

# LOW INCOME PROGRAM EVALUATION FOR A COMPETITIVE ERA

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## Abstract

This paper reports the evaluation of an innovative Customer Assistance Program at Equitable Gas Company in Pittsburgh. The evaluation shows that the program is successful both in serving low-income payment-troubled customers, and in increasing payment. Some changes in evaluation design and procedure accommodate this type of program. Both the program and the evaluation approach may well be worth replicating elsewhere.

## Introduction

As legislation to facilitate restructuring of the energy industry begins to come into force in a few states, questions regarding what will happen to low-income payment troubled customers are timely. Historically, the locally franchised utility has had a responsibility to serve. It now appears that when all is said and done, the gas or electric Local Distribution Company (LDC) will be continue to be the supplier of last resort. In Pennsylvania, a new "public benefits charge" will apply to every unit of energy sold, and thus defray cost of this service across all competitors. However, the LDCs will be the implementation agencies with programmatic responsibility for customer assistance programs. In preparing for competition, they will need to optimize programs to serve customers with a negative ability to pay.

How, then, can a LDC optimize its Customer Assistance Program (CAP)? That is a problem for program staff, corporate officers, and for evaluators. However, in order to optimize the program, we first have to modify evaluation technique to show fidelity to the type of program.

This paper presents some of the answers developed by program development and evaluation at Equitable Gas. Equitable was one of the first utilities to face the challenge of figuring out service to low-income payment troubled customers. With service territory in downtown Pittsburgh, economic realities forced corporate management to respond to closure of the steel mills and satellite industries dependent on steel. These closures, followed by tendencies toward economic rationalization and globalization in the general economy, have led to structural unemployment, impoverishment, and net population decline.

National welfare reform is another part of the context. As provisions of the law come into force over the next few years, income deficiency (actual poverty) is likely to show dramatic increase in urban centers. At least in the short term of the next five years, the number of customers who cannot purchase energy at standard tariffs will increase substantially. Thus, solving the problems of optimizing programs to serve low-income payment troubled customers, and optimizing evaluation of such programs are of increasing usefulness.

## The Energy Assistance Program

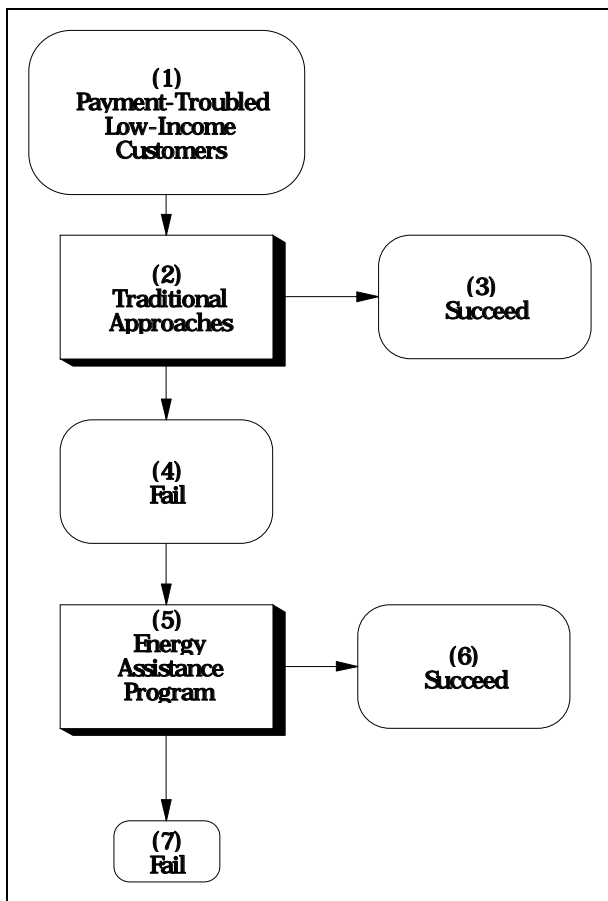
The Energy Assistance Program (EAP) is an account management pilot program of the Equitable Gas Company. EAP pre-dates and serves as one model for Customer Assistance Programs (CAPs) currently in place or under development at other Pennsylvania utilities.<sup>1</sup> EAP is a percentage of income payment plan (PIP). Specifically, it permits low-income customers who could not otherwise afford to pay fuel to pay 8% of their annual household income for gas service, an alternative to the traditional collection methods.

EAP was designed to provide a way for payment-troubled low-income customers to pay their bill, to motivate customers to conserve energy, encourage consistent bill payment behaviors, and increase participation in available assistance programs. Energy education and a link to the Low-Income Usage Reduction Program (LIURP) are possible within EAP, particularly for high-use customers.

As Figure 1 illustrates, EAP is targeted primarily to customers who fail (box 4) in traditional approaches (box 2). That is, those who succeed in the traditional approaches to credit and collections for payment-troubled low-income customers (box 3) are not the objective of EAP. Thus, they may resemble EAP customers in energy consumption, but not in payment patterns.

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<sup>1</sup>Pennsylvania CAPs are designated as alternatives to traditional collection methods for low income, payment troubled customers. Customers participating in CAPs agree to make monthly payments based on household family size and gross income. These regular monthly payments, which may be for an amount that is less than the customer's current bill, are in exchange for continued utility service. Pennsylvania Code, § 69.261, adopted July 24, 1992, effective July 25, 1992, 22 Pa. B. 3914. (172416) No. 218 Jan. 93.



For those for whom traditional collection procedures are effective, these may involve a series of collection letters, and one or more payment agreements resulting in restoration of a pattern of full payment for current service. For those for whom traditional collection procedures are not effective (box 4), the traditional approach involves a series of collection letters, a series of many payment agreements, and often multiple service terminations and reconnections, resulting in erratic payments which amount, on average, to about 50% of the yearly amount billed.

This paper is primarily concerned with those who succeed in EAP (box 6). There also, of course, remain customers (box 7) for whom both traditional approaches and EAP are ineffective.

## Evaluation

The purpose of the EAP Impact Evaluation was to compute the benefits and costs of EAP, *considered as an alternative option, to run alongside traditional collection methods*, to service payment-troubled low-income customers who do not succeed in the traditional approaches. Thus, evaluation focuses on payments and costs of both account management methods. It also examines possible changes in energy consumption.

## Results

The results of the impact evaluation are presented below in a short question and answer format. Note that the questions asked in this evaluation (the researchable issues) are simple and direct. The goal in selection of the questions was to be carefully relevant, and to avoid any possible obfuscation. That is, to ask the real questions for a CAP-type program, so that the program manager and the VP of Customer Service could actually use the results.

- (1) Are EAP customers willing and able to pay the offered EAP price? Yes, a significant sector of low-income payment-troubled customers successfully meets the requested payments of the EAP offer. Of those who entered the pilot EAP, about 70% fully met the EAP requirements in the participation year. The success rate for two full years is 68% or 71% if payment catch-up is included. EAP benefits the customer and Equitable by introducing reliable payment behavior among payment-troubled, low-income customers
- (2) Is the offered price sufficient to insure the customer pays the variable cost of gas plus a contribution to fixed price? Yes.
- (3) Does EAP restore the pattern of regular payment? Yes, although the size of each payment is less than would have been asked (but only received on an erratic and unstable basis), EAP has been very successful in restoring to payment-troubled low-income customers the pattern of regular payment.
- (4) Does EAP help participants bring in more grant funds? Yes, EAP participants bring in more grants funds in the Participation Year than in the Baseline Year. For those who remain in the program for the full Participation Year, this difference is about \$70 per customer which is contributed to the bottom line.
- (5) Is there any abuse of the program through significant increase in energy consumption? No. Although it is always a good question to ask, analysis in this study demonstrates that there is no tendency on the part of EAP participants to abuse the program by increasing energy use.
- (6) Does EAP help customers contribute to a reduction in arrearage amounts? Yes. Success in EAP through continued participation results in yearly reduction of arrearage. The amount of yearly reduction is small (about \$75.00), but the direction is toward reduction.
- (7) Overall, is EAP a cost-effective business investment for Equitable? Yes. Consumer advocates might view EAP as a program supportive of customer needs – a social welfare program. It is also a cost-effective business investment. Equitable's is the kind of optimized program that LDC suppliers of

last resort will want to run as they prepare for competition.

Before EAP was introduced, Equitable had approximately 8,700 payment-troubled low-income customers who were paying on average 50% of the offered price. EAP has provided an alternative that works for most of these customers by providing a lower price that 70% of those who enter pay consistently for at least one year, and 68% for at least the two years measured in this Study. Although EAP asks less, it collects about 100% of what is asked. Stated another way, the price offer is lower than the regular tariff, but the net received is higher than under the regular tariff.

In addition, restoration of the habit of reliable payment is an investment in the future for both the customer and the utility.

### **Optimization of Evaluation Method & Technique**

As the summary of results suggests, Equitable has achieved a very successful CAP-type program. This means that others can also have successful CAP programs, even if their first or second round evaluations are not as positive as they might be. It is a matter of careful optimization. What really made the difference at Equitable? Three organizational factors: First, the program was optimized over a period of years with strong corporate backing for the program at the officer level. The officers wanted this program to work. A second factor important in optimization was continuing guidance, suggestions, review, and direction from the Bureau of Consumer Services of the Pennsylvania Public Service Commission (BCS). The BCS has a tradition of encouraging utilities to develop and fine-tune low-income programs. The third critical factor was the freedom given to the program manager and her dedication to making the program work.

However, if the evaluation had not been adapted, the reality of program success would have been obscured. At best, the program would have appeared less successful than it actually is. In fact, it is likely that some other CAP programs are also successful while evaluations may either understate their success or indicate that they are not successful. That is, problems with CAP programs may not be program problems, but an artifact of problems on the evaluation side.

The remainder of this paper discusses adjustments made to the evaluation approach in the areas of design, analytic method, and analytic technique, and techniques to try to follow the goal of truth in measurement. These adaptations, used in the Equitable Energy Assistance Program evaluation, we suggest as considerations that might be appropriate for other CAP evaluations.

### **Design: Orient Evaluation to the Relevant Questions**

The first problem comes about in the formulation of the evaluation questions. For a CAP program, there are two main concerns:

- (1) Does the program work for the low-income payment troubled customers?
- (2) Does it work for the utility?

What do we mean by “work”? There are many different dimensions along which a program may work. CAPs are payment programs. To be realistic, one of the main considerations is that the Corporate Comptroller and the Corporate Budget Director will ask about the contribution to the bottom line.

Since CAPs are also social welfare programs, one goal is almost certain to be energy conservation. For several reasons, energy savings may even appear as a main goal of the program. However, a realistic look at the prevalent type of construction of the homes and the types of conservation measures offered may be all that is needed for the evaluator to understand that conservation cannot be a primary program goal. The tendency to overemphasize energy savings in the evaluation approach may be inherent in the perspective the evaluator brings to the project, or it may come about through uncritical acceptance of the formal goals of the program.

A first consideration, then, is to orient the evaluation away from energy savings. From an economic or policy perspective, for example, it may be much more relevant to document that there is no abuse of the program’s lower per unit energy cost by increasing use. More important than energy savings is restoring the pattern of full monthly payment.

### **Design: The Comparison Group Problem**

Evaluators use the non-equivalent control group design in the study of energy savings produced by resource acquisition programs. This frequently adopted design has a group of participants and a comparison group selected to be similar to the participant group. The two groups are measured for a common “baseline” period (often one-year) and a common “post-treatment” period (also often one-year). The design may be useful for CAP evaluations. Nevertheless, while useful for the evaluation of a new program, it can lead to misleading results for an ongoing program. For an ongoing program, such as EAP, it is necessary to consider the flow of people over time.

The target group for EAP was approximately 8,500 customers who churned through the regular payment and collections procedures prior to beginning the program. Then the program began. Several years later about 7,500 people were EAP participants on a regular basis. Although customers in the program slots might change, the program continued with an enrollment approximately equal to the population for which the program had been designed.

Suppose measurements of payment and arrearage were taken for identical “baseline” and “participation” periods for both the participant group and the comparison group. Then the relative success of the comparison group would be completely an artifact of the success of the program in removing the problem customers from the comparison group. Yet, the apparent success of the comparison group would cancel the positive program effect in the participation group in the calculation of net change. This is like taking part of the program effect and assigning it the wrong mathematical sign in the calculation of net change. In other words, the better the program, the worse it would appear.

### **Design: Cyclical Payment and Arrearage Data mean Conformed Time Periods are Important**

Sometimes the definition of a “baseline” year or a “participation” year is restricted due to data constraints. However, it is worth considering the advantage in the evaluation design, of setting beginning month of the baseline and participation years to the same calendar month. The end month of the “baseline” and “participation” years should also be the same calendar month.

Savings analysis is generally conducted with 12-month “baseline” and “post-treatment” years, and data is weather normalized so the 12-month period rather than the identity of beginning and ending months is what is important. However, payment and arrearage data have very strong cyclical components, determined not just by weather but also by administrative rules, and the existential and financial overburden of negative ability to pay. A comparison of arrearage for a baseline year ending in September and a participation year ending in April will yield misleading results.

### **Analytic Method: State the Theory of the Program**

Each program implements an explicit or implicit theory, which embodies a story about how the program elements will cause desired results. Stating the theory explicitly, and situating a low-income program within the historical context of economic trends can help motivate the analysis and focus the questions.

*Program Theory.* For example, Equitable’s Energy Assistance Program (EAP) is probably best viewed as a business product. It is essentially a price offer, bundled with a very strict set of conditions, designed to serve a niche market. The target market is the set of customers who cannot pay the standard tariff rate for energy.

In the current policy context, it is necessary to extend the program theory to be able to state and then operationalize measurement of benefits to:<sup>2</sup>

- (1) Participants
- (2) Non-Participant Customers
- (3) The Utility

*Utility Benefit.* Benefits to the Utility include:

- (1) Improving the bottom-line through higher collections.
- (2) Improving the bottom-line through lower administrative cost
- (3) Reducing consumption of customers who pay a tariff lower than the standard tariff
- (4) Increasing participation in external assistance programs
- (5) Re-establishing the habit of consistent and reliable bill payment.

If these Utility benefits can be shown, particularly the first and the last, the Utility’s Corporate Comptroller and Budget Director will like the program. If these two corporate officials are always ready to put in a good word for the program whenever the VP for Customer Service presents a report on it, this is about as good as things can get for an intelligent program. Designing this kind of possible outcome into an evaluation is a function of clear specification of the theory of the program.

*Non-Participant Benefit.* For non-participating customers there are two criteria to demonstrate benefit. The first is that the program works for the participants, enabling them to both continue to use necessary household energy and to pay for it in a normal fashion. This is the social welfare criterion by which the welfare of the all is dependent upon the condition of each family. The second is that the participant payment (the sum of customer payments plus grants) is larger than the variable cost of energy. This is a quantitative economic criterion to insure that participants pay the true variable cost of the energy they consume and contribute towards fixed cost.

### **Analytic Technique: Simple is Better for Buy-in**

Sophistication and focus in evaluation design and in the isolation of a set of simple and direct questions is useful. But selection of advanced analytic techniques, when they are not necessary can interfere substantially with the necessary ‘buy-in’ to evaluation results. The ultimate audience for evaluations that are actually used are often at political or policy levels that are relatively unschooled in statistics and methodology, and that often also have no practical experience trying to make a program work. However, there is a good chance they will understand tables, percentage, and proportions.

A few technical terms cannot be avoided. But a result a commissioner can understand by herself and be comfortable with is better than a similar result clouded by technical language, analytic weasel words, and obscure calculations. Often the simpler the analytic method used and the simpler the presentation, the better the evaluation will be understood. This needs to be considered if the evaluator understands the need to help anchor an intelligent program in an institutional context.

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<sup>2</sup>Societal benefits can also be identified and discussed.

### **Analytic Technique: Objective Results have to be Interpreted in relation to Background Changes**

One of the goals of the Energy Assistance Program is to bring in more grants. EAP has been designed to encourage participants in applying for assistance. From a societal point of view, bringing in grant funds is considered neutral. However, from the point of view of the customer and of the utility these are payments from outside their own budgets, which contribute directly to their respective bottom lines. Because LIHEAP funds are awarded through the State from Federal funds, they are treated as a payment.<sup>3</sup>

Theoretically, participants should receive more and larger grants than non-participants due both to need and to the encouragement provided through EAP to apply for available funds (EAP participants are required to apply for the grants). However, the situation has become complicated because Congress has been successively cutting LIHEAP funding for the past several years.

The major effect of congressional cuts has been to increase the difficulty in obtaining grants. In addition, it has complicated program management by causing a series of changes in the eligibility rules which confuse customers, and which make planning difficult. Thus, an objective analysis which would have simply compared baseline year and participation year, if LIHEAP funding had been constant or increasing, has to be adjusted to take into account the side effects of reduced funding levels.

In other words, the program may work perfectly well, even exactly as planned but the objective result alone is not enough. The numerical results of such an analysis have to be qualified, because the federal administrative context is dynamic and unstable.

### **Analytic Technique: Cogent Analysis may be Descriptive and based on Pooled Data**

Since their inception, programs for payment troubled customers have presented a special problem. Payment troubled customers – just because they are payment troubled – tend to have erratic consumption records and erratic payment records in comparison to the average customer. Erratic payment and erratic consumption yield erratic and truncated monthly data series for many individual customers.

Unfortunately, the traditional analytic approach has a strong requirement for “clean” data, so instability in individual case data causes deletion of some proportion of customers before the analysis. Often, in the statistical analysis of ordinary residential customers 20% or more of cases are lost in the necessary data cleaning steps. This, of

course, raises a problem for the representativeness of results.<sup>4,5</sup>

Data loss is severe with payment troubled customers, where often 50% of the customer data does not meet the requirements for statistical analysis. Clearly, if the evaluator must delete 40%, 50%, or 60% of the representatively selected cases in a study before performing the analysis, the results are likely not representative of the original group.<sup>6</sup>

Thus, the pooled data of the “one big customer” analysis may provide more relevant information to the bottom line focus of a business or regulatory perspective than the “cleaner” standard analysis. It is better because virtually all cases are included – it does not require deletion of a high proportion of the cases in the group due to a series of data quality screens. Instead, all cases, including cases, which the statistical approach would treat as “bad” data, are melded into a single case. This case is the true record of actual customer consumption and payment behavior for a customer category group as a whole. It then corresponds virtually identically to the payment records from the customer accounting system.

Because the accounting approach achieves representative results through inclusion of nearly all cases, it can be useful to program managers and regulatory staff in providing an answer to a question, not well answered by the statistical analysis. While statistical analysis of the “clean” subset of data may yield better insight into how to modify a program in order to reach its yet unrealized potential, the accounting approach meets the need for practical performance information on the program as a whole. The statistical analysis can often better offer insights in answer to the question: “How could we do better?” The accounting analysis better answers the question: “How did we do?”

Answers to both questions are useful, so use of both should be considered. When a statistical approach is employed without an accompanying accounting approach, the danger is that conclusions may be drawn for the program

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<sup>4</sup>This problem has not been generally acknowledged in such studies, which report results on “available cases.” There are sometimes good reasons for this. For example, technology oriented studies can legitimately involve both real and virtual savings. In this instance, savings calculated based on the clean cases can be projected to the other cases as virtual savings. However, the emphasis in CAP-type programs is on payment, not technology, so the representativeness of results must be explicitly addressed.

<sup>5</sup>Evaluators have been working on these problems for several years in an effort to better match the method of analysis to the special characteristics of the available data. For example, Hirst, Goeltz, & Trumble used a pooled data approach to analyze an electricity conservation program in which the problem was to characterize and compare separate communities. See, Table 15, p. 45 in Hirst, Eric, Richard Goeltz, and David Trumble (1987). *Electricity Use and Savings*, Final Report, Hood River Conservation Project. Oak Ridge, Tennessee: Oak Ridge National Laboratory, ORNL/CON-231, DOE/BP-11287-16.

<sup>6</sup>Random selection does not solve this problem.

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<sup>3</sup>See Hill, Lawrence J. & Marilyn A. Brown, “Estimating the Cost-Effectiveness of Coordinated DSM Programs,” *Evaluation Review*, Vol. 19, No. 2, April 1995, Pp. 181-196.

as a whole based on only the most well behaved customers.<sup>7</sup> An accounting analysis provides a useful complement to a statistical approach in the analysis of CAP-type programs.

**Analytic Technique: Adequacy of Statistical Analysis may require calculation of Statistical Power**

Most statistical analyses in evaluation studies still do not report statistical power of a test. This is the protection against the so-called “Type II” error – failure to find a relationship that actually exists in the data. It is, however, standard procedure to state protection against “Type I” error – claiming to have found a relationship that is not there. Thus, for example, we typically report a “t-value” and an associated confidence level of a statistical comparison, along with the precision of a result. If the confidence level is high, sometimes this is enough. However, if an expected effect is not found, then we need to know the power of the test – the chance of finding the effect if it is there. Results that can be relied upon may require both kinds of protection, not just one.

**Analytic Technique: Budget Drift & the Productivity Factor can deal with through “Top Down” Analysis**

One of the research questions in program evaluation is the administrative cost of the program. This is usually easy to determine for the program itself since it is new and costs are usually both visible and available. However, the next question is net administrative cost – the cost per customer of maintaining the customer as a program participant versus the cost of maintaining the customer outside of the program.

There are two approaches to this problem of comparative administrative cost: the “bottom-up” approach is standard in evaluation studies, the “top-down” is preferable but not often used.

Historically, the “Credit and Collections” function has existed approximately for the same duration as the utility. However, utility accounting practices were not designed to support tests of program alternatives at the department level. The level of cost information required, and particularly the routine accounting of cost by low-level activity is usually not present before the information requests posed by program-level evaluation. Capturing the level of costs required for evaluation easily becomes an impractical project, because the amount of person-effort required is prohibitive.

The bottom-up approach, while easier, misses significant costs of traditional operations. Over the years, critical support costs for departmental operations may come to appear in other budgets, and so are missed. In addition, the bottom-up approach depends on developing a comprehensive list of cost categories. By the nature of this task, it is quite possible to miss some. Also, the “productivity factor” is often left out in bottom-up accounting. For example, a study of activities relevant to credit and collections might accurately state the time and cost of issuing a collections letter. However, it may leave out the fact that one-fourth of the day’s work time is not accounted for by directly relevant work tasks for which per unit costs are developed. The missing element is the productivity factor.

The model for the more difficult “top-down” approach is easily understood. It is the annual departmental budget cycle. To visualize the difference between the comprehensiveness of the two approaches, imagine what would happen if a department manager were to use the “bottom up” approach to determine the departmental budget for the following year. Yet, this is the only information available in many program evaluations.

What the top-down approach captures easily, but the bottom-up approach easily leaves out are:

- (1) Overheads
- (2) The ‘productivity factor’
- (3) Support services (traced and assigned as appropriate to the cost of traditional approaches to credit and collections).<sup>8</sup>

When we did the best “bottom up” analysis possible with available data and contrasted the ‘top down’ analysis, the difference was substantial. Both approaches were adequate to capture the costs of the program. However, the “bottom up” approach captured only about one-fourth of the actual administrative cost of traditional credit and collection. It is likely that nearly all CAP evaluations substantially understate the cost of not having a CAP program. Using results of the ‘top-down’ approach, we were able to show that the higher enrollment cost of the first year is recaptured and for those who remain in EAP. The administrative cost savings grow with each additional year a customer is retained in the program.

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<sup>7</sup>This is so even though the statistical result is accompanied by a confidence level and estimated precision of estimate. The statistical approach comes with associated confidence intervals, statistical power, and precision information. However, these are valid only if the input data is randomly representative of the population groups under study. Deletion of a high percentage of cases easily violates the assumption of representativeness of the results.

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<sup>8</sup> For example, some utilities have centralized and partially automated the collection function. Computer assisted call centers, and computer generation of standard collection letters may appear to reduce the staffing costs of traditional approaches to collection, and thus lower the cost per letter. However, both re-organization projects and computer projects typically have high costs, not accounted to credit and collections budgets. From an evaluation perspective, all such costs should be assigned to the operations, which they affect.

### Analytic Technique: Net-Back Ratio

By definition, overall program performance involves the relationship of the relative benefits and costs of the program. Once the individual benefits and costs are determined and summed, they are cast into the form of an overall benefit-cost ratio. The primary measure of performance is the "Net Back Ratio" as defined below. A second measure is dollars returned to the utility.

The "Net Back Ratio" is a comprehensive measure of program performance referenced to the variable cost of gas. It provides an explicit quantitative result, which shows whether the variable cost of gas is covered by payments, and a ranking tool for assessing return beyond variable cost. "Dollars Returned" is simply the absolute difference in dollars collected from the different groups. Of the two measures, the "Net Back Ratio" is attuned to the emerging competitive era in which optional rate products will increase in number, and such ratios will provide a general tool for analyzing rate products. The "Dollars Returned" remains relevant for accounting under traditional utility regulation and the emerging competitive era.

For the analysis, we recommend use of a benefit-cost measure of a type suggested by Roger Colton, the "Net Back Ratio" (NBR). The philosophy of this measure was introduced by Colton (1991):<sup>9</sup>

In addition to the decreased expenses associated with an EAP, a participating utility will experience increased gross revenue as well. Although the billed amount will decrease, the amount of revenue actually collected will increase. The concept behind this statement is simple: It is better to collect 95 percent of a \$70 bill than it is to collect 50% of a \$100 bill.

In 1995, Colton & Elwood spelled out the nature of "net back" more fully:<sup>10</sup>

...a soundly reasoned, economically-based program that minimizes utility losses and maximizes customer contributions makes good business sense. Affordable payment programs should be designed to increase the "net back" to utilities (that is, the net revenue collected from customers after collections expenses and other costs are netted out).

The specific Net-Back ratio (NBR) we used was referenced to the variable price of gas:<sup>11</sup>

<sup>9</sup> Colton, Roger, "A Cost-based Response to Low-Income Energy Problems," *Public Utilities Fortnightly*, March 1, 1991.

<sup>10</sup> Colton, Roger, & Ron Elwood, "Affordable Payment Programs: Can They Be Justified?" Paper presented for tutorial session MPM 11. Pittsburgh, Pennsylvania: Affordable Comfort Conference, March 26-31, 1995.

$$\text{NBR} = \text{Net Program Receipts} / \text{Variable Cost of Energy}$$

$$\text{Net Receipts} = \text{Payments} + \text{Grants} - \text{Overhead} - \text{Other}$$

$$\text{Variable Cost} = \text{Commodity Cost} + \text{Delivery Cost}$$

The NBR and Dollars Returned are concepts that a Corporate Comptroller and a Budget Director will immediately understand and appreciate. Using these measures, we were able to show that EAP contributes to the bottom line. A few hundred additional dollars of return per customer per year tends to add up when summed across thousands of customers and projected for additional years. At the same time, the program conditions customers to resume the pattern of regular payment, although the payments are small.

Showing the contribution to the bottom line helps anchor a social welfare program as a business product.<sup>12</sup> It is a good result for a Local Distribution Company, which will be the provider of last resort, as it prepares for competition.

### Summary

In Pennsylvania, CAP-type programs are now mandated under the restructuring law. For the US, stakes are high in this program area as a consequence of ongoing economic rationalization, globalization, deregulation, and welfare reform. Evaluation must adapt to support these programs or they will incorrectly appear cost-ineffective as an artifact of evaluation method. The suggestions in this paper might be considered in moving toward the goal of truth in measurement in this area.

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1. Colton, Roger, (1991), "A Cost-based Response to Low-Income Energy Problems," *Public Utilities Fortnightly*, March 1, 1991.
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<sup>11</sup>Note that energy savings achieved also contribute directly to a higher NBR. This provides a payment rationale, in addition to the societal basis for strengthening the energy conservation effectiveness of such programs.

<sup>12</sup>If a CAP does not contribute to the bottom line, or if it does not meet the lesser criteria of revenue neutrality, a CAP or something like it is still necessary in order to meet social welfare concerns. It can still be optimized and fine-tuned to improve its efficiency, effectiveness, and equity.

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