State Report – Pennsylvania

This Appendix furnishes detailed information for Pennsylvania, including:

- Statistical Overview – Key characteristics for Pennsylvania households and housing units.
- Needs Assessment – Statistics for Pennsylvania low-income households and estimates of the need for energy affordability and energy efficiency programs.
- Legal and Regulatory Framework – A description of the legal and regulatory framework for low-income programs and identification of any legal or regulatory barriers to program design enhancements.
- Low-Income Affordability Programs – Information on Pennsylvania's publicly funded affordability programs, the ratepayer-funded affordability programs targeted by this study, and an assessment of the share of need currently being met.
- Affordability Program Evaluation – A summary of the available evaluation findings regarding the performance of Pennsylvania's affordability programs.
- Energy Efficiency Programs – Information on Pennsylvania's publicly funded energy efficiency programs and the ratepayer-funded energy efficiency programs targeted by this study.
- Energy Efficiency Program Evaluation – A summary of the available evaluation findings regarding the performance of Pennsylvania's energy efficiency programs.

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I. Statistical Overview

Pennsylvania is the 6th largest state in terms of population. It is about average in terms of income and poverty statistics (21st in median family income and 30th in individuals below poverty in 2005). In 2005, the median housing value was $131,900 and the median rent was $647.

The majority of housing units (69%) in Pennsylvania are heated with regulated fuels, predominantly natural gas (52%). Energy prices are moderate, with electric 4% above and natural gas 11% above the national averages, while fuel oil is 10% below the national average. The weather is cold in the winter (5,913 heating degree days compared to the national average of 4,524) and cool in the summer (661 cooling degree days compared to the national average of 1,242). Households are most at risk from the cold during the months of November through April, and are most at risk from the heat during the months of July and August.

The following population and housing statistics were developed using data from the 2005 American Community Survey (ACS).

Population Profile

Total Population	12.0 million
Individuals 65 and Over	1.8 million (15%)
Individuals Under 18	2.8 million (23%)
Individuals 5 & Over Who Speak a Language Other than English at Home	1.0 million (8%)
Individuals Below Poverty	12% (30th nationally)

Household Profile

Total Households	4.9 million
Median Household Income	$44,537 (25th nationally)
Homeowners	
Total Homeowners	3.5 million (72%)
Median Value	$131,900 (30th nationally)
Median Housing Burden	20%
Renters	
Total Renters	1.4 million (28%)
Median Rent	$647
Median Rental Burden	27%

The following energy statistics were derived from a number of sources, including the 2005 American Community Survey (ACS), the Energy Information Administration's (EIA) supplier data collection, and NOAA's National Climatic Data Center (NCDC).

Energy Profile

Home Heating Fuel (Source: 2005 ACS)	
Utility gas	52%
Electricity	17%
Fuel Oil	24%
Other	7%
2005 Energy Prices (Source: EIA)	
Natural gas, per ccf	$1.421
Electricity, per kWh	$0.0981
Fuel oil, per gallon	$1.856
Weather (Source: NCDC)	
Heating Degree Days	5,913
Months of Winter (i.e., average temperature below 50°)	6
Cooling Degree Days	661
Months of Summer (i.e., average temperature above 70°)	2
Days with Temperatures Over 90°	18

[Note: Updates are available for energy prices and weather for 2006. Population statistics updates for 2006 will be available in August 2007.]

II. Profile of Low Income Households

Pennsylvania policymakers have chosen to target the publicly funded and ratepayer-funded low income programs at households with incomes at or below 150% of the HHS Poverty Guideline. For 2005, the income standard for a one-person household was about $14,355 and the income standard for a four-person household was $29,025. For the analysis of low-income households in Pennsylvania, we will focus on households with incomes at or below 150% of the HHS Poverty Guideline.

Table 1 furnishes information on the number of Pennsylvania households with incomes that qualify them for the LIHEAP program and the ratepayer-funded programs. About 20% of Pennsylvania households are income-eligible for these programs.

Table 1
Eligibility for Ratepayer Programs (2005)

Poverty Group	Number of Households	Percent of Households
Income at or below 150%	982,738	20%
Income above 150%	3,864,445	80%
ALL HOUSEHOLDS	4,847,183	100%

Source: 2005 ACS

Tables 2A and 2B furnish information on main heating fuels and housing unit type for Pennsylvania low-income households. Table 2A shows that about 54% of low-income households use natural gas as their main heating fuel, somewhat more than the 52% for all Pennsylvania households. Table 2B shows that 20% of low-income households are in buildings with 5 or more units. Many multiunit buildings use electric space heating rather than natural gas or fuel oil. About 58% of low-income households live in single family homes, while 15% live in buildings with 2-4 units. Very few households (6%) live in mobile homes.

Table 2A
Main Heating Fuel for Low-Income Households (2005)

Main Heating Fuel	Number of Households	Percent of Households
Electricity	188,198	19%
Fuel Oil	205,841	21%
No fuel used	2,561	0%
Other Fuels	57,442	6%
Utility Gas	528,696	54%
ALL LOW INCOME	982,738	100%

Source: 2005 ACS

Table 2B
Housing Unit Type for Low-Income Households (2005)

Housing Unit Type	Number of Households	Percent of Households
Boat, RV, Van, etc	140	0%
Building with 2-4 units	145,119	15%
Building with 5+	201,431	20%
Mobile Home	62,031	6%
Single Family	574,017	58%
ALL LOW INCOME	982,738	100%

Source: 2005 ACS

About 983,000 Pennsylvania households are categorized as low-income. However, only those households that directly pay an electric bill or a gas bill are eligible for the Pennsylvania ratepayer-funded programs. Table 2C shows that about 88% of low-income households directly pay an electric bill and that about 53% of low-income households directly pay a gas bill.

Table 2C
Low-Income Households
Direct Payment for Electric and/or Gas Bill (2005)

Poverty Group	Number of Households	Percent of Households
Electric Bill – Direct Payment	861,790	88%
Gas Bill – Direct Payment	516,604	53%
ALL INCOME ELIGIBLE	982,738	100%

Source: 2005 ACS

Tables 3A and 3B show the distribution of electric bills and burden for low-income households that do not heat with electricity and reported electric expenditures separately from gas expenditures.[1] Table 3A shows the distribution of electric expenditures for households that do not have electricity as their main heating fuel and Table 3B shows the electric energy burden.[2] Among these households, about 71% have electric bill that is less than $1,000 per year while about 14% have an annual electric bill of $1,500 or more. Electric energy burden is less than 5% of income for about 35% of these households, while it is greater than 15% of income for 19% of households.[3]

[1] The ACS allows respondents who have a combined electric and gas bill from one utility to report the total for both fuels. Those households are not included in these tables.
[2] Electric energy burden is defined as the household's annual electric bill divided by the household's annual income.
[3] About 13% of households have their electric usage included in their rent. These households have a nonzero electric energy burden, since part of their rent is used to pay the electric bill. However, since there is no way to measure the share of rent that is used to pay the electric bill, electric energy burden is unknown for these households.

Table 3A
Electric Bills for Low-Income Households without Electric Heat (2005)

Electric Bill	Number of Households	Percent of Households
$1 to less than $500	219,162	31%
$500 to less than $1,000	283,139	40%
$1,000 to less than $1,500	106,542	15%
$1,500 or more	95,898	14%
TOTAL	704,741	100%

Source: 2005 ACS

Table 3B
Electric Burden for Low-Income Households without Electric Heat (2005)

Electric Burden	Number of Households	Percent of Households
0% to less than 5%	243,858	35%
5% to less than 10%	246,222	35%
10% to less than 15%	77,469	11%
15% or more	137,192	19%
TOTAL	704,741	100%

Source: 2005 ACS

Tables 4A and 4B show the distribution of electric bills and burden for low-income households that heat with electricity. Table 4A shows the distribution of electric expenditures and Table 4B shows the electric energy burden. Among these households, almost half have an electric bill that is less than $1,000 per year, while about 30% have an annual electric bill of $1,500 or more. Electric energy burden is less than 5% of income for about 18% of these households, while it is greater than 15% of income for 30%.

Table 4A
Electric Bills for Low-Income Households with Electric Heat (2005)

Electric Bill	Number of Households	Percent of Households
$1 to less than $500	25,777	19%
$500 to less than $1,000	38,125	29%
$1,000 to less than $1,500	29,372	22%
$1,500 or more	39,762	30%
TOTAL	133,036	100%

Source: 2005 ACS

Table 4B
Electric Burden for Low-Income Households with Electric Heat (2005)

Electric Burden	Number of Households	Percent of Households
0% to less than 5%	24,492	18%
5% to less than 10%	39,780	30%
10% to less than 15%	28,751	22%
15% or more	40,013	30%
TOTAL	133,036	100%

Source: 2005 ACS

Tables 5A and 5B show the distribution of gas bills and burden for low-income households that heat with gas and report their gas bills separately from their electric bills. Table 5A shows the distribution of gas expenditures and Table 5B shows the gas energy burden. Among these households, about 51% have a gas bill that is less than $1,000 per year while about 32% have an annual gas bill of $1,500 or more. Gas energy burden is less than 5% of income for about 26% of these households, while it is greater than 15% of income for 33%.

Table 5A
Gas Bills for Low-Income Households (2005)

Gas Bill	Number of Households	Percent of Households
$1 to less than $500	122,198	25%
$500 to less than $1,000	127,096	26%
$1,000 to less than $1,500	83,767	17%
$1,500 or more	159,481	32%
TOTAL	492,542	100%

Source: 2005 ACS

Table 5B
Gas Burden for Low-Income Households (2005)

Gas Burden	Number of Households	Percent of Households
0% to less than 5%	127,011	26%
5% to less than 10%	123,751	25%
10% to less than 15%	79,416	16%
15% or more	162,364	33%
TOTAL	492,542	100%

Source: 2005 ACS

Tables 6A and 6B show the distribution of total electric and gas expenditures for low-income households that pay bills directly to a utility company. Table 6A shows the distribution of electric and gas expenditures and Table 6B shows the electric and gas energy burden. About 88% of households have an electric bill, a gas bill, or both. Almost one-third of low-income households have a total electric and gas bill that is less than $1,000 per year while almost one-fifth have an annual bill of $2,500 or more. Electric and gas energy burden is less than 5% of income for 12% of low-income households, while it is greater than 25% of income for more than one in five low income households.

Table 6A
Electric and Gas Bills for Low-Income Households (2005)

Electric and Gas Bill	Number of Households	Percent of Households
$1 to less than $500	104,929	11%
$500 to less than $1,000	198,570	20%
$1,000 to less than $1,500	163,638	17%
$1,500 to less than $2,000	123,744	13%
$2,000 to less than $2,500	89,445	9%
$2,500 or more	187,496	19%
No Bill	114,916	12%
ALL INCOME ELIGIBLE	982,738	100%

Source: 2005 ACS

Table 6B
Electric and Gas Burden for Low-Income Households (2005)

Electric and Gas Burden	Number of Households	Percent of Households
0% to less than 5%	119,843	12%
5% to less than 10%	222,675	23%
10% to less than 15%	154,301	16%
15% to less than 20%	94,422	10%
20% to less than 25%	63,370	6%
25% or more	213,211	22%
No Bill	114,916	12%
ALL Income Eligible	982,738	100%

Source: 2005 ACS

We have developed a series of demographic tables for households that pay an electric or gas bill. Table 7 furnishes information on the presence of vulnerable members in the household and illustrates what share of the population might be particularly susceptible to energy-related health risks. Table 8 shows the household structure for these households, and Table 9 presents statistics on the language spoken at home by these households.

Over one-third of the low-income households with utility bills are elderly. Just over one-fourth do not have any vulnerable household members. Some programs choose to target vulnerable households with outreach procedures and may offer priority to these households.

Table 7
Vulnerability Status for Low-Income Households with Utility Bills (2005)

Vulnerability Type	Number of Households	Percent of Households
Disabled	196,677	23%
Elderly	304,318	35%
No Vulnerable	226,038	26%
Young Child	140,789	16%
Total	867,822	100%

Source: 2005 ACS

Almost one-third of the low-income households have children, slightly more than one-third are headed by a person 65 or older, and over one-third are other household types. Single parent families with children represent about one-fifth of low-income households with utility bills.

Table 8
Household Type for Low-Income Households with Utility Bills (2005)

Household Type	Number of Households	Percent of Households
Married with Children	99,909	12%
Other	305,951	35%
Senior Head of Household	294,432	34%
Single with Children	167,530	19%
TOTAL	867,822	100%

Source: 2005 ACS

Seven percent of low-income households speak Spanish and about 4% speak an Indo-European language (e.g., Russian, Polish). In total, program managers might find that close to one in eight eligible households speak a language other than English at home.

Table 9
Language Spoken at Home by Low-Income Households with Utility Bills (2005)

Language Spoken	Number of Households	Percent of Households
English	749,771	86%
Spanish	60,298	7%
Indo-European	38,556	4%
Other	19,197	2%
TOTAL	867,822	100%

Source: 2005 ACS

III. Legal and Regulatory Framework

The rate affordability programs operated by Pennsylvania natural gas and electric utilities for their low-income customers began nearly 20 years ago with a small pilot project by Columbia Gas Company.[4] Since that time, the universal service concept has expanded for Pennsylvania's energy utilities so that the companies now devote more than $240 million each year to supporting their low-income customers.[5] While the genesis of the Pennsylvania universal service programs can be found in the Pennsylvania PUC's generic authority over the operations of energy utilities, the preservation of those programs has since been written into statute.

A. The Original Pennsylvania Programs

Two utilities in Pennsylvania pioneered the use of affordable rates as a means to address the payment troubles experienced by low-income customers. Columbia Gas Company responded with a willingness to pursue a program first proposed by the state Office of Consumer Advocate. Equitable Gas Company also proposed an income-based rate for its low-income customer population.

The Columbia Gas Program

The Pennsylvania Office of Consumer Advocate (OCA) proposed that Columbia Gas Company adopt an "Energy Assurance Program" (EAP) as part of Columbia's 1990 rate case. According to the OCA, the issue was one of collection efficiency. "The issue in this proceeding," OCA said, "is not to devise a social response to the broad inability to pay problems of low-income households. The issue is one of what is the most cost-effective means of collection. It is the same issue as whether a utility should pursue a new central station capacity, cogeneration or conservation. . .The requirement that utilities provide least-cost service should govern utility collection activities too."[6] The OCA continued: "the issue is this: how can Columbia Gas most effectively and least expensively collect as much as possible from households [that] cannot afford to pay?"[7]

Columbia Gas did not completely oppose the OCA's proposal given its experience with the Ohio Percentage of Income Payment (PIP) plan. "Columbia reiterated its policy position that it is not philosophically opposed to percentage of income payment plans, provided that the plan fully recognizes the costs of such a program and provides for the timely and full recovery of such costs."[8]

The Pennsylvania Commission agreed. The Commission found that "it is incumbent upon us to initiate a pilot project to test empirically some of the claims made by [OCA] for an EAP. Hopefully, the results of the pilot will prove [OCA's] thesis that EAP will enable more customers to avoid termination and collection actions, while also reducing the uncollectible expense that can be anticipated if existing approaches remain unchanged."[9] The PUC then articulated its philosophy that would govern Pennsylvania's regulatory policy for the next two decades:

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[4] Pennsylvania Public Utility Commission v. Columbia Gas of Pennsylvania, R-891468, Final Order, at 150 – 160 (September 19, 1990). (hereafter Columbia Gas EAP Order).

[5] Pennsylvania PUC, Bureau of Consumer Service, 2005 Report on Universal Service Programs and Collections Performance of the Pennsylvania Electric Distribution Companies and Natural Gas Distribution Companies, at 48 – 49 (2005). (Electric CAP delivered benefits of $104 million in 2005; natural gas CAP delivered benefits of $138 million in 2005.)

[6] Columbia Gas EAP Order, at 152.

[7] Id., at 153.

[8] Id., at 157.

[9] Id., at 158.

> We, in conjunction with utilities, and social service agencies, have all worked hard to devise ways to insure that low-income Pennsylvanians have utility services which really are necessities of life as the tragic fire deaths associated with the loss of utility service underlined. . .
>
> However, for the poorest households with income considerably below the poverty line, existing initiatives do not enable these customers to pay their bills in full and to keep their service. . .Consequently, to address realistically these customers' problems and to stop repeating a wasteful cycle of consecutive, unrealistic payment agreements that cannot be kept, despite the best of intentions, followed by service termination, then restoration, and then more unrealistic agreements, we believe that new approaches like PECO's CAP program and the OCA's proposed EAP program should be tried.[10]

Based on this analysis, the Commission directed Columbia Gas to begin a 1,000 customer pilot EAP.

The Equitable Gas Energy Assurance Program

Shortly after directing Columbia Gas to implement a pilot low-income rate affordability program, the Pennsylvania commission further approved a proposal by Equitable Gas Company to pursue a similar program.[11] Unlike the Columbia Gas program, which had been proposed by the state Office of Consumer Advocate (and not opposed by the Company), the Equitable Gas program originated with the gas utility, itself.[12] According to the Company, the proposed program was:

> Needed to (1) remove these customers from the discouraging and expensive collection cycle, (2) motivate them to increase conservation, (3) increase their annual participation in available funding assistance programs, and (4) encourage consistent bill-payment efforts.[13]

The proposed Equitable program would be available to customers with income at or below 150% of the Federal Poverty Level. The program would require participants to not exceed their pre-program level of consumption, to apply annually for low-income energy assistance, and to pay at least eight percent of their household income toward their gas service.[14]

The Equitable Gas program was, at first, disapproved by the hearing examiner who first decided the Equitable rate case. While the program is "an apparently well-intentioned attempt to assist those of Equitable's ratepayers who most need assistance in paying their bills," the hearing examiner "concluded that this Commission is without authority to approve a program such as the EAP." The hearing examiner reasoned that if the commission "were to approve the subject [energy affordability] program, our action would be tantamount to authorizing a utility to collect money from one group of ratepayers and to use that money for another group of ratepayers for a reason completely unrelated to the ratemaking process (the subsidization of low-income individuals who are unable to pay their utility bills)."[15] The hearing examiner finally concluded

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[10] Id., at 159.
[11] Pennsylvania Public Utility Commission v. Equitable Gas Company, Docket No. R-901595, Final Order, at 63 – 74 (November 21, 1990). (hereafter Equitable Order).
[12] Equitable Gas had been working with the state Bureau of Consumer Services (BCS), a bureau of the state utility commission, to develop an appropriate program design. Equitable Order, at 63.
[13] Id., at 63.
[14] Id., at 64.
[15] Id., at 66.

that "neither judicial precedent nor the Public Utility Code discuss our statutory authority for the implementation of utility rates based solely on 'ability to pay.'"[16]

The Pennsylvania commission, however, reversed the hearing examiner's disapproval of the proposed Equitable Gas low-income program. Noting that "we are aware that this Commission's main function in ratemaking is to assure that every rate made, demanded, or received by any public utility shall be just and reasonable," the commission found that the Pennsylvania statute prohibits only *unreasonable* preferences or advantages to any person. The statute, the commission said, prohibits any *unreasonable* difference as to rates between classes of service.[17] "The relevant question, therefore, is whether or not the funding of Equitable's proposed [energy affordability] program results in the 'unreasonable' rate discrimination prohibited by the Public Utility Code."[18]

Whether any particular classification or preference is reasonable is a question of fact, the commission said. "A mere difference in rates does not violate" the Pennsylvania statute.[19] The commission then found, on a number of bases, that "the record in this proceeding clearly demonstrates that any 'preference' that EAP would yield to program participants is reasonable, and further, the creation of EAP is in the best interest of all Equitable ratepayers, not just program participants."[20]

The commission found that "the company's total costs of service will be less with implementation of [the program] than they would be in the program's absence. While the company currently collects approximately 7.5% of household income of prospective EAP participants, the commission found, the program requires a payment of 8% of income toward their gas bill, thus increasing revenues.[21] The requirement that each EAP participant apply for LIHEAP and designate the company as the beneficiary will also assure greater revenue collection, since only one-third of eligibility customers traditionally apply for LIHEAP. Third, the commission said, the program cost is substantially less than the uncollectible expense associated with the program participants. Customers that are eligible for the Equitable Gas program "who currently have payment arrangements either negotiated by BCS or the Company pay on average little more than 50 percent of the presubscribed amount." In sum, the commission concluded that:

> This analysis suggests that the $1.8 million future test year [program] expenses should result in an overall reduction to the Company's cost of service, through its uncollectible expense and savings in credit and collection expenses.[22]

In sum, the commission said that "we commend Equitable for taking the initiative to propose the [energy affordability] pilot. This program could make it one of the leaders among utilities in the uncollectible arena."[23]

Philadelphia Gas Works

The Philadelphia Gas Works (PGW) low-income "Customer Responsibility Program" (CRP) traces its origins back to a 1989 decision by the Philadelphia Gas Commission[24] to adopt a low-

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[16] Id.
[17] Id., at 69 (emphasis in original).
[18] Id., at 69.
[19] Id., at 70.
[20] Id., at 70.
[21] Id., at 71.
[22] Id., at 71.
[23] Id., at 73.
[24] At the time the PGW program was first implemented, PGW was a municipal utility regulated by the municipal Philadelphia Gas Commission. As part of Pennsylvania's move to natural gas restructuring in 199x, regulatory

income rate affordability program, then known as the Energy Assurance Program (EAP). In approving the pilot EAP in November 1989, the Gas Commission found that "there are PGW customers who simply cannot pay current bills, with the result that PGW accounts receivable are extremely high."[25] According to the decision approving the program, the energy assurance program:

> Is the *best solution available* at this time to address the needs of low-income PGW customers, while maintaining PGW's opportunity to recover revenue from these customers. . .The recommended energy assurance program recognizes that:
>
> (a) Low-income customers do not have enough money to pay their fully-embedded cost of service, and
> (b) Without a program to address these issues, these customers will pay nothing or will pay only some portion of their fully-embedded bill, and
> (c) In either case, PGW loses the full contribution to its fixed cost, and
> (d) This occurs whether or not the household is ultimately permanently disconnected, and
> (e) Special pricing arrangements are good for all rate payers, since the energy assurance program encourages more low-income customers to remain gas customers and to make some payment toward their bills, which payments are better than no payments at all.[26]

(emphasis in original). The order concluded the "implementation of an energy assurance program will benefit not only low-income PGW customers, but also PGW and other rate payers. An energy assurance program encourages more low-income customers to remain gas customers, and make some payments toward their bill, rather than no payment at all and PGW will avoid expenses of disconnecting and reconnecting service."[27]

The PGW program was made permanent four years later, when the Gas Commission adopted the PGW Customer Responsibility Program (CRP). The CRP replaced EAP as the rate affordability program for PGW's low-income customers. In adopting the CRP, which imposed greater payment responsibilities on participating customers, the Philadelphia Gas Commission found that the revised program would:

- Strengthen PGW's collection policies for those with a greater ability to pay;
- Offer low-income customers reasonable bills for current service while providing for the orderly retirement of previous arrearages;
- Require that customers meet several responsibilities, such as grant assignment and conservation, in order to take full advantage of the [program];
- Break the ineffective and costly cycle of the existing [deferred payment plan] payment program;

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jurisdiction over PGW rates was transferred from the municipal gas commission to the Pennsylvania Public Utility Commission (Pennsylvania PUC).

[25] In Re. Proposed Revisions to the Customer Service Regulations of the Philadelphia Gas Works, Before the Philadelphia Gas Commission, Decision and Order, at 5 (November 3, 1989). (hereafter PGW EAP Order).

[26] PGW EAP Order, at 6 – 7.

[27] PGW EAP Order, at 11.

- Should save all ratepayers millions of dollars per year through increased revenue collection and decreased operating costs.[28]

The order adopting the CRP took a realistic approach toward what level of proof was necessary to support adoption of the program. The order adopting the program noted that "some uncertainty remains about the best approach to take to assist low-income customers." Nevertheless, "there is sufficient information on the record with which to make informed judgments and decisions. When dealing with human behavior, uncertainty will always exist. Through this investigation, the level of uncertainty has been reduced to an acceptable level. Although some may quarrel about specific items within this recommendation, I believe that the general path is clearly and overwhelmingly dictated by the record."[29]

The CRP program adopted a percentage of income based program. It allowed for the retirement of preprogram arrears over a term of years so long as program participants met prescribed conservation standards. It established "meaningful conservation standards," providing for incentives for program participants to reduce consumption, penalties for excessive consumption, and required participation in available usage reduction programs.

B. The Original "CAP Policy Statement" for Pennsylvania Utilities

Only two years after initiating the Columbia Gas pilot, the Pennsylvania PUC decided to expand the use of universal service programs to the state's other natural gas and energy utilities.[30] Consistent with its view of the function of such programs as expressed in the early Columbia Gas decision, the policy decision of the Commission was that low-income rate affordability programs were a necessary tool for utilities to use in combating the problem of nonpayment. Indeed, the decision to implement what would become known as Pennsylvania's Customer Assistance Programs (CAPs) arose out of the PUC's investigation into the control of uncollectible accounts.[31] Through that investigation, the Pennsylvania PUC's Bureau of Consumer Services (BCS) had developed recommendations for implementation of CAPs.

> CAPs provide alternatives to traditional collection methods for low-income, payment troubled customers. Generally, customers enrolled in a CAP agree to make monthly payments based on household family size and gross income. These regular monthly payments, which may be for an amount that is less than the current bill, are made in exchange for continued provision of utility service.[32]

The Commission continued:

> As a result of our investigation, the Commission believes that an appropriately designed and well implemented CAP, as an integrated part of a company's rate structure, is in the public interest. To date, few utilities have implemented CAPs.

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[28] In the Matter of Proposed Changes to the Customer Service Regulations Contained in Tariff No. 9, Recommended Decision, at 4 – 5 (September 22, 1993). (hereafter PGW CRP Order).
[29] PGW CRP Order, at 8.
[30] The Commission directed that utilities adopt pilot projects. The PUC decision was based on the BCS recommendation that CAP pilots "should be large enough to provide some relief to the low-income, payment-troubled customer problem and at the same time small enough that changes can be made to the programs without incurring major costs." Bureau of Consumer Service, Final Report on the Investigation of Uncollectible Balances, Docket No. I-900002, at 115 (February 1992). (hereafter BCS Uncollectibles Report). The Commission directed that pilot programs were to involve either 1,000 customers or 2% of a company's residential customer base, whichever was greater.
[31] In the Matter of the Investigation into the Control of Uncollectible Accounts, Docket No. I-900002 (initiated October 11, 1990).
[32] Policy Statement on Customer Assistance Programs (CAP), Docket No. M-00920345, at 2 (July 2, 1992).

> The purpose of this Policy Statement is to encourage expanded use of CAPs and to provide guidelines to be followed by utilities who voluntarily implement CAPs. These guidelines prescribe a model CAP which is designed to be a more cost effective approach for dealing with issues of customer inability to pay than are traditional collection methods.[33]

While the implementation of CAPs in 1992 was left to the voluntary decision of the state's energy utilities, the PUC made clear that it believed "alternative programs must be supported as clearly being in the public interest."[34]

> [T]he commission will request that a utility which chooses to use an alternate program design, or chooses to continue using traditional collection practices and not implement a CAP, address in rate proceedings its overall level of arrearages, collection costs and write-off of bad debt. The utility will also be requested to address the question of whether implementation of a CAP in accordance with Commission guidelines could produce net economic benefits to the utility and its ratepayers relative to the alternative program, or in the absence of a CAP.[35]

The original Pennsylvania CAPs were directed toward "low-income negative ability to pay customers."[36]

C. The Revised CAP Policy Statement for Pennsylvania Utilities

The Pennsylvania PUC revised its CAP Policy Statement in 1999, both in response to legislation providing for the restructuring of Pennsylvania's electric utility industry and in response to the experience with CAPs to date. In 1996, the Pennsylvania legislature had enacted a statute relating to the restructuring of the electric utility industry.[37] That statute contained three important universal service provisions.

- It provided that the state's electric utilities were to continue, at a minimum, the protections, policies and services that now assist low-income customers to afford electric service;
- It specifically defined "universal service and energy conservation policies" to include customer assistance programs (CAPs);[38] and
- It required the Commission to ensure that universal service and energy conservation policies, activities and service would be "appropriately funded and available" in each electric utility service territory.[39]

As the Commission found in promulgating new regulations to implement the electric restructuring act, "the [Public Utility] Code, as now amended by the Act, for the first time

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[33] Id., at 2. This Commission decision was supported by the BCS Final Report, which indicated: "The Bureau's position is that ratepayers are already bearing significant costs attributable to the problems of payment troubled customers and uncollectible balances. Further, BCS believes that incorporating the following recommendations into utility operations will lead to a more rational and cost effective use of existing resources. Over time, proper implementation of the recommendations may result in a reduction of total utility costs." BCS Uncollectibles Report, at 120

[34] Id., at 3.

[35] Id., at 3.

[36] Id., at Annex A, Section 69.264 (1992). A "negative ability to pay customer" was one whose "financial condition is such that expenses exceed income" as determined through application of factors prescribed by regulation. Id., at Section 69.262, citing 52 Pa. Code §56.97(b).

[37] 66 Pa. C.S.A., §§ 2801 et seq. (2007).

[38] 66 Pa. C.S.A., §2803 (2007).

[39] 66 Pa. C.S.A., §2804(9) (2007).

imposes a *mandate* for universal service and energy conservation policies, programs and protections that are 'appropriately funded and available in each electric distribution territory.'"[40] Accordingly, rather than merely implementing "pilot" programs, utilities should implement programs the participation limit on which should:

> Reflect a needs assessment, consideration of the estimated number of low-income households in the utility's service territory, the number of participants currently enrolled in the pilot CAP, participation rates for assistance programs, and the resources available to meet the needs of the targeted population.[41]

The Commission refused to adopt spending or participation guidelines for Pennsylvania's utilities, holding that to do so would be contrary to statute. "We note," the PUC said, "that neither the Act nor these guidelines specify any particular spending level for universal service and energy conservation as a whole. No inherent increase or decrease in spending is mandated, provided the total level of resources directed to universal service and energy conservation is 'appropriate' and the benefits are made 'available'."[42]

In considering revisions to the CAP Policy Statement to conform it to policies articulated in response to the electric restructuring statute, the Pennsylvania PUC reported that it would be guided not simply by the statute, but by the experience that Pennsylvania utilities had developed with CAPs to date. At the time of the revision, the Commission reported, 12 of the state's 15 utilities had voluntarily implemented CAPs, with a participation of approximately 50,000 customers. In deciding to direct the state's utilities to adopt CAPs (or pre-approved CAP alternative designs), the PUC noted that this experience to date documented that "participants enrolled in a CAP increase the number of payments they make while maintaining the same level of energy usage."[43]

In addition to program operation details not discussed here, the Commission made several substantive changes in the CAP program design in its 1999 revisions to the CAP Policy Statement. One of the primary program design changes was in the scope of the program. Rather than being directed toward "negative ability to pay customers," the Commission said that CAPs would henceforth be directed toward "payment troubled customers."[44] The Commission then defined "payment-troubled customer" as any low-income customer who has "failed to maintain one or more payment arrangements."[45] The Commission continued, however, to say that utilities should focus their outreach on *particular* payment-troubled customers.

> Eligibility criteria: The CAP applicant should meet the following criteria for eligibility: . . .(iii) The applicant is a low-income, payment-troubled customer. When determining if a CAP applicant is payment troubled, a utility should select one of the following four options to prioritize the enrollment of eligible payment troubled customers: (a) a household whose housing and utility costs exceed 45% of the household's total income. Housing and utility costs are defined as rent or mortgage/taxes and gas, electric, water, oil, telephone, and sewage; (b) a household who has $100 or less disposable income after subtracting all household expenses from all household income; (c) a household who has an arrearage. The utility may define the amount of the arrearage; or (d) a household

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[40] Re. Guidelines for Universal Service and Energy Conservation Programs, Docket No. M-00960890, 178 PUR4th 508 (Penn. PUC July 11, 1997). (hereafter Universal Service Guidelines Order).
[41] §69.261 (revised).
[42] 178 PUR4th, at 512.
[43] Re. Revisions to the Customer Assistance Program Policy Statement Made Pursuant to 52 Pa. Code, Chapter 69, Docket No. M-00991232, at 2 (April 9, 1999).
[44] §69.264 (revised).
[45] §69.262 (revised).

> who has received a termination notice or who failed to maintain one payment arrangement.[46]

The Commission had previously made clear that its intent was to distinguish between making all payment-troubled customers (as defined by the Commission) ***eligible*** for CAP, while allowing utilities to target ***outreach*** to specific sub-groups of payment-troubled customers.[47]

Finally, the Commission changed the allowed response to nonpayment of CAP bills. Under the original CAP Policy Statement, nonpaying CAP customers were removed from the rate affordability program and returned to the basic residential rate. According to the revised Commission policy, however, "the consequences for nonpayment should be loss of service; therefore, we recommend that utilities return participants who do not make payments to the regular collection cycle. . .The changes to this section will allow a utility to immediately start the termination process."[48]

One issue that the Commission did ***not*** address in its CAP Policy Statement was the size of a CAP as measured by numbers of participants or dollar of expenditures. In promulgating regulations to implement the statutory universal service language of the restructuring statute, the Commission had considered proposals to impose both floors and ceilings on universal service expenditures. In refusing to impose specific funding levels, the Commission explained that funding should depend on each utility service territory. The statute was "clear," the PUC said, "that universal service and energy conservation programs are to be appropriately funded and available."[49] Each company's programs must be "fully examined," the commission continued, to determine whether that statutory mandate is being fulfilled. However, the Commission indicated that the pilot project stage of CAPs had come to an end:

> In order to meet our charge under the statute, it is necessary that the needs of the [electric distribution utilities] territory be assessed. Such a study of the community is necessary to ensure that programs are well directed to meet the greatest need in the community for affordable energy. The needs assessment should examine the market for and acceptance of universal service programming in the territory. Current CAP pilots serve a limited number of customers. Given the results of impacts evaluations already reviewed, we expected that [electric utilities] will choose to enhance their CAPs as a cost effective strategy for serving low-income customers.[50]

In its revised CAP Policy Statement, as well as the Guidelines for Universal Service Programs promulgated in response to the electric restructuring statute, the Pennsylvania PUC allowed the state's electric and natural gas utilities considerable flexibility in defining the percentage of income that would be considered "affordable" under a CAP program design. The purpose of CAP, the Commission indicated, is directed toward the collection of utility bills, not exclusively to improving affordability. The PUC explained:

> As evaluations are completed, each utility should have a better idea about what is an affordable payment for their CAP customers and can make adjustments to their payment plans to reflect the evaluation findings. However. . .we reject the arguments to lower the payment ranges. . . As utilities and the Commission have gained experience from the CAP pilots, it seems that some CAP participants' payments have been set too low and could be raised without negatively influencing affordability. The commission does not believe it is appropriate for

[46] §69.265(4)(iii) (revised).
[47] 178 PUR4th at 516.
[48] CAP Policy Statement Revisions Order, at 4; see also, §69.265(7) (revised).
[49] 178 PUR4th at 518.
[50] 178 PUR4th at 518.

> customers, as participants of CAP, to make payments that are significantly less than what they have historically been paying. The independent evaluation of Equitable Gas Company's Energy Assistance Program found that EAP participants could afford to pay 8% of their income for gas energy. The evaluation also recommended that EAP participants whose incomes were between 51% and 150% of the federal poverty guidelines could afford to pay 10% of their income for gas energy.[51]

The Commission then articulated its affordability policy. "Our goal in establishing payment ranges is to maximize customer payments, maintain affordable payments, and limit the CAP credits as much as possible."[52]

D. The 2006 CAP Design Investigation

The most recent consideration of, and general revisions to, the policies governing the development and administration of Pennsylvania's CAP programs came in the PUC's 2006 decision regarding CAP funding levels and cost recovery mechanisms.[53] In this proceeding, the Commission had not undertaken a generic review of the design of CAPs overall, but rather a more limited review of how to ensure that CAPs were "appropriately funded" under the Pennsylvania statutes. In addition, the Commission sought to develop policy to implement the statutory directive that utilities be allowed to "fully recover" their universal service costs (including CAP costs).

The Commission determined in 2006 that utility CAP programs in Pennsylvania could not have enrollment ceilings if they were to satisfy the statutory requirement that they be "available."[54] Participation rates, the Commission said, "will fluctuate based on economic conditions, weather and utility prices." In eliminating participation ceilings, however, the Commission warned that utilities must be ensured of full cost recovery. "The Commission may not enforce the availability requirement of the Acts without also recognizing the right of utilities to full cost recovery."[55]

The statutory requirement of "full recovery" of CAP costs precludes the Commission from requiring Pennsylvania utilities to recover these costs through base rate proceedings, the PUC decided.[56] Under Pennsylvania law, the PUC said, a utility is not guaranteed that it will recover all of its prudently incurred expenses. Instead, it is allowed a "reasonable opportunity to recover" its costs. The Commission held that, under Pennsylvania law applicable to most utility expenses: "instead of being allowed complete recovery of incurred expenses, utilities in Pennsylvania are permitted the opportunity to recover a 'normal' level of expenses going forward as determined by a representative test year. . ."[57] The "opportunity to recover" is substantively different from the statutory directive for the Commission to allow utilities to "fully recover" their CAP costs. Under the "opportunity to recover" approach, the PUC said, "following the establishment of rates, if the actual level of an expense turns out to be higher than the amount built into rates, the utility is not entitled to recover its additional expenses except in narrowly-prescribed circumstances. This rule puts the utility at risk for increases in expenses between rate cases."[58] Based on this analysis, the Commission determined that it "must allow

[51] Id., at 521.
[52] Id., at 522. "CAP credits" refer to the dollar difference between CAP bills at income-based rates and customer bills at full residential rates. Hence, if the full residential bill is $150 and the CAP bill is $80, the CAP credit would be $70 ($150 - $80 = $70).
[53] Re. Customer Assistance Programs: Funding Levels and Cost Recovery Mechanisms, Docket NO. M-00051923, Final Investigatory Order (October 19, 2006). (hereafter 2006 CAP Funding Order).
[54] 2006 CAP Funding Order, at 6.
[55] Id.
[56] Id., at 13.
[57] Id., at 14, citing, Pennsylvania Public Utility Commission v. Citizens Utilities Water Company of Pennsylvania, Docket No. R-0095300 (1996).
[58] Id., at 14.

recovery through a surcharge that is either reconciled or adjusted frequently to track changes in the level of CAP costs consistent with the direction given in the [statutes]."[59] According to the Commission, "CAP costs are different from other expenses in that the General Assembly has mandated 'full recovery' of these costs."[60]

Finally, the Commission decided in its 2006 funding order that, with some exceptions, "the Commission will continue its current policy of allocating CAP costs to the only customer class whose members are eligible for the program—residential customers."[61] Rather than basing this decision on any statutory or legal analysis, however, the Commission simply stated that "we should not initiate a policy change that could have a detrimental impact on economic development on economic development and climate for business and jobs within the Commonwealth."[62] It is appropriate from a policy perspective to charge all CAP costs to the residential class, the Commission said. ". . .less than two years ago, the Commission held that '[u]niversal service programs, by their nature, are narrowly tailored to the residential customers and, therefore, should be funded only by the residential class."[63]

E. Summary and Conclusions

The development of the Pennsylvania CAP programs provides considerable insight into most of the major issues facing utility-funded universal service programs at the state level. While preservation and expansion of the CAP programs was eventually written into statute as part of the restructuring of the electricity and natural gas industries, the Pennsylvania CAP programs were initiated by the state PUC without explicit statutory authorization. Instead, the PUC found that CAPs should be an "integrated part of a company's rate structure." The purpose of these programs, the Commission found, was not a social purpose. Rather, the CAPs represent "a more cost effective approach for dealing with issues of customer inability to pay than are traditional collection methods."

The focus of the Pennsylvania CAPs as a tool to respond to low-income payment troubles has continued throughout the years. CAPs were considered to be an *alternative* to a way of doing business that simply wasn't working. The objective of CAP was "to stop repeating a wasteful cycle of consecutive, unrealistic payment agreements that cannot be kept, despite the best of intentions, followed by service termination, then restoration, and then more unrealistic agreements. . ."

Despite the focus on CAPs as a more effective, and more cost-effective, tool to use in addressing payment troubles, the Pennsylvania PUC adopted a broad perspective on when customers should be considered to be "payment troubled." Payment troubles were not simply to be measured in terms of the level (or presence) of arrears. While the definition incorporated the concept of breaching a payment agreement, the PUC went on to recognize that payment troubles, by definition, exist when total shelter costs overburden the customer; when disposable income was insufficient to cover basic needs; or when certain utility nonpayment characteristics (e.g., arrears, defaulted payment plans) were evident.

The Pennsylvania PUC decided ***not*** to implement a uniform statewide administered program for its CAPs. Instead, each of the state's natural gas and electric utilities were allowed to implement programs designed specific to their service territories. While companies were required to stay within basic "design guidelines" promulgated by the Commission, their burden, should they choose to deviate from the PUC-identified "model," was to document that their

[59] Id., at 15.
[60] Id., at 16.
[61] Id., at 31.
[62] Id.
[63] Id., citing Pennsylvania Public Utility Commission v. PPL Electric Utilities Corp., Docket No R-00049255 (December 22, 2004).

proposal “could produce net economic benefits to the utility and its ratepayers relative to the alternative program, or in the absence of a CAP.”

The Pennsylvania CAP program structure emphasizes the need of each utility to make empirically-based decisions, not only on the design of the program but on the size of the program as well. Rather than adopting program limits by policy or fiat, the PUC directed that utility programs should “reflect a needs assessment,” which should examine not only the estimated number of low-income customers, but the expected participation (based on participation rates in other programs) and the “resources available to meet the needs of the target population.” Because those needs assessments could vary widely, both by utility territory and by time period, the PUC directed that there should be no ceiling on program participation.

One reason that the Pennsylvania PUC could forego participation ceilings, of course, is because of the explicit statutory directive that programs not only be “available” in each service territory, but that the implementing utility would be allowed to “fully recovery” all universal service costs. Holding that “full recovery” could not occur through a base rate case, since base rates allow only an “opportunity to recover” those costs deemed to be “normal” in the rate case, the PUC approved recovery of CAP costs through a rate rider that is either reconcilable, or that is adjusted sufficiently frequently to reflect all universal service costs.

Finally, the Pennsylvania PUC recognized that providing low-income affordability assistance was not the exclusive objective to be sought through CAP. Harking back to the basic philosophy underlying the origin of the program, and the low-income population toward whom the programs are directed, the Commission held that “our goal. . .is to maximize customer payments, maintain affordable payments, and limit the CAP credits as much as possible.”[64]

IV. Low-Income Affordability Programs

The two major affordability programs available to low-income households in Pennsylvania are the LIHEAP Program and the Customer Assistance Program.

- LIHEAP Program – In 2005, the Pennsylvania LIHEAP program received about $145.5 million in funding from the Federal government.[65] Since about 73% of low-income households use natural gas or electricity for their home heating fuel, we will estimate that about $106.2 million was made available to gas and electric customers for LIHEAP benefits.

- Customer Assistance Programs – In 2005, Pennsylvania utilities’ Customer Assistance Programs furnished about $191.0 million in electric and gas benefits to eligible households.[66]

In total, about $297 million was available to help pay the electric and gas bills for low-income households. Using the ACS data, we estimated the following statistics regarding the aggregate electric and gas bills for low-income households in Pennsylvania.

- Aggregate Electric and Gas Bill – The total electric and gas bill paid directly by low-income households is estimated to be about $1.48 billion. The available funding of $297 million in benefits would cover about 20% of the total bill for low-income households.

[64] As noted above, the “CAP credits” are those dollars that make-up the difference between what a participant’s bill is at CAP rates and what the bill would have been in the absence of CAP.
[65] Source: LIHEAP Clearinghouse
[66] Source: LIHEAP Clearinghouse

- 5% Need Standard – Some analysts suggest that 5% of income is an affordable amount for low-income households to pay for the energy needs. The aggregate value of electric and gas bills that exceeds 5% of income is estimated to be about $1.04 billion. The available funding of $297 million in benefits could cover about 29% of the unaffordable amount for low-income households. [Note: If benefits from either of these two programs are allocated to households with an energy burden less than 5% of income, the program would not cover 29% of the estimated need.]

- 15% Need Standard – Some analysts suggest that 15% of income is an affordable amount for low-income households to pay for the energy needs. The aggregate value of electric and gas bills that exceeds 15% of income is estimated to be about $491 million. The available funding of $297 million in benefits could cover about 60% of the unaffordable amount for low-income households if it were targeted to only those households with energy bills greater than 15% of income.

- 25% Need Standard – Many low-income households pay more than 25% of income for energy service. Among the ratepayer-funded low-income programs that have used a percent-of-income guideline in their benefit determination process, none have been as high as 25% of income for combined use of electric and gas. The aggregate value of electric and gas bills that exceeds 25% of income is estimated to be about $290 million. The available funding of $297 million in benefits could cover more than 100% of the unaffordable amount for low-income households if it were targeted to households with energy bills greater than 25% of income.

These statistics demonstrate that the Pennsylvania programs cover a significant share of the total low-income need, and the Pennsylvania is one of the few states that has funded programs at a level that is sufficient to meet the entire estimated need for households at the 25% of income standard. Moreover, we often find that programs achieve only a 50% participation rate. Since funding for programs in Pennsylvania is sufficient to meet the needs of about 60% of the need estimated at the 15% need standard level, it is possible for the Pennsylvania programs to serve all participating customers with energy burdens that exceed 15% of income.

Two of the Pennsylvania CAP programs were targeted for analysis by this study – the PECO CAP program and the PGW CRP program. Both of these programs are currently administered under the Universal Service Fund program authorization discussed earlier in this appendix. However, it is useful to note that the PGW program was originally authorized when PGW was still under the regulatory authority of the Philadelphia Gas Commission.

Some important features of the PECO CAP program include:

- PUC Oversight – The Pennsylvania PUC has overall responsibility for setting CAP policy. However, PECO sets policies for the program within the broad guidelines set by the PUC's CAP policy statement.

- PECO Program Operations – PECO is responsible for operation of the program, including the development of systems for program intake, benefit determination, and financial reporting.

- Program Funding/Participation – Program funding for 2006 was about $80 million and served more than 116,000 electric customers and almost 32,000 gas customers. [Note: PECO has electric service in Philadelphia and the surrounding areas. PECO has gas service in the areas surrounding Philadelphia.]

- Targeting – The program is targeted to payment-troubled customers. The program also targets higher benefits to lower income customers.

- Benefit Type – The program is a rate discount program, with discounts ranging from 85% for the lowest income customers to 25% for the highest income eligible group. The discount is limited to a certain usage level.

The following table furnishes detailed information on the PECO CAP program.

Program State	Pennsylvania
Program Name	Customer Assistance Program (CAP)
Utility Company (If Applicable)	PECO
Program Goals	Discounted residential tariff rate for low-income customers within the PECO service territory.
Funding Source (SBC or Rates)	Rates
Annual Program Funds – Allocated (2006)	N/A
Annual Program Funds – Expended (2006)	$70,005,174 for electric customers and $9,083,265 for gas customers (2005)
# of Households Served (2006)	116,829 electric customers and 31,928 gas customers (as of Dec. 31, 2005)
Participation Limit (Maximum # of Enrollees)	No. PECO is committed to enrolling all qualifying customers into CAP Rate. However, CAP Rate A enrollment will be limited to no more than 7,500 customers.
Eligibility – % of Poverty Level	Customers must have income at or below 150% of poverty.
Eligibility – Other Criteria	Customer must be considered payment-troubled. A customer is considered payment-troubled if one of the following circumstances exists: o late payment; o insufficient payment; o non-payment of energy bill; o consistently in arrears; and o broken two or more payment agreements.
Targeted Groups	None.
Benefit Calculation Type (% of Income, Benefit Matrix, etc.)	Benefit Matrix
Benefit Calculation (Document Formula)	The CAP benefit is assessed for each customer based on their monthly energy usage, household income, and the presence of extenuating circumstances. **CAP Rate A.** CAP Rate A provides a minimum rate to customers whose household incomes are below 25% of the FPL and who have extenuating circumstances. CAP Rate A customers that take service under Rate R will be required to pay a total monthly bill of $12 for all usage up to 1000 kWh. Monthly usage from 1001 kWh to 1500 kWh will receive a 50% discount and any consumption above 1500 kWh will be billed at CAP Rate D. CAP Rate A customers that take service under Rate RH will be required to pay a total monthly bill of $30 for all usage up to 2000 kWh billed in the months of October through June and 1000 kWh in the months of July, August and September. Usage in excess of the kWh thresholds per month will be billed at the CAP Rate D. **CAP Rate B.** For customers whose incomes are below 25% of the FPL and who do not have extenuating circumstances, CAP Rate B provides an 85% discount on the first 500 kWh of usage per month throughout the year. CAP Rate B provides an additional 30% discount on the 500-600 kWh block of usage during the months of July, August and September. All other usage is assessed at otherwise applicable tariff rate R and RH charges. **CAP Rate C.** For households whose incomes are between 26%-50% of the FPL, CAP Rate C provides a 75% discount on the first 500 kWh of usage per month throughout the year. CAP Rate C provides an additional 30% discount on the next 100 kWh during the months of July, August, and September. All other usage is assessed at the otherwise applicable tariff rate R and RH charges. **CAP Rate D.** For Customers whose incomes are between 51 and 100 percent of the FPL that take service under Rate R, CAP Rate D provides a 50 percent discount on their first 500 kWh monthly. For customers whose incomes are between 51 and 100 percent of the FPL that take service under Rate RH, CAP Rate D provides a 50 percent discount on their first 500 kWh monthly during the months of July, August and September and a 50 percent discount on all of their kWh during the months of October through June. All other usage is

	assessed at the otherwise applicable tariff rate R and RH charges. **CAP Rate E.** For customers whose incomes are between 101 and 150 percent of the FPL that take service under Rate R or Rate RH, CAP Rate E provides a 25% discount on their first 500 kWh monthly. All other usage is assessed at the otherwise applicable tariff rate R and RH charges.
Benefit Amount (Mean Subsidy)	The 2005 average CAP credit (the difference between the standard billed amount and the CAP billed amount) was: Electric: $317 Gas: $99
Benefit Limit	No.
% of Program Dollars Spent on Administrative Costs	11% for electric customers (2005) 4% for gas customers (2005)
Benefit Distribution (Fixed Payment, Fixed Payment with a Limit, Fixed Credit, Fixed Credit with Budget Billing, etc.)	Discount.
Arrearage Forgiveness Plan – Y/N	Yes.
Amount Eligible for Forgiveness (Dollars, %, or Unlimited)	Unlimited.
Forgiveness Requirement (Payments, On-Time Payments)	Pay full CAP Rate bill.
Forgiveness Period (One-Time, 12 months, 24 months, etc.)	Six consecutive months.
Program Manager (PUC, State, Utility)	PECO.
Data Manager (PUC, State, Utility, Other)	PECO.
Enrollment Responsibility (Utility, CAP, etc.)	PECO.
Application Method (Mail, In-Person, Phone)	By Mail
Joint Application	Clients that participate in CAP are automatically forwarded to the LIURP division.
Recertification Required – Y/N	Yes.
Recertification Frequency	Customers in CAP Rate A must recertify annually and customers in CAP Rates B-E are required to recertify every two years.
Recertification Method (Agency, Automatic Enrollment, Self-Certification)	Customers must submit an updated CAP application form and proof of income.
Recertification Procedures	PECO sends the customer a letter requesting an updated CAP application form and proof of income.
Removal Reasons	o Failing to recertify. o Theft of service or fraudulent activity. o Failing to abide by the program rule of enrolling into LIURP when requested by the company. o Having income over the income guidelines.
Other Communications	None.
Budget Counseling	No.
Evaluation Frequency	All utilities in PA are required to submit to the PUC an evaluation report of their universal services programs every six years. PECO must submit to the PUC the following program statistics annually: o CAP Participation o CAP Benefit Amounts (average CAP bill, average CAP credits, and average arrearage forgiveness) o Percentage of CAP bill paid o Program Costs
Coordination with Other Social Assistance Programs	On December 6, 2005 PECO implemented a new proactive LIHEAP and Department of Public Welfare (DPW) enrollment process to streamline the enrollment and re-certification

	process. If a customer's financial statement reflects receipt of DPW benefits and the customer did not provide detailed household and income information, then the call center contacts DPW to confirm receipt of DPW benefits and amount. Using the DPW benefits to poverty level table, the call center will use the DPW benefit amount to enroll the customer into the appropriate CAP Rate tier. In December 2005, 1,769 customers that received DPW benefits were proactively enrolled into the CAP.
Coordination with LIHEAP	When a customer receives a LIHEAP grant, the information for customers not currently in the CAP is forwarded to the PECO Universal Services Call Center. Call center attempts to contact the customer to complete the application process. If the call center is unsuccessful, then the customer is automatically enrolled into CAP Rate D.
Coordination with WAP	None.
Coordination with Energy Efficiency Programs	Participation in LIURP is a requirement of PECO's CAP.
Coordination with Other Energy Affordability Programs	If a customer receives MEAF then the customer would be enrolled or re-certified in the CAP.

Some important features of the PGW CRP program include:

- PUC Oversight – The Pennsylvania PUC overall responsibility for setting CAP policy. However, PGW sets policies for the program within the broad guidelines set by the PUC's CAP policy statement.

- PGW Program Operations – PGW is responsible for operation of the program, including the development of systems for program intake, benefit determination, and financial reporting.

- Program Funding/Participation – Program funding for 2006 was about $58 million and served more than 67,000 gas customers.

- Targeting – The program is targeted to payment-troubled customers. The program also targets higher benefits to lower income customers.

- Benefit Type – The program is a fixed payment percent of income program. The targeted percent of income ranges from 8% of income for the lowest income group to 10% of income for highest income eligible group.

The following table furnishes detailed information on the PGW CRP program.

Program State	Pennsylvania
Program Name	Customer Responsibility Program (CRP)
Utility Company (If Applicable)	Philadelphia Gas Works
Program Goals	Provide low-income customers with affordable gas bills that still cover the variable costs and some fixed costs of providing gas service.
Funding Source (SBC or Rates)	Rates.
Annual Program Funds – Allocated (2006)	N/A
Annual Program Funds – Expended (2006)	$102,733,113
# of Households Served (2006)	76,045 (as of Dec. 31, 2006)
Participation Limit (Maximum # of Enrollees)	None.

Eligibility – % of Poverty Level	Customers with income at or below 150 percent of the Federal Poverty Level.
Eligibility – Other Criteria	None.
Targeted Groups	None.
Benefit Calculation Type (% of Income, Benefit Matrix, etc.)	Percent of Income.
Benefit Calculation (Document Formula)	Customers below 50% of the poverty line pay eight percent of their monthly gross household income. Customers between 51% and 100% of poverty pay nine percent of their monthly gross household income. Customers between 101% and 150% of poverty pay 10 percent of their monthly gross household income. Customers may pay a monthly co-pay towards pre-program arrears, if applicable.
Benefit Amount (Mean Subsidy)	$1,222
Benefit Limit	None.
% of Program Dollars Spent on Administrative Costs	2.3%
Benefit Distribution (Fixed Payment, Fixed Payment with a Limit, Fixed Credit, Fixed Credit with Budget Billing, etc.)	Fixed Payment.
Arrearage Forgiveness Plan – Y/N	Yes.
Amount Eligible for Forgiveness (Dollars, %, or Unlimited)	Unlimited.
Forgiveness Requirement (Payments, On-Time Payments)	On-time and in-full payments for 36 months.
Forgiveness Period (One-Time, 12 months, 24 months, etc.)	36 months.
Program Manager (PUC, State, Utility)	PGW.
Data Manager (PUC, State, Utility, Other)	PGW.
Enrollment Responsibility (Utility, CAP, etc.)	PGW.
Application Method (Mail, In-Person, Phone)	In-person or through the mail. PGW sends a field collector to customers who are homebound.
Joint Application	No.
Recertification Required – Y/N	Yes.
Recertification Frequency	Annually for customers if they did not receive a LIHEAP cash grant. Every other year for customers that received a LIHEAP cash grant.
Recertification Method (Agency, Automatic Enrollment, Self-Certification)	In person or by mail.
Recertification Procedures	CRP participants are automatically scheduled for re-certification on the 11th month after they enrolled or they last certified. PGW's billing system automatically sends the customer a letter, two forms, and an envelope to return the information in. Customers are required to send income information to PGW or visit a district office with the information.
Removal Reasons	o Missed Payments. o Failure to annually verify eligibility o Ineligibility for the program. o The program is not beneficial for the customer.
Other Communications	When the customer is one full payment behind, PGW sends a 10-day notice and will then attempt

	to contact the customer by phone.
Budget Counseling	None.
Evaluation Frequency	All utilities in PA are required to submit to the PUC an evaluation report of their universal services programs every six years. PGW must submit to the PUC the following program statistics annually: o CRP Participation o CRP Benefit Amounts (average CRP bill, average CRP credits, and average arrearage forgiveness) o Percentage of CRP bill paid o Program Costs
Coordination with LIHEAP	Communication with LIHEAP office to check if accounts are heating or non-heating. Data exchange for direct Crisis applications to limited eligible customers.
Coordination with WAP	Yes – via CWP
Coordination with Energy Efficiency Programs	All CRP heating customers are placed on a waiting list to receive CWP services if they have not received these services in the past five years.
Coordination with Other Energy Affordability Programs	Yes – In addition to LIHEAP, referrals are made to fuel fund (UESF).

V. Affordability Program Evaluation Findings

There were two affordability evaluation reports reviewed for Pennsylvania.

- PECO contracted with APPRISE to conduct an independent evaluation of their Universal Service Programs which included their Customer Assistance Program (CAP). The study focused on customers who enrolled in the CAP in 2003. The evaluation objectives were to assess the need for the program; the characteristics of program participants; retention rates; program linkages; program impacts on payments, arrearages, service terminations, and collections costs; and whether the program's cost effectiveness could be increased. The PECO Energy Universal Services Program Final Evaluation Report[67] is dated April 2006.

- Philadelphia Gas Works (PGW) contracted with APPRISE to conduct an independent evaluation of their Customer Responsibility Program (CRP). The evaluation focused on customers who enrolled in the CRP in 2003. The goals of the evaluation were to assess the program's impact on customer payments, assistance payments, arrearages, and collections, and to make recommendations for how the program could improve its cost-effectiveness. The Philadelphia Gas Works Customer Responsibility Program Final Evaluation Report[68] is dated February 2006.

PECO's Customer Assistance Program (CAP) is a discounted residential tariff for low-income, payment-troubled residential customers. There are five CAP tiers that provide discounts ranging from 25 percent to 85 percent, depending on the households' poverty level. However, the evaluation studied the earlier program that provided discounts ranging from 25 to 50 percent. The key findings from the evaluation were:

- Low participation rates were seen for customers with income below 25 percent of the poverty level.

[67] PECO Energy Universal Services Program Final Evaluation Report, APPRISE, April, 2006.
[68] Philadelphia Gas Works Customer Responsibility Program Final Evaluation Report, APPRISE, February 2006.

- 68 percent of participants received arrearage forgiveness. The mean amount of arrearage forgiveness received was $310.

- Program participants had a gross reduction in energy bills of $312 and a net reduction of $354. Their energy burden declined from 12 percent to 8.6 percent.

- Customers paid less in the year following enrollment than they paid in the year prior to enrollment because they were asked to pay less than they had in the pre-enrollment year. CAP participants had an average total coverage rate of 85 percent in the year preceding enrollment and 89 percent in the year following enrollment.

- CAP participation was associated with a significant reduction in all collections actions, including service terminations. 71 percent of CAP participants received a collection action in the year preceding enrollment, compared to 31 percent in the year following enrollment.

PGW's Customer Responsibility Program provides a reduced payment equal to 8, 9, or 10 percent of their gross household income, plus a three dollar monthly co-pay toward arrearages, if applicable. Participants also receive arrearage forgiveness each month that their bills are paid on time and in full and the customer does not have a past due balance. The monthly arrearage forgiveness is equal to 1/36 of pre-program arrears. The key findings from the evaluation were:

- On average, program participants received arrearage forgiveness in 4 of the 12 months following program enrollment. The average amount of arrearage forgiveness was $182.

- Program participants received an average discount of $660. Their gas energy burden declined from 15.5 percent to 9.5 percent.

- Customers increased the number of cash payments and the amount of cash payments from $711 to $798.

- Participants increased their total coverage rates from 71 percent to 84 percent.

- On average, 17 percent of customers were shut off in the year prior to enrollment and 5 percent in the year following enrollment.

VI. Low-Income Energy Efficiency Programs

The three major sources of funding for energy efficiency programs available to low-income households in Pennsylvania are the DOE Weatherization Assistance Program (WAP), the LIHEAP Program, and the Low-Income Usage Reduction Program (LIURP). [Note: Both the PECO LIURP program and the PGW Conservation Works Program are part of the LIURP component of the Pennsylvania Universal Services Programs.]

- DOE WAP Program – In 2005, Pennsylvania received about $14.8 million in funding for the Weatherization Program. These funds were distributed to local agencies to deliver weatherization services to low-income households.[69]

- LIHEAP Program – In 2005, Pennsylvania elected to use $20.0 million (14%) of its LIHEAP funding for weatherization.

- Low-Income Usage Reduction Program – In 2005, the Pennsylvania utilities' Low-Income Usage Reduction Programs were funded at a level of about $20.6 million.[70]

[69] Source: LIHEAP Clearinghouse

In total, about $55.4 million was available to help furnish energy efficiency services to low income households in Pennsylvania.

It is a little more challenging to estimate the need for energy efficiency programs. In general, we would suggest that energy efficiency programs should be used in place of affordability programs when the energy efficiency programs result in cost-effective savings to the household. The literature on energy efficiency programs demonstrates that programs that target high users achieve the highest savings levels and are the most-effective. For electric baseload, programs that target households that use 8,000 kWh or more are most cost-effective. For electric heating, programs that target households that use 16,000 or more kWh are most cost-effective. For gas heating, programs that target households that use 1,200 or more therms are most cost-effective.

Our primary state-level data source, the ACS, does not ask respondents to report on the amount of electricity or natural gas that they use. However, we can develop a proxy for usage based on the respondent's estimate of the household's electric and gas bill. [Note: kWh price = 9.81 cents, therm price = $1.421].

Using the ACS data, we developed estimates of the number of households that would be eligible for energy efficiency programs using the cost-effectiveness targets. Table 10 shows that 45% of households could be targeted for high baseload bills, 26% could be targeted for high electric heat bills, and 29% could be targeted for high gas usage.

Table 10
Need for Energy Efficiency Programs for Low-Income Households (2005)

Group	Number of Households with Bills	Number of Households with High Bills	Percent of Households with High Bills
Electric Baseload Services[71]	722,934	324,347	45%
Electric Heating Services	133,036	33,964	26%
Gas Heating Services	426,558	124,251	29%

Source: 2005 ACS

In general, low income weatherization programs spend about $3,000 per unit including all costs for administration and service delivery. With the available funds, Pennsylvania could serve about 18,500 low income households, or about 12% of the high usage homes needing weatherization assistance and 6% of the homes need electric baseload services. These statistics demonstrate that Pennsylvania is making a significant investment in the energy usage reduction for low-income households.

The PECO LIURP and PGW CRP programs were targeted for analysis by this study. These programs are part of the overall Universal Services Programs that includes affordability programs, usage reduction programs, customer referral programs, and fuel funds.

Some important features of the PECO LIURP program include:

- Utility Program Administration – PECO administers this program.

[70] Source: LIHEAP Clearinghouse
[71] For households that report electric and natural gas expenditures as one bill, we allocated half of the cost to electricity and half of the cost to natural gas.

- Service Delivery – An external contractor delivers program services.
- WAP Office Collaboration – Collaboration with WAP is limited.
- Demographic/Program Targeting – The LIURP program targets CAP program participants.
- Usage Targeting – The LIURP program targeted customers with at least 1,400 kWh per month for heating, at least 100 therms per month for heating, or at least 600 kWh per month for electric baseload.
- Funding/Service Delivery – The LIURP program was funded at the level of about $5.6 million. It delivered weatherization services to almost 2,000 electric and gas customers, and delivered baseload electric services to over 5,500 customers.

The following table furnishes detailed information on the PECO LIURP program.

Program State	Pennsylvania
Program Name	Low Income Usage Reduction Program (LIURP)
Utility Company (If Applicable)	PECO
Program Goals	Provide education, weatherization, and conservation measures to reduce electric and gas usage.
Funding Source (SBC or Rates)	Rates
Annual Program Funds – Allocated (2006)	$5,600,000 for the LIURP electric customers and $875,000 for the LIURP gas customers
Annual Program Funds – Expended (2006)	$5,599,155 for electric customers and $875,160 for gas customers. (2005)
# of Households Served (2006)	1,372 Electric Heating Jobs and 5,592 Baseload Jobs (2005) 573 Gas Heating Jobs
Participation Limit	Participation limit is determined by annual program budget. The projected enrollment levels are based on the average cost per account serviced in the current program year plus anticipated cost increases. The estimated number of accounts to be serviced in LIURP is 8,000 per program year.
Eligibility – % of Poverty Level	Income below 150% of the FPL. Special needs customer with income between 150% and 200% of the FPL and have an account arrearage.
Eligibility – Home Type	All home types.
Eligibility – Energy Usage	At least: o 600 kWh monthly for baseload customers o 1,400 kWh monthly for electric heating customers o 100 ccf for gas heating customers.
Eligibility – Participation in Energy Assistance	No.
Eligibility – Other Criteria	None.
Targeted Groups	High usage low-income customers, high energy LIHEAP recipients, CAP participants, payment troubled customers, customers with multiple payment agreements.
Measure Determination	o Program energy audit. o Calculations of average household energy use per day, energy use for each household appliance, temperature settings, and water temperature.
Mean Costs per Home (2006)	$2,205 (Electric Heating) $328 (Baseload) (2005) $1,518 (Gas Heating)
Targeted Average Cost (2006)	None.
Cost Limit	None.
Landlord Contribution	None.

% of Program Dollars Spent on Administrative Costs	8%
Efficiency Measures	o Minor Measures: Water heater and pipe wraps, faucet aerators, showerheads, smoke detectors and CFL bulbs. o Major Measures: Insulation, weatherization, heating system repair or replacement, air conditioner replacement, refrigerator replacement, water heater timer installation.
Customer Education – Y/N	Yes.
Education as Part of Service Delivery – Y/N	Yes.
Education Separate from Service Delivery – Y/N	Yes.
Follow-Up with Customers – Y/N	Yes.
Program Manager (PUC, State, Utility)	PECO.
Data Manager (PUC, State, Utility, Other)	PECO.
Enrollment Responsibility (Utility, CAP, etc.)	PECO/Contractor
Number of Provider Agencies and/or Contractors	One major contractor who sub-contracts with five companies to install Program measures.
Type of Provider (For-Profit, CAA, etc.)	For-Profit.
Application Method (Mail, In-Person, Telephone)	o If income and usage history are available and the customer is determined to be eligible, CMC enrolls the customer immediately. o If income eligibility is indeterminable, CMC mails income documentation forms to the customer.
Joint Application	No.
Reasons for Service Denial	o Already received LIURP services. o Refused LIURP services. o Has insufficient usage history. o Is inactive. o Has income over the eligibility limit. o Is non-responsive to contacts by CMC. o Has recently, or is planning, to move. o Has usage below the required level. o Is a tenant and has a landlord who will not provide consent.
Type of Follow-Up	o Monthly progress letters to customers to highlight any changes in monthly usage. These progress letters provide season-specific energy saving tips. o Additional telephone energy education session to customers who do not reduce energy usage after they receive LIURP services.
Quality Control (Inspections?, etc.)	Primary Methods: o Annual evaluation by an independent program evaluator. o Customer satisfaction surveys administered by CMC. o Inspections by the CMC Quality Control Manager and PECO's LIURP Program Manager. Secondary Methods: o Regular performance evaluation meetings o Scorecard system to help measure CMC's program administration performance
Evaluation Frequency	All utilities in PA are required to submit to the PUC an evaluation report of their universal services programs every six years. The last process and impact evaluation was conducted in 2006.
Coordination with LIHEAP	CMC auditor provides CAP and LIHEAP applications to customers at the time of the LIURP audit.
Coordination with WAP	No formal coordination but Program staff refer customers to local weatherization agencies.
Coordination with Energy Affordability Programs	Participation in LIURP is a requirement of PECO's CAP. LIURP participants are referred to MEAF.
Coordination with Other Energy Efficiency Programs	None.

Some important features of the PGW CRP program include:

- Utility Program Administration – PGW administers this program.
- Service Delivery – External contractors deliver program services.
- WAP Office Collaboration – Collaboration with WAP is limited.
- Demographic/Program Targeting – The CWP program targets CRP program participants.
- Usage Targeting – N/A
- Funding/Service Delivery – The CWP program was funded at the level of about $2.1 million. It delivered weatherization services to over 2,700 gas customers.

The following table furnishes detailed information on the PGW CRP program.

Program State	Pennsylvania
Program Name	Conservation Works Program (CWP)
Utility Company (If Applicable)	Philadelphia Gas Works (PGW)
Program Goals	Provide cost-effective energy efficiency measures to CRP participants to reduce their energy usage, make their homes more comfortable, and reduce the CRP subsidy.
Funding Source (SBC or Rates)	Rates.
Annual Program Funds – Allocated (2006)	$2,200,000
Annual Program Funds – Expended (2006)	$2,118,621
# of Households Served (2006)	2,747
Participation Limit	None.
Eligibility – % of Poverty Level	150%
Eligibility – Home Type	Not Specified.
Eligibility – Energy Usage	Not Specified.
Eligibility – Participation in Energy Assistance	The CWP is offered to CRP participants only.
Eligibility – Other Criteria	Gas heat residential customers.
Targeted Groups	Gas heating customers whose usage is average or above average.
Measure Determination	Diagnostic audit.
Mean Costs per Home (2006)	$775 (2005)
Targeted Average Cost (2006)	None.
Cost Limit	None.
Landlord Contribution	No.
% of Program Dollars Spent on Administrative Costs	13.5%
Efficiency Measures	Primary measures include: energy education, energy-related home repair, thermostat with automatic clock, blower door guided shell tightening, water heater wrap and pipe insulation, furnace filters or radiator reflectors, and hot water conservation devices – aerators, showerheads, roof insulation.
Customer Education – Y/N	Yes.

Education as Part of Service Delivery – Y/N	Yes.
Education Separate from Service Delivery – Y/N	No.
Follow-Up with Customers – Y/N	No.
Program Manager (PUC, State, Utility)	PGW.
Data Manager (PUC, State, Utility, Other)	PGW.
Enrollment Responsibility (Utility, CAP, etc.)	PGW.
Number of Provider Agencies and/or Contractors	Two
Type of Provider (For-Profit, CAA, etc.)	For-Profit
Application Method (Mail, In-Person, Telephone)	Automatic. All CRP heating customers are placed on a waiting list to receive CWP services if they have not received these services in the past five years.
Joint Application	No.
Reasons for Service Denial	Received CWP services in the past five years.
Type of Follow-Up	None.
Quality Control (Inspections?, etc.)	Previously, PGW hired an inspector and visited a sample of homes serviced by each contractor as a feedback mechanism. Due to budget constraints, this quality control is no longer conducted. Quality control is now done through evaluation of usage impacts obtained by each contractor.
Evaluation Frequency	Periodic independent evaluation of usage impacts. The last usage impacts evaluation was conducted in 2005. All utilities in PA are required to submit to the PUC an evaluation report of their universal services programs every six years.
Coordination with LIHEAP	Participants are referred to LIHEAP and to the Crisis interface program for heater replacement.
Coordination with WAP	Participants are placed on the WAP waiting list, if applicable.
Coordination with Other Energy Affordability Programs	Participants are referred to LIHEAP/Crisis and UESF.
Coordination with Other Energy Efficiency Programs	Refer customers to other programs such as Heater Hotline, Crisis interface, WAP, and BSRP.

VII. Energy Efficiency Program Evaluation Findings

There were two energy efficiency evaluation reports reviewed for Pennsylvania.

- PECO contracted with APPRISE to conduct an independent evaluation of their Low-Income Usage Reduction Program (LIURP). The study focused on customers who were treated in 2005. The evaluation objectives were to analyze the LIURP services provided and the impacts of the services on participating customers. The PECO Energy 2005 LIURP Evaluation Final Report[72] is dated April 2007.

- Philadelphia Gas Works (PGW) contracted with M. Blasnik & Associates to conduct an independent evaluation of their Conservation Works Program (CWP). The evaluation focused on customers who received program services in 2003. The goals of the evaluation were to assess the energy savings provided by the program, explore the relative performance of the two primary contractors, examine the savings by measure, assess the impacts on bill payment behavior, and assess cost effectiveness. The

[72] PECO Energy 2005 LIURP Evaluation Final Report, APPRISE, April 2007.

Impact Evaluation of Philadelphia Gas Works' Conservation Works Program, Calendar Year 2003 [73] is dated September 16, 2005.

PECO's LIURP provides energy efficiency services and energy education to PECO's low-income customers to help them reduce their energy usage and increase the affordability of their energy bills. The main findings of the evaluation were:

- The average gross savings of the program were 1,115 kWh or 10 percent of pre-treatment usage for electric baseload, 1,629 or 7.4 percent of pre-treatment usage for electric heat, and 168 ccf or 13.9 percent of pre-treatment usage for gas heat.

Table 11
PECO LIURP
Usage Impact Results

		Usage		Gross Savings	
	# of Households	Pre	Post	Amount	Percent
Electric Baseload	4,551	11,188	10,073	1,115	10.0%
Electric Heat	197	21,956	20,326	1,629	7.4%
Gas Heat	1,164	1,206	1,039	168	13.9%

- Customers who only received 4 CFL's and no other measures saved an average of 953 kWh, much higher than the 274 kWh that might be expected to be saved if each of the four CFLs replaced 60 watt incandescent bulbs that were used an average of four hours per day.[74] It is expected that a significant part of this savings can be attributed to education and resulting changes in energy usage behavior.

- The cost of conserved energy was $0.04/kWh for the electric baseload program (a 5-year measure life and a five percent discount rate was used), $0.12/kWh for the electric heat program (a 15-year measure life and a five percent discount rate was used), and $1.02/ccf (a 15-year measure life and a five percent discount rate was used).

Table 12
PECO LIURP
Cost Effectiveness Analysis

	Cost	Savings	Cost of Conserved Energy
Electric Baseload	$450	1,115	$0.09 (kWh)
Electric Heat	$2,099	1,629	$0.12 (kWh)
Gas Heat	$1,781	168	$1.02 (ccf)

The key recommendations of the evaluation were:

- PECO has been successful in this targeting high users over the past several years. PECO should continue to make this targeting a priority.

[73] Impact Evaluation of Philadelphia Gas Works' Conservation Works Program Calendar Year 2003, M. Blasnik & Associates, September 16, 2005.
[74] (60 watts – 13 watts)*.001 * 365 days * 4 hours/day * 4 bulbs = 274 kWh

- There may be potential to cost-effectively increase savings by providing more CFLs to LIURP participants.

- PECO should consider using a comparison group to calculate the net savings due to the program.[75]

PGW's Conservation Works Program (CWP) is designed to provide cost-effective energy savings to PGW's low-income customers who participate in the Customer Responsibility Program. The program uses a lower cost services model than some of the other programs studied, by limiting the installation of insulation and not providing heating system replacement.

The key findings of the evaluation were:

- On average, participants saved 129 ccf, or 8.8 percent of pre-treatment usage.

Table 13
PGW CRP
Usage Impact Results

	Usage (ccf)		Gross Savings		Net Savings	
# of Households	**Pre**	**Post**	**Amount**	**Percent**	**Amount**	**Percent**
2,446	1,460	1,343	117	8.0%	129	8.8%

- The program, with a savings to investment ratio of 1.62 was cost-effective.

Table 14
PGW CWP
Cost Effectiveness Analysis

Cost	Savings	SIR
$578	129	1.62

PGW's CWP provides lower savings than other Pennsylvania low-income usage reduction programs, but it also has much lower costs for service delivery. The Pennsylvania Public Utility Commission has requested that PGW pilot a higher investment program with greater frequency of some of the existing treatments and additional treatments including heating system repair. Evaluation findings from this pilot are not yet available.

[75] This methodology is not currently required by the Pennsylvania Public Utility Commission.