



**Baltimore Gas and Electric  
Limited Income Pilot Payment Program  
Final Evaluation Report**

**November 2011**

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## Executive Summary

Baltimore Gas and Electric (BGE) designed and implemented pilot programs to determine the effect of energy bill discounts and payment counseling on the payment timeliness of limited-income customers. This report presents findings from a process and impact evaluation of these pilots. The evaluation assessed the effectiveness of these pilots in improving customers' bill payment compliance and on reducing their energy usage.

### ***Evaluation***

The objectives of the evaluation were to compare the impact of the various programs on bill payment and usage behavior of program participants. The evaluation addressed the following questions.

1. To what extent did the pilot programs produce improvement in on-time bill payment by program participants?
2. To what extent did the improvements in on-time bill payment produce reductions on BGE collections and non-payment expenses?
3. Are there potential changes to the program design that could improve cost-effectiveness?
4. Could the programs, as implemented or with recommended changes, be scaled up for all BGE limited-income customers? What would be the costs of such a program?
5. Would any other changes be recommended to the pilot designs or for full scale implementation of the programs?

The evaluation included the following research activities.

1. *Program Database Analysis:* We analyzed pilot program data and developed statistics on program participation and services delivered.
2. *BGE Interviews:* We conducted interviews with BGE managers about the program to obtain a better understanding of the program parameters, customer selection for pilot participation, collection strategies and implementation, and potential improvement to the programs' policies and procedures.
3. *Dollar Energy Interviews:* We requested information from managers and outreach workers at Dollar Energy to document any barriers to implementing the program, their perceptions of customers' interest and concerns about the new offerings, and their perceptions of customer response to the payment counseling calls.

4. *Customer Survey:* We provided input on a participant survey that was conducted by a survey consultant hired by BGE.
5. *Billing, Usage, and Collection Data Retrieval and Analysis:* We conducted analysis to estimate the impacts of the pilots on energy usage, payment compliance, arrearages, collections actions, and collections costs.
6. *Cost-Effectiveness Analysis:* We conducted an analysis of the costs and benefits of the pilots and estimated the cost-effectiveness of implementing the program at full scale.

## **CAMP Design**

BGE introduced their Customer Assistance Maintenance Program (CAMP) program in 1994 to provide limited-income customers with a monetary incentive to pay their gas and electric bills on time and in full. Since that time, CAMP has provided discounts to limited-income customers who pay their BGE bills on time and in full each month. BGE implemented the payment pilot to determine whether they could cost-effectively increase the on-time bill payment of limited-income customers. The specific goals of the pilot were as follows.

- Increase the on-time payment rate.
- Reduce collections expenses, bad debt, and write-offs.

The pilot created three pilot cells with approximately 300 customers in each. Customers in each cell received a different set of benefits.

- CAMP 1 – Double bill credit only – Customers received double the historical CAMP credit amount.
- CAMP 2 – Existing credits and payment counseling – Customers received the historical CAMP credit and payment counseling if they did not pay their bill two days before the due date.
- CAMP 3 – Double bill credit and payment counseling – Customers received double the historical CAMP credit amount and received payment counseling if they did not pay their bill two days before the due date.

## **GRAD Design**

The goals of the Graduated Rate Discount (GRAD) were as follows.

- Make gas and electricity bills more manageable for limited-income customers.
- Provide tools to make bills lower through conservation.
- Encourage more on-time bill payment by payment-troubled customers.

The GRAD program was also designed with three cells, each with a different combination of benefits.

- GRAD 1 – Graduated credits only – Customers received credits on their electric and gas bills, with higher discounts for lower monthly usage.
- GRAD 2 – Graduated credits and Quick Home Energy Check-up (QHEC) – Customers received the credits and were required to participate in a home energy audit. They also received follow-up information on conservation.
- GRAD 3 – Graduated credits and payment counseling – Customers received the credits and payment counseling when they did not pay their bills on time.

### ***Participant Feedback***

BGE retained a marketing research company to conduct a survey with program participants. APPRISE provided feedback on the survey design and advance letters. The purpose of the survey was to assess the following key issues.

- Understanding of pilot benefits and services.
- Impacts of pilot on bill payment, energy consumption, and program participation.
- Impacts of payment counseling and energy audits.
- Satisfaction with pilot benefits and services.

Because large samples of each group of customers were released and not completely dialed, survey response rates are relatively low. The low response rate of 31 percent should be taken into account when assigning weight to these findings.

- *Understanding of the Pilot:* Many customers did not have a good understanding of the pilot program. Only 25 and 16 percent of participants in the two CAMP pilots with double credits said that they received a discount larger than the previous camp discount and 41 percent of the CAMP participants said that their discount was based on usage. However GRAD customers had a somewhat better understanding in that 65 percent said that they received a discount based on the amount of energy they used.
- *Pilot Impacts:* About half of the customers said that they pay their bill on time more often since participating in the pilot. About one third of the CAMP participants and one half of the GRAD participants said that they have been using less energy since they began participating in the pilot. About one quarter of the pilot participants said that they participated in another energy program as a result of their pilot program participation.
- *Payment Counseling:* Customers were not likely to recall payment counseling. Only 13 percent of the customers in the groups where payment counseling was offered recalled a phone call.
- *Quick Home Energy Check-up:* Customers were more likely to recall the audit than the payment counseling. Of those in the pilot group that received the audit, 69 percent said that they received one. Of those who recalled the audit, 71 percent said that they were using less energy since the audit.

- *Satisfaction:* Most customers said it was very or somewhat easy to sign up for the pilot, that the pilot provided enough assistance to pay their BGE bill on time, and that they would rate the program as excellent or good.

## ***Program Impacts***

APPRISE analyzed pre and post data for participants and a limited-income comparison group to estimate the impacts of the pilot on energy usage, payments, credits received, arrearages, and collections actions.

- Usage – We did not see significant net changes in usage for CAMP pilot participants but we did find significant changes for GRAD participants.
  - GRAD Electric Baseload – Pilot participants did not have a significant net reduction in electric baseload usage.
  - GRAD Electric Heating - Overall, GRAD electric heating participants had a net reduction in electric usage of 524 kWh, or four percent of pre-treatment usage. GRAD 1 electric heating pilot participants reduced their net electric usage by 624 kWh or five percent of pre-treatment usage.
  - GRAD Gas Heating - GRAD 2 pilot participants, who received graduated credits and the Quick Home Energy Check-up, reduced their gas usage by 35 Therms or four percent of pre-treatment usage.
- Payments – The number of on-time payments was assessed by the number of months with no collections actions. The analysis showed that overall the treatment group had no change in the mean number of months without actions, but the comparison group reduced the number of on-time payments made, so the net change was an increase of .5 on-time payments.

Those in GRAD 2 and GRAD 3, who received payment counseling or the Quick Home Energy Check-up in addition to the graduated discounts or credits had greater increases in payments than those who only received the discounts or credits.

The percent of GRAD participants with on-time payments in 11 or 12 months increased from 43 percent in the pre-pilot period to 49 percent in the pilot period, but there was essentially no change for CAMP participants. GRAD participants with the Quick Home Energy Check-up or payment counseling in addition to the Quick Home Energy Check-up had larger increases in the percent who made 11 or 12 on-time payments.

- Credits – CAMP pilot participants were required to make on-time payments to receive program credits but GRAD participants were not, so we expect differences in the number and total amount of credits received.

- CAMP pilot participants received a mean of 4.5 credits, and the mean number did not vary significantly by pilot type. However, CAMP pilot participants with greater poverty levels received more credits on average and those who were in the group of customers who previously made more payments received more credits on average.

CAMP pilot participants, for the most part, were still not paying their bills on time each month. Only nine percent of CAMP pilot participants received credits in 11 or 12 months of the year.

CAMP participants averaged \$51 in credits.

- GRAD pilot participants received an average of 8.5 months of credits or discounts. The number of discounts or credits they received did not vary by GRAD pilot type, but customers who made more payments in the pre-pilot period received a greater number of months of credits or discounts during the pilot.

GRAD customers received credits or discounts all 12 months in 47 percent of the cases. GRAD participants who received the audit were less likely to receive 11 or 12 months of discounts or credits than the other GRAD pilot groups.

GRAD participants averaged \$239 in discounts and credits.

- Arrearages – Mean arrearages increased by \$33 on average for CAMP participants and decreased by \$26 on average for GRAD participants. However, the comparison group's arrearages increased by \$93 on average, so the net change was a reduction for CAMP and GRAD pilot participants overall. While 27 percent of GRAD participants reduced their arrearages by more than \$100, only 16 percent of CAMP participants had this large of a reduction in arrearages.

CAMP participants who received double credits only had a greater reduction in arrearages than the other CAMP pilot groups.

GRAD pilot participants with the audit or counseling in addition to the graduated discounts or credits had greater reductions in arrearages.

- Collections Actions – CAMP pilot participants had a statistically significant net reduction in the percentage with field calls and GRAD participants had a statistically significant net reduction in the percentage with turn off notices. None of the pilot groups had a statistically significant net decline in the number of denials of service.
  - CAMP – CAMP participants who received payment counseling but no additional credit had the greatest reduction in turn-off notices. CAMP participants who received double credits only had the greatest reduction in field calls.

- GRAD – GRAD participants who only received the graduated discount or who received the graduated discount and counseling had greater reduction in turn-off notices than those who received the Quick Home Energy Check-up.

## ***Cost Effectiveness***

The goal of the pilots was to test different methods to cost-effectively provide incentives for on-time bill payment and reduced usage. However, an examination of program costs, and potential reductions in collections actions and arrearages, shows that it was not likely for these programs to be cost-effective through a reduction in collections actions.

The pilots that resulted in statistically significant changes in collections actions and arrearages were CAMP 1 and the three GRAD pilots. While none of the pilot programs were cost-effective, CAMP 1 was the closest to being cost-effective. The net costs for CAMP 1 were \$44 per customer plus the estimated \$3,500 to re-program the system. If half of the estimated 65,000 limited-income customers participated in the new program, the programming costs would only be a few cents per customer, so the net total costs for the program are about \$44 per customer.

The net costs of the three GRAD pilots were very similar to one another. The net total costs ranged from \$239 to \$273 per customer, depending on the pilot that was implemented.

## ***Recommendations***

Recommendations are made with respect to program administration, customer education pilot implementation, and full scale program implementation.

### **Program Administration**

Program administration issues were information that was available to the Dollar Energy Fund (DEF) and customer payment flexibility.

- Data access – DEF reported that the ability to access real time information in BGE's system would enable them to respond more fully to questions that customers have. During the pilot, DEF had to refer customers to BGE's customer service department at times because they did not have this access. If BGE decides to implement a program that involves counseling by such an outside agency, BGE should investigate whether they can provide this data access to allow for improved customer service.
- Payment timing – DEF reported that some customers who received Social Security benefits had difficulty making on-time bill payments because of the timing of their benefits and the BGE bill. If BGE enrolls customers in a new pilot or full-scale program, they should consider resetting the customer's bill due date to allow for alignment of the bill payment with the receipt of Social Security benefits.



### **Customer Education**

There was an opportunity for improved communication to pilot participants.

- While BGE took many steps to educate customers about the specific benefits of the pilot they were enrolled in, the customer survey showed that many customers did not have a good understanding of the pilot program. BGE sent an invitation letter, had customers enroll on the phone with a Dollar Energy representative who explained the pilot, and sent a confirmation letter that also explained the details of the pilot. BGE may increase the effectiveness of these efforts by shortening and simplifying the written communications. The invitation and confirmation letters were quite long and complicated, and a much shorter letter that bulleted the major points may be more effective.

### **Pilot Implementation**

If BGE decides to implement another payment pilot, we recommend that they incorporate the following design features.

- Pilot stratification – stratify all pilots to represent the full population of customers who would be targeted for a full scale program. As a result, the research would allow for a better understanding of what the results from full scale implementation could be.
- Customer tracking – provide better tracking of pilot participants to allow for a more complete understanding of customer attrition, including service terminations and moves.
- Customer targeting – target those customers who are most likely to have a beneficial outcome from the pilot and construct a comparison group of similar customers. For example, the CAMP program may have the greatest success with customers who are not paying all of their bills on time and who are not missing all of their payment due dates. The GRAD program may have the greatest success with the subset of these mid-level payment compliant customers who are high users, if an on-time payment requirement was added.
- Program potential – examine the potential cost savings from the program against the potential costs. Only implement the pilot if it appears that the program would have real potential for achieving cost-effectiveness, if the program is to be assessed primarily on this dimension.

### **Full Scale Program**

The program that proved to be the most cost-effective was CAMP 1, which only provided double credits and no additional services. The average credit under this pilot was \$59 per customer, compared to \$23 under the original CAMP program. The percent of customers who received a credit each month was 38 percent, compared to 27 percent under the original CAMP pilot. Given the \$36 per customer average increase in credit costs compared to the

potential additional cost savings, the original CAMP program may be more cost-effective than the new pilot.

Payment assistance programs generally have not been found to be cost-effective through their impacts on payment compliance. The one exception that has been seen is where payments under the program were designed to be no less than what the customer was paying prior to program entry. If the program can result in customers paying as much or more than what they were paying in the pre-program period and increase payments on average, the resulting program may be cost-effective. However, such a pilot would require additional programming to calculate each customer's past annual payments and develop an individualized plan based on those payments. If BGE is able to implement such a program, it may be more cost-effective than the pre-pilot CAMP structure.

## **I. Introduction**

Baltimore Gas and Electric (BGE) designed and implemented pilot programs to determine the effect of energy bill discounts and payment counseling on the payment timeliness of limited-income customers. This report presents findings from a process and impact evaluation of these pilots. The evaluation assessed the effectiveness of these pilots in improving customers' bill payment compliance and on reducing their energy usage.

### ***A. Limited Income Pilot Programs***

The goals of BGE's pilot programs were to test alternative approaches to improving affordability and bill payment and reducing usage for limited-income customers. The Customer Assistance Maintenance Program (CAMP) pilot tested changes to BGE's CAMP, including increased bill credits, payment counseling, or both. The Graduated Rate Discount (GRAD) Program provided a range of usage-based discounts. Some of the customers also receive a home energy audit or payment counseling phone calls.

### ***B. Evaluation Objectives and Activities***

The objectives of the evaluation were to compare the impact of the various programs on bill payment and usage behavior of program participants. The evaluation addressed the following questions.

1. To what extent did the pilot programs produce improvement in on-time bill payment by program participants?
2. To what extent did the improvements in on-time bill payment produce reductions on BGE collections and non-payment expenses?
3. Are there potential changes to the program design that could improve cost-effectiveness?
4. Could the programs, as implemented or with recommended changes, be scaled up for all BGE limited-income customers? What would be the costs of such a program?
5. Would any other changes be recommended to the pilot designs or for full scale implementation of the programs?

The evaluation included the following research activities.

1. *Program Database Analysis:* We analyzed pilot program data and developed statistics on program participation and services delivered.
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participation, collection strategies and implementation, and potential improvement to the programs' policies and procedures.

3. *Dollar Energy Interviews:* We requested information from managers and outreach workers at Dollar Energy to document any barriers to implementing the program, their perceptions of customers' interest and concerns about the new offerings, and their perceptions of customer response to the payment counseling calls.
4. *Customer Survey:* We provided input on a participant survey that was conducted by a survey consultant hired by BGE.
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6. *Cost-Effectiveness Analysis:* We conducted an analysis of the cost-effectiveness of the pilots and estimated the cost-effectiveness of implementing the program at full scale.

### ***C. Organization of the Report***

Five sections follow this introduction.

- Section II – Program Design and Implementation
- Section III – Participant Feedback
- Section IV – Program Impacts
- Section V – Cost-Effectiveness
- Section VI – Findings and Recommendations

APPRISE prepared this report under contract to Baltimore Gas and Electric. BGE facilitated this research by furnishing program data and information 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 BGE.

## II. Program Design and Implementation

This section provides a detailed discussion of the pilot program design and implementation, including customer eligibility, program benefits, program budgets, and implementation timeline and challenges.

### A. *CAMP Pilot Design*

BGE introduced their Customer Assistance Maintenance Program (CAMP) program in 1994. Since that time, CAMP has provided discounts to limited-income customers who pay their BGE bills on time and in full each month. The program was designed to provide limited-income customers with a monetary incentive to pay their gas and electric bills on time and in full.

Customers are automatically eligible for CAMP credits when they meet the following conditions.

- Qualify for a state energy assistance program. The state Office of Home Energy Programs (OHEP) offers the Electric Universal Service Program (EUSP) and the Maryland Energy Assistance Program (MEAP) to customers with household income at or below 175 percent of the Federal Poverty Level. These programs provide financial assistance to help limited-income customers pay their energy bills.
  - The EUSP is a ratepayer-funded program that assists customers to pay their current electric bills, their past due electric bills, and home energy efficiency measures that will reduce future electric bills. EUSP grants range from \$96 to \$1,400 depending on the customer's poverty level and utility bill. The grant is targeted to cover 45 to 75 percent of the annual utility bill.
  - The MEAP is a Federally-funded block grant (LIHEAP) that provides assistance with home heating bills.
- Enroll in the Utility Service Protection Program (USPP). This program requires entry into a special payment plan to retire outstanding arrearages (or reduce arrearages to \$400 if service is off) and participation in budget billing. The equal monthly payment plan is based on the estimated cost of the customer's average annual utility usage minus the MEAP benefit. Customers who miss two consecutive months of payments are removed from USPP and can have their service terminated.

CAMP credits range from \$5 per month to \$12 per month, depending on the household poverty level, as determined by the Maryland Office of Home Energy Programs during application for energy assistance. The CAMP credits are structured as shown in Table II-1. Customers in subsidized housing with heat included in their rent are in level 5.

**Table II-1**  
**CAMP Credits**

<b>BGE Level</b>	<b>Poverty Level</b>	<b>Monthly CAMP Credit</b>
1	≤75%	\$12
2	76%-110%	\$9
3	111%-150%	\$7
4	151%-175%	\$5
5	Subsidized Housing	\$5

Customers receive a CAMP credit each month that they meet the following requirements.

- Pay their amount due on time.
- Have an amount due that is greater than zero.
- Have a budget billing installment that is greater than the CAMP credit.

Only 65,000 of BGE's estimated 200,000 eligible customers (based on 2008 ACS data) are on CAMP. Additionally, with the current recession, there could be many more customers who are eligible, as the state only considers the most recent 30 days of income when verifying enrollments. Customers who call BGE's collections department are referred to OHEP. Program information is also provided in messages on customers' bills, bill inserts, flyers left at customers' homes if a turnoff occurs, and on the BGE website ([www.bge.com](http://www.bge.com)).

The average annual total of BGE CAMP credits issued has been approximately \$1.1 million, and the average monthly credit has been about \$6.86. In 2009, approximately 44,000 BGE customers received CAMP credits in at least one month during the year. This is 87 percent of the customers enrolled in USPP. In the average month, only about one third of these customers received a credit for timely bill payment.

BGE implemented the payment pilot to determine whether they could cost-effectively increase the on-time bill payment of limited-income customers. The specific goals of the pilot were as follows.

- Increase the on-time payment rate.
- Reduce collections expenses, bad debt, and write-offs.

The pilot created three pilot cells with approximately 300 customers in each. Customers in each cell received a different set of benefits.

- CAMP 1 – Double bill credit only – Customers received double the historical CAMP credit amount.
- CAMP 2 – Existing credits and payment counseling – Customers received the historical CAMP credit and payment counseling if they did not pay their bill by the due date.

- **CAMP 3 – Double bill credit and payment counseling** – Customers received double the historical CAMP credit amount and received payment counseling if they did not pay their bill by the due date.

### **Customer Stratification**

For the CAMP pilot, BGE created 15 different customer “types,” based on five levels of household income and three levels of payment history.

- **Payments** – Customers were divided into groups based on whether they made 0-1 on-time payments in the past year, 2-6 on-time payments, or 7-12 on-time payments.
- **Poverty Level** – Customers were divided into groups based on their household poverty level. BGE does not conduct income assessments for their customers. The state conducts eligibility verification for the EUSP and MEAP programs, and BGE codes their customers based upon the state certification.

The selection and enrollment of CAMP participants by subgroup is shown in Table II-2. Approximately 300 customers were enrolled in CAMP 1 and CAMP 3 and 238 customers were enrolled in CAMP 2, for a total of 838 customers enrolled in the three CAMP pilots.

**Table II-2**  
**CAMP Customer Stratification**

CAMP Sub Cell	Payments	Poverty Level	Maximum Enrollment by Program	Actual Enrollment			
				CAMP 1	CAMP 2	CAMP 3	Total
1	0-1	<75% FPL	17	14	12	17	43
2	0-1	76%-110% FPL	16	10	7	8	25
3	0-1	111%-150% FPL	26	23	10	26	59
4	0-1	151%-175% FPL	7	7	6	4	17
5	0-1	Subsidized housing	34	32	14	29	75
6	2-6	<75% FPL	23	23	23	23	69
7	2-6	76%-110% FPL	21	21	21	21	63
8	2-6	111%-150% FPL	35	35	26	35	96
9	2-6	151%-175% FPL	9	7	8	9	24
10	2-6	Subsidized housing	46	46	37	49	132
11	7-12	<75% FPL	11	11	12	12	35
12	7-12	76%-110% FPL	11	12	13	11	36
13	7-12	111%-150% FPL	17	19	19	21	59
14	7-12	151%-175% FPL	5	7	6	6	19
15	7-12	Subsidized housing	22	31	24	31	86
<b>TOTAL</b>			<b>300</b>	<b>298</b>	<b>238</b>	<b>302</b>	<b>838</b>

## ***B. GRAD Pilot Design***

The goals of the Graduated Rate Discount (GRAD) were as follows.

- Make gas and electricity bills more manageable for limited-income customers.
- Provide tools to make bills lower through conservation.
- Encourage more on-time bill payment by payment-troubled customers.

The GRAD program was also designed with three cells, each with a different combination of benefits.

- GRAD 1 – Graduated credits only – Customers received credits on their electric and gas bills, with higher discounts for lower monthly usage.
- GRAD 2 – Graduated credits and Quick Home Energy Check-up (QHEC) – Customers received the credits and were required to participate in a home energy audit. They also received follow-up information on conservation.
- GRAD 3 – Graduated credits and payment counseling – Customers received the credits and payment counseling when they did not pay their bills on time.

The GRAD discounts are shown in Tables II-3A and II-3B. Discounts were applied to both supply and distribution charges for the entire month's usage. The only requirements for customers to receive the monthly credits were for them to have active service (not have their service turned off) and for the credits or discounts not to make their total amount due negative. They are not required to make their monthly payments.

**Table II-3A**  
**GRAD Electric Discounts and Credits**

Monthly Usage (kWh)	Bill Discount or Credit
≤500	40%
501-750	30%
751-1,000	20%
1,001-1,500	10%
>1,500	\$15 credit

**Table II-3B**  
**GRAD Gas Discounts and Credits**

Monthly Usage (Therms)	Bill Discount or Credit
≤40	40%
41-60	30%
61-80	20%
81-120	10%
>120	\$10 credit



### **Customer Stratification**

GRAD customers were selected from customers who were CAMP participants prior to the pilot. These customers were temporarily removed from CAMP to participate in the GRAD pilot. For the GRAD pilot, BGE created 27 different customer “types,” based on low, medium and high levels of payment history, energy usage levels and arrearage amounts.

- **Payments** – Customers were divided into groups based on whether they made 0-1 on-time payments in the past year, 2-6 on-time payments, or 7-12 on-time payments.
- **Energy Usage** – Customers were divided into groups based on their annual electric usage of less than 716 kWh, between 717 and 1726 kWh, and over 1726 kWh. This division did not take account of whether the customer used electricity for heating or only for baseload usage.
- **Arrearages** – Customers were divided into groups based on their arrearages of \$0, less than \$200, or \$200 to \$1,000.

The selection and enrollment of GRAD participants by subgroup is shown in Table II-4. About 300 customers were enrolled in GRAD 1, and closer to 250 customers were enrolled in GRAD 2 and GRAD 3, for a total of 824 customers enrolled in the GRAD pilots.

**Table II-4**  
**GRAD Customer Stratification**

GRAD Sub Cell	Payments	Usage (kwh/mnth)	Arrearage	Maximum Enrollment by Program	Actual Enrollment			
					GRAD 1	GRAD 2	GRAD 3	Total
1	0-1	<716	\$0	17	17	18	20	55
2	0-1	<716	<\$200	8	7	8	8	23
3	0-1	<716	\$200-\$1,000	8	5	8	1	14
4	0-1	717-1726	\$0	17	17	18	11	46
5	0-1	717-1726	<\$200	8	4	7	5	16
6	0-1	717-1726	\$200-\$1000	8	8	8	3	19
7	0-1	>1726	\$0	18	15	11	7	33
8	0-1	>1726	<\$200	8	10	5	5	20
9	0-1	>1726	\$200-\$1000	8	8	8	3	19
10	2-6	<716	\$0	23	27	24	29	80
11	2-6	<716	<\$200	11	15	12	9	36
12	2-6	<716	\$200-\$1,000	11	11	12	12	35
13	2-6	717-1726	\$0	22	21	22	22	65
14	2-6	717-1726	<\$200	11	12	9	10	31
15	2-6	717-1726	\$200-\$1000	11	14	10	12	36
16	2-6	>1726	\$0	23	23	13	18	54
17	2-6	>1726	<\$200	11	11	11	9	31

GRAD Sub Cell	Payments	Usage (kwh/mnth)	Arrearage	Maximum Enrollment by Program	Actual Enrollment			
					GRAD 1	GRAD 2	GRAD 3	Total
18	2-6	>1726	\$200-\$1000	11	11	11	12	34
19	7-12	<716	\$0	11	14	4	12	30
20	7-12	<716	<\$200	5	2	0	3	5
21	7-12	<716	\$200-\$1,000	6	5	0	3	8
22	7-12	717-1726	\$0	11	13	11	14	38
23	7-12	717-1726	<\$200	5	5	4	5	14
24	7-12	717-1726	\$200-\$1000	6	6	6	1	13
25	7-12	>1726	\$0	11	13	12	12	37
26	7-12	>1726	<\$200	5	6	5	5	16
27	7-12	>1726	\$200-\$1000	6	4	6	6	16
<b>TOTAL</b>				<b>300</b>	<b>304</b>	<b>263</b>	<b>257</b>	<b>824</b>

### C. Pilot Costs

Table II-5 displays the pilot costs. These include the costs for hiring the Dollar Energy Fund to conduct enrollment and payment counseling, billing system modification, mailing costs, program discounts and credits, and evaluation. The table shows total pilot costs of \$152,018 for CAMP and \$288,223 for GRAD. Costs are greater for GRAD because on-time payment was not required to receive the discounts and credits, and a greater amount of these were paid out.

**Table II-5**  
**Pilot Costs**

Program Item	CAMP	GRAD	Total Cost
DEF Enrollment	\$17,700	\$17,700	\$35,400
DEF Payment Counseling	\$35,400	\$17,700	\$53,100
Billing System Modification	\$3,500	\$3,500	\$7,000
Printing and Mailing Costs	\$10,622	\$10,622	\$21,244
Discounts and Credits	\$42,296	\$196,201	\$238,497
Evaluation	\$42,500	\$42,500	\$85,000
<b>Total Cost</b>	<b>\$152,018</b>	<b>\$288,223</b>	<b>\$440,241</b>

Table II-6 displays the amount of CAMP credits by CAMP group and program stratification cell. The total number in the table does not include all enrolled, as credit information and discounts were provided for 824 of the 888 customers who enrolled. As expected, credits were greater in the double credit programs (CAMP 1 and CAMP 3), generally greater for the lower poverty groups that received higher credits, and were generally greater for those groups who made more payments in the pre-treatment period.

The first set of columns excludes customers who did not receive any credits and the second set includes the 206 participants who did not receive any credits. The means with those who did not receive any credits are a better representation of the average participant costs, as if the program is implemented on full scale, there will be a group of customers who do not receive credits. Including those with no credits reduces the average credits from \$77 to \$59 for CAMP 1, from \$42 to \$32 for CAMP 2, and from \$78 to \$58 for CAMP 3.

**Table II-6  
CAMP Credits**

Cell	Pay Cell	Poverty Level	Enrollment and Mean Credits \$0 Credit Participants Excluded						Enrollment and Mean Credits \$0 Credit Participants Included					
			CAMP 1		CAMP 2		CAMP 3		CAMP 1		CAMP 2		CAMP 3	
			Double Credit		Payment Counseling		Credit & Counseling		Double Credit		Payment Counseling		Credit & Counseling	
			#	Mean	#	Mean	#	Mean	#	Mean	#	Mean	#	Mean
1	0-1	<75%	6	\$102	3	\$20	10	\$76	14	\$44	12	\$5	17	\$44
2	0-1	76%-110%	5	\$51	4	\$56	3	\$65	9	\$28	7	\$32	8	\$25
3	0-1	111%-150%	20	\$69	3	\$28	10	\$34	22	\$63	10	\$8	25	\$13
4	0-1	151%-175%	2	\$10	2	\$38	2	\$10	6	\$3	6	\$13	4	\$5
5	0-1	Sub housing	12	\$48	9	\$21	17	\$51	31	\$19	13	\$14	28	\$31
6	2-6	<75%	15	\$71	13	\$56	14	\$112	21	\$50	23	\$32	23	\$68
7	2-6	76%-110%	17	\$71	16	\$37	18	\$91	21	\$57	21	\$28	21	\$78
8	2-6	111%-150%	30	\$86	19	\$41	29	\$75	35	\$73	23	\$34	35	\$62
9	2-6	151%-175%	5	\$54	6	\$43	8	\$50	7	\$39	8	\$32	9	\$44
10	2-6	Sub housing	35	\$58	28	\$28	33	\$54	45	\$45	37	\$21	49	\$37
11	7-12	<75%	10	\$128	11	\$64	11	\$115	11	\$117	12	\$59	12	\$105
12	7-12	76%-110%	11	\$97	13	\$51	10	\$108	12	\$89	13	\$51	11	\$98
13	7-12	111%-150%	18	\$106	19	\$52	20	\$97	19	\$101	19	\$52	21	\$93
14	7-12	151%-175%	7	\$87	6	\$44	6	\$76	7	\$87	6	\$44	6	\$76
15	7-12	Sub housing	29	\$75	22	\$46	31	\$90	31	\$70	23	\$44	31	\$90
<b>TOTAL</b>			<b>222</b>	<b>\$77</b>	<b>174</b>	<b>\$42</b>	<b>222</b>	<b>\$78</b>	<b>291</b>	<b>\$59</b>	<b>233</b>	<b>\$32</b>	<b>300</b>	<b>\$58</b>

Table II-7 displays the amount of GRAD discounts and credits by GRAD group and program stratification cell. Discount and stratification information are available for all 804 customers who received discounts and/or credits.

The first set of columns excludes customers who did not receive any credits and the second set includes the 18 participants who did not receive any credits. The differences in mean discounts and credits are small, as most customers received some discounts and/or credits. Including those with no discounts or credits reduces the average from \$249 to \$243 for GRAD 1, from \$232 to \$228 for GRAD 2, and from \$250 to \$244 for GRAD 3.

**Table II-7**  
**GRAD Discounts and Credits**

Cell	Pay Cell	Usage (kwh/mnth)	Arrears	Enrollment and Mean Credits \$0 Credit Participants Excluded						Enrollment and Mean Credits \$0 Credit Participants Included					
				GRAD 1		GRAD 2		GRAD 3		GRAD 1		GRAD 2		GRAD 3	
				Discount		Discount & Audit		Discount & Counseling		Discount		Discount & Audit		Discount & Counseling	
				#	Mean	#	Mean	#	Mean	#	Mean	#	Mean	#	Mean
1	0-1	<716	\$0	16	\$239	18	\$174	19	\$263	17	\$225	18	\$174	20	\$250
2	0-1	<716	<\$200	7	\$203	8	\$234	7	\$304	7	\$203	8	\$234	8	\$266
3	0-1	<716	\$200-\$1,000	5	\$195	8	\$237	1	\$60	5	\$195	8	\$237	1	\$60
4	0-1	717-1726	\$0	16	\$259	18	\$212	11	\$242	17	\$244	18	\$212	11	\$242
5	0-1	717-1726	<\$200	4	\$357	7	\$258	5	\$260	4	\$357	7	\$258	5	\$260
6	0-1	717-1726	\$200-\$1,000	5	\$292	8	\$243	2	\$239	8	\$182	8	\$243	3	\$159
7	0-1	>1726	\$0	15	\$161	11	\$181	7	\$199	15	\$161	11	\$181	7	\$199
8	0-1	>1726	<\$200	8	\$162	5	\$215	5	\$212	10	\$129	5	\$215	5	\$212
9	0-1	>1726	\$200-\$1,000	8	\$258	8	\$157	2	\$329	8	\$258	8	\$157	3	\$219
10	2-6	<716	\$0	27	\$212	24	\$215	29	\$227	27	\$212	25	\$206	29	\$227
11	2-6	<716	<\$200	15	\$226	11	\$246	9	\$261	15	\$226	11	\$246	9	\$261
12	2-6	<716	\$200-\$1,000	11	\$245	12	\$305	12	\$307	11	\$245	12	\$305	12	\$307
13	2-6	717-1726	\$0	21	\$309	20	\$245	21	\$246	21	\$309	21	\$233	22	\$235
14	2-6	717-1726	<\$200	12	\$279	9	\$247	10	\$289	12	\$279	9	\$247	10	\$289
15	2-6	717-1726	\$200-\$1,000	13	\$305	10	\$294	12	\$322	14	\$283	10	\$294	12	\$322
16	2-6	>1726	\$0	23	\$200	13	\$176	18	\$193	23	\$200	13	\$176	18	\$193
17	2-6	>1726	<\$200	11	\$220	11	\$222	9	\$198	11	\$220	11	\$222	9	\$198
18	2-6	>1726	\$200-\$1,000	11	\$238	10	\$226	12	\$246	11	\$238	10	\$226	12	\$246
19	7-12	<716	\$0	14	\$279	2	\$273	12	\$269	14	\$279	4	\$136	12	\$269
20	7-12	<716	<\$200	2	\$202	0	--	3	\$340	2	\$202	0	--	3	\$340
21	7-12	<716	\$200-\$1,000	5	\$374	0	--	3	\$260	5	\$374	0	--	3	\$260
22	7-12	717-1726	\$0	13	\$284	11	\$310	13	\$194	13	\$284	11	\$310	14	\$180
23	7-12	717-1726	<\$200	5	\$342	4	\$261	5	\$327	5	\$342	4	\$261	5	\$327
24	7-12	717-1726	\$200-\$1,000	6	\$310	6	\$339	1	\$263	6	\$310	6	\$339	1	\$263
25	7-12	>1726	\$0	13	\$268	12	\$248	12	\$234	13	\$268	12	\$248	12	\$234
26	7-12	>1726	<\$200	6	\$259	5	\$205	5	\$285	6	\$259	5	\$205	5	\$285
27	7-12	>1726	\$200-\$1,000	4	\$267	6	\$208	6	\$264	4	\$267	6	\$208	6	\$264
<b>TOTAL</b>				<b>296</b>	<b>\$249</b>	<b>257</b>	<b>\$232</b>	<b>251</b>	<b>\$250</b>	<b>304</b>	<b>\$243</b>	<b>261</b>	<b>\$228</b>	<b>257</b>	<b>\$244</b>

### ***D. Pilot Timeline***

The pilot began on July 1, 2010 and BGE originally planned to conclude the pilot on April 30, 2011. The original pilot period was scheduled to last 10 months rather than a full year because BGE was in the process of launching a new customer billing system and its current billing system could not transfer the pilot computer programming into the new system. However, the implementation date for the new billing system was moved to July 2011, so the pilot was extended through June 2011 billings, allowing BGE to conduct the pilot for a full 12-month period. Table II-6 displays key dates in the pilot implementation.

**Table II-6**  
**Pilot Timeline**

<b>Activity</b>	<b>Date</b>
PSC Filing	2/26/2010
Final PSC Filing	3/24/2010
Pilot Invitation Letters Sent	5/15/2010
Pilot Start Date	7/1/2010
Pilot End Date	6/30/2011

### ***E. Customer Recruitment and Enrollment***

Initial program recruitment was conducted by mailing letters to the targeted customers that explained the specific program and asked them to call the Dollar Energy Fund's (DEF) toll-free telephone number to enroll in the program. DEF reported that most of the customers who responded to the initial enrollment letters appreciated the opportunity to participate. However, some customers expressed a reluctance to provide some of the information that was asked on the OHEP application such as dates of birth and social security numbers for their children.

BGE did not receive nearly enough responses from the initial letter, so DEF made outbound calls to customers who were eligible for a program in a cell that was not filled by the customers' inbound calling.

During the inbound and outbound calls, DEF explained the programs for the cell that the customer was eligible for, explained that it was a pilot program and that their participation could impact whether the program was implemented at full scale.

DEF was instructed to provide the following information during the enrollment calls.

- The program is for a limited duration, starting in July 2010 and ending after April 2011, after which their billing would return to normal.
- The program is only available to the invited customers. Customers are not able to refer anyone else except those who received an invitation letter. Each invited customer had received an individualized letter.

- The program is only available to a limited number of customers. Once that number of customers enrolls, BGE cannot accept anyone else.
- Customers are required to re-apply for energy assistance from the Maryland Office of Home Energy Programs, or OHEP.
  - Customers must renew their OHEP grant sometime during the 12 months that start on July 1 to remain eligible for this new program.
  - Once enrolled, BGE would send an information packet that fully explains the program and includes an OHEP application.
  - The customer should return the completed OHEP application, with the necessary supporting documents, to the local OHEP office as soon as possible.
- Once enrolled, BGE would send a packet of information that explains the programs and the customer's obligations under the program.

Only a few customers were turned away from CAMP 1 and CAMP 3. A waiting list was compiled, but the customers were not included because of the specific targeting by customer characteristics.

Following customer enrollment with DEF, customers were sent enrollment confirmation letters. The letters provided the following information.

- The benefits of the new pilot program.
- The requirement to receive assistance from OHEP.
- An application for energy assistance and instructions on how and where to apply.
- A sample bill showing the customer where to see information relating to the particular program the customer participated in.
- Confirmation that the pilot program will end in April 2011. After the program ends, the customer would remain in CAMP and receive credits every month that the bill is paid on time.

## ***F. Payment Counseling***

The Dollar Energy Fund (DEF) was retained to provide payment counseling services to pilot customers. BGE asked DEF to use their existing payment counseling program, but to provide referrals to specific sources of assistance that are available in BGE's service territory. The counselors were instructed to approach customers not as collection agents, but as counselors able to assess the customer's financial situation and need for additional help, while reminding them of the benefits of on-time bill payment. During this call, one or two days before the customer's bill was due, they reminded customers of the program benefits and informed the customers that the benefits would end if they did not make their payment.

The plan was that the counseling would be conducted in the following manner.

- Contact List - BGE would send an electronic file to DEF with a list of customers who had not paid their bill within three days of the payment deadline and who were in the payment counseling groups.
- Contact - DEF would contact all of the customers on the list, explain the customer's responsibilities under the program, and offer budget counseling.
- Payment Responsibility - DEF staff members would explain the need to make regular on-time payments to stay on the program, maintain the monthly credit, and maintain their utility service.
- Referrals - DEF would provide customers with information on other assistance programs in the area.
- Payment Option - DEF would accept customer bill payment by telephone. This would make use of the SpeedPay service, and customers would be charged \$1.65 for the transactions. Very few customers utilized this option.
- Energy Conservation – DEF would discuss how customers could reduce their monthly utility bills by taking steps to reduce their usage. They would provide tips, refer customers to weatherization programs, and refer customers to the BGE website for more information.
- Non Contact – Customers who could not be reached by telephone would receive a letter from DEF asking customers to call their toll-free number.
- Reporting – DEF would provide daily and monthly reports to BGE with statistics on the calls made, call length, and individual outcomes.

When asked what type of feedback they received from customers, DEF stated that some customers who received Social Security benefits had difficulty making on-time bill payments because of the timing of their benefits and the BGE bill. Customers who had high usage and missed a payment because they were ill or had an unexpected expense had a difficult time catching up. Other customers felt the program did not provide enough assistance.

### ***G. Quick Home Energy Check-up***

Customers in GRAD 2 were required to receive a Quick Home Energy Check-up. During the program enrollment, DEF transferred the customer to schedule the Quick Home Energy Checkup. Customers who were selected into the program segment that required the QHEC were only enrolled if they agreed to this transfer. Customers who had not completed their QHEC by the end of August 2010, only 22 customers, were mailed a reminder letter, but no customer was removed from the program for failing to complete a QHEC.

Dollar Energy reported that in most cases the customer did schedule the QHEC, but that there were some customers who were reluctant to have a technician come to their home. Some were concerned that they would be told they needed to have work done and told that they needed to pay for that work. Dollar Energy reported that they explained this was not the case and that they were sometimes able to change the customer's mind about the audit.

The Quick Home Energy Check-up includes an inspection of the home's heating and cooling equipment, appliances, lighting and windows and doors to make sure they are operating efficiently. The provider recommends actions to improve home energy efficiency. If the customer allows the technician to install at least three energy-saving measures (at no cost to the customer) the \$40 audit is waived.

## ***H. Program Refinement***

BGE has considered potential refinements to the pilot if implemented as a full scale program. These opportunities are summarized below.

- Payment incentives – BGE did not originally propose that the GRAD discounts should be awarded without regard to on-time bill payment, and they were concerned that the discounts alone would provide enough bill payment incentive to pass the cost-effectiveness test. BGE accepted the recommendation of PSC staff to omit this requirement from the GRAD program, and instead draw conclusions about the effect of the on-time payment requirement in the CAMP pilot that could be applied to a GRAD-type program of usage-based bill discounts.
- Arrearage impact – BGE hoped the data would show how the differences in initial arrearage levels correlated to the effectiveness of the GRAD discounts. Depending on those results, they considered proposing that only customers with arrearages below a certain amount would be invited into a full scale GRAD program.
- OHEP application – Because the pilot was time-limited, BGE did not program their system to automatically remove customers from the pilot if they failed to re-apply for OHEP assistance and reestablish their income eligibility. However, if BGE went full scale and permanent, they would need to program the system to remove customers who failed to reestablish their eligibility by reapplying for OHEP assistance. BGE's system currently removes customers from eligibility for CAMP credits after the Energy Assistance code attached to their accounts expires.
- QHEC requirement – BGE did not remove any customers who failed to complete the QHEC. This is a decision they would need to make about a full scale program, depending on whether the data showed completion of a QHEC produced a meaningful difference in on-time payment.

DEF also had recommendations for modifications to the program if implemented at full scale.



- Data access – DEF would like to be able to access real time information in BGE's system to enable them to respond more fully to questions that customers have. In some cases DEF had to refer customers to BGE's customer service department because they did not have this access.
- Customer specific representatives – DEF would like to assign specific blocks of customers to a designated representative, so that the customer would always be dealing with the same person and could build a rapport over time. DEF believes that knowing why someone can't pay the bill is the key to helping them find a solution that will enable them to pay on a regular basis. They stated that customers' payment behavior may improve over time if the customer is put in touch with other services and DEF follows up to see if they have taken advantage of the additional help.
- Referrals – DEF would like their representatives to be able to refer customers to their supervisors to place a 30-day dunning lock on an account if they are in threat of termination and have agreed to pay their bill.

### III. Participant Feedback

BGE retained a marketing research company to conduct a survey with program participants. APPRISE provided feedback on the survey design and advance letters. The purpose of the survey was to assess the following key issues.

- Understanding of pilot benefits and services.
- Impacts of pilot on bill payment, energy consumption, and program participation.
- Impacts of payment counseling and energy audits.
- Satisfaction with pilot benefits and services.

#### A. *Survey Methodology*

BGE's marketing research consultant conducted a ten-minute telephone interview with a sample of pilot program participants. A total of 414 interviews were completed between June 27 and July 8, 2011. Table III-1 provides statistics on the survey response. Because large samples of each group of customers were released and not completely dialed, survey response rates are relatively low.

**Table III-1**  
**Survey Response**

	<b>TOTAL</b>	<b>GRAD1</b>	<b>GRAD2</b>	<b>GRAD3</b>	<b>CAMP1</b>	<b>CAMP2</b>	<b>CAMP3</b>
<b>Completed interviews</b>	414	75	75	37	75	75	77
<b>Bad phone numbers</b>	307	53	65	42	59	40	48
<b>Not qualified/no such person</b>	11	3	1	0	2	2	3
<b>Refusals</b>	74	11	16	7	19	12	9
<b>Overdialed</b>	25	0	0	25	0	0	0
<b>Remaining live</b>	527	114	58	8	123	82	142
<b>Total</b>	<b>1358</b>	<b>256</b>	<b>215</b>	<b>119</b>	<b>278</b>	<b>211</b>	<b>279</b>
<b>Response Rate</b>	31%	30%	35%	31%	27%	36%	28%

#### B. *Survey Findings*

This section examines findings from the survey research. Findings in each area are presented and discussed below.

##### **Pilot Understanding**

Table III-2 displays responses to whether customers reported receiving credits prior to the pilot participation. Because all of the customers in the pilot were in CAMP prior to the pilot, they should have received bill credits in the months that their bills were paid on time

and in full. Table III-2 shows that only about 41 percent of the CAMP pilot participants and 37 percent of the GRAD pilot participants said that they were receiving credits. Participants in CAMP 1 were most likely to report that they received a credit prior to participating.

**Table III-2**  
**CAMP Credits Prior to Pilot Participation**

Prior to your participation in the CAMP/GRAD program over the past year, were you receiving any CAMP program credits on your monthly BGE bill?								
	CAMP				GRAD			
	ALL	1	2	3	ALL	1	2	3
		Double Credit	Payment Counseling	Credit & Counseling		Discount	Discount & Audit	Discount & Counseling
<b>Yes</b>	41%	47%	37%	38%	37%	37%	39%	32%
<b>No</b>	41%	37%	40%	47%	50%	53%	41%	60%
<b>Don't Know</b>	18%	16%	23%	16%	13%	9%	20%	8%

Customers were asked whether they received discounts larger than the CAMP discounts, discounts based on the amount of energy used, and payment counseling in the pilot. Table III-3 shows the following with respect to understanding of these benefits.

- In the groups that were receiving double CAMP credits, 25 percent in CAMP 1 and 16 percent in CAMP 3 said that they were receiving credits larger than in CAMP. About one third of the GRAD participants said they were receiving credits larger than in CAMP.
- While CAMP credits were only based on payments, 41 percent of CAMP participants said that they received discounts based on usage. However, 65 percent of the GRAD participants correctly understood that their discounts were based on usage.
- Only eight to nine percent of the CAMP customers who were in the payment counseling groups said that they received payment counseling. While five percent of the customers in the GRAD pilot that included payment counseling said that they received this benefit, the percentage was lower than the GRAD customers who received the audit but did not receive payment counseling.

**Table III-3  
Pilot Benefits**

Which of the following things have you received based upon your participation in the CAMP/GRAD program over the past year? A discount on your monthly BGE bill larger than what you received in CAMP before this new program, a discount on your monthly BGE bill based on the amount of energy you use, counseling to help you find ways to pay your BGE bill?								
	CAMP				GRAD			
	ALL	1 Double Credit	2 Payment Counseling	3 Credit & Counseling	ALL	1 Discount	2 Discount & Audit	3 Discount & Counseling
<b>Discount larger than CAMP</b>	19%	25%	15%	16%	33%	31%	36%	32%
<b>Discount based on energy used</b>	41%	43%	45%	34%	65%	65%	65%	65%
<b>Payment counseling</b>	10%	13%	9%	8%	9%	7%	13%	5%

### Pilot Impacts

Participants were asked whether they paid their bill on time more often, less often, or whether there was no change since before the pilot. Table III-4 shows that 44 percent of the CAMP customers and 49 percent of the GRAD customers said that they paid their bill on time more often. Differences were not seen between the different pilot participants.

**Table III-4  
Change in Bill Payment**

Since you have been participating in this program, would you say you have been paying your BGE bill on time <i>more</i> often, you have been paying your BGE bill on-time <i>less</i> often, or there has been no change in when you pay your BGE bill?								
	CAMP				GRAD			
	ALL	1 Double Credit	2 Payment Counseling	3 Credit & Counseling	ALL	1 Discount	2 Discount & Audit	3 Discount & Counseling
<b>More Often</b>	44%	48%	40%	44%	49%	49%	48%	49%
<b>Less Often</b>	6%	7%	4%	8%	6%	4%	8%	5%
<b>No Change</b>	50%	45%	56%	48%	46%	47%	44%	46%

Table III-5 shows that about one third of the CAMP participants and about half of the GRAD participants said that they have been using less energy since participating in the pilot.

**Table III-5**  
**Change in Energy Consumption**

Since you have been participating in this program, would you say you have been using less energy, you have been using more energy, or there has been no change in your use of energy?								
	CAMP				GRAD			
	ALL	1	2	3	ALL	1	2	3
		Double Credit	Payment Counseling	Credit & Counseling		Discount	Discount & Audit	Discount & Counseling
<b>Less Energy</b>	32%	33%	35%	27%	51%	45%	56%	51%
<b>More Energy</b>	12%	15%	13%	9%	10%	9%	11%	8%
<b>No Change</b>	49%	44%	47%	56%	33%	41%	27%	27%
<b>Don't Know</b>	7%	8%	5%	8%	7%	4%	7%	14%

Respondents were asked whether participation in the pilot led to participation in the state Weatherization Assistance Program (WAP), BGE's Limited Income Energy Efficiency Program (LIEEP), or any other energy assistance program. The table shows that about one quarter of the CAMP participants said that they participated in WAP and about 20 percent said they participated in LIEEP or another energy assistance program. About 28 percent of GRAD participants said that the pilot led to their participation in these other programs. However, customers who received the counseling in addition to the GRAD discount were more likely than the other groups to say that the program led to their participation in WAP, and they were less likely than the other groups to say that it led to their participation in LIEEP.

**Table III-6**  
**Change in Program Participation**

Has your participation in the program over the past year led to your participation in other energy programs such as: the Weatherization Assistance Program, BGE's Limited Income Energy Efficiency Program, or any other energy assistance program?								
	CAMP				GRAD			
	ALL	1	2	3	ALL	1	2	3
		Double Credit	Payment Counseling	Credit & Counseling		Discount	Discount & Audit	Discount & Counseling
<b>WAP</b>	24%	24%	23%	26%	28%	28%	21%	43%
<b>LIEEP</b>	20%	16%	21%	23%	27%	31%	31%	11%
<b>Other Energy Assistance Program</b>	20%	24%	16%	20%	27%	37%	21%	19%

### **Payment Counseling and Energy Audit Impacts**

Customers in the pilots where counseling was included were asked whether they received a phone call from Dollar Energy to discuss BGE payments during the program. Table III-7 shows that overall 13 percent said that they had received a phone call.

**Table III-7**  
**Recall of Payment Counseling Phone Call**

	Did you receive a phone call from Dollar Energy during the course of the program to discuss your BGE payments?			
	ALL	CAMP		GRAD
		2	3	3
		Payment Counseling	Credit & Counseling	Discount & Counseling
<b>Yes</b>	13%	11%	12%	19%
<b>No</b>	65%	61%	75%	51%
<b>Don't know</b>	22%	28%	13%	30%

Customers who recalled payment counseling were asked whether the payment counseling helped them to pay more of their monthly bill, pay their monthly bill on time more often, use less energy, and find additional help behind the utility assistance, such as with food, rent, medical expenses, or something else. Because only 13 percent of the customers who were targeted with payment counseling recalled that they received a phone call from Dollar Energy, only 24 customers were asked these questions. However, those who recalled the call were likely to say that the counseling helped them.

- 58% said it helped them to pay more of their monthly bill
- 71% said it helped them to pay their monthly bill on time more often
- 63% said it helped them to use less energy
- 38% said it helped them to find additional help

Customers in GRAD 2, the pilot that included the Quick Home Energy Check-up were asked whether they received the Check-up as part of the program. Table III-8 shows that 69 percent of the respondents recalled receipt of the Check-up.

**Table III-8**  
**Recall of Quick Home Energy Checkup**

	Did you receive a BGE Quick Home Energy Check-up as part of this program? This is where someone came out to your home and made suggestions for things that could be done to help you use less energy.
	GRAD 2
	Discount & Audit
<b>Yes</b>	69%
<b>No</b>	29%
<b>Don't Know</b>	1%

Those customers who recalled receipt of the Check-up were asked whether they have been using less energy, more energy, or had no real change in their energy usage since receipt of the Check-up. Table III-9 shows that 71 percent said they were using less energy.

**Table III-9**  
**Impact of Quick Home Energy Checkup on Energy Usage**

	Would you say that since the BGE Quick Home Energy Check-up, you have been using less energy, you have been using more energy, or there has been no real change in your energy usage?
	GRAD 2
	Discount & Audit
Less Energy	71%
More Energy	0%
No Change	23%
Don't Know	6%

### **Pilot Satisfaction**

Customers were then asked several questions relating to satisfaction and assistance provided by the pilot. Table III-10 shows that 67 percent said it was very easy to enroll in the pilot and 26 percent said it was somewhat easy.

**Table III-10**  
**Ease or Difficulty of Signing up for CAMP/GRAD Program**

How difficult or easy was the process to sign up for the CAMP/GRAD program – would you say it was very difficult, somewhat difficult, somewhat easy, or very easy?								
	CAMP				GRAD			
	ALL	1	2	3	ALL	1	2	3
		Double Credit	Payment Counseling	Credit & Counseling		Discount	Discount & Audit	Discount & Counseling
Very Easy	67%	79%	56%	66%	73%	79%	69%	69%
Somewhat Easy	26%	18%	37%	23%	21%	19%	21%	29%
Somewhat Difficult	5%	1%	6%	8%	4%	3%	7%	0%
Very Difficult	2%	1%	2%	3%	2%	0%	3%	3%

When asked how easy or difficult it was for customers to pay their BGE bill, about half said it was somewhat or very easy and half said it was somewhat or very difficult.

**Table III-11**  
**Ease or Difficulty of Paying BGE Bill**

How difficult or easy is it for you to come up with the money to pay your BGE bill – would you say it is very difficult, somewhat difficult, somewhat easy, or very easy?								
	CAMP				GRAD			
	ALL	1	2	3	ALL	1	2	3
		Double Credit	Payment Counseling	Credit & Counseling		Discount	Discount & Audit	Discount & Counseling
<b>Very Easy</b>	20%	21%	21%	17%	21%	21%	20%	22%
<b>Somewhat Easy</b>	33%	43%	27%	29%	38%	46%	38%	22%
<b>Somewhat Difficult</b>	33%	26%	38%	36%	28%	21%	28%	41%
<b>Very Difficult</b>	14%	11%	14%	17%	14%	13%	14%	16%

Customers were asked whether the pilot program provided enough help to pay the monthly BGE bill on time. The table shows that 67 percent of the CAMP participants and 75 percent of the GRAD participants said that the program provided enough help. CAMP customers who received the double credit were more likely than the other CAMP participants to say that the program provided enough bill payment assistance. GRAD customers with the discount alone were most likely of the GRAD groups to say that the program provided enough assistance.

**Table III-12**  
**CAMP/GRAD Sufficiency of Help in Bill Payment**

Do you feel as though the CAMP/GRAD program provides enough help for you to be able to pay your monthly BGE bill on-time?								
	CAMP				GRAD			
	ALL	1	2	3	ALL	1	2	3
		Double Credit	Payment Counseling	Credit & Counseling		Discount	Discount & Audit	Discount & Counseling
<b>Yes</b>	67%	75%	65%	60%	75%	83%	75%	62%
<b>No</b>	25%	19%	23%	34%	14%	9%	15%	24%
<b>Don't know</b>	8%	7%	12%	7%	10%	8%	11%	14%

When asked to rate the pilot program from A to F, 59 percent of CAMP customers gave the pilot an A grade and 29 percent gave the pilot a B grade. CAMP customers with the double credit only were more likely than the other groups to rate the program as excellent. Overall, 66 percent of the GRAD participants gave the program an A rating and 28 percent gave the program a B rating. GRAD customers with the discount alone were more satisfied than the others and customers with the discount and counseling were less satisfied than the others.



**Table III-13  
Pilot Satisfaction**

Using the same grades used in school where “A” is excellent, “B” is good, “C” is average, “D” is below average and “F” is very poor, what overall grade would you give to your experience with the CAMP/GRAD Program over the past year?								
	CAMP				GRAD			
	ALL	1	2	3	ALL	1	2	3
		Double Credit	Payment Counseling	Credit & Counseling		Discount	Discount & Audit	Discount & Counseling
<b>A – Excellent</b>	59%	70%	52%	53%	66%	76%	62%	54%
<b>B – Good</b>	29%	24%	34%	29%	28%	18%	36%	30%
<b>C – Average</b>	8%	1%	11%	12%	6%	6%	3%	14%
<b>D – Below Average</b>	2%	1%	1%	4%	0%	0%	0%	0%
<b>F – Very Poor</b>	2%	3%	1%	1%	1%	0%	0%	3%

### ***C. Summary of Findings***

This section provides a summary of the findings from the customer survey. The low response rate of 31 percent should be taken into account when assigning weight to these findings.

- *Understanding of the Pilot:* Many customers do not have a good understanding of the pilot program. Only 25 and 16 percent of participants in the two CAMP pilots with double credits said that they received a discount larger than the previous camp discount and 41 percent of the CAMP participants said that their discount was based on usage. However GRAD customers had a somewhat better understanding in that 65 percent said that they received a discount based on the amount of energy they used.
- *Pilot Impacts:* About half of the customers said that they pay their bill on time more often since participating in the pilot. About one third of the CAMP participants and one half of the GRAD participants said that they have been using less energy since they began participating in the pilot. About one quarter of the pilot participants said that they participated in another energy program as a result of their pilot program participation.
- *Payment Counseling:* Customers were not likely to recall payment counseling. Only 13 percent of the customers in the groups where payment counseling was offered recalled a phone call.
- *Quick Home Energy Check-up:* Customers were more likely to recall the audit than the payment counseling. Of those in the pilot group that received the audit, 69 percent said that they received one. Of those who recalled the audit, 71 percent said that they were using less energy since the audit.

- *Satisfaction:* Most customers said it was very or somewhat easy to sign up for the pilot, that the pilot provides enough assistance to pay their BGE bill on time, and that they would rate the program as excellent or good.

## IV. Program Impacts

This section analyzes the impact of the pilot payment programs on participants' usage, payments, credits received, arrearages, and collections actions.

### A. Usage

The tables below display the data that are available to examine changes in pilot participants' electric and gas usage, compared to changes for the general low-income customers. Usage data were provided for 562 CAMP customers and 543 GRAD customers. However, the number that received any credits was much higher – 888 CAMP and 864 GRAD participants were in the discount and credit files. Therefore, usage data were provided for 63 percent of CAMP customers and 63 percent of GRAD customers.

Because we cannot determine the final number of customers who should be included in the analysis and whether the customer was an electric heating, baseload, or gas user without data contained in the usage file, we report the number contained in the usage file as the base number of customers. Attrition numbers are significantly higher than reported below, as many customers enrolled in the program are not included in the base that we use. We use these approximate percentages across groups to estimate the final percent of participants analyzed.

Attrition tables are shown below for the electric baseload analysis, the electric heating analysis and the gas usage analysis. Tables IV-1A, IV-1B, and IV-1C show that a very high percentage of customers who were included in BGE's usage file were able to be included in the analysis, about 96 percent of the CAMP and GRAD customers for electric usage, and 80 percent for gas usage. Over 90 percent of the comparison group in the usage file had sufficient electric usage data and 79 percent had sufficient gas usage data to be included in the analysis. However, we multiply these percentages by .63 to reflect the attrition in the number provided in the usage file.

**Table IV-1A**  
**Electric Baseload Usage Attrition Analysis**

	CAMP				GRAD				Comparison Group of Low-Income Customers
	All	1	2	3	All	1	2	3	
Original Population	397	143	107	147	387	140	119	128	23,702
Zero or Missing Usage	0	0	0	0	0	0	0	0	227
Not Enough or Too Many Pre-Treatment Days	1	1	0	0	3	2	1	0	535
Not Enough or Too Many Post-Treatment Days	0	0	0	0	0	0	0	0	128

	CAMP				GRAD				Comparison Group of Low-Income Customers
	All	1	2	3	All	1	2	3	
Pre or Post Usage Below 1200 kWh	3	0	1	2	0	0	0	0	107
Pre or Post Usage >25,000 kWh	5	1	1	3	6	2	3	1	566
Change in Total Usage>65%	7	1	3	3	8	2	1	5	638
<b>Sample Included</b>	<b>381</b>	<b>140</b>	<b>102</b>	<b>139</b>	<b>370</b>	<b>134</b>	<b>114</b>	<b>122</b>	<b>21,501</b>
<b>% of Usage Included</b>	<b>96%</b>	<b>98%</b>	<b>95%</b>	<b>95%</b>	<b>96%</b>	<b>96%</b>	<b>96%</b>	<b>95%</b>	<b>91%</b>
<b>% of Participants Included</b>	<b>60%</b>	<b>62%</b>	<b>60%</b>	<b>60%</b>	<b>60%</b>	<b>60%</b>	<b>60%</b>	<b>60%</b>	<b>--</b>

**Table IV-1B**  
**Electric Heating Usage Attrition Analysis**

	CAMP				GRAD				Comparison Group of Low-Income Customers
	All	1	2	3	All	1	2	3	
Original Population	164	59	50	55	153	63	45	45	7,803
Zero or Missing Usage	0	0	0	0	0	0	0	0	19
Not Enough or Too Many Pre-Treatment Days	1	0	0	1	1	0	0	1	128
Not Enough or Too Many Post-Treatment Days	1	0	0	1	0	0	0	0	11
Pre or Post Usage Below 1200 kWh	0	0	0	0	0	0	0	0	9
Pre or Post Usage >35,000 kWh	3	0	2	1	2	2	0	0	241
Change in Total Usage>65%	1	0	1	0	1	1	0	0	85
<b>Sample Included</b>	<b>158</b>	<b>59</b>	<b>47</b>	<b>52</b>	<b>149</b>	<b>60</b>	<b>45</b>	<b>44</b>	<b>7,310</b>
<b>% Included</b>	<b>96%</b>	<b>100%</b>	<b>94%</b>	<b>95%</b>	<b>97%</b>	<b>95%</b>	<b>100%</b>	<b>98%</b>	<b>94%</b>
<b>% of Participants Included</b>	<b>60%</b>	<b>63%</b>	<b>59%</b>	<b>60%</b>	<b>61%</b>	<b>60%</b>	<b>63%</b>	<b>62%</b>	<b>--</b>

**Table IV-1C**  
**Gas Usage Attrition Analysis**

	CAMP				GRAD				Comparison Group of Low-Income Customers
	All	1	2	3	All	1	2	3	
Original Population	321	126	84	111	321	117	103	101	18,934
Zero or Missing Usage	1	0	0	1	0	0	0	0	126
Not Enough or Too Many Pre-Treatment Days	4	1	1	2	11	4	4	3	924

	CAMP				GRAD				Comparison Group of Low-Income Customers
	All	1	2	3	All	1	2	3	
Not Enough or Too Many Post-Treatment Days	1	0	1	0	2	0	1	1	153
Pre or Post Usage Below 300 Therms	52	20	14	18	49	19	16	14	2,657
Pre or Post Usage >3,000 Therms	0	0	0	0	1	1	0	0	106
Change in Total Usage>65%	6	4	2	0	5	3	2	0	257
<b>Sample Included</b>	<b>257</b>	<b>101</b>	<b>66</b>	<b>90</b>	<b>253</b>	<b>90</b>	<b>80</b>	<b>83</b>	<b>14,711</b>
<b>% Included</b>	<b>80%</b>	<b>80%</b>	<b>79%</b>	<b>81%</b>	<b>79%</b>	<b>77%</b>	<b>78%</b>	<b>82%</b>	<b>78%</b>
<b>% of Participants Included</b>	<b>50%</b>	<b>50%</b>	<b>50%</b>	<b>51%</b>	<b>50%</b>	<b>49%</b>	<b>49%</b>	<b>52%</b>	<b>--</b>

Tables IV-2A, 2B, and 2C display changes in average usage for CAMP participants and the low-income comparison group. As CAMP customers' treatments consist of increased bill credits for on-time payment and payment counseling, there is not an expectation that this pilot group would reduce their energy usage as a result of participating in the pilot. However, payment counselors may refer customers to energy efficiency programs and customers may place additional focus on their energy usage due to the increased emphasis on bill payment.

Table IV-2A shows that while CAMP customers reduced their electric baseload usage by an average of 269 kWh, a savings of three percent of their pre-treatment usage, they did not have net energy savings as compared to other low-income customers who did not participate in the pilot. Customers in the CAMP 3 Pilot who received the double bill credit and payment counseling had the greatest reduction in electric baseload usage, a reduction of 381 kWh, but the net savings, as compared with the limited-income customers who were not in the pilot, were only 95 kWh, a reduction of only one percent.

**Table IV-2A**  
**CAMP Average Usage and Savings**  
**Electric Baseload Customers**

ELECTRIC BASELOAD USAGE IMPACTS							
	Treatment Group			Gross Savings		Net Savings	
	#	Pre-Use	Post-Use	kWh	% Savings	kWh	% Savings
<b>ALL CAMP</b>							
<b>Non Normalized</b>	381	7,702	8,316	-614**	-8%	115	1%
<b>Degree Day Normalized</b>	381	8,264	7,996	269**	3%	-17	>-1%
<b>CAMP 1 – Double Bill Credit</b>							
<b>Non Normalized</b>	140	7,507	8,187	-680**	-9%	49	1%
<b>Degree Day Normalized</b>	140	8,062	7,915	146	2%	-139	-2%

ELECTRIC BASELOAD USAGE IMPACTS							
	Treatment Group			Gross Savings		Net Savings	
	#	Pre-Use	Post-Use	kWh	% Savings	kWh	% Savings
<b>CAMP 2 – Existing Credits and Payment Counseling</b>							
<b>Non Normalized</b>	102	7,740	8,305	-565**	-7%	164	2%
<b>Degree Day Normalized</b>	102	8,271	7,987	284	3%	-2	>-1%
<b>CAMP 3 – Double Bill Credit and Payment Counseling</b>							
<b>Non Normalized</b>	139	7,871	8,454	-584**	-7%	146	2%
<b>Degree Day Normalized</b>	139	8,463	8,083	381**	5%	95	1%

\*Significant at 90% level; \*\*Significant at 95% level.

Table IV-2B displays changes in average electric usage for electric heating customers for CAMP participants and the low-income comparison group. These customers also reduced their electric usage, and by more than the comparison group. Overall, the net impact was a savings of 324 kWh, a three percent usage reduction. However, the change was not statistically significant. Customers in CAMP 1, who only received the double bill credit, had the greatest reduction in electric usage, a net savings of 577 kWh, or five percent of their pre-treatment usage.

**Table IV-2B**  
**CAMP Average Usage and Savings**  
**Electric Heating Customers**

ELECTRIC HEATING IMPACTS							
	Treatment Group			Gross Savings		Net Savings	
	#	Pre-Use	Post-Use	kWh	% Savings	kWh	% Savings
<b>ALL CAMP</b>							
<b>Non Normalized</b>	158	12,140	12,452	-312	-3%	431**	4%
<b>Degree Day Normalized</b>	158	12,485	12,279	206	2%	324	3%
<b>CAMP 1 – Double Bill Credit</b>							
<b>Non Normalized</b>	59	11,057	11,082	-25	>-1%	718**	6%
<b>Degree Day Normalized</b>	59	11,382	10,924	458	4%	577*	5%
<b>CAMP 2 – Existing Credits and Payment Counseling</b>							
<b>Non Normalized</b>	47	12,137	12,674	-536	-4%	206	2%
<b>Degree Day Normalized</b>	47	12,519	12,505	15	<1%	133	1%
<b>CAMP 3 – Double Bill Credit and Payment Counseling</b>							
<b>Non Normalized</b>	52	13,372	13,806	-434	-3%	309	2%
<b>Degree Day Normalized</b>	52	13,706	13,613	92	1%	211	2%

\*Significant at 90% level; \*\*Significant at 95% level.

Table IV-2C displays changes in average gas usage for CAMP participants and the low-income comparison group. The table shows that these customers had a small increase in gas usage that was approximately the same as the increase for the comparison group.

**Table IV-2C**  
**CAMP Average Usage and Savings**  
**Gas Customers**

<b>GAS USAGE IMPACTS</b>							
	<b>Treatment Group</b>			<b>Gross Savings</b>		<b>Net Savings</b>	
	<b>#</b>	<b>Pre-Use</b>	<b>Post-Use</b>	<b>Therms</b>	<b>% Savings</b>	<b>Therms</b>	<b>% Savings</b>
<b>ALL CAMP</b>							
<b>Non Normalized</b>	257	856	896	-40**	-5%	-7	-1%
<b>Degree Day Normalized</b>	257	884	939	-54**	-6%	-11	-1%
<b>CAMP 1 – Double Bill Credit</b>							
<b>Non Normalized</b>	101	831	869	-38**	-5%	-6	-1%
<b>Degree Day Normalized</b>	101	857	908	-51**	-6%	-8	-1%
<b>CAMP 2 – Existing Credits and Payment Counseling</b>							
<b>Non Normalized</b>	66	917	963	-46**	-5%	-13	-1%
<b>Degree Day Normalized</b>	66	949	1,014	-65**	-7%	-22	-2%
<b>CAMP 3 – Double Bill Credit and Payment Counseling</b>							
<b>Non Normalized</b>	90	840	877	-37**	-4%	-5	-1%
<b>Degree Day Normalized</b>	90	866	917	-51**	-6%	-8	-1%

\*Significant at 90% level; \*\*Significant at 95% level.

Table IV-3A, 3B, and 3C display changes in average usage for GRAD participants and the low-income comparison group. GRAD participants receive a credit on their bill based upon the amount of electric and gas used each month, with greater discounts for lower usage. Therefore, these customers have a large incentive to reduce their energy usage.

Table IV-3A shows that while GRAD customers reduced their electric baseload usage by an average of 378 kWh, a savings of four percent of their pre-treatment usage, their net energy savings as compared to other low-income customers who did not participate in the pilot was only one percent. GRAD 3 customers who received the graduated credits and payment counseling had the greatest reduction in usage, of 521 kWh, and their net reduction was 236 kWh, but was not statistically significant. The GRAD 2 customers who received the graduated credits and the Quick Home Energy Check-up did not have a significant change in energy usage.

**Table IV-3A**  
**GRAD Average Usage and Savings**  
**Electric Baseload Customers**

<b>ELECTRIC BASELOAD USAGE IMPACTS</b>							
	<b>Treatment Group</b>			<b>Gross Savings</b>		<b>Net Savings</b>	
	<b>#</b>	<b>Pre-Use</b>	<b>Post-Use</b>	<b>kWh</b>	<b>% Savings</b>	<b>kWh</b>	<b>% Savings</b>
<b>ALL GRAD</b>							
<b>Non Normalized</b>	370	8,211	8,760	-548**	-7%	181*	2%
<b>Degree Day Normalized</b>	370	8,873	8,495	378**	4%	93	1%
<b>GRAD 1 – Graduated Credits Only</b>							
<b>Non Normalized</b>	134	8,363	8,895	-532**	-6%	197	2%
<b>Degree Day Normalized</b>	134	9,036	8,599	437**	5%	152	2%
<b>GRAD 2 – Graduated Credits and Quick Home Energy Check-up</b>							
<b>Non Normalized</b>	114	8,324	9,015	-691**	-8%	38	<1%
<b>Degree Day Normalized</b>	114	8,852	8,695	156	2%	-129	-1%
<b>GRAD 3 – Graduated Credits and Payment Counseling</b>							
<b>Non Normalized</b>	122	7,940	8,372	-432**	-5%	297*	4%
<b>Degree Day Normalized</b>	122	8,713	8,192	521**	6%	236	3%

\* significant at 90% level; \*\* significant at 95% level

Table IV-3B displays the change in electric usage for GRAD electric heating customers. The table shows that GRAD customers reduced their electric usage by an average of 405 kWh, and their net energy savings as compared to other low-income customers who did not participate in the pilot was 524 kWh, equal to a four percent savings on pre-treatment usage. Customers who only received the graduated credits had the largest reduction and were the only group with a statistically significant reduction in electric heating usage. This group reduced their usage by five percent.

**Table IV-3B**  
**GRAD Average Usage and Savings**  
**Electric Heating Customers**

<b>ELECTRIC HEATING IMPACTS</b>							
	<b>Treatment Group</b>			<b>Gross Savings</b>		<b>Net Savings</b>	
	<b>#</b>	<b>Pre-Use</b>	<b>Post-Use</b>	<b>kWh</b>	<b>% Savings</b>	<b>kWh</b>	<b>% Savings</b>
<b>ALL GRAD</b>							
<b>Non Normalized</b>	149	13,100	13,270	-171	-1%	572**	4%
<b>Degree Day Normalized</b>	149	13,531	13,125	405**	3%	524**	4%
<b>GRAD 1 – Graduated Credits Only</b>							
<b>Non Normalized</b>	60	12,557	12,620	-63	-1%	680**	5%
<b>Degree Day Normalized</b>	60	12,983	12,477	505*	4%	624*	5%



ELECTRIC HEATING IMPACTS							
	Treatment Group			Gross Savings		Net Savings	
	#	Pre-Use	Post-Use	kWh	% Savings	kWh	% Savings
<b>GRAD 2 – Graduated Credits and Quick Home Energy Check-up</b>							
Non Normalized	45	14,299	14,501	-202	-1%	541	4%
Degree Day Normalized	45	14,815	14,377	438	3%	557	4%
<b>GRAD 3 – Graduated Credits and Payment Counseling</b>							
Non Normalized	44	12,614	12,899	-286	-2%	457	4%
Degree Day Normalized	44	12,965	12,730	235	2%	353	3%

\*Significant at 90% level; \*\*Significant at 95% level.

Table IV-3C displays the change in gas usage for GRAD customers. The table shows that overall there was not a change in gas usage for GRAD customers, but customers with the graduated credit and the Quick Home Energy Check-up reduced their usage by 35 therms, a four percent reduction in usage.

**Table IV-3C**  
**GRAD Average Usage and Savings**  
**Gas Customers**

GAS USAGE IMPACTS							
	Treatment Group			Gross Savings		Net Savings	
	#	Pre-Use	Post-Use	Therms	% Savings	Therms	% Savings
<b>ALL GRAD</b>							
Non Normalized	253	873	903	-30**	-3%	3	<1%
Degree Day Normalized	253	904	945	-40**	-4%	3	<1%
<b>GRAD 1 – Graduated Credits Only</b>							
Non Normalized	90	839	883	-43**	-5%	-11	-1%
Degree Day Normalized	90	877	921	-44**	-5%	-1	>-1%
<b>GRAD 2 – Graduated Credits and Quick Home Energy Check-up</b>							
Non Normalized	80	877	881	-4	>-1%	28	3%
Degree Day Normalized	80	907	916	-8	-1%	35*	4%
<b>GRAD 3 – Graduated Credits and Payment Counseling</b>							
Non Normalized	83	906	946	-39**	-4%	-7	-1%
Degree Day Normalized	83	931	998	-67**	-7%	-24	-3%

\*Significant at 90% level; \*\*Significant at 95% level.

The next set of tables displays changes in GRAD participants' energy usage by pre-treatment energy usage. Table IV-4A shows that customers in the group with usage over 1,726 kWh were the only ones with statistically significant savings. These customers saved an average of 617 kWh compared to the low-income non-participants, a savings of four percent of pre-treatment usage.

**Table IV-4A**  
**GRAD Average Usage and Savings**  
**By Pre-Treatment Usage Group**  
**Electric Baseload Customers**

<b>ELECTRIC BASELOAD USAGE IMPACTS</b>							
	<b>Treatment Group</b>			<b>Gross Savings</b>		<b>Net Savings</b>	
	<b>#</b>	<b>Pre-Use</b>	<b>Post-Use</b>	<b>kWh</b>	<b>% Savings</b>	<b>kWh</b>	<b>% Savings</b>
<b>ALL GRAD</b>							
<b>Non Normalized</b>	370	8,211	8,760	-548**	-7%	181*	2%
<b>Degree Day Normalized</b>	370	8,873	8,495	378**	4%	93	1%
<b>&lt;716 kWh</b>							
<b>Non Normalized</b>	141	4,451	4,974	-522**	-12%	207	5%
<b>Degree Day Normalized</b>	141	4,839	4,814	25	1%	-260	-5%
<b>717-1726 kWh</b>							
<b>Non Normalized</b>	142	8,316	8,979	-663**	-8%	66	1%
<b>Degree Day Normalized</b>	142	9,013	8,605	408**	5%	122	1%
<b>&gt;1726 kWh</b>							
<b>Non Normalized</b>	87	14,134	14,537	-403	-3%	326*	2%
<b>Degree Day Normalized</b>	87	15,183	14,281	902**	6%	617**	4%

\*Significant at 90% level; \*\*Significant at 95% level.

Table IV-4B shows that electric heating customers in the highest pre-treatment usage group were also the ones that had statistically significant savings. These customers had average net savings of 926 kWh, or five percent of pre-treatment usage.

**Table IV-4B**  
**GRAD Average Usage and Savings**  
**By Pre-Treatment Usage Group**  
**Electric Heating Customers**

<b>ELECTRIC HEATING IMPACTS</b>							
	<b>Treatment Group</b>			<b>Gross Savings</b>		<b>Net Savings</b>	
	<b>#</b>	<b>Pre-Use</b>	<b>Post-Use</b>	<b>kWh</b>	<b>% Savings</b>	<b>kWh</b>	<b>% Savings</b>
<b>ALL GRAD</b>							
<b>Non Normalized</b>	149	13,100	13,270	-171	-1%	572**	4%
<b>Degree Day Normalized</b>	149	13,531	13,125	405**	3%	524**	4%
<b>&lt;716 kWh</b>							
<b>Non Normalized</b>	23	4,736	5,498	-762**	-16%	-19	>-1%
<b>Degree Day Normalized</b>	23	4,866	5,389	-523*	-11%	-404	-8%
<b>717-1726 kWh</b>							
<b>Non Normalized</b>	43	8,375	8,747	-372	-4%	371	4%
<b>Degree Day Normalized</b>	43	8,692	8,565	127	1%	245	3%

ELECTRIC HEATING IMPACTS							
	Treatment Group			Gross Savings		Net Savings	
	#	Pre-Use	Post-Use	kWh	% Savings	kWh	% Savings
>1726 kWh							
Non Normalized	83	17,865	17,768	97	1%	840**	5%
Degree Day Normalized	83	18,439	17,632	807**	4%	926**	5%

\*Significant at 90% level; \*\*Significant at 95% level.

Gas usage did not show the expected results. Customers with mid-level usage, between 651 and 1,000 therms had net savings averaging 45 therms, or five percent of pre-treatment usage, but the group with the highest pre-treatment gas usage did not have savings.

**Table IV-4C**  
**GRAD Average Usage and Savings**  
**By Pre-Treatment Usage Group**  
**Gas Usage**

GAS USAGE IMPACTS							
	Treatment Group			Gross Savings		Net Savings	
	#	Pre-Use	Post-Use	Therms	% Savings	Therms	% Savings
ALL GRAD							
Non Normalized	253	873	903	-30**	-3%	3	<1%
Degree Day Normalized	253	904	945	-40**	-4%	3	<1%
≤ 650 Therms							
Non Normalized	95	465	504	-39**	-8%	-7	-2%
Degree Day Normalized	95	479	519	-40**	-8%	3	1%
651-1,000 Therms							
Non Normalized	67	799	793	5	1%	38**	5%
Degree Day Normalized	67	824	822	2	<1%	45**	5%
1,001 Therms							
Non Normalized	91	1,354	1,400	-46**	-3%	-13	-1%
Degree Day Normalized	91	1,408	1,479	-71**	-5%	-28	-2%

\*Significant at 90% level; \*\*Significant at 95% level.

## ***B. Payments and Credits***

The next analysis examines payment compliance and program credits received. Table IV-5 displays the attrition for the collections actions. Again we apply the attrition percentage of the file to the attrition from the initial sample (888 CAMP and 864 GRAD) to obtain final attrition numbers.

**Table IV-5**  
**Collection Actions Attrition Analysis**

	CAMP				GRAD				Comparison
	All	1	2	3	All	1	2	3	
Original Population	715	247	196	272	770	277	255	238	86,446
Missing Pre-Period Collection Actions Info	41	13	12	16	46	17	15	14	29,230
Missing Post-Period Collection Actions Info	220	73	61	86	238	81	86	71	27,368
Missing Arrearage Info	0	0	0	0	1	0	1	0	232
Pre-treatment Arrearage>\$2,000	9	3	1	5	1	0	0	1	1,975
<b>Final Collection Actions Sample</b>	<b>445</b>	<b>158</b>	<b>122</b>	<b>165</b>	<b>484</b>	<b>179</b>	<b>153</b>	<b>152</b>	<b>27,641</b>
<b>% Included in Collection Actions Analysis</b>	<b>62%</b>	<b>64%</b>	<b>62%</b>	<b>61%</b>	<b>63%</b>	<b>65%</b>	<b>60%</b>	<b>64%</b>	<b>32%</b>
<b>% of Participants Included</b>	<b>50%</b>	<b>52%</b>	<b>50%</b>	<b>49%</b>	<b>56%</b>	<b>58%</b>	<b>53%</b>	<b>57%</b>	<b>--</b>

Table IV-6 displays the attrition for the analysis of credits received during the pilot period. The table shows that about 93 percent of the pilot customers could be included in the analysis.

**Table IV-6**  
**Pilot Credits Attrition Analysis**

	CAMP				GRAD			
	All	1	2	3	All	1	2	3
Original Population	888	-	-	-	864	-	-	-
Missing Group Info	57	-	-	-	41	-	-	-
Population with Group Info	831	293	236	302	823	304	261	258
Missing Subgroup Info	7	2	3	2	1	0	0	1
<b>Final Credits Sample</b>	<b>824</b>	<b>291</b>	<b>233</b>	<b>300</b>	<b>822</b>	<b>304</b>	<b>261</b>	<b>257</b>
<b>% Included in Credits Analysis</b>	<b>93%</b>	<b>99%</b>	<b>99%</b>	<b>99%</b>	<b>95%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
<b>% of Participants Included</b>	<b>93%</b>	<b>93%</b>	<b>93%</b>	<b>93%</b>	<b>95%</b>	<b>95%</b>	<b>95%</b>	<b>95%</b>

Table IV-7 displays the mean number of on-time payments made by customers in the pre and post-treatment periods based on the number of months where they had no collections actions. The table shows that overall there was no change in the number of months for the treatment group, but the comparison group reduced the number of on-time payments made, so the net change was an increase of one half of an on-time payment for the year. The following differences were seen across the groups that we examined.

- CAMP participants in the lowest poverty group had the greatest increase in the number of on-time payments, compared to the other poverty groups.
- CAMP participants with only 0-1 payments in the pre-treatment period had the greatest increase in the number of on-time payments.
- GRAD 2 and GRAD 3 customers, those who received payment counseling or the Quick Home Energy Check-up in addition to the graduated credits, had greater increases in payments than those who only had the credits.

**Table IV-7**  
**Mean Number of On-Time Payments**  
**Based on Number of Months with No Collections Actions**

	Treatment Group				Net Change
	#	# Pre	# Post	Gross Change	
<b>All CAMP and GRAD</b>	929	9.0	9.0	>-0.1	0.5**
<b>All CAMP</b>	445	9.4	9.2	-0.1	0.4**
<b>CAMP 1 – Double Credits</b>	158	9.4	9.4	-0.1	0.5**
<b>CAMP 2 – Payment Counseling</b>	122	9.7	9.5	-0.2	0.3
<b>CAMP 3 – Credits &amp; Counseling</b>	165	9.1	9.0	-0.1	0.4**
<b>CAMP ≤75% Poverty</b>	74	8.7	9.0	0.3	0.8**
<b>CAMP 76-150% Poverty</b>	179	10.0	9.6	-0.3**	0.2
<b>CAMP 151-175% Poverty</b>	24	9.7	9.7	0.0	0.5
<b>CAMP Subsidized Housing</b>	168	9.0	8.9	-0.1	0.4**
<b>CAMP 0-1 Payments</b>	98	6.0	6.4	0.4	0.9**
<b>CAMP 2-6 Payments</b>	222	9.5	9.2	-0.3*	0.2
<b>CAMP 7-12 Payments</b>	125	11.9	11.7	-0.2**	0.3
<b>ALL GRAD</b>	484	8.6	8.7	0.1	0.6**
<b>GRAD 1 – Graduated Discount</b>	179	8.7	8.5	-0.2	0.3
<b>GRAD 2 – Discount and Audit</b>	153	8.3	8.4	0.1	0.7**
<b>GRAD 3 – Discount and Counseling</b>	152	8.9	9.2	0.3	0.8**
<b>GRAD &lt;716 kWh</b>	138	9.0	9.2	0.2	0.7**
<b>GRAD 717-1726 kWh</b>	176	8.6	8.8	0.1	0.6**
<b>GRAD &gt; 1726 kWh</b>	170	8.4	8.2	-0.1	0.4*
<b>GRAD \$0 Arrearage</b>	228	10.0	10.1	0.1	0.6**
<b>GRAD ≤\$200 Arrearage</b>	130	8.7	8.6	-0.1	0.4*
<b>GRAD \$201-\$1,000 Arrearage</b>	126	6.1	6.3	0.2	0.7**
<b>GRAD 0-1 Payments</b>	114	6.6	6.9	0.3	0.8**
<b>GRAD 2-6 Payments</b>	256	8.3	8.2	-0.1	0.4**
<b>GRAD 7-12 Payments</b>	114	11.4	11.6	0.1	0.6**

	Treatment Group				Net Change
	#	# Pre	# Post	Gross Change	
Comparison Group	27,641	6.9	6.4	-0.5**	--

\*Significant at 90% level; \*\*Significant at 95% level.

Table IV-8 displays the distribution of on-time payments based on the number of months with no collections actions. The table shows that while 50 percent of all CAMP and GRAD participants made 11 or 12 on-time payments in the pre-treatment period, 54 percent made 11 or 12 on-time payments in the post treatment period. While CAMP customers essentially had no change (an increase of 58 percent to 59 percent), GRAD customers increased from 43 percent to 49 percent with 11 or 12 on-time payments. The comparison group had no change in the percent that made 11 or 12 on-time payments.

**Table IV-8**  
**Distribution of On-Time Payments**  
**Based on Number of Months with No Collections Actions**

	#	0-6 Payments		7-8 Payments		9-10 Payments		11-12 Payments	
		% Pre	% Post	% Pre	% Post	% Pre	% Post	% Pre	% Post
All CAMP and GRAD	929	26%	27%	12%	9%	12%	10%	50%	54%
All CAMP	445	22%	25%	11%	7%	9%	9%	58%	59%
CAMP 1 – Double Credits	158	20%	23%	13%	8%	9%	9%	58%	60%
CAMP 2 – Payment Counseling	122	20%	24%	8%	7%	14%	7%	58%	62%
CAMP 3 – Credits & Counseling	165	25%	28%	13%	5%	5%	10%	56%	56%
CAMP ≤75% Poverty	74	31%	26%	12%	12%	11%	7%	46%	55%
CAMP 76-150% Poverty	179	16%	21%	10%	6%	10%	11%	65%	63%
CAMP 151-175% Poverty	24	17%	25%	21%	0%	0%	4%	63%	71%
CAMP Subsidized Housing	168	25%	30%	11%	7%	10%	8%	54%	55%
CAMP 0-1 Payments	98	57%	55%	17%	11%	7%	7%	18%	27%
CAMP 2-6 Payments	222	18%	25%	14%	8%	15%	13%	52%	55%
CAMP 7-12 Payments	125	0%	2%	2%	2%	1%	2%	98%	94%
ALL GRAD	484	30%	29%	13%	11%	14%	11%	43%	49%
GRAD 1 – Graduated Discount	179	29%	29%	13%	16%	14%	7%	44%	47%
GRAD 2 – Discount and Audit	153	34%	31%	16%	12%	12%	12%	38%	46%
GRAD 3 – Discount and Counseling	152	26%	28%	11%	5%	16%	13%	47%	54%
GRAD <716 kWh	138	25%	22%	11%	11%	17%	12%	48%	55%
GRAD 717-1726 kWh	176	32%	28%	13%	10%	10%	10%	45%	52%
GRAD > 1726 kWh	170	31%	36%	16%	13%	16%	11%	37%	41%
GRAD \$0 Arrearage	228	14%	14%	11%	9%	14%	11%	61%	67%
GRAD ≤\$200 Arrearage	130	28%	31%	15%	12%	18%	15%	39%	43%
GRAD \$201-\$1,000 Arrearage	126	60%	55%	16%	16%	10%	6%	14%	23%

	#	0-6 Payments		7-8 Payments		9-10 Payments		11-12 Payments	
		% Pre	% Post	% Pre	% Post	% Pre	% Post	% Pre	% Post
<b>GRAD 0-1 Payments</b>	114	56%	53%	12%	9%	10%	7%	22%	32%
<b>GRAD 2-6 Payments</b>	256	30%	31%	18%	16%	18%	14%	33%	38%
<b>GRAD 7-12 Payments</b>	114	2%	2%	4%	3%	8%	5%	87%	90%
<b>Comparison Group</b>	27,641	50%	56%	11%	9%	10%	7%	29%	28%

Table IV-9 shows the mean number of months that customers received the credits during the pilot and the percentiles for the number of months received. CAMP customers are required to make on-time payments to receive their credits. The mean number of credits received by CAMP customers was 4.5 credits, 25 percent had one or fewer credits, and 25 percent had eight or more credits. CAMP customers' credits did not vary by CAMP pilot type, but CAMP customers with higher poverty levels received more credits on average, and CAMP customers who were in the group who had previously made more payments, received more credits on the pilot.

GRAD customers were not required to make payments to receive the discounts or credits. The average number of discounts received by GRAD customers was 8.5, and 25 percent received all 12 discounts or credits. GRAD customers' number of discounts did not vary by GRAD pilot type. However, customers who made more payments in the pre-pilot period received a greater number of months of credits or discounts.

**Table IV-9**  
**Number of Months with Credits or Discounts**  
**Pilot Participants Only**

	#	Mean	Percentile		
			25th	50th	75th
<b>All CAMP and GRAD</b>	1,646	6.5	3	7	11
<b>All CAMP</b>	824	4.5	1	4	8
<b>CAMP 1 – Double Credits</b>	291	4.5	1	4	8
<b>CAMP 2 – Payment Counseling</b>	233	4.7	0	5	8
<b>CAMP 3 – Credits &amp; Counseling</b>	300	4.3	0	3	8
<b>CAMP ≤75% Poverty</b>	145	3.3	0	2	7
<b>CAMP 76-150% Poverty</b>	332	4.7	1	4	9
<b>CAMP 151-175% Poverty</b>	59	4.9	0	5	9
<b>CAMP Subsidized Housing</b>	288	4.7	1	4	9
<b>CAMP 0-1 Payments</b>	212	2.1	0	1	3
<b>CAMP 2-6 Payments</b>	378	4.1	1	3	7
<b>CAMP 7-12 Payments</b>	234	7.2	4	8	10
<b>ALL GRAD</b>	822	8.5	6	10	12
<b>GRAD 1 – Graduated Discount</b>	304	8.7	6	11	12
<b>GRAD 2 – Discount and Audit</b>	261	8.2	5	10	11

	#	Mean	Percentile		
			25th	50th	75th
<b>GRAD 3 – Discount and Counseling</b>	257	8.7	6	10	12
<b>GRAD &lt;716 kWh</b>	286	8.3	5	10	12
<b>GRAD 717-1726 kWh</b>	277	8.6	6	10	12
<b>GRAD &gt; 1726 kWh</b>	259	8.8	6	10	12
<b>GRAD \$0 Arrearage</b>	438	8.6	6	10	12
<b>GRAD ≤\$200 Arrearage</b>	191	8.6	6	10	12
<b>GRAD \$201-\$1,000 Arrearage</b>	193	8.5	6	10	12
<b>GRAD 0-1 Payments</b>	245	7.7	4	9	11
<b>GRAD 2-6 Payments</b>	400	8.5	6	10	12
<b>GRAD 7-12 Payments</b>	177	9.7	9	11	12

Table IV-10 displays the distribution of the number of months that customers received credits during the pilot. Most of the CAMP customers were still not paying their bills on time each month. Only 9 percent of CAMP customers received credits in 11 or 12 months of the year. There was not a difference observed by the type of CAMP pilot they were in. GRAD customers were much more likely to receive 11 or 12 discounts or credits, as they were not required to make payments to receive the discounts or credits. Customers who had the audit were somewhat less likely than the other groups to receive 11 or 12 discounts or credits.

**Table IV-10**  
**Number of Months with Credits Received During Pilot**  
**Pilot Participants Only**

	#	Number of Credits or Discounts Received in Pilot Year			
		0-6	7-8	9-10	11-12
<b>All CAMP and GRAD</b>	1,646	47%	11%	15%	28%
<b>All CAMP</b>	824	65%	12%	14%	9%
<b>CAMP 1 – Double Credits</b>	291	66%	13%	13%	8%
<b>CAMP 2 – Payment Counseling</b>	233	61%	15%	15%	9%
<b>CAMP 3 – Credits &amp; Counseling</b>	300	67%	9%	15%	9%
<b>CAMP ≤75% Poverty</b>	145	73%	16%	8%	3%
<b>CAMP 76-150% Poverty</b>	332	66%	9%	16%	9%
<b>CAMP 151-175% Poverty</b>	59	61%	10%	14%	15%
<b>CAMP Subsidized Housing</b>	288	60%	14%	16%	9%
<b>CAMP 0-1 Payments</b>	212	85%	7%	6%	2%
<b>CAMP 2-6 Payments</b>	378	71%	11%	12%	5%
<b>CAMP 7-12 Payments</b>	234	36%	18%	25%	21%
<b>ALL GRAD</b>	822	30%	9%	15%	47%



	#	Number of Credits or Discounts Received in Pilot Year			
		0-6	7-8	9-10	11-12
<b>GRAD 1 – Graduated Discount</b>	304	28%	9%	13%	50%
<b>GRAD 2 – Discount and Audit</b>	261	34%	8%	18%	41%
<b>GRAD 3 – Discount and Counseling</b>	257	27%	10%	15%	48%
<b>GRAD &lt;716 kWh</b>	286	33%	10%	13%	44%
<b>GRAD 717-1726 kWh</b>	277	30%	10%	14%	47%
<b>GRAD &gt; 1726 kWh</b>	259	25%	7%	19%	49%
<b>GRAD \$0 Arrearage</b>	438	30%	9%	13%	48%
<b>GRAD ≤\$200 Arrearage</b>	191	30%	6%	18%	46%
<b>GRAD \$201-\$1,000 Arrearage</b>	193	29%	10%	17%	45%
<b>GRAD 0-1 Payments</b>	245	37%	12%	13%	38%
<b>GRAD 2-6 Payments</b>	400	31%	8%	17%	44%
<b>GRAD 7-12 Payments</b>	177	17%	7%	12%	64%

Table IV-11 displays statistics on the amount of credits that participants received. The table shows that the mean amount of discounts or credits across all CAMP and GRAD participants was \$145. While CAMP customers averaged \$51 in credits, GRAD customers averaged \$239 in discounts and credits. Customers in CAMP 2 who did not have their credits doubled received a little more than half the credits that CAMP 1 and CAMP 3 received with their credits doubled. GRAD customers in all three GRAD pilots received a discount that varied by the amount of energy used, and the discount did not vary significantly across the groups.

**Table IV-11**  
**Amount of Credits**  
**Pilot Participants Only**

	#	Mean	Percentile		
			25th	50th	75th
<b>All CAMP and GRAD</b>	1,646	\$145	\$35	\$100	\$238
<b>All CAMP</b>	824	\$51	\$3	\$42	\$80
<b>CAMP 1 – Double Credits</b>	291	\$59	\$10	\$52	\$98
<b>CAMP 2 – Payment Counseling</b>	233	\$32	\$0	\$35	\$54
<b>CAMP 3 – Credits &amp; Counseling</b>	300	\$58	\$0	\$45	\$100
<b>CAMP ≤75% Poverty</b>	145	\$55	\$0	\$35	\$96
<b>CAMP 76-150% Poverty</b>	332	\$57	\$14	\$52	\$88
<b>CAMP 151-175% Poverty</b>	59	\$40	\$0	\$35	\$60
<b>CAMP Subsidized Housing</b>	288	\$42	\$3	\$35	\$80
<b>CAMP 0-1 Payments</b>	212	\$27	\$0	\$5	\$36
<b>CAMP 2-6 Payments</b>	378	\$47	\$5	\$42	\$72

	#	Mean	Percentile		
			25th	50th	75th
<b>CAMP 7-12 Payments</b>	234	\$78	\$42	\$71	\$110
<b>ALL GRAD</b>	822	\$239	\$140	\$236	\$339
<b>GRAD 1 – Graduated Discount</b>	304	\$243	\$146	\$247	\$343
<b>GRAD 2 – Discount and Audit</b>	261	\$228	\$137	\$216	\$333
<b>GRAD 3 – Discount and Counseling</b>	257	\$244	\$140	\$245	\$352
<b>GRAD &lt;716 kWh</b>	286	\$238	\$135	\$242	\$345
<b>GRAD 717-1726 kWh</b>	277	\$264	\$176	\$274	\$372
<b>GRAD &gt; 1726 kWh</b>	259	\$213	\$126	\$208	\$296
<b>GRAD \$0 Arrearage</b>	438	\$227	\$138	\$226	\$307
<b>GRAD ≤\$200 Arrearage</b>	191	\$245	\$152	\$244	\$350
<b>GRAD \$201-\$1,000 Arrearage</b>	193	\$260	\$155	\$286	\$377
<b>GRAD 0-1 Payments</b>	245	\$214	\$114	\$206	\$325
<b>GRAD 2-6 Payments</b>	400	\$241	\$146	\$236	\$339
<b>GRAD 7-12 Payments</b>	177	\$266	\$198	\$264	\$354

### C. Arrearages

This section examines the impact of pilot participation on arrearages. Table IV-12 shows the attrition of the arrearage data. Customers with pre-treatment arrearages over \$2,000 were removed from the analysis as outliers. This was more common in the comparison group than in the pilot groups. Approximately 70 percent of the treatment customers and 34 percent of the comparison group customers were included in the analysis.

**Table IV-12**  
**Arrearage Attrition Analysis**

	CAMP				GRAD				Comparison
	All	1	2	3	All	1	2	3	
Original Population	830	293	236	301	830	306	263	261	94,534
Missing Pre-Period Arrearage Info	7	3	1	3	6	1	1	4	31,266
Missing Post-Period Arrearage Info	248	83	74	91	262	92	92	78	29,166
Pre- or Post-Arrearage Too High	0	0	0	0	0	0	0	0	500
Pre-treatment Arrearage > \$2,000	9	3	1	5	1	0	0	1	1,493
<b>Final Arrearage Sample</b>	<b>566</b>	<b>204</b>	<b>160</b>	<b>202</b>	<b>561</b>	<b>213</b>	<b>170</b>	<b>178</b>	<b>32,109</b>
<b>% Included in Arrearage Analysis</b>	<b>68%</b>	<b>70%</b>	<b>68%</b>	<b>67%</b>	<b>68%</b>	<b>70%</b>	<b>65%</b>	<b>68%</b>	<b>34%</b>
<b>% of Participants</b>	<b>63%</b>	<b>65%</b>	<b>63%</b>	<b>62%</b>	<b>65%</b>	<b>67%</b>	<b>62%</b>	<b>65%</b>	<b>--</b>

Table IV-13 displays the mean arrearages and the change in the arrearages from the pre-treatment to the post-treatment period. The table shows that mean arrearages for CAMP pilot participants in the pre-treatment period were \$197 and in the post-treatment period were \$230. However, the comparison groups' arrearages increased by \$93 on average, so the net change was a reduction in arrearages. CAMP customers who received double credits only had the largest reduction in arrearages. GRAD customers had a net reduction in their arrearages of \$119.

The analysis did not directly examine changes in customer payments. However the gross change in arrearages indicates that customer payments probably declined. The gross arrearage change was a small increase for CAMP and a small decrease for GRAD, but customers received more credits and discounts in both types of pilots, and had lower usage in the GRAD pilot, so arrearages should have gone down for these reasons, even if payments did not increase. The fact that arrearages did not decline by more indicates that payments did not increase.

**Table IV-13**  
**Mean Arrearages**

	Treatment Group				Net Change
	#	Pre	Post	Gross Change	
<b>All CAMP and GRAD</b>	1,127	\$236	\$240	\$4	-\$89**
<b>All CAMP</b>	566	\$197	\$230	\$33**	-\$60**
<b>CAMP 1 – Double Credits</b>	204	\$181	\$202	\$21	-\$72**
<b>CAMP 2 – Payment Counseling</b>	160	\$187	\$216	\$29	-\$64
<b>CAMP 3 – Credits &amp; Counseling</b>	202	\$220	\$268	\$48*	-\$45
<b>CAMP ≤75% Poverty</b>	88	\$229	\$331	\$102**	\$9
<b>CAMP 76-150% Poverty</b>	226	\$152	\$201	\$49**	-\$44
<b>CAMP 151-175% Poverty</b>	36	\$193	\$124	-\$68**	-\$162*
<b>CAMP Subsidized Housing</b>	216	\$231	\$236	\$5	-\$88**
<b>CAMP 0-1 Payments</b>	104	\$412	\$448	\$36	-\$57
<b>CAMP 2-6 Payments</b>	269	\$212	\$254	\$42**	-\$52
<b>CAMP 7-12 Payments</b>	193	\$59	\$79	\$19**	-\$74**
<b>ALL GRAD</b>	561	\$276	\$251	-\$26**	-\$119**
<b>GRAD 1 – Graduated Discount</b>	213	\$257	\$254	-\$3	-\$96**
<b>GRAD 2 – Discount and Audit</b>	170	\$332	\$289	-\$43*	-\$136**
<b>GRAD 3 – Discount and Counseling</b>	178	\$246	\$210	-\$36**	-\$129**
<b>GRAD &lt;716 kWh</b>	181	\$201	\$194	-\$7	-\$100**
<b>GRAD 717-1726 kWh</b>	196	\$252	\$231	-\$22	-\$115**
<b>GRAD &gt; 1726 kWh</b>	184	\$376	\$327	-\$48*	-\$141**

	Treatment Group				Net Change
	#	Pre	Post	Gross Change	
<b>GRAD \$0 Arrearage</b>	295	\$162	\$143	-\$19*	-\$112**
<b>GRAD ≤\$200 Arrearage</b>	137	\$296	\$303	\$7	-\$86*
<b>GRAD \$201-\$1,000 Arrearage</b>	129	\$517	\$441	-\$76**	-\$169**
<b>GRAD 0-1 Payments</b>	132	\$349	\$397	\$49	-\$44
<b>GRAD 2-6 Payments</b>	285	\$328	\$271	-\$57**	-\$150**
<b>GRAD 7-12 Payments</b>	144	\$107	\$76	-\$31**	-\$124**
<b>Comparison Group</b>	32,109	\$404	\$497	\$93**	--

\*Significant at 90% level; \*\*Significant at 95% level.

Table IV-14 displays the distribution of the change in arrearages. The table shows that overall, approximately equal percentage of customers increased and decreased their arrearages. While 37 percent decreased their arrearages by \$25 or more, 34 percent kept their arrearages within a \$25 increase or decrease, and 29 percent increased their arrearages by more than \$25. GRAD customers overall did better than CAMP participants. While 30 percent of CAMP customers decreased their arrearages by more than \$25, 43 percent of GRAD customers did so. Furthermore, 27 percent of GRAD customers decreased their arrearages by more than \$100, compared to 16 percent of CAMP pilot participants. Customers in GRAD 2 with the graduated discounts and the audit were most likely to reduce their arrearages by \$100 or more.

**Table IV-14**  
**Distribution of Change in Arrearages**

	Treatment Group						
	>\$250 Increase	\$101-\$250 Increase	≤\$100 Increase	\$25 Increase - \$25 Decrease	\$25 - \$100 Decrease	\$101 - \$250 Decrease	>\$250 Decrease
<b>All CAMP and GRAD</b>	8%	8%	13%	34%	15%	13%	9%
<b>All CAMP</b>	8%	9%	15%	38%	14%	9%	7%
<b>CAMP 1 – Double Credits</b>	7%	9%	14%	39%	13%	12%	7%
<b>CAMP 2 – Payment Counseling</b>	8%	9%	18%	38%	14%	7%	7%
<b>CAMP 3 – Credits &amp; Counseling</b>	8%	10%	13%	39%	15%	7%	8%
<b>CAMP ≤75% Poverty</b>	14%	7%	24%	26%	15%	8%	7%
<b>CAMP 76-150% Poverty</b>	8%	12%	13%	42%	11%	8%	5%
<b>CAMP 151-175% Poverty</b>	0%	6%	8%	44%	19%	14%	8%
<b>CAMP Subsidized Housing</b>	6%	8%	14%	38%	15%	8%	10%
<b>CAMP 0-1 Payments</b>	17%	8%	13%	13%	18%	13%	19%
<b>CAMP 2-6 Payments</b>	8%	10%	13%	38%	12%	11%	8%
<b>CAMP 7-12 Payments</b>	2%	9%	18%	53%	14%	4%	0%

	Treatment Group						
	>\$250 Increase	\$101-\$250 Increase	≤\$100 Increase	\$25 Increase - \$25 Decrease	\$25 - \$100 Decrease	\$101 - \$250 Decrease	>\$250 Decrease
<b>ALL GRAD</b>	9%	7%	11%	29%	16%	16%	11%
<b>GRAD 1 – Graduated Discount</b>	11%	9%	13%	32%	12%	13%	11%
<b>GRAD 2 – Discount and Audit</b>	11%	6%	8%	22%	19%	19%	15%
<b>GRAD 3 – Discount and Counseling</b>	4%	7%	13%	33%	17%	18%	8%
<b>GRAD &lt;716 kWh</b>	7%	6%	12%	40%	18%	10%	8%
<b>GRAD 717-1726 kWh</b>	9%	7%	12%	28%	16%	18%	10%
<b>GRAD &gt; 1726 kWh</b>	11%	10%	10%	20%	13%	21%	15%
<b>GRAD \$0 Arrearage</b>	5%	8%	11%	42%	13%	16%	5%
<b>GRAD ≤\$200 Arrearage</b>	13%	9%	9%	20%	18%	20%	11%
<b>GRAD \$201-\$1,000 Arrearage</b>	13%	5%	13%	10%	19%	15%	25%
<b>GRAD 0-1 Payments</b>	19%	8%	6%	24%	14%	17%	12%
<b>GRAD 2-6 Payments</b>	8%	9%	12%	26%	14%	16%	15%
<b>GRAD 7-12 Payments</b>	1%	4%	15%	41%	19%	16%	3%
<b>Comparison Group</b>	21%	11%	12%	24%	10%	10%	13%

#### D. Collections Actions and Terminations

This section examines the number of collections actions experienced by customers in the pre-pilot and post-pilot periods. Table IV-15 shows that CAMP customers experienced a 4 percentage point net decline in the number of field calls and GRAD customers had a five percentage point net change in turn-off notices.

**Table IV-15**  
**Percent with Turn Off and Field Call Actions as Most Severe Action**

	#	Turn Off Notice (T)				Field Call (F)			
		Treatment Group			Net Change	Treatment Group			Net Change
		Percent		Gross Change		Percent		Gross Change	
		Pre	Post			Pre	Post		
All CAMP and GRAD	929	52%	44%	-8% **	-3%	4%	5%	<1%	-3% **
All CAMP	445	43%	39%	-5% **	<1%	4%	4%	0%	-4% *
CAMP 1 – Double Credits	158	44%	41%	-4%	1%	4%	1%	-3%	-6% *
CAMP 2 – Payment Counseling	122	43%	34%	-10% **	-5%	4%	7%	2%	-1%
CAMP 3 – Credits & Counseling	165	42%	41%	-2%	3%	4%	5%	1%	-3%
CAMP ≤75% Poverty	74	47%	43%	-4%	<1%	5%	7%	1%	-2%
CAMP 76-150% Poverty	179	40%	34%	-6%	>-1%	6%	4%	-2%	-5% *
CAMP 151-175% Poverty	24	33%	25%	-8%	-3%	4%	4%	0%	-4%
CAMP Subsidized Housing	168	47%	43%	-4%	1%	2%	3%	1%	-3%

	#	Turn Off Notice (T)				Field Call (F)			
		Treatment Group			Net Change	Treatment Group			Net Change
		Percent		Gross Change		Percent		Gross Change	
		Pre	Post			Pre	Post		
CAMP 0-1 Payments	98	63%	58%	-5%	>-1%	10%	9%	-1%	-5%
CAMP 2-6 Payments	222	55%	46%	-8% **	-3%	4%	4%	<1%	-3%
CAMP 7-12 Payments	125	8%	10%	2%	6%	0%	0%	0%	-4%
ALL GRAD	484	59%	49%	-10% **	-5% **	4%	5%	1%	-3%
GRAD 1 – Graduated Discount	179	61%	50%	-12% **	-7% *	4%	5%	1%	-3%
GRAD 2 – Discount and Audit	153	58%	51%	-7% *	-2%	5%	6%	1%	-3%
GRAD 3 – Discount and Counseling	152	59%	47%	-12% **	-7%	3%	4%	1%	-3%
GRAD <716 kWh	138	54%	43%	-11% **	-6%	6%	7%	1%	-3%
GRAD 717-1726 kWh	176	57%	43%	-14% **	-9% **	4%	6%	2%	-2%
GRAD > 1726 kWh	170	65%	60%	-5%	>-1%	3%	3%	0%	-4%
GRAD \$0 Arrearage	228	46%	38%	-9% **	-4%	1%	1%	>-1%	-4%
GRAD ≤\$200 Arrearage	130	68%	55%	-13% **	-8% *	1%	6%	5% **	2%
GRAD \$201-\$1,000 Arrearage	126	73%	63%	-10% **	-5%	13%	11%	-2%	-5%
GRAD 0-1 Payments	114	68%	56%	-12% **	-7%	10%	10%	0%	-4%
GRAD 2-6 Payments	256	72%	62%	-10% **	-5%	4%	5%	1%	-3%
GRAD 7-12 Payments	114	22%	14%	-8% **	-3%	0%	1%	1%	-3%
Comparison Group	27,641	54%	49%	-5% **	--	12%	16%	4% **	--

\*Significant at 90% level; \*\*Significant at 95% level.

Table IV-16 examines the change in denial of service. The table shows that net changes in the number of service terminations was small and was not statistically significant. CAMP 3 customers had a statistically significant gross reduction in denial of service from seven percent in the pre-treatment period to two percent in the post-treatment period, but the net change was not statistically significant.

**Table IV-16**  
**Percent with Denial of Service**

	Treatment Group				Net Change
	#	% Pre	% Post	Gross Change	
All CAMP and GRAD	929	4%	3%	-1%	>-1%
All CAMP	445	4%	3%	-1%	>-1%
CAMP 1 – Double Credits	158	3%	5%	3%	3%
CAMP 2 – Payment Counseling	122	2%	2%	0%	<1%
CAMP 3 – Credits & Counseling	165	7%	2%	-4% *	-4%
CAMP ≤75% Poverty	74	5%	1%	-4%	-4%
CAMP 76-150% Poverty	179	1%	3%	2%	2%
CAMP 151-175% Poverty	24	4%	0%	-4%	-4%

	Treatment Group				Net Change
	#	% Pre	% Post	Gross Change	
<b>CAMP Subsidized Housing</b>	168	6%	4%	-2%	-2%
<b>CAMP 0-1 Payments</b>	98	9%	9%	0%	<1%
<b>CAMP 2-6 Payments</b>	222	4%	2%	-1%	-1%
<b>CAMP 7-12 Payments</b>	125	0%	0%	0%	<1%
<b>ALL GRAD</b>	484	4%	3%	>-1%	>-1%
<b>GRAD 1 – Graduated Discount</b>	179	4%	4%	-1%	<1%
<b>GRAD 2 – Discount and Audit</b>	153	5%	5%	0%	<1%
<b>GRAD 3 – Discount and Counseling</b>	152	1%	1%	-1%	>-1%
<b>GRAD &lt;716 kWh</b>	138	4%	2%	-1%	-1%
<b>GRAD 717-1726 kWh</b>	176	3%	3%	0%	<1%
<b>GRAD &gt; 1726 kWh</b>	170	4%	4%	0%	<1%
<b>GRAD \$0 Arrearage</b>	228	3%	2%	>-1%	>-1%
<b>GRAD ≤\$200 Arrearage</b>	130	4%	2%	-2%	-1%
<b>GRAD \$201-\$1,000 Arrearage</b>	126	5%	6%	1%	1%
<b>GRAD 0-1 Payments</b>	114	8%	8%	0%	<1%
<b>GRAD 2-6 Payments</b>	256	3%	2%	>-1%	>-1%
<b>GRAD 7-12 Payments</b>	114	1%	0%	-1%	-1%
<b>Comparison Group</b>	27,641	10%	10%	>-1%	--

\*Significant at 90% level; \*\*Significant at 95% level.

## E. Summary of Findings

This section provides a summary of the findings with respect to the impact of the pilot programs on energy usage, payments, credits received, arrearages, and collections actions.

- Usage – We do not see significant net changes in usage for CAMP pilot participants but we do find significant changes for GRAD participants.
  - CAMP – Pilot participants did not have a significant net reduction in electric baseload usage or gas usage. CAMP 1 pilot participants with electric heat had a statistically significant net reduction in electric usage of 577 kWh or five percent of pre-treatment usage.
  - GRAD – Pilot participants did not have a significant net reduction in electric baseload usage. Overall, GRAD electric heating participants had a net reduction in electric usage of 524 kWh, or four percent of pre-treatment usage. GRAD 1 electric heating pilot participants reduced their net electric usage by 624 kWh or five percent of pre-treatment usage. GRAD 2 pilot participants, who received graduated credits and the Quick Home Energy Check-up, reduced their gas usage by 35 Therms or four percent of pre-treatment usage.

GRAD participants with the highest usage had the largest electric savings. GRAD electric baseload participants with pre-treatment usage over 1,726 kWh reduced their electric usage by 617 kwh, a four percent net reduction in pre-treatment usage, and GRAD electric heating participants with pre-treatment usage of 1,726 kWh reduced their electric usage by 926 kWh, a five percent net reduction.

- Payments – The number of on-time payments is assessed by the number of months with no collections actions. The analysis showed that overall the treatment group had no change in the mean number of months without actions, but the comparison group reduced the number of on-time payments made, so the net change was an increase of .5 on-time payments.

Differences across groups examined were as follows.

- CAMP participants by Poverty Group – those in the lowest poverty group had the greatest increase in the number of on-time payments compared to the other poverty groups.
- CAMP participants by Payment Group – those with only 0-1 payments in the pre-treatment period had the greatest increase in the number of on-time payments.
- GRAD participants – those in GRAD 2 and GRAD 3, who received payment counseling or the Quick Home Energy Check-up in addition to the graduated discounts or credits had greater increases in payments than those who only received the discounts or credits.

We also found that the percent of GRAD participants with on-time payments in 11 or 12 months increased from 43 percent in the pre-pilot period to 49 percent in the pilot period, but there was essentially no change for CAMP participants. GRAD participants with the Quick Home Energy Check-up or payment counseling in addition to the Quick Home Energy Check-up had larger increases in the percent who made 11 or 12 on-time payments.

- Credits – CAMP pilot participants were required to make on-time payments to receive program credits but GRAD participants were not, so we expect differences in the number and total amount of credits received.
  - CAMP pilot participants received a mean of 4.5 credits, and the mean number did not vary significantly by pilot type. However, CAMP pilot participants with greater poverty levels received more credits on average and those who were in the group of customers who previously made more payments received more credits on average.

CAMP pilot participants, for the most part, were still not paying their bills on time each month. Only nine percent of CAMP pilot participants received credits in 11 or 12 months of the year.



CAMP participants averaged \$51 in credits.

- GRAD pilot participants received an average of 8.5 months of credits or discounts. The number of discounts or credits they received did not vary by GRAD pilot type, but customers who made more payments in the pre-pilot period received a greater number of months of credits or discounts during the pilot.

GRAD customers received credits or discounts all 12 months in 47 percent of the cases. GRAD participants who received the audit were less likely to receive 11 or 12 months of discounts or credits than the other GRAD pilot groups.

GRAD participants averaged \$239 in discounts and credits.

- Arrearages – Mean arrearages increased by \$33 on average for CAMP participants and decreased by \$26 on average for GRAD participants. However, the comparison group’s arrearages increased by \$93 on average, so the net change was a reduction for CAMP and GRAD pilot participants overall. While 27 percent of GRAD participants reduced their arrearages by more than \$100, only 16 percent of CAMP participants had this large of a reduction in arrearages.
  - CAMP – Changes in arrearages varied by pilot group and pre-pilot characteristics.
    - CAMP participants who received double credits only had a greater reduction in arrearages than the other CAMP pilot groups.
    - CAMP participants in the highest poverty level had a greater reduction in arrearages than the other poverty groups.
    - CAMP participants with the greatest number of pre-pilot payments had a greater reduction in arrearages than the other payment groups.
  - GRAD – GRAD participants’ arrearage changes also varied by pilot group and pre-pilot characteristics.
    - GRAD pilot participants with the audit or counseling in addition to the graduated discounts or credits had greater reductions in arrearages.
    - GRAD participants in the highest pre-pilot usage group and the greatest reduction in arrearages.
    - GRAD participants with the highest pre-pilot arrearages had the greatest reduction in arrearages.
- Collections Actions – CAMP pilot participants had a statistically significant net reduction in the percentage with field calls and GRAD participants had a statistically significant net reduction in the percentage with turn off notices. None of the pilot groups had a statistically significant net decline in the number of denials of service.

- CAMP – CAMP participants who received payment counseling but no additional credit had the greatest reduction in turn-off notices. CAMP participants who received double credits only had the greatest reduction in field calls.
- GRAD – GRAD participants who only received the graduated discount or who received the graduated discount and counseling had greater reduction in turn-off notices than those who received the Quick Home Energy Check-up.

## V. Cost Effectiveness

This section examines the potential cost-effectiveness of implementing the pilot programs at full scale.

### A. Pilot Costs

Table V-1 displays the costs of the pilots for the CAMP and GRAD programs. The table shows that CAMP costs totaled \$152,018 and GRAD costs totaled \$288,233.

**Table V-1  
Pilot Costs**

Program Item	CAMP	GRAD	Total Cost
DEF Enrollment	\$17,700	\$17,700	\$35,400
DEF Payment Counseling	\$35,400	\$17,700	\$53,100
Billing System Modification	\$3,500	\$3,500	\$7,000
Printing and Mailing Costs	\$10,622	\$10,622	\$21,244
Discounts	\$42,296	\$196,201	\$238,497
Evaluation	\$42,500	\$42,500	\$85,000
<b>Total Cost</b>	<b>\$152,018</b>	<b>\$288,223</b>	<b>\$440,241</b>

Table V-2A displays the mean CAMP credits by pilot type. Credits were higher for CAMP 1 and CAMP 3, as these participants received double the base CAMP credits.

**Table V-2A  
CAMP Credits**

CAMP 1		CAMP 2		CAMP 3	
Double Credit		Payment Counseling		Credit & Counseling	
#	Mean Credits	#	Mean Credits	#	Mean Credits
291	\$59	233	\$32	300	\$58

Table V-2B displays mean GRAD discounts and credits by pilot type. Average discounts and credits were approximately the same for the three groups.

**Table V-2B**  
**GRAD Discounts and Credits**

GRAD 1		GRAD 2		GRAD 3	
Discount		Discount & Audit		Discount & Counseling	
#	Mean Discounts & Credits	#	Mean Discounts & Credits	#	Mean Discounts & Credits
304	\$243	261	\$228	257	\$244

Table V-3A provides an estimate of CAMP costs per participant and table V-3B provides estimates for the program implemented at full scale. The full scale program costs eliminate the DEF enrollment costs, as BGE would enroll customers automatically when they applied for state energy assistance. BGE also would not undertake the intensive customer communication effort if implementing the pilot on full scale, and the printing and mailing costs would not be incurred.

The pilot costs vary by pilot because of differences in services offered and differing credit amounts.

**Table V-3A**  
**CAMP Implementation Costs**

Program Item	CAMP 1	CAMP 2	CAMP 3
	Double Credit	Payment Counseling	Credit & Counseling
DEF Enrollment	\$20/customer	\$20/customer	\$20/customer
DEF Payment Counseling	--	\$39/customer	\$39/customer
Billing System Modification	\$3,500	\$3,500	\$3,500
Printing and Mailing Costs	\$12/customer	\$12/customer	\$12/customer
Discounts	\$59/customer	\$32/customer	\$58/customer
<b>Total Cost</b>	<b>\$3,500 + \$91/customer</b>	<b>\$3,500 + \$103/customer</b>	<b>\$3,500 + \$129/customer</b>

**Table V-3B**  
**CAMP Full Scale Implementation Costs**

Program Item	CAMP 1	CAMP 2	CAMP 3
	Double Credit	Payment Counseling	Credit & Counseling
DEF Enrollment	--	--	--
DEF Payment Counseling	--	\$39/customer	\$39/customer

Program Item	CAMP 1	CAMP 2	CAMP 3
	Double Credit	Payment Counseling	Credit & Counseling
Billing System Modification	\$3,500	\$3,500	\$3,500
Printing and Mailing Costs	--	--	--
Discounts	\$59/customer	\$32/customer	\$58/customer
<b>Total Cost</b>	<b>\$3,500 + \$59/customer</b>	<b>\$3,500 + \$71/customer</b>	<b>\$3,500 + \$97/customer</b>

Table V-3C provides an estimate of GRAD costs and Table V-3D provides estimates if the program were implemented at full scale. The full scale program excludes the DEF enrollment costs, as BGE would enroll customers in the full scale program by either proactively identifying likely candidates according to their arrearages and bill payment characteristics or by responding to individual customer requests to enroll in GRAD.

The costs vary by pilot because of differences in services offered. The Quick Home Energy check-up did not impose costs on the program because it was funded through the ratepayer funded energy programs offered by BGE. However, if the pilot was offered at full scale, it is unclear whether the QHEC could be provided to all customers.

**Table V-3C**  
**GRAD Implementation Costs**

Program Item	GRAD 1	GRAD 2	GRAD 3
	Discount	Discount & Audit	Discount & Counseling
DEF Enrollment	\$20/customer	\$20/customer	\$20/customer
DEF Payment Counseling	--	\$39/customer	\$39/customer
Billing System Modification	\$3,500	\$3,500	\$3,500
Printing and Mailing Costs	\$12/customer	\$12/customer	\$12/customer
Discounts	\$243/customer	\$228/customer	\$244/customer
<b>Total Cost</b>	<b>\$3,500 + \$275/customer</b>	<b>\$3,500 + \$299/customer</b>	<b>\$3,500 + \$315/customer</b>

**Table V-3C**  
**GRAD Full Scale Implementation Costs**

Program Item	GRAD 1	GRAD 2	GRAD 3
	Discount	Discount & Audit	Discount & Counseling
DEF Enrollment	--	--	--
DEF Payment Counseling	--	\$39/customer	\$39/customer
Billing System Modification	\$3,500	\$3,500	\$3,500

Program Item	GRAD 1	GRAD 2	GRAD 3
	Discount	Discount & Audit	Discount & Counseling
Printing and Mailing Costs	\$12/customer	\$12/customer	\$12/customer
Discounts	\$243/customer	\$228/customer	\$244/customer
<b>Total Cost</b>	<b>\$3,500 + \$255/customer</b>	<b>\$3,500 + \$279/customer</b>	<b>\$3,500 + \$295/customer</b>

## B. Pilot Benefits

Table V-4A estimates the cost savings from the CAMP pilots. Benefits are the sum of savings from the following improvements.

- Reductions in turn-off notices and field calls.
- Reductions in carrying costs, based on changes in the amount of arrearages.
- Reductions in reserve costs, based on changes in the amount of arrearages.

The only group that had statistically significant changes in collections actions and arrearages was CAMP 1, so there were no cost savings estimated for the other pilot groups.

**Table V-4A**  
**CAMP Benefit Calculation**

Program Item	CAMP 1		CAMP 2		CAMP 3	
	Double Credit		Payment Counseling		Credit & Counseling	
	Change	\$ Saved	Change	\$ Saved	Change	\$ Saved
Turn Off Notice (\$.35)	--	--				
Field Call (\$44)	-6%	\$3				
Reduced Carrying Costs Change in arrearages *8.02%	-\$72	\$6				
Reduced Reserves Change in arrearages*9.00%	-\$72	\$6				
<b>TOTAL Saved</b>	<b>\$15</b>					

Table V-4B estimates the cost savings from the GRAD pilots. Savings are estimated for all three pilot groups. The savings vary based upon changes in collections actions and changes in arrearages.

**Table V-4B**  
**GRAD Benefit Calculation**

Program Item	GRAD 1		GRAD 2		GRAD 3	
	Discount		Discount & Audit		Discount & Counseling	
	Change	\$ Saved	Change	\$ Saved	Change	\$ Saved
Turn Off Notice (\$.35)	-7%	<\$1	--	--	--	--
Field Call (\$44)	--	--	--	--	--	--
Reduced Carrying Costs Change in arrearages *8.02%	-\$96	\$7	-\$136	\$11	-\$129	\$10
Reduced Reserves Change in arrearages*9.00%	-\$96	\$9	-\$136	\$12	-\$129	\$12
<b>TOTAL</b>	<b>\$16</b>		<b>\$23</b>		<b>\$22</b>	

### ***C. Cost-Effectiveness***

Table V-5A summarizes the costs and benefits for the CAMP pilots. The table shows that none of the programs were cost-effective, but CAMP 1 was the closest to being cost-effective. If half of the estimated 65,000 limited-income customers participated in the new program, the programming costs would only be a few cents per customer, so the net total cost would be about \$44 per customer.

**Table V-5A**  
**CAMP Cost-Effectiveness Analysis**

Program Item	CAMP 1	CAMP 2	CAMP 3
	Double Credit	Payment Counseling	Credit & Counseling
Pilot Costs	\$3,500 + \$59/customer	\$3,500 + \$71/customer	\$3,500 + \$97/customer
Pilot Savings	\$15	--	--
Net Cost	<b>\$3,500 + \$44/customer</b>	<b>\$3,500 + \$71/customer</b>	<b>\$3,500 + \$97/customer</b>

Table V-5B summarizes the costs and benefits for the GRAD pilots. The table shows that none of the programs were cost-effective, and that the net costs of the three GRAD pilots were very similar. If half of the estimated 65,000 limited-income customers participated in the new program, the programming costs would only be a few cents per customer, so the net total cost would range from \$239 to \$273 per customer, depending on the pilot that was implemented.

**Table V-5B**  
**GRAD Cost-Effectiveness Analysis**

Program Item	GRAD 1	GRAD 2	GRAD 3
	Discount	Discount & Audit	Discount & Counseling
Pilot Costs	\$3,500 + \$255/customer	\$3,500 + \$279/customer	\$3,500 + \$295/customer
Pilot Savings	\$16	\$23	\$22
Net Cost	<b>\$3,500 + \$239/customer</b>	<b>\$3,500 + \$256/customer</b>	<b>\$3,500 + \$273/customer</b>

Of all of the pilots considered, CAMP 1, which provides a double benefit on monthly credits, came closest to being cost effective.



## VI. Findings and Recommendations

This section summarizes the key findings from the research and recommendations for additional pilots and/or implementation of the program at full scale.

### A. *Pilot Design*

BGE's payment pilots were designed by BGE staff to determine the impacts of the programs on bill payment and energy usage. They stratified customers by payment compliance, poverty level, energy usage, and arrearages, and assigned customers to the pilot groups. While several of the design elements were effectively planned to measure impacts of the pilots, there are characteristics of the pilot design that make it challenging to estimate the impacts and draw conclusions as to how such pilots might impact BGE's general population of limited-income customers.

- **Self-selection:** Randomly selected groups of customers were sent letters to recruit them to enroll in each of the pilot program cells. However, only those customers who took the initiative to call DEF in response to the invitation letter or who responded to a call received from DEF were enrolled in the pilot. This self-selection makes it difficult to predict how the general group of limited-income customers might respond if enrolled in one of these pilot programs.
- **Differing stratification:** Different stratification schemes were used for the CAMP pilot and the GRAD pilot, resulting in different characteristics of the customers who were enrolled in the pilots. CAMP customers were stratified by number of on-time payments made in the previous year and by poverty level. GRAD customers were stratified by number of on-time payments made in the previous year, electric usage, and arrearages. The differing characteristics of the customers in the two groups makes it difficult to compare the impacts of the different pilots.
- **Comparison group stratification:** The limited-income comparison group was not stratified in the same way that the treatment group was stratified. As a result, the limited-income comparison group has a different composition than the pilot treatment groups, and makes it difficult to understand the net impact of the pilot. Because the stratification data are not available for the comparison group, the results cannot be weighted to reflect the full population of limited-income customers.
- **Data attrition:** BGE did not have a verified final list of enrollees to use as the treatment group for whom we could examine data attrition issues. Better data tracking would provide for better analysis of the data completeness and quality.

## ***B. Program Impacts***

Given the issues discussed with the experimental design described above, notably the differences between the treatment populations and the comparison group, projections to the full limited-income population can be made with less confidence. However, we present the findings on the impacts of the pilots as an indication of the impacts that these programs may be expected to have.

- **Usage** – We do not see significant net changes in usage for CAMP pilot participants but we do find significant changes for electric usage for GRAD electric heating participants and for gas usage for GRAD participants who use gas.

Overall, GRAD electric heating participants had a net reduction in electric usage of 524 kWh, or four percent of pre-treatment usage. GRAD 1 electric heating pilot participants reduced their net electric usage by 624 kWh or five percent of pre-treatment usage.

GRAD 2 pilot participants, who received graduated credits and the Quick Home Energy Check-up, reduced their gas usage by 35 Therms or four percent of pre-treatment usage.

- **Payments** – The analysis showed that overall the treatment group had no change in the mean number of months of on-time payments, but the comparison group reduced the number of on-time payments made, so the net change was an increase of .5 on-time payments for the pilot participants.

Those in GRAD 2 and GRAD 3, who received payment counseling or the Quick Home Energy Check-up in addition to the graduated discounts or credits had greater increases in payments than those who only received the discounts or credits.

The percent of GRAD participants with on-time payments in 11 or 12 months increased from 43 percent in the pre-pilot period to 49 percent in the pilot period, but there was essentially no change for CAMP participants.

GRAD participants with the Quick Home Energy Check-up or payment counseling in addition to the Quick Home Energy Check-up had larger increases in the percent who made 11 or 12 on-time payments.

- **Credits** – CAMP pilot participants were required to make on-time payments to receive program credits but GRAD participants were not, so we expect differences in the number and total amount of credits received.

CAMP pilot participants received a mean of 4.5 credits, and the mean number did not vary significantly by pilot type. However, CAMP pilot participants with greater poverty levels received more credits on average and those who were in the group of customers who previously made more payments received more credits on average.

CAMP pilot participants, for the most part, were still not paying their bills on time each month. Only nine percent of CAMP pilot participants received credits in 11 or 12 months of the year. CAMP participants averaged \$51 in credits.

GRAD pilot participants received an average of 8.5 months of credits or discounts. The number of discounts or credits they received did not vary by GRAD pilot type, but customers who made more payments in the pre-pilot period received a greater number of months of credits or discounts during the pilot.

GRAD customers received credits or discounts all 12 months in 47 percent of the cases. GRAD participants who received the audit were less likely to receive 11 or 12 months of discounts or credits than the other GRAD pilot groups. GRAD participants averaged \$239 in discounts and credits.

- Arrearages – Mean arrearages increased by \$33 on average for CAMP participants and decreased by \$26 on average for GRAD participants. However, the comparison group's arrearages increased by \$93 on average, so the net change was a reduction for CAMP and GRAD pilot participants overall. While 27 percent of GRAD participants reduced their arrearages by more than \$100, only 16 percent of CAMP participants had this large of a reduction in arrearages.

CAMP participants who received double credits only had a greater reduction in arrearages than the other CAMP pilot groups.

GRAD pilot participants with the audit or counseling in addition to the graduated discounts or credits had greater reductions in arrearages.

- Collections Actions – CAMP pilot participants had a statistically significant net reduction in the percentage with field calls and GRAD participants had a statistically significant net reduction in the percentage with turn off notices. None of the pilot groups had a statistically significant net decline in the number of denials of service.

CAMP participants who received payment counseling but no additional credit had the greatest reduction in turn-off notices. CAMP participants who received double credits only had the greatest reduction in field calls.

GRAD participants who only received the graduated discount or who received the graduated discount and counseling had greater reduction in turn-off notices than those who received the Quick Home Energy Check-up.

### ***C. Cost Effectiveness***

The goal of the pilots was to test different methods to cost-effectively provide incentives for on-time bill payment and reduced usage. However, an examination of program costs, and potential reductions in collections actions and arrearages, shows that it was not likely for these programs to be cost-effective through a reduction in collections actions.

The pilots that resulted in statistically significant changes in collections actions and arrearages were CAMP 1 and the three GRAD pilots. While none of the pilot programs were cost-effective, CAMP 1 was the closest to being cost-effective. The net costs for CAMP 1 were \$44 per customer plus the estimated \$3,500 to re-program the system. If half of the estimated 65,000 limited-income customers participated in the new program, the programming costs would only be a few cents per customer, so the net total costs for the program are about \$44 per customer.

The net costs of the three GRAD pilots were very similar to one another. The net total costs ranged from \$239 to \$273 per customer, depending on the pilot that was implemented.

#### ***D. Recommendations***

Recommendations are made with respect to program administration, customer education pilot implementation, and full scale program implementation.

##### **Program Administration**

Program administration issues were information that was available to the Dollar Energy Fund (DEF) and customer payment flexibility.

- Data access – DEF reported that the ability to access real time information in BGE's system would enable them to respond more fully to questions that customers have. During the pilot, DEF had to refer customers to BGE's customer service department at times because they did not have this access. If BGE decides to implement a program that involves counseling by such an outside agency, BGE should investigate whether they can provide this data access to allow for improved customer service.
- Payment timing – DEF reported that some customers who received Social Security benefits had difficulty making on-time bill payments because of the timing of their benefits and the BGE bill. If BGE enrolls customers in a new pilot or full-scale program, they should consider resetting the customer's bill due date to allow for alignment of the bill payment with the receipt of Social Security benefits.

##### **Customer Education**

There was an opportunity for improved communication to pilot participants.

- While BGE took many steps to educate customers about the specific benefits of the pilot they were enrolled in, the customer survey showed that many customers did not have a good understanding of the pilot program. BGE sent an invitation letter, had customers enroll on the phone with a Dollar Energy representative who explained the pilot, and sent a confirmation letter that also explained the details of the pilot. BGE may increase the effectiveness of these efforts by shortening and simplifying the written communications. The invitation and confirmation letters were quite long and complicated, and a much shorter letter that bulleted the major points may be more effective.

### **Pilot Implementation**

If BGE decides to implement another payment pilot, we recommend that they incorporate the following design features.

- Pilot stratification – stratify all pilots to represent the full population of customers who would be targeted for a full scale program. As a result, the research would allow for a better understanding of what the results from full scale implementation could be.
- Customer tracking – provide better tracking of pilot participants to allow for a more complete understanding of customer attrition, including service terminations and moves.
- Customer targeting – target those customers who are most likely to have a beneficial outcome from the pilot and construct a comparison group of similar customers. For example, the CAMP program may have the greatest success with customers who are not paying all of their bills on time and who are not missing all of their payment due dates. The GRAD program may have the greatest success with the subset of these mid-level payment compliant customers who are high users, if an on-time payment requirement was added.
- Program potential – examine the potential cost savings from the program against the potential costs. Only implement the pilot if it appears that the program would have real potential for achieving cost-effectiveness, if the program is to be assessed primarily on this dimension.

### **Full Scale Program**

The program that proved to be the most cost-effective was CAMP 1, which only provided double credits and no additional services. The average credit under this pilot was \$59 per customer, compared to \$23 under the original CAMP program. The percent of customers who received a credit each month was 38 percent, compared to 27 percent under the original CAMP pilot. Given the \$36 per customer average increase in credit costs compared to the potential additional cost savings, the original CAMP program may be more cost-effective than the new pilot.

Payment assistance programs generally have not been found to be cost-effective through their impacts on payment compliance. The one exception that has been seen is where payments under the program were designed to be no less than what the customer was paying prior to program entry. If the program can result in customers paying as much or more than what they were paying in the pre-program period and increase payments on average, the resulting program may be cost-effective. However, such a pilot would require additional programming to calculate each customer's past annual payments and develop an individualized plan based on those payments. If BGE is able to implement such a program, it may be more cost-effective than the pre-pilot CAMP structure.