1#	- < 0.1
Total Actions	19.8	1.9	-17.9**	22.7	11.9	-10.8**	-7.1**

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

Table V-17 displays the percentage of disconnected customers in the pre- and post-analysis periods. AMP participants were just as likely to be disconnected in the pre- and the post-period. The nonparticipants were eight percentage points less likely to be disconnected in the post-period. However, these results are difficult to interpret given the shutoff moratoriums that were in place.

Table V-17
Percent of Customers Disconnected

	AMP Participants			Nonparticipants			Net Change
	Pre	Post	Change	Pre	Post	Change	
Observations	95			1,155			
Disconnection	9%	9%	0%	19%	11%	-8%**	8%#

Table V-18 displays the average collections costs. The costs for the collection actions shown in the table below are as follows.

- Call: \$0.09
- Reconnection: \$100
- Disconnection: \$100
- Disconnection notice: \$0.50
- Notice: \$0.50

The average total collections costs increased by \$15 for the AMP participants as compared to the comparison group. However, these results are difficult to interpret given the shutoff moratoriums that were in place.

Table V-18
Collection Impacts – Cost of Actions

Collections Actions	AMP Participants			Nonparticipants			Net Change
	Pre	Post	Change	Pre	Post	Change	
Observations	95			1,155			
Call	\$1	< \$1	-\$1**	\$1	< \$1	- < \$1**	- < \$1**
Reconnection	\$11	\$9	-\$1	\$19	\$11	-\$8**	\$7
Disconnection	\$11	\$9	-\$1	\$20	\$11	-\$9**	\$8
Disconnection Notice	\$1	< \$1	-\$1**	\$2	\$1	-\$1**	- < \$1**
Notice	< \$1	< \$1	- < \$1	< \$1	< \$1	- < \$1	- < \$1
Total Cost	\$23	\$19	-\$4	\$42	\$23	-\$19**	\$15

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

E. Summary

This section provides a summary of key findings from the six-month billing and collections analyses.

- **Mean Arrearage Credits:** The average AMP participant had arrears of \$1,469 at program enrollment, received 3.3 arrearage credits through the AMP, and reduced their arrears by \$389.
- **Expected Percent of Arrears Forgiven vs Actual Percent of Arrears Forgiven:** Of the 95 AMP participants, ten who were enrolled for six months received all the expected arrearage credits. The average percent of arrears forgiven was 28 percent, compared to the expected weighted average of 45 percent based on the number of months they participated in AMP
- **Payment Impacts:** Customers were encouraged by the incentives of the AMP to make on-time payments. Late payment charges decreased significantly after program enrollment while the number of cash payments increased significantly. Bill coverage rates also improved as compared to the nonparticipants. AMP participants did especially well compared to the nonparticipant comparison group during the COVID-19 economic crisis.
- **Collections Actions:** AMP participants had an average of 19.8 collection actions in the pre-period and 1.9 collection actions in the post-period, a reduction of 17.9 actions compared to a reduction of 10.8 actions for the comparison group. This shows that the AMP program was effective at reducing the number of collections actions for AMP participants, particularly the number of calls and the number of late payment charges.
- **Collections Costs:** The average total collections costs increased by \$15 for the AMP participants as compared to the comparison group. However, these results are difficult to interpret given the shutoff moratoriums that were in place.

VI. One-Year Impact Analysis

This section examines a full year of bills, payments, arrears, collections actions, and terminations before and after enrollment.

A. Methodology

This section describes the evaluation data and the selection of participants for the one-year impact analysis.

Evaluation Data

Pepco provided APPRISE with customer data, AMP participation data, billing and payment data, and collections data from 2018 through February 1, 2021. Pepco also provided data for a comparison group of program-eligible customers who participated in RAD in 2017, 2018, or 2019 but did not enroll in the AMP.

Analysis

Following twelve months of program implementation, APPRISE conducted an analysis to estimate the impact of the AMP on payments, arrearages, collections actions and costs, and terminations. To mitigate the effects of extraneous factors such as changes in weather and changes in the economy, we conducted a differences-in-differences analysis that assessed the average change for the AMP participants compared to the nonparticipant comparison group.

For AMP participants, we analyzed customer data in the first twelve months following AMP enrollment and the same twelve calendar months in the year prior to enrollment. Customers with less than twelve months of post-enrollment data were also included in the analysis. However, the pre-program analysis period for these customers was adjusted to examine the same calendar months in the year prior to enrollment. Customers had less than twelve months of post-enrollment data for one of the following reasons.

- They moved out of their home.
- They enrolled too late to have twelve months of AMP participation data as of February 1, 2021, the data download date.

For the nonparticipant comparison group, we analyzed the data in the twelve months before and after the quasi-enrollment dates of 11/15/2019 and 02/15/2020. These quasi-enrollment dates were selected based on the enrollment dates for the AMP participants.

AMP Participants

All Pepco customers who enrolled in the AMP through August 1, 2020 were included as potential members of the study group.

When measuring the impact of an intervention, it is necessary to recognize other exogenous factors that can affect changes in outcomes. Changes in a client's payment behavior and bill coverage rate, between the year preceding program enrollment and the year following enrollment, may be affected by many factors other than program services received. Some of

these factors include changes in household composition or health of family members, changes in utility prices, changes in weather, and changes in the economy, and most notably for this analysis, the impact of an event such as COVID-19.

The ideal way to control for other factors that may influence payment behavior would be to randomly assign low-income customers to a treatment or control group. The treatment group would be given the opportunity to participate in the program first. The control group would not be given an opportunity to participate in the program until one full year later. This would allow evaluators to determine the impact of the program by subtracting the change in behavior for the control group from the change in behavior for the treatment group. Such random assignment is rarely done in practice because of a desire to include all eligible customers in the benefits of the program or to target a program to those who are most in need. Therefore, we constructed a comparison group to match the treatment group as well as possible.

Nonparticipant Comparison Group

The nonparticipant comparison group was constructed to control for exogenous factors. The comparison group was designed to be as similar as possible to the treatment group, those who received services and who we are evaluating, so that the exogenous changes for the comparison group are as similar as possible to those of the treatment group. The comparison group was a random sample of customers who had an arrearage balance of at least \$300 that was 60 days past due and who participated in RAD in 2017, 2018, or 2019 but did not enroll in the AMP. These customers were replicated to represent customers who enrolled in AMP in the last quarter of 2019 and in the first quarter of 2020 and were matched with the participants based on enrollment date.

Summary of Groups

Table VI-1 describes the AMP participants and nonparticipant comparison groups that were included in the analyses. For the program impact analysis, we examined pre- and post-treatment statistics. The difference between the pre- and post-treatment statistics for the AMP participants is considered the gross change. This is the actual change in behaviors and outcomes for those participants who were served by the program. Some of these changes may be due to the program, and some of these changes are due to other exogenous factors, but this is the customer's actual experience. The net change is the difference between the gross change for the AMP participants and the gross change for the comparison groups, and represents the actual impact of the program, controlling for other exogenous changes.

**Table VI-1
AMP Participants and Comparison Group**

	AMP Participants	Nonparticipant Comparison Group
Group	All AMP Participants	2017,2018,2019 RAD Participants
AMP Participation	Participated in AMP	Did not participate in AMP
Arrearages	Minimum balance of \$300 or more that is at least 60 days past due.	Minimum balance of \$300 or more that is at least 60 days past due.
Pre-Participation	Twelve months (or fewer) in the year prior to enrollment that match the months of AMP participation data.	Twelve months in the year prior to the quasi-enrollment date (11/15/19 or 02/15/20).
Post-Participation	Twelve months (or fewer) after enrollment.	Twelve months after the quasi-enrollment date (11/15/19 or 02/15/20).

Table VI-2 provides the attrition analysis for the AMP participants. All Pepco customers who enrolled in the program through August 1, 2020 and who participated in AMP for at least one month were considered for inclusion in the analysis. One customer was deemed ineligible for analysis because the customer was final billed before the program started. One eligible customer was excluded from the final analysis group because the customer had a move-in date after the program enrollment date. Nine additional customers were excluded because they had less than three months of pre- and post-billing data or were extreme outliers in billing and credit amounts. Ninety-one percent of eligible AMP participants were included in the analysis. This high rate of inclusion provides confidence that the results are representative of the full population of AMP participants.

**Table VI-2
AMP Impact Analysis Data Attrition
AMP Participants**

Inclusion Reason	AMP Participants
Included in AMP Program Data	108
Participated in AMP in at Least One Month of Post-Period	107
All Eligible	107
Had Transactions Data in Analysis Period	107
Had Move-in Date Before Enrollment Date	106
Had at least 3 Months of Pre- and Post-Billing Data	99
No Outliers	97
% of Eligible	91%

Table VI-3 provides the attrition analysis for the nonparticipant comparison group. This group is a random sample of Pepco customers who had an arrearage balance of at least \$300 that was 60 days past due and who participated in RAD in 2017, 2018, or 2019 but did not enroll in AMP. Pepco provided a list of 1,200 customers who matched these criteria as of August 1, 2020. However, twenty-two of these nonparticipants later enrolled in the AMP

program and were thus ineligible to be included in the nonparticipant analysis group. The nonparticipants were duplicated to represent customers who enrolled in AMP in the last quarter of 2019 (2019Q4) and in the first quarter of 2020 (2020Q1). The nonparticipants were matched with AMP participants based on date of AMP enrollment. The table shows that 99 percent of eligible 2019Q4 nonparticipants and 99 percent of eligible 2020Q1 nonparticipants were included in the analysis.

Table VI-3
AMP Impact Analysis Data Attrition
Nonparticipant Comparison Group

Inclusion Reason	Nonparticipant Comparison Group Quasi Enrollment Date	
	11/15/19	02/15/20
RAD Participant in 2017, 2018, or 2019	600	600
Did Not Participate in AMP	578	578
All Eligible	578	578
Had Transactions Data in Analysis Period	578	578
Had At Least 3 Months of Pre- and Post-Billing Data	578	578
No Outliers	574	571
% of Eligible	99%	99%

Table VI-4 compares the characteristics of all AMP participants and nonparticipants (“All”) to the characteristics of those customers who had enough usage data to be included in the analyses (“Analysis Group”). In general, the “All” groups and the “Analysis Group” were very similar in terms of all observed characteristics. This provides confidence that the impacts estimated in the following tables can be attributed to the entire population.

Table VI-4
Customer Characteristics Comparison

Characteristics	AMP Participants		Nonparticipant Comparison Group	
	All	Analysis Group	All	Analysis Group
Customers	107	97	1,156	1,145
Senior (60+)	16%	18%	10%	11%
Children (≤ 5)	40%	39%	30%	30%
Annual Income				
≤ \$10,000	41%	43%	59%	59%
\$10,001-\$20,000	28%	26%	18%	18%
\$20,001-\$30,000	19%	19%	12%	12%

Characteristics	AMP Participants		Nonparticipant Comparison Group	
	All	Analysis Group	All	Analysis Group
\$30,001-\$40,000	9%	10%	6%	6%
>\$40,000	3%	2%	5%	5%
Poverty Group				
≤ 50%	54%	55%	62%	62%
51% – 100%	22%	20%	24%	24%
101% – 150%	17%	18%	8%	8%
> 150%	7%	7%	7%	7%
Electric Heating	36%	36%	35%	35%
Electric Non-Heating	64%	64%	65%	65%
Third Party Supplier	43%	48%	54%	55%
RAD	100%	100%	100%	100%
RES	31%	30%	38%	38%

Note: Customers missing demographic data were excluded from the table. All customers had information on electric heating and third-party supplier status, but between 10 and 12 customers were missing information on vulnerable household members, income, poverty level, and utility discount program participation.

B. Arrearage Analysis

This section presents findings from the one-year arrearage analysis.

Table VI-5 displays the arrearage credits received by the number of months enrolled in the AMP. The average AMP participant had arrears of \$1,451 at program enrollment, received 7.6 arrearage credits through AMP, and reduced their arrears by \$897. The table also shows that 36 AMP participants did not participate in the program for a full year. These customers either moved out of their home or enrolled too late to have at least a year of post-enrollment data by February 1, 2021, the data download date.

The table shows that 95 percent of participants received at least one AMP credit.

**Table VI-5
Arrearage AMP Credits Received**

Months Enrolled in AMP	Arrearage Credits in 12 Months After Enrollment								
	Obs.	% Received Arrearage Credits	Mean # Arrearage Credits	\$ Forgiven		% Forgiven		Arrearages	
				Mean	Median	Mean	Median	Initial Amount	Final Amount
3 Months in AMP	2	50%	0.5	\$150	\$150	4%	4%	\$2,280	\$2,130
4 Months in AMP	21	81%	1.3	\$174	\$132	11%	17%	\$1,453	\$1,279
5 Months in AMP	4	100%	2.8	\$255	\$253	23%	25%	\$1,285	\$1,030
10 Months in AMP	1	100%	7.0	\$327	\$327	58%	58%	\$561	\$234
11 Months in AMP	8	100%	7.9	\$1,124	\$952	66%	67%	\$1,756	\$632
12 Months in AMP	61	100%	10.3	\$1,193	\$943	86%	92%	\$1,409	\$216
Total	97	95%	7.6	\$897	\$761	63%	83%	\$1,451	\$553

Table VI-6 displays the amount of arrears forgiven by the end of the post-analysis period. Thirty-nine percent had more than \$900 forgiven. The mean arrears forgiven was \$897.

**Table VI-6
Arrearages Forgiven**

Arrearages Forgiven	Obs.	%
≤ \$300	25	26%
\$301 - \$600	13	13%
\$601 - \$900	21	22%
\$901 - \$1,200	10	10%
\$1,201 - \$1,500	28	29%
Total	97	100%
Mean Forgiven	\$897	

Table VI-7 displays the amount of arrears remaining at the end of the post-analysis period. Fifty-five percent had less than \$300 in arrears remaining. The mean arrears remaining was \$553.

**Table VI-7
Arrearages Remaining**

Arrearages Remaining	Obs.	%
≤ \$300	53	55%
\$301 - \$600	11	11%
\$601 - \$900	7	7%
\$901 - \$1,200	10	10%
\$1,201 - \$1,500	16	16%
Total	97	100%
Mean Remaining	\$553	

Table VI-8 shows that the AMP arrearage forgiveness was usually made for on-time payments. The average AMP participant received 6.4 credits on time and made up 1.2 credits by bringing their account current at a later point.

**Table VI-8
Arrearage AMP Credits Received on Time and Made Up**

Months Enrolled in AMP	Arrearage Credits in 12 Months after Enrollment			
	Obs.	Mean # Arrearage Credits	Mean # Credits on Time	Mean # Credits Made Up
3 Months in AMP	2	0.5	0.5	0
4 Months in AMP	21	1.3	1.2	0.1
5 Months in AMP	4	2.8	2.8	0
10 Months in AMP	1	7.0	7.0	0
11 Months in AMP	8	7.9	7.3	0.6
12 Months in AMP	61	10.3	8.5	1.8
Total	97	7.6	6.4	1.2

Table VI-9 shows that AMP participants who had annual household income at or below 50 percent of the FPL received the fewest arrearage credits. Participants in that group received an average of 7.0 AMP credits, while customers with income between 101 and 150 percent of the FPL received an average of 10.2 credits. However, the mean arrears forgiven for all customers at or below 50 percent of the FPL was \$996, higher than the overall mean.

Table VI-9
Mean Arrearage Credits by Poverty Level

Poverty Level	Observations	Mean # Arrearage Credits	Mean Arrearages Forgiven
≤ 50%	47	7.0	\$996
51%-100%	17	9.2	\$913
101%-150%	15	10.2	\$995
> 150%	6	7.7	\$573
Total	85	8.0	\$949

Note: Twelve customers were excluded from this table due to missing poverty level data.

Table VI-10 shows the arrearage forgiveness by electric heating type. Electric non-heating customers received 7.8 arrearage credits and had \$918 forgiven, compared to 7.3 credits and \$860 forgiven for electric heating customers.

Table VI-10
Mean Arrearage Credits by Heating Type

Heating Type	Observations	Mean # Arrearage Credits	Mean Arrearages Forgiven
Electric Heating	35	7.3	\$860
Electric Non-Heating	62	7.8	\$918
Total	97	7.6	\$897

Table VI-11 displays arrearage forgiveness by third-party supplier status. On average, customers who had a third-party supplier received 8.5 arrearage credits and \$1,073 in arrearage forgiveness. In comparison, customers who did not have a third-party supplier received an average of 6.7 arrearage credits and \$732 in arrearage forgiveness.

Table VI-11
Mean Arrearage Credits by Supplier Status

Third Party Supplier	Observations	Mean # Arrearage Credits	Mean Arrearages Forgiven
Yes	47	8.5	\$1,073
No	50	6.7	\$732
Total	97	7.6	\$897

Table VI-12 compares the expected percent of arrearages forgiven, based on the number of months of AMP participation, to the actual percent of arrearages forgiven. Twenty-nine of

the 61 customers who were enrolled for a full year received all the expected arrearage credits. None of the customers enrolled in the program for less than a year received all the expected arrearage credits. The overall percent of arrears forgiven was 63 percent, compared to the expected weighted average of 81 percent.

Table VI-12
Expected vs Actual Percent Arrears Forgiven

Months Enrolled in AMP	Observations	# of Customers Who Received All Credits	Percent Expected to be Forgiven	Percent Actually Forgiven
3 Months in AMP	2	0	25%	4%
4 Months in AMP	21	0	33.33%	11%
5 Months in AMP	4	0	41.67%	23%
10 Months in AMP	1	0	83.33%	58%
11 Months in AMP	8	0	91.67%	66%
12 Months in AMP	61	29	100%	86%
Total	97	29	81%	63%

C. Payment & Billing Impacts

This section presents findings from the one-year payment & billing analysis.

Table VI-13 shows the results for AMP participants and nonparticipants. The table shows the following positive payment results for the AMP participants.

- Late payment charges decreased significantly in the post-analysis period. AMP customers experienced a \$39 decrease in late payment charges compared to the nonparticipants.
- The number of cash payments increased by 1.4 for AMP participants compared to the nonparticipant group.
- The shortfall (difference between total charges and total credits) decreased for AMP participants and increased for nonparticipants. The net change was a decline of \$370.

Table VI-13
Payment Impacts

	AMP Participants			Nonparticipants			Net Change
	Pre	Post	Change	Pre	Post	Change	
# of Customers	97			1,145			
Electric Charges	\$1,860	\$1,714	-\$146*	\$1,495	\$1,463	-\$32*	-\$114#
Late Payment Charges	\$104	\$3	-\$101**	\$91	\$29	-\$62**	-\$39**
Other Charges [†]	\$45	\$3	-\$42**	\$33	\$8	-\$25**	-\$17
Total Charges	\$2,009	\$1,720	-\$289**	\$1,619	\$1,500	-\$119**	-\$170*

	AMP Participants			Nonparticipants			Net Change
	Pre	Post	Change	Pre	Post	Change	
Cash Payments	\$622	\$503	-\$119 [#]	\$381	\$214	-\$168 ^{**}	\$49
LIHEAP Credits	\$582	\$380	-\$202 ^{**}	\$751	\$402	-\$349 ^{**}	\$147 [*]
RAD Credits	\$272	\$344	\$72	\$249	\$315	\$66 ^{**}	\$6
Other Energy Assistance	\$31	\$26	-\$5	\$14	\$18	\$4	-\$9
Other Credits	\$7	\$15	\$8	\$4	\$6	\$2 [#]	\$6
Total Credits	\$1,513	\$1,268	-\$245 [*]	\$1,399	\$955	-\$445 ^{**}	\$200 [#]
# Cash Payments	2.9	3.2	0.3	2.3	1.1	-1.1 ^{**}	1.4 ^{**}
# Total Payments	12.3	10.2	-2.1 ^{**}	13.4	12.0	-1.5 ^{**}	-0.6 [#]
# Bills Paid on Time	6.9	6.7	-0.2	9.2	6.7	-2.5 ^{**}	2.3 ^{**}
Cash Coverage Rate	30%	27%	-3%	22%	14%	-8% ^{**}	5%
Total Coverage Rate	80%	73%	-7%	89%	65%	-23% ^{**}	16% [*]
Shortfall	\$496	\$452	-\$44	\$219	\$545	\$326 ^{**}	-\$370 ^{**}
Arrears Forgiveness	\$897 ^{**}			-			-

[†] The "Other Charges" category includes transfers, returned check fees, billing adjustments, connection charges, return fees, cash deposit requests, and reset cleared item charges.

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

Table VI-13A displays the payment impacts for AMP participants and nonparticipants who enrolled (or had a quasi-enrollment date) in 2019. These customers had pre-AMP data that preceded the impact of COVID-19, while most of the post-AMP data included the COVID-19 impact. The net change in payment impacts was similar to the results displayed in the table above. The decrease in late payment charges and the increase in cash payments were consistent with the result above.

- Late payment charges decreased significantly in the post-analysis period. AMP customers experienced a \$35 decrease in late payment charges compared to the nonparticipants.
- The number of cash payments increased by 1.3 for AMP participants compared to the nonparticipant group.
- Shortfall declined by \$304 for the participants compared to the nonparticipant comparison group.

Table VI-13A
Payment Impacts – 2019Q4 Comparison Group

	AMP Participants			Nonparticipants			Net Change
	Pre	Post	Change	Pre	Post	Change	
# of Customers	74			574			
Electric Charges	\$1,764	\$1,640	-\$124 [#]	\$1,524	\$1,480	-\$44 [*]	-\$80
Late Payment Charges	\$94	\$4	-\$90 ^{**}	\$90	\$35	-\$55 ^{**}	-\$35 ^{**}
Other Charges [†]	\$49	\$1	-\$48 ^{**}	\$34	\$9	-\$25 ^{**}	-\$23 [*]
Total Charges	\$1,907	\$1,645	-\$262 ^{**}	\$1,648	\$1,525	-\$123 ^{**}	-\$138 [*]
Cash Payments	\$584	\$466	-\$118 [#]	\$391	\$233	-\$158 ^{**}	\$39
LIHEAP Credits	\$534	\$387	-\$147 [*]	\$738	\$442	-\$295 ^{**}	\$148
RAD Credits	\$254	\$306	\$52	\$248	\$324	\$76 ^{**}	-\$24
Other Energy Assistance	\$14	\$11	-\$2	\$14	\$6	-\$8 [#]	\$6
Other Credits	\$8	\$7	-\$2	\$4	\$6	\$2	-\$4
Total Credits	\$1,394	\$1,177	-\$217 [*]	\$1,395	\$1,012	-\$383 ^{**}	\$166
# Cash Payments	2.7	2.9	0.2	2.3	1.3	-1.1 ^{**}	1.3 ^{**}
# Total Payments	11.8	9.7	-2.1 ^{**}	13.6	12.3	-1.3 ^{**}	-0.8 [#]
# Bills Paid on Time	6.5	6.4	-0.1	9.2	7.0	-2.2 ^{**}	2.1 ^{**}
Cash Coverage Rate	29%	23%	-6%	22%	15%	-7% ^{**}	1%
Total Coverage Rate	79%	67%	-12%	86%	68%	-18% ^{**}	6%
Shortfall	\$513	\$468	-\$45	\$253	\$513	\$260 ^{**}	-\$304 [*]
Arrears Forgiveness	\$848 ^{**}			-			-

[†] The “Other Charges” category includes transfers, returned check fees, billing adjustments, connection charges, return fees, cash deposit requests, and reset cleared item charges.

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

Table VI-13B shows the payment impacts for AMP participants and nonparticipants who enrolled (or had a quasi-enrollment date) in 2020. These customers had pre-AMP data prior to the start of the COVID-19 economic impact and post-AMP data following the start of the COVID-19 economic impact. The table shows that the AMP participants in this table had better results than the participants in the previous table. This can be largely attributed to the fact that the comparison group in this table was more negatively affected by COVID-19 than the comparison group in the previous table. This shows that the AMP helped customers maintain good payment habits during the crisis, compared to the nonparticipant group. The table shows the following payment results for the AMP participants.

- The number of cash payments increased by 1.7 for AMP participants compared to the nonparticipant group.
- The shortfall decreased for AMP participants and increased for nonparticipants. The net change was a decrease of \$567.

In comparison to the previous two tables, there was a substantially higher net change for the cash coverage rate (percent of the bill covered by cash) and the total coverage rate (percent of the bill covered by cash and assistance payments). The cash coverage rate increased by 17 percentage points and the total coverage rate increased by 46 percentage points. These increases are due in large part to a significant decrease in the amount of cash payments and energy assistance payments for the 2020Q1 nonparticipants.

Table VI-13B
Payment Impacts – 2020Q1 Comparison Group

	AMP Participants			Nonparticipants			Net Change
	Pre	Post	Change	Pre	Post	Change	
# of Customers	23			571			
Electric Charges	\$2,166	\$1,950	-\$217	\$1,409	\$1,411	\$3	-\$219*
Late Payment Charges	\$138	\$2	-\$135**	\$92	\$9	-\$83**	-\$52**
Other Charges [†]	\$32	\$9	-\$23 [#]	\$28	\$3	-\$25**	\$2
Total Charges	\$2,336	\$1,961	-\$375*	\$1,529	\$1,424	-\$105**	-\$269**
Cash Payments	\$743	\$624	-\$120	\$353	\$156	-\$198**	\$78
LIHEAP Credits	\$737	\$359	-\$377 [#]	\$791	\$281	-\$510**	\$133
RAD Credits	\$327	\$464	\$137	\$250	\$287	\$37**	\$100*
Other Energy Assistance	\$87	\$73	-\$14	\$14	\$52	\$38**	-\$52
Other Credits	\$1	\$41	\$40	\$5	\$6	\$1	\$39**
Total Credits	\$1,896	\$1,561	-\$334	\$1,414	\$782	-\$632**	\$297
# Cash Payments	3.6	4.0	0.4	2.1	0.8	-1.3**	1.7**
# Total Payments	13.8	11.7	-2.1*	13.0	11.0	-2.0**	-0.1
# Bills Paid on Time	8.4	7.9	-0.6	9.2	5.6	-3.6**	3.0**
Cash Coverage Rate	32%	38%	6%	22%	12%	-10%**	17%*
Total Coverage Rate	85%	92%	8%	95%	57%	-38%**	46%**
Shortfall	\$440	\$400	-\$40	\$115	\$642	\$526**	-\$567**
Arrears Forgiveness	\$1,057**			-			-

[†] The “Other Charges” category includes transfers, returned check fees, billing adjustments, connection charges, return fees, cash deposit requests, and reset cleared item charges.

**Denotes significance at the 99 percent level. *Denotes significance at the 95 percent level. [#]Denotes significance at the 90 percent level.

Table VI-14 displays the distribution of total bill coverage rates for AMP participants and nonparticipants in the pre- and post-analysis periods. The bill coverage rates decreased from the pre- to the post-period for both groups. However, the nonparticipants experienced a larger decrease in the mean bill coverage rate. AMP participants had a mean coverage rate of 73 percent in the post-period compared to a coverage rate of 65 percent for the nonparticipants.

Table VI-14
Analysis of Total Bill Coverage Rates

Coverage Rate	AMP Participants		Nonparticipants	
	Pre	Post	Pre	Post
Observations	97		1,145	
≥ 100%	22%	26%	38%	22%
90%-99%	10%	8%	14%	5%
80%-89%	9%	12%	13%	6%
< 80%	59%	54%	35%	67%
Total	100%	100%	100%	100%
Mean Coverage Rate	80%	73%	89%	65%

Table VI-14A displays the distribution of total bill coverage rates for AMP participants and nonparticipants who enrolled (or had a quasi-enrollment date) in 2019. The average bill coverage rate for the AMP participants fell from 79 percent to 67 percent while the bill coverage rate for the nonparticipants fell from 86 percent to 68 percent.

Table VI-14A
Analysis of Total Bill Coverage Rates – 2019Q4 Comparison Group

Coverage Rate	AMP Participants		Nonparticipants	
	Pre	Post	Pre	Post
Observations	74		574	
≥ 100%	19%	24%	35%	24%
90%-99%	8%	9%	14%	5%
80%-89%	9%	11%	14%	7%
< 80%	64%	55%	37%	65%
Total	100%	100%	100%	100%
Mean Rate	79%	67%	86%	68%

Table VI-14B displays the distribution of total bill coverage rates for AMP participants and nonparticipants who enrolled (or had a quasi-enrollment date) in 2020. The AMP participants experienced an increase in the average total bill coverage rates while the nonparticipants had a considerable decrease in the average bill coverage rates. These results, along with results in previous tables, demonstrate that AMP participants were much less negatively impacted by the COVID-19 economic crisis than the nonparticipants.

Table VI-14B
Analysis of Total Bill Coverage Rates – 2020Q1 Comparison Group

Coverage Rate	AMP Participants		Nonparticipants	
	Pre	Post	Pre	Post
Observations	23		571	
≥ 100%	30%	30%	47%	17%
90%-99%	17%	4%	13%	5%
80%-89%	9%	17%	10%	4%
< 80%	43%	48%	29%	75%
Total	100%	100%	100%	100%
Mean Rate	85%	92%	95%	57%

Table VI-15 shows the percentage of AMP participants and nonparticipants who received LIHEAP and RAD credits and the average amount of these credits in the pre- and post-analysis periods. Both analysis groups had a reduction in assistance in the post-analysis period, likely due to the shutoff moratorium. Seventy-one percent of the AMP participants received LIHEAP in the pre-period compared to 43 percent in the post-period. Similarly, 100 percent of the AMP customers received RAD credits in the pre-period compared to 89 percent in the post-period. The nonparticipants had greater reductions in LIHEAP assistance but no reduction in RAD assistance.

Table VI-15
LIHEAP & RAD Credit Receipt

LIHEAP Receipt	Obs.	AMP Participants			Obs.	Nonparticipants			Net Change
		Pre	Post	Change		Pre	Post	Change	
Percent Received LIHEAP	97	71%	43%	-28%**	1,145	80%	40%	-40%**	11%#
Mean LIHEAP Grant – All Analysis Group	97	\$582	\$380	-\$202**	1,145	\$751	\$402	-\$349**	\$147*
Mean LIHEAP Grant – Received in Pre or Post	77	\$733	\$479	-\$254**	1,045	\$817	\$437	-\$379**	\$125
RAD Credit Receipt	Obs.	AMP Participants			Obs.	Nonparticipants			Net Change
		Pre	Post	Change		Pre	Post	Change	
Percent Received RAD Credit	97	100%	89%	-11%**	1,145	>99%	>99%	<-1%	-11%**
Mean RAD Credit – All Analysis Group	97	\$272	\$344	\$72	1,145	\$249	\$315	\$66**	\$6
Mean RAD Credit – Received in Pre or Post	97	\$272	\$344	\$72	1,145	\$249	\$315	\$66**	\$6

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

D. Collections Impact

This section presents findings from the one-year collections analysis.

Table VI-16 displays the number of collection actions for AMP participants and nonparticipants in the pre- and post-analysis periods. AMP participants had an average of 36.7 collection actions in the pre-period and 1.8 collection actions in the post-period. The comparison group customers had an average of 42.5 collection actions in the pre-period and 12.0 collection actions in the post-period. The net change was a reduction of 4.2 collections actions for the AMP participants. This shows that the AMP program was effective at reducing the number of collections actions for AMP participants, particularly the number of calls.

Table VI-16
Collection Impacts – Number of Actions

Collections Actions	AMP Participants			Nonparticipants			Net Change
	Pre	Post	Change	Pre	Post	Change	
Observations	97			1,145			
Three-Day Visit	<0.1	0	<-0.1	<0.1	<0.1	<0.1 [#]	<-0.1 [#]
Call	15.6	0.9	-14.6 ^{**}	16.9	4.9	-12.0 ^{**}	-2.6 ^{**}
Deactivate Installment Plans	1.0	<0.1	-1.0 ^{**}	0.7	0.2	-0.5 ^{**}	-0.5 ^{**}
Reconnection	0.3	0.1	-0.2 [*]	0.4	0.1	-0.3 ^{**}	0.2 [*]
Disconnection	0.3	0.1	-0.2 [*]	0.5	0.1	-0.4 ^{**}	0.2 [*]
Disconnection Notice	5.0	0.2	-4.8 ^{**}	5.9	1.7	-4.2 ^{**}	-0.6 [#]
Late Payment Charge	7.9	0.2	-7.7 ^{**}	10.1	2.9	-7.1 ^{**}	-0.6
Notice	0.1	0	-0.1 [*]	<0.1	<0.1	<-0.1 ^{**}	<-0.1 [#]
Security Deposit Request	5.0	0.2	-4.7 ^{**}	5.8	1.7	-4.1 ^{**}	-0.7 [#]
Service Order Visit	1.5	0.1	-1.4 ^{**}	2.2	0.3	-2.0 ^{**}	0.6 ^{**}
Other	0.1	0	-0.1 ^{**}	<0.1	<0.1	<-0.1 ^{**}	<-0.1 [#]
Total Actions	36.7	1.8	-34.8^{**}	42.5	12.0	-30.6^{**}	-4.2[*]

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

Table VI-17 displays the percentage of customers who were disconnected in the pre- and post-analysis periods. The table shows that disconnection rates decreased significantly for both the AMP participants and nonparticipants in the post-analysis period. However, the full nonparticipant group had a much higher rate of disconnections in the pre-enrollment period, and therefore has a greater decline in disconnections. As a result, the net change is an increase in disconnections for the AMP participants.

A subset of nonparticipants was selected to serve as another comparison group for AMP participants. This subgroup was chosen to have the same rate of pre-enrollment

disconnections as the AMP participants. The analysis with the adjusted nonparticipant comparison group shows about the same change as the AMP participants. This suggests that the change in disconnections was due to exogenous factors such as the impact of the shutoff moratorium in response to the coronavirus, instead of due to the AMP program.

**Table VI-17
Percent of Customers Disconnected**

	AMP Participants				Full Nonparticipant Group				Net Change	Net % Change
	Pre	Post	Change	% Change	Pre	Post	Change	% Change		
Observations	97				1,145					
Disconnection	19%	8%	-10%*	-53%	38%	11%	-28%**	-74%	17%**	21%
	AMP Participants				Adjusted Nonparticipant Group					
Observations	97				865					
Disconnection	19%	8%	-10%*	-53%	19%	10%	-8%**	-42%	-2%	-11%

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

Table VI-18 displays the average collection costs. The costs for the collection actions shown in the table below are as follows.

- Call: \$0.09
- Reconnection: \$100
- Disconnection: \$100
- Disconnection notice: \$0.50
- Notice: \$0.50

The average total collections costs increased by \$32 for the AMP participants as compared to the nonparticipant group. However, these results are difficult to interpret given the shutoff moratoriums that were in place.

**Table VI-18
Collection Impacts – Cost of Actions**

Collections Actions	AMP Participants			Nonparticipants			Net Change
	Pre	Post	Change	Pre	Post	Change	
Observations	97			1,145			
Call	\$1	<\$1	-\$1**	\$2	<\$1	-\$1**	<-\$1**
Reconnection	\$27	\$8	-\$19*	\$45	\$11	-\$34**	\$16*
Disconnection	\$27	\$8	-\$19*	\$46	\$11	-\$36**	\$17*
Disconnection Notice	\$2	<\$1	-\$2**	\$3	\$1	-\$2**	<-\$1#

Collections Actions	AMP Participants			Nonparticipants			Net Change
	Pre	Post	Change	Pre	Post	Change	
Observations	97			1,145			
Notice	<\$1	0	-<\$1*	<\$1	<\$1	-<\$1**	-<\$1#
Total Cost	\$58	\$17	-\$41**	\$96	\$23	-\$73**	\$32*

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

E. Summary

This section provides a summary of key findings from the one-year AMP billing, collections, and arrearage analyses.

- **Mean Arrearage Credits:** The average AMP participant had arrears of \$1,451 at program enrollment, received 7.6 arrearage credits through AMP, and reduced their arrears by \$897. AMP participants had an average of \$553 arrears remaining at the end of the 12-month analysis period.
- **Credits Received on Time:** The average AMP participant received 6.4 credits on time and made up 1.2 credits by bringing their account current at a later point.
- **Expected Percent of Arrears Forgiven vs Actual Percent of Arrears Forgiven:** Of the 97 AMP participants, only 29 received all of their expected arrearage credits. The average percent of arrears forgiven was 63 percent, compared to the 81 percent that was expected based on the number of months they participated in AMP.
- **Payment Impacts:** Customers were encouraged by the incentives of the AMP to make on-time payments. Late payment charges decreased and the number of cash payments increased. Bill coverage rates increased by 16 percentage points compared to the nonparticipants. Shortfall declined by \$370 compared to the nonparticipants.
- **Collections Actions:** AMP participants had an average of 36.7 collection actions in the pre-enrollment period and 1.8 collection actions in the post-enrollment period. Compared to the nonparticipant group, AMP participants had a statistically significant reduction of 4.2 collections actions.
- **Collections Costs:** The average total collections costs increased by \$32 for the AMP participants as compared to the nonparticipant group. However, these results are difficult to interpret given the shutoff moratoriums that were in place.

VII. Findings and Recommendations

This report provided an analysis of Pepco's Arrearage Management Program. While just over 100 customers were enrolled in the program, it provided significant benefits for those who enrolled.

- **Mean Arrearage Credits:** The average AMP participant had arrears of \$1,451 at program enrollment, received 7.6 arrearage credits through AMP, and reduced their arrears by \$897 after one year of participation. AMP participants had an average of \$553 arrears remaining at the end of the 12-month analysis period.
- **Expected Percent of Arrears Forgiven vs Actual Percent of Arrears Forgiven:** Of the 97 AMP participants, only 29 received all of their expected arrearage credits in the year after enrollment. The average percent of arrears forgiven was 63 percent, compared to the 81 percent that was expected based on the number of months they participated in AMP.
- **Payment Impacts:** Customers were encouraged by the incentives of the AMP to make on-time payments. Late payment charges decreased and the number of cash payments increased. Bill coverage rates increased by 16 percentage points compared to the nonparticipants. Shortfall declined by \$370 compared to the nonparticipants.
- **Collections Actions:** AMP participants had an average of 36.7 collection actions in the pre-enrollment period and 1.8 collection actions in the post-enrollment period. The comparison group also had a large reduction in actions due to the COVID shutoff moratorium that was in place. Compared to the nonparticipant group, AMP participants had a statistically significant reduction of 4.2 collections actions.
- **Collections Costs:** The average total collections costs increased by \$32 for the AMP participants as compared to the nonparticipant group. However, these results are difficult to interpret given the shutoff moratorium that was in place.
- **Participant Satisfaction:** Eighty-one percent of respondents reported that they were very satisfied with the program, 17 percent said they were somewhat satisfied, and no respondents reported dissatisfaction with the program.

Based on these findings, we make the following recommendations.

- **Continue AMP:** The analysis showed that the AMP had positive impacts on participants' payment behavior. This is especially important during the current period of economic crisis. We recommend that Pepco continue to enroll additional customers in the AMP and extend the program beyond the pilot.
- **Expand Eligibility and Outreach:** Just over 100 customers enrolled in AMP. We recommend that Pepco expand eligibility beyond RAD and increase outreach to make customers aware of AMP. This will be especially important as customers begin to recover from the economic fallout of COVID-19.

- **Extend Arrearage Forgiveness Period:** Most customers did not receive all monthly arrearage forgiveness payments. We recommend that Pepco continue providing monthly arrearage forgiveness when customers pay their bills to enable customers to have all of their arrearages forgiven.