Water Bill Affordability for the City of Philadelphia

Presented to:
Philadelphia City Council
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Promoting the affordability of home water service in Philadelphia today serves multiple economic objectives. These objectives extend far beyond the benefits provided to individual Philadelphia households. The objectives also include both:

- Generating business benefits to Philadelphia Water by improving payment patterns for low-income customers; and

- Improving outcomes that beneficially affect the municipal finances of the City of Philadelphia in its capacity as a provider of municipal services.

In my comments below, I will separately review each of these sets of objectives. In my third section, I will consider whether the City's existing water assistance program[1] is capable of meeting these objectives without substantial reform.

Objective #1:
Improving Payment Patterns of Low-income Customers

Setting aside the positive municipal finance outcomes associated with a low-income affordability program, which I will describe in a separate section, there are at least the following expected utility-related, business-related outcomes that would be generated by a low-income bill affordability program for Philadelphia.

[1] For purposes of these comments, I will not distinguish between the "City of Philadelphia" and the "Philadelphia Water Department."

A low-income bill affordability program can reasonably be expected to generate the following utility-related business benefits to Philadelphia Water:

Increased Bill Payment Coverage.

The first impact of a water bill affordability program[2] in the City of Philadelphia would be an increase in the bill payment coverage ratio of participating low-income consumers. The bill payment coverage ratio is the percentage of billed revenue actually paid by the customer. A customer who pays $90 of a $100 bill, for example, has a bill payment coverage ratio of 90%. Having a bill payment coverage ratio of more than 100% means the customer is not only paying his/her current bill, but is also retiring pre-existing arrears. Having a bill payment coverage ratio of less than 100% means that the customer is incurring additional arrears.

In contrast to the poor baseline performance currently existing in Philadelphia, states adopting bill affordability programs see a dramatic improvement in the bill payment coverage ratios of their low-income customers. For example, consider the Apprise, Inc. evaluation of the New Jersey Universal Service Fund. That Apprise report shows the following for gas or electric customers (target affordable bill burden of 3%):

Distribution of Effective Coverage Rate by Net Energy Burden (gas or electric: 3%)

	Coverage Rate			
Burden	< 50%	50% - <90%	90% - <100%	100% or more
<2%	0.0%	2.7%	5.3%	92.0%
2% - 3%	0.0%	6.0%	11.5%	82.5%
3% - 4%	0.0%	10.0%	13.2%	76.9%
4% - 6%	0.0%	11.6%	16.6%	71.6%
6% - 8%	0.4%	16.6%	17.4%	65.6%
More than 8%	1.0%	25.6%	16.1%	57.4%

As can be seen in the Table above, so long as the bill burden remained in the target range in New Jersey, from 94% to 97% of the low-income customers generated a bill payment coverage ratio over 90%. Indeed, between 83% and 92% of low-income program participants had a bill payment coverage ratio of 100% or more.

These 90%-plus payment coverage rates stand in sharp contrast to the existing payment compliance for Philadelphia Water's low-income residential customers.

[2] References to "water" are intended to incorporate storm water and wastewater (i.e., sewer) as well.

Similar results have arisen from the Pennsylvania low-income affordability programs. Each year, the Pennsylvania PUC's Bureau of Consumer Services ("BCS") collects and reports data on the performance of the state's "universal service" programs. The data collection allows policy-makers and utility service providers to compare the performance of low-income residential customers participating in the low-income bill affordability programs of Pennsylvania utilities (called Customer Assistance Programs, or "CAPs") to the performance of "confirmed low-income" customers in general. In 2013 (the most recent year for which data is available), Pennsylvania utilities had 1.046 million confirmed low-income customer accounts statewide.[3] The confirmed low-income accounts were heavily payment-troubled. Fifteen percent of these confirmed low-income customers had been disconnected for nonpayment in 2013, of which only 72% were reconnected. More than 22% of all confirmed low-income accounts were in debt, with those confirmed low-income customers having an average monthly arrears of $656. Of those confirmed low-income accounts in arrears, fewer than half were on payment agreements.

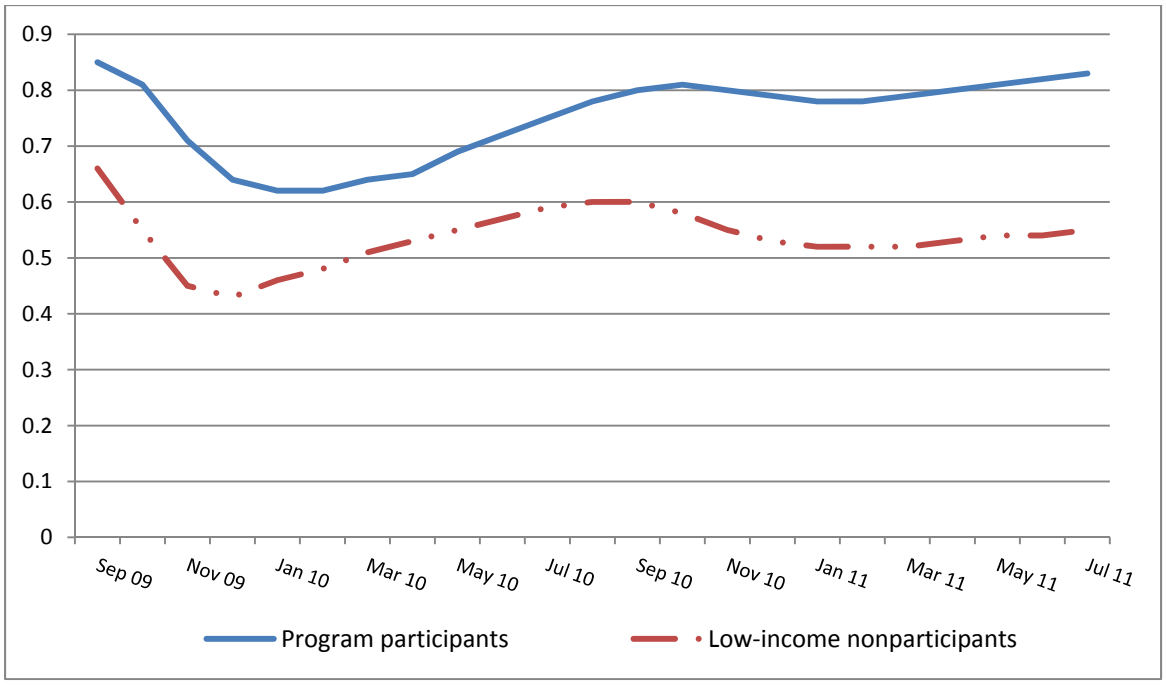
In contrast to these payment difficulties for confirmed low-income customers, the participants in the low-income CAP programs had an average payment coverage ratio of 86%. Through their affordability programs, in other words, Pennsylvania's utilities took extremely payment-troubled confirmed low-income customers and structured a response where the utilities were receiving nearly $9 of every $10 billed.

Public Service Company of Colorado ("PSCO") also experienced a dramatic increase in the payment coverage of its low-income program participants. The impact of the Colorado low-income program can be seen in the graph of payment coverage ratios (i.e., customer payments / billed revenue = payment coverage ratio) presented immediately below. PSCO's bill affordability program participants substantially out-performed those PSCO low-income customers who received LIHEAP –called "LEAP" in Colorado--[4] but who did not participate in the bill affordability program.

As can be seen in the Figure below, by the end of the program pilot, the payment coverage ratio of participants in PSCO's low-income bill affordability program (83%) was nearly 30% higher than the payment coverage ratio of low-income customers ***not*** participating in the program (55%). Moreover, the cumulative payment coverage ratio of program participants was increasing throughout the term of the pilot. PSCO has since expanded its program to a full-blown low-income affordability program.

[3] Pennsylvania utilities had an ***estimated*** 1,987,364 number of low-income customer accounts. Accordingly, the utilities had "confirmed" roughly 53% of their estimated number of low-income accounts. Given that these numbers include both gas and electric utilities, however, it cannot be concluded that these numbers reflect "households." Some accounts may be counted twice, once by the electric utility and again by the natural gas utility.

[4] Both "LIHEAP" (Low-Income Home Energy Assistance Program) and "LEAP" (Low-income Energy Assistance Program) refer to the federal energy assistance program in the United States.



Cumulative Customer Payment Coverage Ratio for
PSCO Low-Income Affordability Program Participants compared to Low-Income Non-Participants

A universal finding of programs offering affordable bills has been that low-income customers increase their payment coverage ratios. In contrast to the ongoing and substantial nonpayment problems faced by Philadelphia Water, rate affordability participants tend to pay their bills.

Increased "Net Back."

A not-surprising corollary to the increased bill payment coverage ratio of bill affordability program participants is an increase in the "net back" experienced by the utilities offering affordable low-income rates. Stated conceptually, it is better for a utility to collect 90% of a $70 bill ($70 x 0.90 = $63) than it is for that utility to collect 60% of a $100 bill ($100 x 0.60 = $60). Under an affordable bill plan, in other words, even though a portion of the bill is discounted, the extent to which payments increase is such that *total revenue* goes up. This increase in revenue is accompanied by a decrease in the cost of collecting that revenue.

"Net back" is a common metric in measuring the cost-effectiveness of collecting revenue. One collection professional described "net back" as follows:

> The second and most important way to determine the true value of a collection agency is to calculate its Net Back figure and compare it with those of other collection agencies. Collection agencies charge for their services in different ways, but the end result is usually a single fixed rate or a variable contingency rate that is charged as a percentage of recoveries: a commission.

> Because some collection agencies are more effective than others, the rate of recovery must also be considered in determining the true value. When you consider both an agency's commission rate and its recovery rate, you can arrive at a figure for comparison, the Net Back figure.[5]

The "net back" criterion focuses on whether a utility offering affordable bills experiences an increase in net revenues if customer bills are paid in a more complete fashion as a result of the affordable bill. While generally viewed as a measure of cost-effectiveness, in fact, "net back" combines "effectiveness" and "cost-effectiveness" into one comprehensive evaluation criterion. It provides not only a measurement of the effectiveness of the low-income programs (through the "payment coverage ratio" measure), it also provides a measurement of the cost of the program. By combining the two measurements into one criterion, "net back" provides for a balancing of both factors (effectiveness of the programs on the one hand and costs of the programs on the other hand).

An increased net back impact has been found for both the Colorado and Indiana low-income bill affordability programs. In assessing the impact of improved customer payment performance on total revenue, the Colorado evaluation reported that the PSCO program "generated a revenue neutrality when PEAP participants were compared to other low-income customers, but not when compared to the residential population as a whole." It went on to say:

> The lesson learned from [the PSCO data] is that PEAP generates a sufficiently substantial improvement in payment coverage ratios relative to the low-income (nonparticipant) population to more than offset the discount provided. To the extent that the low-income customers have a prior history of non-payment, the revenue neutrality will be somewhat (but not substantially) greater. However, because the payment coverage ratios of the residential population as a whole are higher with which to begin, the revenue that is being "lost" to nonpayment in the absence of the discount is smaller, and the increase in payment coverage ratios is insufficiently large to offset the effects of the discount.[6]

[5] Statewide Credit Association, Inc. (January 12, 2012). http://www.statewidecredit.net/ProductsServices/TheNetBackConcept/tabid/87/Default.aspx

[6] Colton (2012). *Public Service Company of Colorado's (PSCo) Pilot Energy Assistance Program (PEAP) and Electric Assistance Program (EAP): 2011 Final Evaluation Report*, prepared for Public Service Company of Colorado: Denver (CO).

The same results were found for Indiana's low-income programs. A 2007 evaluation of the Citizen Gas and Coke Utility ("CGCU") low-income program (called, the Universal Service Program or "USP") found:[7]

> Customers that participated in the Citizens Gas USP made substantively greater payments than did that company's nonparticipant population. Over the months of January through March 2007, USP participants paid 79% of their current utility bill. While billed $273,627 during those winter months, the USP participants paid $215,897. In contrast, the Citizen Gas *non*participants paid only 64% of their January through March billings. While billed $304,072, these customers paid $194,577. As can be seen, the USP was better than revenue neutral to Citizens Gas. While USP participants were billed 90% of what nonparticipants were billed, they paid 111% what nonparticipants paid.
>
> The revenue neutrality can be seen from a different perspective as well. Had USP nonparticipants paid at the same rate as USP participants did, they would have paid $240,216, nearly $46,000 more than they actually paid.[8]

As in the Colorado program, in other words, in Indiana, the increased payment performance was more than sufficient to offset the billing discount. As a result of the low-income discount, total revenues to the utility actually increased.

At the same time revenues were found to be increasing, the costs of collecting those revenues were found to be decreasing. Looking at the cost of PSCO's most common collection activity (issuing notices of disconnection for nonpayment), the company's cost of collection from program participants was more than 65% less than the company's cost of collection from program non-participants.[9] The benefits of the increase in revenue are even further enhanced when these decreased expenses are also taken into account.

The cost of collection decreases because of improvements in the relative efficiency and effectiveness of collection activities for the participant customer populations relative to the non-participant population. Stated quite simply, because of the affordability program, PSCO had to work less hard to collect revenue from program participants than it did to collect revenue from non-participants.

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[7] All dollar figures presented in this analysis, unless other explicitly noted to the contrary, are associated with the sample population and not the total population.

[8] Colton (2007). *An Outcome Evaluation of Indiana's Low-Income Bill affordability programs,* prepared for Citizens Gas and Coke Utility, Vectren Energy, and Northern Indiana Public Service Company.

[9] The PSCO evaluation found that under this analysis, the actual cost of each individual collection activity is less important. If, for example, only a $0.50 "incremental" cost were used, while the absolute dollar savings would be less, the "percent savings" would remain identical.

This assessment of expense savings could well be important in the event that the "revenue analysis" presented above determines that the low-income affordability program does *not* generate revenue neutrality for the utility. In circumstances where there is not revenue neutrality, in other words, the expense savings nonetheless might still make the "net back" positive even if the revenue neutrality is not.[10] For PSCO, however, since the program was revenue neutral with which to begin, the expense savings from DNP notices simply further expanded the overall financial benefit to the company when program participants were compared to program non-participants.

Overall, as a result of an affordable bill program directed toward low-income customers, Philadelphia Water could be expected not only to collect more money, but it could be expected to spend less in the process of collection in so doing.

Increased Efficiency / Productivity of Collection Efforts.

A bill affordability program offered by the City of Philadelphia could be expected to increase the productivity of utility collection efforts directed toward low-income customers. Improvements in the productivity of collection activities can occur in either of two ways:

- The need for collection interventions can be reduced thus allowing an increased payment per each collection intervention performed. In this first instance, improvement can be seen even if total dollars collected remains the same (but the number of interventions needed to generate those dollars decreases); or

- The customer response to the collection activity can improve thus allowing an increased payment per each collection intervention performed. In this second instance, improvement can be seen if the total number of collections activities remains the same (but the amount of dollars generated by those activities increases).

The metrics used to measure collection efficiency and productivity are two-fold:

- The number of each collection activity per 1,000 customer payments (measured in number of payments without regard to the size of each individual payment); and

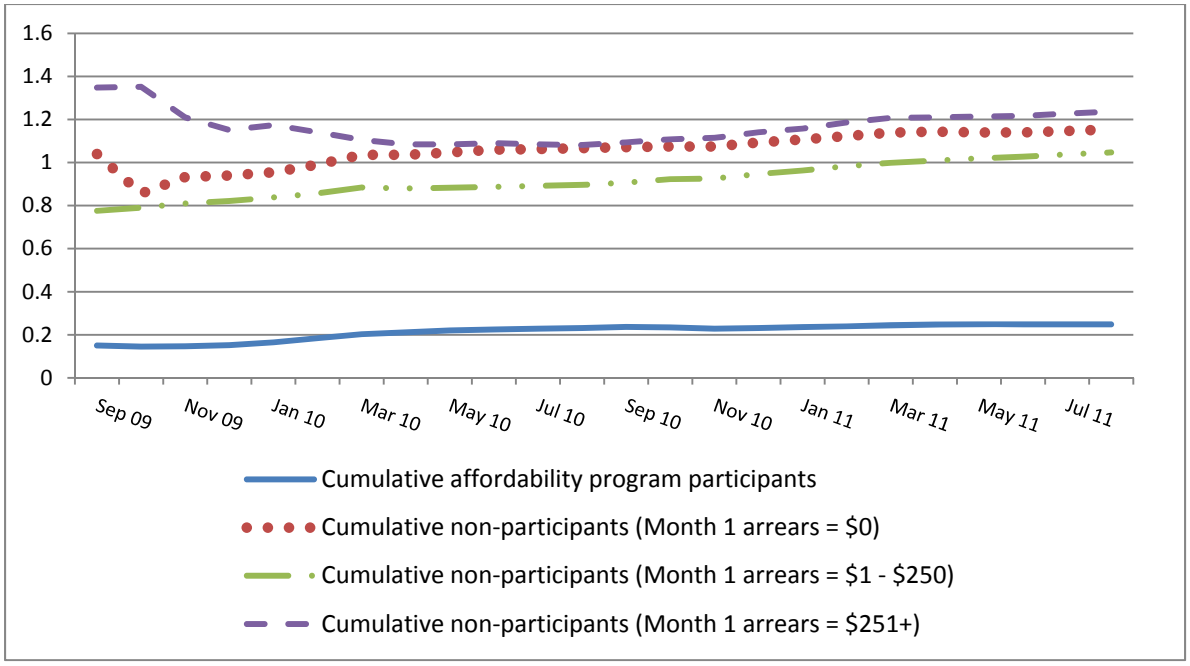
- The number of each collection activity per $1,000 in customer payments (measured in dollars of payments made).

[10] If for example, there is a $20 loss of revenue, but a $22 decrease in costs, the "net back" would still be a positive $2.

In both instances, a lower number is "better" than a higher number.[11] Efficiency is measured as the ratio of the effort expended to the outcomes generated. A "lower number is better" because the denominator (either the number of payments or the dollars of payments) increases while the numerator (the number of collection interventions) stays the same.

The evaluation of PSCO's affordable bill found that the collection activities that PSCO directed toward program participants were more productive at generating payments than the collection activities directed toward program non-participants. As shown in the Figure below, PSCO needed to engage in from three to five times more collection activities for each 1,000 customer payments it received from non-participants.[12]

The non-participant population was disaggregated by the level of Month 1 arrears to determine whether prior nonpayment made a difference in the result. As can be seen, it did not. The participant population out-performed the nonparticipant population irrespective of the prior payment arrearages of the non-participants.



Cumulative Disconnect Notices per 1,000 Customer Payments for Affordability Participants Compared with Non-Participants by Level of Month 1 Non-Participant Arrears.

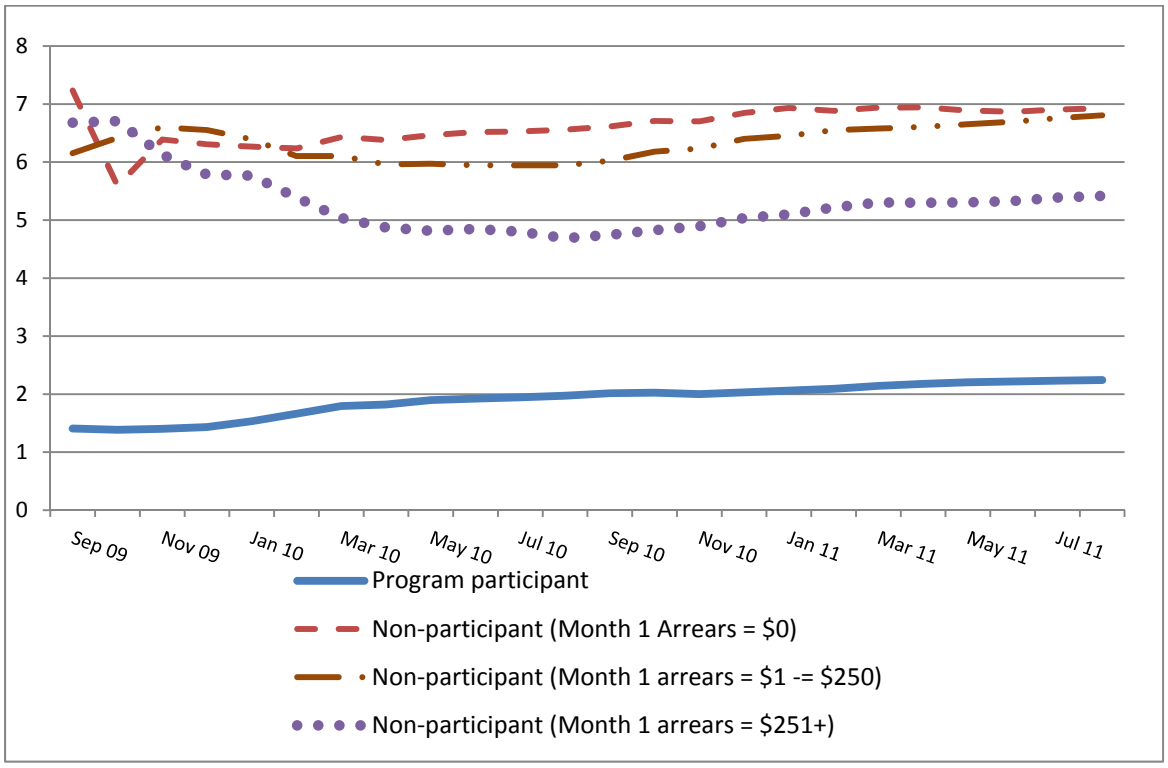
The results were the same when collections productivity was viewed in terms of dollars of payments rather than in terms of numbers of payments. In Colorado, participation in the

[11] Engaging in four collection actions per each $1,000 in payments is "better" than engaging in seven collection activities per each $1,000 in payments.

[12] As discussed in more detail above, this result might occur for one of two reasons. On the one hand, more PEAP participants might make payments without need of *any* disconnect notices being issued. On the other hand, more PEAP participants might respond to the receipt of a disconnect notice by making payments.

affordable bill program reduced the reliance on disconnect notices as a collection activity. While program participants required between one (1) and two (2) disconnect notices for each $1,000 in customer payments, non-participants required between five (5) and seven (7).

Again, the existence of pre-existing nonpayment by the non-participant population did not affect the conclusions drawn about the difference between the participant and non-participant populations.



Cumulative Disconnect Notices for Nonpayment per $1,000 in Customer Payments for Affordability Participants Compared to Non-participants by Level of Non-participant Month 1 Arrears.

In sum, based on both measures of productivity, overall, not only did PSCO collect more revenue from its affordability program participants (as discussed above), but the utility was required to engage in fewer collection activities to generate those payments.

Long-Term Success of Collection Efforts.

By addressing the underlying inability-to-pay, a low-income bill affordability program can be expected to increase not only the productivity of collection efforts (as I describe immediately above), but it can also be expected to increase the long-term success of collection efforts as well. It would be unreasonable to expect a low-income affordable bill program to ***totally*** eliminate the need for ***all*** collections efforts directed toward program participants. Even non-low-income

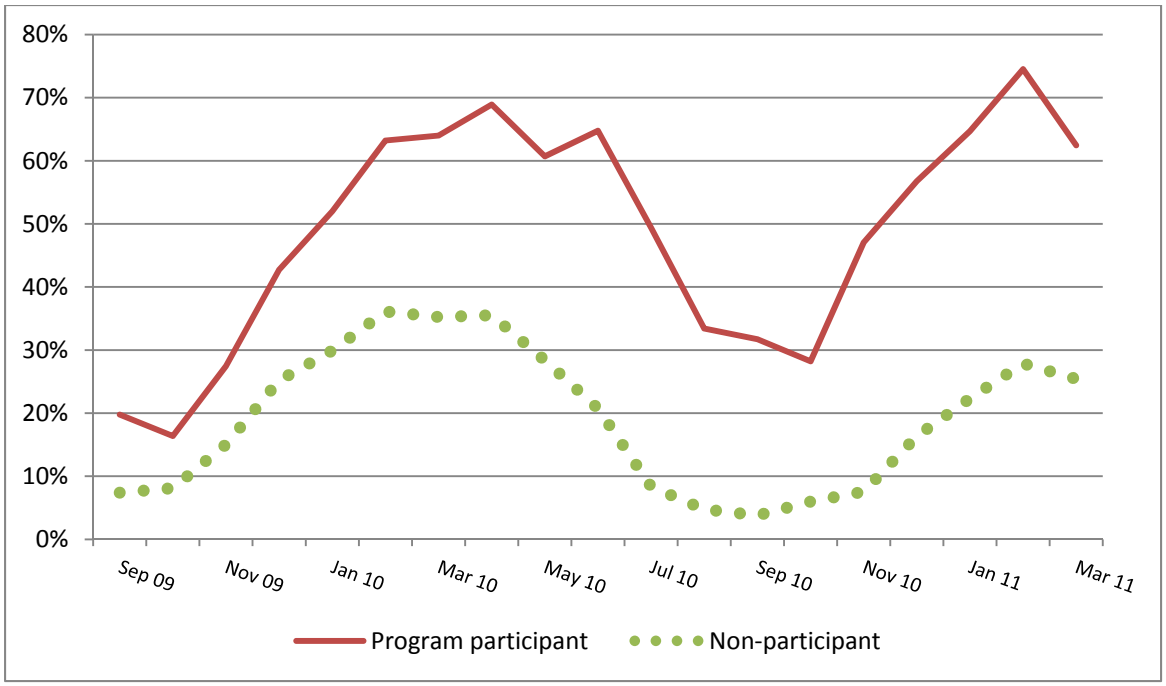
residential customers have some collection effort directed toward them. However, an affordable bill can be expected to help increase the success of those collection efforts that ***are*** required.

In this regard, a "successful" (or "effective") collection activity is measured not merely by the extent to which customers make payments in the month in which the collection activity occurs, but also over a period of time immediately subsequent to that collection activity. A collection activity that generates a payment in the month of the activity, only to see the customer fall back into a pattern of nonpayment in the immediately subsequent months, is less "effective" (or "successful") than a collection activity that generates a series of more timely (or more complete) payments over a period of months.

The PSCO program evaluation measured the success of collection efforts for low-income customers participating in the company's affordable bill program as compared to the success of collection efforts directed toward low-income customers ***not*** participating in the bill affordability program. The data examined the percentage of accounts receiving disconnect notices that have a customer payment coverage ratio of more than 1.0 in the ensuing four months. As with the payment coverage ratio discussed above, in this inquiry, a higher number is "more effective" while a lower number is "less effective." A higher number indicates that more accounts having received a disconnect notice made payments equal to a higher proportion of their bill for current usage in the four months immediately following receipt of a disconnect notice.

The data presented in the Figure below examines the proportion of customers having received a disconnect nonpayment ("DNP") notice who made payments equal to or more than 100% of their current bill. The percentage of program participants with a payment coverage ratio of more than 1.0 is consistently higher than the proportion of non-participants doing so. A payment coverage ratio of greater than 1.0 means that the customer is paying more than his/her bill for current usage. That customer, in other words, is completely paying his/her bill for current usage and making some payment toward the arrears that was the reason for issuing the disconnect notice in the first instance.

As can be seen in this Figure, the payment performance for participants in the low-income program improved over time, while the payment performance of low-income customers ***not*** participating in the low-income program did not. In this Figure, the population is limited to customers who received a disconnect notice for nonpayment. The payment coverage ratio examined the ratio of dollars of payments made in the four months after receiving a disconnect notice to the dollars of bills received in the four months after receiving a disconnect notice. The Figure shows that three times more program participants were paying their entire bill plus something toward their arrears than were program non-participants.

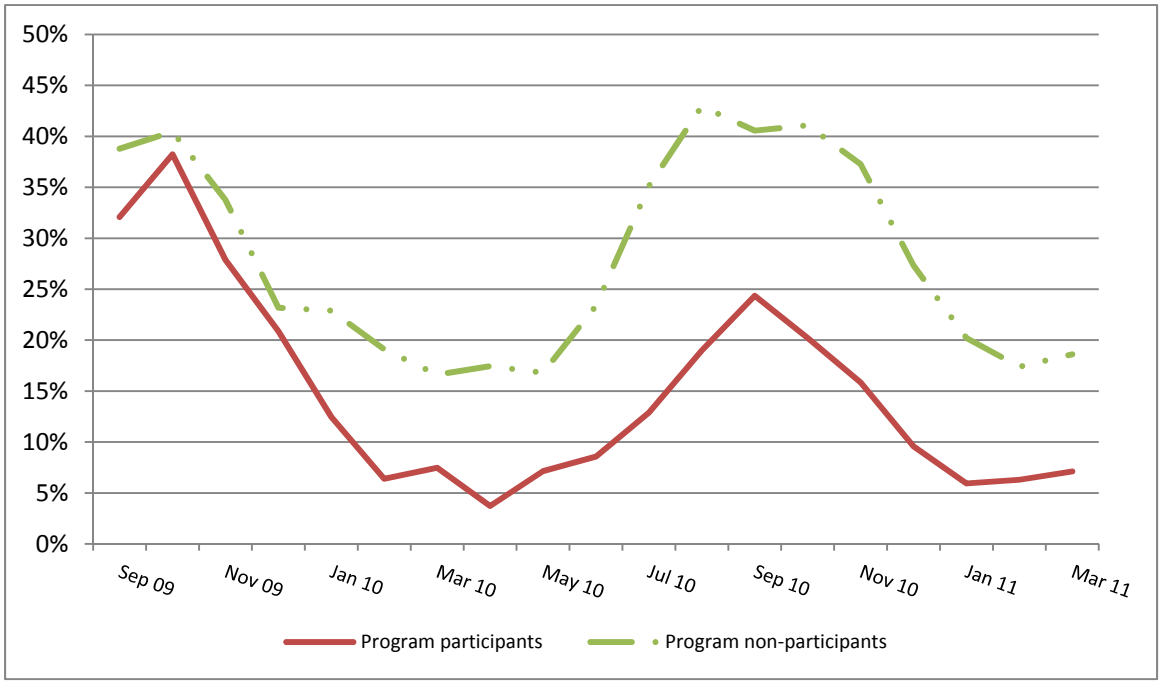


Percent of Customers Receiving DNP Notices with Customer Payment Coverage Ratio > 1.0 in 4-Months After DNP Notice

The same impact (i.e., the relative effectiveness or success of collection efforts with and without an affordability program) can be examined by considering the ***lack*** of effectiveness (or success) of collection efforts. The Figure below, again taken from the PSCO evaluation, examines the proportion of affordability program participants and non-participants who made ***some*** payment in the four months after receiving a notice of disconnection for nonpayment, but whose dollars of payments were less than 50% of the dollars of bills they received during that same four month period. A customer payment coverage ratio of less than 0.50 means, in other words, that the customer payments in the four month period after receipt of a DNP notice were less than one-half of the bills for current usage in those four months. A customer with a payment coverage ratio of less than 0.5 is paying ***nothing*** toward retiring their arrears, since they are paying less than half of their current bill.

As I described above, a collection activity that generates a payment in the month of the activity, only to see the customer fall back into a pattern of nonpayment in the immediate subsequent months, is deemed to be "less effective" than a collection activity that generates a series of more complete payments over a period of months. In the Figure below, a lower number is "more successful" and a higher number is "less successful." A higher figure means that a greater proportion of customers receiving a disconnect notice for nonpayment made customer payments equal to less than half of their bill for current usage in the ensuing four months. As can be seen, the affordability program participants substantially out-performed the non-participants. While roughly 20% of low-income program non-participants were paying less than half of their bill for

current service after receiving a disconnect notice for nonpayments, only roughly five percent (5%) of program participants were.



Customer Payment Coverage Ratio > 0 <0.50 for Customers Receiving DNP Notice
in 4-Months after Receiving DNP Notice

Either of the two Figures immediately above alone, but certainly both of the two Figures in combination one with the other, document that a bill affordability program can be expected to improve the success of a utility's collections performance. Substantially more program participants were paying their entire bill and retiring their arrears after receiving a disconnect notice for nonpayment. Substantially fewer program participants were paying less than half of their bill after being subjected to a collection activity.

Payments Yielding $0 Balances.

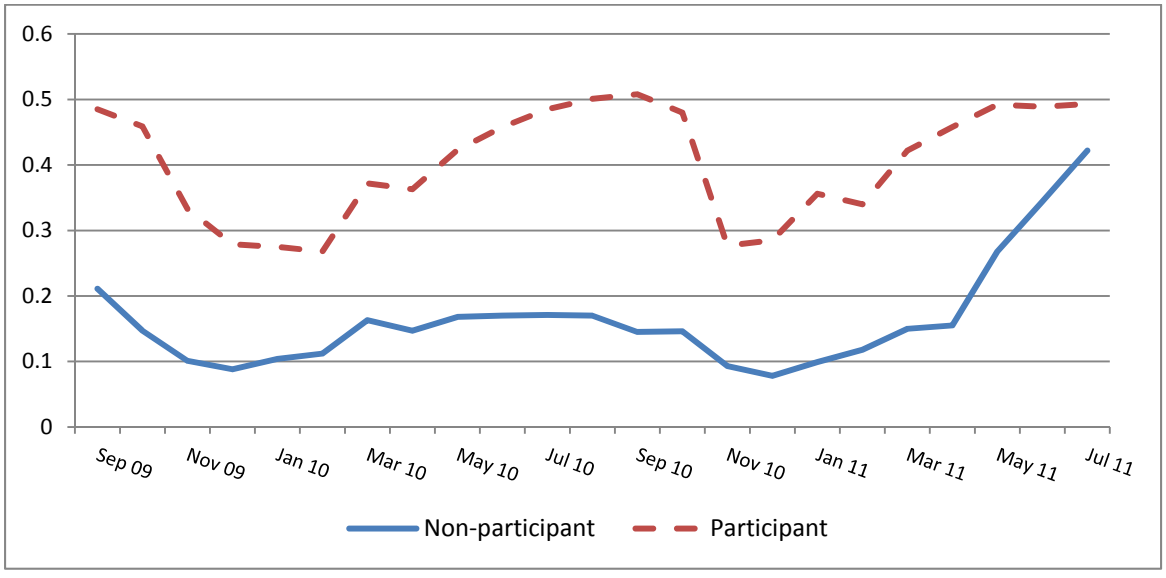
Ultimately, the outcome that Philadelphia Water (or any other utility) seeks from its customers is a payment that results in a $0 balance. That outcome has been examined from a variety of perspectives elsewhere throughout these comments (e.g., the payment coverage ratio). In my discussion below, however, I examine the impact of an affordable bill program on the *regularity* with which "complete" bill payment occurs. The regularity of complete bill payment is examined below from two perspectives:

- On the one hand, the discussion considers the extent to which complete bill payments are made as a proportion of the number of bills rendered.

- On the other hand, the discussion considers the extent to which complete bill payments are made as a proportion of the number of payments that are made.

While a utility would prefer to have customers make bill payments that result in a $0 balance in response to each bill (i.e., a ratio of 1.0), a customer that exhibits a higher proportion of payments resulting in $0 balances of the payments that are made nonetheless is still a better performance than a customer that makes a lower proportion of payments that result in a $0 balance.

An affordable bill for Philadelphia Water can be expected to improve the incidence at which participating low-income customers make complete bill payments (i.e., a payment yielding a $0 balance). In Colorado, PSCO's program participants out-performed non-participants in the proportion of bills that are met with payments that result in a $0 balance. The Figure below presents the data. The data in this Figure involves monthly (not cumulative) data. Most significantly as can be seen from this data, the extent to which program participants out-perform program non-participants is notable. While 50% or more of warm-weather bills resulted in a $0 balance for the participant population, fewer than 20% of the warm-weather bills resulted in a complete retirement of outstanding balances for the non-participant population. Even with an influx of "crisis" assistance in the Spring of 2011, the proportion of non-participants making complete bill payments falls well short of program participants.



Ratio of Number of Payments Resulting in $0 Balance to Number of Bills by Program Participation

The Figure below shows that when program participants ***did*** make payments, they tended to make payments sufficient to retire their entire balances. While these customers tend to make payments retiring their entire balance in response to 50% or less of the bills that are rendered, they also tend to make payments retiring their entire outstanding balance in between 60% and

70% of all the payments that they do make. In contrast, while the program non-participants tended to make payments retiring all outstanding balances in response to between 10% and 20% of bills they receive, they also tended to make payments retiring their entire outstanding balance in only 20% to 30% of the payments that they made.

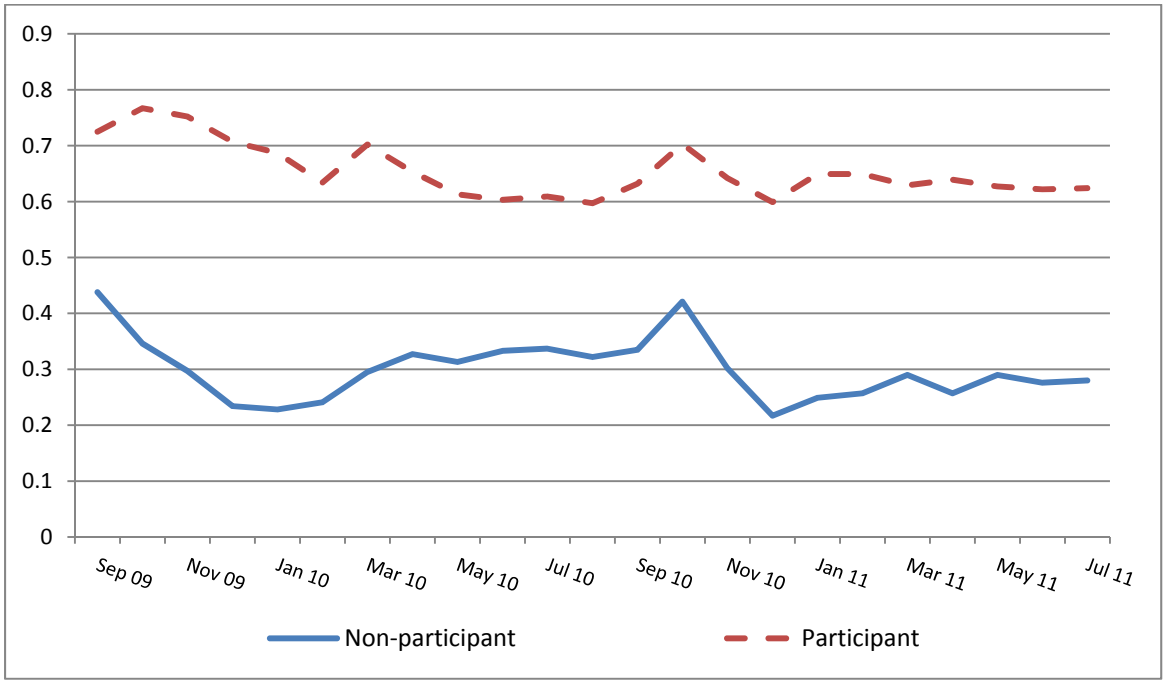


Figure 1. Ratio of Number of Payments Resulting in $0 Balance to Number of Payments by Length of PEAP Participation.

Improved Price Signals.

One clear impact of a low-income bill affordability program is the extent to which such a program improves the "price signals" delivered to inability-to-pay customers through utility rates.

As a general rule, utility bills represent an ineffective means to send price signals to low-income customers. Low-income customers, particularly customers with bill burdens exceeding a prescribed level, pay less than their entire bill. As a result, a low-income customer's inability-to-pay for utility service substantially distorts the price signal that consumer receives. When customers cannot afford to pay their water bill bills, in other words, price signals are not effective.

The viability of sending a price signal assumes that the customer has the ability to *receive and to act upon* the signal.[13] If a customer has an ability to pay $50 per month, in other words, the price

[13] From an economic theory perspective, it is easy to understand this result. From a price theory perspective, price signals "work" only if there is adequate information about price and quality. The inability-to-pay, and the resulting

signal sent to a customer by receiving a bill of $75 rather than $65 is negligible, if any signal exists at all. In contrast, the price signal received through a bill for $49 rather than a bill for $55 is more significant. The closer that Philadelphia Water can tailor rates to reflect affordability, the more efficacious any price signal will be. A low-income discount program that reduces bills to an affordable level actually ***improves*** the price signaling of utility rates.

Again, without an affordable bill, any price signal is impeded in two ways.

- First, the price signal provided through the price of current consumption is only effective if a customer has the ability to receive and respond to that price signal. When a customer can afford to pay only a fraction of the bill with which to begin, the impact of the per-unit price becomes less meaningful.

- Second, the impact that the price of current consumption has on the total bill is diluted to the extent that there are substantial arrears wrapped into the ***total*** bill. Prices only send a "price signal" if the ***current*** bill and the ***total*** bill are reasonably the same.

Given these two fundamental truths set forth in any elementary price theory, the extent to which an affordable bill program improves price signals can be examined. Let me focus on data from electric utilities offering bill affordability programs in Pennsylvania.

I will address the seven electric utilities offering affordable bills in Pennsylvania immediately below.[14] The Table below shows the average bill for current consumption under standard residential rates; the affordable bill; and the "CAP credit" (i.e., the difference between the affordable bill and the bill at standard residential rates).

Program Year: 2013	Bill at Standard Rate (actual bill)	Affordable Bill (price signal received)	Difference Between Actual Bill and Bill at which Price Signal Received
Duquesne Light	$1,267	$924	$343
Met Ed	$1,452	$684	$768
PECO Energy	$1,393	$828	$565
Penelec	$1,205	$552	$653
Penn Power	$1,123	$468	$655
PPL Utilities	$1,982	$948	$1,034
West Penn Power	$1,356	$1,020	$336

arrears, impedes this information process. By improving this information process, while maintaining the task of reflecting increases and decreases in a bill, the bill affordability program improves rather than distorts the price signal. See generally, R.Colton (1990). "Customer Consumption Patterns within an Income-Based Energy Assistance Program." 24 *Journal of Economic Issues* 1079.

[14] Duquesne Light, Metropolitan Edison, PECO Energy, Pennsylvania Electric Company (Penelec), Penn Power Company, Pennsylvania Power and Light (PPL), and West Penn Power Company.

As can be seen, a change in the bill at standard residential rates would have no impact on sending a "price signal" to these inability-to-pay customers. The annual bills at standard residential rates are hundreds of dollars away from being at a level where a change would send any reasonable price information to the program participants. The bills at standard rates range between 30% and 140% greater than the bill level which delivers an effective price signal. In contrast, with 90% (or more) of the bill under CAP actually being paid, any change in price (or consumption) that may affect the bill under the affordability program will have an impact on whether the bill is paid, or whether the bill remains unpaid. As a result, effective price signals are enhanced.

Carrying a substantial arrears also impedes the price signal delivered by the price for current service. The Colorado program illustrates this impact. PSCo's low-income population brought an average of nearly $350 of pre-existing arrears[15] to the low-income bill affordability program. The bulk of those arrears came from participants with large (e.g., greater than $1,000) pre-existing arrears. A full 60% of the pre-existing arrears were associated with accounts owing more than $1,000, with more than half of that brought by accounts owing more than $2,500. Even at the lowest level of arrears, however, (>$0 to $300), the average arrears that would have been attached to total bills was $132. Changes in prices for current service, therefore, would have sent no "price signal" given this expansion of the total bill charged to consumers. A one percent increase in price for current service, in other words, would not result in a one percent increase in the total bill for service. Each one percent increase in price would instead be diluted to the extent that the account carried arrears.

Pre-existing Arrears at the Time of Enrollment by Size of Arrears (PSCO Program Participants)

Level of Pre-existing Arrears	Percentage of Accounts	Percentage of Dollars	Average Arrears
$0 or less	36%	0%	$0
> $0 - $300	39%	15%	$132
> $300 - $500	9%	10%	$388
> $500 - $1,000	8%	16%	$695
> $1,000 - $2,500	6%	28%	$1,578
> $2,500	3%	32%	$4,250
Total	100%	100%	$347

[15] This average is the average arrears spread over all customers, not the average spread over only the customers having arrears.

Arguments about the adverse impact of affordable bills on the "price signals" sent by utility bills are not well-founded. Not one single evaluation of an affordable bill program prepared within the past 30 years has found a systematic increase in consumption resulting from the program.[16] Rather than impeding price signals, entirely consistent with elementary price theory, affordable bill programs have been found to improve the price signals embedded in utility rates.

Summary and Conclusions

Based on the data and analysis presented above, I conclude that an appropriately designed and well implemented water affordability program, as an integrated part of Philadelphia's water rate structure, is in the public interest. A rate affordability program can be designed to be a more cost-effective approach for dealing with issues of customer inability-to-pay than are traditional collection methods.

The positive social outcomes associated with low-income affordability programs represent benefits that are above and beyond the utility-related benefits produced by such programs. From a purely business perspective, a low-income rate affordability program can reasonably be expected to generate the following utility-related business benefits to Philadelphia Water:

1. A bill affordability program will result in an increase in the bill payment coverage ratio of participating low-income consumers.

2. A bill affordability program will result in an increase in the "net back" experienced by the utility offering the affordability program. Net back is the total net cash realized by the utility taking into account both the rate of payment and the cost of collection.

3. A bill affordability program can be expected to increase the productivity of utility collection efforts directed toward low-income customers. Improvements in the productivity of collection activities can occur in either of two ways: (1) the need for collection interventions can be reduced thus allowing an increased payment per each collection intervention performed; or (2) the customer response to the collection activity can improve thus allowing an increased payment per each collection intervention performed.[17]

4. By addressing the underlying inability-to-pay utility bills, a bill affordability program can be expected to increase not only the productivity of collection efforts, but it can be expected to increase the long-term success of collection efforts as well.

[16] Appendix A sets out a list of third party evaluations of low-income affordability programs.
[17] An additional increase in the productivity of collections, not discussed in these comments, will occur because utility collection efforts will be re-directed away from low-income customers who do not have the ability to pay and toward non-low-income customers who do have the ability to pay.

5. An affordable bill program can be expected to improve the incidence at which participating low-income customers make complete bill payments (i.e., a payment yielding a $0 balance).

6. One clear impact of a low-income bill affordability program is the extent to which such programs improve the "price signals" delivered to inability-to-pay customers through utility rates.

Objective #2:
Improving Outcomes Affecting Municipal Finances

Setting aside the positive business outcomes to the Philadelphia Water Department associated with a low-income affordable bill program, the City of Philadelphia will recognize specific beneficial outcomes to its own municipal finances as a result of an affordable water program.

Decreased Educational Costs and Decreased Loss of School Revenue

One impact of unaffordable home utility service is the forced mobility of households. 'Forced mobility' occurs when households are required to change residences, either inside or outside a utility's service territory, in response to unaffordable service. This mobility may occur because the current residence is rendered uninhabitable due to the lack of utility service; because the household has insufficient funds to reasonably expect that its arrears to a particular utility will ever be retired and thus moves; or because the household simply seeks shelter with more affordable utility costs.

Adverse education outcomes result from this frequent mobility.[18] Third-graders who have changed schools frequently are two-and-a-half times as likely to repeat a grade as third-graders who have never changed schools. Of the nation's third-graders who have changed schools frequently, 41 percent are below grade level in reading, compared with 26 percent of third-graders who have never changed schools. 33 percent of children who have changed schools frequently are below grade level in math, compared with 17 percent of those who have never changed schools.

When children changed schools four or more times, they are more likely to drop out of school. Children who changed schools four or more time by the Eighth Grade were at least four times more likely to drop out than those who remained in the same school.

[18] Colton, Roger (1996). A Road Oft Taken: Unaffordable Home Energy Bills, Forced Mobility and Childhood Education in Missouri, 2 Journal on Children and Poverty 23.

The adverse impacts associated with the frequent mobility associated with unaffordable home utility bills, however, arise not simply for the children affected, but also for the school districts who are charged with educating these children. Highly mobile students pose problems to the school systems. High numbers of mobile children interfere with teachers' ability to organize and deliver instruction. Teachers find it difficult to assess the needs of such new children, determine their past education experiences, and provide instruction that builds on these experiences. These tasks may be especially difficult when many new children enter the classroom throughout the year, often with no advance notice.

Teachers in schools with high proportions of children who change schools after the beginning of the year report that these school changes disrupt classroom instruction, and teachers must spend additional time on non-instructional tasks. Teachers may therefore not have the time to identify gaps in such a child's knowledge; moreover, these gaps may grow as the child is left on his or her own to make sense of the new curriculum and its relationship to the one at the previous school.

While not related to school costs, the frequent mobility of school-age students, particularly if between school systems, may also adversely affect school revenues. To the extent that individual schools receive state aid to education based on the number of "student days" of attendance, actual dollars of state support will decrease as schools lose "student days" either to non-attendance at all, or to attendance in a different school district.

Homelessness and Housing Abandonment

Unaffordable utility bills contribute to the prevalence of homelessness and, as a result, to the municipal costs associated with responding to that homelessness. According to the U.S. Conference of Mayor's most recent annual survey of hunger and homelessness, 48% of the demand for homeless services in Philadelphia were being unmet.[19] The prevalence of homelessness is not without cost to the City in its capacity as a provider of municipal services.[20]

According to a study by Temple University's Institute for Public Policy Studies, over five years, an average of 32 percent of the homes of residential electric customers in Philadelphia became

[19] U.S. Conference of Mayors (December 2014). 2014 Hunger and Homelessness Survey: A Status Report on Hunger and Homelessness in America's Cities, Conference of Mayors: Washington D.C.

[20] The Conference of Mayors reported as follows for Philadelphia: "The City of Philadelphia's Permanent Supportive Housing Clearinghouse (CH) is a consolidation of the housing resources of the social service departments in the City. The role and purpose of the CH is to provide a streamlined, single point of access to permanent supportive housing, eliminate redundancies and multiple access points, promote coordination between housing and services, and manage new housing partnerships and resources. Resources are dedicated to households served by City social service agencies that have a services and a housing need, including individuals and families with mental illness, chronic substance abuse and related health disabilities, and those who are homeless or at the highest risk of homelessness. The CH began in 2012 and now includes access to eight programs, including the housing that is provided through a partnership with the Philadelphia Housing Authority."

abandoned within one year following service termination for nonpayment. The average percentage was found to be slightly lower for gas terminations: 22.4 percent. The IPPS study concluded: "The evidence linking utility terminations to abandonment is strong, consistent over a five year period and across two utilities, gas and electric. The evidence also suggests that the percentage of units which have experienced termination and become vacant increases over time."[21]

These results have been confirmed elsewhere. The most commonly cited reasons for homelessness in Colorado, for example, were loss of job and housing costs, followed by family/relationship breakup and utility costs. Slightly more than half (53%) of the reported reasons were related to the cost of housing (housing costs, utility costs and eviction / foreclosure).[22] In a survey of residents of homeless shelters in Kentucky, among the dominant housing related reasons for homelessness, utility terminations were cited as the cause 7.9% of the time.[23]

Nationwide, over the past five years, 14% of Energy Assistance recipients moved in with friends or family due to the inability to pay energy bills; 6% were evicted from their home or apartment due to unpaid energy bills; 4% faced home mortgage foreclose due to home energy bills.[24]

Similar results would be expected for customers of Philadelphia's water utility.

Public Safety

While more difficult to tie directly to the unaffordability of water and wastewater service in particular, the unaffordability of utilities generally contributes to the municipal costs of providing public safety.

Consider the following: the move to auxiliary heating sources when primary heating fuels are disconnected opens up the possibility of an associated fire risk for low-income households. While home heating equipment is no longer the ***single*** most substantial cause of home fires, it remains ***one*** of the leading factors contributing to fires, as well as to fire-related injuries and deaths. In particular, portable and fixed space heaters present a risk of harm.[25]

[21] Institute for Public Policy Studies, Temple University (June 1991). An Examination of the Relationship between Utility Terminations, Housing Abandonment, and Homelessness,.
[22] Colorado Statewide Homeless Count, Summer 2006.
[23] Northern Kentucky Coalition for the Homeless (with technical assistance by Applied Information Resources), Homelessness and Low-Cost Housing in Northern Kentucky: An Analysis and a Strategic Action Plan (July 1990).
[24] National Energy Assistance Directors Association (November 2011). 2011 National Energy Assistance Survey: Final Report, APPRISE, Inc.: Princeton (NJ).
[25] Marty Ahrens (June 2001). The U.S. Fire Problem Overview Report: Leading Causes and Other Patterns and Trends, at 55, National Fire Protection Association: Quincy (MA).

While portable space heaters are not the major cause of home heating fires, they play a much more substantial role in deaths and injuries. Portable and fixed space heaters (and their related equipment such as fireplaces, chimneys and chimney collectors) accounted for roughly two of every three (65%) home heating fires in 1998 and three of every four (76%) associated deaths.

According to the National Fire Protection Association ("NFPA"), "not being able to afford utilities" is one of the "major factors of increased fire risks" for low-income households. That risk, which not only increases the safety risks to low-income households, but increases the costs of providing public safety to the city, involves not merely the increased incidence of home fires generally, it is associated also with the increased risk of fires being deadly. Several factors contribute to this result. The NFPA has found:

- Not being able to afford smoke detectors. "Three fifths of all home fire deaths occur in the approximately seven percent of homes without detectors." One-third of all homes with detectors that have fires have detectors that are not working.

- Not always being able to afford child care and leaving children unattended or unsupervised. Unattended children are those left completely alone with no adult or babysitter to look after them.

- Not being able to afford a telephone. "Without a telephone, the chance of a delay in alarm when reporting a fire to the fire department increases." Telephone penetration rates for households relying exclusively on public assistance for income, for example, fall to only 45%.

- Living in less fire resistant housing, as well as using less fire resistant furniture and mattresses. "Diminished financial resources prevent many families from investing in fire safety because the resources they do have usually go to other, more immediate necessities."

Business Locational Decisions

Offering affordable rates to low-income customers can be expected to have long-term positive impacts for the City from the perspective of maintaining and expanding its revenue base. The provision of a strong social safety-net so that individuals and households do not face the deprivation of basic household necessities is a strong and growing factor in businesses making locational decisions. These locational factors are particularly important for high technology firms, which represent a particularly strong future growth potential for the economy.

Assistance programs such as the proposed water affordability program improve the productivity of local workers. Unreliable transportation, inadequate child care, and poor health are leading

contributors to absenteeism, tardiness, and turnover among low-income workers.[26] One joint study, performed in collaboration with the Center for Workforce Preparation of the U.S. Chamber of Commerce and the Center for Workforce Success of the National Association of Manufacturers, reports that many low wage workers fail to access public benefits. This failure, according to the joint Chamber of Commerce / Association of Manufacturers study, "not only hurts the workers who miss out on income and benefits; it also hurts their employers through higher turnover and increased absenteeism."

> An evaluation of [households leaving the TANF program][27] in New Jersey by Mathematica Policy Research reported that 52 percent had been fired as a result of frequent tardiness or absenteeism related to child care or health problems. In the words of a call center manager who has hired many entry-level workers through the Annie E. Casey Foundation's Jobs Initiative, "these peoples' lives are in chaos. They have so many problems they cannot pay attention to work."
>
> An unpublished survey conducted by ASE in Detroit, Michigan, highlights workplace problems that employers can experience when employees' non-work needs are not addressed. ASE asked entry-level workers and their supervisors in five companies about barriers to employee advancement. After "caring for a dependent," "money problems" were reported more frequently than 19 other potential problems ranging from "understanding work assignments" to "getting along with colleagues." "Financial worry about making ends meet" appears to contribute to absenteeism, distraction on the job, strained relations with supervisors and co-workers, and a number of other factors that reduce productivity.[28]

Other research confirms these findings. One professor at Johns Hopkins University considered the extent to which increased low-income status results in increased overall costs to business. She found a variety of costs to business, reporting:

> Poverty. . .produces ill-prepared workers whose lives are easily disrupted by small catastrophes. If the car breaks down, if the kid gets sick, it suddenly becomes impossible to be a reliable worker. Poverty also generates poor

[26] Geri Scott (2004). *Private Employers and Public Benefits*, Workforce Innovation Networks (WINS): Boston (MA) and Washington D.C. WINS is a collaboration of Jobs for the Future, the Center for Workforce Preparation of the U.S. Chamber of Commerce, and the Center for Workforce Success, The Manufacturing Institute of the National Association of Manufacturers

[27] TANF is the Temporary Aid for Needy Families program, that program generally considered to be "welfare" in the United States.

[28] "Private Employers and Public Benefits," at 5.

> health among workers, making them less reliable still and raising the cost of employing them.[29]

These results are confirmed by research looking specifically at the relationship between poverty and business competitiveness. The *Competitive Assessment* of the Indiana economy was prepared by Market Street Services for the Indiana Department of Commerce. According to the final report, released in January 2002, the purpose of that Department of Commerce sponsored study was "to help the State clearly assess its competitive position both in relation to other states and the nation."

The Indiana Department of Commerce study reported that "cost of living is a common consideration for employers making expansion and relocation decisions as they attempt to retain and recruit qualified employees." The Department of Commerce's report then found: "Regional meeting participants stated time and again that they feel Indiana is a very affordable place to live *for people of all income levels*. Participants felt that the moderate cost of living *helps their competitive* [posture] with other Midwestern states as well as places around the country." (emphasis added). The report then finally noted that Indiana should: "keep[…] in mind that pockets of poverty –whether the businesses locate there or not—is not a business climate asset overall."

These findings are consistent with other continuing statements made throughout the Indiana *Competitive Assessment* report about the need, from the perspective of maintaining the competitiveness of Indiana business and industry, to address pockets of poverty to ensure that these pockets are not "left behind."

The observation here is being increasingly recognized as relevant to various services. "It should be noted that businesses focus on quality of life considerations when making location decisions because they are relevant for attracting a high quality workforce."[30]

> Economic developers are increasingly recognizing the importance of quality of life in business location decisions. Quality of life has been deemed particularly influential for companies involved in research and development and high technology, and in enterprises employing highly skilled workers in information or knowledge-based services and production. Evidence of this observation is a study conducted by Love and Crompton in which they surveyed 174 decision makers of businesses that had initiated, expanded or relocated to Colorado in the previous five years. . .quality of life was considered the second most important factor for

[29] Erica Schoenberger (1999). *The Living Wage in Baltimore: Impacts and Reflections*, John Hopkins University Department of Geography and Environmental Engineering: Baltimore (MD).
[30] Taylor, et al. (2006). *A Cost-Benefit Analysis of Universally-Accessible Pre-Kindergarten Education in Texas*, Bush School of Government and Public Service, Texas A&M University: College Station (TX).

> prompting the business move and not selecting a specific community, as well as the third most important factor in the final selection of a specific community.[31]

Summary and Conclusions

The water affordability program to deliver affordable bills as a percentage of household income (between 2% and 4%) proposed for the City of Philadelphia will deliver considerable benefits to the City in its capacity as a provider of municipal services. In this regard, an affordable water bill program is analogous to the provision of other public goods.

For example, investments in child care have been found to yield direct benefits to business. On a macro basis, as the Committee for Economic Development has reported, "business and the economy as a whole gain a more productive work force when employees feel confident that their children are secure and learning."[32] This is not merely a statement of policy, it is a conclusion based on considerable empirical research: "Those companies that have taken steps to address the child care needs of their work force report that they have improved their ability to attract and retain high-quality personnel, thereby enhancing their current work force and their competitiveness."[33]

Similarly, the Committee for Economic Development stated with respect to financial investment in universal education that:

> a firm and enduring commitment to excellence in education on the part of America's business community is not merely a matter of philanthropy; it is enlightened self-interest. As employers, taxpayers, and responsible community members, business can regard an investment in education as one that will yield a handsome return.[34]

Precisely the same conclusions can be reached about an investment in affordable water bills. It "is not merely a matter of philanthropy, it is enlightened self-interest." In sum, affordable utility service generates a public benefit that without question are above and beyond the benefits to individual households.

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[31] Id. (citations omitted).
[32] Research and Policy Committee (1993). W*hy Child Care Matters: Preparing Young Children for a More Productive America, A Statement by the Research and Policy Committee of the Committee for Economic Development*, at 1, Committee for Economic Development: New York.
[33] *Why Child Care Matters*, at 3.
[34] Research and Policy Committee (1985). *Investing in our Children: Business and the Public Schools, A Statement by the Research and Policy Committee of the Committee for Economic Development*, at 5, Committee for Economic Development: New York.

The Need to Fundamentally Restructure Philadelphia's Water Affordability Assistance

There is a need to fundamentally restructure the way in which Philadelphia currently delivers water affordability assistance. Both the design and delivery of affordable bill assistance needs to be modified.

For example, the primary barrier to entry into the existing WRAP program is the onerous application process. In addition to preventing low-income customers from enrolling in WRAP, not because they are ineligible but rather because they have failed to properly negotiate the application process, the documentation requirements of the WRAP program are the primary cause of WRAP Informal Hearings. Now that WRAP eligibility has increased to 250% of Poverty Level, it is time to eliminate the requirement that new WRAP applicants document their household expenses as a pre-condition to entering WRAP.

Under its current regulations, Philadelphia Water Department customers with income above 250% of Poverty Level are required to document household expenses in order to receive water affordability assistance through the Department's low-income WRAP initiative. (Regulation 100.9(a)(4)). Moreover, under current regulations, customers with income below 250% of Poverty Level are also required to document household expenses as a prerequisite to entering into a payment plan. (Regulation 100.9(b)(1)). Expense documentation, however, is ***not*** required from customers with household income below 150% of the Poverty Level applying for an extended payment agreement, (Regulation 100.9(c)(1)), or at the time of the annual re-evaluation of a WRAP payment agreement.

Eliminating the requirement for program applicants to document their household expenses would not open WRAP up to a substantial increase in participation. New applicants are not the primary source of participants in the PWD WRAP program. According to data provided in the last water rate proceeding, the Department, in FY2011, PWD received 1,501 new applications for WRAP; in FY2012 (through May 2012), PWD received 1,179 new applications. In contrast, in FY2011, there were 9,788 "approvals" for WRAP (both new applicant approvals and redeterminations); in FY2012, there were 15,925 "approvals." Since expense documentation is not required for redeterminations, and since redeterminations occur annually, it is clear that the documentation of expenses does not serve a long-term function for WRAP.

Eliminating the need to document household expenses as a prerequisite to the receipt of water affordability assistance in Philadelphia would generate substantive benefits. In addition to being a barrier to participation, the documentation of expenses does not provide any value-added to PWD's administration of the WRAP initiative. Requiring a household with income less than

250% of Poverty Level to prove that their household expenses exceed their income simply creates a hurdle to participation without providing PWD with insights that it would otherwise have by knowing the income, as a percentage of Federal Poverty Level, which the household receives.

Several sets of data support this conclusion. First, the "self-sufficiency standard" prepared by the University of Washington for PathwaysPA, the Pennsylvania Department of Labor and the Center for Women's Welfare (2010-2011) supports this conclusion. According to this self-sufficiency report, "to properly describe the growing gap between stagnating wages and rising living costs requires an accurate measure of income adequacy. Such a measure is found in the Self-Sufficiency Standard. The Standard tracks and measures the true cost of living facing American families, illuminating the economic 'crunch' experienced by so many families today."

According to the PathwaysPA report, the self-sufficiency standard "measures how much income a family of a certain composition in a given place needs to adequately meet their basic needs—without public or private assistance." The standard for Philadelphia (for 2010/2011) was $41,863 for a one-parent/one-child household (287% of Poverty Level); $54,705 for a one-parent/two-child[35] (299% of Poverty Level); and $59,501 for a two-parent/two-child[36] household (270% of Poverty Level).

In contrast, the "living wage" calculator published by the Massachusetts Institute of Technology (MIT) reports, for Philadelphia, the "wage rate required to meet minimum standards of living." According to MIT's calculation for Philadelphia (2014), the living wage for a 1-parent/1-child household was $40,932 (260% of Poverty), was $51,553 for a 1-parent/2-child household (261% of Poverty), and was $65,373 for a 1-parent/3-child household (274% of Poverty).

The Basic Family Needs Budget calculated by the Economic Policy Institute for Philadelphia (2013) reports even higher figures. According to EPI, the Basic Needs Budget would be $57,014 for a 1-parent/1-child household (362% of Poverty); would be $73,758 for a 1-parent/2-child household (373% of Poverty); and would be $89,722 for a 1-parent/3-child household (376% of Poverty).

As one can see, while the specifics of the numbers have minor variations to them, the over-arching observation for purposes of Philadelphia Water's WRAP initiative is that for each measurement, incomes below 250% of Poverty are insufficient to cover basic household living expenses. While the actual household budget differs between the different analysts, the end conclusion using each set of data is the same. A meaningful water affordability program, targeting water bills at 2-4% of household income for low-income families would directly, and

[35] The two children include a pre-school child and a school-age child.
[36] The two children again include a pre-school child and a school-age child.

appropriately, address the shortcomings that otherwise exist in the Department's WRAP initiative.

Conclusion and Recommendation

Based on the data and discussion provided above, I conclude that the implementation of a well-designed and appropriately implemented ongoing targeted bill affordability program can have positive impacts on the payment patterns and practices of low-income inability-to-pay customers.

The findings of the Pennsylvania PUC, in adopting a similar program for the state's gas and electric utilities (including both PECO and PGW) are just as applicable to the Philadelphia Water Department as they are to PGW and Pennsylvania's investor-owned utilities:

> 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. 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.[37]

The benefits arising from such an affordability program flow not only to the participant households, but to the Philadelphia Water Department as the utility service provider, and to the City of Philadelphia in its municipal capacity.

I endorse the proposed amendment to Bill No. 140607, which has been circulated in advance of the hearing, and provides for affordable water bills calculated as between 2-4% of household income, depending on the customer's total income, with arrearage forgiveness for timely payment and urge its adoption. Thank you for the opportunity to provide these comments today.

[37] 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.

Appendix A: Low-Income Rate Affordability Assistance:

25 Years of Independent Third Party Program Evaluations

Compiled by:

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Items for which Electronic Copies Exist	Date Report Published	Jurisdiction of Program Subject to Evaluation	Utility/Program	Consultant Preparing Evaluation Report	Report Title
Reports for which electronic copies do not exist:	1985	Ohio	State	Tractell, Inc.	A Study of the Commission's Procedural Determination of Customer Payment Options Pursuant to the Investigation into the Long-Term Solutions Concerning Disconnection of Gas and Electric Service in Winter Emergencies.
	1988	Illinois	State	Brenda Griffin	IRAPP: Preliminary Evaluation of the Illinois Residential Affordable Payment Program.
	1989	Montana	State	Thomas Schneider	Evaluation of Ravalli County Percentage of Income Payment Plan (PIPP) Pilot Project.
	1992	Pennsylvania	State	Pennsylvania PUC, Bureau of Consumer Services	Final Report on Investigation into the Control of Uncollectible Balances (Vol. 1 and Vol. 2).
1.	Dec-87	Rhode Island	State	Nora Barnes	A Study of Client Satisfaction: Rhode Island Percentage of Income Payment Plan
2	Jan-88	Rhode Island	State	Roger Colton	Evaluation of Warwick (Rhode Island) Percentage of Income Payment Plan (PIPP) Demonstration Project

Items for which Electronic Copies Exist	Date Report Published	Jurisdiction of Program Subject to Evaluation	Utility/Program	Consultant Preparing Evaluation Report	Report Title
3	1990	National	Non-program	Roger Colton	Client Consumption Patterns within an Income-Based Energy Assistance Program, Journal of Economic Issues, Vol. 24, Issue 4 (1990)
4	Jun-91	Philadelphia	Non-program	Institute for Public Policy Studies, Temple University	An Examination of the Relationship Between Utility Terminations, Housing Abandonment and Homelessness
5	Jan-93	Philadelphia	Philadelphia Gas Works (PGW)	Response Analysis (now Apprise)	Energy Assurance Program Pilot: Year One Report
6	Jan-96	NY	National Fuel Gas	Barakat & Chamberlin	Final Report: Process and Impact Evaluation of National Fuel Gas Distribution's Low-Income Residential Assistance Program
7	Dec-96	Colorado	PSCO	Steve Brown	Affordable Rate Pilot Project: Report on Two Evaluations of Public Service Company of /Colorado Payment Assistance Programs
8	1997	Wisconsin	Non-program	Ron Grosse	Win-Win Alternatives for Credit and Collection
9	Aug-99	Pennsylvania	National Fuel Gas	Barakat & Chamberlin	Final Evaluation Report: Low-Income Residential Assistance Program
10	Jun-00	Iowa	Non-program	Mercier Associates	Iowa's Cold Winters: LIHEAP Recipient Perspective
11	Feb-02	NY	Niagara Mohawk	Apprise	Low Income Customer Assistance Program: Impact on Payments and Arrearages
12	Jun-02	Penn	PECO	Gil Peach	Customers with Incomes to 50% of the Federal Poverty Level in PECO Energy's Customer Assistance Program
13	Jun-02	Penn	PGW	Gil Peach	Philadelphia Gas Works Universal Service Programs: Pathways to Compliance.
14	Aug-02	NY	Niagara Mohawk	Apprise	LICAP Program Evaluation: Final Report
15	Jan-03	Oregon	State	quantec	Oregon Energy Assistance Program Evaluation: Final
15A	Apr-03	National	Non-program	NRRI	Where Consumers Go for Help Paying Utility Bills

Items for which Electronic Copies Exist	Date Report Published	Jurisdiction of Program Subject to Evaluation	Utility/Program	Consultant Preparing Evaluation Report	Report Title
16	Sep-03	California	State	quantec	Evaluation of California Alternate Rates for Energy (CARE) Program's Outreach and Administrative Practices
17	Oct-03	Penn	Allegheny Power	RETEC Group	Evaluation of LIPURP and Other Allegheny Power Universal Service Programs
18	Oct-03	Penn	Duquesne Light	RETEC Group	Evaluation of CAP and Other Duquesne Light Universal Service Programs
19	Oct-03	Washington	PacifiCorp	quantec	Final Report: Washington Low-Income Bill Assistance Program: Phase II Impact Analysis
20	Oct-03	Missouri	Missouri Gas Energy	Roger Colton	The Impact of Missouri Gas Energy's Experimental Low-Income Rate (ELIR) on Utility Bill Payments by Low-Income Customers: A Preliminary Assessment
21	Apr-04	National	Non-program	Apprise	National Energy Assistance Survey Report: 2003
22	Jul-04	Penn	Columbia Gas	Melanie Popovich	Columbia Gas of PA, Inc.: Universal Service Program Impact Evaluation
23	Oct-04	Penn	First Energy: Penelec	Gil Peach	Impact Assessment of the First Energy Pennsylvania Universal Service Programs (Pennelec component)
24	Oct-04	Penn	First Energy: Met Ed/Penn Power	Gil Peach	Impact Assessment of the First Energy Pennsylvania Universal Service Programs: Met Ed and Penn Power components)
25	Nov-04	Penn	TW Phillips	Apprise	TW Phillips Energy Help Fund Program Evaluation: Final Report
26	Nov-04	NV	State	Gil Peach	State Fiscal Year 2003 Evaluation of the NRS 702: Energy Assistance Program and Weatherization Assistance Program
27	Nov-04	Penn	Dominion Peoples	Melanie Popovich	Dominion Peoples Universal Service Program: Impact Evaluation
28	Jan-05	Utah	PacifiCorp	quantec	Utah HELP: Program Evaluation
29	Apr-05	NV	State	Gil Peach	State Fiscal Year 2004 Evaluation of the NRS 702: Energy Assistance Programs and Weatherization Assistance Programs
30	Jun-05	Ohio	Non-program	Triad Research Group	Focus Groups with PIP Participants

Items for which Electronic Copies Exist	Date Report Published	Jurisdiction of Program Subject to Evaluation	Utility/Program	Consultant Preparing Evaluation Report	Report Title
31	Jul-05	National	Non-program	Apprise	LIHEAP Burden Evaluation Study: Final Report
32	Aug-05	Penn	PG Energy	Apprise	PG Energy: Universal Services and Energy Conservation Programs: Final Report
33	Sep-05	National	Non-program	Apprise	National Energy Assistance Survey Report: 2005
34	Nov-05	NJ	JCPL	Apprise	Evaluation of the New Jersey Universal Service Fund: Fresh Start Program: Jersey Power and Light Payment Counseling Program
35	Feb-06	Penn	PGW	Apprise	Philadelphia Gas Works Customer Responsibility Program: Final Evaluation Report
36	Feb-06	Missouri	Empire District Electric	Roger Colton	Experimental Low-Income Program (ELIP): Empire District Electric Company Final Program Evaluation
37	Apr-06	NJ	NJ BPU	Apprise	Impact Evaluation and Concurrent Process Evaluation of the New Jersey Universal Service Fund: Final Report
38	Apr-06	Penn	PECO	Apprise	PECO Energy Universal Services Program: Final Evaluation Report
39	Apr-06	Penn	PPL Electric	Apprise	PPL Electric Utilities: Winter Relief Assistance Program: Final Evaluation Report
40	May-06	NV	State	Gil Peach	State Fiscal Year 2005 Evaluation of the NRS 702: Energy Assistance Program and Weatherization Assistance Program
41	Oct-06	Penn	PECO	Apprise	PECO Energy Customer Assistance Program for Customers Below 50 Percent of Poverty: Final Evaluation Report
41	May-07	NV	State	Gil Peach	State Fiscal Year 2006 Evaluation of the NRS 702: Energy Assistance Program and Weatherization Assistance Program
43	May-07	MD	MD PSC	PA Consulting Group	Electric Universal Service Program Evaluation: Final Evaluation Report
44	Jul-07	Indiana	NIPSCO, CGCU, Vectren Energy	Roger Colton	An Outcome Evaluation of Indiana's Low-Income Rate Affordability Programs: 2007 Report
45	Jun-08	National	Non-program	Apprise	2008 Energy Cost Survey
46	Oct-08	Penn	PPL	Apprise	PPL Electric Utilities: Universal Service Programs: Final

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					Evaluation Report
47	Dec-08	National	Non-program	Apprise	National Energy Assistance Survey Report: 2008
48	Apr-09	National	Non-program	Apprise	National Energy Assistance Survey Report: 2009
49	Aug-09	Indiana	NIPSCO, CGCU, Vectren Energy	Roger Colton	An Outcome Evaluation of Indiana's Low-Income Rate Affordability Programs: 2008/2009 Report
50	Oct-09	Penn	Duquesne Light	AECOM	Evaluation of Duquesne Universal Service Programs
51	Dec-09	IL	State	Apprise	Illinois PIP Program Impact Evaluation: Draft Report
52	Feb-10	National	Non-program	Apprise	LIHEAP Special Study of the 2005 Residential Energy Consumption Survey: Dimensions of Energy Insecurity for Low Income Households: Final Report
53	Jul-10	Penn	Allegheny Power	Apprise	Allegheny Power Universal Service Programs: Final Evaluation Report
54	Aug-10	Penn	Peoples Natural Gas	Melanie Popovich	Peoples: Universal Service Impact Evaluation
55	Oct-10	Penn	First Energy (Met Ed, Penelec, PennPower)	Gill Peach	2010 Impact Assessment of the First Energy Pennsylvania Universal Service Programs: Metropolitan Edison, Pennsylvania Electric Co., PennPower
56	Nov-10	Penn	Columbia Gas	Melanie Popovich	Columbia Gas: Universal Service Impact Evaluation§
57	Jan-11	NV	State	Gil Peach	SFY 2010 Evaluation: Energy and Weatherization Assistance Programs
58	May-11	Penn	Equitable Gas	Melanie Popovich	Equitable Gas: Universal Service Impact Evaluation
59	Nov-11	NV	State	Gil Peach	SFY 2011 Evaluation: Energy and Weatherization Assistance Programs: Executive Summary
60	Dec-12	NV	State	Gil Peach	SFY 2012 Evaluation: Energy and Weatherization Assistance Programs
61	Jun-07	Penn	UGI	Melanie Popovich	UGI Utilities Inc.: Universal Service Program Evaluation

Items for which Electronic Copies Exist	Date Report Published	Jurisdiction of Program Subject to Evaluation	Utility/Program	Consultant Preparing Evaluation Report	Report Title
62	Aug-06	Penn	NFG	Melanie Popovich	National Fuel Gas Distribution Corporation: Universal Service Program Evaluation
63	Feb-12	CO	Public Service Co. Colorado	Roger Colton	Public Service Company of Colorado Pilot Energy Assistance Program (PEAP) and Electric Assistance Program (EAP): 2011 Final Evaluation Report
64	Mar-12	Mass	State	Roger Colton	Attributes of Massachusetts Gas/Electric "Arrearage Management Programs" (AMP); 2011 Program Year
65	Oct-12	Penn	PECO	Apprise	PECO Energy Universal Services Program: Final Evaluation Report
66	Nov-11	National	Non-program	Apprise	National Energy Assistance Survey Report: 2011
67	May-11	Kentucky	Louisville Gas & Electric	Roger Colton	The Percentage of Income Payment Plan in Jefferson County, Kentucky: One Alternative to Distributing LIHEAP Benefits
68	Jul-12	Pennsylvania	UGI Utilities	Apprise	UGI Utilities, Inc. (Gas Division), UGI Penn Natural Gas Universal Service Program Final Report
69	Sept-13	Pennsylvania	PECO	PECO	Alternative Models for the Delivery of Customer Assistance Program Benefits
70	Oct-13	Pennsylvania	PECO	Roger Colton	Review of PECO Energy's Report on Alternative Models for the Delivery of Customer Assistance Benefits
71	Nov-11	Maryland	BGE	Apprise	Baltimore Gas and Electric Limited Income Pilot Payment Program: Final Evaluation Report