

Prepared for:
Duquesne Light Company

Evaluation of Duquesne Universal Service Programs

AECOM, Inc.
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CONTENTS

EXECUTIVE SUMMARY	6
SECTION ONE: THE CONTEXT OF THE EVALUATION	11
The Duquesne Light Service Area	11
Electricity Prices	12
Low-Income Households in the Service Area	12
Universal Service Programs	13
SECTION TWO: CAP PROGRAM DESCRIPTION	15
Eligibility	15
The Discount Offer	16
The Debt Forgiveness Offer	18
Energy Conservation	18
Other Program Rules	18
Application Process	18
Recertification Process	19
Enforcement and Collection	19
Consistency with PUC Guidance	20
Consistency of Program Operations with Program Plan	21
Projected vs. Actual Enrollment and Expense	21

SECTION THREE: EVALUATION QUESTIONS -----23

1. Is the appropriate population being served?-----	23
Are There Underserved Market Segments? -----	26
2. Does the size of USP meet the need in a utility's service territory? -----	32
3. Are the customers enrolled in USP eligible for these programs? -----	33
4. Is recertification completed pursuant to a utility's Commission-approved universal service plan? -----	34
5. What is the customer distribution by CAP payment plan? -----	35
6. Generally, do participants' energy burdens comply with the CAP Policy Statement?-----	38
Energy Burdens in the CAP Policy Statement-----	38
Percent of Income Customers are Asked to Pay -----	38
An Analysis Adjusting PUC Guideline Values for Inflation -----	43
7. What are CAP retention rates? Why do customers leave CAP? -----	45
Retention in CAP-----	45
CAP Attrition-----	47
Who leaves CAP-----	47
8. Is there an effective link between participation in CAP and participation in energy assistance programs (LIHEAP, hardship funds, and other grants)? -----	48
9. How effective are the CAP control features at limiting program costs? -----	48
Subsidy Limits -----	48
Minimum Payments -----	49
10. How effective is the CAP/ LIURP link? Is the company's procedure for dealing with excessively high usage effective?-----	50
Electricity Usage -----	51
Addressing High Use -----	54
11. Has collection on missed CAP payments been timely? -----	56
Description of Collections Procedures -----	56
Regularity of Payment-----	57
Analysis of CAP Overdue Balance-----	59
12. Does participation in universal service programs decrease service terminations? -----	61
Termination Statistics -----	61
Debt Reduction -----	65
A Closer Look at Reconnection Requirements -----	66
Service Termination Trends-----	67
Demographics for CAP Customers with Shut Offs-----	69
Does participation in universal service programs decrease collection costs? -----	69
14. How can USP be more cost-effective and efficient? -----	74

SECTION FOUR: RECOMMENDATIONS-----75

Principles-----76

Near-Term Recommendations -----78

Reach underserved groups and help customers likely to experience service terminations-----78

Adjust subsidy mechanisms-----84

Adapt to growth and constrain costs-----84

Increase cooperation with the PUC and gas utilities-----86

Longer Term Recommendations-----86

Reach underserved groups; help customers prone to shut offs -----86

Adjust subsidy mechanisms-----87

Adapt to growth and constrain costs-----91

Increase cooperation with the PUC and gas utilities-----96

List of Appendices

Appendix A. CAP Participation Rate by Zip Code

Appendix B. A Closter Look at Alternative Payment Plans

Appendix C. Possible Refinements to CAP's Discount Plan

Executive Summary

This evaluation was conducted by AECOM to satisfy a requirement that USPs be periodically and independently evaluated with reference to these goals for Universal Service:

- To protect consumers' health and safety by helping low-income customers maintain affordable utility service;
- To provide for affordable utility service by making available payment assistance to low-income customers;
- To help low-income customers conserve energy and reduce residential utility bills; and
- To ensure that utilities operate universal service and energy conservation programs in a cost-effective and efficient manner.

Based on the investigation and analysis described in this report, Duquesne's Universal Service Programs are found to be consistent with the company's PUC-approved Universal Service Plan. Duquesne's CAP program is also consistent with PUC guidance with the exception that Duquesne does not implement a limit on the dollar amount of subsidies that individual customers can receive.

The Pennsylvania Public Utility Commission has asked that evaluators address specific questions concerning the operation of Universal Service Programs. Summary answers to these questions are provided below, with more detail available for each question in the main body of the report.

1. Is the appropriate population being served?

CAP Enrollment has grown steadily, surpassing the levels projected in the most recent plan. The program now serves more than half of the appropriate population (low-income customers with financial or demonstrated difficulty paying their utility bill.) Doors are open to additional participants. However, certain geographic areas and customer subgroups are arguably underserved. Many customers prone to service disconnection for nonpayment have not entered the program.

2. Does the size of universal service programs meet the need in a utility's service territory?

Duquesne has not limited participation in its USPs, and has no intention of doing so. CAP enrollment and budget projections have already been exceeded. If intake procedures were augmented, CAP could grow another 50%. SMART COMFORT is able to keep up with growing enrollment, providing energy conservation services to those with high use.

3. Are the customers enrolled in universal service programs eligible for these programs?

All customers demonstrated eligibility when they applied. Due to automatic recertification procedures and natural changes in circumstances, it is likely that a minority of participants no longer qualify for their current discount.

4. Is recertification completed pursuant to a utility's Commission-approved universal service plan?

Duquesne recertifies CAP participants annually. In recent years those CAP participants caught up in their payments have been automatically recertified without revalidation of income.

5. What is the customer distribution by CAP payment plan?

Consistent with the Commission-approved Universal Service Plan, most customers are given one of three rate discounts, with occasional exceptions for special circumstances.

- Of RS CAP customers, 26% receive a 70% discount, 53% receive a 40% discount, and 21% receive a 15% discount.
- Of RH CAP customers, 30% receive a 55% discount, 48% receive a 35% discount, and 21% receive a 20% discount.
- These discounts are offered based on poverty level. Households with incomes below 50% of poverty receive the deepest discount, those with incomes between 50% and 100% receive the intermediate discount, and those with incomes between 100% and 150% receive the smallest discount.

6. Generally, do participants' energy burdens comply with the CAP Policy Statement?

Energy burdens are largely consistent with the general goal of keeping total energy expenditure below 17% of income. Energy burdens vary from the specific ranges specified in PUC guidance for Percent of Income Plans, but this is to be expected in a discount payment plan.

7. What are CAP retention rates? Why do customers leave CAP?

CAP retains 90% of customers through their first year, 77% through their second year, and 65% through their third year. Of current participants, 55% have been in the program more than two years.

Most customers leave CAP because they fail to recertify. Only 11% of those leaving CAP do so as the result of a service termination for nonpayment at an occupied premise. Others stop being a customer. Many CAP customers who

move from one address to another make the necessary arrangements to transfer their CAP status to the new address.

8. Is there an effective link between participation in CAP and participation in energy assistance programs (LIHEAP, hardship funds, and other grants)?

Yes. Agencies that administer CAP facilitate customer use of these programs, and heating customers who do not obtain a LIHEAP grant are dropped from CAP until they obtain a grant.

9. How effective are the CAP control features at limiting program costs?

Virtually all Duquesne CAP customers are asked to pay amounts that exceed the minimum payments specified in the CAP Policy Statement. Per its Commission-approved Universal Service Plan, Duquesne does not at this time limit per-customer subsidies. Four percent of RH CAP customers and 35% of RS CAP customers receive subsidies that exceed the maximum CAP credits specified in the CAP Policy Statement.

10. How effective is the CAP/ LIURP link?

Very effective. LIURP site visits are required for all CAP entrants with high use. 90% of LIURP customers are in CAP.

11. Has collection on missed CAP payments been timely?

For the CAP participants with a full 12 months of payment history in CAP:

- 24% paid on time in 11 or 12 months, missing no payments or only one payment
- 40% paid on time in 9 to 12 months, missing 3 or fewer payments
- 50% paid on time in 8 to 12 months, missing 4 or fewer payments
- 32% have missed 4-6 payments
- 18% have missed 7-12 payments
- 1% show no timely payments in 12 months

While most CAP customers are not perfectly regular in their payments, the vast majority make catch up payments and do not fall seriously behind in their obligations. Collection efforts have been timely and effective for 97% of CAP participants.

- In July of 2009, 93% of CAP participants were current in their CAP obligations or behind by less than two month's payments.
- In July of 2009, three percent of CAP participants were four or more months behind in their payments.
- 38 participants were more than 10 months behind in making their CAP payments.

Duquesne removes from the collections process customers with court-ordered bankruptcy settlements, and those customers who have filed complaints with the PUC. Other customers protect themselves from termination threats with medical certificates. A few may have indoor meters that are difficult for field staff to access. These exceptions to the collections process allow a small percentage of CAP customers to accumulate in CAP the large unpaid balances the program was designed to avoid.

12. Does participation in universal service programs decrease service terminations?

CAP enrolls and retains primarily customers who are not prone to termination. Most CAP participants have avoided termination for nonpayment in the years before they joined the program. For the minority of participants with a history of service terminations, it appears that participation in USPs decreases both service terminations and the number of days disconnected customers go without service.

Over 70% of Duquesne customers disconnected in recent years have not been CAP participants either before or after their termination.

13. Does participation in universal service programs decrease collection costs?

It is difficult to discern the impact of USPs on collections costs and the total cost of managing low income customers, because growth in USPs has coincided with other trends that impact these costs. These other trends include:

- In this decade, a 400% increase in Duquesne's use of service terminations, a highly cost-effective account management tool;
- Cost reductions in the collections process itself, so that more terminations were accomplished at a lower cost;
- Deteriorating economic conditions for lower income households.

It appears that by combining higher USP enrollment with more and less costly service terminations, Duquesne has managed to reduce the total cost of managing low income accounts while providing more subsidies to customers who need them.

14. How can universal service programs be more cost-effective and efficient?

Duquesne's Universal Service Programs have been thoughtfully designed and implemented. They serve a growing number and percentage of the service area's low-income population. The percent of bill approach to determining customer co-payments is fundamentally sound. There is a strong linkage to SMART COMFORT. Front-line staff from agencies that implement the programs are committed, experienced, and resourceful.

Section four of the report lists a number of suggestions that Duquesne might consider to fine tune procedures, increase effectiveness and/or reduce costs. These have been divided into short-term actions consistent with the current USP Plan, and longer term actions that might require revisions to the plan. The most important directions for change are:

- Modify outreach and application procedures to enroll more members of underserved groups, particularly those low-income customers likely to experience service terminations and long periods without service.
- Adjust subsidy mechanisms with the primary goal of limiting subsidies per customer and subsidies for extremely high levels of usage. Also consider ways to take into account variation in housing costs, and ways to give customers more immediate feedback on the cost consequences of their usage decisions.
- Cooperate with gas utilities and the PUC to more effectively address the needs of customers who should be heating with gas but cannot afford reconnection with gas utilities.

Section One: The Context of the Evaluation

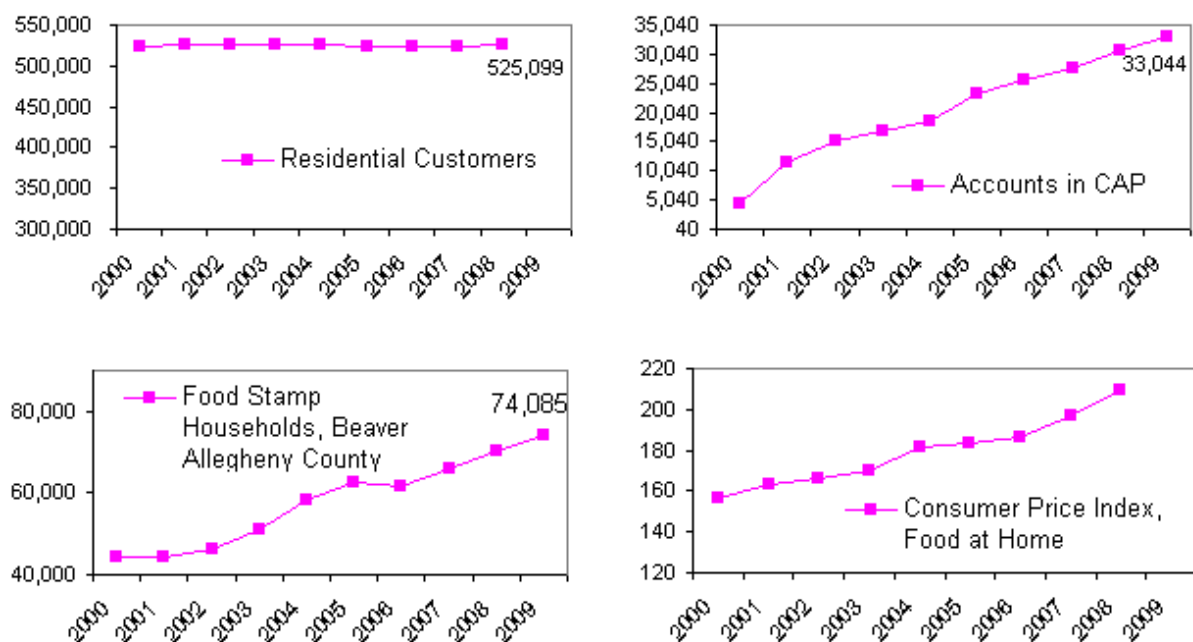
The Duquesne Light Service Area

The number of customers served by Duquesne's Universal Service Programs has steadily increased in recent years, while the total number of residential customers has remained nearly constant. This leaves fewer full-payment customers to defray the costs of Universal Service, and makes it critical that these programs be as efficient as possible.

As shown in the first chart below, Duquesne serves over 525,000 residential customers in the greater Pittsburgh area (Allegheny and Beaver Counties), a number that has changed little since 2000. Chart two shows steady growth in the number of customers receiving subsidies from the Customer Assistance Program, the largest of the company's Universal Service Programs.

The third chart shows the number of households receiving food stamps in Beaver and Allegheny counties, a number that has increased 66% in the last nine years. Chart four shows a 33% increase in the Consumer Price Index for food eaten at home in Pittsburgh between 2000 and 2008. These trends suggest that an increasing percentage of Duquesne's residential customers have had difficulty paying all their bills in recent years, and that the assistance provided by the company's Universal Service Programs is even more important than it was when those programs were launched.

Figure 1. Service Area Trends

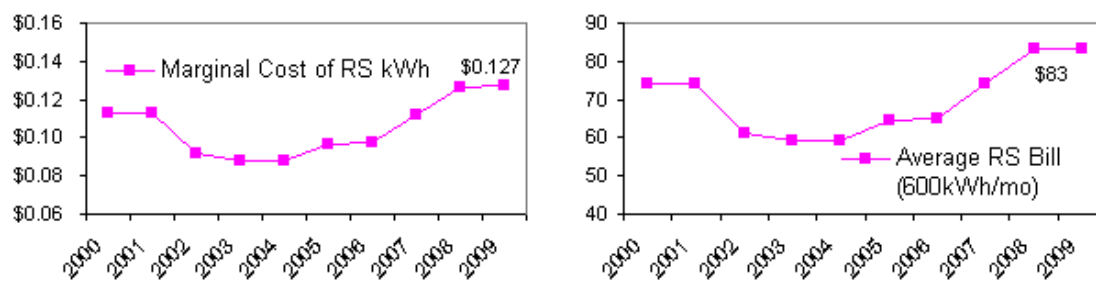


Electricity Prices

Over 90% of Duquesne's residential customers are on the RS (non-heating) rate at a marginal cost of 12.7 cents per kWh in 2009. Rates dropped about 18% in 2002, stayed remarkably low until 2005, then increased 41% in the last four years to end up 12% higher in 2009 than they were in 2000.

Duquesne's all- electric RH (heating) customers have faced summer rates similar to those of the RS customers. In winter RH customers receive a discounted rate, including a marginal cost per kWhs over 500 per month that dipped as low as 2.24 cents in 2003 then starting in 2005 nearly tripled to its current level of 9 cents.

Figure 2. Electricity Rates for RS (non-heat) Residential Customers



Low-Income Households in the Service Area

The market analysis completed in 2004 analyzed the Census 2000 Public Use Micro Sample to profile service area households with incomes below 150% of poverty (and therefore eligible for Universal Service Programs). About 19% of Duquesne's residential customers (100,000) had incomes placing them below 150% of the poverty level ¹. In 1999 (when the census information was gathered), of these 100,000 service area low-income households:

- 33% had members over 64, including 2% that had seniors and children present.
- 29% had children; 39% had neither seniors nor children
- 13% were owners with a mortgage, 23% were owners with no mortgage to pay, and 64% were renters;
- 40% of the low-income households paid less than 40% of their income for housing costs; 32% paid more than 80% of their current income for housing costs, and 11% had or reported no income at the time;

¹ Ignoring low-income individuals living in group quarters, 22% of the households have incomes below 150%, but only 84% of these pay an electric bill, due to master metering of large apartment buildings such as senior housing apartments.

- 60% lived in multifamily buildings, 39% lived in single family buildings, and a small percentage lived in mobile homes.

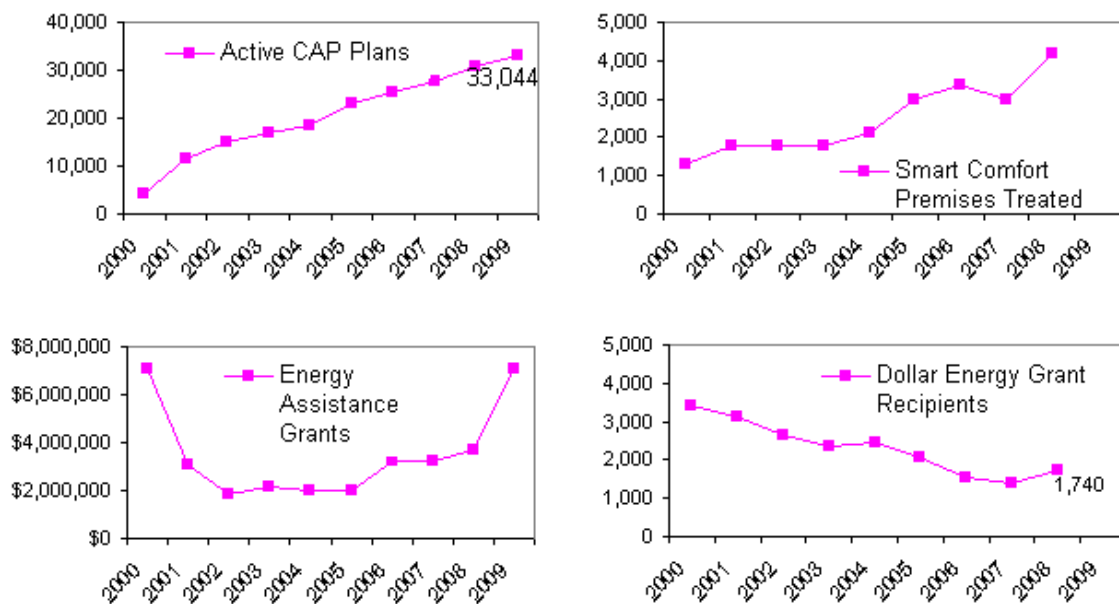
Universal Service Programs

Pennsylvania has evolved and now mandates three different utility-sponsored Universal Service Programs to help low-income customers obtain energy they can afford.

- **Customer Assistance Programs (CAPs)** offer subsidies to customers with incomes below 150% of poverty who are unable to pay their bills in full, and may extend participation to seniors or disabled households with incomes below 200% of poverty. CAPs also offer forgiveness of past debt in exchange for regular payments of the reduced bill. CAP is Duquesne Light's Customer Assistance Program, and is the main topic of this evaluation. Customers who apply to the CAP program with a history of relatively high use must first be evaluated by the LIURP program.
- **Low Income Usage Reduction Programs (LIURPs)** provide weatherization and efficiency improvements designed to reduce the energy bills of low-income households with incomes below 200% of the federal poverty level. Duquesne Light's LIURP Program is named Smart Comfort. It offers energy-conservation improvements to low-income households with loads greater than 500 kWh per month. Energy auditors visit and inspect customer homes, install compact fluorescent bulbs, provide education to customers, test efficiency of refrigerators, make arrangements to replace inefficient refrigerators and air conditioners, and make referrals to programs that can make structural repairs or remedy problems with heating systems. Heating customers also receive blower door diagnosis, sealing against infiltration, insulation and other weatherization improvements.
- **CARES** offers referral services to customers who due to misfortunes suddenly find themselves no longer able to cover all their bills, and needing to negotiate an unfamiliar social services network. CARES representatives visit home-bound customers as needed, place customers in the Customer Assistance Program, and make other referrals.
- Like many Northeastern utilities, Duquesne also supports a community-based hardship fund named Dollar Energy. The primary funding source is shareholder funds which are used to match donations solicited from employees and customers, dollar for dollar. With these funds, Dollar Energy provides grants (no more than one per program year) to households with incomes below 200% of poverty who face temporary financial problems that result in termination or threatened disconnection of service.
- Customers may also access grants from the Federal Low Income Heating Energy Assistance Program (LIHEAP) during the several months in winter when these grants are available.. All Duquesne low-income customers can access a Cash grant. Those who fall behind in payments can also qualify for a Crisis grant. Customers could send one or both grants to Duquesne, but also have the option of directing their grants to their gas utility.

Taken together, Pennsylvania's service protection regulations and its Universal Service Programs form an *energy assurance* system. The goal of this system is to ensure that low-income households will have affordable and uninterrupted access to energy utilities, without imposing undue costs upon all ratepayers. The charts below show growing utilization of CAP, Smart Comfort, and Energy Assistance. The number of Dollar Energy Grant recipients steadily declined until 2008, perhaps as a result of the growing number of customers who join CAP and thereby avoid crises. (The average amount of Dollar Energy Grants simultaneously increased.)

Figure 3. Trends in Energy Assurance



Section Two: CAP Program Description

The PUC has asked that this periodic review of Universal Service Programs be focused primarily on CAP. This focus is desired because CAP programs are large budget programs, fairly complex, and still evolving. The other large budget program, LIURP, has a longer track record as well as a separate evaluation protocol and evaluation resources.

Eligibility

To participate in CAP, customers must have incomes at or below 150% of the poverty level income for a household of their size. Duquesne considers all households with incomes below 150% of poverty level to be income-eligible. No restrictions are specified regarding percent of income used for housing expenses, prior payment behavior, or account balance. Occasionally exceptions are made to allow participation by households between 150% and 200% with disabled or senior members or extensive un-reimbursed medical expenses.

Customers with severe difficulties may also be referred to the CARES program for more individualized assessment, coaching and referrals. Figure 4 shows applicable 2009 poverty levels for households of different sizes. The gross income threshold for Food Stamp eligibility (and free school lunches) is 130% of poverty level. Thus most CAP participants are eligible Food Stamps².

² While food stamp applications in Pennsylvania ask for information on financial resources, the once-standard asset limitations are no longer evaluated for applicants with incomes under 150% of poverty. Thus virtually all CAP participants are eligible for some level of food stamp assistance.

Figure 4. 2009 Poverty Level and Eligibility for Food Stamps and CAP

Number in Household	Annual Gross Income			Monthly Gross Income		
	100% of Federal Poverty Level	Eligible for Food Stamps below:	150% of Federal Poverty Level	100% of Federal Poverty Level	Eligible for Food Stamps below:	150% of Federal Poverty Level
1	\$10,830	\$13,524	\$16,245	\$903	\$1,127	\$1,354
2	14,570	18,204	21,855	1,214	1,517	1,821
3	18,310	22,884	27,465	1,526	1,907	2,289
4	22,050	27,564	33,075	1,838	2,297	2,756
5	25,790	32,244	38,685	2,149	2,687	3,224
6	29,530	36,924	44,295	2,461	3,077	3,691
7	33,270	41,604	49,905	2,773	3,467	4,159

Once proof of income is furnished, CAP enrolls customers for a twelve month period. The program asks customers to re-certify their eligibility annually.

The Discount Offer

Duquesne's CAP offers eligible customers a discount based on their poverty level. The discount rates were slightly revised in 2007 to their current schedule, shown in Figure 5. These percentages are applied to the customer's budget bill, which is adjusted every month as an average of the preceding 12 months' usage³. Customers are asked to pay the discounted budget amount.

Figure 5. CAP Discount Levels

Income Compared to Federal Poverty Level	RS Residential Service	RH Heating Service
	Percent of Budget Bill to Pay	
Below 50%	30%	45%
51% to 100%	60%	65%
101% to 150% (or 200% for Snrs)	85%	80%

Figure 6. Average CAP Co-Pays

Use_level	RH	RS
low	\$33.93	\$22.43
moderate	\$70.30	\$41.90
high	\$105.37	\$60.42
extreme	\$178.32	\$99.91
All Customers	\$79.17	\$54.56

For all customers in CAP in July of 2007

³ This plan provides weak (delayed) feedback to customers on their use. They will eventually pay less if they conserve. Customers do not have a fixed amount they can count on paying each month. However, the amount they pay is likely to fluctuate only slightly over time, so they know about how much they will have to pay each month, and pay somewhat less if they reduce that month's consumption compared to the same month a year ago.

An accounting bucket is created to track the deficiency that results from the discount. Each month, the amount in this bucket is increased for the difference between the actual budget amount and the CAP billed amount.

The deficiency amount remains part of the main ledger (i.e. the total account balance) until it is written off at the time of recertification. If a customer leaves CAP earlier, the amount in this bucket remains part of the account balance.

At this time, when a CAP customer receives a LIHEAP grant, the amount in the deficiency bucket is reduced by that amount. This mechanism reduces ratepayer-provided subsidies by the amount of a LIHEAP grant⁴. This result is consistent with PUC guidance that identifies LIHEAP energy assistance grants as one of the funding sources for discounts.

In theory, customers are not held responsible for paying the discount deficiency amount. They are held responsible for paying the CAP amount, in that their unpaid CAP amount will be asked of them to reconnect service, should they have it terminated for failure to pay on time. Thus there may be a “CAP Balance”- the amount owed on the CAP asked amount, as well as an account balance from the pre-CAP period, and a current deficiency amount that will eventually be written off.⁵

⁴ While this arrangement (by design) lessens the CAP costs bourn by ratepayers, it gives CAP customers little financial incentive to apply for LIHEAP. One alternative would be to apply a portion of the LIHEAP grant to make one month’s CAP payment for the customer, as soon as the company is informed that the LIHEAP grant has been approved. Ideally, the bill for this month would clearly inform the customer that their payment obligation for this month was waived because they had applied for and received the grant.

The PUC’s CAP policy document specifically forbids using LIHEAP payments to substitute for a participant’s monthly payment. However, the state Department of Welfare is proposing requirements that utilities use the entire LIHEAP grant to defer future customer payment obligations. If implemented, this proposal could radically increase the amount by which ratepayers subsidize CAP participants, unless customer co-payment amounts are increased in anticipation that LIHEAP will be used to reduce them. Maryland utilities offer a program that allocates LIHEAP credits across 12 future months in a way that promotes regular customer payment of a (reduced) budget bill.

⁵The charge off of the billing deficiency is tied to the recertification event. For customers whose account is closed (“finaled”) before their recertification date, the billing deficiency amount remains part of their account balance, along with any CAP balance. For CAP customers whose accounts are “finaled” because they move away, die, or have service terminated, this practice could burden both customer and company with higher arrears. Customers who re-apply for service 14 or more days after a service termination for nonpayment are considered an applicant for service. To re-establish service they can be held responsible for the entire account balance, which in this case could include their CAP Balance- the amount they were supposed to pay in CAP, and the deficiency amount – the portion of their bill they were not asked to pay in CAP

The Debt Forgiveness Offer

For each on-time full CAP payment they make, CAP customers immediately receive a credit that reduces their overall account balance. This credit is equal to 1/36 of the total account balance when they first made their CAP plan (this pre-program balance is called the “frozen arrears”). If they owe on their CAP obligations at time of recertification, they are asked to pay this amount before recertifying, and if unpaid it remains part of their CAP balance. Thus the frozen arrears or pre-CAP balance will be completely erased after the customer has made 36 on-time, full payments of the amount CAP asks them to pay. It is their “in CAP” balance that rises and falls as a result of their paying or not paying, and this “in CAP” balance is what they are responsible for if terminated or if they cancel service. (CAP customers who move within the service area may carry their CAP arrangement and the CAP balance with them.)

Energy Conservation

CAP customers with usage over 500 kWh per month are eligible for Smart Comfort services including a home energy assessment. For applicants to CAP with average usage above 500 kWh per month, CAP requires that a Smart Comfort visit be scheduled and completed before customers are admitted to CAP⁶.

Other Program Rules

CAP Participants are also asked to:

- notify Duquesne or their CAP agency of any significant changes in financial situation; and
- apply for energy grants to programs for which they are eligible. Duquesne encourages customers to apply for energy grants. CAP intake agencies can help customers complete paperwork for grant applications. If Heating customers in CAP have not applied for LIHEAP, they are defaulted from CAP prior to the opening of the next LIHEAP season, and must apply for a LIHEAP grant to be reinstated in the program.

Application Process

Most applications to CAP involve a face to face interview either with a CARES representative in the customer’s home, or more often at one of the seven offices of the two community based agencies that implement the program for Duquesne. These offices are typically open from 8:30 AM to 4 PM Monday through Friday. At this time only one office is accepting walk-in applicants (two

⁶ In practice, some CAP staff have required that a Smart Comfort visit be completed, and others that it be scheduled, in which case customers who do not allow completion of the Smart Comfort visit are dropped from the program. In August of 2009 Duquesne clarified with agencies that all high use applicants must complete their Smart Comfort visit before receiving a discount.

mornings a week), and in August of 2009 Duquesne asked that no office take walk in applications⁷. Thus most customers must call in advance to schedule an intake appointment. During pre-appointment telephone conversations, customers are instructed to bring proof of income and social security numbers for all members of the household. Those who are missing documentation at the close of an interview may mail in or fax the remaining information.

Recertification Process

All CAP plans are set to require recertification in twelve months, but they do not expire automatically- a staff person must close the plan. To continue in the program customers must have their eligibility recertified. Relatively few recertifications involve a face to face interview. At this time, Duquesne runs a computer algorithm that automatically recertifies the CAP customers who have no overdue CAP balance. This automatic recertification extends the plan another 12 months without proof of income.

For other customers, agency staff interact with customers and with computer screens to either re-certify the customer, starting another 12-month CAP plan, or to close their plan. A list of customers who need agency-implemented recertification is sent to each agency. (Each CAP customer is assigned to an individual agency, usually the one that handled their intake interview.) Agencies send letters to recertification candidates asking them to mail back or fax updated proof of income within a certain time period. Customers who do not respond to the letter are dropped from the program. To rejoin they typically must arrange for another face to face intake interview.

Enforcement and Collection

Customers who do not make a CAP payment within ten days of its due date are placed directly into the residential collections process. They will receive outbound calls and a written notice warning them that their service may be disconnected. If service is not terminated, they remain in CAP and receive their next CAP bill which would ask them to pay their entire CAP balance. If service is terminated, they may reconnect within two weeks by paying their catch up amount (the entire CAP balance) and a reconnection fee which is usually \$50. Their CAP plan remains intact.

There is no limit to the number of times a CAP customer may reconnect by paying their catch up amount, as long as they reconnect within two weeks of the service disconnection.

⁷ The rationale for this decision is to avoid complaints and dissatisfaction from customers who arrive at a walk-in session but cannot be seen because too many others are there before them. Another alternative would have been to increase staffing and hours for walk-ins.

A terminated CAP customer also has the option of reconnecting with a standard Chapter 14 reconnection agreement- an option which closes their CAP plan⁸. The Chapter 14 agreement typically asks them to pay:

- the reconnection fee,
- one 24th of their total account balance (which at this time would include the frozen arrears, the billing deficiency balance and the CAP balance), and
- a security deposit equal to two months of budget bill. The security deposit is waived if customers recently showed proof of income. However, if the last income verification is stale, customers must apply in person for a security deposit waiver, showing proof of household income. These waiver applications can be processed on a scheduled appointment or walk in basis at the same agencies that handle CAP intake⁹.

CAP customers whose service has been shut off and who do not arrange for reconnection within 14 days have their account and their CAP plan closed. The billing deficiency balance and the unpaid CAP balance are added back to their remaining pre-program arrears and the total amount becomes due. At this point, the person is considered an applicant for service. They must apply for service and are offered the standard Chapter 14 reconnection agreement described above. However, if they have broken such an agreement, they will not be offered another payment arrangement and must pay the entire account due balance, as well as a deposit and reconnection fee.

Only when their new account is opened (with a different account suffix) can they re-apply for CAP, and this usually requires an in-person interview with a CAP case manager. This interview is an opportunity to assess the issues that kept the household from maintaining service, and to make referrals to other supports that may be needed.

Consistency with PUC Guidance

The CAP program plan is in large part consistent with the current PUC guidelines for Customer Assistance Programs.

- It uses a rate discount, one of the payment determination approaches specifically authorized by the PUC.
- It asks for payment amounts generally consistent with the PUC's goal of gas and electric obligations not exceeding 17% of customer income.

⁸ This option could be attractive to customers with a very large CAP balance, in which case 1/24th of the entire balance could be less than the CAP balance.

⁹ This agency work taking applications for security deposit waivers is included in Duquesne's contract with the agencies, and thus would be reported to the PUC as a CAP-related administrative expense. The income information taken on security deposit waivers is often used to place customers in CAP once their account is active.

- It allows for exceptions to be made on a case by case basis, allowing a few households with serious health issues and related expenses to pay a lower percent of their bill than they would otherwise.
- However, the Duquesne CAP plan lacks a mechanism to limit the amount of subsidy individual customers can receive. Analysis discussed below shows that about third of CAP participants receive credits that exceed the maximum subsidy amounts suggested by the PUC.
- The plan also lacks a mechanism to enforce minimum payments, but in practice there are hardly any CAP customers with payments less than the PUC-stipulated minimums.

In spite of these two departures from its guidance document, the PUC approved Duquesne's CAP Program Plan (February, 2007 version) for the years 2008-2010.

Consistency of Program Operations with Program Plan

CAP program operations are almost entirely consistent with the written CAP Program Plan. There are a few elements of the written plan that are not fully implemented at this time:

- The PUC-approved CAP plan states that for customers whose percent of bill payment is "not consistent with the CAP Compliance Guidelines", Duquesne will provide an "individualized budget bill percentage". Consistent with the spirit of the plan, Duquesne does provide individualized discounts to some customers. These exceptions are based on high household expenses (usually medical). There is no procedure in place to screen and adjust discounts based on either percent of income calculation or the subsidy limits specified in the CAP Compliance guidance. Since Duquesne's CAP is not a Percent of Income Plan, the ranges the PUC specifies for PIPs may not be applicable. The issue of subsidy limits is more important and will be analyzed below.
- The plan stipulates that participants who miss a CAP payment will – in addition to being the target of collections department communications and efforts – "also be reviewed by the CAP agency to provide additional encouragement to maintain their CAP agreement." While the agency contract specifies that agencies will "monitor accounts", the amount and type of monitoring activity is not clearly specified. In practice, agency staff are not currently providing "mother hen" reminders and encouragement to non-payers. It appears their time is entirely devoted to intake and re-certification functions, and additional work taking applications for waivers of security deposits.

The written CAP program plan does not discuss how re-certification will be handled. The PUC stipulates an annual process to re-establish eligibility. In practice Duquesne has implemented computer algorithms that automatically recertify any CAP customers who are not behind in their CAP payments at the time of recertification. These automatic recertifications do not entail a review of household income eligibility.

Projected vs. Actual Enrollment and Expense

The CAP Program Plan submitted in 2007 projected an enrollment of 29,000 customers each year 2008-2010, with a funding level each year of \$11.42 million. Enrollment reached 30,400 in December of 2008 and passed 33,000

accounts by July of 2009. Duquesne has not closed or limited CAP enrollment, and has no plans to do so.

Actual expenses booked for 2008 totaled \$13.5 million, of which \$10.25 million covered billing deficiency credits written off in that year. Much of this write-off was of deficiency credits that accumulated during 2007 and were written off at some point in 2008. Thus the end-of-year reported shortfall credits may be a *lagging indicator* of the rate at which the growing number of CAP participants are accumulating deficiency credits.

Analysis of all CAP plans active in July of 2009 suggests billing deficiency subsidy obligations were then being accumulated at the rate of nearly \$17 million per year. This calculation does not take into account CAP revenue from LIHEAP and Dollar Energy grants, which amounted to \$2.4 million in 2008. It appears CAP grant revenue will be significantly higher in 2009. CAP revenue from Crisis grants through May 2009 was \$1.98 million compared to \$0.74 million in the same period of 2008. It seems reasonable to project that grants will cover about \$4 million of the 2009 billing deficiency, reducing it to \$13 million. Adding at least \$3 million for administrative expense and forgiveness of pre-program debt brings estimated 2009 total program costs to \$16 million, 25% more than the \$11.4 million projected in the 2007 plan.

Section Three: Evaluation Questions

This section will address the specific evaluation questions the PUC has stipulated for Universal Service evaluations.

1. Is the appropriate population being served?

CAP is serving a large and steadily growing number of customer participants. Though the planned program budget has been exceeded, the program has not been closed to new entrants. Enrollment is open; customers who schedule and complete an intake interview can join the program by showing proof of qualifying income. Smart Comfort also appears to be serving eligible customers without delays or waiting lists¹⁰.

Although CAP has an open door, there might be customers who need the program who haven't passed through the door. Knowing more about these unserved customers- who they are, and how many they are, can be helpful to:

- assess how well the program has reached those who need it
- project future enrollment growth, and
- evaluate the potential impacts on future enrollment of possible changes in program outreach and application procedures.

One way to assess whether the appropriate population is being served is by estimating the size of the appropriate population, then comparing this number to the number of households already enrolled in CAP.

All of Duquesne's approximately 100,000 low-income customers are eligible for CAP, but not all households with incomes below 150% of poverty need or want assistance to pay their utility bills. The concept that only some low-income households need assistance is entirely consistent with the PUC's guidance to target CAP subsidies to "payment-troubled" low-income customers.

The PUC guidance suggested four different criteria *to qualify* low-income customers for subsidies:

- Housing and utility costs (including gas, electric, water, oil, propane, telephone, and sewage) exceed 45% of income.
- Subtracting all household expenses from all household income leaves less than \$100 of disposable monthly income

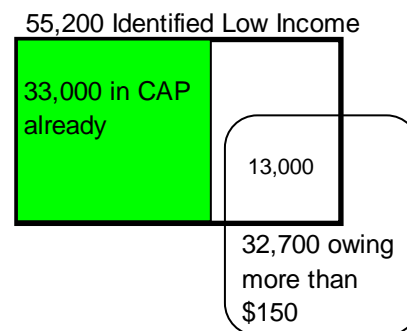
¹⁰ While CAP and SMART Comfort are not turning away customers, it should be noted that the LIHEAP Crisis grants and Dollar Energy Grants are in limited supply, and that funding for these programs is exhausted by late spring, leaving customers without a crisis grant resource during summer months. This is a gap in the Pennsylvania energy assurance safety net.

- The household has an arrearage (debt from unpaid past bills)
- The household has a termination notice.

Earlier versions of CAP programs made it a requirement for participation that customers have an overdue balance. As CAPs evolved, companies realized that customers with clear financial need for assistance should be able to enter a CAP without first running up a qualifying debt, and that customers who had paid off their debts through CAP should remain eligible for discounts as long as their financial constraints remained. While these four criteria are rarely used as requirements at this time, they do suggest two different approaches to defining the appropriate market, one behavioral, the other financial.

The behavioral approach focuses on *payment behavior*. It counts or estimates the number of low-income households who demonstrate difficulty paying their bills. To its credit, CAP has already enrolled 49% of all the customers who demonstrate payment trouble (up from 36% in November of 2003). In July of 2009 there were 32,700 residential accounts remaining outside of CAP with arrears over \$150. Forty percent of this group (13,000 customers) are already identified as low-income customers, and the actual percentage of CAP-eligible customers is probably higher. If half the remaining payment troubled customers are income eligible, that would bring the total potential market to around 50,000 customers, nearly 10% of all residential accounts.

Figure 7. Residential Customers: Half of Payment Troubled Customers are Already Enrolled in CAP



The shortcomings of the behavioral approach to defining need are:

- It doesn't count customers who may be paying their bills regularly, but at a high personal cost (going without medicine, for example). These customers should be included in the appropriate market for subsidies.
- It includes customers with sufficient financial resources to pay their bills, whose nonpayment is due primarily to poor management or misplaced priorities. These customers should arguably receive smaller subsidies than those whose financial needs are greater.

The financial approach to defining need focuses on *financial ability* to pay. Using this approach, the appropriate market was defined as households with income at or below 150% of the poverty level, paying an electric bill, AND with housing-related expenses exceeding 45% of their income, AND with few

financial assets. These are the low-income customers who have *financial* barriers to full regular payment of energy utility bills. By this definition, there are many “low-income” households that do not need the Universal Service Programs- those with modest housing expenses and/or substantial assets to defray them¹¹.

In a 2004 market assessment for Duquesne, RETEC analyzed the Public Use Micro Sample from the 2000 census and found that:

- There were 536,300 occupied housing units, of which 500,575 (93%) paid an electric bill.
- 102,500 of these households reported income below 150% of the poverty level in 1999; 84,600 (83%) of these low-income households paid an electric bill.
- Of the 84,600 low income households paying an electric bill in 1999, nearly two-thirds faced housing related expenses (including energy utilities but not telephone service) greater than 45% of their income, and 44,837 households (53%) faced these high housing expenses without substantial financial assets to defray them.

The detailed Census information to update these estimates will not be available for several years, but trends discussed below suggest that the number of “appropriate households” is now substantially larger than the 44,837 estimated for 2000 and the 48,000 estimated for 2004.

- Food costs are up 33% since 2009 while wages have generally been flat, and the ranks of the unemployed have grown.
- For many of the households that had them, the value of financial assets and the income derived from them has dropped precipitously in the last year.
- The number of households receiving food stamps in Allegheny and Beaver counties has increased 66% since the 2000 census information was gathered. No doubt, some of this increase occurred among households already eligible for CAP. Their use of food stamps may have increased due to greater need and/or simplification of the food stamp application process and requirements. Some of the new food stamp users are households previously ineligible for CAP becoming eligible due to lowered incomes.

Multiplying the Census 2000-based estimate of 44,837 “appropriate market” low-income households by the 133% (half the increase observed in Service Area food stamp use) yields an estimate of 60,000 appropriate households in the market. CAP now serves 33,000 households, suggesting there are another 27,000 potential *and appropriate* participants who could join the program.

Since at this time the CAP program does not disqualify customers with low housing expense or substantial assets, the market of *possible* participants is much larger. It includes all households with incomes below 150%, and a small

¹¹How can Universal Service Programs deter participation from the roughly 45% of “low-income” households that arguably do not need financial assistance? Options include a time-consuming application process (weeding out those who have more money than time), a stigmatizing application process (weeding out those too proud to ask for assistance), and/or adding requirements that evaluate assets and housing related expenses.

portion of those with incomes between 150% and 200%. Estimated at 84,000 in year 2000, this *possible* market could easily number 100,000 customer households at this point in time. However, for those who can afford their monthly expenses, participation is less likely given the time, effort, stigma, and loss of pride involved in applying for assistance.

Combining the results of the behavioral and financial approaches, the appropriate market for CAP appears to number 50,000 to 60,000 customers. While there seems to be un-served market enough for CAP to continue its current growth rate for a few more years, subsidy programs never enroll the entire eligible market. It appears likely that CAP growth rates will slow as the program passes the 40,000 participant level.

Are There Underserved Market Segments?

While CAP has enrolled a substantial portion of the eligible and interested customers, the evidence suggests that there are identifiable underserved segments in the appropriate market for CAP.

Food Stamp Recipients

75,000 households in the two counties receive food stamps. Some live in quarters where utilities are included in rent, and others live in areas not served by Duquesne (mostly in Beaver County). Adjusting for these subsets¹² suggests there are roughly 48,000 food-stamp using households who are potential CAP participants. All would be income eligible, and arguably all are experiencing financial difficulties.

Duquesne no longer consistently records food stamp income for CAP participants, but in 2004 when records were more complete, nearly half the program participants reported receiving food stamps. Estimating that 20,000 current CAP participants use food stamps leads to the conclusion that 28,000 more potential CAP participants can be found among the area's food stamp using households. They have already demonstrated their willingness to apply for subsidies, if they perceive the benefits to merit the effort involved.

Customers Who Live Far From Intake Offices

Duquesne has worked with agencies to strategically locate intake offices so as to best serve the service area's low-income population. In the recent re-bidding of subcontracts to front line agencies, an analysis of locations was conducted and several CAP offices were relocated to better serve the market. Nevertheless, it appears that the (remaining) difficulty of traveling to intake

¹² Following the methods and numbers shown in pages 16-19 of Appendix A from the 2004 Market Assessment Report prepared by RETEC for Duquesne Light.

offices lowers participation for the customers who live far from the nearest office.

The CAP enrollment process involves completing a face to face interview at one of seven offices operated by two social agencies. Since only one office is at this time is taking walk-in applicants (the first 40 applicants, two mornings a week), most of these interviews must be scheduled in advance. Agencies are typically open for interviews 8:30 AM to 4 PM Mondays through Fridays. During interviews with evaluators, agency staffers stated their belief that some applicants have difficulty arranging for reliable transportation to agency interviews, while other potential applicants may be leery of traveling to unfamiliar neighborhoods they perceive to be unsafe.

Do these intake constraints pose a barrier to participation for customers living far from an office, some of them without automobiles?¹³. To test this hypothesis an analysis of CAP participation rates by zip code was completed, producing the maps found in Appendix A. These maps show a clear pattern of higher participation rates near intake offices, and low participation rates farther from offices.

To support this analysis Duquesne furnished counts by zip code of all its residential customers, CAP customers, Identified Low-Income Customers, and subsets with arrears over \$150. To calculate the number of potential participants in each zip code, the number of current CAP participants was added to the number of non-CAP customers overdue at least 30 days and \$150. This total was considered to be payment troubled accounts.

Payment Troubled Accounts = CAP Participants + Non-CAP accounts overdue >\$150

For each zip code, the percentage of these payment trouble accounts in CAP was calculated. Intake office locations and each zip code's participation rate were plotted on maps for Beaver County, Allegheny County, and Pittsburgh, shading the zip codes to divide participation rates into five roughly even quintiles.

13 Studies of participation patterns in the food stamp program confirm that for eligible non-participants," the costs of applying for benefits – measured in terms of time, money, stigma, and hassle –often can outweigh the benefits." (Access and Access Barriers to Getting Food Stamps: A Review of the Literature, Food Research and Action Center, Washington, DC 20009, February 2008, page 15). Eligible households with working adults are 12% less likely to apply for food stamps, whereas households already in the public assistance system are more likely to apply. Those with travel times under 15 minutes were much more likely to apply for benefits than those who had higher travel times to application sites.

In the top 20% of zip codes, CAP participation rates ranged from 53% to 73%. Most of these high-participation zip codes are near intake offices.

Zip codes in the lowest three quintiles had CAP participation rates between 3% and 46%. Most of these zip codes were farther from intake offices.

Among the zip codes with participation rates in the lowest 60% of the distribution, 23 “opportunity” or underserved zip codes were identified where 10% or more of residential customers were payment troubled, but fewer than 44% of the debt/trouble customers are in the CAP program. Plotting these underserved zip codes on maps (also found in Appendix A) shows that these opportunity zip codes are typically far from existing intake offices. These opportunity zip codes house 10.5% of Duquesne’s residential customers and they accounted for 10% of the residential terminations for nonpayment that occurred from April 2007 through July of 2009.

The validity of this participation analysis relies on the unproven but reasonable hypothesis that the non-payers in more affluent zip codes are as likely, or nearly as likely, to be low income (and CAP eligible) as non-payers in less affluent zip codes. Since verified income information is lacking for non-CAP participants there is no easy way to prove this hypothesis. Therefore these geographic patterns are suggestive rather than conclusive.

Households with Children

Data from the free school lunch program suggests there are many potential participants not yet enrolled in CAP. For three adjacent zip codes (15220, 15216, and 15226) with CAP participation rates hovering around 48%¹⁴, a comparison was made between CAP participants and free lunch recipients in elementary schools located in those zip codes. Children from families with incomes at or below 130% of the poverty level, children in families receiving Temporary Assistance for Needy Families (TANF) and children in families receiving food stamp benefits are eligible for free lunches. All these households would be eligible for CAP. K-6 schools in these zip codes distributed free lunches to 1,460 pupils last year, suggesting that once higher grades are included, at least 2,800 children in this area were eligible for free lunches in 2008-2009¹⁵. Analysis of CAP application and zip code data for a 20% sample of all residential customers estimates there are 860 school-aged children in CAP active participant households living in these same zip codes.

¹⁴ These zip codes somewhat arbitrarily, due to ease of identifying schools in the area, and their mid-level participation rate. A thorough analysis matching individual participant addresses to school boundaries would be possible but time consuming.

¹⁵ Information obtained from Pittsburgh Public Schools website and officials. About 105 of applications are rejected as ineligible.

This in turn suggests a CAP participation rate of 30% for households receiving free school lunches in those zip codes.

Households with Workers

Restricting interviews to the Monday to Friday workweek discourages application by some households with working adults who may lose income or employment if they take time off for an interview. Agency staff disagree, feeling that anyone who really wants to be in the program can find a way to arrange for an interview. One staffer will arrange to arrive well before 8 AM, opening the building alone to accommodate working households. Since staff meet those who do manage to attend interviews, their sample may be biased. Several studies of food stamp participation rates suggest that requiring face to face interviews during working hours does discourage participation by eligible working poor households, lowering their participation by as much as 12%¹⁶.

The 2004 market analysis found that 43% of the financially appropriate market households had earned income.¹⁷ According to CAP application data for a 20% random sample of all residential accounts, only 33% of active CAP participants have earned income as their primary income source. This suggests that working households are an underserved market segment. CAP's use of gross income instead of net income in its calculations could also discourage working households, making the program less valuable to them than it might be if net income were used to set benefit levels¹⁸.

Households Not Fluent in English

Program brochures and outreach materials are printed only in English. AECOM discussed with staff whether there are language barriers to participation for non-English speakers. All staff agreed that most applicants speak English, and that those few who do not speak English can be reached with interpreters. One agency staffer reported a preference for communicating with deaf applicants on paper during a face to face interview, since subtle details might be lost via a translator. Another reported close ties to agencies working with immigrant groups. Duquene's call center contracts with a multi lingual service that supports 3 way calls including an interpreter. Statistics show that this service is used on approximately one in every 15 thousand calls. Thus available information suggests that lack of fluency in English is not a significant barrier to participation.

¹⁶ Access and Access Barriers to Getting Food Stamps, op. cit.

¹⁷ See page 12 of the 2004 market analysis, Appendix A.

¹⁸ The PUC has favored use of gross over net income in its CAP guidance.

Households Who Cannot Wait or Plan

Difficulties contacting agencies, and difficulties scheduling, remembering, and getting to appointments are an additional barrier to participation by households that are working, overwhelmed with multiple problems, or have poor organizational skills. Staff at collaborating social agencies are committed and capable, but they handle the current volume of program intake and recertification work with delays that could decrease participation¹⁹. If customers perceive the application process to be difficult, that becomes an impediment to their making the effort to apply.

When interviewers called agencies in late August to schedule interviews with staff, they heard outgoing voice mail messages saying that no walk ins were being accepted for CAP, that the first available appointments for CAP intake would be in October (six weeks away), and that these appointments could be scheduled starting in mid September (three weeks in the future). Some voice message boxes were full, so customers could not have left a message with their phone number. At one agency, telephone lines were busy during the first three attempts to reach the agency.

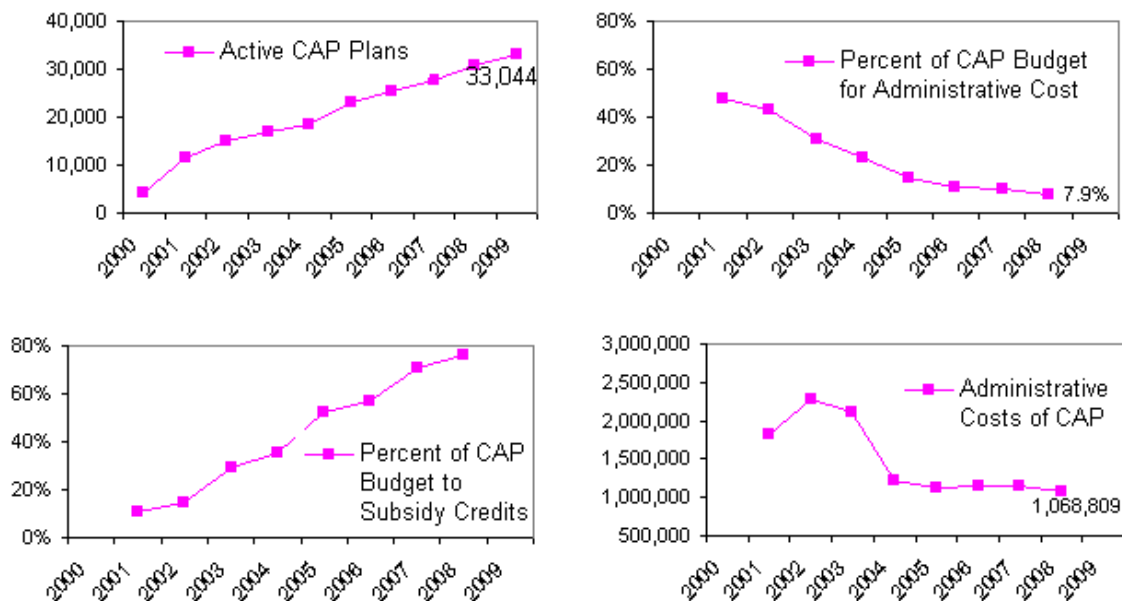
In August of 2009, only one agency was taking walk-in CAP applicants. It was burdened with more applicants since those who could no longer walk in to their nearest office traveled farther distances across town to the agency that would accommodate them. So many customers did so that the agency had to limit its services to the first 40 walk-ins, two mornings a week. Thus there appears to be a clear market demand for walk-in application opportunities, a demand that the program is not accommodating at this time. Customers in crisis are likely to choose actions that bear fruit quicker than an appointment they can schedule six weeks in the future to receive a typically modest subsidy that will only slightly reduce their total housing costs, and will arrive in modest increments in months even farther in the future. The lack of walk-in application opportunities seems inconsistent with the notion that agencies will encounter and enroll clients who come to them for other purposes.

Delays in scheduling appointments, and the lack of walk-in opportunities both appear to be caused by strained administrative resources. The CAP administrative budget has declined in recent years, both in dollars and as a share of total program costs. While low administrative costs are desirable, the

¹⁹ The same staff are involved in taking applications for waivers of security deposits. Customers establishing service who qualify for these waivers can – once they have an account number -be put in CAP without making an additional visit to the agency, so it is unclear how much extra work this waiver process places on social agency staff. One agency staffer estimates she spent up to 20% of her August, 2009 hours taking applications for security deposit waivers.

trend may have gone too far. The current administrative budget may be too low to support a growing program.

Figure 8. CAP Costs Over Time



High Use Customers

Duquesne requires applicants with high use to complete or schedule a Smart Comfort visit before they are approved for the CAP program. This otherwise laudable feature could in theory delay entry for some applicants, and discourage entry for working adults who have trouble arranging time at home for a Smart Comfort visit during working hours. However, the Smart Comfort program manages to schedule premise visits with little delay, and high use customers have the most to gain from CAP, so this group may be adequately served.

Customers with Service Terminations

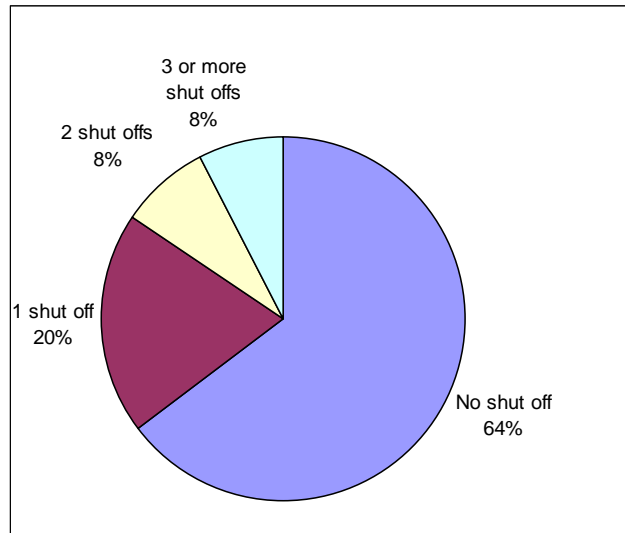
Only 26% of the customers with service terminations for nonpayment since 2007 have been in CAP any time in that period. Duquesne reports to the PUC that nearly all its collection expenses in the last three years have been targeted to low-income customers. If this report is correct, then nearly 75% of all terminated customers are low-income households that have not yet been in CAP (or who left CAP prior to 2007 and have not re-entered the program).

The non-financial characteristics that make some households prone to shut offs (misplaced priorities,

Figure 9. Number of Shut Offs in CAP Customer History

addictions, poor organization, dysfunctional households, difficulty delaying gratification, etc.) may keep these shut-off prone households from successfully navigating the current CAP application process.

Most CAP customers have not been shut off for nonpayment.



The non-financial characteristics that make some households prone to shut offs (misplaced priorities, addictions, poor organization, dysfunctional households, difficulty delaying gratification, etc.) may keep these shut-off prone households from successfully navigating the current CAP application process.

2. Does the size of USP meet the need in a utility's service territory?

Duquesne's CAP plan does not specify a size limitation for the program. The program's size depends upon enrollment and attrition trends. AECOM believes that the planned size of 29,000 for 2010— already exceeded at 33,000 — is not realistic, and that if the intake process were simplified for some and more adequately staffed for others, the program could eventually enroll 45,000 - 60,000 households.

The planned budget of \$11.42 million for 2010 appears small compared to likely costs in that year. Analysis detailed above suggested that in 2009 program the program costs, adjusted for grant revenue, are running at an annual rate of \$16 million. If enrollment increased to 50,000 in the next few years and subsidy formulas are little changed, the CAP program total cost could rise to over \$20 million, or roughly \$40 per ratepayer per year. Comparison to other electric utility CAPS in Pennsylvania suggests this is a reasonable cost burden. As of 2007, CAP's statistics for subsidy credits per participant, program cost per participant, and program cost per ratepayer were all in the lower third for Pennsylvania electric utilities.

3. Are the customers enrolled in USP eligible for these programs?

On paper, customers are eligible. Analysis of application data and payment plans shows that customers entering CAP have provide information demonstrating eligibility, and that they have been assigned payment plans (discount rates) consistent with their application data and the CAP program plan.

However, it is likely that some portion of the current program participants are in fact not eligible for the program, or are eligible for a smaller discount than they receive. This statement is supported by the four observations:

Undisclosed income. Some customers do not accurately report all sources of income and all adults in the household. It is not easy to develop and defend an estimate of the portion of applicants with fraudulently incomplete applications. Interviewed agency staff gave estimates ranging from 5% to 50% of applicants underreporting income sources, with most estimates falling between 5% and 15%. Most staff interviewed mentioned individual cases where the household expenditures obviously and unsustainably exceeded disclosed income, or where additional adults were found to be in the household. One staffer observed that many of the households do not have long-term stability in terms of occupants. Friends, lovers, relatives, adult children, and grandchildren come and go, so that household composition is unpredictable.

Natural improvement in circumstances. Customers are placed in CAP for an entire year once they document their eligibility. Earlier studies in Pennsylvania service areas suggest that about one third of the appropriate low-income market experiences frequent changes in financial circumstances, changes that move them in and out of eligibility. Those whose circumstances deteriorate may apply mid-year for a lower discount, but many of those whose circumstances improve after entry may coast along in CAP for a full year until they are asked to update information at the time of recertification²⁰. Staff believe that higher incomes account for most of the participants who fail to recertify. If one half of the one third with fluctuating circumstances become ineligible during the year, this suggests that at any point in time up to one sixth of current participants are no longer eligible for the program or for their particular discount rate.

²⁰ RETEC's 2003 evaluation of Allegheny Energy USPs included an in depth survey with CAP participants conducted approximately six months after their intake event did not involve a face to face interview. That study found that over 30% of the households surveyed were significantly better off than their application data showed them to be six months earlier, but could not estimate what percentage if any of the applicants had failed to disclose information at the time of application.

Automatic recertification. To lessen administrative costs, Duquesne has implemented computer algorithms that automatically re-certify, without any contact or proof of income, those CAP participants with no CAP overdue balance. In summer months, this could be over 70% of participants. AECOM believes that the subset of CAP participants who catch up their payments is likely to include not only those customers who are well organized, future oriented and frugal, but also those whose changed or undisclosed circumstances make them more able to pay and no longer eligible for their discount. Interviewed agency staff confirm that when contact is eventually made with customers in this group, many of them are found ineligible or are given a smaller discount.

Households with zero income. Of most recent income statements on record for CAP participants, 11 percent show zero household income. Households with no income source were at one time ineligible for CAP. Households with no income are highly likely to either be hiding income or to experience an increase in income in the near future. Arguably, households reporting no income should not be given a full year of discounts on that basis. Households with zero income could be required to update their financial information within three to four months and could be dropped or given a smaller discount if they cannot verify an income source at that time.

4. Is recertification completed pursuant to a utility's Commission-approved universal service plan?

The commission-approved CAP program plan calls for annual re-certification, and Duquesne's program meets this requirement. Examination of records for all active CAP plans shows that 98.8% are either in their first year, or were re-certified within 13 months of joining. However, in recent years CAP customers with no overdue CAP balance have years been automatically re-certified without proof of eligibility. Others must submit (by mail or fax) information confirming their eligibility.

CAP financial statements recorded in the last three years show much less income fluctuation than earlier ones. This could reflect deteriorating economic conditions or could also be the result of automatic recertification. The analysis of payment regularity and catch up payments detailed below suggests that a substantial percentage of recertifying customers would be caught up in their CAP payments, and thus would have received automatic recertification.

5. What is the customer distribution by CAP payment plan?

To answer this question an analysis was done of all CAP plans active in July of 2009. (Of 33,040 active plans, 32,200 had sufficient data to discern payment plans and usage levels.) Duquesne's CAP is a percent of bill plan. The dollar amounts customers pay are a function of both their discount percentage and their average electricity consumption.

Discount x Budget Bill = CAP Payment.

Figure 10. Usage Levels, Average Co-Pays

Evaluation Usage Thresholds*
(monthly avg kWh)

	RS	RH
low	450 or less	650 or less
moderate	450 - 700	650- 1200
high	700 -1000	1200-1600
extreme	over 1000	over 1600

*from 2003 CAP Evaluation, based on usage distribution for all retail customers

Average CAP Payment Amounts

Use_level	RH	RS
low	\$33.93	\$22.43
moderate	\$70.30	\$41.90
high	\$105.37	\$60.42
extreme	\$178.32	\$99.91
All Customers	\$79.17	\$54.56

For all customers in CAP in July of 2007

Because consumption affects payment amount, this analysis divides payment plans into four groups based on the usage levels defined in Duquesne's last USP evaluation. 92% of CAP customers are non-heat (RS) customers.

Payment plans for RS and RH active Cap participants are distributed as shown in Figure 11. Clearly, most customers receive the plan-specified discount for their poverty level, and a few exceptions have been made.

Figure 11. Distribution of RS and RH Payment Plans

RS (non-heat) Customers by Discount and Usage Level					
Paying:	extreme	high	moderate	low	All
below 30%	8 individuals, 1 w with extreme use, 2 w with high use				
30%	5.7%	7.2%	7.7%	5.1%	25.7%
35% to 55%	0.04%	0.06%	0.05%	0.03%	0.19%
60%	12.1%	14.0%	16.5%	10.6%	53.1%
70%-80%	0.02%	0.03%	0.04%	0.01%	0.10%
85%	4.9%	5.8%	6.3%	4.0%	20.9%
90%	2 individuals with extreme use				
All	22.7%	27.1%	30.5%	19.7%	100.0%

RH (Heating) CAP Customers by Discount and Use					
Paying:	extreme	high	moderate	low	All
45%	3%	6%	13%	8%	30%
65%	7%	6%	22%	14%	48%
80%	3%	3%	10%	5%	21%
All	13%	15%	45%	27%	100%

Figure 12. Plans by Poverty Level

To address possible “survivor bias” among payment plans for active CAP customers, it is useful to include former CAP participants in the analysis.

CAP plans by Poverty Level			
	<u>Active</u>	<u>Broken</u>	<u>Ended</u>
Below50%	27%	32%	26%
50to100%	49%	44%	35%
100to150%	23%	22%	39%
150to200%	2%	1%	0%
200to300%	0%	0%	0%
over300Pct	0%	0%	0%
	100%	100%	100%

Analysis of data drawn from 20% random sample, and similarly selected subsets of data available for former CAP customers, total of 7972

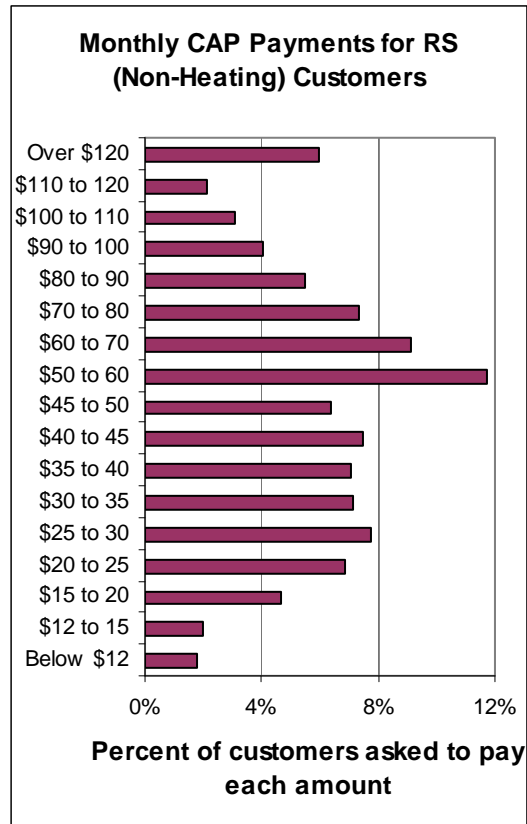
It appears that broken CAP plans are distributed among discount levels similarly to active plans, with the exception that the payment plans for those in the lowest poverty bracket are more likely to be broken. Those with incomes over 100% of poverty are more likely to leave the program in good standing.

The dollar payments asked of current CAP RS customers are distributed as shown in Figure 13. Most pay between \$20 and \$90 per month.

Note that about 21% of RS customers are very high users whose *discounted* bill exceeds the average \$80 retail bill for RS customers.

In warm months, RH (electric heating) customers pay nearly the same rate as RS customers. For heating customers winter costs per kWhs over 500 per month dropped as low as 2.5 cents per kWh (2002-2004) but recently rose to 9 cents per kWh.

Figure 13. Co-Payment Dollar Amounts



Data for 33,044 CAP plans open July, 2009

6. Generally, do participants' energy burdens comply with the CAP Policy Statement?

Energy Burdens in the CAP Policy Statement

The CAP Policy statement has two standards for energy burdens. The first standard states that customers should generally be asked to pay less than 17% of income for gas and electric utility bills combined. This standard is broadly applicable to all kinds of CAP programs (rate discount, percent of income, percent of bill, etc). The results below demonstrate that Duquesne's CAP is largely consistent with this standard, with some exceptions for customers with very low incomes or extremely high use.

The second standard applies to Percent of Income Plans (PIPs). This standard specifies certain ranges for customer payments as percent of income. These ranges are shown in Figure 14. They ask customers to pay progressively higher percentages of income at higher poverty levels. The analysis that follows will compare CAP payment amounts to these specific preferred ranges.

Figure 14. PUC Guidelines for Percent of Income Plans

CAP Design Elements (Pa PUC)	Customer Group:	
	RS	RH
Appropriate percent of income to pay for utility service		
0-50% of Poverty Level	2 - 5%	7 - 13%
50%-100% of Poverty Level	4 - 6%	11 - 16%
100% to 150% of Poverty Level	6 - 7%	15% - 17%
Minimum monthly payment amount	\$12 - \$15	\$30 - \$40
Maximum subsidy (annual)	\$560	\$1,400
Maximum subsidy (monthly)	\$46.67	\$116.67

Three caveats are in order before comparing CAP payment amounts to these preferred percent of income ranges:

- It is not clear that these specific ranges-- developed for PIP programs—are appropriate to evaluate rate discount programs.
- Compelling arguments can be made that these ranges are not the best way to calculate customer co-payments in a sliding scale subsidy program (See Appendix B.)
- Even in a Percent of Income Plan, if the recommended minimum payments and maximum subsidy limits are incorporated, many customers will end up paying amounts outside the specified percentage of income ranges. This is especially true for high use customers. (See Appendix B.)

Percent of Income Customers are Asked to Pay

To determine what percent of income CAP customers are asked to pay, an analysis was conducted using data from a 20% random sample of all residential customers. CAP customers in the sample had demographic data listing all individuals in the household and their incomes. This information was used to calculate household income and the 2009 poverty level for each household.

Data for each active CAP participant included the dollar amount of their CAP payment and their discount rate, from which their annual average usage could be inferred with great accuracy.

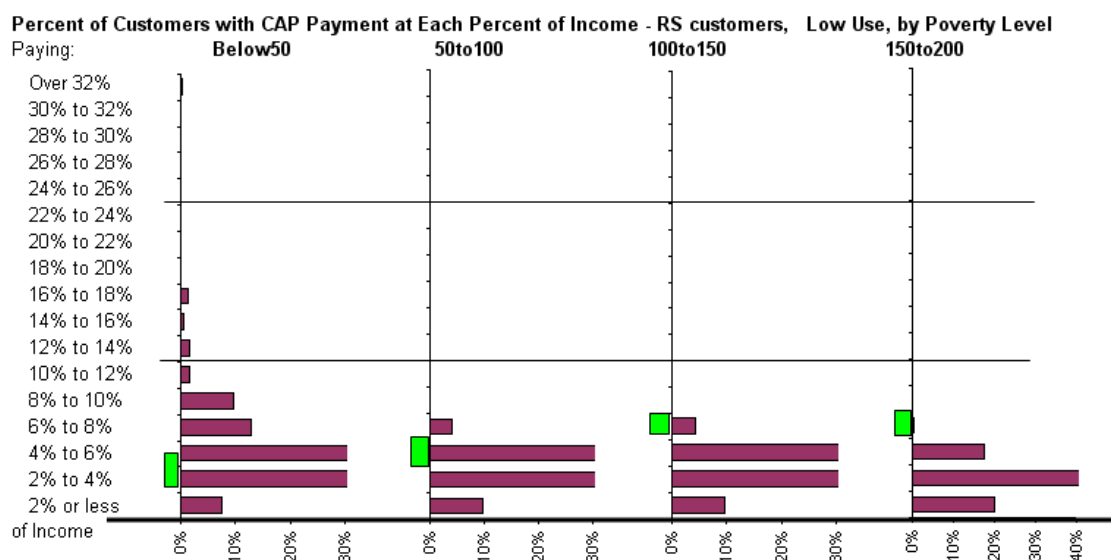
Because the CAP payment is a function of use and discount rate, it is important to discern the impact of both poverty level and usage level. Results of the analysis are detailed below. Generally, they show that:

- For most CAP customers with low and moderate use, the energy burden (CAP payment as percent of income) falls below or within the ranges specified for PIP plans.
- However, even at low usage levels, some customers with very low incomes will end up paying a high percent of income (as they might in a percent-of-income plan where the PUC suggested minimum payments were required).
- At lower poverty levels, customers with high or extreme use are often asked to pay a higher percentage of their income than the PUC PIP guidelines specify. However, this same result would also be likely in a percent-of-income plan where the PUC-suggested maximum subsidy limits are observed.

The graphs that follow show the percentage of their household gross income CAP customers are being asked to pay. Results are broken out for subgroups according to rate (RS or RH), poverty bracket, and usage level. The range specified in the PUC PIP schedule is shown as a vertical bar to the left of each distribution. These graphs reflect only the percent of income ranges. They have not been modified to reflect payments in a situation where minimum payments are required or where maximum limits are set on subsidy amounts.

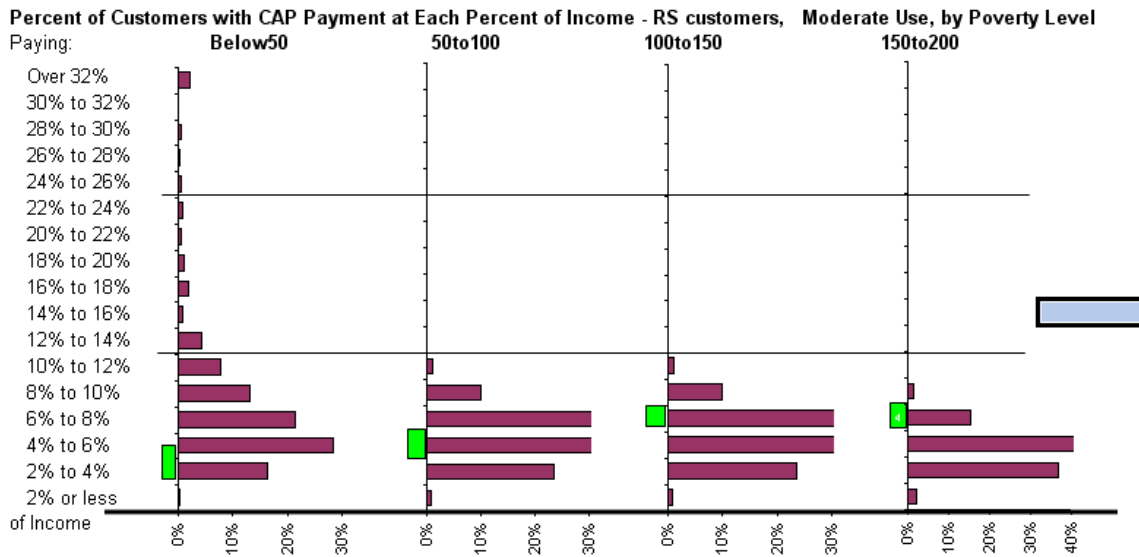
For RS customers with low use, the poorest group pays slightly more, and less poor groups pay less than the PUC PIP ranges.

Figure 15. Percent of Income Paid by Low-Use RS Customers

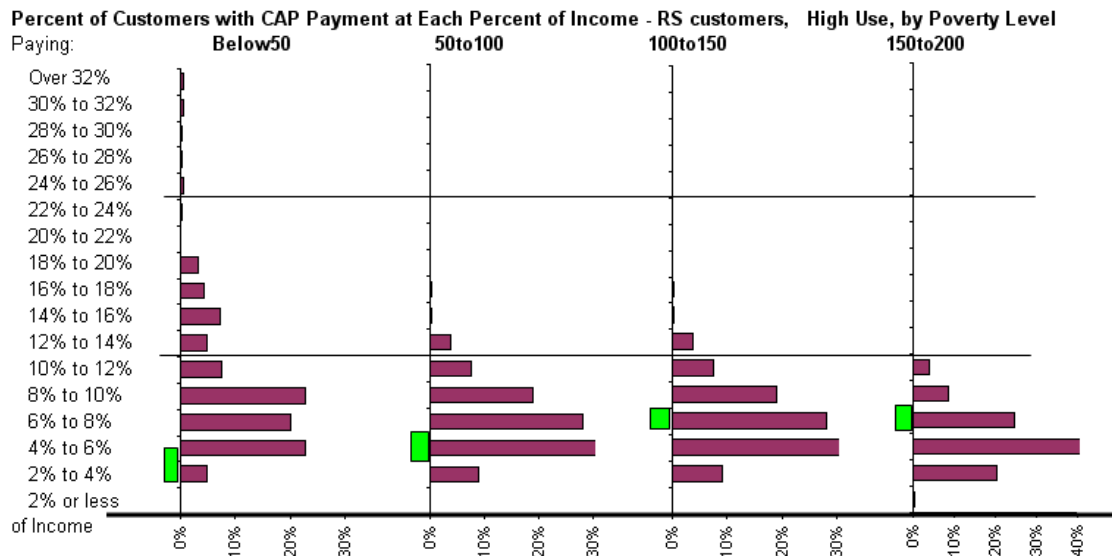


Among RS customers with moderate use, CAP payments for the poorest subset exceed PIP guidance, those between 50 and 100% of poverty approximate the PIP amounts, and those over 100% still fall below the PIP ranges.

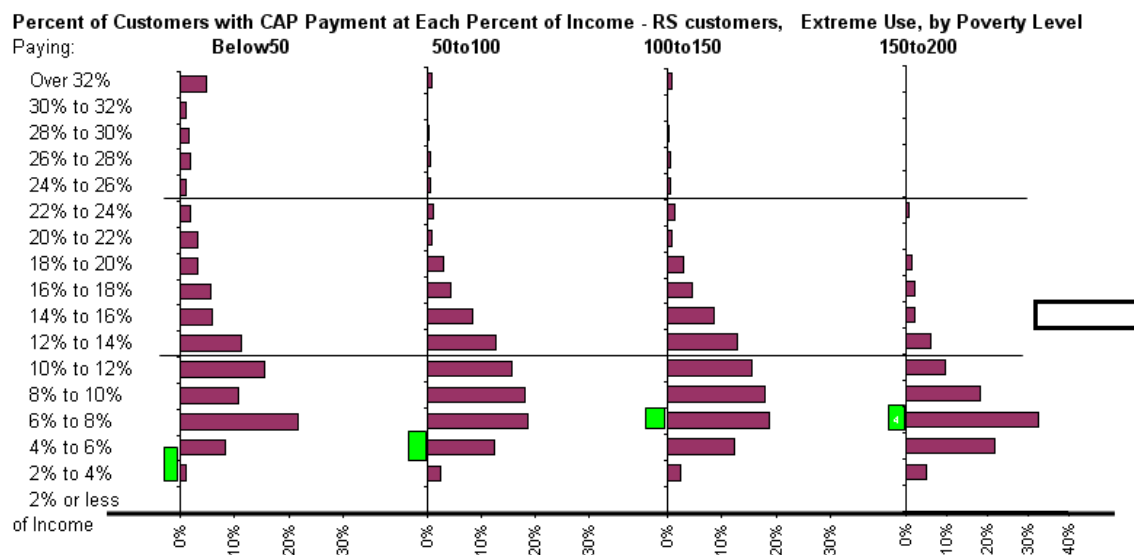
Figure 16. Percent of Income Paid by Moderate-Use RS Customers



Among RS customers with high use, nearly all households with incomes below 100% are asked to pay amounts exceeding PIP ranges, while those over 100% approximate the PIP guidance.

Figure 17. Percent of Income Paid by High-Use RS Customers

At extremely high usage levels, all RS subsets below 150% of income have CAP payments exceeding the PIP guidance.

Figure 18. Percent of Income Paid by RS Customers with Extremely High Use

The same patterns are seen among RH Customers. Customers with very low incomes may pay a relatively high percent of their income, even though they receive a deep discount. Low and moderate users above 50% of poverty pay a lower percentage of income than 11% to 17% suggested by the PUC. Payments for customers with high use generally fall within this suggested range, and customers with extreme use pay higher percentages of their income, as they would if subsidy limits were imposed in a percent of income

plan. Note that most heating customers with incomes over 50% of poverty level pay less than the PUC PIP guidelines would ask. The PIP guidelines specify payments over 12% of income (15% to 17% for incomes over 100%) resulting in payment amounts that are unlikely to qualify for any subsidy.

Figure 19. Percent of Income Paid by Low-Use RH Customers

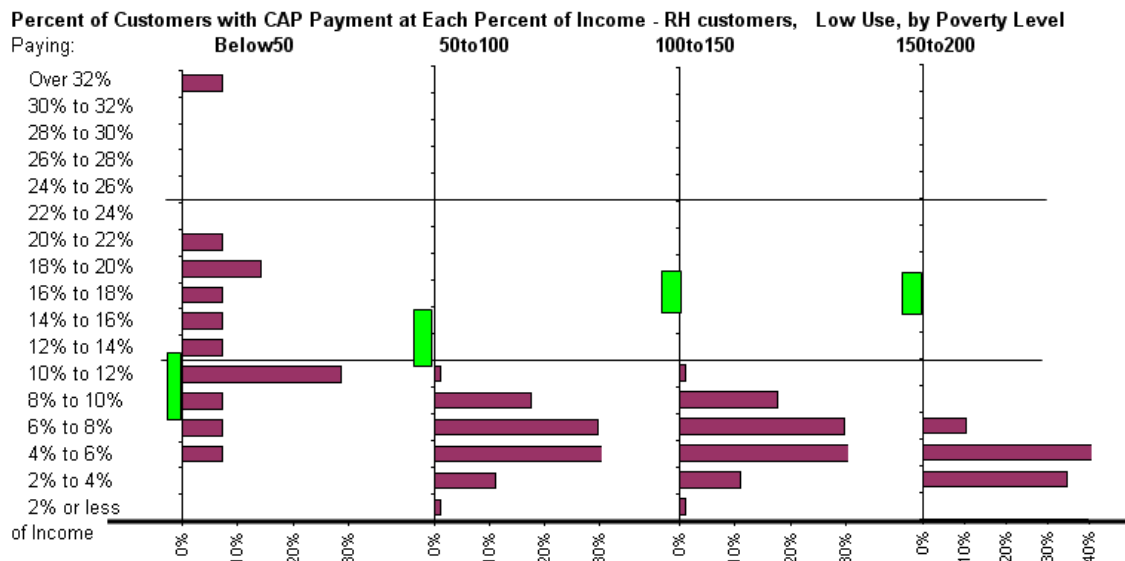


Figure 20. Percent of Income Paid by Moderate-Use RHS Customers

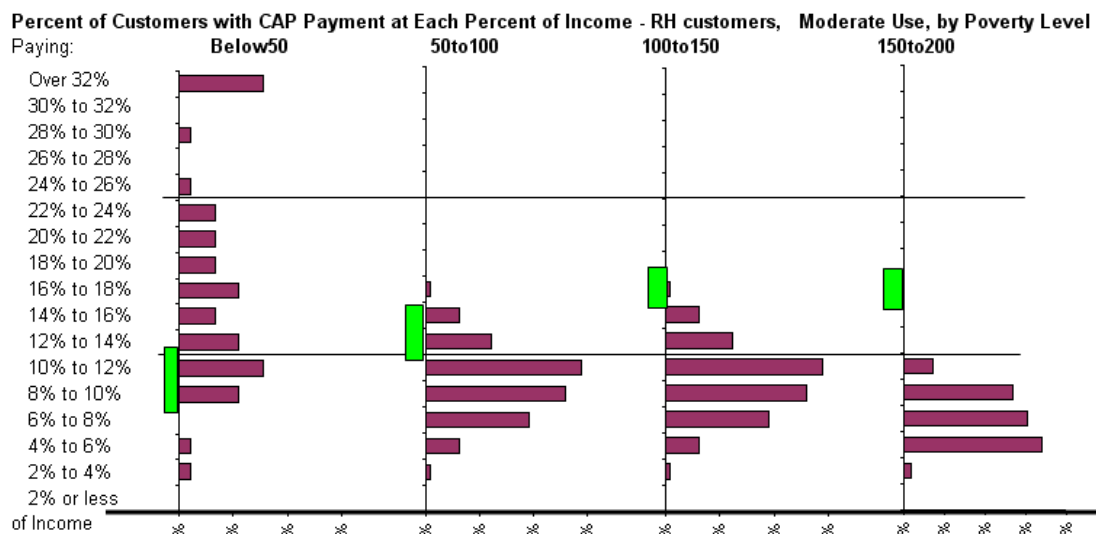
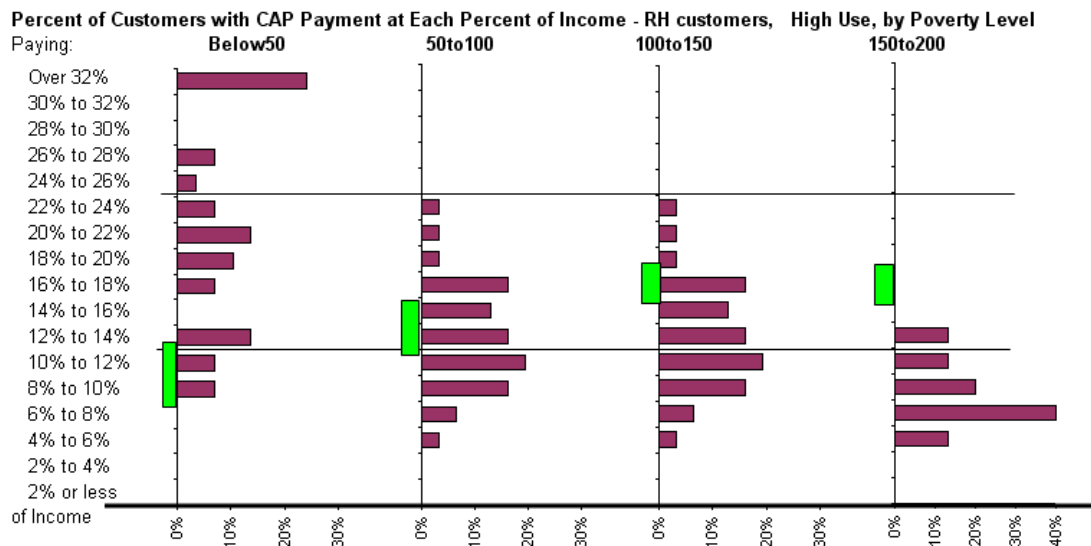
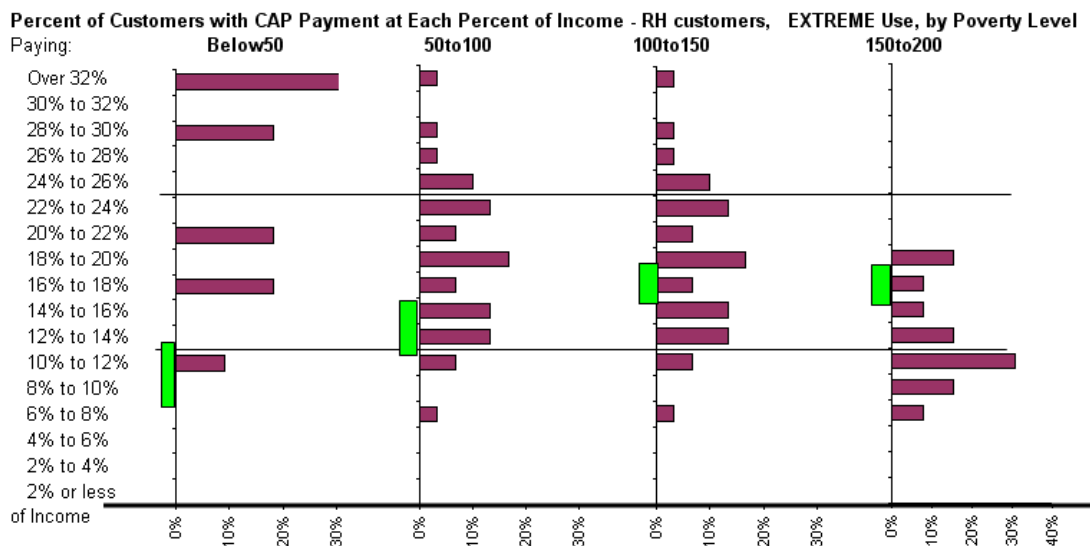


Figure 21. Percent of Income Paid by High-Use RH Customers**Figure 22. Percent of Income Paid by RH Customers with Extreme Use**

An Analysis Adjusting PUC Guideline Values for Inflation

The analysis above shows Duquesne CAP payments as percent of household income. It does not attempt to compare CAP payments to what customers would pay in a PIP program that incorporated the minimum payment amounts and the maximum subsidy limits that are also recommended in the PUC guidance. Including these limits would cause some customers in a PIP to pay a higher percent of their income than the PIP ranges suggest. (See analysis in Appendix Section B.)

A second analysis took the recommended subsidy limits into account. However, the specific minimum and maximum values in the PUC guidance document date from over ten years ago and have not been adjusted for inflation. Therefore an analysis was conducted with slightly higher minimum payments and a higher limit on subsidies.

- An adjusted minimum was computed as the dollar amount dictated by the lowest percent of income specified by the PUC, except where the adjusted minimum payment was higher.
- An adjusted maximum was computed as the higher amount of either the dollar co-payment needed to not exceed the subsidy limit, or the highest percent of income called for.
- CAP payment amounts were then compared to these limit-adjusted payment ranges.

As shown in Figure 23, most CAP payments are within or below the limit-adjusted guidance ranges. Note that RS households in CAP above 100% of poverty pay amounts well below the minimum percents of income specified in the PUC Guidance document, percentages that would have them pay an amount greater than their full retail bill.

Figure 23. Percent of CAP Customers Within Inflation-Adjusted Recommended Payment Ranges

RH CAP Customers		Percent of each group asked to pay amounts		
Poverty Level	Usage Level	below adjusted* minimum	within adjusted limits	more than adjusted maximum
Below50 Total		18%	24%	58%
	low	77%	8%	15%
	moderate	8%	23%	68%
	high	0%	16%	84%
	extreme	0%	73%	27%
50to100 Total		63%	28%	10%
	low	100%	0%	0%
	moderate	64%	35%	1%
	high	33%	44%	23%
	extreme	4%	48%	48%
100to150 Total		95%	2%	3%
	low	100%	0%	0%
	moderate	100%	0%	0%
	high	100%	0%	0%
	extreme	61%	17%	22%
150to200 Total		100%	0%	0%
	low	100%	0%	0%
	moderate	100%	0%	0%
	high	100%	0%	0%
	extreme	100%	0%	0%
All CAP RH plans		62%	21%	18%

*adjusting guideline amounts in CAP policy statement for inflation, raising minimums to \$15 and 38, maximum credits to \$700 and \$1600 per year

7. What are CAP retention rates? Why do customers leave CAP?

Most customers who join CAP remain in the program for more than one year. Most manage to recertify, though a minority may miss recertification deadlines and rejoin the program after a gap in participation. Many customers manage to move their CAP participation from one address to another. Some customers leave the program then come back to CAP years later. Thus it appears that CAP participants know they are in the program, and once in the program, know what they need to do to stay in it or rejoin it when needed.

Retention in CAP

AECOM obtained Duquesne's data file of CAP plans for all customers who were active in CAP at some point since April of 2007, including customers who had joined the program before April of 2007. The data included both active and closed CAP plans, and sometimes multiple plans for a single customer. There were 41,730 unique customers and 46,627 account CAP plans active at time

since April of 2007. Of the 41,730 customers involved, 21% show their most recent CAP plan status to be broken, suggesting an attrition rate of about 10% to 15% per year.

65% of the participants who joined over two years ago are still in the program, after at least two re-certification or rejoining events.

77% of the participants who joined 12 to 24 months ago are in the program, after at least one recertification or rejoining event. 91% of those who joined in the 12 months before August 2009 were still active in the program at the end of July, 2009. This is consistent with the analysis shown in Figure 24

Figure 24. Retention in CAP

Attrition in CAP	Earliest CAP start date in available data* was:		
	Aug 1, 2006 to July 31, 2007	Aug 1, 2008 to July 31, 2008	After July 31, 2008
Started:	2-3 yrs ago	1-2 yrs ago	in last 12 months
All CAP Starts	7,633	7,910	8,937
Active Now	4,926	6,060	8,076
Percent still in CAP	65%	77%	90%

*Summary data for all 46,619 CAP Plans, for accounts in CAP at least once after April 1, 2007

There were 41,730 unique customers, some with multiple plans

Length of Time Customers are in CAP

Of customers in CAP as of July, 2009 33,044 open CAP plans (accounts) 32,522 unique customers in CAP as of July, 2009 2,342 of them rejoining after a gap of 31 or more days 8,076 (25%) joined in the last 12 months 110 of them rejoining after a gap of 31 or more days 6,060 (18%) started in CAP 12-24 months ago 442 of them rejoining after a gap of 31 or more days 18,386 (55%) started in CAP 2 or more years ago more than 1790 of them returning to CAP after more than 31 days out of the program
Of the 2,342 Active CAP customers who rejoined the program 993 (42%) did so at the same address and 1349 (58%) did so after moving to another premise
Another 699 Active CAP customers have changed addresses with a gap of less than 31 days between CAP plans

CAP Attrition

Of 7,467 unique customers who left CAP since April 1 of 2007:

- For 82%, departure from CAP was not precipitated or accompanied by a termination of service for nonpayment²¹
- 38% had a CAP end date at an account that is now closed (they are no longer customers of record).
- 18% had a service termination for nonpayment within 20 days before their CAP end date. Of these terminations, analysis of consumption suggests that one third of the premises were not occupied at the time service was disconnected, thus
- 11% left CAP immediately after or during a service termination at a premise they occupied.

Of the 7,467 customers who left CAP since April 1 of 2007, 55% had no shut offs for nonpayment in their record (before, during or after their stint in CAP) in 2007, 2008, and 2009 through July.

Thus it appears that 89% of CAP participants who left the program did so because they moved (and did not rejoin at the new address), stopped being a customer, failed to recertify, or failed to keep a Smart Comfort appointment.

Agency staff agree that the principal reason for customers leaving CAP is that they become ineligible, or perceive less need for the program's assistance. Since the re-certification process is handled mostly by mail or by fax, customers comfortable with these means of communication do not face large time costs to recertify. And those who fail to respond by mail have the option of rejoining after scheduling an appointment.

Who leaves CAP

There are only minor demographic differences between customers still active in CAP and those who left the program.

- Households with pension or disability income were 35% of still active participants, and only 27% of former participants
- Households reporting no income were 10% of those still active, and 14% of the former participants
- Households with public assistance or other child-related transfer income were 14% of active participants but 17% of former participants.
- Single parent households were 32% of active and 34% of former participants.

²¹ Estimates based on analysis of data for a 20% random sample of all residential customers active since April 1, 2007, and a complete record of service terminations for nonpayment for these customers.

Figure 25. Demographics for CAP Customers

	Primary Income, Active CAP Customers						Primary Income, Former CAP with broken plan					
	No children in Hshld			1+ children in Hshld			No children in Hshld			1+ children in Hshld		
	1 Adult	2+ Adults		1 Adult	2+ Adults	Total	1 Adult	2+ Adults		1 Adult	2+ Adults	Total
full time work	3%	2%		8%	6%	19%	4%	2%		7%	5%	18%
part time work	4%	2%		6%	3%	14%	6%	1%		6%	3%	15%
sup self emply	0%	0%		0%	0%	0%	0%	0%		0%	0%	1%
seasonal wrk	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%
pension	1%	0%		0%	0%	1%	0%	0%		0%	0%	1%
Soc Sec	10%	2%		1%	1%	14%	6%	1%		1%	1%	9%
disability	2%	1%		0%	0%	4%	1%	0%		1%	0%	3%
SSI disability	10%	2%		3%	2%	17%	8%	2%		4%	1%	15%
no income	3%	2%		2%	4%	10%	4%	2%		3%	5%	14%
public assist	3%	1%		6%	1%	11%	3%	1%		8%	1%	13%
dependant	0%	0%		0%	0%	1%	1%	0%		0%	0%	1%
alimony	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%
child supp	0%	0%		2%	0%	2%	0%	0%		2%	0%	3%
unemploy	1%	0%		2%	1%	4%	2%	0%		2%	1%	5%
other	1%	0%		1%	0%	3%	2%	0%		1%	0%	3%
Total	37%	12%		32%	19%	100%	37%	9%		34%	19%	100%

8. Is there an effective link between participation in CAP and participation in energy assistance programs (LIHEAP, hardship funds, and other grants)?

Yes. Nearly all of Smart Comfort activity is focused on CAP customers. CAP agencies encourage LIHEAP applications and steer customers to crisis grants and Dollar Energy grants. During winter months when no service terminations are attempted for low income accounts, Duquesne sends notices to customers who are late in payments, worded to support their application for Crisis benefits.

9. How effective are the CAP control features at limiting program costs?

Subsidy Limits

The PUC guidance suggests that CAP subsidies be limited to no more than \$560 per year for non-heating electric customers, and to no more than \$1,400 per year for heating electric customers. Duquesne has not implemented procedures to limit annual subsidies. An analysis of 32,194 CAP plans current in July of 2009 found that:

- Of RH (heating) CAP customers, 4% receive subsidies exceeding the recommended limit of \$1,400 per year, and 2% exceed the recommended limit by \$200 or more.
- Of RS (non-heating) CAP customers, 35% receive subsidies over the recommended limit of \$560 per year, and 18% receive subsidies that exceed that limit by \$200 or more.
- For all CAP customers, including the over 10,000 whose subsidy exceeds the PUC-recommended limit, the average annual subsidy is \$513.61
- Among CAP customers whose subsidy does not exceed recommended limits, the average annual subsidy is \$328.45

- Among the CAP customers whose annual subsidy exceeds the recommended limit, the average subsidy amount is \$899.83
- 221 CAP participants are receiving subsidies at the rate of more than \$2,000 per year. 31 receive subsidies at the rate of more than \$3,000 per year.

As expected, most of these excess subsidy dollars go to customers with the lowest poverty level (paying a low percentage of their bill) and with relatively high use. 74% of the excess subsidy dollars are distributed to customers with extremely high use.

Figure 26. Over Limit Subsidies

Distribution of Subsidy Dollar Amounts Over Recommended Annual Limits

Usage Level	RS	RH
Low	0%	0%
Moderate	4%	0%
High	21%	0%
Extreme	72%	2%

Figure 27. Distribution of RS Participants and Subsidies over the BCS-Recommended Limits

RS CAP participants with subsidies over BCS-recommended limit

Asked to pay:	Distribution of participants		Distribution of Dollar Amounts*	
less than 30%	7	0.1%	\$1,858.36	0.1%
30%	5,682	55.0%	\$2,400,103.32	70.6%
31 to 59%	30	0.3%	\$7,565.16	0.2%
60%	4,572	44.3%	\$985,377.36	29.0%
Over 60%	32	0.3%	\$4,048.40	0.1%
Total	10,323	100.0%	\$3,398,952.60	100.0%

*Dollar Amounts in excess of recommended limit

Of total RS participant subsidy dollars over recommended limits:

- 5% are for moderate use customers paying 30% of their bill
- 21% are for high use customers paying 30% of their bill
- 45% are for extreme use customers paying 30% of their bill
- 28% are for extreme use customers paying 60% of their bill

Projections based on the same July, 2009 data on 32,194 CAP plans suggest CAP will distribute over \$16.5 million in discount-enabling subsidies in 2009, up from \$10.2 million in 2008 and double the \$8.2 million disbursed in 2007. Subsidy dollars that exceed the recommended limits amount to \$3.5 million (20% of the projected \$16.5 million). If Duquesne implemented the recommended subsidy limits, the \$3.5 million saved could reduce program costs by 20% or support another 6,000 to 9,000 participants with the same budget.

Minimum Payments

Duquesne has no systematic procedure in place to ensure that customers are paying the minimum amounts specified in PUC guidance. However, under the percent of bill plan, virtually all customers are asked to pay amounts that

exceed the minimum monthly amounts of \$12 for RS customers and \$15 for RH customers.

26% percent of Duquesne's RS customers are asked to pay CAP Amounts less than 4% of their income. Most of these are low-use customers. It could be argued that because their bills are low, these customers do not need the full percentage discount that their poverty level entitles them to. Duquesne could consider overriding its standard discounts with a smaller discount calculated to require that at least 4% of income go to pay RS electric bills.

- Requiring all CAP RS customers to pay at least 3% of income would raise CAP payments for 12% of RS participants, asking them to pay on average \$7.67 more per month. If the increased payments were made, an additional \$324,000 in annual revenue would be received at current enrollment levels.
- Requiring all CAP RS customers to pay at least 4% of income would raise CAP payments for 26% of RS participants, asking them to pay on average \$13.03 more per month. If the increased payments were made, an additional \$1,159,000 in annual revenue would be received at current enrollment levels.

Figure 28. Percentage of CAP RS Customers Asked to Pay Less Than 4% of Income

Of all CAP RS Customers Percent Asked to Pay:	Poverty Level				
	Below50	50to100	100to150	150to200	Total
less than 3% of income	2%	5%	4%	1%	12%
less than 4% of income	4%	12%	9%	1%	26%
4% or more of income	24%	36%	14%	1%	74%
Total	27%	48%	23%	2%	100%

10. How effective is the CAP/ LIURP link? Is the company's procedure for dealing with excessively high usage effective?

Smart Comfort, Duquesne's LIURP program, is strongly linked to CAP. About 90% of its participants are CAP customers. CAP customers with high use cannot enter the CAP program until Smart Comfort completes an energy assessment of their dwelling.

Duquesne has very few heating and electric hot water customers, which makes it difficult for the program to achieve the dramatic energy savings that are sometimes attained for heating fuels by adding insulation, sealing against infiltration, and upgrading heating systems. Base load electric savings are more difficult to obtain, and through most of the decade the program has had difficulty fully spending its projected budget.

Faced with this challenge, Smart Comfort has been energetic and inventive in seeking ways to reduce high usage, replacing inefficient light bulbs, refrigerators, freezers, air conditioners, and de-humidifiers, as well as any water beds they encounter. The program has also relaxed the payback criteria it uses

to decide when an appliance replacement is cost effective, resulting in a higher rate of replacements.

Smart Comfort coordinates energy audits with gas company conservation programs so that one visit can cover both electric and gas issues. The program also refers to state-funded weatherization programs that can address structural issues. SMART COMFORT is prohibited from helping electric heating customers switch to more efficient fuels, but has been exploring the option of installing heat pumps in suitable electrically-heated homes

However, there are some high use behaviors where SMART COMFORT has little leverage. These include often day-long use of older large screen TVs, multiple TVs, most units with electric baseboard heaters, medically necessary equipment, refrigerators owned by landlords, and space heaters used by customers whose gas service has been terminated.

Electricity Usage

Average Use Among CAP Customers

Analysis of the 20% random sample of all residential accounts shows that in 2009, CAP customers have modestly higher average annual usage than non-CAP customers. Candidate explanations with anecdotal support include the following differences between CAP customers and non-participants:

- A higher percentage of CAP participants are not working, and therefore use air conditioning and appliances during more hours of the day.
- Housing stock, heating systems, and appliances of CAP participants may be less efficient and less well maintained, leading to greater use of electricity for heating and air conditioning.
- A higher percentage of CAP participants have medical conditions that require air conditioning or electrical equipment.
- A higher percentage of CAP participants use electrical space heaters to substitute for or augment fossil-fueled heating systems (natural gas may be shut off for nonpayment).
- Relatively few CAP participants are single employed adults without children- a group whose usage is likely to be below average.
- The marginal cost of increased consumption is low for those CAP customers with deep discounts. This may lead to usage (and comfort) increases.
- Each month, CAP customers are asked to pay a percentage of their rolling 12 month average bill. Because this rolling average is slow to reflect changes in usage, CAPs receive weak feedback concerning the impact of each month's usage behavior on their bill.

Given these and possibly other differences between CAP participants and non-participants, it is not surprising that average use is modestly higher among CAP customers. For non-heat customers, the discrepancy is less than it was in

2003. One candidate explanation for reduced use would be the efficacy of the Smart Comfort program in reducing consumption.

Customers with CAP defaults have higher use than active CAP participants, whose use is in turn higher than that of successful CAP graduates. Under CAP's discount plan, higher use results in a higher (discounted) dollar payment amount. CAP customers with higher use apparently have more difficulty making their CAP payments regularly.

Figure 29 Average Bills Compared

**Average Monthly Bill
(12 months ending July, 2009*)**

CAP Status	Nonheat	Heat
Never in CAP	\$80.21	\$116.62
CAP graduate	\$89.05	\$107.44
Active in CAP	\$97.94	\$137.07
CAP broken	\$108.52	\$170.98

* 20% Random Sample

CAP Participants vs. Average Customer

in 2003*	19% higher	7% higher
in 2009	13% higher	8% higher

*2003 CAP Eval, Appendix A page 14

The discrepancy in usage between and CAP and non-CAP customers is highest for non-heat customers renting apartments. This is likely due to differences in housing stock and time at home.

**Average bills by Premise Type, Non-Heating Customers
(12 months ending July 2009)**

		CAP Active	Never in CAP
Apartment		\$69.82	\$46.03
5+ units in bldg	<i>CAPs are 52% higher</i>		
Apartment		\$83.66	\$55.82
2-4 units in bldg	<i>CAPs are 50% higher</i>		
Single Family		\$104.01	\$90.44
or uncoded	<i>CAPs are 15% higher</i>		

* 20% Random Sample of all Residential Customers

**Average bills by Premise Type, Heating Customers
(12 months ending July 2009)**

		CAP Active	Never in CAP
Apartment		\$107.63	\$85.44
5+ units in bldg	<i>CAPs are 26% higher</i>		
Apartment		\$158.35	\$108.29
2-4 units in bldg	<i>CAPs are 46% higher</i>		
Single Family		\$177.97	\$166.97
or uncoded	<i>CAPs are 7% higher</i>		

* 20% Random Sample of all Residential Customers

CAP Customers by Usage Level

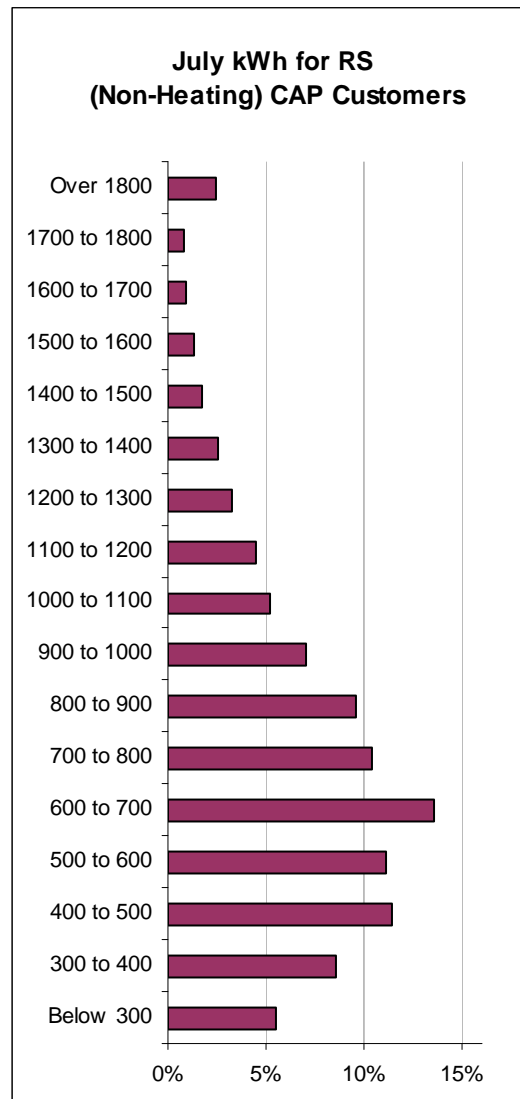
It appears the average for CAP usage is driven up by approximately 22% of the CAP participants who have usage classified as extremely high. Compared to 2003, the 2009 CAP program has fewer heating customers -but more RS customers- in the extreme use category

Figure 30. Usage Levels Compared to 2003

Usage Level	Distribution of RS CAP participants			Distribution of RH CAP participants		
	2003		2009	2003		2009
Low	22%	→	20%	24%	→	24%
Moderate	35%	→	31%	36%	→	46%
High	27%	→	27%	19%	→	16%
Extreme	16%	→	23%	21%	→	14%

Figure 31. Average kWh

While most high use CAP customers have received visits by Smart Comfort auditors, there remain a large number of very high users. The graph to the right shows usage distribution for an abnormally cool July.



Individual account records were examined for 15 of the CAP customers who had very extreme use. Eight had received Smart Comfort visits that gathered information about the homes involved. Among the findings:

- A heating customer in a dilapidated house that has received 20 citations from the health department for unsafe conditions;
- Three houses where gas service has been terminated and customers are using space heaters. One eventually installed electric baseboard heat and was switched to RH;
- An electrically heated house where recent remodeling may account for some high use, but gaps remain around windows and doors;
- A situation where usage could not explained by the information the customer revealed, and a meter inspection was refused;
- A very large 19th century home with missing windows;
- A customer with an electric drier, one freezer, two refrigerators, and three electric space heaters;
- A large 19th century home that is poorly insulated, with two furnaces, two hot water tanks, central air, three refrigerators, a freezer, four space heaters, electric resistance back up for an old heat pump that heats a small portion of the house, and many other pieces of electronic equipment.

Addressing High Use

How affordable is gas heat?

One fairly intractable cause of high use is customers who cannot afford to reconnect their gas service after it has been terminated. If customers must choose to pay only one utility bill, they typically choose to retain electricity and do without gas. Gas heat is less carbon intensive and more efficient than electric heat. Thus there are societal benefits, as well as savings to electric ratepayers, to be obtained from efforts to make gas bills affordable, and to make reconnection possible for gas company customers with large balances.

As the PUC explores ways to address these inter-utility issues, it might consider the impacts of one CAP program on another. For example, about 21% of Duquesne's current CAP participants would receive no subsidy from Equitable Gas and Peoples' Gas CAP programs. These programs use a percent of income plan (PIP) to calculate co-payments, without an adjustment for family size. For households with incomes over 100% of poverty, and for households with 3 or more members, many of these PIP co-payments exceed the budget bill, so no subsidy is offered.

For the customers who do receive subsidies from Peoples and Equitable CAPs, the households with more members pay much higher percents of their bill than households with one or two members. Yet households with 3 or more members tend to be precisely those households prone to service terminations.

(See Appendix B for a comparison of co-payments for Duquesne, Peoples, Equitable, and Columbia Gas, all of whom serve the Duquesne service area). Arguably, the PIP formula used by Peoples and Equitable increases the odds that low income households will be forced to do without gas service. Adding an adjustment for family size to these formulas would make gas more affordable for Duquesne's low income customers served by these gas companies.

Alternatively, these companies could follow the lead of Columbia gas. Columbia's CAP asks income-eligible customers to pay 7 to 9% of their income OR 50% of their budget bill, whichever is less. The same households that Equitable and Peoples' ask to pay their full bill receive a 50% discount from Columbia. Columbia's payment calculation is, in the long run, more likely to prevent terminations of gas service.

Gas utilities have less collections leverage than electric utilities, and are therefore usually justified in asking reconnecting gas customers to pay their entire balance. However, some disconnected customers are held responsible for paying amounts that accumulated in other premises and/or when other people were in the household. If provisions could be made for them to reconnect service while paying less than the entire balance, this would reduce inefficient heating with electric space heaters. Arguably, gas utilities should be willing to re-connect low income customers in the fall if those debt-shackled applicants for service apply for LIHEAP Cash and Dollar Energy grants, and with these grants included, can come up with an amount that exceeds the total of the reconnection expense, shut off expense, and the likely bill from November through April. Duquesne might consider waiving its claim on Crisis grants in these situations.

Clearly the evolution of gas company USPs is a matter for the Gas companies and the PUC to decide upon. The point here is that Duquesne is an interested party in these discussions, because it provides the electricity that customers use as a substitute for the gas service they cannot afford to reconnect.

Marginal Cost of Electricity

As a tiered rate discount subsidy plan, Duquesne's CAP has the advantage that high users face relatively high bills. They can reduce their payment amount by cutting consumption. However, those with steep discounts pay for high use at their steeply discounted rate. And the amount they pay is calculated based on a rolling 12 month average bill, so this amount will not change dramatically if they cut consumption in a specific month. Feedback on usage is muted by the averaging over 12 months. It would be possible to address these shortcomings in several ways, some of which might require substantial changes to computer billing algorithms.

- Limit the CAP discount to an initial block of kWh. Customers who exceed the appropriate threshold would pay full retail rates for additional usage. This would give Smart Comfort auditors another talking point. Duquesne computers already handle a two block rate for heating customers, so this might be relatively easy to implement. PECO's CAP program has an elaborate structure which varies both the discount rate and the initial block of kWh that receives the discount (households with extenuating circumstances qualify for a larger initial block at the discounted rate). Appendix C includes a possible revision to Duquesne's CAP that would take a similar approach.
- Apply the discount to the current bill, instead of the average budget bill. This would provide swifter feedback to customers on the cost of their usage. While the PUC prefers a budget bill for CAP customers, and a budget bill is needed to smooth expenses for gas utility customers, it is not clear that Duquesne's electric customers need a budget approach to protect them from severe seasonal fluctuations. Heating customers are already protected from seasonal fluctuations by the winter heating rate. De-facto heating customers could be assigned a higher winter month discount rate, or, if discounts applied to an initial block of kWh, could receive a higher initial block during winter months.
- Reformulate the subsidy as a credit. Each month, apply to the current bill a credit reflecting an appropriate subsidy. Hold the customer responsible for paying the remainder of the current bill. The credit could be calculated as a percent of the rolling average 12 month budget bill, or with more complex programming, could be calculated based on an annual subsidy amount, allocated across months to render the remainder of the bill – the customer's payment responsibility- roughly the same across months. This would provide protection from severe seasonal fluctuations, while making customers more aware of the consequences of each month's consumption decisions.

11. Has collection on missed CAP payments been timely?

Description of Collections Procedures

Once the required notifications and warning messages have been delivered, customers liable to disconnection are turned over to Duquesne's collection field services. In summer months, there are typically more customers ready for disconnection than field staff can disconnect. The following factors affect which customers have service shut off:

- Highest priority is given to service turn ons. These determine which streets will certainly be visited by field personnel on a given day.
- Second priority is given to posting of 72 hour notices, required where telephone contact has not been made subsequent to the 10 day notice.
- Once these jobs are mapped out efficiently, termination-eligible households are identified that could be reached near, or on the way to, these higher priority tasks. Customers with outside meters are prioritized over those with inside meters that are often difficult to access.
- When there are too many nearby termination prospects, priority is given to accounts that have been eligible for termination for the longest period, since their mandated warning interval will soon expire.
- Priority is also given to the termination-eligible accounts with the highest main ledger balance.

For CAP customers, the main ledger balance includes the pre-program frozen arrears, the subsidy deficiency balance, and the overdue CAP payments. Thus a CAP customer could be overdue only two payments of \$30 each, and receive a high priority in termination targeting based on their much larger pre-program arrears and their deficiency balance.

Zip codes with the highest CAP participation rates also have, in general, relatively high incidence of service termination. Since most CAP customers live in high-termination neighborhoods, they are likely to be near addresses where service is being reconnected, or where 72 hour notices are being posted. Due to their geographic proximity to other field actions, and their often high main ledger balance, CAP customers behind in their payments face relatively high odds of being terminated when they fall behind in payments.

The termination pressure on CAP customers appears to be effective, at least for those customers who remain in CAP. While most CAP participants miss payments from time to time, a large majority of the customers still active in CAP quickly make catch up payments.

Regularity of Payment

The Duquesne data table that tracks active CAP plans counts both the number of months in the plan's history (typically 1 to 13) and the number of on-time payments made during that plan. Percent of months with timely payments was calculated as follows:

Percent of Months Paid Timely = On-time Payments / Months Plan Has Been Active.

At the end of July, 2009 the table had data for all 33,043 accounts active at CAP on that date. 86.7% of active participants had a CAP plan more than one month old. Of these 28,644 customers, in the 2 to 19 months they have been on their current CAP plan, half made payments in 60% or more of the months covered by their current plan. Half made payments in less than 60% of the months covered by their current plan.

Figure 32. CAP Payment Regularity

Percent of months with payment (average frequency for each group)		
Asked to pay:	RS	RH
30%	57%	
45%		54%
60%	57%	
65%		56%
80%	56%	
85%		57%

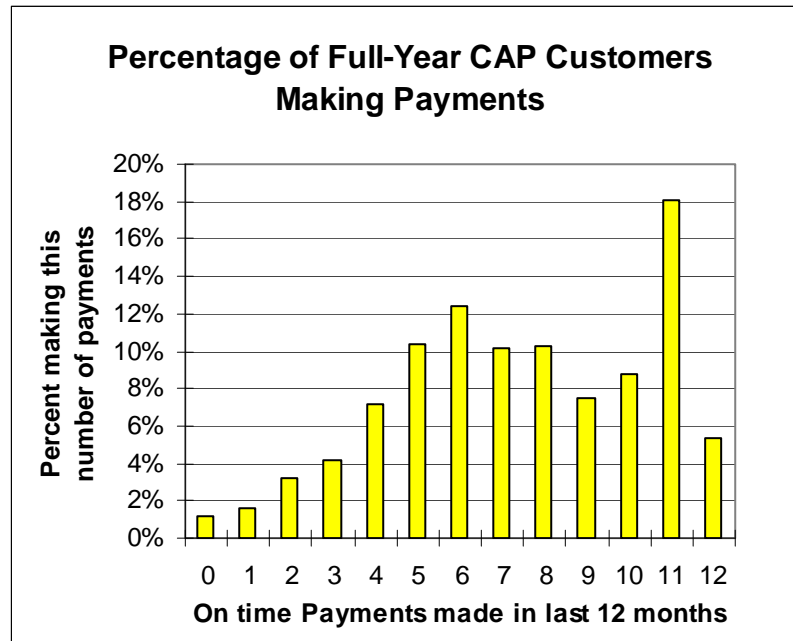
Data for 33,044 CAP plans open July, 2009

For customers who have remained active in CAP (admittedly a biased sample of those who joined the program) payment frequency varies little across payment plans (See Figure 32). CAP plans that were closed and broken since

April of 2007 showed a lower payment frequency, averaging payments made in 37% of in-plan months.

An analysis limited to the customers whose plans were 12 months old showed highly similar results, as shown in Figure 33.

Figure 33. Number of Timely Payments Made by CAP Customers in CAP 12 months



For the CAP participants with a full 12 months of payment history in CAP:

- 40% paid on time in 9 to 12 months, missing 3 or fewer payments
- 50% paid on time in 8 to 12 months, missing 4 or fewer payments
- 32% have missed 4-6 payments
- 18% have missed 7-12 payments
- 1% show no timely payments in 12 months

At this time, there is no provision to default customers from CAP for nonpayment. The program relies upon the collections process to prompt payment. The continued presence in CAP of a small number of customers who make very few payments suggests that they are in some way sheltered from collections pressure, perhaps by medical conditions, delays resolving complaints to the Bureau of Consumer Services, or inside meters that are difficult to access.

Because it is difficult to identify comparable control groups at this time, it is difficult to prove that CAP increases the frequency of payments. A before-after analysis would probably reflect deterioration in payment behavior before joining

CAP, then some natural improvement as conditions revert to the mean and the household makes other adjustments to its circumstances.

Nonetheless, studies in earlier periods and other jurisdictions, where waiting list groups were available for appropriate comparisons, suggest that Customer Assistance Programs do result in more frequent, but lower payments than customers would otherwise be making out of the program.

Analysis of CAP Overdue Balance

Even though relatively few CAP participants pay with near perfect regularity, most manage to make catch up payments so they have no amount overdue. In July of 2009, in the middle of the summer termination months, the vast majority of CAP participants were caught up or not far behind in making their payments. An analysis compared each participant's CAP payment to their CAP balance, and by division estimated the number of months that customers were behind in their payments.

- 77.3% of active participants were current in their payments (or behind by an amount less than half their current month CAP payment), and they accounted for 1% of the total overdue amount.
- 15.4 % were behind only by one month's payment amount. They accounted for 35% of the total overdue amount.
- 3.3% were behind by two months' payments, and they accounted for 14% of the total overdue amount.
- 1.3% were behind by three months' payments, and they accounted for 9% of the total overdue amount.
- 3% of the active participants were behind 4 or more months. They accounted for 41% of the total overdue amount.

For customers who joined CAP in the 12 months ending July 2009

- 90% were still in CAP in July, and 78% of these participants were current or behind by less than half of one month's payment amount.
- 10% had broken CAP plans, and 48% of these were current when their plan closed.

Thus the vast majority of active CAP participants are caught up or not far behind in their CAP payments. However, almost 1,000 participants (3%) are more than 4 months behind. In July, 2009, there were 38 active participants who were 10 or more months behind in their CAP payments:

- Two of these customers had overdue CAP balances greater than \$3,000
- Three had overdue CAP balances between \$2,000 and \$3,000,
- 33 had overdue CAP balances between \$1,000 and \$2000

When overdue CAP balances for still-active CAP participants were tallied in terms of dollars:

- The same two customers had overdue CAP balances greater than \$3,000
- Four customers had overdue CAP balances between \$2000 and \$3,000

- 55 customers had balances between \$1,000 and \$2,000
- 220 customers had overdue CAP balances between \$500 and \$1000

Unfortunately, it appears that it is still possible in CAP for a relatively small number of customers to run up unpaid balances that become so large that making catching up payments or restoring service is nearly impossible. This is precisely the trap that CAP was designed to avoid!

Individual account histories were examined for the 14 CAP customers who made no payments in the last year. For varied reasons, these customers have been sheltered from the collections pressure that effectively prompts most CAPs to make catch up payments. Month after month they make no payment and they receive no termination notice.

- Four of the 14 accounts are removed from the collections queue each month due to court-ordered payment plans resulting from Chapter 13 bankruptcy. Unfortunately, these payment plans usually give low priority to utility debt.
- Seven of the 14 accounts have used the PUC complaint process one or more times, filing a total of 18 complaints with a “pending” time ranging from 6 to 13 months during which time the Duquesne removed the account from the collections process. One customer filed four successive complaints that were resolved after an average of six months, each time finding the CAP agreement to be valid. Another customer has filed six complaints. Three of the complaint-filing customers also used doctor’s letters to forestall termination.
- Four of the 14 accounts used a total of 9 medical certificates to avoid termination
- In three cases Duquesne removed accounts from the termination process for several months, after receiving verbal notification from the Pennsylvania Department of Welfare, of a LIHEAP grant that was promised to the customer but never received by Duquesne.
- Two customers were removed from the collections queue due to flaws at Duquesne, one involving an account coding error, the other a computer glitch.

It appears that for some customers, abuse of the complaint process is a (non) payment program that is more attractive than CAP- at least in the short run.

12. Does participation in universal service programs decrease service terminations?

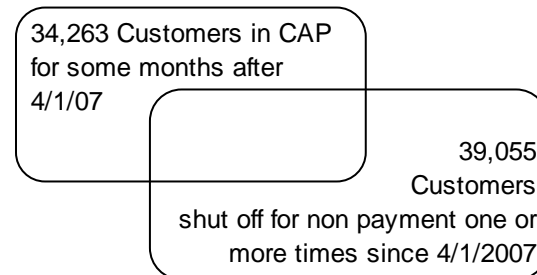
Termination Statistics

Data concerning service terminations for non payment was analyzed for a 20% sample of all residential accounts active at anytime since April 1, 2007²². Sample-based estimates show that:

From April 1, 2007 through July 20, 2009, Duquesne terminated residential service for nonpayment 54,400 times, affecting 47,200 unique residential customers, some of whom experienced more than one service termination.

As shown in Figure 34,

Figure 34. Proportional Venn Diagram for CAPS and Service Terminations for Non Payment.



29% of CAP-involved customers had one or more shut offs for nonpayment since 4/1/2007
 26% of customers with one or more shut offs since 4/1/2007 spent some time in CAP since 4/1/2007

- 26% of these shut-off customers had some involvement with CAP in the same time period, which may have been before and or after they experienced the shut off(s).
- 29% of the customers with some CAP involvement since April 2007 experienced one or more service terminations in this period, which may have occurred before they joined CAP

It appears that CAP involvement is associated with relatively low incidence of service terminations. Customers with recent CAP involvement account for a declining share of the service terminations:

- 33% of shut offs that occurred before 2007
- 30% of 2007 shut offs
- 28% of 2008 shut offs
- 24% of 2009 shut offs through July.

Customers still active in CAP in July of 2009 experienced:

²² It is useful to include closed accounts in a retrospective analysis. Otherwise an attrition bias results, similar to evaluating the effectiveness of a medical procedure with a sample limited to those that survive it. The low-income accounts that remain active through a long period are typically better payers than those customers whose accounts closed during the period

- 21% of shut offs that occurred before 2007
- 18% of 2007 shut offs
- 19% of 2008 shut offs
- 15% of 2009 shut offs through July.

Compared to non participants, CAP-involved customers were without service for slightly more days before 2007, but had fewer days without service since 2008.

Figure 35. Days Without Service, Reconnecting Customers

Days Without Service per Customer			
	Pre 07	2008	2009
All Shut Offs	8.0	7.3	3.6
CAP involved	9.0	6.9	2.8
No CAP history	7.5	7.4	3.9

The metric of days without service was calculated only for shut offs where customers reconnected at the same account number. When customer accounts were closed, it is likely that more days without service resulted.

- 41% of shut off customers not involved with CAP had one or more shut offs since April, 2007 when their then current account was closed.
- 25% of shut off customers involved with CAP in the same period had a shut off that closed their account.

The 20% random sample data reveals a trend for an increasing percentage of shut offs for nonpayment to be followed not by reconnection within 14 days, but by account closure²³. Factors contributing to this trend could be worsening economic conditions and resulting transience. A majority of these premises are unoccupied at the time service is disconnected²⁴. Another factor driving transience could be the tougher reconnection requirements specified by Chapter 14. There may be a growing number of customers who have broken the one or two out-of-CAP reconnection agreements now allowed them, which means they must pay their entire account balance plus a deposit and a reconnection fee to restore service. If this proves impossible, customers may move in with a relative who has service, or change the name on the account.

²³ However, this trend is not clear in the data on terminations and reconnections that Duquesne reports to the PUC

²⁴ Analysis of pre-termination meter readings shows that in all three years 2007 to 2009, 65% of those accounts that closed after disconnection had, in the period immediately before termination, usage that was less than the average 65% of the usage in prior periods.

Figure 36. Disconnections Resulting in Account Closure

Percent of Disconnections for NonPay Resulting in Account Closure			
	All shuts since 2007	In CAP after April, 2007	Active in CAP*
2007	13%	9%	4%
2008	25%	16%	3%
2009*	34%	23%	3%

*through July, 2009

Analysis of shut off history for 20% random sample of all residential customers

The preceding analysis looks at the entire period from April of 2007 to July of 2009, without distinguishing whether the shut offs occurred before and or after customers joined CAP. Including CAP start date in the analysis confirms that shut offs were less frequent after customers joined CAP. An analysis was conducted for the customers who joined CAP before April 1, 2009, were still active in the program in July of 2009, *and had a history of one or more shut offs in 2007 or 2008*. For these customers, as of late July, 2009:

- 77% of these previously shut off CAP customers have had uninterrupted service in 2009
- 21% had no shut off occur after their CAP start date.

A second before/after analysis was focused on the cohort of customers who joined CAP from January, 2008 through March, 2009, the 15 month period preceding the 2009 shut off season. Of these 2008 CAP starters, 91% avoided a shut off for nonpayment in 2009 (through July) and 80% are still active in CAP. See Figure 37.

- A closer look shows that 79% of the 2008 joiners had no discernable shut off history before joining CAP. Of this promising group, 96% had no terminations in 2009, and 81% are still active in CAP.
- 21% of the 2008 starters had one or more pre-CAP shut offs in their account history. 81% of these less promising joiners avoided a shut off in 2009, and 74% are still active in CAP.

Figure 37. Shut offs Before and After 2008 CAP Starts

2,588 Customers in 20% random sample with CAP start date between 1/1/2008 and 4/1/2009				
Shut offs before 2008			Pct of group with no shuts in 2009	Pct still in CAP
none	2034	79%	96%	81%
one or more	554	21%	81%	74%
all 2008 joiners	2588	100%	91%	80%

A comparison of these results to the attrition analysis above suggests the following conclusions:

- The majority of customers joining CAP have no recent history of shut offs at their current account or identifiable previous accounts. The CAP entry process apparently selects for customers who are not prone to shut offs. This selectivity limits the ability of CAP to have a major impact on system-wide terminations.
- The minority of customers who join CAP with a history of one or more previous shut offs are –compared to those with no shut off history-- more likely to be shut off and more likely to leave the program. However, they appear to suffer fewer shut offs than they did before joining CAP.
- Because of this selection and attrition bias, the ranks of long-active CAP participants will always show relatively few post-join shut offs.
- The critical evaluation question is how many of the CAP joiners who leave the program do so following a post-join shut off, at a premise they occupy at the time service is cut. The attrition analysis pegs this metric at 11 percent.

While there are no well-matched comparison groups to confirm this conclusion, it appears that for participants CAP is mildly effective in reducing both the number of service terminations and their duration.

The reduced payment amounts asked in CAP no doubt make it possible for most CAP participants (or those who remain participants) to stay reasonably current in their payments and thus avoid shut off warnings or prevent shut offs.

Debt Reduction

There are several reasons to assume that CAP's debt forgiveness provisions reduce days without service after shut off. Shut off CAP participants who reconnect within 14 days need pay only the CAP balance and a reconnection fee. They are not asked to pay their entire account balance. Nor are they asked to pay a deposit. This reduces the amount of cash they must find to restore service. These requirements apply even if this is their second, third or Nth service termination in CAP.

Figure 38. Arrears Forgiven in CAP by Year in Program

Years Completed in Program, Charge Offs*		Avg Percent Arrears Charged Off
Years in CAP	Percent of participants	
9 or more	1%	99%
8	4%	96%
7	4%	95%
6	4%	96%
5	5%	94%
4	8%	87%
3	11%	78%
2	13%	53%
1	20%	28%
0	30%	8%

*Data for 33,044 CAP plans open July, 2009

Should they reconnect after 14 days, their account and CAP plan will have closed. They will face a typically steeper challenge.

If an account shut for non payment is not reconnected within 14 days, Duquesne closes the account and their CAP plan. The household is no longer considered a customer. They must reapply for service as a non-CAP low-income applicant for service, and this application is governed by terms allowed by the Chapter 14 legislation passed in 2005²⁵. Duquesne asks them to pay:

- a deposit equal to two months usage,
- a reconnection fee, and
- Either 1/24 of their total account balance, or the entire account balance if they have already had and broken two 1/24 payment arrangements.

²⁵ However, if the re-applying household could furnish their previous account number, Duquesne computer systems hold information that would make it feasible to quickly ascertain that the reconnecting customer was in CAP when their account closed. Duquesne is allowed, but not required, to demand the full account balance. Thus, exceptions could be crafted for reconnecting CAP customers, for example, to waive the deposit and require, instead of the entire account balance, the minimum of \$400, 4 times the CAP payment amounts, or 1/24th of the entire account balance.

Even in this less forgiving circumstance, their past CAP participation should have reduced the total amount due on their account²⁶, increasing the odds that they can come up with the money required to restore service.

The benefits of debt forgiveness should also extend to recent CAP alumni. By reducing or eliminating the pre-program arrears, CAP should in theory reduce the amount that disconnected CAP alumni have to pay to be reconnected if they have service shut off for nonpayment, thus reducing the number of days they go without service. Debt forgiveness should also reduce the number of CAP alumni whose arrears are so high they have no hope of paying them off, and this should in turn lead to a higher percentage of payment arrangements being kept.

A Closer Look at Reconnection Requirements

The different reconnection options now offered by Duquesne bear closer scrutiny. Figure 39 on the next page shows different ways a CAP customer could be treated over time. The example shows that for CAP customers who have a large in-CAP balance, reconnection under Chapter 14 may require a lower upfront payment. If customers are tempted or forced by circumstances to reconnect in this manner, or if they reconnect after 14 days, they will have a much higher monthly payment obligation. If there is delay in their re-entering CAP after reconnecting, and they miss one of these high payments, they will be on a slippery slope, headed toward the time when they will have broken two Chapter 14 agreements and face a very high balance to pay to arrange reconnection.

²⁶ However, as noted above, current accounting procedures add the CAP deficiency balance to the pre-program arrears and the CAP balance to determine the total account balance. For customers with large subsidies near the end of a year in CAP, this could add significantly to their balance.

Figure 39. Reconnection Options for a Hypothetical Low Income Customer

	A	B	C	D
	In CAP	In CAP	Not in CAP	Not in CAP
	Paying in < 14 days	Paying later or choosing Chapt 14	1st or 2nd agreement	2 broken agreements
Budget Bill	\$120			
Expected Payment	\$72			
Pre Program Arrears	\$1,500			
Deficiency Balance	\$496			
CAP Balance	\$504			
Total Account Balance	\$2,500	\$2,500	\$2,500	\$2,500
Amount to Reconnect	\$554	\$394	\$394	\$2,500
CAP Balance	\$504			
Reconnection Fee	\$50	\$50	\$50	
Deposit		\$240	\$240	
1/24th of balance		\$104	\$104	
entire balance				\$2,500
Ongoing payment	\$72	\$224	\$224	\$224
CAP payment	\$72	\$0	\$0	\$0
Budget Bill		\$120	\$120	\$120
Agreement Amount		\$104	\$104	\$104

To avoid this situation, Duquesne could:

- Require reconnecting CAP customers to pay the lower amount- either their CAP balance, or the amount they would pay under Chapter 14- and still remain in CAP.
- Treat CAP customers reconnecting after 14 days the same way they are treated if they reconnect before 14 days. If company computers and staff can retrieve the balance due on a closed account, they can probably also retrieve the fact that the customer was in CAP when their service was terminated. If income eligibility was recently verified, or can be re-verified with a deposit waiver, then the reconnecting customer could be asked to pay either the CAP balance, or the amount they would be required to pay in a first Chapter 14 reconnection.
- Demand less than the full account balance from low income customers who have broken two Chapter 14 agreements, if a smaller amount is sufficient to cover the next six months of service.

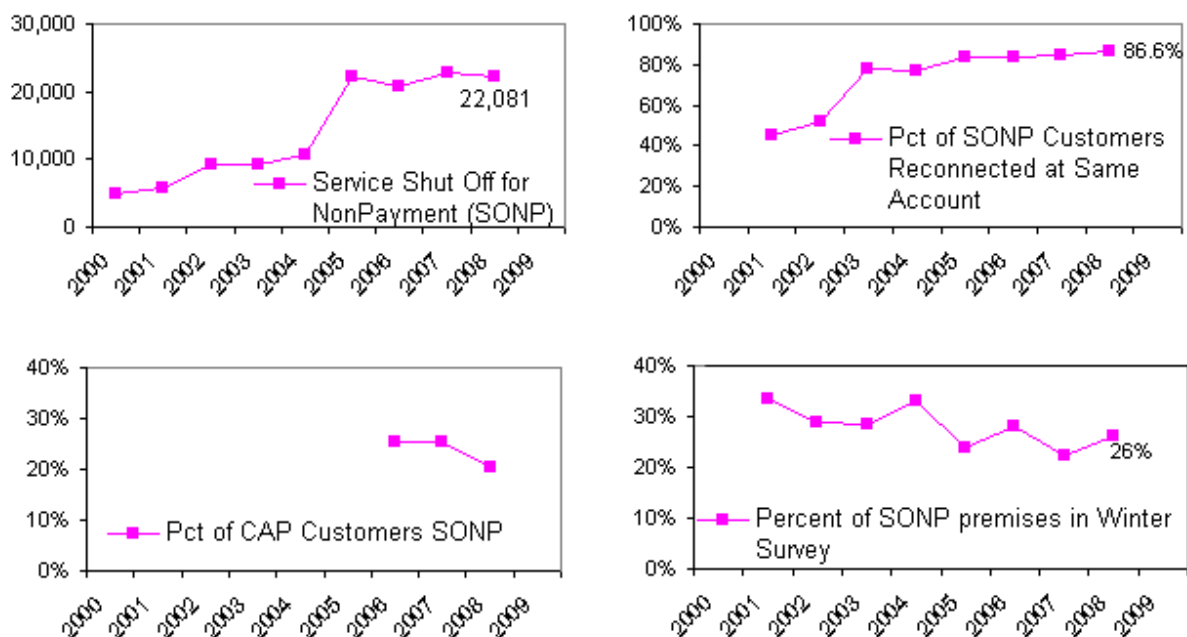
Service Termination Trends

AECOM analyzed company and service area trends in an attempt to discern the impacts of CAP on service terminations. In 2002 and again in 2005, Duquesne nearly doubled the percentage of its residential customers shut off for nonpayment. The 2005 surge in shut offs coincided with implementation of Chapter 14 which changed the way Pennsylvania's regulated electric, water and major natural gas utilities handle cash deposits; reconnection of service;

termination of service; payment arrangements; and the filing of termination complaints by residential customers.

This change in collections practices has been accompanied by steadily increasing CAP enrollment, and at least in recent years, by increasing unemployment and increased applications for food stamp assistance. CAP might have had a positive impact on service terminations, but its influence could easily have been overwhelmed by these changes in collections practices and economic conditions. However, the percentage of disconnected customers reconnecting shows an upwards trend, and the percent of disconnected premises included in the winter reconnection survey shows a downwards trend, at least through 2007. Attributing improved reconnection statistics to the impacts of CAP seems entirely plausible, given that economic conditions would depress these statistics. The partial data series for percent of CAP customers shut for nonpayment also suggests a positive impact of the program

Figure 40. Trends in Shut Offs for Nonpayment



Demographics for CAP Customers with Shut Offs

Unfortunately, there is little demographic information available describing the majority of customers who suffer service terminations for nonpayment. Documented income information is available for the CAP customers who have some shut offs in their account history. Figure 41 shows the demographic characteristics of CAP participants (former and current) who have experienced one or more shut offs.

Figure 41. Demographics for CAP participants with Shut Off History

	with no known shut offs					one known shut off in recent years					2 or more shut offs in recent years				
	No Children		Children in Hshld		Total	No Children		Children in Hshld		Total	No Children		Children in Hshld		Total
	1 Adult	2+ A	1 Adult	2+ A		1 Adult	2+ A	1 Adult	2+ A		1 Adult	2+ A	1 Adult	2+ A	
full time work	3%	2%	7%	6%	19%	4%	7%	9%	7%	21%	3%	9%	9%	9%	21%
part time work	4%	2%	5%	2%	13%	5%	1%	6%	3%	15%	3%	1%	8%	4%	16%
sup self emply	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%
seasonal wrk	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
pension	1%	0%	0%	0%	1%	0%	0%	0%	0%	1%	0%	0%	0%	0%	1%
Soc Sec	12%	3%	1%	1%	16%	4%	2%	1%	1%	8%	4%	1%	1%	1%	7%
disability	2%	1%	0%	0%	4%	1%	1%	1%	0%	3%	1%	0%	1%	0%	3%
SSI disability	11%	2%	3%	1%	17%	7%	1%	3%	2%	14%	5%	1%	3%	1%	11%
no income	2%	2%	2%	4%	10%	3%	2%	3%	5%	13%	4%	2%	2%	6%	14%
public assist	3%	1%	5%	1%	10%	3%	0%	7%	1%	12%	2%	0%	9%	2%	13%
dependant	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%
alimony	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
child supp	0%	0%	1%	0%	2%	0%	0%	2%	1%	3%	0%	0%	2%	1%	3%
unemploy	1%	0%	1%	1%	4%	1%	0%	2%	1%	5%	2%	1%	1%	1%	5%
other	1%	0%	1%	0%	3%	1%	0%	1%	0%	3%	1%	0%	1%	0%	3%
Total	41%	13%	28%	18%	100%	31%	15%	37%	22%	100%	26%	16%	39%	26%	100%
	54%		46%			46%		59%			42%		65%		

- Households with children are 46% of the no shut off group, 59% of the group with one known shut off, and 65% of the group with 2 or more service terminations for nonpayment.
- Households with employment income are 32% of those with no known shut off, and 37% of those with one known shut off, and 38% of those with two or more shut offs.
- Households relying on retirement income are 18% of the no shut off group and only 8% of those with 2 or more shut offs
- Households with disability income are 21% of the no shut off group, and only 14% of the group with 2 shut offs.

Does participation in universal service programs decrease collection costs?

To address this question, trends were plotted for the indicators of performance shown in Figure 42.

Figure 42 Indicators of Collections Performance

Indicator		USP component	
Arrears, year end			not tracked
Change in arrears from prior year	} Shortfall	Total	not tracked
Write offs during year		NonPay	available
Collection/ Admin expenses		Expense	available

NonPay Expense - Benefits = Total NonPay Expense Minus Planned Benefits:

- CAP debt forgiveness
- CAP deficiency write offs
- CARES and SMART COMFORT costs
- DOLLAR ENERGY grants

NonPay Expense - Benefits =

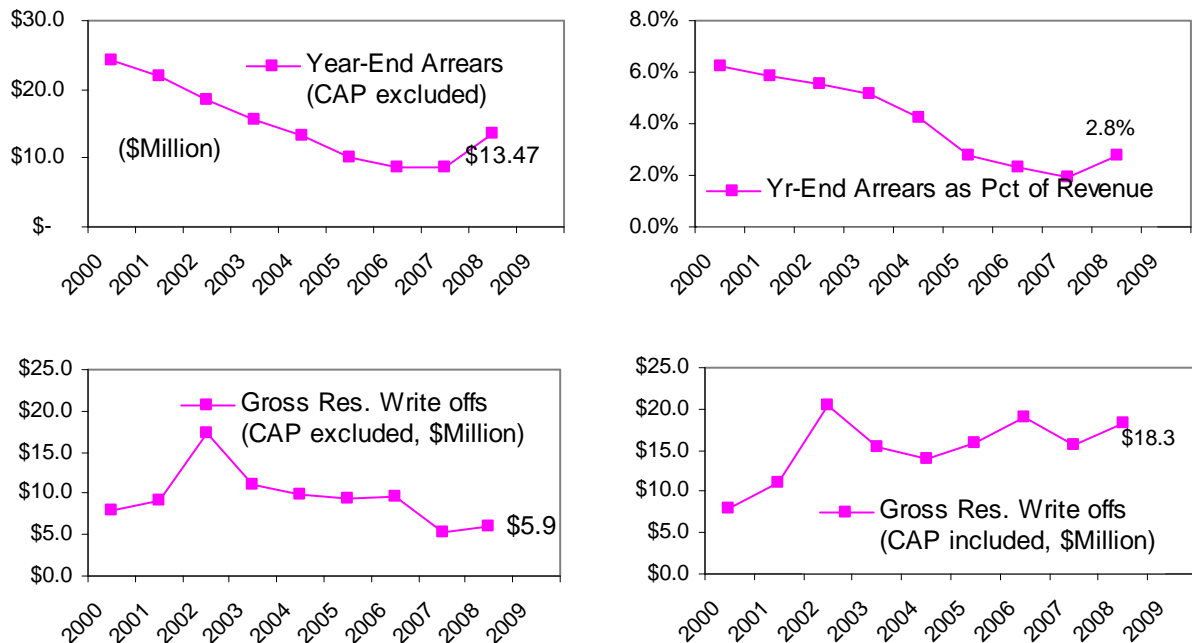
- Change in arrears
- Non-CAP(unplanned) write offs
- CAP admin expense
- Collections costs

Typically, CAP write offs and other USP program expenses have been reported in a separate category from other company collections statistics. To develop a complete picture of account management costs, it is helpful to combine CAP and non-CAP expenses. However, data on year-end CAP arrears (the overdue CAP balance) was not furnished to evaluators, so some of the “CAP included” totals shown will omit this component.

Since some of the USP activities deliver planned public benefits, and thus value that offsets their cost to ratepayers, it is also useful to exclude those benefits from certain analyses.

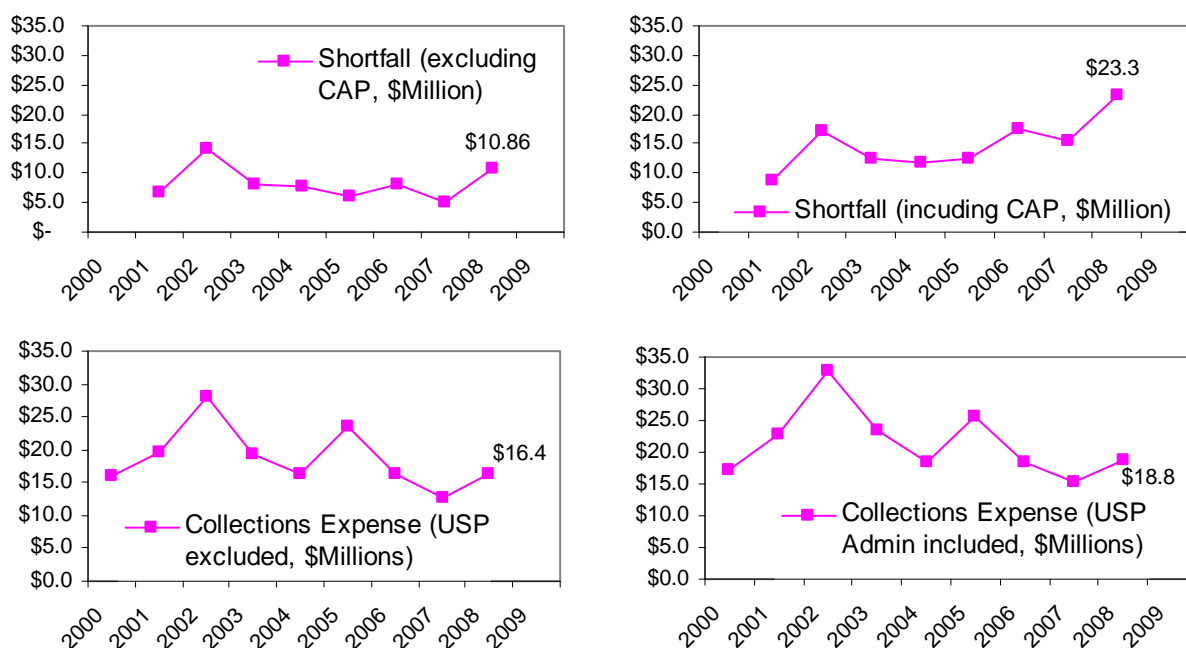
In Figure 43, it is clear that non-CAP arrears and non-CAP write offs have both declined as CAP enrollment and the number of service disconnections have grown in this decade. When CAP's planned write-offs are included, the total write-offs peaked on 2002 and have fluctuated since then. In a deteriorating economy, CAP's increasing planned write offs have not caused total write offs to increase, and arguably have contributed to declining write-offs outside of CAP.

Figure 43. Arrears and Write-Offs



The metric called *Shortfall* takes into account both dollars owed and dollars written off. Since dollars can shift between write offs and arrears, shortfall is a good measure of all costs transferred to ratepayers from nonpayment. Shortfall outside of CAP peaked in 2002 and declined steadily through 2007, while the measure of shortfall that includes CAP's planned write-offs increased modestly. (This measure does not include the in-CAP arrears.)

Collections expenses (with and without CAP Admin expense) peaked in 2002 and have declined since then except for another peak in 2005. Both these peaks are associated with a large increase in the number of service terminations for nonpayment.

Figure 44. Shortfall and Collections Expenses

The metric named *Total Expenses Related to Non-Payment* adds collections expenses to shortfall. Figure 45 shows this total expense with and without all USP program costs. With or without growing UPS program costs, this total has generally declined from its peaked in 2002 to 2007.

These totals are also expressed as a percent of residential revenue. Total expense excluding USPs has declined as a percent of revenue. Remarkably, total expense *including* growing UPS costs has also declined in most recent years and is now at 8.8% of revenue, not much different from the 8.5% of revenue in 2001. This is true even though there has been a steady increase in the value of the social benefits have been delivered in the form of Smart Comfort and CARES services, CAP credits, and hardship grants.

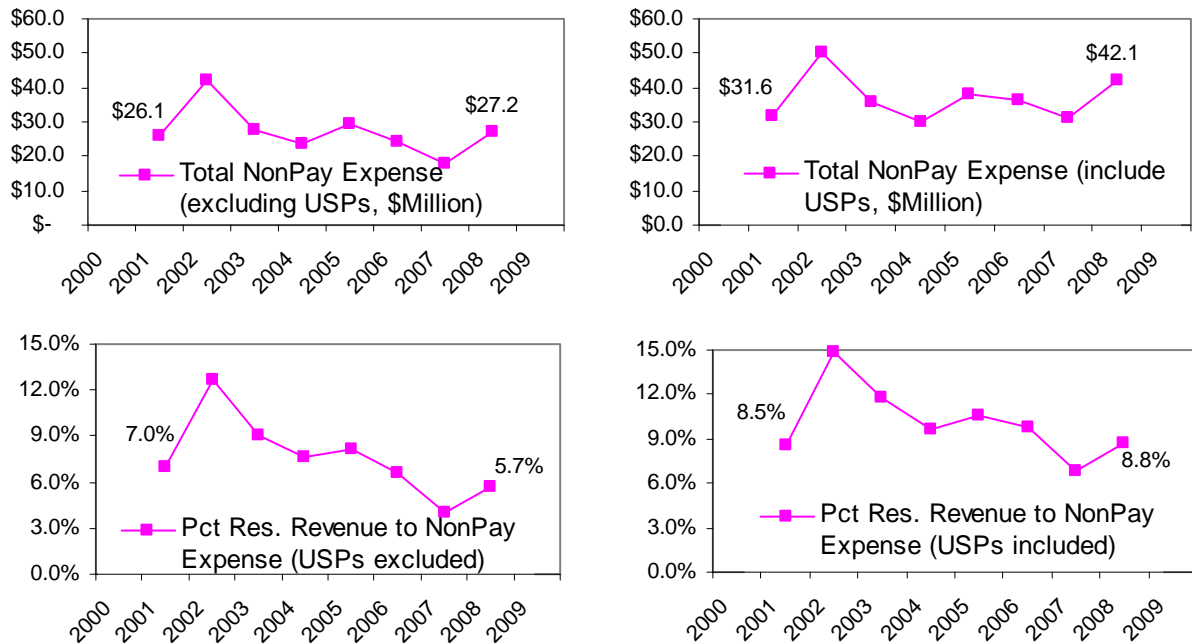
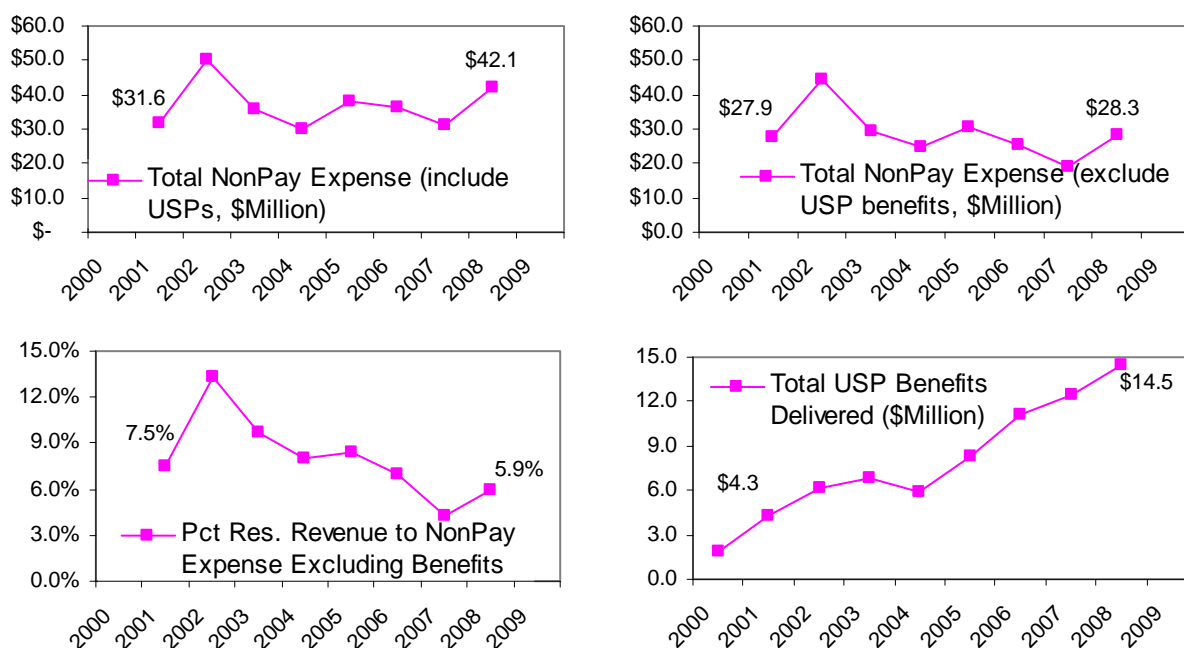
Figure 45. Total Expenses Related to Non-Payment

Figure 46 again shows *Total NonPayment Expenses*, this time with comparison to a “Benefit-Adjusted” NonPayment Expense total that includes CAP Admin costs but excludes the cost of CAP credits, CARES, SMART COMFORT, and the Dollar Energy grants that are funded by shareholders and contributors. These excluded items deliver value to the service area as a whole, value that cannot be captured in utility ledgers. Excluding these benefits from the calculation shows that the expenses related to nonpayment have declined as a percent of revenue, even as the dollar value of delivered benefits has grown.

Figure 46 Total NonPayment Expenses, Offsetting Benefits

These trends suggest that the benefits delivered by USPs have not increased the total cost of managing low-income customers. Instead, growing benefit levels have been accompanied by declining costs for account management, at least until 2008 when the current recession began.

The important caveat to this hypothesis is that Duquesne has in the same period increased its termination activity at about the same rate that USP benefits have grown, and simultaneously reduced its collections department expenses and its cost per termination. For *most* customers, termination of service and the credible threat of termination is a very effective account management strategy. While it is difficult to separate these two factors, it is clear that combining increased collections pressure with greater USP funding has allowed Duquesne to deliver more social benefits while reducing total account management costs.

Service quality has arguably declined, especially for those terminated low-income households who are not receiving benefits from the Universal Service Programs. The number of customers with service terminated for nonpayment has grown, and as noted above, many of these customers have not received the CAP discounts designed to help them maintain uninterrupted service.

14. How can USP be more cost-effective and efficient?

Recommendations are made in the next section

Section Four: Recommendations

Duquesne's Universal Service Programs are thoughtfully designed and competently implemented. The percent of bill approach to determining customer co-payments is fundamentally sound. There is a strong linkage to SMART COMFORT. Staff in both these programs and in CARES are committed and experienced.

However, there are reasons for change. CAP has already outgrown its budget and is likely to continue growing. Procedures that worked well for a program enrolling 25,000 customers may not be ideal for a program with 45,000. CAP fails to enroll many customers who need its terms, and subsidizes customer behaviors and housing choices that should not be continued at ratepayer expense. Act 129 mandates system wide reduction of electricity consumption. Looking forward, there are opportunities to allocate both subsidies and administrative resources efficiently.

Most of the recommendations that follow address four major opportunities to improve program effectiveness, i.e. to deliver appropriate amounts of assistance only to those customers who need it, at lower or contained cost to ratepayers. These four opportunity areas are:

- Modify current procedures to enroll members of underserved groups, and most importantly to help customers likely to experience service terminations. CAP enrolls relatively few of these customers. They need its subsidies and protection even more given the collections pressure allowed by Chapter 14.
- Adjust subsidy mechanisms, with the primary goal of limiting subsidies per customer and subsidies for extremely high levels of usage. CAP has no provision to limit per-customer subsidies, which can be high when usage is high. Clearer feedback to customers on the costs of high use will help the company achieve its new usage reduction goals. Also, the lucky income-eligible customers with relatively low housing expenses arguably need smaller subsidies than those with appropriate but higher housing expenses.
- Adapt to growth while containing costs. Procedures developed when CAP was much smaller may not be optimal or affordable as the program continues to increase in size. Computer technology may offer new opportunities to cut costs.
- Cooperate with gas utilities and the PUC to more effectively address the needs of customers who should be heating with gas but cannot afford reconnection with gas utilities.

We recommend that Duquesne address each of these opportunity areas in its near term operation of the programs, and in its efforts to develop the next USP plan. The recommendations offered below are only suggestions for consideration as Duquesne addresses these opportunities. The authors do not know enough about Duquesne's priorities, organization, and constraints to be certain that a particular recommendation is optimal in its current form. If specific recommendations are unrealistic given Duquesne's operating

environment, the hope is that those familiar with operations will-- instead of dismissing the idea-- develop a better way to achieve its intent.

This recommendations section is divided into three subsections:

A statement of guiding principles. This will make explicit the assumptions concerning energy subsidy programs that guide the recommendations.

Recommendations for near-future implementation. These are recommendations that require only modest investment of effort. Also, they are consistent with the letter or spirit of the current PUC-approved CAP plan, and can probably be implemented without long delays to obtain regulatory approval.

Recommendations to consider for the next USP plan. These recommendations may require either more lead time and preparation, and /or thorough regulatory review.

Principles

This section presents principles which guide the recommendations that follow.

Target subsidies appropriately	Subsidies should be allocated according to financial need, to the extent that differences in financial need can be easily and reliably discerned. As their ability to pay increases, customers should pay an increasing <i>percentage of their bill</i> and receive less subsidy from ratepayers. This does not mean customers should pay an increasing <i>percent of their income</i> as their ability to pay increases.
Differentiate between low-income customers with ability to pay and those with financial constraints	Ideally, low-income customers whose appropriate housing and medical expenses exceed 50% of income should receive more subsidies than low-income customers with relatively low housing and medical expenses. Arguably, CAP programs are necessary because of gaps they partially address in our nation's affordable housing programs, programs that have been chronically under-funded for the last forty years. Customers lucky enough to be served by housing subsidy programs need ratepayer subsidies less than customers still on the waiting list.
Differentiate between short and long-term financial constraints	The number of months customers are granted benefits as a result of one income-verifying event should vary based on the likelihood of changes in income and the likelihood of fraud.

Plan for change in program budget	Ideally, the subsidy formulas and procedures can easily be adjusted (without additional computer programming) if the total budget for subsidies is shifted up or down by changes in weather, economic conditions, or regulatory decisions. It is better to adjust subsidy levels than to wait list customers.
Do not subsidize wasteful behavior	Subsidies should help recipients retain essential levels of service, but should not subsidize either daily behavior or longer term housing choices that cause excessive consumption.
Limit subsidies per customer	Ratepayers can make a modest contribution to reduce a household's total housing and utility bill, but cannot afford deep long-term subsidies to maintain customers in otherwise untenable living situations.
Deter and detect fraud	Take advantage of affordable opportunities to minimize fraud.
Reach and serve the appropriate market	Fine tune outreach and enrollment procedures to maximize participation by eligible households with inability to pay their housing and utility bills.
One stop shopping for multiple benefits	Ideally, application processes among benefit programs should be coordinated so that by completing one application process a customer can obtain assistance from multiple programs.
Accommodate varied needs	Some customers need more assistance and coaching than others. Encourage staff to allocate their time accordingly. CARES embodies this principle.
Maintain a modest barrier to participation	It should be neither too easy nor too difficult for customers to obtain benefits. An application process that involves time, effort, and some discomfort will discourage applications from those who have less need for the program.

Bolster incentives for thrift and self reliance	Provide incentives to conserve energy. Make sure that formulas and procedures do not penalize employment.
Encourage but do not require regular payment	Many low-income households can pay more dollars intermittently than they can with near perfect regularity. Provide incentives for regular payment, but do not require perfectly regular payment of low income customers as a condition to receive subsidies or retain service.
Empower and guide front-line staff	Give staff well-defined ranges within which they can exercise discretion to make adjustments for differences in household circumstances that they detect and document.
Use computers wisely	Maximize use of IT resources to reduce administrative costs and to automate otherwise boring tasks.

Near-Term Recommendations

The recommendations in this section are largely consistent with the current USP plan and would require only modest lead time and planning effort to implement.

Reach underserved groups and help customers likely to experience service terminations

Opportunity One: Provide easier access to CAP

Clearly there are subgroups in the appropriate market for whom the current application process is too great a barrier to participation. With current staffing levels, office locations, office hours and procedures it is difficult for many eligible customers to access CAP intake interviews. Duquesne should explore with its front line agencies ways to develop the flexibility and resources to provide easier access to the program. It may be necessary to increase staffing levels at least during the summer season. In some cases, a promising approach could be pilot tested in one agency or one office. Suggestions for discussion include:

- Continue to use the application for security deposit waiver as a one stop interview that can be converted to CAP participation once service is established. Accept (or continue to accept) walk-in applicants for security deposit waivers. These customers are trying to arrange for service reconnection- get them enrolled while they are available and motivated.
- Open some agency offices or satellite locations for Saturday morning applicant interviews, possibly reserving those appointments for applicants who work Monday through Friday.
- Expand the ability to interview customers for CAP enrollment at locations other than agency offices. CARES already does some of this. Designate or hire staff to provide additional itinerant application services. Test using itinerant staff to offer application services at food banks, soup kitchens, and possibly at unemployment compensation offices.
- Open most intake offices for walk-in applications on a regular schedule, at least three mornings a week, and make whatever changes are required to support this service. Many customers prone to shut off live in the moment, plan poorly, lack relatives who can drive them, and have child care responsibilities and other crises or chronic problems that make it difficult for them to schedule appointments, remember them, and get to an agency office on a day scheduled long in advance.. Some ideas include:
 - Outgoing communications should stress that customers who have made appointments will be treated first, and that walk-ins should plan to arrive in the morning, and may have to wait several hours to be seen. Walk in customers should sign in with their account number and telephone number, so that agencies can identify customers who made the effort to apply even if they could not be seen.
 - Give walk-in applicants a number to indicate their place in line and estimate for them how long they will have to wait. If the wait is long, give them a voucher to a nearby coffee shop. If walk ins must be turned away without an interview , Duquesne could compensate those who waited for over two hours with a \$20 gift certificate to a local grocery. Turned-away walk ins could be encouraged and assisted to make copies of the documentation they brought with them, and leave those copies in a folder with their name and account number on it, so that staff can try to complete an interview by telephone where this seems appropriate.
 - CAP agents can call these un-served customers back and admit at least some of them to CAP based on the results of a telephone conversation with possible mail follow up. If a Smart Comfort visit is required, that will provide some of the benefits of the face to face interaction that did not occur at the agency.
- Explore the possibility of having a SMART COMFORT visit substitute for a face to face agency interview. SMART COMFORT staff could explain CAP and gather any critical information missing from a CAP application. A premise visit typically provides better fraud protection than an interview out of the home.
- The Duquesne CAP manager should receive and review monthly reports detailing the number of interviews completed at each agency office by each staff person. Ideally these reports would track on average how many days customers have to wait for a scheduled interview.

- Field staff make NPMI visits to premises where service was disconnected and not reconnected within a few days. The primary purpose of these visits is to ensure that electricity is not being stolen. When it seems likely the premise is still occupied, have field staff making NPMI visits distribute a simply worded invitation to join CAP, accompanied by a mail in postage paid post card with space for name, address, telephone number, and Duquesne account number. Have these postcards arrive at one office where designated staff will call these customers and offer a CARES visit if they seem to be eligible and are unlikely to reach an agency. (This is already done during the Cold Weather Intervention Program. The suggestion is to extend this outreach to all households who are without service for more than a few days, whenever this occurs.)
- Test a program of making outbound CAP recruitment calls to customers whose service has been shut off and who have not contacted the utility within three days. If customers are reached, tell them where walk-in applications are being taken.

Opportunity Two: Explore collaborative CAP enrollment with gas utility companies in the service area.

Approach Gas utilities and ask them to begin the practice of asking CAP applicants to approve information sharing with Duquesne. For customers who give permission, arrange for electronic transfer of application information between utilities. Reciprocate by asking CAP applicants the name of their gas company and asking them if they would like their eligibility information shared with the gas company. Hire or designate staff either at Duquesne, one agency office, or another subcontractor, to centralize in one place the processing and matching of this information. When eligible customers are identified who are not already participants in Duquesne's CAP, attempt to enroll them with a telephone conversation and possibly a SMART COMFORT visit.

This opportunity and the next are likely to be addressed through Duquesne's ongoing participation in the Universal Service Working Group.

Opportunity Three: Create or improve links to Dept of Welfare databases

This is timely because the state is this fall revising its main benefits web portal to incorporate LIHEAP applications. Explore with the PA Department of Welfare cooperative arrangements so that households using the Department's on-line one-stop COMPASS system to apply for food stamps, free lunches, LIHEAP, and similar benefits can choose an option of to inform their electric company of their eligibility for discounts, choosing their company from a drop down list and supplying an account number if they have it.

Develop mechanisms for electronic information sharing between utilities and the Dept of Welfare, applying to those households who have chosen this option, so that utilities are informed of LIHEAP grants approved (even for another utility) and are informed of eligibility-affirming events in the food stamp program (both initial applications and 6 month follow ups).

Develop capability at Duquesne to assign account numbers for incoming records that lack them, and also develop procedures to contact households that

do not match up. For households already in CAP, plan to use this data to automatically shift re-certification dates forward (and plan to modify computer programs accordingly). For households not already in CAP, use this data to either target outreach (mail and auto dial telephoning explaining the CAP program) or place customers into a 30% discount plan with an invitation or requirement to schedule an interview to obtain deeper discounts (all customers), or to remain in the program beyond three months (high users, customers with poor payment history).

For the Department of Welfare, it might be helpful to characterize this functionality as an “PA Energy Discount Registry” -- a named program that households can apply for as they do other programs on COMPASS. Sample explanatory language:

All Pennsylvania gas and electric utilities have Customer Assistance Programs. These programs offer discounts or reduced payments to low-income households. If you are found eligible for the Energy Discount Registry, the utility companies that you designate in your application will be informed that you are eligible for discounts or reduced payments. Some companies may automatically give you a discount or reduced payment amount. Others may ask you complete an interview over the telephone or in person. In all cases, your listing in the Energy Discount Registry will confirm that you are qualified to receive a discount on your electric or gas bill.

Your household will be added to the Energy Discount Registry if:

you check off that you are applying for the Registry, and

you apply for food stamps, free school lunches, or Low Income Heating Energy Assistance (LIHEAP), and are found eligible for one of or more of these programs.

This text would be followed by a list of PA utilities and their Universal Service contact phone numbers.

Opportunity Four: Help CAP customers manage high balances and service disconnections

CAP was designed in part to address the problem of customers with impossibly high balances who therefore make no payments or go without service for long periods. For most CAP participants, CAP reduces balances effectively. However, there are some CAP customers who fall seriously behind. Their problem is compounded if they do not reconnect within 14 days and their entire account balance is demanded, including the cap deficiency credits they in theory were not supposed to pay.

- Immediately implement a procedure to write off the CAP deficiency amount in situations where CAP accounts are finalized or customers leave CAP prior to recertification. The deficiency credit is the subsidized portion of the CAP monthly bill, the portion the customer is not asked to pay. Under current accounting practices, this amount is part of the customer's total account balance, and remains so until a manual intervention occurs during a re-certification event, at which time the amount is written off. Customers who leave CAP before recertification, either honorably or when shut off for non-payment, see that deficiency amount added back to their total account balance. They may be asked to pay that entire account balance to re-establish service if they are without service over 14 days. In short, this amount that they were not supposed to pay could come back to haunt them. For some of those customers whose service is terminated, this could mean that their sojourn in CAP becomes a liability.
- Set up an account that agency staff can draw upon to pay down the CAP unpaid balance by as much as \$200 in cases where documented changing circumstances have reduced customer ability to make payments, qualifying them for a greater discount, and this change comes to light several months after it occurred.
- For CAP customers who are shut off for nonpayment, allow reconnection if the CAP customer pays either their entire CAP balance or an amount equivalent to 6 CAP payments, or the amount they would pay under Chapter 14, whichever is less.
- Change current procedures for CAP households shut off for more than 14 days. Allow reconnecting former (CAP) customers the same or nearly the same terms they would have been offered on day 13. If Duquesne staff can access their closed account to determine their total account balance, surely they can also determine that the person was in CAP when their account closed.
- Review the wording on alert letters sent to CAP customers. Make sure it is accurate. Keep it simple. Emphasize any deadlines they must meet.

Opportunity Five: Offer other low-income customers realistic reconnection amounts

Regrettably, most customers with service terminations have not entered CAP. Thus they are managed under Chapter 14. Chapter 14's two-strikes provision is incompatible with the proven fact that shut-off prone low income customers can pay more dollars intermittently than they can with the perfect regularity that is required to maintain payment agreements. This is due both the economic constraints and uncertainties, and to habit and attitude. Tough reconnection requirements can affect habit and attitude for a subset of customers, but not the economic constraints that will eventually cause many at-risk households to miss a payment on a payment arrangement.

For many low income customers outside of CAP, the most forceful legal application of Chapter 14 is bound to fail, resulting in name changing or long periods without service and related risks. (Ironically, in service territories where customers can be terminated more frequently and year round, there is a group of customers who can be managed by repeated shutoffs, because they rarely have time between shut offs to develop a balance so large they cannot pay it off to reconnect.)

In theory, the availability of CAP means Duquesne's low income customers have access to an appropriate and more forgiving reconnection policy- one that asks for a more affordable payment, and requires a smaller catch up amount to avoid termination or re-establish service.

However, only a minority of termination-prone customers have joined CAP. The disorganized and dysfunctional households most likely to suffer from harm following a disconnection of service are unlikely to have joined CAP. For low-income customers with large balances and two broken Chapter 14 arrangements, Duquesne could offer a reconnection alternative that demands less than the full balance when the balance is very high. For example, if previous Chapter 14 arrangements have been broken, allow customers to reconnect if they pay the reconnection fee plus either their entire account balance plus a deposit, OR an amount sufficient to pay for the next six months of service plus the reconnection expense.

As part of the 2009 fall reconnection campaign Duquesne will restore service under lenient terms for low income customers who are joining CAP for the first time. The proposal here is that realistic reconnection amounts be asked of all low income customers whenever they reconnect, and however many times they reconnect.

Low-Income households without electric service are highly motivated to obtain it. Demanding they pay an entire large balance is more likely to result in name changing or time without service than it is to result in positive cash flow for Duquesne.

Opportunity Six: Collect undisputed amounts from customers who file complaints

It appears that a major cause of impossibly high balances in and out of CAP is customers who file complaints then stop paying their bill. Utilities are allowed to collect the undisputed portion of a bill, but Duquesne's current computer algorithms pull complaint customers out of the collections process. This allows the customer's balance to grow during the entire period that complaints are pending at BCS.

To collect the undisputed amount requires a mechanism to set the disputed amount aside and ask the customer to pay an undisputed amount toward their ongoing usage. CAP offers a mechanism to do this. It sets aside the pre-program arrears and bills for an amount that can be customized as a percent of the budget bill.

This mechanism could be adapted with relatively little effort to bill and manage customers who have filed complaints. This could be accomplished by borrowing CAP's computer programming to support a new "purgatory" program, OR by placing customers in CAP who are not already in CAP, creating a

special code to label them as complaint participants, and calculating a custom discount amount for them that will have them pay an amount less than or equal to their undisputed obligation. Computer algorithms handling the deficiency balance could be refined to NOT automatically write off any deficiency credits that accumulated for CAP customers coded as complaint participants. There would little harm and possible advantage in letting these complaint participants earn the arrearage forgiveness write off in response for timely payment.

A similar approach might be used to manage customers with bankruptcy protection, so that they are asked to pay a collectable portion of their ongoing expense of service.

Opportunity Seven: Study customers terminated for nonpayment

Launch a several year effort to track customers who lose service, and follow them through changes in account number and address. Combine a careful analysis of account histories with in depth interviews with households that have had service disconnected more than once and that have been without service for more than five days. Assess the impact of Chapter 14 on these customers, and develop a better understanding of the factors which cause them to lose electricity service.

Adjust subsidy mechanisms

Opportunity One: Stop automatic recertification

Disable the computer algorithm that automatically recertifies customers who have no overdue CAP balance. As soon as staffing levels permit, mail out to customers who have been auto-recertified a plain-English letter asking them to submit an updated list of household residents and verification of income sources.

Opportunity Two: Update income information for certain households

Have CAP agencies ask for updated income information from households who entered CAP more than four months ago or recertified more than four months ago, showing either no income or unemployment benefits. (Duquesne reports it has already implemented this procedure, and has taken steps to ensure that all agencies comply.)

Adapt to growth and constrain costs

There is great value in having applicants to CAP complete a face to face interview to enter the program the first time. The interview allows CAP's experienced, dedicated, and empathetic front-line staff to provide education, explanation, and referrals. They also have the opportunity to discern situations where fraud is likely. Efficient support systems should be in place to maximize

the time that front-line agency staff spend with customers. Interviews should also be used primarily for situations where they are most likely to add value (i.e. first application to CAP). In large measure, this describes how the program works now. The following suggestions might further optimize the allocation of staff time.

Opportunity One: Automate outgoing recertification mailings.

Remove from agencies the task of preparing outgoing letters sent to customers inviting them to recertify when their plan is about to expire. Use a centralized and computerized office to efficiently prepare and mail these letters. This function could be handled at Duquesne's central offices, or could be subcontracted to a third party or to one agency office. In addition to mailing letters, recertification invitations could also be conveyed by Duquesne's outbound calling program, or by a third party offering outbound automated calling.

Opportunity Two: Optimize telephone systems at agencies

Several agency staff mentioned less than optimal arrangements for handling telephone communications, one mentioning that she is continually interrupted by incoming calls because there is no one or no system to take messages at her office.

Opportunity Three: Extend period for re-entry by mail

For those who fail to re-certify within the required period, drop them from the program but have a three month "grace period" during which they can rejoin the program without a face to face interview, if they submit appropriate documentation by mail. This will decrease the number of face to face interviews staff conduct with these re-joining customers.

For customers who are former CAP participants and who are re-joining the program after a period out of the program of two years or less, waive the interview requirement for those with low or moderate use, and allow them to send proof of eligibility by mail or fax, or accept as verification evidence that they have recently been approved for LIHEAP or food stamps

Opportunity Four: Update the CAP manual

Update the CAP manual to accurately reflect current program rules and procedures. This is particularly important if new and/or part time staff will be added to accommodate demand for interviews at new times and in new locations.

Opportunity Five: Track the overdue CAP balance and CAP deficiency credits

Record the amount of the overdue CAP balance at the end of each billing cycle and at the end of the year. This will help to better manage the program and assess its impacts. Also track the rate at which CAP deficiency credits are accumulated, to better project program costs (Duquesne staff report this is already done).

Increase cooperation with the PUC and gas utilities

This is an area where the problem is obvious (disconnected gas heat) but the path forward is unclear and not entirely under Duquesne's control. Duquesne is already working with a study group focused on how gas and electric companies can coordinate efforts to restore gas heat in homes where customers are using electric space heaters. Some possibilities include:

- Do more research at Duquesne to assess any impacts of different gas company CAP payment plans on electric high use, CAP subsidies for electric use, and disconnections of gas service. This would start by beginning to systematically record which gas company serves each Duquesne customer.
- Advocate that gas company percent of income plans be adjusted for household size, or that they include a percent of bill override as in the Columbia Gas CAP.
- Encourage gas companies to pilot test a program of autumn reconnections by accepting an amount (from all sources) sufficient to prepay for seven months service plus the expense of reconnection and a future disconnection.
- Explore options to use SMART COMFORT funds to make gas-conserving repairs

Longer Term Recommendations

The recommendations in this section would require longer planning time, more effort, and could also require regulatory approval of Duquesne's next CAP plan.

Reach underserved groups; help customers prone to shut offs***Opportunity One: Increase funding levels***

Current funding levels for USPs were set as part of a rate settlement. When these decisions are revisited or updated, a larger budget is in order for CAP. Unless radical reductions are proposed for the subsidies most customers receive, CAP's plan for years starting in 2011 should include a budget well over \$15 million dollars. Some of the outreach activities listed below could occur earlier, but should be deferred until funding is secured for a larger budget that will support higher enrollment.

Opportunity Two: Increase outreach activity

Increase outreach efforts by making CAP brochures available for distribution at unemployment offices when new recipients show up for orientation. Consider developing a paper application form that unemployed persons could mail in along with supporting information.

Opportunity Three: Collaborate in outreach and enrollment

Explore with Pittsburgh schools the possibility of collaborating to increase outreach efforts to households using the free school lunch program. Possibilities include: mailing CAP outreach materials to all free lunch households, or mailing outreach materials to those free lunch households that a third party cannot match to CAP enrollment data.

Continue work with the Universal Service Working Group to develop a common application or an agreed upon set of common database fields that would work for both gas company and electric company CAP programs, collecting a core set of data that meets the (possibly simplified) data requirements of each program. The goal is to allow customers applying to one program to simultaneously apply to the other. This might involve developing a third-party information system that could communicate with the information systems at all involved utilities. Customers would have to give permission for each company to share information with the other.

Opportunity Four: Take applications at remote locations

Offer regularly scheduled part-time office hours in communities that are far from current offices. There could be a “Customer Assistance Van” that makes its way through outlying communities on a regular and well publicized schedule, or arrangements could be made to rent or use space in specific office locations on specific days. The intent would be to develop and publicize a regular schedule, so that community x has interviews available on the first and third Monday of every month, while community y has interviews on the first and third Tuesday of every month, etc. Callers to an information line should be able to say their zip code and be told where their nearest agency is, and what other nearby places and days in the next two months will be open for walk-in applications. The same information should be available on the CAP web site.

Adjust subsidy mechanisms***Opportunity One: Vary the length of CAP plans***

CAP currently operates with one-size-fits-all plan length of one year. While a one year plan length is appropriate for many customers, some could be recertified every two years to reduce administrative expenses, and others should have their income verified sooner to reduce unwarranted subsidy. For

example, applicants with no income or income from unemployment should be certified for a 4 month period, after which they are invited to re-verify their eligibility. Customers with dubious eligibility (expenses obviously exceed declared income) should also be given CAP plans of short duration.

Recommendations include:

- Modify computer systems and procedures so that staff (and computer programs) can set CAP plan expiration dates at various intervals, such as 4 months, 7 months, 12 months, 18 months, and 24 months. This would allow a plan to be extended if Duquesne learned, via electronic data transfer, that a customer will receive a LIHEAP grant, or recently re-verified eligibility for food stamps, or was accepted into the free school lunch program.
- If necessary, modify the mechanism that triggers recertification invitations so that it works based on the CAP plan expiration date.
- If there is not such a screen already, develop a computer screen where staff can see at one glance the history of CAP plans for each customer. If possible, include CAP plans at previous account suffixes. For each CAP Plan, show the start date, target duration, expiration date, discount level, and type of verification used to start that plan (interview, mailed form, evidence of participation in another program, etc), and staff comments if any.
- Give agency staff flexibility to set recertification (plan expiration) dates anywhere from 4 months to 24 months, based on type of income and apparent stability of family.

Opportunity Two: Develop a pay-forward option

Duquesne should develop the computer resources to accept payments from relatives, churches, LIHEAP (and other sources) and then have the option to dole them out as credits spread evenly over a selected number of future bills. This could be accomplished with modifications to Duquesne computer systems, or by forging an electronic linkage to a more nimble module or third-party software provider that would administer credits and apply them to individual accounts during each billing cycle. The goal is to promote regular payment. If grant dollars are spread evenly over the next twelve months of bills, then customers can be left with a more affordable amount that they should pay each month, reinforcing the habit of regular payment. This option will be particularly useful if new regulations from the Department of Welfare force the company to apply LIHEAP grants to future payment obligations.

Opportunity Three: Refine the subsidy determination procedure

Duquesne uses a multi-tier discount plan to determine customer co-payment amounts. This approach is valid and in several ways superior to a percent of income calculation. The following recommendations would fine-tune the subsidy calculation to better target subsidies consistent with the principles listed above. Subsidies would be reduced for some customers under this proposal, allowing the subsidy budget to serve more households.

- Reduce the height of “steps” by using a ladder of discounts with more steps and smaller steps instead of the current 3 step plan. (The current 3 tier plan doubles the monthly co-payment as customers move from 49% of poverty to 51% of poverty, asking customers between 50% and 75% of income to pay a substantially higher percent of income than those above or below them.)
- Include a zero discount option. Allow for some low-income customers to participate in CAP’s timely payment forgiveness provision, even if they receive no discount on a monthly basis. There may be customers who do not need the discount, but who are low income and have large balances to pay down. In other words, offer a 100% payment plan. This will provide a step between the 80% discount and the standard non CAP payment agreement that requires full bill plus 1/24th of the total balance. It will also provide an option for managing LIHEAP customers whose LIHEAP grant exceeds the subsidy they are due under the discount schedule. It might also be used to manage customers with bankruptcy protection.
- If barriers to entering CAP are reduced, it is important to have ways of offering smaller subsidies to the 45% of income eligible customers who have affordable housing expenses. Adjust the discount percentage for customers who pay less than 45% of their income for medical and housing-related expenses. Customers with relatively low housing and medical expense (for example, those lucky enough to live in subsidized housing) should have their discount decreased by 20 percentage points or two steps on a finely graduated scale. This could, for example, decrease their discount percentage from 20% to 0%. Co-pay percentages could also be increased by 20 percentage points for customers whose cable TV bill would otherwise exceed their co-payment in CAP.
- Duquesne should implement limits on the amount of high use ratepayers subsidize. In a society with increasing poverty, more electrical end uses, and increasing energy costs, it is rarely if ever appropriate for rate payers to subsidize choices either in housing or in behavior that lead to extremely high use of electricity. One method would be to apply the payment percent only to the first 500 or 600 kWh used in each month. This might be easy to implement since Duquesne already has programming, for Heating Customers, that differentiates the initial 500 kWh from additional kWh on a seasonal basis. One advantage of this approach is that high users must face the full retail cost of each additional kWh they use. While Duquesne staff caution that this might be difficult to explain to customers, the concept is easy to understand and with some programming effort could be made clear on bills.

Customers would get a discount on the first X kWh, but not on consumption that exceeds that reasonable usage level. Customers would then pay the full retail price for usage over the reasonable limit. Additional analysis will be required to determine exactly what that this usage level should be. It could vary by rate group, by season, and/or by month. Set a default limit that would apply to most customers, but provide a computer field for staff to make adjustments for customers where high consumption is related to medical needs. This change will address the need to limit per-customer subsidies. It will also strengthen conservation incentives, and give Smart Comfort energy educators more talking points. (See Appendix C for a comparison between PECO’s plan- a very complex implementation of block rates, Duquesne’s current discount plan, and a proposed alternative for Duquesne. Note that this is NOT a suggestion that Duquesne copy PECO’s plan exactly.)

Figure 47 Illustrative Revisions to CAP Discount Determination

Poverty Level	Rate Discount	For Most RS Customers Discount applies to	For RS customers with elect hot water	If Extenuating Circumstances
Below 30%	70% discount	first 500 kWh in Sept,Oct, Nov March, April, May first 600 kWh in June, July, August December, January February	first 750 kWh in Sept,Oct, Nov March, April, May first 850 kWh in June, July, August December, January February	first 1200 kWh
31% to 51%	65% discount			
51% to 70%	55% discount			
71% to 90%	45% discount			
90% to 110%	35% discount			
111 to 130%	25% discount			
130% to 150%	15% discount			
	0% discount available as needed			
↑		Over these limits, customers pay full retail rate for additional kWh used		
		Reduce discounts two steps if housing expense is < 30% of income		
		Reduce discounts one step if housing expense is between 30 and 40% of income		

- Add to the discount schedule an over-ride feature to ensure that all customers pay for residential service at least \$20 per month or 4% of their income, whichever is more. Consider adding a requirement that customers pay at least as much for electricity as they pay for cable TV service.
- Eliminate the bias against working households by calculating eligibility and discounts using net instead of gross income. One simple method would be to program computers to reduce the computed value of earned income by 15% when household income and poverty level are calculated. Another simple method would be to move working households to the next step down (a slightly deeper discount). Also, count food stamps and utility allowance checks as income.

Opportunity Four: Charge customers based on each month's usage

A more radical change would be to deliver the subsidy as a fixed credit instead of as a percent to pay. A CAP credit would apply to each bill, and could be calculated as a percentage of the average bill for the previous 12 month period. It might or might not be weather adjusted to shift some of the credit dollars from shoulder months to summer and winter months²⁷. Customers would be liable to pay the rest of the bill for the month, giving them immediate feedback on how

²⁷ The author evaluated a Kentucky program that successfully applied a credit to the bill each month, calculating the annual credit based on poverty level, and allocated the annual credit across months based on actual use at the premise (when available) or rate-group average monthly usage, so that most of the annual credit amount was applied in the months when highest use was likely. This left the customer responsible for paying the remainder of the bill each month, and paying an amount that was roughly equal month to month. This approach keeps the customer payment amount affordable, but leaves the customers 100% responsible for marginal usage in each month. When customers joined the program they received a letter telling them exactly how much credit was going to be applied to each future month's bill. Low use months might receive a zero credit. Modern computing power makes such an approach entirely feasible. (In Kentucky, this was implemented by having a third party organization compute the credits and allocate them to each customer in each month, conveying this information via an electronic linkage to the utility's unaltered billing system.) Accommodations would be needed to integrate grant revenue in this scheme.

their usage that month affects the amount they must pay. They would also pay the full retail cost for each additional kWh they use, giving them a strong conservation incentive that Smart Comfort staff would be happy to explain.

Duquesne notes that the PUC encourages CAPs to use budget plans. Thus this change would require negotiation, and Duquesne would need to make a strong case that a proposed fixed credit plan addresses the concerns that have motivated the PUC's preference for budget billing: affordability and predictability. Payment amounts expected of CAP customers already fluctuate a little bit from month to month, as the most recent month replaces its year-ago predecessor month in the calculation of the rolling 12 month average. Fixed credits could be calculated on a seasonal basis so that the customer's payment responsibility- the remainder of the bill- did not change much from month to month- except as a result of changes in customer usage. Usage changes driven by unusually cold winter periods or unusually warm summer weather could be handled by including a mechanism in the computer programming that would allow Duquesne to automatically increase credits for a specific billing cycle to keep the customers' portion of the bill affordable during extreme weather.

A simpler way to achieve a similar result would be to multiply the customer discount times the *current bill*, instead of the budget bill from the rolling 12 month average.

Alternatively, applying the discount only to seasonally adjusted initial blocks of consumption would make customer payments roughly equal across months, except in months when consumption was unusually high. Customers would get immediate financial feedback on the consequences of each month's usage.

Adapt to growth and constrain costs

Opportunity One: Leverage computers

- Update CAP computer screens (many have fields are no longer used at all, or ask for information that is not used). Coordinate this effort with efforts to define and share common data fields with other utilities.
- Reduce the time spent trying to schedule appointments by installing scheduling software that can make and track appointments at multiple offices. Customers should be able to call into a single number at a central office and interact with a person or a user-friendly computer that asks them their zip code, tells them which offices are nearby, and offers them appointments at those offices. Instructions as to what to bring could easily be added to such a telephone scheduler.

- Revise computer systems so that information needed for evaluation and program monitoring can easily be extracted on an ad hoc basis or for automatic reports. For each CAP plan or reverificaiton, a single data table should record the household size, income, poverty level, food stamp income, and discount rate at the date the plan was set up or extended. It would also be helpful to record how many household members were over 64 years of age, disabled, or children when the plan was set up. The next recertification date should also be included, and it would be helpful to include the date of the customer's first known CAP plan at any address. Such a data table would greatly reduce the costs of future program evaluations and allow for better monitoring of program performance between evaluations. There are enough now-unused fields in existing data tables for CAP plans and CAP applications that either or both of these tables could be revised to include the new data, some of which would automatically be placed there as staff add data to existing screens.

Opportunity Two: Add incentives to agency contracts

The SMART COMFORT subcontractor schedules and delivers premise visits faster than that agencies schedule and deliver interviews. This could be in part due to the fact the Smart Comfort is paid by the job, whereas agencies are on a flat retainer. (It may also be due to the fact that many customers have an easier time meeting at home than they do arranging travel to an agency office.)

Perhaps the SMART COMFORT subcontractor would like to compete for some of the intake interview activity. They are already set up to efficiently visit customers where they live. If appropriate performance metrics can be established (and this is tricky!), agencies might compete for market share based on their performance.

Opportunity Three: Implement Information Sharing with Related Programs

Duquesne could re-certify customers “automatically”- extending their plan expiration date- if it knew which customers had recently been approved for a gas utility CAP program, or which customers had recently been approved for LIHEAP, free school lunches, and/or food stamps. Ideally, subsidized households customers would go through the process of verifying income once and only once every six months or once a year, and could thereby continue receiving subsidies from multiple programs. If Duquesne knew which customers had verified income for these other programs, and could discern that those customers were not already in CAP, it could invite them to join the CAP program. Initial discussions with gas utilities and the Department of Welfare suggest that there is interest in exploring data-sharing collaboration. There are already in place methods of sharing LIHEAP data electronically between the Dept of Welfare and utility companies. PECO's CAP intake staff can call the Department to verify customer participation in its programs.

Opportunity Four: Auto-Enroll Participants from Related Programs

Consider offering a limited or introductory CAP plan, “CAP LIGHT”, to customers who have not yet completed a an initial face to face interview with CAP agency staff, but who are deemed categorically eligible because Duquesne learns that they have been approved for a gas company CAP or for LIHEAP, food stamps or free school lunches. These CAP LIGHT plans would expire in 12 months. Customers placed in CAP in this way would automatically receive:

- a welcome letter explaining why they were placed in the CAP program, describing its benefits for them, and inviting them to schedule an interview to arrange for possibly deeper subsidies and longer benefits.
- the timely-payment arrearage forgiveness credit
- the most modest discount available for their rate group.
- automatic extension of their plan expiration date for another seven months if Duquesne learns they have completed their every six month food stamp income re-verification.

Opportunity Six: Consider Mail-in Applications

Consider developing a paper application that customers can mail in to Duquesne with supporting information. Customers mailing in the application would be placed in “CAP LIGHT” for six months, at which point their plan would automatically expire. By arranging an interview before expiration, they could obtain a longer plan and possibly deeper discounts. Give mail applicants the most modest discount available to their rate group, with the exception that no discount should be given mail in customers whose application data shows high use, high cable TV bills, or low housing expenses. If these customers continue to be non-users of Dept of Welfare programs, require an intake interview to enroll them in CAP again.

The mail-in application could be used in a number of outreach situations. It might, for example, be distributed at unemployment offices, or by Visiting Nurses. Having a low-cost, low-subsidy mail-in introductory option may help increase participation by customers living far from current intake sites, and by customers who need the program only for short periods.

Summary of Alternate Intake Options

These recommendations could result in the options shown in the table below.

- At least one face to face interview would be required for full participation in CAP, i.e. for any deep discount. Once that interview was completed, re-verification of eligibility could be handled by mailing in documentation or by Duquesne verifying recent approval for other subsidy programs.
- Mailed in applications without interviews would -if deemed eligible- result in a one-time six month CAP LIGHT plan that could be extended or refined via an interview.

- Automatically enrolled, categorically eligible households would also be placed in CAP LIGHT, and could have their plans extended if Duquesne obtains updated information confirming their eligibility. They would be invited to arrange interviews to receive deeper discounts.
- Under any program entry option, all high users would be required –as they are now- to complete Smart Comfort visits to obtain any discount.

Figure 48. Summary of Intake and Recertification Scenarios

Scenario	Program Intake	Re-certification or extension
<p>Mailed-in application</p> <p>No confirmation on use of other programs</p> <p>No CAP interview</p>	<p>6 month one-time plan with:</p> <ul style="list-style-type: none"> • interview invite • timely payment credit, • 10-20% discount, but no discount for high use, high cable bill, low housing expense 	<p>No re-certification by mail. Interview required for re-entry or re-certification</p>
<p>Verified use of LIHEAP, food stamps, free school lunch, gas company CAP</p> <p>No CAP interview</p>	<p>12 month plan with:</p> <ul style="list-style-type: none"> • interview invite • timely payment credit, • 10-20% discount, but require Smart Comfort for high users to get discount 	<p>Extend expiration date of any CAP plan 12 months based on renewed eligibility for other program</p>
<p>CAP interview</p> <p>Set expiration date at 4 months for no income, unemployment, or households with expense out of line with revealed income</p>	<p>Varied length plan with:</p> <ul style="list-style-type: none"> • timely payment credit, • sliding scale discount, but Smart Comfort required for high users before receiving discount 	<p>Accept mailed or faxed documentation, OR use participation in Dept of Public Welfare programs to extend plan expiration.</p>

Revise Application and Re-certification Forms and Requirements

Duquesne could also demand that customers provide copies of their gas, cable, and telephone bills- in interviews, and when they re-certify or apply *by mail*.

This would be useful information to coordinate benefits and determine discount levels. It would also impose a modest additional documentation burden to those verifying by mail, and thereby provide a modest dis-incentive to applications and re-certifications by customers who have more money than time. Those whose CAP plans are re-certified or extended automatically because they verified their income for food stamps or LIHEAP would, of course, be spared the effort of supplying this information by mail.

Customers applying by mail or re-certifying by mail should provide:

- the name of their gas company, if any, and their gas account number, and whether or not they are a CAP participant at the gas company;
- their cable TV provider, if any, and their account number;
- their telephone providers, if any, with account numbers;
- copies of recent bills from these utilities;
- information concerning their spending for rent, mortgage payments, water payments, sewage, real estate taxes, etc.
- check off information as to whether they currently receive benefits from food stamps, the free school lunch program, section 8 housing;
- name, age, social security number for each household member, and whether or not that member has some form of health insurance;
- Permission for Duquesne to contact other utilities to co-ordinate benefits or confirm eligibility;
- Permission for Duquesne to visit the customer's home between the hours of 8 AM and 8 PM to verify the accuracy of submitted information;
- Acknowledgement that they have read and understand onerous warnings about the consequences of submitting false information.

Summary of Possible Information Technology Changes

Some of the recommendations made above would require, or be facilitated by, enhanced computer capabilities. For example:

- The ability to spread forward over a user-specified number of months, credits from a one-time grant or payment made on an account.
- Separate fields for discount rate and maximum number of kWh to which the discount applies. There should be default values for each, but staff should have leeway to enter different values and document the reason for doing so.
- Flexible expiration date for CAP plans, along with a Customer History of CAP plans showing start dates, expiration dates, discounts, and comments
- Fields to retain information on the gas company name and account associated with a Duquesne electric account.
- Fields on the CAP intake screens to accommodate name of cable TV company and account number
- A central appointment scheduling system.

- Scanner with optical character recognition to process paper applications.

Increase cooperation with the PUC and gas utilities

Develop service options for customers who go without service for long periods

For years Pennsylvania has tried to protect vulnerable households from risks associated with disconnection of electric service. From 1990 to 2005 the primary strategy for protecting vulnerable households was to prevent or minimize terminations for nonpayment. So much effort was focused on prevention, that less attention was paid to the needs of terminated customers and ways to support and reconnect them. Vulnerable households still need protection. It is time to understand these households and develop methods of providing them lower cost service options, or options to prepay for service in affordable chunks.

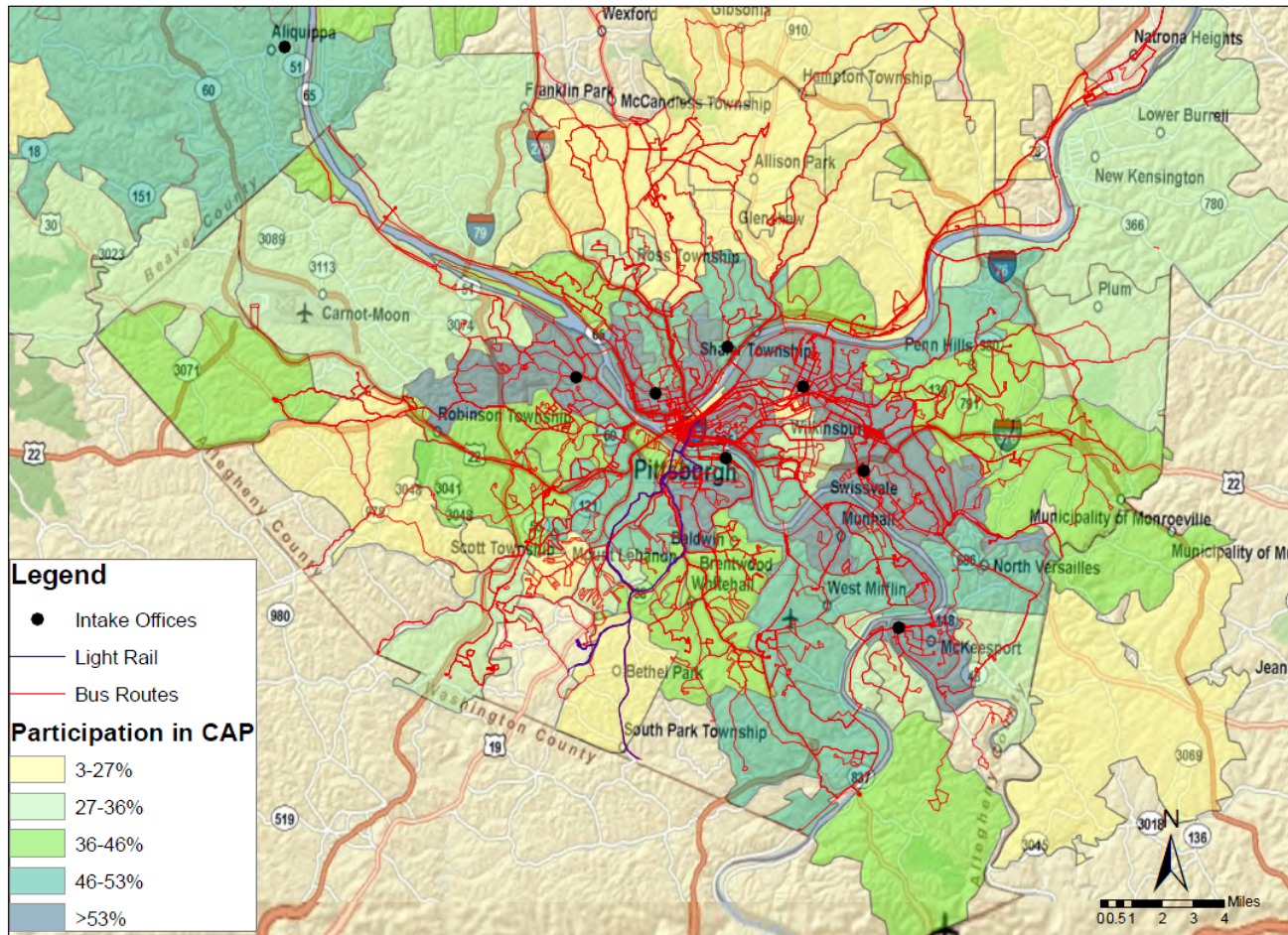
These mechanisms should be designed to provide at least a minimum level of electricity service, but not allow chronic non-payers to accumulate large balances. These alternatives would be available to households that cannot otherwise afford to reconnect due to a large balance. Some alternatives to consider are:

- Prepay meters, which are currently illegal in Pennsylvania
- Meters that allow the electric utility to limit service to a low level all day or at specific hours. These could permanently restrict service in peak hours and this service could be offered at a lower rate. Or service could be restricted 24/7 whenever customers fell behind in payments.
- A special agreement, "Reconnected with Promise to Pay" that allows companies to more swiftly terminate or reduce service, any time during the year, on short notice, if customer falls more than two payments behind on their reconnection agreement. Utilities in states that permit frequent terminations year round end up managing some customers with a series of fairly frequent service terminations. These customers do not have time between terminations to build up an impossibly large balance, and in paying to restore service, they essentially pre pay for the next few months of service.

These are all essentially inferior service offers that could be offered for a lower price, or on a prepaid basis, and/or with swifter consequences for nonpayment.

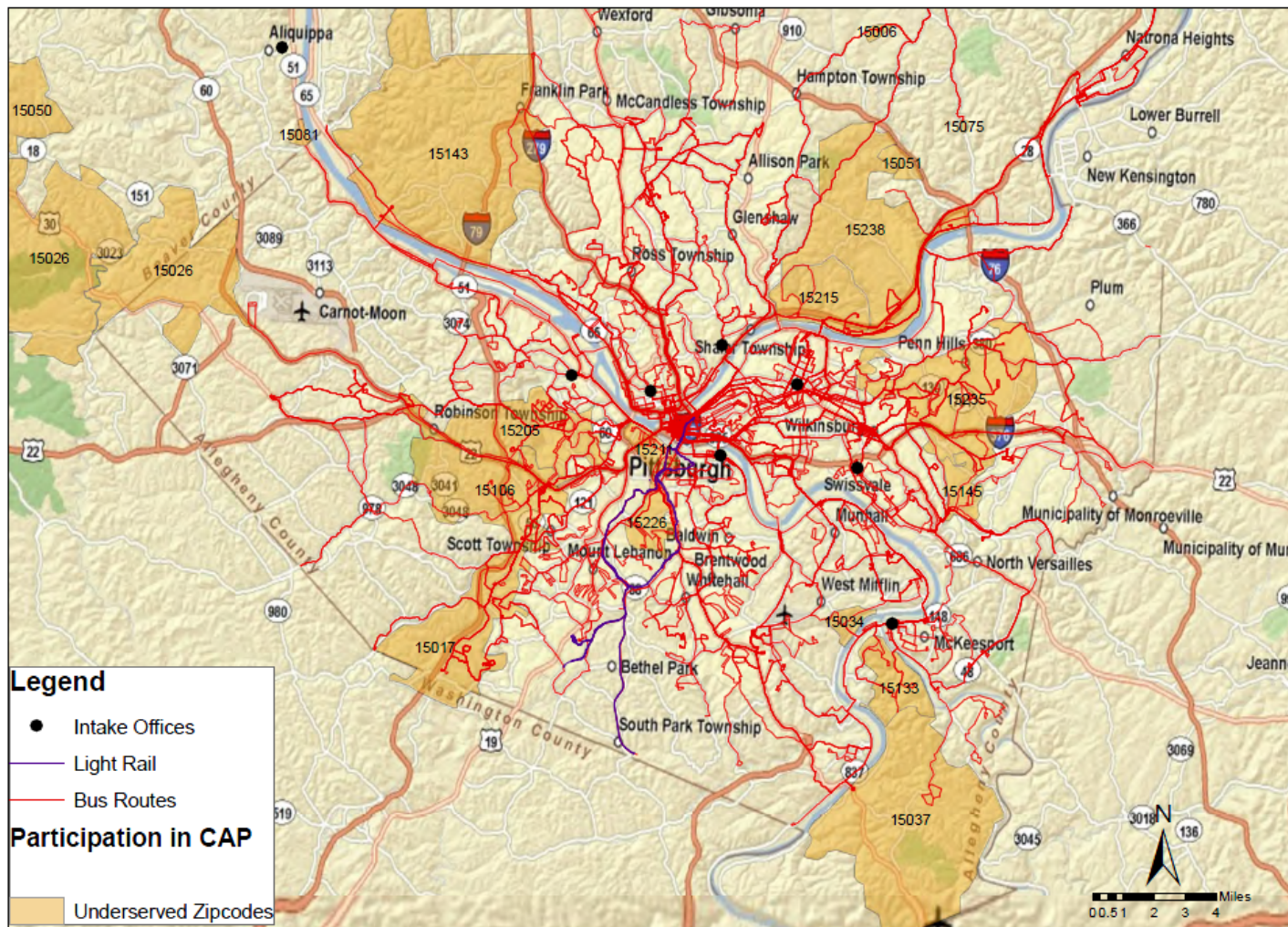
Another alternative is conservator programs that arrange for third party payment of bills for some vulnerable households. For example, CAP payments could be automatically deducted from welfare grants to households that request this cash management option.

Appendix A. CAP Participation Rate by Zip Code



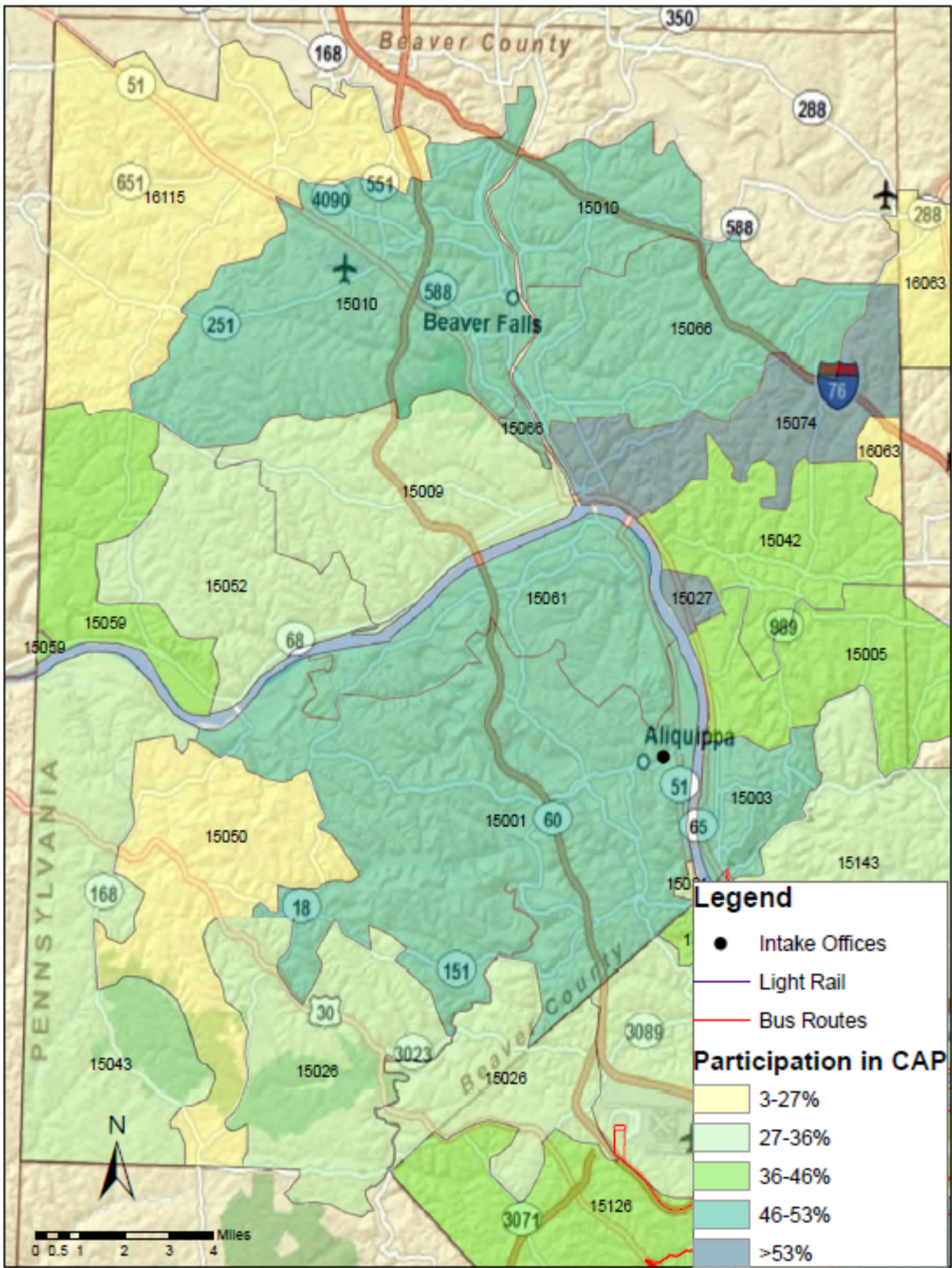
Scale 1:276,000
August 2009

**Level of Participation in
Electric Customer Assistance Program
Per Zip Code
Allegheny County, Pennsylvania**



Scale 1:275,000
August 2009

Underserved Zipcodes in Electric Customer Assistance Program Allegheny County, Pennsylvania



Level of Participation in
Electric Customer Assistance Program
Per Zip Code
Beaver County, Pennsylvania



Scale 1:200,000
August 2009

**Underserved Zipcodes in
Electric Customer Assistance Program
Beaver County, Pennsylvania**

AECOM

Appendix B. A Closer Look at Alternative Payment Plans

This section is included to shed some light on the differences and trade-offs involved in using different calculation approaches to determine co-payments. This additional information and analysis may be helpful:

- To provide detail supporting some assertions made in the main report document.
- To understand the differences between a percent of income and percent of bill approach to determining co-payments;
- To understand the financial impact these approaches on different households;
- To understand the possible shortcomings of the progressive percent of income approach that is central to the PUC's CAP guidance document;
- To inform those who wish to fine-tune subsidy formulas for CAP type programs.

A Closer Look at Percent of Income

Pennsylvania code 69.265 describes design elements that should be included in all CAP programs. These elements include guidance that customer payments should "generally" fall within the percent-of income ranges described in Figure B2

Figure B1. PUC Guidelines for CAP Programs

CAP Design Elements (Pa PUC)	Customer Group:	
	RS	RH
Appropriate percent of income to pay for utility service		
0-50% of Poverty Level	2 - 5%	7 - 13%
50%-100% of Poverty Level	4 - 6%	11 - 16%
100% to 150% of Poverty Level	6 - 7%	15% - 17%
Minimum monthly payment amount	\$12 - \$15	\$30 - \$40
Maximum subsidy (annual)	\$560	\$1,400
Maximum subsidy (monthly)	\$46.67	\$116.67

Evaluators are asked to compare payment amounts in CAP programs to the percentages of income specified in these guidelines. While this comparison has been included in the report, it is helpful to put this comparison in perspective. The PUC has approved quite different methods for determining affordable payments in CAP programs, resulting in quite different co-payment amounts and percentages for households in different service areas.

Historical Perspective on Percent of Income

The notion that low income customers should be required to pay no more than a certain percent of income for energy arose following the Carter-era energy crisis. One of the responses was an adaptation of the LIHEAP program in Rhode Island. Working with consultants from the National Consumer Law Center (NCLC), Rhode Island developed a plan where energy utility customers would pay a percent of their income, adjusted for family size, and LIHEAP would cover the remainder of the energy utility bill.

Based on their success in Rhode Island, NCLC strongly advocated in many states the progressive percent of income notion that is embodied in the CAP Guidance document. Unfortunately, the adjustment for family size that was incorporated in the Rhode Island program was dropped as the approach was advocated elsewhere.

Pilot CAP-type programs in many states used the percent of income approach in the late 1980s and early 1990s. Evaluations conducted at that time found that households with more members failed in these programs at a much higher rate than households with fewer members. Analysis showed that the larger households received much smaller subsidies than smaller households at the same poverty level, because the co-payment was calculated based on their (higher) dollar income. As these limitations of the percent of income plan became visible, some programs shifted to a percent of bill plan (i.e. PECO), others allowed a percent of bill payment (i.e. PPL), and others added an adjustment for family size (i.e. Allegheny).

Percent of Income, as Implemented

It is important to realize that while the percent of income ranges are “generally” recommended, the actual implementation of the PUC guidelines could result in many payments that are below or above these guidelines. Figure B2 shows the example payments for six different RS households in a hypothetical percent of income plan that conforms to these guidelines.

In many cases participants end up paying more than their stipulated percent of income (PIP) amount, because the PIP amount has been overridden by the minimum payment or maximum subsidy constraints. In this example, the 2 person household at 20% of poverty never pays their recommended percent of income amount, which is overridden by the minimum payment requirement at low usage levels, and overridden by the maximum subsidy limit at higher usage levels.

Note also that until the subsidy limits kick in, the 3-person households are asked to pay nearly double the amount asked of the 1-person households at the same poverty level. This bias against larger households is one flaw in the Percent of Income approach to determining co-payment amounts. It calculates relatively little subsidy for households with more than 2 members, precisely the households most likely to suffer termination for nonpayment.

Figure B2. Practical Effect of PUC Guidance on Payments in a PIP Plan**2009 Poverty Level: Income at 100% of Poverty Level**

Household Size:	1	2	3	4	5	6
Annual Income:	\$10,830	\$14,570	\$18,310	\$22,050	\$25,790	\$29,530

Family Size:	1 person family			3 person family		
Povety Level:	20%	40%	90%	20%	40%	90%
Monthly Income:	\$180.50	\$361.00	\$812	\$305.17	\$610.33	\$1,373
Pct of Income:	4%	4%	6%	4%	4%	6%
PIP amount:	\$7.22	\$14.44	\$48.74	\$12.21	\$24.41	\$82.40
Minimum payment:	\$12.00	\$12.00	\$12.00	\$12.00	\$12.00	\$12.00
Maximum subsidy:	\$46.67	\$46.67	\$46.67	\$46.67	\$46.67	\$46.67
Retail Bill	<i>PIP Amt Adjusted for Limits</i>			<i>PIP Amt Adjusted for Limits</i>		
\$40	\$12.00	\$14.44	\$48.74	\$12.21	\$24.41	\$82.40
\$50	\$12.00	\$14.44	\$48.74	\$12.21	\$24.41	\$82.40
\$60	\$13.33	\$14.44	\$48.74	\$13.33	\$24.41	\$82.40
\$70	\$23.33	\$23.33	\$48.74	\$23.33	\$24.41	\$82.40
\$80	\$33.33	\$33.33	\$48.74	\$33.33	\$33.33	\$82.40
\$90	\$43.33	\$43.33	\$48.74	\$43.33	\$43.33	\$82.40
\$100	\$53.33	\$53.33	\$53.33	\$53.33	\$53.33	\$82.40
\$110	\$63.33	\$63.33	\$63.33	\$63.33	\$63.33	\$82.40
\$120	\$73.33	\$73.33	\$73.33	\$73.33	\$73.33	\$82.40
\$130	\$83.33	\$83.33	\$83.33	\$83.33	\$83.33	\$83.33

Bold underlined font shows where minimum payment replaces lower PIP amount

Shaded cells show where subsidy limit forces a payment higher than the PIP amount

Strike through cells show PIP amounts greater than bill. These customers would receive no subsidy; they are deemed able to pay the full retail bill

Percent of Income payment plans, if they make no adjustment for family size, end up favoring households with fewer members (often retired adults living alone) and biased against households with more members (typically including children) – precisely the households most likely to have trouble paying bills regularly. In the example above, the family of three is judged able to pay their entire bill at 100% of poverty. A family of four would be judged able to pay their entire bill once they reached 80% of poverty.

Comparing Duquesne CAP with People's CAP Program

This section compares two hypothetical households in the CAP programs sponsored by Duquesne Light and Peoples' Gas, a company which uses a PIP to determine co-payments. Figure B3 has three tables that make this comparison. All three tables show the household income at each poverty level. The first table shows the co-payment dollar amounts determined for each household at various poverty levels. The second table shows these co-payments as a percent of the bill. The third table shows the co-payments as a percent of household income.

Figure B3 Comparing Duquesne and Peoples' Co-Payments

Comparison of Payment Typical electric budget bill \$100
Amounts in Pittsburgh CAPS Typical gas budget bill \$150

Poverty Level	Single Person			Family of 3		
	Income	Duquesne CAP Pmt	People's PIP Pmt	Income	Duquesne CAP Pmt	People's PIP Pmt
40%	\$406.20	\$30.00	\$32.50	\$610.33	\$30.00	\$48.83
51%	\$517.91	\$60.00	\$46.61	\$778.18	\$60.00	\$70.04
61%	\$619.46	\$60.00	\$55.75	\$930.76	\$60.00	\$83.77
71%	\$721.01	\$60.00	\$64.89	\$1,083.34	\$60.00	\$97.50
81%	\$822.56	\$60.00	\$74.03	\$1,235.93	\$60.00	\$111.23
91%	\$924.11	\$60.00	\$83.17	\$1,388.51	\$60.00	\$124.97
101%	\$1,025.66	\$85.00	\$102.57	\$1,541.09	\$85.00	\$154.11
111%	\$1,127.21	\$85.00	\$112.72	\$1,693.68	\$85.00	\$169.37
121%	\$1,228.76	\$85.00	\$122.88	\$1,846.26	\$85.00	\$184.63
131%	\$1,330.31	\$85.00	\$133.03	\$1,998.84	\$85.00	\$199.88

Shaded cells show households receiving no subsidy on their gas bill.

Under the PIP plan, households with 3 persons pay 50% more for their gas than households with only one person at the same poverty level

Customer Co-Payments Above as Percent of the Bill

Poverty Level	Single Person			Family of 3		
	Income	Duquesne CAP Pmt	People's PIP Pmt	Income	Duquesne CAP Pmt	People's PIP Pmt
40%	\$406.20	30%	22%	\$610.33	30%	33%
51%	\$517.91	60%	31%	\$778.18	60%	47%
61%	\$619.46	60%	37%	\$930.76	60%	56%
71%	\$721.01	60%	43%	\$1,083.34	60%	65%
81%	\$822.56	60%	49%	\$1,235.93	60%	74%
91%	\$924.11	60%	55%	\$1,388.51	60%	83%
101%	\$1,025.66	85%	68%	\$1,541.09	85%	103%
111%	\$1,127.21	85%	75%	\$1,693.68	85%	113%
121%	\$1,228.76	85%	82%	\$1,846.26	85%	123%
131%	\$1,330.31	85%	89%	\$1,998.84	85%	133%

Shaded cells: the comparison suggests that percent of bill being paid is too high

Customer Co-Payments Above as Percent of Household Income

Poverty Level	Single Person			Family of 3		
	Income	Duquesne CAP Pmt	People's PIP Pmt	Income	Duquesne CAP Pmt	People's PIP Pmt
40%	\$406.20	7%	8%	\$610.33	5%	8%
51%	\$517.91	12%	9%	\$778.18	8%	9%
61%	\$619.46	10%	9%	\$930.76	6%	9%
71%	\$721.01	8%	9%	\$1,083.34	6%	9%
81%	\$822.56	7%	9%	\$1,235.93	5%	9%
91%	\$924.11	6%	9%	\$1,388.51	4%	9%
101%	\$1,025.66	8%	10%	\$1,541.09	6%	10%
111%	\$1,127.21	8%	10%	\$1,693.68	5%	10%
121%	\$1,228.76	7%	10%	\$1,846.26	5%	10%
131%	\$1,330.31	6%	10%	\$1,998.84	4%	10%

Shaded cells: the comparison suggests that percent of income is too high

The shaded cells in these tables show co-payments that are arguably too high. In People's program, the percent of bill paid, the percent of income paid, and the co-payment amounts rise steadily, but for larger households the co-payments arguably rise too steeply, so that larger households are deemed able to pay their full bill as they approach 100% of the poverty level.

Table B4 shows that about 21% of Duquesne's CAP customers would fall into categories unlikely to receive any subsidy under Peoples' CAP plan.

Figure B4. Distribution of DQE CAP Customers by Poverty Level and Household Size

# in Hshold	Poverty Level					All levels
	Below50	50to100	100to150	150to200	200to300	
1	8.5%	20.3%	8.1%	0.7%	0.0%	38%
2	5.8%	10.1%	5.6%	0.7%	0.0%	22%
3	5.5%	8.3%	3.8%	0.2%	0.0%	18%
4	4.1%	5.4%	3.0%	0.2%	0.0%	13%
5	1.7%	2.6%	1.2%	0.0%	0.0%	6%
6	0.8%	1.2%	0.4%	0.0%	0.0%	2%
7	0.3%	0.4%	0.2%	0.0%	0.0%	1%
8	0.1%	0.2%	0.0%	0.0%	0.0%	0%
9	0.0%	0.0%	0.0%	0.0%	0.0%	0%
10	0.0%	0.0%	0.0%	0.0%	0.0%	0%
All	26.9%	48.6%	22.6%	1.9%	0.0%	100.0%

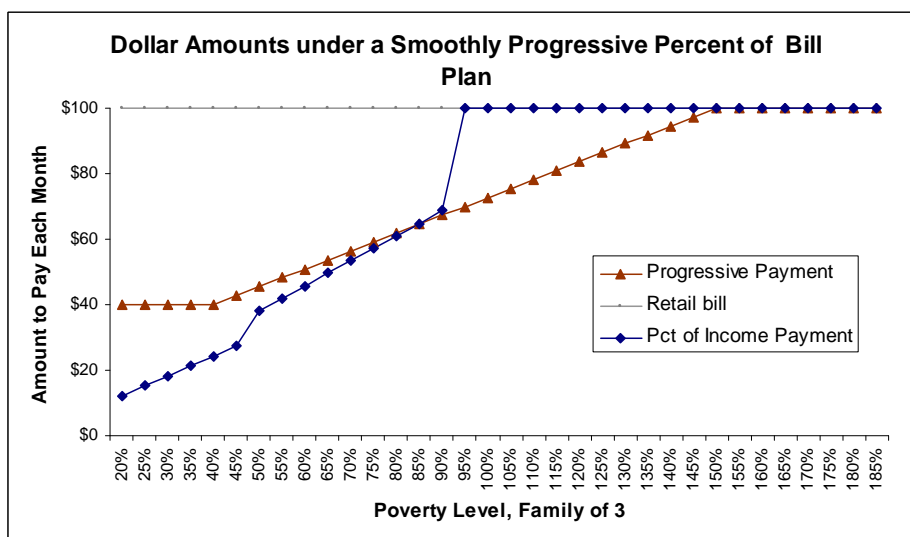
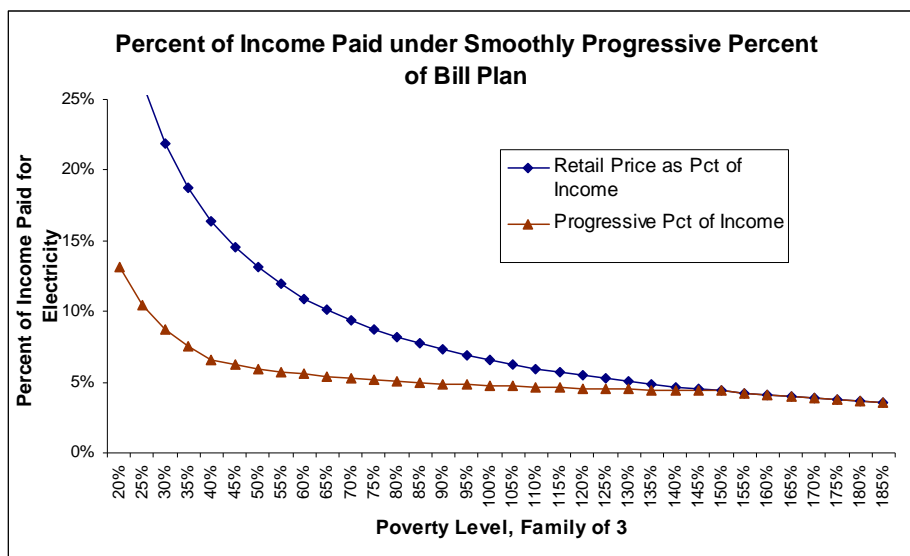
In Duquesne's program, as customers move from 49% of poverty to 51% of poverty, Figure B3 shows that their co-payment doubles, and the percent of income being asked jumps to a high point, violating the preferred, natural, and gradual decline in percent of income being paid as poverty level rises.

A Smoothly Progressive Discount Plan

It would be easy to offer a payment plan where the discount increased smoothly, with no large jumps, as poverty level rose. Figure B5 shows how such a smoothly

progressive discount would affect percent of income paid, and co-payments amounts at different poverty levels.

Figure B5. A Smoothly Progressive Payment Plan



In this plan, customers pay at least 40% of their bill, then a gradually higher percent of their bill as their poverty level increases, until at 150% of poverty there is no subsidy. The payment formula is = 100% minus 60% times (150% - maximum of hshld poverty level, or 40%)/110%

This formula has customers pay 40% of the bill until they reach 40% of poverty, then, based on where they are in the 110% range between 40% and 150%, assigns to them a commensurate proportion of the remaining 60% of the bill.

Progressivity

There is no little support for the notion that as their income increases, low income families should pay a higher *percentage* of their income for utilities. The bow to progressivity is misplaced. Yes, subsidized low- income households should, as their

income increases, pay a higher percent of the bill, but this can be accomplished by having them pay a level or gradually declining percentage of their income.

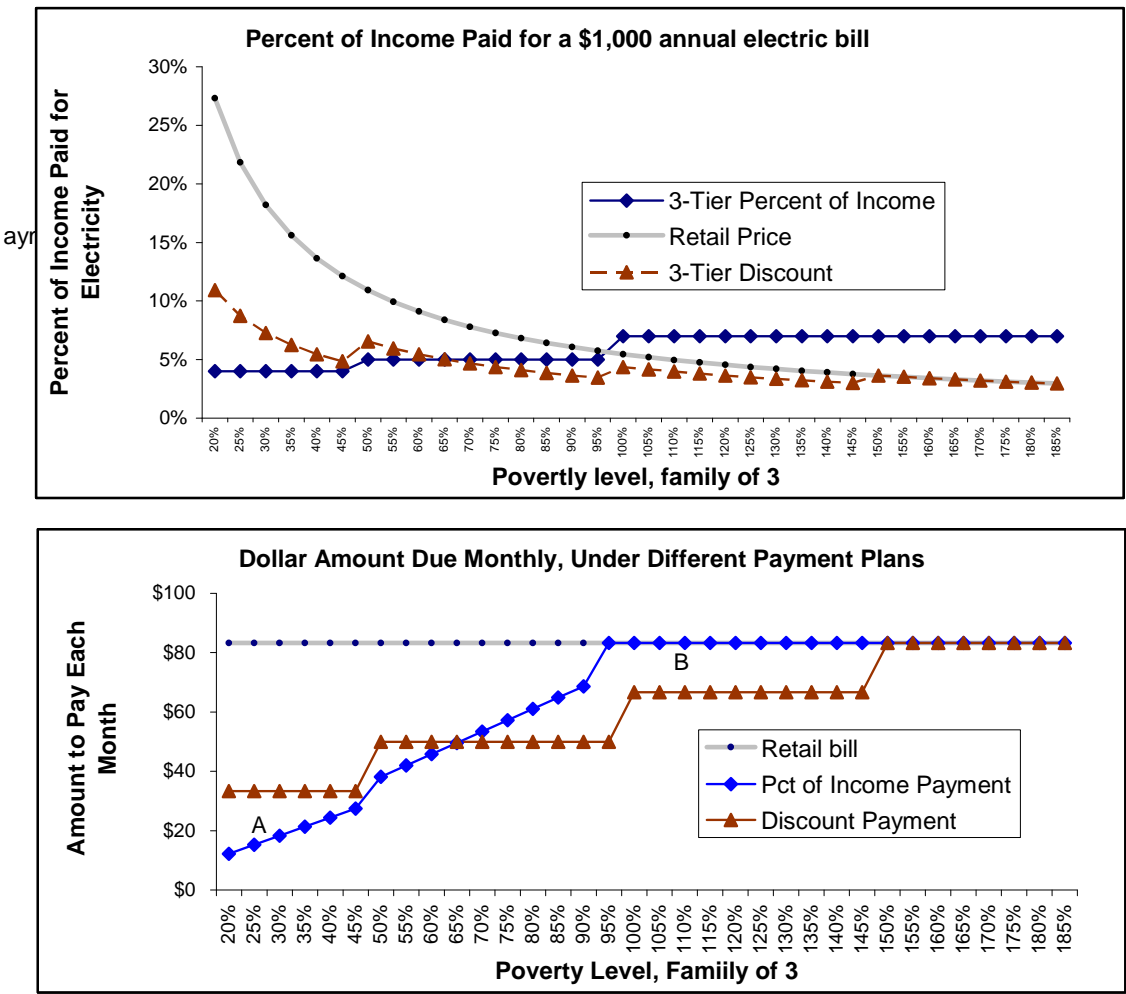
It may be useful to examine differences between a percent of bill and a percent of income approach to calculating appropriate customer co-payments. The first chart in Figure B6 shows the “natural” decline in the percent of income paid by an unsubsidized family for a \$1,000 annual electric bill. The higher their income, the lower the percentage of income paid for electricity.

The 3-tier discount plan also reflects this naturally declining percentage, though there are jumps in percentage as discount thresholds are passed. The 3-tier percent of income plan (PIP) has customers pay a percent of income that stays level between three jumps up to a higher level. For a family of three, the percent of income payment exceeds their bill once their income takes them past the 100% of poverty line, so they would receive no subsidy at this point.

Thus both the retail bill and the discount plan both show a declining percent of income paid for electricity as family income increases. The 3-tier PIP moves percent of income in the opposite, ascending, and “unnatural” direction.

The dollar payments under each plan are shown in the second chart. Note that co-payments rise at a much sharper rate under the PIP than under the percent of bill plan. The region marked A on this chart demonstrates that for extremely poor families-- those with income below 65% of poverty level-- the percent of bill amount exceeds the payment determined by the PIP. In the region marked B on this chart, the households between 100% and 150% end up paying less with a percent of bill plan than they would pay under a percent of income plan.

Figure B6. Comparing Percent of Income and Dollar Amounts



Illustrative Payment Plans

Annual electric bill
Percent of Income to Pay
Percent of Bill to Pay

Poverty Level			
0 - 50%	50 - 100%	100 - 150%	over 150%
\$1,000	\$1,000	\$1,000	\$1,000
4%	5%	7%	full bill
40%	60%	80%	full bill

Comparing Gas Company Co-Payments

Tables on the following page compare the co-payments asked by the CAP programs sponsored by the three gas companies that serve Duquesne Customers. If Duquesne recorded for its CAP customers which gas company serves them, an analysis could be conducted to see if and how these differences in gas company CAPs affect Duquesne CAP customer's electricity usage, terminations, writes offs, and subsidies.

Equitable CAP Pct of Income Payment

Number in Household	Percent of Income to Pay			
	7%	8%	10%	10%
	Poverty Level			
	40%	80%	101%	125%
1	\$25.27	\$57.76	\$91.15	\$112.81
2	\$34.00	\$77.71	\$122.63	\$151.77
3	\$42.72	\$97.65	\$154.11	\$190.73
4	\$51.45	\$117.60	\$185.59	\$229.69
5	\$60.18	\$137.55	\$217.07	\$268.65
6	\$68.90	\$157.49	\$248.54	\$307.60
7	\$77.63	\$177.44	\$280.02	\$346.56
8	\$86.36	\$197.39	\$311.50	\$385.52

Shaded cells show households unlikely to receive a subsidy under Equitable's Percent of Income CAP Payment Plan, assuming an average budget gas bill of \$150 per month. High-use households *above* the bold staircase line would probably receive some subsidy under the PIP plan.

People's Gas Pct of Income Payment

Number in Household	Percent of Income to Pay			
	8%	9%	10%	10%
	Poverty Level			
	40%	80%	101%	125%
1	\$28.88	\$64.98	\$91.15	\$112.81
2	\$38.85	\$87.42	\$122.63	\$151.77
3	\$48.83	\$109.86	\$154.11	\$190.73
4	\$58.80	\$132.30	\$185.59	\$229.69
5	\$68.77	\$154.74	\$217.07	\$268.65
6	\$78.75	\$177.18	\$248.54	\$307.60
7	\$88.72	\$199.62	\$280.02	\$346.56
8	\$98.69	\$222.06	\$311.50	\$385.52

Shaded cells show households unlikely to receive a subsidy under People's Percent of Income CAP Payment Plan, assuming an average budget gas bill of \$150 per month. High-use households *above* the bold staircase line would probably receive some subsidy under the PIP plan.

Columbia Gas Payment Options Plan

Number in Household	Percent of Income to Pay			
	7%	7%	9%	9%
	Poverty Level			
	40%	80%	101%	125%
1	\$30.27	\$55.54	\$80.00	\$80.00
2	\$39.00	\$72.99	\$80.00	\$80.00
3	\$47.72	\$80.00	\$80.00	\$80.00
4	\$56.45	\$80.00	\$80.00	\$80.00
5	\$65.18	\$80.00	\$80.00	\$80.00
6	\$73.90	\$80.00	\$80.00	\$80.00
7	\$80.00	\$80.00	\$80.00	\$80.00
8	\$80.00	\$80.00	\$80.00	\$80.00

Under Columbia's CAP, customers pay 7% to 9% of income OR 50% of their budget plan, whichever is less, plus \$5 towards arrears. Columbia also requires that customers be asked to pay at least what they managed to pay previously.

Appendix C. Possible Refinements of CAP's Discount Plan

Comparison with PECO's Block Discounts

Figure C1 compares Duquesne's discounts with a somewhat simplified summary of the more complex approach used by the PECO CAP (according to the recent evaluation by Response Analysis). PECO applies a progressive discount to an initial block of kWh each month, leaving customers to pay a higher percent of the retail bill once this initial block is used.

Figure C1 Duquesne vs. PECO CAP Discounts

RS Customers Poverty Level	Duquesne CAP	PECO CAP
0-25% extenuating circumstances	70% discount on all kWh	\$12/ mo first 1000 kWh 50% discount on next 500 retail rate over 1500 kWh
0-25% no issues	70% discount on all kWh	85% discount, first 500 kWh 30% next 100 kWh Oct-Jun retail rate on additional kWh
26% - 50%	70% discount on all kWh	75% discount, first 500 kWh 30% next 100 kWh Oct-Jun, retail rate on additional kWh
50% -100%	40% discount on all kWh	50% discount, first 500 kWh retail rate on additional kWh
100 - 150%	15% discount on all kWh	25% discount, first 500 kWh retail rate on additional kWh

A Block Discount Proposal for Duquesne's next CAP plan

Figure C2 shows the (simpler) discount approach AECOM recommends for Duquesne's considerations as the company prepares its next CAP plan. This discount approach has these features:

- There are no large steps. The discount rate decreases gradually as poverty level rises.
- The discount applies to an initial block of kWh. For all customers, this amount could be adjusted by season. It can also be adjusted for customers with electric hot water heaters, and for those with extenuating circumstances. Once usage exceeds the appropriate threshold, customers must pay the full retail cost of additional usage. The specific kWh amounts shown in Figure C2 are illustrative and might be altered based on additional detailed analysis.
- There is a provision to adjust the discount based on how much of a household's income is needed to cover reasonable housing expenses. This percentage varies widely among low-income customers depending on access to housing subsidies that are in limited supply, and age and status of mortgages. The word "reasonable" is chosen because Duquesne should not subsidize overly expensive housing choices, such as a single person living in a drafty mansion.

- There is a 0% discount plan available. This provides an option to remain in the program to income-eligible customers who have (due to low housing expenses) been “moved up” the discount scale to the point where they receive no discount. They would continue earn debt forgiveness, and if shut off would be eligible for the same terms of reconnection as other CAP customers.

Figure C2. Discount Approach Proposed for Duquesne

Poverty Level	Rate Discount	For Most RS Customers Discount applies to	For RS customers with elect hot water	If Extenuating Circumstances
Below 30%	70% discount	first 500 kWh in Sept,Oct, Nov March, April, May first 600 kWh in June, July, August December, January February	first 750 kWh in Sept,Oct, Nov March, April, May first 850 kWh in June, July, August December, January February	first 1200 kWh
31% to 51%	65% discount			
51% to 70%	55% discount			
71% to 90%	45% discount			
90% to 110%	35% discount			
111 to 130%	25% discount			
130% to 150%	15% discount			
	0% discount available as needed			
	↑	Over these limits, customers pay full retail rate for additional kWh used		
	Reduce discounts two steps if housing expense is < 30% of income			
	Reduce discounts one step if housing expense is between 30 and 40% of income			

AECOM also suggests implementing an over-ride feature that would ensure that all customers pay for residential service at least the greater of \$20 per month or 4% of their income.

Using Adjusted Discount Rates to Reflect Block Discounts

Duquesne staff note that the current billing system would not support this recommendation to:

- Apply a staff-selected discount rate to an initial default block of kWh, with a seasonal variation in the amount of the initial block
- Allow for a staff-initiated override of the default block amount with a higher block amount in special circumstances.

If this cannot be implemented with the current billing system, it might be added to the wish list of features that Duquesne develops as it plans for future changes to its billing system. In the meantime, the limited block approach could be implemented without computer changes if a matrix of adjusted discount rates was used by intake staff to select individualized discount rates for high users. This section illustrates how this could be done. The illustration is for RS customers, but a similar calculation could be made for RH customers.

Figure C3 shows co-pays that would result for customers at different income and usage levels, using the small-step discount scale above and applying the discount to an initial block of 600 kWh. A formula in each cell of this table applies the column's discount rate to the first 600 kWh used, then the retail rate to any amounts more than 600 kWh.

Figure C3. What RS Customers Would Pay if the First 600 kWh was Billed at their Discount Rate

Co-pays for normal RS customers with discount limited to first 600 kWh

kWh	Below 30% 70% discount	31% to 51% 65% discount	51% to 70% 55% discount	71% to 90% 45% discount	91% to 110% 35% discount	111 to 130% 25% discount	130% to 150% 15% discount	Retail bill No discount
400	\$17.34	\$20.23	\$26.01	\$31.79	\$37.57	\$43.35	\$49.13	\$57.80
450	\$19.25	\$22.45	\$28.87	\$35.28	\$41.70	\$48.11	\$54.53	\$64.15
500	\$21.15	\$24.68	\$31.73	\$38.78	\$45.83	\$52.88	\$59.93	\$70.50
550	\$23.06	\$26.90	\$34.58	\$42.27	\$49.95	\$57.64	\$65.32	\$76.85
600	\$24.96	\$29.12	\$37.44	\$45.76	\$54.08	\$62.40	\$70.72	\$83.20
700	\$37.66	\$41.82	\$50.14	\$58.46	\$66.78	\$75.10	\$83.42	\$95.90
800	\$50.36	\$54.52	\$62.84	\$71.16	\$79.48	\$87.80	\$96.12	\$108.60
900	\$63.06	\$67.22	\$75.54	\$83.86	\$92.18	\$100.50	\$108.82	\$121.30
1000	\$75.76	\$79.92	\$88.24	\$96.56	\$104.88	\$113.20	\$121.52	\$134.00
1100	\$88.46	\$92.62	\$100.94	\$109.26	\$117.58	\$125.90	\$134.22	\$146.70
1200	\$101.16	\$105.32	\$113.64	\$121.96	\$130.28	\$138.60	\$146.92	\$159.40
1300	\$113.86	\$118.02	\$126.34	\$134.66	\$142.98	\$151.30	\$159.62	\$172.10
1400	\$126.56	\$130.72	\$139.04	\$147.36	\$155.68	\$164.00	\$172.32	\$184.80
1500	\$139.26	\$143.42	\$151.74	\$160.06	\$168.38	\$176.70	\$185.02	\$197.50
1600	\$151.96	\$156.12	\$164.44	\$172.76	\$181.08	\$189.40	\$197.72	\$210.20
1800	\$177.36	\$181.52	\$189.84	\$198.16	\$206.48	\$214.80	\$223.12	\$235.60
2000	\$202.76	\$206.92	\$215.24	\$223.56	\$231.88	\$240.20	\$248.52	\$261.00

Figure C4 shows the percent of the total bill that these customers would have to pay to end up this co-payment amount. Intake staff could use this matrix to set the discount percentage for each customer. They would find the intersection of the customer's poverty level (in columns) with the customer's average usage (in rows).

Figure C4. (Usage-Adjusted) Percent of Total Bill to Pay

Usage-adjusted percent of bill to pay to get co-payments shown above

kWh	Below 30% 70% discount	31% to 51% 65% discount	51% to 70% 55% discount	71% to 90% 45% discount	901% to 110% 35% discount	111 to 130% 25% discount	130% to 150% 15% discount	Retail bill No discount
400	30%	35%	45%	55%	65%	75%	85%	100%
450	30%	35%	45%	55%	65%	75%	85%	100%
500	30%	35%	45%	55%	65%	75%	85%	100%
550	30%	35%	45%	55%	65%	75%	85%	100%
600	30%	35%	45%	55%	65%	75%	85%	100%
700	39%	44%	52%	61%	70%	78%	87%	100%
800	46%	50%	58%	66%	73%	81%	89%	100%
900	52%	55%	62%	69%	76%	83%	90%	100%
1000	57%	60%	66%	72%	78%	84%	91%	100%
1100	60%	63%	69%	74%	80%	86%	91%	100%
1200	63%	66%	71%	77%	82%	87%	92%	100%
1300	66%	69%	73%	78%	83%	88%	93%	100%
1400	68%	71%	75%	80%	84%	89%	93%	100%
1500	71%	73%	77%	81%	85%	89%	94%	100%
1600	72%	74%	78%	82%	86%	90%	94%	100%
1800	75%	77%	81%	84%	88%	91%	95%	100%
2000	78%	79%	82%	86%	89%	92%	95%	100%

Figure C5 shows the dollar amount of the monthly subsidy each customer in the table would receive if they paid their bill with the adjusted percentage discount

Figure C5. Subsidy Amounts Resulting from Payment of Usage-Adjusted Percent of Bill**Resulting Monthly Subsidy**

	Below 30% kWh 70% discount	31% to 51% 65% discount	51% to 70% 55% discount	71% to 90% 45% discount	90% to 110% 35% discount	111 to 130% 25% discount	130% to 150% 15% discount	Retail bill No discount
400	\$40.46	\$37.57	\$31.79	\$26.01	\$20.23	\$14.45	\$8.67	\$0.00
450	\$44.91	\$41.70	\$35.28	\$28.87	\$22.45	\$16.04	\$9.62	\$0.00
500	\$49.35	\$45.83	\$38.78	\$31.73	\$24.68	\$17.63	\$10.58	\$0.00
550	\$53.80	\$49.95	\$42.27	\$34.58	\$26.90	\$19.21	\$11.53	\$0.00
600	\$58.24	\$54.08	\$45.76	\$37.44	\$29.12	\$20.80	\$12.48	\$0.00
700	\$58.24	\$54.08	\$45.76	\$37.44	\$29.12	\$20.80	\$12.48	\$0.00
800	\$58.24	\$54.08	\$45.76	\$37.44	\$29.12	\$20.80	\$12.48	\$0.00
900	\$58.24	\$54.08	\$45.76	\$37.44	\$29.12	\$20.80	\$12.48	\$0.00
1000	\$58.24	\$54.08	\$45.76	\$37.44	\$29.12	\$20.80	\$12.48	\$0.00
1100	\$58.24	\$54.08	\$45.76	\$37.44	\$29.12	\$20.80	\$12.48	\$0.00
1200	\$58.24	\$54.08	\$45.76	\$37.44	\$29.12	\$20.80	\$12.48	\$0.00
1300	\$58.24	\$54.08	\$45.76	\$37.44	\$29.12	\$20.80	\$12.48	\$0.00
1400	\$58.24	\$54.08	\$45.76	\$37.44	\$29.12	\$20.80	\$12.48	\$0.00
1500	\$58.24	\$54.08	\$45.76	\$37.44	\$29.12	\$20.80	\$12.48	\$0.00
1600	\$58.24	\$54.08	\$45.76	\$37.44	\$29.12	\$20.80	\$12.48	\$0.00
1800	\$58.24	\$54.08	\$45.76	\$37.44	\$29.12	\$20.80	\$12.48	\$0.00
2000	\$58.24	\$54.08	\$45.76	\$37.44	\$29.12	\$20.80	\$12.48	\$0.00

One disadvantage of using a staff-selected customized discount percent- applied to the entire bill- is that customers who decreased their usage would still pay the higher percentage pegged for their formerly high consumption. There would need to be a quarterly check to see if the customized percentage should be changed due to a consumption increase or decrease. This quarterly review could be swiftly accomplished with a quick Excel analysis of data exported from the existing CSS_CAP data table.