

**Ratepayer-Funded Low-Income Energy Programs:
Performance and Possibilities**

Final Report

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Executive Summary

Policymakers throughout the country have implemented low-income affordability and energy efficiency programs to help low-income households meet their energy needs. For 2005, the LIHEAP Clearinghouse identified more than \$2.3 billion in funding through state and local taxes, funds from electric and gas ratepayers, private charitable donations, and other sources. The level of commitment of funds to these programs illustrates the nearly universal understanding that low-income households need assistance in meeting their energy needs.

The purpose of this study is to furnish comprehensive information on ratepayer-funded low-income energy programs. This study includes information on and analysis of the energy needs of low-income households, the legal and regulatory framework supporting ratepayer-funded programs, program design options, and the findings from evaluations of program effectiveness. The study will directly benefit the study sponsors by furnishing information on how they can advocate for and implement new low-income energy programs or make enhancements to existing programs. The study also serves the broader low-income energy community by furnishing a publicly available report on the study findings.

Introduction

This is a multi-sponsor study that was funded by a diverse group of national, state, and local organizations. The study sponsors are:

- AARP
- Citizens Gas & Coke Utility (Indiana Utility Consortium)
- Colorado Governor's Energy Office
- Maryland Department of Human Resources
- Missouri Association for Community Action
- Northern Indiana Public Service Company (Indiana Utility Consortium)
- Oregon Housing and Community Services
- PECO Energy
- Philadelphia Gas Works
- Public Service Electric and Gas (contributor)
- Vectren Energy Delivery (Indiana Utility Consortium)
- Washington State Department of Community, Trade and Economic Development

In addition to funding, these organizations contributed to the study by furnishing information on the low-income affordability and energy efficiency programs in their jurisdictions and helping to identify the key questions of interest for policymakers. While we appreciate the contributions of the study sponsors, it is important to note that the statements, findings, and conclusions in this study are those of analysts from APPRISE and Fisher, Sheehan, and Colton, and do not necessarily reflect the views of the sponsor organizations.

The study focuses on ratepayer-funded low-income energy programs in thirteen states (California, Colorado, Indiana, Maine, Maryland, Missouri, Nevada, New Jersey, Ohio, Oregon, Pennsylvania, Washington, and Wisconsin). Based on data available from the LIHEAP

Clearinghouse, ratepayer-funded programs represent about 85% of all state and local funding for low-income energy programs. The programs in the states included in the study account for more than three-fourths of all ratepayer funding for low-income energy programs.

Low-Income Energy Needs Assessment

Policymakers throughout the country have identified the need for low-income energy assistance and have made significant commitments to low-income energy programs. In 2005, there was more than \$2.4 billion in funding for the Federal LIHEAP and WAP programs and more than \$2.3 billion in funding for state and local low-income energy programs. However, for the same year, the aggregate residential energy bill for low-income households was estimated to be about \$32 billion. Policymakers considering the implementation and/or expansion of low-income energy programs need information that helps them to assess the needs of households in their jurisdictions.

In this study, we developed national and state-level statistics on the energy needs of low-income households. The national statistics demonstrate the magnitude of the problem facing low-income households and the organizations that serve them. The state-level data, on the other hand, are more relevant to the policymakers who are attempting to address the energy needs of low-income households in their jurisdictions and advocates who wish to demonstrate the need for low-income programs.

National Statistics

At the national level, we made use of a number of data sources, including:

- *LIHEAP Home Energy Notebook for FY 2005*
- *NEADA National Energy Assistance Survey for FY 2003*
- *SIPP "Measures of Well Being" for 1992, 1998, 2003*
- *DOE Residential Energy Consumption Survey for 2001*

From these data sources, we identified energy need indicators for low-income households.

The LIHEAP Home Energy Notebook for FY 2005 documents the rapid growth of the low-income energy bill and can be used to examine the aggregate need for energy assistance.

- *Energy Expenditures* – Total energy expenditures for low-income households grew rapidly from 2000 to 2005, increasing by over 40% in just five years. While growth in LIHEAP funding partially offset the increasing demand for energy assistance, statistics show that LIHEAP benefits only cover about 5.3% of the total residential energy bill for low-income households.
- *Energy Burden* – The median energy burden for low-income households was 9.9% of income in 2005. By comparison, the median energy burden for households that were not low-income was 2.8% of income.

- *Need for Assistance* – More than 7.1 million low-income households had an energy burden that exceeded 15% of income. The amount of energy assistance needed to reduce energy burdens to 15% of income was about \$6.1 billion. At its 2005 funding level, LIHEAP benefits would only be able to cover about one-fourth of this amount.

These statistics demonstrate why state and local policymakers have found it necessary to supplement LIHEAP funds with state and local resources, including ratepayer-funded programs.

Other national research furnishes additional insights regarding low-income energy needs.

- *2003 NEAS* - The 2003 National Energy Assistance Survey found that 88% of recipients reported that LIHEAP was “very important in helping them to meet their energy needs.” Without their LIHEAP benefits, 39% of recipients indicated that they would have had to “keep their home at an unsafe or unhealthy temperature” and 39% reported that they would have had “their energy services disconnected or discontinued at a time when it was needed to heat or cool their homes.”
- *SIPP “Measures of Well-Being”* - The “Measures of Well-Being” topical module from the 2003 Survey of Income and Program Participation (SIPP) demonstrates that most low-income households keep up with their energy bills, despite the high energy burden. Almost 80% of households with incomes at or below the poverty level pay all of their utility bills.
- *RECS Energy Usage Data* - The national RECS data also show that energy efficiency programs could be a cost-effective way to reduce energy burdens for many low-income households. Evaluations of energy efficiency programs demonstrate that programs that target high usage households are usually cost effective. The data show that there are about 8.0 million low-income households with high electric and natural gas usage that could be targeted by these programs.

These sources demonstrate indicators of need that go beyond the measurement of energy burden.

State Statistics

At the state level, we made use of a number of data sources, including:

- *American Community Survey for FY 2005*
- *NOAA Weather Data*
- *EIA Energy Price Data*

From these data sources, we were able to develop state-level indicators of need that are more directly relevant to state and local policymakers. Examples of the different circumstances faced at the state level include:

- *Energy Expenditures* – Median low-income baseload electric expenditures ranged from about \$621 in California to about \$906 in Maryland. Median gas expenditures ranged from about \$379 in California to \$1,020 in Ohio.

- *Energy Burden* – Median low-income baseload electric burden ranged from about 4% to 9% and median gas burden ranged from about 3% to 10%.

Energy Gap Analysis

In setting target affordability levels, policymakers might consider research on the need for energy assistance. Analysts have developed two important indicators of energy affordability – an affordable energy burden and a high energy burden.

- *Affordable Energy Burden* – Roger Colton of Fisher, Sheehan, and Colton has recommended using an affordability standard of 6% of income based on the idea that a household can afford to spend about 30% of income on shelter costs and that about 20% of shelter costs are used for energy bills.
- *High Energy Burden* – APPRISE has proposed an approach for defining “high energy burden” using a model that identified a severe shelter burden as 50% of income or more and energy costs as about 22% of shelter costs. Using that approach, APPRISE has suggested that analysts might use 11% of income as an indicator of “high energy burden.”

While individual households may be able to pay more or less than that average for energy, as an overall indicator of need, these statistics have value.

Defining Affordable and High Residential Energy Burden

Fisher, Sheehan, and Colton: Moderate Shelter Burden = 30% of income

Median residential energy costs for low income households = 20% of shelter costs

*Affordable residential energy burden = 30% * 20% = 6% of income*

APPRISE: Severe Shelter Burden = 50% of income

Median residential energy costs for low income households = 22% of shelter costs

*High residential energy burden = 50% * 22% = 11% of income*

Using data from the American Community Survey (ACS), we developed estimates of the total need for energy assistance for each state using a 5% need standard and a 15% need standard. Even using the relatively high 15% need standard, we found that LIHEAP funding only covers between 6% and 43% of the outstanding need in the states we studied. In the median state, LIHEAP covered about 20% of the need at the 15% energy burden need standard and about 9% of the need at the 5% need standard.

Legal/Regulatory Framework

Policymakers throughout the country have addressed a number of regulatory and legal issues that are common to programs in their adoption, design and implementation. While most states

have mandated the creation of low-income affordability programs through specific state action, such legislative direction is not a prerequisite to the pursuit of such programs. When regulators desire to implement a low-income affordability program, sound and readily sustainable regulatory foundations exist, without explicit legislation action, upon which to base regulatory approval. The law is insufficiently developed, however, to judicially require a state regulatory agency to act to adopt affordability programs.

Legislative Authorization

Our research found that states have frequently mandated the creation of low-income affordability programs by statute, thus rendering moot the question of whether the state utility commission has the authority to pursue such programs. Maryland, California, Nevada and New Jersey, for example, all had utility commissions act after the legislature enacted a statute directing the implementation of a low-income program.

Other states have acted to adopt affordability programs without specific legislative authorization.

- *Pennsylvania* - Pennsylvania's commission found that it had the authority to order programs to stop the "wasteful" cycle of repeating service disconnections, reconnections, failed payment plans, and a return to the start of the cycle with another disconnection.
- *Ohio* - The Ohio commission found that it had authority under the state of "emergency" which it found to exist as a result of the tens of thousands of households that were losing their utility service due to the unaffordability of home energy.
- *Indiana* - Indiana utilities found authority to adopt their low-income programs under a statute providing for "alternative regulatory plans," which allow the utilities and the state commission to set aside all or parts of traditional regulation when to do so is in the public interest.

Even state utility commissions that have expressed doubt about their regulatory authority to implement permanent statewide programs have adopted smaller programs using different aspects of their regulatory authority.

- *Missouri* - The Missouri utility commission, for example, has held that it lacks statutory authority to adopt preferential rates. Nonetheless, that commission has approved multi-million dollar programs by electric and natural gas companies to deliver rate affordability and arrearage forgiveness through specifically-dedicated funds.
- *Colorado* - Even before the State Supreme Court decision proscribing preferential rates was legislatively overturned, the Colorado Commission approved a low-income energy efficiency program on the grounds that it was cost-effective. It also approved a rate affordability pilot to test whether it could be shown to be cost-effective.

The legal authorization under which state utility commissions operate can explicitly require the development of a program, can have language that the utility commission interprets to order the implementation of a program, or can merely be interpreted to allow the utility commission to

approve a program. No known instance exists where legislation has explicitly proscribed a low-income affordability program.

Future Legal Authority

Our review of affordability programs found that numerous stakeholders have advanced creative justifications upon which to structure their low-income affordability programs. The lines of analysis presented below do not necessarily apply in every state. The application of any given line of reasoning depends upon the specific statutes that exist in any given state.

Foundational Policy Basis for Commission's Existence

Our research found that the regulation of natural gas and electric rates in any given state is governed not only by the statutes that specifically mention ratemaking, but by the statutes setting forth the broad regulatory mission of the state utility commission as well. Invoking such statutes is akin to the work of environmental advocates who historically have sought to have utility regulators take into account the environmental implications of their decisions. Just as environmental protection can be advanced through enforcement of the “general charge” of a utility commission, low-income protection can be advanced by enforcement of that language as well. For example, many such statutes *direct* the utility commission to undertake its duties within the constraint of maintaining public health and safety. The way to conceptualize this approach to low-income rates is to think of these general charges as being the seminal documents of the agency. Policy declarations included in the charter documents of an administrative agency create enforceable obligations on the part of that agency.

Universal Service as a “Public Good”

The notion that assistance provided to low-income households supports the broader public interest is not an unusual idea. In the public utility industry, for example, universal service is considered by many authoritative sources to be a “public good” subject to the financial support of ratepayers as part of the general regulatory oversight of public utilities. The question which presents itself, of course, involves determining how to define “public good” so as to include universal service. Fire hydrants and streetlights, for example, have been found to be public goods. The basic telecommunications network has also been found to be a “public good” as a justification for spreading network costs over all customer classes in support of the promotion of universal service.

Improving Business Competitiveness

An increasing body of research has documented how the problems associated with inability to pay affect the competitiveness of local business and industry as well. Special rates for energy customers, as well as state regulatory decisions regarding ratemaking in the telecommunications industry, frequently are premised on their positive impacts on promoting business competitiveness. These considerations have also supported “implicit subsidies” generated by transferring costs from high-cost rural areas to lower-cost urban areas in both the energy and telecommunications industries. Similarly, assistance to low-wage, poverty-level workers through home energy affordability subsidies can promote the competitiveness of local business and industry.

The Legislative Frameworks

The “legal” framework of energy assistance programs around the nation does not rest exclusively in the regulatory decisions of the various state utility commissions. It rests, also, in the statutory structures upon which many of the study programs are based. These statutory decisions exhibit considerable, though clearly not universal, differences on major program decisions. Patterns do appear, however.

The Scope of the Programs

The “scope” of a universal service program refers to the extent to which all low-income customers within a state are covered by the program.

- *Mandated Electric Programs* - Some state programs are focused on delivering benefits to customers of a particular fuel type. Maine and Maryland, for example, have directed the implementation of a statewide electric universal service program.
- *Mandated Electric and Gas Programs* - States such as New Jersey, Pennsylvania, Nevada and California have all mandated that programs be directed to both natural gas and electric customers.
- *Voluntary Programs* - While Washington has made all programs optional to utilities and Oregon has made programs optional for natural gas utilities, both states have such programs by both natural gas and electric utilities.

The Coverage of the Programs

Most states that have enacted universal service programs restrict those programs to regulated utilities. Programs in New Jersey, Maryland, Pennsylvania and California are legislatively focused on regulated utilities. In contrast, Maine’s legislation is specifically directed not simply toward the state’s three investor-owned electric utilities, but to Maine’s consumer-owned electric utilities as well. In Wisconsin, municipal utilities must, at a minimum, operate local programs that are equivalent to the statewide program.

Program Design

One issue policymakers must face is whether to create a uniform statewide program, or to allow diversity in program design amongst utility service territories.

- *Variable Program Design* - Maine and Pennsylvania allow each utility within the state to develop its own program design, so long as those designs are consistent with state prescribed minimum standards.
- *Uniform Program Design* - New Jersey, Nevada and Maryland have all implemented uniform statewide programs.
- *Voluntary Program Design* - Washington relies upon voluntary program proposals that are initiated by each individual utility, as does Oregon for natural gas utilities. While those program designs are similar, law or policy does not dictate the similarity.

The Maine Office of Public Advocate (OPA) had a unique approach. In its essence, the OPA urged that there should be rebuttable presumption favoring a uniform program. According to the OPA, “all three utility-sponsored programs should be similarly designed, except to the extent that demonstrably different customer needs exist.” While the Maine Commission rejected that approach given time constraints on the design and implementation of programs in the state, the Commission held open the possibility of imposing such a future requirement.

Program Support

Program support involves primarily the collection of funding in support of the low-income affordability programs. One primary question is whether program funds should be collected from all customer classes or from the residential customer class alone. Many of the Pennsylvania CAP programs, along with the voluntary programs in Oregon (natural gas only) and Washington, are based on financial support provided only by the residential class. In contrast, the Nevada legislation directs that funding will be collected from all “retail customers.” Program funding in Maryland and New Jersey, too, are statutorily directed to be collected on a per unit of energy basis from all customers.

Efficiency Investments as a Rate Affordability Program Component

Every state that has adopted a home energy affordability program has incorporated an energy efficiency component into that affordability initiative. Differences appear, however, in the manner in which the efficiency program is integrated into the broader affordability effort, in the means of targeting the efficiency investments to particular households, in the linkage between the rate affordability and efficiency program components, and in the cost recovery for the program components.

Connection between Affordability and Efficiency

The connection between the rate affordability and energy efficiency components of home energy affordability programs varies widely by state. In some states the connection is explicit. Maine regulators have held, for example, that the obligation to deliver energy efficiency measures to participants in the various utility affordability programs flows from a statutory mandate to operate the programs efficiently. New Jersey regulators have found that the state’s rate affordability program will provide a steady stream of new participants into the energy efficiency program. Nevada requires that the agencies administering the rate affordability and energy efficiency components of the overall affordability programs develop a joint annual planning document explaining how the programs will operate together.

While part of a low-income affordability effort, not all low-income energy efficiency programs have the pursuit of affordability improvement as their primary objective. The California utility commission, for example, has explicitly held that the objective of that state’s Low-Income Energy Efficiency (LIEE) program is to promote affordability. As a corollary of that objective, the California commission has emphasized that the goal in California is to expand the number of households served by the efficiency program rather than to expand the measures delivered in any given household. In contrast, the Pennsylvania Low-income Usage Reduction Program (LIURP) is viewed foremost as a usage reduction program. Efficiency investments through LIURP should be targeted to maximizing the cost-effective reduction of energy use. Targeting is

toward high-use customers, with the affordability impacts taken into account only among customers with equal consumption levels.

Finally, some states implement low-income usage reduction programs on equity principles. These states find that the broad scale demand side management programs adopted for residential customers generally do not reach low-income customers. New Jersey, for example, found that due to characteristics unique to the low-income population, unless special low-income usage reduction programs were implemented, these poverty-level households would end up paying for the efficiency programs without receiving any benefits from those programs. In these states, the low-income usage reduction programs are not designed to confer a special affordability benefit on the poverty population, but rather to ensure that the poverty population is not excluded from receiving benefits from these programs.

Administratively Linking Affordability and Efficiency

Most states operating a rate affordability program link their rate initiatives with their energy efficiency initiatives through a referral process. The automatic qualification of a high-use affordability participant for the receipt of energy efficiency measures, however, does not exist. Bill reductions through usage reduction and bill reductions through rate discounts/energy assistance are not found to be interchangeable. States such as Maine and Maryland refer high-use affordability program participants to their usage reduction programs, though such referrals do not have any “preference” in the receipt of efficiency services. Wisconsin requires high-use affordability program participants to accept efficiency services to the extent that such services are offered.

Cost Recovery

Some states incorporate the cost recovery of their low-income energy efficiency investments directly into the broader effort to address the unaffordability of home energy bills to low-income households. In Nevada, the legislation explicitly directs not only that efficiency measures be funded, but that a prescribed percentage of the low-income funding be devoted to low-income efficiency measures. Indiana’s utilities, on the other hand, commit to an annual funding stream as part of their affordability efforts, but that commitment is individualized to each utility and is not part of a broader statewide program.

Affordability Program Design and Implementation

Our research has demonstrated that there are many different options for designing programs. For each program that we studied, policymakers in that jurisdiction chose to exercise their judgment on what combination of design elements is best suited to their program, their clients/customers, and their circumstances. All of the programs successfully enrolled customers, delivered benefits, and made energy bills more affordable for low-income households.

However, the various program design choices do affect the way that a program performs and how it affects both low-income customers and the utilities involved in the programs. Our analysis suggests that policymakers have important choices to make with respect to the key design elements.

- Program Funding
 - Program Funding Level – Policymakers must determine whether they will set a limit on program funding or attempt to serve all eligible customers with a fixed set of program benefits. While a program funding limit allows policymakers to project how the program will affect ratepayers, a fixed program benefit offers greater equity in treating all eligible customers in the same way.
 - Program Funding Source – A systems benefit charge (SBC) gives policymakers the greatest flexibility in terms of contracting for services and delivering benefits across utility service territories. However, since most utilities have included the costs of write-offs and collections activities in their existing base rates, some advocates suggest that funding programs through base rates is the most cost-effective approach for minimizing costs to ratepayers. Base rate recovery also ensures that program cost offsets are considered, whether implicitly or explicitly.
 - Targeting – Programs may be targeted at certain customers to address specific policy issues, or if the legal and/or regulatory framework requires it. In the absence of such requirements, program managers will need to conduct targeted outreach to certain groups (e.g., the elderly or households that speak a language other than English at home) if they hope to serve all customers who need the program.
- Program Benefits
 - Coordination with LIHEAP – Each state LIHEAP program delivers benefits to low-income ratepayers. Coordination with LIHEAP can help to reduce administrative expenses, improve the equity of programs at the state level, and can simplify program design.
 - Computation of Benefits – Programs have used percent-of-income calculations, rate discounts, and benefit matrixes to set program benefit levels. Each approach has certain advantages; it is important for policymakers to understand the trade-offs associated with these options to ensure that the program is meeting policy goals.
 - Level of Benefits – The benefits made available to clients in the programs we studied range from about \$121 to \$1,105 per year. It is clear that higher program benefits will have a greater impact on clients. However, the available research also shows that all programs are viewed as important by clients and even relatively small benefit levels deliver some program benefits.
 - Benefit Distribution – Benefit distribution procedures are extremely important. Whether benefits are provided as fixed payments, fixed credits, a monthly discount, or annual credits has a significant impact on client risks and responsibilities. They also appear to have some impact on program success rates. Policymakers must be careful to choose the payment distribution procedure that best meets their policy goals.
 - Arrearage Forgiveness – Programs often attempt to resolve payment problems. Arrearage forgiveness is an important program element for those customers who enter a program with significant arrearages.

- Program Operations
 - Program Administration – Some programs are operated by State LIHEAP Offices and some are operated by individual utility companies. Utility companies often contract with local intake agencies for certain program services. There are advantages to each approach that must be considered in program design and implementation.
 - Program Certification and Recertification – Policymakers must consider trade-offs between program fiscal integrity and customer participation barriers in designing certification and recertification procedures.
 - Program Benefit Periods – When a program offers the customer a monthly benefit, it is important to consider whether receipt of the benefit will be contingent on consistent customer payments. While payment requirements may be an incentive for improved payment rates, they may be administratively complex and may result in many clients losing program benefits.

In the evaluation section, we examine how program design choices affect program outcomes. Some of the evaluation findings may help policymakers to select the program design options that best meet the objectives of their programs and the needs of clients in their jurisdictions.

Affordability Program Evaluations

The report reviews the results of affordability evaluations that have been conducted on programs that are researched in this study. The availability of evaluation information differed greatly by state and program.

One of the goals of the evaluation review was to assess whether the program performance indicators were related to the program design parameters. Because the program design parameters vary on so many dimensions, and because there are few evaluation reports that contain a comprehensive set of performance statistics, the extent to which program design could be definitively linked to program performance was limited. However, where possible, we compare and contrast evaluation findings and relate the findings back to program design options, utilizing both the performance indicators summarized in this document and our experience studying the design and implementation of these programs.

Review of the evaluation reports is helpful because it sets realistic expectations for what may be achieved by implementing affordability programs and provides insight on how various program models perform. Some of the key findings from the review of the ten available affordability evaluations are summarized below.

Targeting

Despite funding of over \$4.5 billion in Federal and ratepayer assistance, there are not enough funds to meet the low-income need for energy assistance. Therefore, targeting resources where they can provide the greatest benefit is critically important. A review of the evaluation reports showed that programs performed differently in terms of targeting key demographic groups. For example, the percent of households with income below the poverty level ranged

from 49% in the NJ USF to 72% in PGW's CRP. The percent with elderly members ranged from 8% in PGW's CRP (where the elderly are more likely to participate in the senior discount instead) to 37% in the NJ USF. The characteristics of households who participate in the programs are predictably linked to the eligibility, outreach, and targeting approach that is employed. Therefore, program managers should think carefully about their target population when designing the program.

Retention and Recertification

In many affordability programs, customers are not removed from the program and continue to receive program benefits until their utility service is terminated. This practice leads to higher program retention rates than those programs that dismiss program participants who miss payments. However, programs still have difficulty recertifying customers or having customers reapply for the program. While recertification rates can be difficult to interpret, as some customers are not required to recertify when they participate in particular programs such as LIHEAP, reenrollment rates are more straightforward. The NJ USF evaluation showed that only 44% of customers reenrolled in the program. Since most customers continue to have need for assistance, programs can improve affordability by facilitating reapplication or recertification and by allowing customers to continue to participate in the program, even after they have paid off their full arrearage.

Affordability and Bill Payment

The affordability programs we reviewed resulted in large decreases in energy burden for program participants. Programs that targeted benefits to achieve particular energy burdens for clients came close to achieving these burdens on average.

However, programs appear to perform differently with respect to their impact on the consistency of bill payment. There are several theories for how bill payment assistance can affect customer payment behavior.

- *Annual Credits* - A lump sum payment, such as LIHEAP, may help the customer to pay off accumulated arrearages and prevent disconnection of service, or may assist the customer to keep current with the coming year's bills, depending on the individual customer's circumstances and the timing of the payment. By making the annual bill more affordable or by paying off the customer's accumulated debt, an annual lump sum assistance payment can improve payment patterns.
- *Rate Discounts or Fixed Credits* – These programs make the overall bill more affordable and thereby are expected to improve customer payment patterns. However, the program does not necessarily make payment requirements more consistent. In fact, some fixed credit programs result in no payment requirement in some months and a high payment requirement in other months.
- *Fixed Payment Plans* - Fixed payment plans require a customer to pay the same amount each month. It is argued that these plans have a greater likelihood of improving payment patterns because they help customers to develop regular payment patterns and increase the total amount of payments that customers make.

The evidence from the review of program evaluations included in this study is that only the equal monthly payment plans improve customer payment patterns. The one program reviewed in this study, the PGW CRP, that had an equal payment plan, is the only one that found improvements in the number of payments made by customers and the amount of cash payments made. Results from two other evaluations (of programs not included in this study) of low-income affordability programs with equal monthly payment plans also found improved payment patterns.

Arrearages

The evaluations found that a significant share of program participants did not pay their full reduced bill after enrolling in the programs. Because many customers come into the program with arrears and some do not meet their full bill payment obligations after enrolling in the affordability programs, arrears would continue to grow on average if arrearage forgiveness was not provided. Program evaluations showed that significant percentages of program participants received arrearage forgiveness, and the amount ranged from \$182 to \$403.

Financial Impact

Evaluations of the affordability programs found reductions in the number of collections actions and in the number of service terminations after customers began participating in the programs. There were also small reductions in collections costs, averaging \$8 to \$16 per customer. Such reductions can help to offset the administrative costs of these programs.

However, the evaluations are generally not able to assess whether programs are cost neutral. To measure cost neutrality, a program would have to measure the net cost of services for customers prior to enrollment (cost minus payments) compared to the net costs after program enrollment. Further, the analysis would require an experimental design where customers in similar situations were randomly assigned to test and control groups. Utility cost of service information is generally inadequate to measure true service delivery costs. Additionally, programs that we have researched have not employed an experimental design. Therefore, we have not found any evidence to either support or refute the hypothesis that programs can be cost neutral. However, based on their design, certain programs are unlikely to be cost neutral. Programs that result in large reductions in payments by customers are unlikely to be cost neutral.

Energy Usage

Energy affordability programs reduce the cost of using energy, and therefore program managers are often concerned that they may result in increased energy usage. However, evaluation results show that this does not occur. Program evaluations find small and insignificant increases in energy usage, or sometimes even find declines in energy usage.

The review of energy affordability program evaluations reinforced the perception that program design is critically important. Many program outcomes can be predicted based on the design parameters that are chosen. Program designers should think carefully about their goals and choose the program design parameters that are most likely to meet these goals.

Energy Efficiency Program Design and Implementation

While energy efficiency programs are often mandated through a public utility commission or state legislation, most aspects of program design and delivery are selected by the program administrator. Program design choices have important implications for targeting, energy savings, and cost effectiveness. In this study, we collected information on 13 different low-income energy efficiency programs. These programs are designed to account for local needs and to complement other existing low-income energy efficiency and energy affordability programs. In this section, we identify the dimensions on which program design choices must be made, discuss the advantages and disadvantages of each design choice, and identify the design choices made for the 13 energy efficiency programs that we reviewed.

Funding and Delivery

The largest ratepayer-funded energy efficiency program is the California LIEE. It was funded at over \$130 million in 2006 and delivered services to over 160,000 low-income electric and gas customers. Many of the 13 states in our study have made a significant investment of energy efficiency services. In addition to California, five other states spent more than \$10 million per year.

Some programs set goals or restrictions on the number of households to be served or the average level of spending per home served. Per-home spending limits are sometimes set to ensure that resources are distributed across households and that no one household receives too large of a program benefit. However, by setting such limits, programs lose some flexibility to serve households with greater needs. Three of the programs studied had spending limits, ranging from \$3,000 to \$5,000.

Eligibility and Targeting

Common program eligibility parameters are poverty level, participation in affordability programs, and energy usage. Program specifications for poverty level range from 150 percent, the most common standard, to 225 percent. Programs sometimes require that households participate in the corresponding energy affordability program with the goal of reducing the subsidy that ratepayers provide. Four of the 13 programs studied included this restriction. Programs that serve higher usage households usually achieve higher energy savings. Two of the 13 programs studied set energy usage requirements for program participation.

Beyond setting eligibility limits, programs sometimes try to target certain households for service delivery. The most commonly targeted group in the programs studied was high energy usage households. Other targeted groups included those who have arrearages or who are payment troubled; households with elderly or disabled members or with young children; and affordability program participants.

Benefits

Energy efficiency programs vary widely in the type of benefits provided. The programs with lower funding levels, those serving lower usage households, or those providing baseload usage services only spend less per home and have a smaller variety of eligible measures. The most comprehensive programs spend several thousand dollars per home on average and include

health and safety repairs and furnace replacement, as well as the more common weatherization measures. Expenditures per home range from \$480 for the Maine Low-Income Appliance Replacement Program, which focuses on refrigerators and CFLs, to over \$6,000 per home for the Wisconsin Weatherization Assistance Program.

All of the programs studied provide energy education as a part of service delivery. However, the level of energy education that is provided can vary widely by program. Often programs develop detailed energy education procedures, but without adequate training and reinforcement these procedures are unlikely to be implemented according to the protocols. Some of the programs also provide energy education that is separate from service delivery, either as a workshop or an additional follow-up visit. Follow-up to the initial energy education can provide reinforcement for the client and increase the energy savings from the program.

Program Operations

There are many operational aspects of energy efficiency programs that can be delegated to various program actors. These include the program manager, the service delivery contractors, the data manager, and the quality control team. State offices or utilities usually serve as program managers. Community Action Agencies, other nonprofits, for-profit contractors, or a mixture of these types are used to provide program services. Data management is often handled by the state or the utility, and is sometimes done by the contractor(s). Programs often use a mixture of quality control methods, conducting it both by the same contractors that serve the customers, and by the state or utility that oversees the program.

Other operational parameters to be decided upon include the service delivery procedures, the data management systems, and the quality control procedures.

Energy Efficiency Program Evaluation

This section reviews the results of energy efficiency evaluations that have been conducted on the programs that are researched in this study. The availability of energy efficiency program evaluation information differed greatly by state and program. Where possible, we compare and contrast evaluation findings and relate the findings back to program design options.

Targeting

Targeting of energy efficiency programs will vary by the program mandate, goals, and scope. Some programs explicitly target subgroups of the low-income population and some programs tend to serve particular subgroups due to the program design.

One of the most consistent findings from energy efficiency program evaluations is that customers with higher usage provide greater opportunities for savings, and therefore programs that target high usage yield higher savings and more cost-effective service delivery. A rule-of-thumb that is often used is that electric customers should have annual baseload usage that is at least 6,000 to 8,000 kWh, and heating and/or cooling usage of at least 8,000 kWh. Gas usage that is targeted for service delivery is often 1,200 ccf.

Most of the programs studied serve customers with average usage that exceeds these targets. One of the best targeted programs, the Ohio Electric Partnership Program (EPP), serves

electric customers with average baseload usage of 13,500 annual kWh for the high-use program, 6,500 annual kWh for the moderate use program, and nearly 30,000 annual kWh for the Targeted Energy Efficiency (TEE) program which provides shell as well as baseload measures.

Cost-effective measure installation opportunities are a function of the usage level of the customers treated by the program. The Ohio EPP averaged over 16 bulbs per home for the high-use baseload program, over 12 for the moderate use baseload program, and nearly 16 per home for the TEE program. This program also found frequent opportunities for refrigerator and freezer replacement.

Comfort and Health Impacts

Evaluations of energy efficiency programs often include surveys with program participants because this activity provides information that cannot be obtained from other evaluation activities. The evaluation review found that many of the customers surveyed noted that the winter and/or summer comfort of their home had improved since receipt of program services. In addition, one program evaluation directly measured a reduction in unsafe heating practices.

Usage Impacts

One of the primary issues addressed by energy efficiency program evaluations is the amount of energy saved by the program. When analyzing the change in energy usage that is due to the program intervention, it is important to look at weather-normalized energy usage and to make use of a comparison group.

Gross electric savings range from 366 to 3,461 kWh and from 4.7 to 12.5 percent of pre-program usage. Gross gas savings range from 8 therms to 156 therms and from two percent of pre-treatment usage to nearly 16 percent of pre-treatment usage. There is a strong relationship between pre-program usage and the amount of energy saved.

Cost Effectiveness

The cost-effectiveness of an energy efficiency program is the extent to which the program results in savings that cover the cost of providing the energy efficiency services. Cost-effectiveness can be examined narrowly from the perspective of only the savings in energy usage, or more broadly in terms of both energy impacts and non-energy impacts. Non-energy impacts that are considered sometimes include increases in economic activity that result from the program, reductions in environmental pollutants due to decreases in energy usage, and improvements in participants' health and safety. These non-energy benefits are beyond the scope of this study, which focuses on the reductions in energy costs that accrue to program participants and/or to ratepayers.

Cost effectiveness can be measured in several different ways.

- The Savings to Investment Ratio (SIR) is the ratio of the amount of savings that results from the program to the costs that were incurred in providing program services. An SIR of one or greater indicates that the program yields at least one dollar of savings for each dollar spent on program services.

- The cost per unit saved is the amount of resources that are devoted for each unit of energy that is saved as a result of the program services over the measures' lifetime. The program is often evaluated as cost-effective if the cost per unit saved is less than or equal to the current or expected future retail price of gas or electricity.

Most of the programs studied would be viewed as cost effective. The Ohio high-use and TEE programs and the PGW CWP have SIRs that are above one. Most of the electric and gas costs per unit saved for the other studies are below the retail cost of electricity and gas.

Bill and Payment Impacts

One of the goals of energy efficiency programs is to make energy more affordable for low-income households through reduced energy usage, and result in improved bill payment compliance. Most but not all of the programs studied resulted in gross and/or net reductions in the participants' average energy bills. The NJ Comfort Partners program reduced combination customers' bills by \$234 on average as compared to the comparison group, the Ohio EPP reduced bills by \$160, and the PGW CWP reduced bills by \$64 as compared to the comparison group.

If customers come close to covering their bill prior to receiving energy efficiency services, the approximately ten percent reduction in energy usage may be enough to help customers meet their bill payment obligations, in the absence of rising fuel prices. Some programs had increased bill coverage rates, but in general significant improvements were not seen.

Findings and Recommendations

The purpose of this study is to furnish comprehensive information on low-income energy programs, including analysis of the energy needs of low-income households, the legal and regulatory framework supporting these programs, the design options for these programs, and the evaluation findings on program effectiveness.

- Needs Assessment – Our study found that the energy needs of low-income households are so large that it might be overwhelming for policymakers to consider options for resolving these problems. However, programs are not designed to serve 100% of low-income need and should not be expected to do so. Through careful research and analysis, it is possible for policymakers to identify the households in the greatest need and to design programs that are targeted to directly address those needs.
- Legal/Regulatory – Each of the 13 states that we studied used a different legislative and/or regulatory mechanism to authorize ratepayer-funded low-income program(s). The examples furnished by the 13 states give policymakers a good understanding of options for program authorization. They also demonstrate that authorization of low-income affordability programs is possible even in those jurisdictions where legislation and/or legal decisions do not favor “preferential” rates.
- Affordability Program Design and Evaluation – Our research on the design, implementation, and evaluation of ratepayer-funded affordability programs demonstrates the importance of targeting the program design to the energy needs of low-income customers and policy goals. A careful review of how program designs affect customer

incentives, as well as the impact of program designs on utilities and other ratepayers, will help to ensure that the program addresses the highest priority customers, the most important program objectives, and the most pressing policy goals. In addition, review of evaluation findings from other studies will help to establish realistic expectations for program outcomes.

- Energy Efficiency Design and Evaluation – Our research on the design, implementation, and evaluation of ratepayer-funded energy efficiency programs demonstrates the importance of matching the energy efficiency program design to policy goals. The research on program impacts and cost-effectiveness clearly demonstrate the best strategies to meet certain goals. Certain types of energy efficiency programs deliver modest benefits to large numbers of low-income customers, while others deliver significant benefits to the highest usage customers. Establishing the policy priority and a design to address that priority will yield the most cost-effective programs for ratepayers.

This report is designed to furnish each individual and organization with the type of information that is most needed at the level that is most useful. The body of the report furnishes an overview of all states and programs in the study, while the appendices furnish detailed information on each state and its programs. As policymakers consider the issues associated with the authorization, design, implementation, and evaluation of ratepayer-funded low-income energy programs, different parts of the report will be relevant.

I. Introduction

Through the Low-income Home Energy Assistance Program (LIHEAP) and the Weatherization Assistance Program (WAP), the Federal government furnished \$2.4 billion in 2005 to help states furnish energy assistance and energy efficiency services to low-income households. However, policymakers in many states have found that LIHEAP and WAP funds are insufficient to meet the energy needs of low-income households in their jurisdiction. Their response has been to implement low-income affordability and energy efficiency programs with total funding that exceeded \$2.3 billion in 2005, almost equal to the Federal allocation for LIHEAP and WAP.¹

There is considerable variation in the funding sources, the funding levels, and the design of these low-income programs, both among and within states. For policymakers considering the establishment of such programs and for those looking at proposed changes to existing programs, it is valuable to have information on the design choices made in other jurisdictions and an assessment of how program parameters affect program impacts. However, while individual programs have been subjected to rigorous evaluations, there is no single source that furnishes systematic information on low-income affordability and energy efficiency programs.

In this study, we are developing comprehensive information that can help policymakers to make decisions with respect to low-income affordability and energy efficiency programs, including:

- Energy Needs – Development of population and energy statistics that document the energy needs of low-income households.
- Legal and Regulatory Framework – Identification of the legislative initiatives and regulatory decisions that are the foundation for existing low-income energy programs.
- Program Design – Documentation of the program design options and analysis of how those options affect client incentives and program effectiveness.
- Program Evaluation – Review of program evaluation studies to document program impacts and to examine how different program models perform.

This study will help policymakers design and implement energy affordability and energy efficiency programs that address the unique circumstances for their jurisdiction.

A. Study Sponsors

This is a multi-sponsor study that was funded by a diverse group of nonprofit organizations, state agencies, and utilities. The study sponsors are:

- AARP
- Citizens Gas & Coke Utility (Indiana Utility Consortium)
- Colorado Governor's Energy Office

¹ Source: LIHEAP Clearinghouse

- Maryland Department of Human Resources
- Missouri Association for Community Action
- Northern Indiana Public Service Company (Indiana Utility Consortium)
- Oregon Housing and Community Services
- PECO Energy
- Philadelphia Gas Works
- Public Service Electric and Gas (contributor)
- Vectren Energy Delivery (Indiana Utility Consortium)
- Washington State Department of Community, Trade and Economic Development

In addition to funding, these organizations also contributed to the study by furnishing information on the low-income affordability and energy efficiency programs in their jurisdictions. The study sponsors also shaped the study by helping to identify the key questions of interest for policymakers considering implementation of or modifications to ratepayer-funded low-income programs. While we appreciate the contributions of the study sponsors, it is important to note that the statements, findings, and conclusions in this study are those of analysts from APPRISE and Fisher, Sheehan, and Colton, and do not necessarily reflect the views of the sponsor organizations.

B. Scope of the Study

The LIHEAP Clearinghouse (<http://www.sustainable.doe.gov/>) furnishes extensive information on low-income affordability and energy efficiency programs that have been implemented throughout the country.² For 2005, the Clearinghouse “state supplement” table (<http://www.sustainable.doe.gov/Supplements/2005/supplement05.htm>) indicates that 45 of the 50 states and the District of Columbia have some type of low-income energy assistance program. The table illustrates that the funding for those programs includes state and local tax dollars, electric and gas ratepayer funds, private funding from donations and utility shareholders, discounts from bulk fuel suppliers, and a number of other funding sources. The range of programs furnishes some evidence as to the almost universal understanding of the challenges faced by low-income households in meeting their energy needs.

Focus on Ratepayer-Funded Programs

While recognizing the value of these diverse sources of funding, this study is focused on low-income affordability and energy efficiency programs funded by ratepayers of regulated electric and gas utilities. There are two reasons to focus attention on these programs. First, ratepayer-funding is the most important source of funding for low-income programs.³ Second, by focusing on this funding source, we can furnish policymakers with information on how best to structure the legal, regulatory, and program design elements of a program to ensure that the energy needs of low-income households are met in a cost-effective way.

² Since 1988, the National Center for Appropriate Technology (NCAT) has operated the Low-Income Home Energy Assistance Program (LIHEAP) Clearinghouse through a training and technical assistance contract from the U.S. Department of Health and Human Services (HHS), Administration for Children and Families, Office of Community Services, Division of Energy Assistance.

³ According to the LIHEAP Clearinghouse, in 2005, ratepayer-funded programs accounted for about \$1.97 billion in funding; about 85% of all program funding.

Focus on Key States

While this study is national in scope, it does not include information on every state. Because electric and gas utility regulations are promulgated within states, it is important to develop an in-depth understanding of the state-level circumstances to truly understand how a particular program operates. We limited the analysis to 13 states: California, Colorado, Indiana, Maine, Maryland, Missouri, Nevada, New Jersey, Ohio, Oregon, Pennsylvania, Washington, and Wisconsin. In addition to including the sponsor states, our selection of states for the study was guided by the size of the programs and the historical significance of the programs in breaking new ground on program design issues.

In 2005, the selected states have about \$1.54 billion in ratepayer funding for low-income programs, about 78% of all ratepayer funding nationally. The selected states represent a good mix of larger, moderate, and small states. The selected states cover the Northeast, Midwest, and Western states, but have only limited coverage in the South. In part, this results because the largest programs have been implemented outside the South region.

Focus on Key Programs

In many of the states covered by the study, we included all of the ratepayer-funded low-income programs. However, in some states (e.g. Pennsylvania), ratepayer-funded low-income programs are separately operated by each utility. In those states, we selected a subset of the programs for analysis.

C. Organization of the Report

The report consists of eight sections and 13 appendices. The main body of the report summarizes the findings of the study. The 13 appendices furnish detailed information on each of the states covered by the study.

The eight sections of the report are:

1. Introduction – Discussion of the purpose and scope of the study.
2. Low-Income Energy Needs Assessment – Analysis of energy usage, energy bills, and indicators of energy affordability and energy efficiency for low-income households.
3. Legal/Regulatory Framework – Analysis of the legal and regulatory framework underlying ratepayer-funded low-income programs.
4. Affordability Program Design and Implementation – Analysis of the design choices and implementation options for affordability programs.
5. Affordability Program Evaluations – Review of the findings from the evaluation of affordability programs.
6. Energy Efficiency Program Design and Implementation – Analysis of the design choices and implementation options for energy efficiency programs.

7. Energy Efficiency Program Evaluations – Review of the findings from the evaluation of energy efficiency programs.
8. Findings and Recommendations – Summary of the main findings from the study and recommendations for policymakers considering establishing a new low-income program or making modifications to existing programs.

The findings from this study suggest that the most comprehensive and effective low-income programs would coordinate the delivery of affordability and energy efficiency programs. However, we treat these programs separately in the study and in the report because there are important differences between the programs in terms of regulatory precedent, service delivery requirements, and client targeting.

The 13 Appendices furnish detailed information for each state, including:

- Needs Assessment – State-specific statistics on the energy needs of low-income households.
- Legal/Regulatory Framework – Detailed information on the legislation and regulatory decisions made in the state with respect to each program in the study.
- Program Design and Implementation – Consistent information on the program design and program statistics for each low-income program reviewed by the study.
- Program Evaluation – Where available, a summary of the evaluation findings for the programs reviewed by the study.

These detailed state reports were the foundation for the analysis in the report.

D. Acknowledgements

The most important contributions to this study were made by the study sponsors. They funded the program research, furnished information on programs in their jurisdictions, and helped us to understand what information would be most valuable to policymakers.

We also appreciate the information furnished by individuals who we contacted regarding other programs examined by the study. The names of each person contacted are included in the state appendices.

We also made extensive use of the LIHEAP Clearinghouse in our research. We are grateful that the Division of Energy Assistance funds the Clearinghouse and appreciate the good work done by staff at the National Center for Appropriate Technology.

Please note that the statements, findings, and conclusions in this study are those of analysts from APPRISE and Fisher, Sheehan, and Colton, and do not necessarily reflect the views of the sponsor organizations.

II. Low-Income Energy Needs Assessment

Policymakers throughout the country have identified the need for low-income energy assistance and have funded a wide range of programs. At the national level, Congress appropriated more than \$2.4 billion for the Low-income Home Energy Assistance Program (LIHEAP) and the Weatherization Assistance Program (WAP) in FY 2005.⁴ In 2005, state and local funding for affordability and energy efficiency programs exceeded \$2.3 billion.⁵ However, in that same year, the aggregate residential energy bill for low-income households⁶ was about \$32 billion.⁷ How can policymakers assess whether program funding is sufficient to meet the energy needs of low-income households? In this section of the report, we furnish information that helps policymakers to assess the need for energy assistance funding.

The first part of this section furnishes national statistics on low-income energy needs from a number of sources, including:

- *LIHEAP Home Energy Notebook for FY 2005* – National statistics and trends on energy expenditures, energy burden, and burden-based measures of need.
- National Energy Assistance Survey – Data from the 2003 NEAS regarding the impact of energy assistance on LIHEAP recipients.
- SIPP Measures of Well Being – Statistics and trends furnished by the 1992, 1998, and 2003 Survey of Income and Program Participation (SIPP) on unmet needs, including unpaid utilities and disconnected utilities.
- RECS 2001 – Statistics from the 2001 Residential Energy Consumption Survey (RECS) on energy usage and usage-based estimates of energy efficiency program potential.⁸

While these national statistics are useful to describe the scope of the problem, they are not specific enough to help state and local policymakers assess the need for low-income energy programs in their jurisdictions. The patterns of energy use, levels of energy usage, price of energy, and economic conditions for low-income households vary considerably both among and within states. The low-income energy programs implemented in each jurisdiction must be targeted to address the specific energy needs of households in that jurisdiction.

The second part of this section compares and contrasts state-level statistics on low-income energy needs. Key statistics include:

- Energy data – Main heating fuel, weather patterns, and energy prices for each state.
- Population data – The number of income-eligible households and the number of households that directly pay for electric and gas utility service.

⁴ Source: LIHEAP Clearinghouse (<http://www.sustainable.doe.gov/>)

⁵ Source: LIHEAP Clearinghouse

⁶ In this analysis, low-income households are defined as households with incomes at or below 150% of the HHS Poverty Guidelines.

⁷ Source: LIHEAP Home Energy Notebook for FY 2005

⁸ Note: The 2005 RECS is expected to be available in late 2007.

- Expenditures and burden – The distribution of electric and gas expenditures and the burden these expenditures place on household budgets.
- Indicators of need – State-specific indicators of need based on a range of affordability targets.
- Coverage of need – The coverage of low-income energy need from existing publicly funded low-income programs.
- Energy efficiency proxies – The population for whom energy efficiency programs would be most cost-effective.

The primary data source for the development of state-level statistics is the 2005 American Community Survey (ACS). In addition, we use weather data from the National Climatic Data Center and energy price data from the Energy Information Administration.

A. National Data on Energy Expenditures and Burden

The best source of national and regional data on energy expenditures and burden for low-income households is the national Residential Energy Consumption Survey (RECS). The most recent RECS data available are from 2001. The LIHEAP Home Energy Notebook for FY 2005 furnishes updated statistics that were developed using microsimulation procedures to update the 2001 RECS to Federal Fiscal Year 2005 by accounting for changes in weather and prices from the base year (2001) to the target year (FY 2005).

Section III of the *LIHEAP Home Energy Notebook for FY 2005* includes trend data for low-income households from 1979 through FY 2005 for energy expenditures, energy burden, and indicators of need. Table II-1 shows energy expenditure trends for low-income households from 1990 through FY 2005. In the 1990's, low-income energy expenditures increased on average by about 1.2% per year. However, since the year 2000, energy price changes and weather have been more extreme, with energy expenditure increases of more than 10% in three of the five years examined.

**Table II-1
Energy Expenditures for Low-Income Households, 1990 to FY 2005⁹**

Year	Average Expenditures	Annual Percent Change
1990	\$963	N/A
FY 2000	\$1,074	1.2%
FY 2001	\$1,196	11.3%
FY 2002	\$1,104	-7.7%
FY 2003	\$1,229	11.3%
FY 2004	\$1,259	2.4%
FY 2005	\$1,387	10.2%

⁹ Source: The series of LIHEAP Home Energy Notebooks for the years FY 2000 through FY 2005.

The challenge for policymakers is not just that average expenditures are increasing, but also that the number of low-income households is increasing as the population grows. Table II-2 shows that, as a result, the total low-income residential energy bill grew from about \$22.6 billion in FY 2000 to \$31.9 billion in FY 2005, an increase of about 40% in just five years. By comparison, the total low-income residential energy bill grew by only 18% for the entire decade of the 1990's.

Table II-2
Total Energy Expenditures for All Low-Income Households
1990, FY 2000, and FY 2005¹⁰

Year	Total Expenditures (billions)	Annual Percent Change
1990	\$19.1	N/A
FY 2000	\$22.6	1.8%
FY 2005	\$31.9	8.2%

The LIHEAP program distributes benefits to low-income households for assistance with home heating and home cooling bills. However, the total amount of funding is modest compared to the total low-income residential energy bill.¹¹ Moreover, the increase in LIHEAP benefits has not kept up with the increase in low-income residential energy expenditures. Table II-3 shows that the share of the low-income energy bill covered by LIHEAP in FY 2005 was lower than it was in FY 1990. [Note: The large increase in LIHEAP funding for FY 2006 may have resulted in an increase in the coverage of the low-income residential energy bill compared to both FY 1990 and FY 2005. However, with the funding made available to date for FY 2007, we expect that the coverage for FY 2007 would decline substantially.]

Table II-3
Percent of Total Energy Expenditures for All Low-Income Households
Covered by LIHEAP, FY 1990, FY 2000, and FY 2005¹²

Year	Total Expenditures (billions)	LIHEAP Benefits (billions) ¹³	Percent of Expenditures Covered by LIHEAP
FY 1990	\$19.1	\$1.25	6.5%
FY 2000	\$22.6	\$1.14	5.0%
FY 2005	\$31.9	\$1.69	5.3%

The *LIHEAP Home Energy Notebook for FY 2005* also furnishes other important information on low-income energy needs.

¹⁰ Source: The LIHEAP Home Energy Notebooks for FY 2000 and FY 2005.

¹¹ Note: The purpose of the LIHEAP program is to assist low-income households with their home heating and home cooling bills. The LIHEAP Home Energy Notebook for FY 2005 shows that LIHEAP covers about 8% of the home heating bill for households that are income eligible for LIHEAP at the Federal maximum income standard.

¹² Source: The LIHEAP Home Energy Notebooks for FY 2000 and FY 2005.

¹³ Note: Total LIHEAP funding is higher than the amount indicated. However, about 10% is used for program administration and about 15% is used for delivery of weatherization services.

- **Residential Energy Burden** - In FY 2005, the median residential energy burden for low-income households was 9.9% of income. [Note: The median indicates that half of the low-income households have an energy burden higher than 9.9% and half of the low-income households have an energy burden lower than 9.9%.] For non low-income households, the median energy burden was 2.8% of income.
- **High Residential Energy Burden** - In FY 2005, the Notebook estimates that about 7.1 million low-income households have residential energy burdens that exceed 15% of income and that about 3.9 million low-income households have residential energy burdens that exceed 25% of income.
- **Funding Gap** - The LIHEAP Home Energy Notebook for FY 2005 also estimates the funding that would be required to reduce the energy burden for all low-income households to certain targets. For FY 2005, it estimates that \$3.4 billion would be required to reduce the energy burden for all low-income households to 25% of income. About \$6.1 billion would be required to reduce the energy burden for all low-income households to 15% of income. If all LIHEAP funding used for heating and cooling assistance benefits was targeted to households with energy burdens that exceeded 25% of income, about half of the total need could be met (\$1.69 billion in benefits to cover \$3.4 billion in need).

These statistics demonstrate that, at its current funding level, the LIHEAP program only meets part of the need for energy assistance for low-income households.

B. National Data on the Energy Needs of LIHEAP Recipients

In 2003, the National Energy Assistance Directors Association (NEADA) commissioned the National Energy Assistance Survey to learn more about LIHEAP-recipient households and the choices they make when they cannot afford their energy bills. The survey findings included:

- **Importance of LIHEAP** - 88% of LIHEAP recipients said that the program was “very important in helping them to meet their energy needs” and 96% said the program was “very important” or “somewhat important.”
- **Health Impacts of LIHEAP** - 39% of LIHEAP recipients said that they would have needed to keep their homes at an unsafe or unhealthy temperature if LIHEAP were not available.
- **Preventing Loss of Service** - 33% of LIHEAP recipients reported that they would have had their energy service disconnected or discontinued at a time when they needed it to heat or cool if LIHEAP were not available.
- **Restoring Energy Service** - 63% of LIHEAP recipients who had an energy service disruption during the year indicated that LIHEAP helped to restore that service.

Most LIHEAP recipients face very serious challenges in paying their energy bills, as indicated by an “energy insecurity” scale developed by Roger Colton and updated for the 2003 NEAS. It showed that about 62% of LIHEAP recipients were classified as “In Crisis”

during the year in which they received LIHEAP and another 25% were classified as vulnerable.

C. *National Data on Needs of Low-income Households*

A recent report prepared by the Census Bureau uses data from the national Survey of Income and Program Participation (SIPP) to furnish information on the status of all households and low-income households with respect to a series of “Measures of Well-Being.”¹⁴ Among the measures examined by the report are statistics on “unpaid utilities” and on “disconnected utilities.” Table II-4 shows how the percentage of households experiencing these problems has changed over time. The share of households with unpaid utilities fell from 10.1% to 8.7% between 1992 and 2003. The share of households with disconnected utilities fell from 2.0% in 1992 to 1.3% in 1998, but rose slightly in 2003 to 1.5%.

Table II-4
Percent of Households with Unpaid Utilities
And with Disconnected Utilities, 1992, 1998, and 2003¹⁵

Measure	1992	1998	2003
Unpaid Utilities	10.1%	9.1%	8.7%
Disconnected Utilities	2.0%	1.3%	1.5%

These problems are significant for low-income households. The report furnishes information on the rates for households at or below the poverty level and for households in the lowest quintile of income. On average, 8.7% of all households have some unpaid utility bills. Elderly households experience that problem at less than half the rate of other households. However, over one-fifth of households with incomes at or below the Poverty Level experience those problems.

Table II-5
Percent of Households with Unpaid Utilities in 2003 by Target Group¹⁶

Measure	All	All Elderly Households	Lowest Income Quintile	Poverty Households
Unpaid Utilities	8.7%	3.1%	15.9%	21.9%

D. *National Data on Energy Saving Opportunities*

There is no simple way to accurately assess the need for energy efficiency services for low-income households. Most households have some opportunities for saving energy. However, in designing a program to deliver energy efficiency services, it is important to

¹⁴ *Extended Measures of Well-Being: Living Conditions in the United States, 2003*

¹⁵ *Ibid*

¹⁶ *Ibid*

consider which program models have been most successful in delivering energy savings. Two program models have proven to be particularly cost-effective.

- **Targeting High Users** – Energy efficiency programs that target high users have proven to be the most cost-effective. High users tend to have more opportunities for saving energy and programs that target them are best able to amortize the high fixed costs of delivering a comprehensive package of energy services. One advantage of these programs is that, since they result in significant energy savings, they can have a significant impact on energy affordability for low-income households.
- **Mass Distribution** – Mass distribution programs tend to furnish common energy saving items to a large number of households at a very low cost per household. While these programs can be very cost-effective, they do not have a very large impact on the energy bills of an individual household.

It is useful to consider what share of low-income households might fall into the high user category when designing affordability and energy efficiency programs. From our review of energy efficiency programs, we have seen that three levels of electric usage and one level of natural gas usage might be appropriate to designate as “high usage.”

- **Electric Baseload** – If a household uses some other fuel for heating and water heating, using over 8,000 kWh per year usually indicates that there is significant energy saving potential.
- **Electric Water Heat** - If a household uses electric for water heating, but some other fuel for heating, using over 12,000 kWh per year usually indicates that there is significant energy saving potential.
- **Electric Heat** - If a household uses electric for water heating and space heating, using over 16,000 kWh per year usually indicates that there is significant energy saving potential.
- **Natural Gas** – If a household uses natural gas for water heating and space heating, using over 1,200 ccf per year usually indicates that there is significant energy saving potential.

Using these thresholds, we examined consumption and expenditure data for low-income households from the 2001 RECS. We found that a significant number of low-income households have good energy saving potential.

Table II-6 shows the estimated number of households with electric or natural gas usage. We estimate that there are about 3.5 million low-income households with natural gas or electric space heating that have usage levels that would suggest that they are very good candidates for weatherization. We estimate that an additional 4.5 million households have excellent energy saving opportunities for electric baseload energy efficiency measures.

Table II-6
Estimated Number of Low-Income Households with High Usage in 2005

Group	Number of Low-Income Households (millions)	Number of Low-Income Households Using Energy Source (millions)	Number of Low-Income Households Above Usage Threshold (millions)
Natural Gas	23.4	13.9	1.7
Electric Main Heat	23.4	8.0	1.8
Electric Main Water	23.4	3.6	1.2
Electric Baseload	23.4	11.7	3.3

Source: 2001 RECS Public Use and 2005 CPS

E. State-Level Energy Expenditure and Burden Data

The national data demonstrate the need for energy assistance. However, the needs of low-income households are different in each jurisdiction. State and local policymakers must design and implement programs that best address the specific needs of households in their jurisdictions.

The American Community Survey (ACS) furnishes a rich data source for up-to-date information on the energy needs of low-income households at the state level. In addition, state-level data from the Energy Information Administration on energy prices and data from the National Climatic Data Center on weather contribute to an understanding of how the needs of low-income households vary by State.

Energy Characteristics of Low-Income Households

Table II-7A furnishes basic information on each state in the study in terms of main heating fuel, energy prices, and heating and cooling degree days. In many of the states in this study, more than 80% of low-income households use one of the utility-provided fuels (electricity and natural gas) as their main heating source. Since the LIHEAP program is targeted to assist low-income households with their home heating and home cooling bills, it would seem appropriate to coordinate any ratepayer-funded program with LIHEAP. Of the states included in this analysis, only in Maine do the majority of low-income households use unregulated fuels for space heating.

The data on energy prices and weather show a much larger variation across states. Natural gas prices range from \$1.03 per ccf in Colorado to \$1.61 in Maine. Electric prices range from 6.5 cents per kWh in Washington State to 12.5 cents per kWh in California. Maine experiences over 8,000 HDD per year, while California has only about 2,600. Nevada has almost 2,000 CDD per year, while Washington has less than 200. Missouri faces a significant challenge with both heating and cooling; they experience over 5,000 heating degree days a year and about 1,250 cooling degree days.

**Table II-7A
State-Level Energy Characteristics for 2005**

State	% Gas Heat ¹⁷	Gas Price per CCF ¹⁸	% Electric Heat ¹⁹	Electric Price per kWh ²⁰	Heating Degree Days ²¹	Cooling Degree Days ²²
California	63%	\$1.19	27%	\$0.125	2,634	905
Colorado	69%	\$1.03	22%	\$0.091	7,410	273
Indiana	61%	\$1.21	28%	\$0.075	5,894	894
Maine	5%	\$1.61	9%	\$0.092	8,012	228
Maryland	45%	\$1.48	38%	\$0.084	4,848	1,026
Missouri	49%	\$1.27	33%	\$0.071	5,219	1,250
Nevada	45%	\$1.25	48%	\$0.102	3,802	1,921
New Jersey	64%	\$1.34	17%	\$0.117	5,443	768
Ohio	64%	\$1.30	24%	\$0.082	5,971	738
Oregon	23%	\$1.29	62%	\$0.073	5,150	237
Pennsylvania	54%	\$1.42	19%	\$0.098	5,913	661
Washington	16%	\$1.18	72%	\$0.065	5,512	198
Wisconsin	58%	\$1.19	23%	\$0.097	7,791	500

Table II-7B furnishes information on the population of households potentially eligible for ratepayer-funded programs. For each State, we have developed statistics on the group of households that have incomes at or below the income standard selected by the state for their ratepayer-funded program. The column headed "Percent of Households Income Eligible" shows what share of all households have incomes at or below the selected standard. The selected standards target as few as 14% of households in some states and as many as 30% of households in others. When policymakers consider income standards for ratepayer-funded programs, it is important to consider the total number of households that are potentially eligible for the program.

Another choice that policymakers have to consider is whether the ratepayer-funded program will include households whose utility bills are included in rent. In most states, about 90% of low-income households pay for their use of electricity directly to a utility company. The rest of the households pay the costs of electric usage as part of their rent. In Maryland, about 16% of low-income households have their electric bills included in their rent. The share of households with a natural gas bill ranges from a low of 19% in Maine to a high of 75% in California.

¹⁷ Source: 2005 ACS

¹⁸ Source: Energy Information Administration

¹⁹ Source: 2005 ACS

²⁰ Source: Energy Information Administration

²¹ Source: National Climatic Data Center

²² Source: National Climatic Data Center

**Table II-7B
State-Level Population Statistics for 2005²³**

State	Ratepayer Program Poverty Level	Percent of Households Income Eligible	Percent of Income Eligible with Electric Bills	Percent of Income Eligible with Gas Bills
California	200%	28%	92%	75%
Colorado	189%	23%	88%	68%
Indiana	150%	20%	89%	55%
Maine	150%	21%	83%	19%
Maryland	150%	14%	84%	46%
Missouri	150%	22%	92%	51%
Nevada	150%	17%	91%	51%
New Jersey	175%	18%	87%	59%
Ohio	150%	21%	89%	59%
Oregon	192%	30%	93%	27%
Pennsylvania	150%	20%	88%	53%
Washington	125%	14%	90%	19%
Wisconsin	150%	18%	89%	51%

When planning a low-income program, there are important challenges in reaching out to eligible households and in communicating with program participants. Table II-8 furnishes information on key demographic statistics for households in the study states. It shows that States vary considerably in terms of the population they are attempting to serve. For example, 36% of low-income households in New Jersey are elderly (65+), compared to only 19% of the households in Washington. In Nevada, 27% of the households have a young child under 6, while in Maine, only 11% of the households do. In Missouri, 93% of the households speak English at home, while in California, about 54% of the low-income households speak a language other than English at home.

**Table II-8
State-Level Demographic Statistics for
Low-Income Households with Utility Bills for 2005²⁴**

State	Percent Elderly (65 or older)	Percent Young Child (Under 6)	Percent Who Speak English at Home
California	27%	25%	46%
Colorado	24%	23%	72%
Indiana	27%	22%	90%
Maine	35%	11%	89%

²³ Source: 2005 ACS

²⁴ Source: 2005 ACS

State	Percent Elderly (65 or older)	Percent Young Child (Under 6)	Percent Who Speak English at Home
Maryland	31%	19%	85%
Missouri	27%	22%	93%
Nevada	25%	27%	64%
New Jersey	36%	19%	62%
Ohio	27%	21%	92%
Oregon	26%	20%	80%
Pennsylvania	35%	16%	86%
Washington	19%	22%	76%
Wisconsin	31%	19%	86%

Energy Expenditures of Low-Income Households

Table II-9 furnishes information on the electric and gas bills for income-eligible households in each of the study states. The first two columns show estimated median electric expenditures and burdens for households that do not heat with electricity. Maryland and Nevada have the highest electricity bills. Both of these states have a high number of cooling degree days that would require a significant air conditioning load. Despite high electric rates (12.5 cents per kWh), California has one of the lowest median electric bills. [Note: Since the ratepayer-funded CARE program offers a 20% rate discount and a high percentage of all eligible households receive the discount, respondents to the ACS survey are likely to have reported their discounted bill, rather than the full retail bill.]

**Table II-9
Baseload Electric Bills and Burden, Electric Heat Bills and Burden, and Natural Gas Bills and Burden for 2005²⁵**

State	Median Nonheating Electric Bills	Median Nonheating Electric Burden	Median Electric Heat Bills	Median Electric Heat Burden	Median Gas Bills	Median Gas Burden
California	\$621	4%	\$667	4%	\$379	3%
Colorado	\$684	5%	\$716	7%	\$700	5%
Indiana	\$833	8%	\$988	10%	\$938	9%
Maine	\$792	8%	\$965	8%	\$438	4%
Maryland	\$906	9%	\$1,095	11%	\$870	8%
Missouri	\$889	8%	\$1,080	10%	\$865	8%
Nevada	\$914	9%	\$1,159	9%	\$500	5%
New Jersey	\$822	7%	\$1,167	10%	\$826	7%
Ohio	\$870	8%	\$1,021	11%	\$1,020	10%

²⁵ Source: 2005 ACS

State	Median Nonheating Electric Bills	Median Nonheating Electric Burden	Median Electric Heat Bills	Median Electric Heat Burden	Median Gas Bills	Median Gas Burden
Oregon	\$750	5%	\$875	7%	\$683	5%
Pennsylvania	\$738	7%	\$1,045	10%	\$980	10%
Washington	\$772	9%	\$837	10%	\$633	8%
Wisconsin	\$784	7%	\$758	7%	\$903	8%

As might be expected, the states with the coldest weather have the highest median gas bills. Median gas bills exceed \$900 for low-income households in Indiana, Ohio, Pennsylvania, and Wisconsin, while gas bills average only \$379 for low-income households in California. [Note: Because California is so large and diverse, a more complete analysis of the energy needs of low-income households in California would need to include a significant amount of sub-state analysis.]

Combined electric and gas energy bills vary significantly among the study states. The median combined bill in California is about \$1,000 and the median combined burden is about 7% of income, while in Ohio the median combined bill is about \$1,900 and the median energy burden is about 18%. This illustrates that quite different programs and levels of funding might be appropriate in these two states.

Need for Energy Assistance - Energy Gap

Statistics from the ACS demonstrate that the median combined burden for the states in the study range from about 7% of income in California to about 18% of income in Ohio. In each state, policymakers must consider what energy is affordable and how much energy assistance is needed to meet the needs of low-income households. In setting target affordability levels, policymakers might consider research on the need for energy assistance. Analysts have developed two important indicators of energy affordability – an affordable energy burden and a high energy burden.

- *Affordable Energy Burden* – Roger Colton of Fisher, Sheehan, and Colton has recommended using an affordability standard of 6% of income. He cites national research that suggests that a household can afford to spend about 30% of income on shelter costs and his own research that shows that about 20% of shelter costs are used for energy bills. Based on these statistics, he suggests that the maximum affordable level of energy expenditures for the average household would be about 6% of income.
- *High Energy Burden* – APPRISE has proposed an approach for defining “high energy burden” using a similar model. APPRISE notes that some researchers (Dolbeare, 2001) have defined a severe shelter burden as shelter costs that are 50% of income or more. APPRISE research with the 2001 RECS shows that about 22% of shelter costs are for energy expenditures. Using that approach, APPRISE has suggested that analysts might use 11% of income as an indicator of “high energy burden.”

Individual households may be able to pay more or less than that average for energy. For example, an elderly household that has relatively low current costs for housing because the mortgage was paid off might be able to pay a slightly higher amount for energy. At the same time, another elderly household that had significant costs for medicine or home health care might find even 6% too much to pay for energy. However, as an overall indicator of need, these statistics have some value.

Defining Affordable and High Residential Energy Burden

Fisher, Sheehan, and Colton: Moderate Shelter Burden = 30% of income

Median residential energy costs for low income households = 20% of shelter costs

*Affordable residential energy burden = 30% * 20% = **6% of income***

APPRISE: Severe Shelter Burden = 50% of income

Median residential energy costs for low income households = 22% of shelter costs

*High residential energy burden = 50% * 22% = **11% of income***

Using data from the American Community Survey (ACS), we developed estimates of the total need for energy assistance for each state. In this analysis, “energy need” for each household is defined as the difference between a household’s actual energy expenditures and a targeted affordability standard. Total “energy need” is the sum of the needs for all low-income households. Energy gap is defined as the energy needs for all low-income households compared to the available energy assistance funds. To give policymakers some understanding of the range of possible estimates of need, we have computed the energy gap using two different affordability standards – 5% of income and 15% of income. Table II-10 furnishes estimates for each state of the estimated “energy need” at the two affordability standards, as well as the “energy gap” that remains after LIHEAP funding is applied to the “energy need.” For each state, the “energy need” is a function of the size of energy bills and the size of the low-income population. For example, the table shows that, in California, it would require about \$547 million to reduce the energy burden for all low-income households to less than 15% of income. The table also shows the share of the need that is covered by the LIHEAP funding allocated to electric and gas bills in each state. In Nevada, only 6% of that estimate of need is covered by the LIHEAP program, compared to 43% for Wisconsin. There is no state in our study in which the LIHEAP program is sufficient to reduce the electric and gas energy burden for all households in the state to 15% of income.

**Table II-10
State-Level Need Statistics 2005²⁶**

State	Gross LIHEAP Allocation (millions)	Electric and Gas LIHEAP Share ²⁷	Energy Need: 5% Standard (millions)	Energy Need: 15% Standard (millions)	Energy Gap: 15% Standard (millions)	LIHEAP Coverage of 15% Need Standard ²⁸
California	\$92	\$83	\$1,600	\$547	\$464	15%
Colorado	\$32	\$29	\$288	\$110	\$81	26%
Indiana	\$54	\$43	\$496	\$215	\$172	20%
Maine	\$32	\$5	\$68	\$28	\$23	18%
Maryland	\$34	\$28	\$291	\$144	\$116	19%
Missouri	\$48	\$39	\$606	\$231	\$192	17%
Nevada	\$4	\$4	\$148	\$69	\$65	6%
New Jersey	\$84	\$68	\$632	\$301	\$233	14%
Ohio	\$105	\$92	\$1,070	\$503	\$411	18%
Oregon	\$25	\$21	\$220	\$71	\$50	30%
Pennsylvania	\$146	\$107	\$1,040	\$491	\$384	22%
Washington	\$42	\$37	\$217	\$96	\$59	38%
Wisconsin	\$75	\$61	\$338	\$142	\$81	43%

Need for Energy Assistance – Variations by Income Level

When considering the need for energy assistance, it is important for policymakers to understand how need varies by income level. Analysis of the 2001 RECS data shows that there are moderate increases in energy expenditures as income increase. Table II-11 shows that households with incomes below \$10,000 have average energy expenditures of \$1,039 while those with incomes between \$10,000 and \$20,000 have average energy expenditures about \$1,213 (17% higher). In part, that difference is explained by the fact that the average household size is 17% larger for the higher income group. The median energy burden for households with incomes below \$10,000 is 16.4% of income, compared to 7.8% of income for the higher income group. So, even at relatively low income levels, energy burden declines significantly for households as income rises. It is for this reason that many advocates suggest that affordability programs should target the highest burden households.

²⁶ Source: 2005 ACS

²⁷ The electric and gas share of LIHEAP is computed as the total LIHEAP allocation times the share of low-income households who heat with electric and gas.

²⁸ The purpose of LIHEAP is to assist low-income households with their home heating and home cooling expenditures. The *LIHEAP Home Energy Notebook for FY 2005* shows that \$4.8 billion in LIHEAP benefits would be required to reduce the home energy burden to 5% of income for all low-income households.

Table II-11
Energy Expenditures and Energy Burden by Income Level for 2001²⁹

Income Group	Mean Energy Expenditures	Median Energy Burden	Average Household Size
\$0-<\$10,000	\$1,039	16.4%	1.9
\$10,000-<\$20,000	\$1,213	7.8%	2.2
\$20,000-<\$30,000	\$1,315	5.7%	2.4
\$30,000-<\$40,000	\$1,398	3.4%	2.6
\$40,000-<\$50,000	\$1,518	2.9%	2.7
\$50,000 or more	\$1,835	2.6%	3.0

Need for Energy Assistance – Targeting by Vulnerability Status

When considering the need for energy assistance, it also is important for policymakers to understand how need varies by vulnerability status. Analysis of the 2001 RECS data shows that elderly households who are income eligible for LIHEAP have slightly lower energy bills than nonelderly households (Table II-12). However, the median energy burden for elderly households is slightly higher than for nonelderly households. Analysis of the 2001 RECS data shows that households with children under 12 who are income eligible for LIHEAP have much higher energy bills than those households without children under 12. However, the median energy burden for young child households is somewhat lower than for households with no young children. These statistics show that the differences in energy burden by demographic group are modest.

Table II-12
Energy Expenditures and Energy Burden by Demographic Group for 2001³⁰

Demographic Group	Mean Energy Expenditures	Median Energy Burden	Average Household Size
Elderly Status (for LIHEAP eligible households)			
Elderly	\$1,198	8.7%	1.8
NonElderly	\$1,311	8.5%	3.1
Young Child Status (for LIHEAP eligible households)			
Children Under 12	\$1,501	7.8%	4.3
No Children Under 12	\$1,154	9.0%	1.8

F. State-Level Proxies for Energy Usage

As discussed earlier in this section of the report, one way to assess the potential for energy efficiency programs is to examine the share of low-income households that exceed certain

²⁹ Source: 2001 RECS

³⁰ Source: 2001 RECS

usage thresholds (8,000 kWh electric baseload, 16,000 kWh electric heating, and 1,200 therms natural gas heating). At the national level, we could use the RECS to directly measure energy usage. However, there is no state-level data source that shows the distribution of energy usage. As a proxy for the need for energy efficiency programs, we estimated the usage for each household by dividing their expenditures by the statewide price per unit. While this is only approximate, it does give some indication of the need for these programs.

Table II-13 shows that the share of low-income households with gas usage that exceeds the target threshold is between 5% and 31%. The estimates of energy efficiency potential for baseload electric are much higher, as 24% to 80% of households have electric bills that suggest that their usage is high enough to offer some energy efficiency savings potential.

Table II-13
State-Level Percentage High Usage Households for 2005³¹

State	High Baseload Electric (More than 8,000 kWh)	High Electric Heat (More than 16,000 kWh)	High Gas Heat (More than 1,200 ccf)
California	24%	8%	5%
Colorado	42%	18%	16%
Indiana	80%	42%	26%
Maine	48%	21%	23%
Maryland	64%	36%	18%
Missouri	78%	49%	25%
Nevada	59%	30%	10%
New Jersey	45%	29%	27%
Ohio	58%	37%	31%
Oregon	69%	35%	13%
Pennsylvania	45%	26%	29%
Washington	68%	38%	13%
Wisconsin	50%	18%	23%

G. Findings and Recommendations

The LIHEAP Home Energy Notebook for FY 2005 documents the rapid growth of the low-income energy bill and can be used to assess aggregate need for energy assistance once policymakers have established an affordability threshold.

- *Energy Expenditures and Burden* – Total energy expenditures for low-income households grew rapidly from 2000 to 2005, increasing by over 40% in just five years. Statistics show that LIHEAP benefits only cover about 5.3% of the total energy bill for low-income households.

³¹ Source: 2005 ACS

- *Need for Assistance* – The median energy burden for low-income households was 9.9% of income in 2005, compared to 2.8% of income for households that are not low-income. More than 7.1 million low-income households had an energy burden that exceeded 15% of income and the amount of energy assistance needed to reduce energy burdens to 15% of income was about \$6.1 billion. At its 2005 funding level, LIHEAP benefits only covered about one-fourth of this amount.

These statistics demonstrate why state and local policymakers have found it necessary to supplement LIHEAP funds with state and local resources.

Other reports and data sources furnish other evidence regarding the national need for energy assistance.

- *2003 NEAS* – The 2003 National Energy Assistance Survey found that 88% of recipients reported that LIHEAP was “very important in helping them to meet their energy needs.” Without their LIHEAP benefits, 39% of recipients indicated that they would have had to “keep their home at an unsafe or unhealthy temperature” and 39% reported that they would have had “their energy services disconnected or discontinued at a time when it was needed to heat or cool their homes.”
- *SIPP Measures of Well-Being* – The “Measures of Well-Being” topical module from the 2003 Survey of Income and Program Participation (SIPP) demonstrates that most low-income households keep up with their energy bills, despite the high energy burden. Almost 80% of households with incomes at or below the poverty level pay all of their utility bills.
- *2001 RECS* – The national RECS data also show that energy efficiency programs could be a cost-effective way to reduce energy burdens for many low-income households. Research on energy efficiency programs demonstrates that programs that target high usage households tend to be very cost effective. The data show that there are about 8.0 million low-income households with high electric and natural gas usage that could be targeted by these programs.

These national data demonstrate the overall need for assistance. However, lower level data are needed to furnish state and local policymakers with an understanding of the needs of low-income households in their jurisdiction and the best options for meeting those needs. We used data from the American Community Survey for FY 2005 (ACS), along with weather data from NOAA and energy price data from EIA to look at state-level energy needs for low-income households. From these data sources, we were able to develop state-level indicators of need that are more directly relevant to state and local policymakers. Examples of the different circumstances faced at the state level include:

- *Energy Expenditures* – Median low-income baseload electric expenditures ranged from about \$621 in California to about \$906 in Maryland. Median gas expenditures ranged from about \$379 in California to \$1,020 in Ohio.
- *Energy Burden* – Median low-income baseload electric burden ranged from about 4% to 9% and median gas burden ranged from about 3% to 10%. [Analysts suggest

that total energy burden of 6% of income represents a moderate energy burden and that 11% of income represents a high energy burden.]

- *LIHEAP Coverage of Need* – At the 15% affordability standard level, LIHEAP coverage at the state level ranged from 6% of need in Nevada to 43% in Wisconsin.

Based these statistics, it is clear that the issues facing the policymakers in each state are somewhat different and require careful analysis of local conditions.

III. Legal and Regulatory Framework for Low-Income Programs

Ratepayer-funded low-income programs in the United States present a wide-range of issues for regulators, legislators and the judiciary to consider. Not only do the programs present classic questions of law involving a construction of what statutes do or do not require (or allow), but they also present mixed questions of law and policy to be addressed within the context of utility regulation. The discussion that considers these issues below focuses on the *jurisdictional* aspects of the various low-income programs around the country. This focus leaves an array of questions with respect to each of the state programs for the reader to consider within the context of each individual program. A discussion of the legal aspects of those state programs is presented in the appendices.

One should note the obvious at the outset of this discussion. This analysis examines states in which low-income programs have operated at one level or another. If a state were to have held that it did not, under any conditions, have authority to implement a low-income program, the state would not be included in this analysis. To that extent, the discussion below will discuss, more often than not, the basis *for* the implementation of low-income programs.

A. Jurisdictional Questions About Directing Program Implementation

The jurisdictional question of whether state regulators have the authority to adopt a low-income rate affordability program can generate a set of diametrically opposed answers. On the one end of the continuum, a state utility commission may find that it has within its basic regulatory authority the necessary discretion to order (or approve) a low-income program. On the other end of the spectrum, a commission may find that it has within its basic regulatory authority no power at all to order (or approve) such programs. Not surprisingly, many states are in the middle. These states will approve programs that have certain attributes, or will approve programs if prescribed demonstrations can be made. Each of these points along the legal spectrum will be examined.

Regulatory Authority to Direct Implementation of Low-Income Programs

Ohio PIPP

Several of the study states forming the foundation of the current inquiry involve state regulatory commissions that have asserted their authority to develop and order the implementation of low-income rate affordability programs as part of their basic regulatory powers. The decision of the Public Utility Commission of Ohio (PUCO) to create the Percentage of Income Payment Plan (PIPP) was, for example, reached without direct statutory authority to approve low-income affordability programs. PUCO created the Ohio PIPP in 1983 in response to an emergency arising from the inability of low-income Ohio residents to maintain their home energy service.³² The Commission found that the disconnection of utility service for nonpayment by those who are financially unable to pay constituted an “emergency” as described by Ohio statute.³³

³² Docket No. 83-303-GE-COI (November 23, 1983).

³³ Section 4909.16, Ohio Revised Code.

The Ohio PIPP, as initially conceived by the PUCO, did not represent a discounted rate for low-income customers. Instead, the PIPP was designed to enable low-income customers to retain their utility service by entering into an agreement pursuant to which the customer would make a utility bill payment equal to a prescribed percentage of income. Customers entering into such agreements, however, would not be relieved of paying bills in excess of the percentage of income. Rather, customers would continue to be liable for those arrears. Those accrued arrears would be subject to repayment by the customers when such customers left the PIPP.

In its 1983 decision, the PUCO found that there were both legal and “practical” reasons to adopt the proposed PIPP. According to PUCO, no legal impediment existed to the adoption of PIPP:

Contrary to the arguments of those who oppose the percentage of income payment plan, the plan adopted by the Commission. . . does not constitute income redistribution, and is reasonable and lawful. This plan does not constitute income redistribution because those customers who qualify for the plan are still liable for any arrearages on their bills. There is no debt forgiveness. The Commission is just foreclosing one method by which a utility may exercise its rights to collect for the debt. The utility still has available to it all of its other remedies at law. Because the customer is still liable for his/her arrearages, the Commission’s percentage of income payment plan does not constitute free service or a rebate as charged by opponents to the plan. The plan is not confiscatory. After the plan is in effect the utility will be able, as it has always been able, to recoup its bad debts through a rate case as provided in Chapter 4909 Revised Code. Nor does the plan adopted by the Commission unlawfully discriminate. All residential consumers similarly situated can take advantage of this plan. The policy of this Commission to prevent those without the present ability to pay their utility bills from freezing is a valid state purpose and is the basis upon which the Commission has established this plan. We believe it to be a rational basis.³⁴

The PUCO proceeding that gave rise to Ohio’s PIPP in 1983 did not exclusively concern establishment of the PIPP. Instead, the proceeding considered a broad range of issues relating to payment plans, deposits, and voluntary fuel check-offs as a means to generate energy assistance funding. The proceeding was initiated by Columbia Gas, who filed a proposal to allow for the reconnection of service to customers upon payment by those disconnected customers of one-half of the outstanding arrears and entry into an agreement through which the remaining half would be paid in equal monthly installments. PUCO expanded the proceeding first to include an investigation into the reconnection procedures of all natural gas utilities, and ultimately to include an investigation into the reconnection procedures of all electric utilities as well.

Early in the proceeding, the PUCO declared that an “emergency” existed because of the number of residential gas and/or electric customers who were unable to obtain service for the winter heating season because of the disconnection for nonpayment attributable to economic recession, increases in the cost of gas and electric service, and a decrease in the level of governmental assistance. Based on that emergency, PUCO prohibited the disconnection of gas or electric service during the ensuing winter season, and ordered the reconnection of service by customers who paid either one-third of their outstanding balance

³⁴ Docket No. 83-303-GE-COI, Opinion and Order, at 14.

or \$200, whichever was less. This is commonly referred to as the Winter Reconnect Order. This Order is still issued annually as an “emergency” measure though the payment requirement has been changed to \$175, with customers using the rule required to enroll in a payment plan; PIPP is one of the optional payment plans.³⁵

Consideration of the PIPP arose out of utility objections to the Commission’s “failure to take into consideration a customer’s ability to pay before imposing the moratorium. . .” At least in partial response to that objection, the PUCO docketed an investigation into “long-term solutions to the problems arising from the winter emergency situations.” The Commission rejected arguments by Ohio’s utilities that proposals such as the PIPP were not “long-term solutions” to winter inability to pay problems. PUCO noted that “the utility position in this proceeding is that the only long-term solution to the problem is economic assistance and that all other proposals, falling short of being long-term solutions, are outside of the scope of this proceeding.”

Finally, the PUCO found that the proposed Ohio PIPP best accomplished the goals the Commission sought relative to other available alternatives. The goal, PUCO noted, involves protection of the interests of two disparate groups of ratepayers:

We are not willing to stand by while others, too poor to pay for utility service during the winter, freeze. At the same time, we are ever mindful of protecting the vast majority of customers of utilities under our jurisdiction who pay their bills in full from responsibility for greatly increasing uncollectibles.

The proposed PIPP, according to the Commission, best served both of those goals given available alternatives:

We have in this proceeding looked at such alternatives to the percentage of income plan as maintaining the status quo, extending payment plans from six months to twelve or more months, and having another moratorium. All things considered, the percentage of income plan adopted by the Commission today will do the most to assist those in need to maintain utility service while protecting the companies’ remaining ratepayers.

The PUCO’s decision to adopt the PIPP for Ohio was affirmed by the Ohio State Supreme Court, even though the court disapproved the original cost-recovery mechanism. The Supreme Court found that the PUCO’s approval of the recovery of electric and natural gas PIPP costs through an “electric fuel component” (EFC) and “gas cost recovery” (GCR) rider respectively was unlawful.³⁶ These two rate rider mechanisms, the court said, were statutorily limited to recovery of fuel costs. Despite this disapproval of the PIPP cost recovery,³⁷ the Supreme Court approved the lawfulness of the underlying PIPP decision. The Court noted:

³⁵ Docket No. 06-1075-GE-UNC, Entry (September 6, 2006.)

³⁶ *Montgomery County Board of Commissioners v. Public Utilities Commission of Ohio*, 28 Ohio St.3d 171, 503 N.E.2d 167, 171 (Ohio 1986).

³⁷ The Court informed the PUCO: “while we cannot condone the recovery of arrearages through the EFC rate in light of the specific statutory language of R.C. 4905.01 and 4909.191, we do not express the opinion that the PUCO would be precluded from fashioning an alternative accelerated recovery mechanism which is not contrary to statute, including recovery of arrearages on a more current basis rather than only after a twelve-month delinquency.” *Id.*, at

Pursuant to its emergency powers under R.C. 4909.16, the PUCO created the PIP plan as a response to growing concern “about the number of residential gas. . .[and] electric customers unable to obtain service as a result of disconnection for nonpayment of bills because of the economic recession, increases in the cost of gas and electric service, and a decrease in the level of governmental assistance . . .” (internal citation omitted). . .[I]t is the opinion of this court that it is clearly within the PUCO’s emergency powers under R.C. 4909.16 to fashion such relief as that provided by the PIP plan and we find the plan of the commission to be manifestly fair and reasonable as a solution to the crisis.³⁸

Pennsylvania CAP

Pennsylvania is a second state that implemented low-income programs without explicit statutory authorization. The rate affordability programs operated by Pennsylvania natural gas and electric utilities for their low-income customers began nearly 20 years ago with a small pilot project by Columbia Gas Company.³⁹ Since that time, the universal service concept has expanded for Pennsylvania’s energy utilities so that the companies now devote more than \$240 million each year to support their low-income customers. While the genesis of the Pennsylvania universal service programs can be found in the Pennsylvania PUC’s generic authority over the operations of energy utilities, the preservation and expansion of those programs has since been written into statute.

The Pennsylvania Office of Consumer Advocate (OCA) proposed that Columbia Gas Company adopt an “Energy Assurance Program” (EAP) as part of Columbia’s 1990 rate case. According to the OCA, the issue was one of collection efficiency. “The issue in this proceeding,” OCA said, “is not to devise a social response to the broad inability to pay problems of low-income households. The issue is one of what is the most cost-effective means of collection. It is the same issue as whether a utility should pursue new central station capacity, cogeneration or conservation. . .The requirement that utilities provide least-cost service should govern utility collection activities too.”⁴⁰ The OCA continued: “the issue is this: how can Columbia Gas most effectively and least expensively collect as much as possible from households [that] cannot afford to pay?”⁴¹

Columbia Gas did not completely oppose the OCA’s proposal given its experience with the Ohio Percentage of Income Payment (PIP) plan. “Columbia reiterated its policy position that it is not philosophically opposed to percentage of income payment plans, provided that the plan fully recognizes the costs of such a program and provides for the timely and full recovery of such costs.”⁴²

The Pennsylvania Commission agreed. The Commission found that “it is incumbent upon us to initiate a pilot project to test empirically some of the claims made by [OCA] for an EAP. Hopefully, the results of the pilot will prove [OCA’s] thesis that EAP will enable more customers to avoid termination and collection actions, while also reducing the uncollectible

fn4. The PUCO quickly approved an alternative cost recovery mechanism. Docket No. 87-244-GE-UNC.

³⁸ 503 N.E.2d at 170, 172 (internal footnotes omitted).

³⁹ Pennsylvania Public Utility Commission v. Columbia Gas of Pennsylvania, R-891468, Final Order, at 150 – 160 (September 19, 1990). (hereafter Columbia Gas EAP Order).

⁴⁰ Columbia Gas EAP Order, at 152.

⁴¹ Id., at 153.

⁴² Id., at 157.

expense that can be anticipated if existing approaches remain unchanged.”⁴³ The PUC then articulated the regulatory philosophy that would govern Pennsylvania’s approach to low-income customers for the next two decades:

We, in conjunction with utilities, and social service agencies, have all worked hard to devise ways to insure that low-income Pennsylvanians have utility services which really are necessities of life as the tragic fire deaths associated with the loss of utility service underlined. . .

However, for the poorest households with income considerably below the poverty line, existing initiatives do not enable these customers to pay their bills in full and to keep their service. . . Consequently, to address realistically these customers’ problems and to stop repeating a wasteful cycle of consecutive, unrealistic payment agreements that cannot be kept, despite the best of intentions, followed by service termination, then restoration, and then more unrealistic agreements, we believe that new approaches like PECO’s CAP program and the OCA’s proposed EAP program should be tried.⁴⁴

Only two years after initiating the Columbia Gas pilot, the Pennsylvania PUC decided to expand the use of universal service programs to the state’s other natural gas and energy utilities.⁴⁵ Consistent with its view of the function of such programs as expressed in the early *Columbia Gas* decision, the policy decision of the Commission was that low-income rate affordability programs were a necessary tool for utilities to use in combating the problem of nonpayment. Indeed, the decision to implement what would become known as Pennsylvania’s Customer Assistance Programs (CAPs) arose out of the PUC’s investigation into the control of uncollectible accounts, not through a proceeding devoted to generating remedies for energy unaffordability.⁴⁶ Through that investigation, the Pennsylvania PUC’s Bureau of Consumer Services (BCS) had developed recommendations for implementation of CAPs.

CAPs provide alternatives to traditional collection methods for low-income, payment troubled customers. Generally, customers enrolled in a CAP agree to make monthly payments based on household family size and gross income. These regular monthly payments, which may be for an amount that is less than the current bill, are made in exchange for continued provision of utility service.⁴⁷

The Commission continued:

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

⁴³ Id., at 158.

⁴⁴ Id., at 159.

⁴⁵ The Commission directed that utilities adopt pilot projects. The PUC decision was based on the BCS recommendation that CAP pilots “should be large enough to provide some relief to the low-income, payment-troubled customer problem and at the same time small enough that changes can be made to the programs without incurring major costs.” Bureau of Consumer Service, Final Report on the Investigation of Uncollectible Balances, Docket No. I-900002, at 115 (February 1992). (hereafter BCS Uncollectibles Report). The Commission directed that pilot programs were to involve either 1,000 customers or 2% of a company’s residential customer base, whichever was greater.

⁴⁶ In the Matter of the Investigation into the Control of Uncollectible Accounts, Docket No. I-900002 (initiated October 11, 1990).

⁴⁷ Policy Statement on Customer Assistance Programs (CAP), Docket No. M-00920345, at 2 (July 2, 1992).

purpose of this Policy Statement is to encourage expanded use of CAPs and to provide guidelines to be followed by utilities who voluntarily implement CAPs. These guidelines prescribe a model CAP which is designed to be a more cost-effective approach for dealing with issues of customer inability to pay than are traditional collection methods.⁴⁸

While the implementation of CAPs in 1992 was left to the voluntary decision of the state's energy utilities, the PUC made clear that it believed "alternative programs must be supported as clearly being in the public interest."⁴⁹ Subsequent legislation enacted to restructure the gas and electric industries in Pennsylvania made the programs permanent and directed their expansion.⁵⁰

Summary of Regulatory Authority to Direct Implementation of Programs

In sum, both Ohio and Pennsylvania looked to their control over credit and collection activities as the basis for their approval of low-income rate affordability programs. Ohio's PIP programs arose out of a proceeding that was designed to consider the efficacy of the state's deferred payment plan process. The PUCO ordered the adoption of PIP after concluding that the available alternatives were insufficient to accomplish the objective of getting bills paid and helping customers retain service. The Pennsylvania CAP framework arose out of an investigation into the control of uncollectible accounts. The Pennsylvania PUC found that CAPs were necessary to stop the "wasteful cycle" of entering into unsuccessful payment plans, disconnecting service, reconnecting service, only to enter into another unsuccessful payment plan.

Limited Regulatory Authority to Approve Affordability Programs

On the opposite end of the spectrum lie those states whose utility commissions have found that their regulatory authority prevent the adoption of low-income affordability programs, at least unless or until certain identified conditions have been met. Even in these states, however, the regulatory authority has not entirely prevented the pursuit of affordability initiatives.

Colorado and the "Mountain States" Decision

Colorado is a state that exemplifies legal holdings prohibiting low-income programs under most circumstances. Colorado has a mixed history of support for providing energy assistance benefits to its low-income households. In response to a state supreme court ruling that rates designed for the exclusive purpose of providing benefits to a needy class were beyond the statutory authority of the Colorado Public Utility Commission (CPUC),⁵¹

⁴⁸ Id., at 2. This Commission decision was supported by the BCS Final Report, which indicated: "The Bureau's position is that ratepayers are already bearing significant costs attributable to the problems of payment troubled customers and uncollectible balances. Further, BCS believes that incorporating the following recommendations into utility operations will lead to a more rational and cost effective use of existing resources. Over time, proper implementation of the recommendations may result in a reduction of total utility costs." BCS Uncollectibles Report, at 120

⁴⁹ Id., at 3.

⁵⁰ A discussion of the complete legal context of the Pennsylvania programs can be found in the Pennsylvania appendix.

⁵¹ Mountain States Legal Foundation v. Public Utilities Commission of Colorado, 197 Colo. 56, 590 P.2d 495 (Colo. 1979).

the Commission has consistently refused to adopt permanent programs to redress the unaffordability of energy to low-income customers. Nonetheless, the Commission has adopted a variety of funding mechanisms, along with various experimental and “pilot” programs, to test how low-income customers will respond to affordable rates, under its generic powers. In addition, the CPUC approved an energy efficiency program targeted directly to low-income households.

In 1979, the Colorado supreme court issued a decision that has stalled the implementation of permanent discount utility rates for the poor. In *Mountain States Legal Foundation v. Public Utilities Commission*,⁵² the state supreme court overturned the PUC's approval of discount rates for low-income elderly and low-income disabled customers. Such discounts, the court held, violated the statutory prohibition against preferential rates.

The Colorado *Mountain States* court recognized the economic difficulties of the target populations, observing "that many of our state's elderly live on fixed incomes which are severely strained by today's inflationary economy, as are low-income disabled persons who are often shut out of the employment market."⁵³ The court held, however:

While efforts to provide economic relief to such needy persons are laudatory, the PUC has limited authority to implement a rate structure which is designed to provide financial assistance as a social policy to a narrow group of utility customers, especially where that low rate is financed by its remaining customers. . . It is clear in the case before us that the PUC's authority to order preferential rates has, in fact, been restricted by the legislature's enactment of [the no undue preference statute].⁵⁴

The court ultimately concluded that:

In this instance, the discount rate benefits an unquestionably deserving group, the low-income elderly and the low-income disabled. This, unfortunately, does not make the rate less preferential. . . [A]lthough the PUC has been granted broad rate making powers. . . the PUC's power to effect social policy through preferential rate making is restricted by statute no matter how deserving the group benefiting from the preferential rates may be.⁵⁵

While the *Mountain States* decision has been read to prohibit *per se* low-income discount rates in Colorado, as even the CPUC has observed, it stands for no such broad proposition.

The Colorado supreme court, through its *Mountain States* decision, prohibited the Colorado PUC from implementing "a rate structure which is designed to provide financial assistance as a matter of social policy. . ." (emphasis added). This notion that the state supreme court disapproved the PUC's social policymaking is reinforced by the language that "the PUC's power to effect social policy through preferential rates is restricted. . ." (emphasis added).

Given these findings, it is possible to conclude that, unlike the situation which *Mountain States* posits, where discount rates are "financed by remaining ratepayers," low-income

⁵² 197 Colo. 56, 590 P.2d 495 (1979).

⁵³ 590 P.2d at 496.

⁵⁴ Id., at 497.

⁵⁵ Id., at 498.

affordability programs, whether rate discounts (as in *Mountain States*) or energy efficiency programs (as with the Public Service Company of Colorado (PSCO) Energy Savings Partners program), designed to effectuate sound regulatory policy other than social policy will not run afoul of the *Mountain States* directive.

Recognition that the *Mountain States* decision is not an absolute bar to low-income programs was evidenced in the CPUC decision approving certain low-income programs in the Commission's decision regarding PSCO's proposed merger with Northern States Power Company.⁵⁶ In that decision, CPUC approved both an extension of the company's low-income energy efficiency program and certain low-income rate affordability programs. According to the Commission, these programs "will result in savings to customers" and "produce[...] consumer welfare gains for the citizens of Colorado."⁵⁷ Moreover, the Commission found, the programs "provide assurances to Public Service's low-income customers that service deterioration will not result from the merger of [PSCO] and NSP."⁵⁸

In addition to continuing the Company's low-income energy efficiency program (ESP), the merger settlement created the Affordable Payment Pilot Program (APPP) designed to serve 2,500 low-income customers. In approving this program, the Commission found:

The APPP is designed to be a cost-effective program, although to date there is insufficient data to determine if it is in fact cost-effective. The APPP forgives certain arrearages and provides certain low-income customers a discounted base rate based on the customer's income. The forgiven amounts go into the lost and uncollectible account and are then recovered from all customers through rates. The intent of this arrangement is to provide assistance to certain low-income customers in a manner that results in a net benefit to all of Public Service's customers through an increase in the net revenue collected by Public Service attributable to improved bill payment practices and reduced collection costs.⁵⁹

The Commission directly addressed the question of whether a program such as APPP was legal under the *Mountain States* court decision. The Commission explicitly acknowledged that its "approval of the APPP portion of the Low Income Agreement is not without awareness of the holding in *Mountain States Legal Foundation*. . ." The Commission acknowledged that "*Mountain States* teaches that the Commission may not effect social policy through preferential ratemaking in favor of a narrow group of utility customers, such as low-income customers. . ."⁶⁰ The Commission then held that *Mountain States* did not apply. "If a program or rate has an economic justification, it is distinguishable from the circumstances at issue in *Mountain States*."⁶¹

⁵⁶ In the Matter of the Application of Public Service Company of Colorado for Commission Authorization for New Century Energies, Inc. to Merge with Northern States Power Company, Docket No. 99A-377EG, Decision No. C00-393, at 13 - 21 (February 16, 2000).

⁵⁷ *Id.*, at 14.

⁵⁸ *Id.*, at 15.

⁵⁹ *Id.*, at 16.

⁶⁰ *Id.*, at 17.

⁶¹ *Id.*, at 18, citing *Integrated Network Services v. Public Utilities Commission*, 875 P.2d 1373, 1383 – 84 (Colo. 1994).

The Commission then analyzed the proposed low-income rate affordability program in light of the *Mountain States* decision, holding that “the APPP was not developed in the name of social policy.”⁶² According to the CPUC:

Instead, the goal of the APPP is to reduce the balance of Public Service’s lost and uncollectible accounts, thereby effecting a net reduction to all customers’ bills. This economic justification for the APPP prevents Public Service from running afoul of the prohibition against preferential rates found at [the statute cited by *Mountain States*].⁶³

Similarly, the Commission approved the proposed continuation of ESP in its NSP merger decision, noting that “the record contains uncontradicted evidence that ESP is cost-effective.”⁶⁴ In approving ESP, the CPUC held that “because ESP is a cost-effective DSM program,” the *Mountain States* decision “does not require a contrary result.”⁶⁵

The Commission proffered a second justification for the program as well, holding that “nothing in *Mountain States* prevents Public Service from engaging in research and development with the hope of designing a program used and useful to the rendering of its service at a cost to ratepayers that is just and reasonable. Thus, because it appears that the APPP, as a pilot program, does not create a subsidy in favor of low-income residential customers,” the Commission was within its statutory authority to approve it.

Missouri

Missouri, too, is a state where the regulatory commission has consistently asserted that it lacks statutory authority to order (or even approve) a broad-scale rate affordability program for low-income customers. Nonetheless, while these holdings have prevented the state of Missouri from adopting any broad statewide utility-funded low-income affordability initiative, the state’s electric and gas utilities have experimented with pilot programs to generate information about the operation and outcomes of improving affordability. Authority for the approval of such programs is found in their experimental nature.

The Missouri Commission does not routinely find that it has authority to provide rate affordability assistance to low-income households, even on a temporary basis. Indeed, the Commission explicitly denied such assistance through a program proposed in 2001 by Missouri Gas Energy.⁶⁶ In 2001, MGE asked the Missouri PSC to allow the Company to assign certain federal natural gas refunds and unauthorized use charges from federally-regulated pipelines to the Mid-America Assistance Coalition (MAAC) to assist low-income MGE customers who were having difficulty paying their bills. Both the PSC staff and the Office of Public Counsel opposed the Company’s request.⁶⁷ MAAC is a nonprofit community-based organization distributing low-income fuel assistance primarily in the Kansas City area.

⁶² Id., at 18.

⁶³ Id., at 18.

⁶⁴ Id., at 20.

⁶⁵ Id., at 21.

⁶⁶ In the Matter of Missouri Gas Energy’s Application for Variance from Sheet Nos. 24.18 and 61.4 to Permit the Use of Certain Federal Refunds and Unauthorized Use Charge Collections for the Benefit of Low-Income Customers in the Company’s Service Area, Case No. GE-2001-393.

⁶⁷ Docket No. GE-2001-393, Report and Order, at 2 (March 6, 2001).

MGE's tariffs provide that revenues received from unauthorized use charges recovered through federal proceedings would be returned to ratepayers as a reduction in the company's gas cost recovery proceedings. MGE initiated the 2001 proceedings because it anticipated recovering approximately \$356,715 from its transportation customers pursuant to bills issued in January 2001, for unauthorized usage by transportation customers in December 2000. In addition, the Company had received a pipeline refund of roughly \$620,000 by order of the Federal Energy Regulatory Commission (FERC).

The Company committed to matching the use of these federal refunds with a contribution of \$250,000 of its own funds. The Company argued that distribution of the \$976,000 "to all customers through a reduction in [purchase gas recovery] rates would have a de minimis impact on the prospective rates of all sales customers."

Staff argued that the Commission did not have the statutory authority to grant the requested waiver. According to the Commission:

. . . Staff suggests that, in spite of the popularity of the cause, the Commission should not require ratepayers to fund utility contributions to charitable causes. Staff notes that the requested variance proposes to take funds from customers who are not eligible for other assistance with this winter's high gas bills, and who have had the opportunity to voluntarily make such transfers, and contribute those funds to a select few customers.⁶⁸

The Commission denied MGE's request. Missouri statutes, the Commission said, forbid a utility from rebating any part of a collected rate "when such a rebate results in a lesser compensation by one person for the same service than is paid by another person for a like and contemporary service under the same or substantially similar circumstances." MGE's proposal, the PSC said, would "give a certain group of residential customers an indirect rebate by transferring the funds at issue to MAAC."

In addition, Missouri statutes prohibit providing refunds to fewer than all utility customers who are similarly situated. "MGE's proposal would provide refunds to only a subgroup (low-income customers) of the Residential class, which clearly violates the plain meaning of the statute. In fact, MGE's proposal creates a subgroup (low-income customers receiving funds from MAAC) within a subgroup (low-income customers) of the Residential class. Thus, MGE's proposal does not even treat all members of the subgroup of low-income customers in a like manner."

Finally, the PSC held that the Company's proposal would "result in undue and unreasonable discrimination" contrary to statute.

Approving this variance would result in intraclass rate level differences, creating a new class of customers: the disadvantaged or low-income customer class. To date, the Commission has not created a disadvantaged or low-income customer class. Furthermore, the proper venue to discuss the appropriateness of creating a new customer class is not a variance case.⁶⁹

⁶⁸ Report and Order, at 4.

⁶⁹ Id., at 8.

Case law “makes clear,” the Commission said, “that the classification of utility service is to be based upon the characteristics of the utility service provided, not on a circumstance of the customer. The statutes forbid charging one residential customer one rate, and charging another residential customer a different rate.”⁷⁰

Indeed, the Missouri Commission held in a different proceeding that the “special problems” of low-income consumers might well dictate raising rates to those customers in order to pay for programs designed to address those problems.⁷¹ According to the Missouri Commission:

Low-income customers have not previously been accorded status as a separate class of consumer when utility rates are designed. Standard rate design attempts to match revenue requirement determination with cost causation by class. In other words, the class of consumers that causes a cost to a utility should be required to pay those costs through rates. The evidence presented by MDNR suggests that low-income consumers have special problems that UtiliCorp should address through additional programs. Those programs, of course, bear a cost. Thus, if the Commission were to require UtiliCorp to institute new programs to better serve its low-income consumers, without subsidization from other classes of consumers, it might be necessary to increase the rate charged to the class of low-income consumers in order to pay for those programs.⁷²

The Commission opined: “Obviously, such a result would not be practical or desirable from the standpoint of the low-income consumers. But neither would it be fair and reasonable for the Commission to order UtiliCorp to institute such programs without giving it an opportunity to recover the cost of those programs through rates.”⁷³

Despite these legal holdings by the Missouri PSC, that Commission has approved low-income programs under certain circumstances. Only 20 months after rejecting the MGE proposal due to the lack of statutory authority, the Missouri Commission approved a low-income program proposal by AmerenUE. In a settlement of AmerenUE’s pending electric rate case, the Missouri Commission approved a nine million dollar (\$9.0 million) program for low-income customers of that company. Known as the “Dollar More Clean Slate” program, the program was developed as part of a settlement approved in 2002 under which AmerenUE Missouri electric customers received \$110 million in phased-in electric rate reductions. In approving the program, the Commission observed:

AmerenUE, as part of the agreement, also commits to make certain investments in the communities it serves. It will make an initial \$5 million contribution to its Dollar More Program on September 1, 2002, and will contribute \$1 million more each year for the next four years. It will create a weatherization fund for its low-income customers, and

⁷⁰ Id., at 9.

⁷¹ In the Matter of the Joint Application of UtiliCorp United Inc. and St. Joseph Light & Power Company for Authority to Merge St. Joseph Light & Power Company with and into UtiliCorp United Inc., and, in Connection therewith, Certain Other Related Transactions, Case No. EM-2000-292, Report and Order, at 26 – 27 (December 14, 2000); see also, In the Matter of the Joint Application of UtiliCorp United Inc. and the Empire District Electric Company for Authority to Merge the Empire District Electric Company with and into UtiliCorp United Inc. and, in Connection therewith, Certain Other Related Transactions, Case No. EM-20000-359, Report and Order, at 29 – 30 (December 28, 2000).

⁷² Id.

⁷³ Id.

initially fund it with \$2 million on September 1, 2002, and an additional \$500,000 each year for the next four years. Finally, AmerenUE will create a community development corporation and fund it with \$5 million on September 1, 2002, and an additional \$1 million each year for the next four years.⁷⁴

All of these investments would be recorded below the line, the Order found, “and not treated as a regulated expense.”⁷⁵ The Commission approved the agreement to assign the task of working out program details to a collaborative process.

Statutory Proscriptions of Low-Income Rate Affordability Programs

Washington State

Washington State is the state that comes closest to having an explicit prohibition on regulators directing the state’s utilities to implement low-income rate affordability programs. Pursuant to legislation enacted in 1999, the Washington Utilities and Transportation Commission (WUTC) has statutory authority to approve a low-income program only if approval of such a program is sought by the utility. According to the Commission, it may not only not direct a utility to promulgate a low-income affordability program, it may not, without first receiving a request from the utility, even direct a company to enter a collaborative process to consider whether a mutually-agreeable potential program design could be generated through discussions with other Washington stakeholders.

The Washington statute provides as follows:

Upon request by an electrical or gas company, the commission may approve rates, charges, services and/or physical facilities at a discount for low-income senior customers and low-income customers. Expenses and lost revenues as a result of these discounts shall be included in the company’s cost of service and recovered in rates to other customers.⁷⁶

The statutory limitations placed upon the Commission by this statute were perhaps most evident in a 1999 rate case involving Avista Corporation.⁷⁷ In that proceeding, a local community-based low-income advocacy organization (Spokane Neighborhood Action Program: SNAP) proposed a two-part low-income customer program. According to SNAP, Avista should be required to implement a system benefits charge of one percent (1.0%) of total revenues to fund low-income programs. In addition, SNAP recommended that responsibility for the specific design of the low-income interventions be assigned to a working group charged with developing and presenting the program design to the Commission within a time-certain.⁷⁸

The SNAP proposal was supported both by the Public Counsel and by the Northwest Energy Coalition (NVEC). According to the Public Counsel, the Commission should direct

⁷⁴ Staff of the Missouri Public Service Commission v. Union Electric Company, d/b/a AmerenUE, Case Nos. EC-2002-1, Report and Order Approving Stipulation and Agreement, at 3 (July 25, 2002).

⁷⁵ Id., at 3.

⁷⁶ RCW, § 80.28.068 (2007).

⁷⁷ Washington Utilities and Transportation Commission v. Avista Corporation, Docket Nos. UE-991606, UG-991607 (WUTC 1999).

⁷⁸ Avista, Third Supplemental Order, at para. 399.

Avista to engage in a collaborative planning process to develop a low-income assistance filing in time for the onset of the winter heating season. NVEC recommended that Avista's energy efficiency programs to low-income customers be combined with "meaningful programs supported by a guaranteed level of investment in low-income energy assistance."⁷⁹

The Company opposed the proposal. If a collaborative process were to be ordered by the Commission, the Company said, it should be a statewide process. That process, the Company said, should be "for the purpose of examining low-income issues, as the same may be affected by existing Commission collection and disconnection rules and practices."⁸⁰

The Commission held that it did not have authority to grant the relief requested by SNAP, the Public Counsel and NVEC. It held:

The Commission values and encourages continued dialogue among the various parties with regard to low-income energy efficiency and assistance efforts. However, [the statute] grants no latitude to the Commission to order such rates in the absence of a company request. . . Therefore, the Commission cannot act on SNAP's proposed one percent wires charge and collaborative process. In our view, the legislature has granted us authority to order a surcharge only if the Company requests it.⁸¹

Since that Avista decision, a variety of utilities –electric and natural gas both-- have proposed limited low-income assistance programs to be presented by stipulation to the Commission.

Temporary and Experimental Programs

Even in states where utility commissions have not approved broad statewide affordability initiatives, more limited program proposals have been implemented under a more narrow construction of statutory authority.

Consider, for example, Nevada's early efforts regarding telephone discounts. While Nevada regulators had not previously adopted a low-income rate affordability program for electric and/or natural gas customers prior to the enactment of the universal service statute, the state Public Service Commission had, in a variety of circumstances, addressed the underlying issues presented by such programs. Perhaps most directly, in 1987, the Commission approved an experimental telephone lifeline service tariff proposed by Nevada Bell Telephone Company.⁸² Under its original proposal, Nevada Bell offered a program directed toward households with incomes at or below \$10,000. The Nevada Bell program would provide a 30-call monthly allowance at a \$6 rate, with each call over the 30-call allowance costing \$0.15 per call. According to the Company, it was proposing the Lifeline program in response to testimony by Nevada's Division for Aging Services regarding the need for discount local telephone service.

⁷⁹ Id., at para. 400.

⁸⁰ Id., at para. 401.

⁸¹ Id., at paras. 402 – 403.

⁸² Re. Nevada Bell, 81 PUR4th 110 (Nevada PSC 1987).

The Division, however, objected to the specifics of Nevada Bell's proposal. According to its response, aging customers made four phone calls a day, 75% of which were for necessary services. In addition, the Division argued that eligibility should be tied to a percentage of poverty rather than to an absolute income level of \$10,000. Nevada Bell accepted those critiques, changing its program proposal to offer a flat monthly discount for households with income at or below 150% of the Federal Poverty Level. The program would be funded by a surcharge on other customers.

The Nevada Commission held a prehearing conference devoted exclusively to the legal issue of whether it had jurisdiction to approve the proposed Lifeline rate. Nevada Bell, MCI and the Commission staff argued that whether the proposed Lifeline rate was discriminatory, unjust or preferential was a question of fact and not of law. Accordingly, these parties argued, the question could only be determined based on the evidence after hearing. In contrast, AT&T, Mountain States Legal Foundation and Southwest Gas Company argued that the Commission lacked statutory authority to adopt the Lifeline proposal. US Sprint argued that the Commission clearly had both the authority and the jurisdiction to consider the Lifeline proposal.

Nevada Bell presented testimony that the proposed Lifeline program would improve the value of the entire telephone network. They argued "if a significant number of low-income customers were forced to discontinue telephone service because of high rates, then there would be a reduction in the value of the telephone service to existing customers."⁸³ Bell testified that "trying to keep everyone on line is the concept of universal service, and any changes that affect such service are matters appropriately addressed by the Commission."⁸⁴ According to Bell, "if customers leave the phone system due to price sensitivity, the value of service to the remaining customers declines." Bell argued that "this loss of economic efficiency has served as a rationale for the dominance of the universal service objective for the past 50 years."⁸⁵ Bell continued, however, to assert that "drop-off was not the only factor [to] consider before implementing the Lifeline program because people may be sacrificing other needs to maintain their telephone service."

Mountain States Legal Foundation responded that the Lifeline program "would be but another public assistance program [added] to an already existing plethora (sic) of welfare program."⁸⁶ Moreover, the Mountain States witness said, since not all households that are eligible for the program would participate in the program, "ineligible low-income customers would be taxed for the surcharge although they were in the same economic class as those who qualified for the Lifeline program." Significant disagreement existed between witnesses over both the size of the eligible population and the proportion of the eligible population that would actually participate in the proposed Lifeline program once offered.

The Nevada Commission approved the Nevada Bell proposal. According to the Commission:

. . . Nevada Bell had determined that no drop-off has occurred in its own system as a result of its rate increases. However, although drop-off by itself may indicate there is

⁸³ 81 PUR4th at 114.

⁸⁴ Id., at 115.

⁸⁵ Id., at 119.

⁸⁶ Id., at 125.

no need for the Lifeline program, the evidence presented by the [Aging] Division indicates otherwise. The Division presented evidence that potential Lifeline users were sacrificing other necessities such as food and medicine in order to maintain their phone service. Therefore, one cannot rely on the drop-off rate as the sole criteria in determining when to implement the Lifeline program.⁸⁷

The Commission thus held that it “should approve Nevada Bell’s proposed experimental Lifeline program on the terms as proposed by Nevada Bell. . .”⁸⁸

The Commission then avoided the jurisdictional issues over program funding. During the course of the hearing, Nevada Bell offered to pay for the costs of the experimental program through shareholders, thus precluding the need for the Commission to address “the legal issues raised by some of the parties concerning the legality of the \$0.25 access charge.”⁸⁹

The Commission rejected the arguments, however, that the discount violated statutory provisions prohibiting discriminatory rates. “Since this docket is to remain open to evaluate the data from the experimental program,” the Commission held, the Commission “is merely continuing its investigation into the feasibility of a permanent Lifeline program.”⁹⁰ While acknowledging that some parties had argued that the Lifeline rate was in violation of statutory provisions, the Commission noted further that other parties such as Nevada Bell and the Staff indicated that the Commission “must first hold a hearing, after due investigation, to determine whether the proposed Lifeline program is unjust, unreasonable, discriminatory or preferential.”⁹¹ (emphasis added). By holding the docket open to evaluate the data generated through the program, the Commission said, it was engaging in precisely the type of investigation contemplated by the statute in support of the hearing process.⁹² The Commission held that it was statutorily authorized “to conduct and continue its investigation into the Lifeline rates.”⁹³

The Need for Direct and Tangible Benefits Arising from a Low-Income Program

There is a danger to concluding that the approval or disapproval of a low-income program proposal depends exclusively on a reading of statutory language. Even in those circumstances where a decision is, on its face, grounded in a statutory basis, the underlying dynamics of the program frequently reveal much more about what is truly objectionable.

Consider, for example, the Laclede Gas proposal, rejected by the Missouri Commission, to create its Catch-up/Keep-up program in Missouri. In September 2002, Laclede Gas Company filed a proposed arrearage forgiveness program with state regulators. Under the proposed “Catch-up/Keep-up Plan,” the Company would use discounts obtained off of its

⁸⁷ 81 PUR4th at 129.

⁸⁸ The Commission directed certain modifications to the program on matters not relevant here. *Id.*

⁸⁹ *Id.*, at 129.

⁹⁰ 81 PUR4th at 130.

⁹¹ Nevada’s statute provides that “‘If, upon any hearing and after due investigation, the rates, tolls, charges, schedules, or joints rates shall be found to be unjust, unreasonable or unjustly discriminatory, or to be preferential . . .” NRS 704.120.

⁹² *Id.*, at 130, citing *American Hoescht Corp. v. Massachusetts Department of Public Utilities*, 379 Mass. 408, 399 N.E.2d 1 (1980) (approving experimental electric rate structure for low-income elderly customers).

⁹³ 81 PUR4th at 133.

transportation gas rates, in part, to fund the reduction of arrears for low-income customers. According to the Missouri PSC, the Catch-up/Keep-up tariff:

. . . would increase customers' costs for transportation of natural gas by \$6 million by diverting up to that amount from the transportation discounts that would otherwise be returned to Laclede's customers. These diverted moneys would be placed in an escrow account to fund an arrearage forgiveness program. Currently, 100% of any pipeline discounts received by Laclede are flowed through to all non-transportation customers. Under Laclede's proposal, only 70% of the pipeline discounts would be flowed through to Laclede customers. The other 30% would be placed in an escrow account and used to reduce the arrearages of Laclede's low-income consumers.⁹⁴

Under Laclede's proposed program, as qualifying customers made payments toward three months of their current bills (billed on a levelized monthly budget billing basis), one-fourth of the outstanding arrearages for such customers (or \$375, whichever was less) would be forgiven.⁹⁵ As those arrearages were forgiven, funds would flow from the escrow account holding the pipeline discount into Laclede's accounts receivables.⁹⁶

While the Missouri PSC rejected the Laclede program proposal, it did not base its rejection on jurisdictional grounds. Indeed, the Commission noted that "a properly designed low-income assistance program should benefit all stakeholders by promoting conservation and by assisting low-income consumers in reducing their energy burden. The low-income customers may then be able to pay their utility bills, thereby reducing utility costs for all ratepayers."⁹⁷

The Commission did, however, find "numerous problems with the design" of the proposed Catch-up/Keep-up program. The program, for example, "is not properly designed to address the low-income consumer needs for rate affordability and usage reduction." Even though "the success of the Program is dependent on the modification of the behavior of the low-income customer," the Commission said, "the expectation that low-income customers in the Program will become better able to pay their bills may be unrealistic." One problem noted by staff was that the proposed arrearage forgiveness program "does not provide any means to assist participants with payment of current gas bills. . ."⁹⁸

Moreover, the Catch-up/Keep-up program proposal allowed broad discretion to third party community action agencies to "excuse" the three-consecutive payment requirement if an agency found that the program participant faced "extenuating circumstances." This discretion was bounded neither by a definition of "extenuating circumstances" nor by any limitation on the CAA exercise of discretion. "Regularly granting waivers for extenuating circumstances," the Commission found, "could mean that low-income customers would

⁹⁴ In the Matter of the Tariff Filing of Laclede Gas Company to Implement an Experimental Low-Income Assistance Program Called Catch-up/Keep-up, Case No. GT-2003-0117, Report and Order, at 4 (January 16, 2003). (hereafter, 2003 Laclede Order).

⁹⁵ Accordingly, the total arrears would be forgiven over a 12-month period.

⁹⁶ Id., at 4.

⁹⁷ Id., at 5.

⁹⁸ Id., at 5 (emphasis added). The Program proposal required eligible customers to apply for assistance "from available sources." Id.

receive arrearage forgiveness without ever developing regular payment habits, which is a stated Program goal.”⁹⁹

The Commission further posited that the real impact of Laclede’s proposed Catch-up/Keep-up program would be simply to improve the Company’s financial condition.

Although the program is not well designed to meet the needs of low-income customers, it is likely to have a positive impact on the Company’s current financial condition by improving cash flow and replacing income lost when the Commission denied Laclede’s request to extend its Gas Supply Incentive Plan (GSIP). The Program allows Laclede to divert a portion of the pipeline discounts that would otherwise be passed on to all ratepayers, and to then use those discounts to reduce the company’s bad-debt expense. Thus, Laclede would receive a double recovery because bad-debt expense is already included in permanent rates.¹⁰⁰

Aside from the substantive frailties of the proposed Catch-up/Keep-up program, the Commission disapproved of several aspects of the cost-recovery for the proposed arrearage forgiveness program. Diverting the pipeline refunds, the Commission found, would violate the rate cap approved by stipulation in the immediately preceding Laclede base rate case proceeding. The proposal would divert \$6 million to fund the program that “would otherwise be used to offset the transportation cost of gas and reduce the amount that all Laclede customers would pay on a per-unit basis.” Moreover, the Commission held, the program, in its essence, requires all customers “to fund, in advance, bad debts that would normally be considered in future rate cases to the extent that the bad debts actually materialize.”¹⁰¹

The results of these cost-recovery problems, the Commission held, involved an improvement in the financial condition of the Company at the expense of Company’s ratepayers.

The Commission finds that under the Program, Laclede would likely experience higher reported earnings as a result of the double recovery, prepayment or deferred recognition of its bad debt expense. Laclede would also benefit to the extent that it has access to the excess funds accumulated by the Program that permit it to meet its other cash flow requirements, regulated or nonregulated, with funds otherwise used for bad debt. Thus, Laclede would experience an increased cash flow and an increase in income that would flow directly to Laclede’s bottom line and consequently to shareholders.¹⁰²

To pay for these benefits to shareholders, “under the Program all customers, including low-income customers, would forego the benefit of pipeline discounts on their natural gas bills.”

The Commission finally determined that the Company’s recovery of its proposed Catch-up/Keep-up costs through the purchase gas adjustment clause was unlawful. The pipeline discounts would normally have been passed through to ratepayers via the PGA clause.

⁹⁹ Id., at 5.

¹⁰⁰ Id., at 6 – 7.

¹⁰¹ Id., at 7.

¹⁰² Id., at 8.

That clause is to be “limited in nature to the cost of obtaining the gas itself”; it may not include “margin costs; in other words, the costs of doing business, such as labor or materials costs.”¹⁰³ According to the PSC, “Margin costs such as payroll, depreciation, customer service, bill collection and bad debt expenses are considered in the context of a general rate case and not subject to an adjustment process. Laclede’s Program proposes to include margin costs in the [purchase gas cost recovery] process. Such a use of [this mechanism] is unlawful and could be the downfall of this process.”¹⁰⁴

The Commission concluded that “a rate case would have been an appropriate place to consider the Program.” It then determined that “the concept of an arrearage forgiveness program is worthy of review. The Commission hereby encourages the parties to establish a collaborative to meet and attempt to develop a possible alternative to the Catch-up/Keep-up Plan.”¹⁰⁵

In issuing such “encouragement,” the Commission “acknowledges that there is the issue of whether the law permits a utility to charge, directly or indirectly, customers within the same class a different rate for the same service. As the commission is rejecting the tariff on other grounds, it need not address this question.” Moreover, the Commission continued:

The Commission appreciates the plight of low-income ratepayers and has previously authorized, and continues to support, a variety of other low-income support projects. The Commission has authorized an experimental pilot program for MGE that is similar to Laclede’s proposal. That program, however, was implemented in the confines of a rate case where the Commission explored all relevant factors.¹⁰⁶

Like the Missouri Commission’s rejection of the original Laclede Catch-up/Keep-up program proposal, the Nevada Commission disapproved a seemingly small effort to assist low-income customers through a bill check-off program. To look only at the Commission’s legal finding, however, would miss the import of the case.

The Nevada Commission disapproved cost recovery for a utility checkoff program proposed by Sierra Pacific Power Company.¹⁰⁷ In this proceeding, the utility sought to recover the costs of its Special Assistance Fund for Energy (SAFE). Through the program, Sierra Pacific solicited funds from ratepayers, which it then matched with shareholder funding. After noting that “the company’s position is that ratepayers benefit from the SAFE program and they should bear the cost of administering it,” the Commission rejected that argument. “We need not determine who benefits from the program in order to resolve the issue. This charitable program was established by the shareholders and designed to operate on funds provided by the shareholders and by voluntary contributions from others. . . .As it is a shareholders’ program, the shareholders should devise an appropriate method of funding it. Involuntary contributions from ratepayers may not be used. . . .”¹⁰⁸

The fact that it was a program to assist low-income customers did not allow the company to receive cost recovery. “The commission agrees with the shareholders and the company

¹⁰³ Id., at 10.

¹⁰⁴ Id., at 10 – 11.

¹⁰⁵ Id., at 11-12.

¹⁰⁶ Id., at 13 – 14.

¹⁰⁷ 73 PUR4th 306, 343 (NV PSC 1985).

¹⁰⁸ Id., at 343.

that assisting needy persons with utility bills is a worthwhile project and one that deserves support. We encourage the shareholders to continue the program, but acknowledge that they should also bear the responsibility for the advertising associated with the administration of the program.”¹⁰⁹ The *Sierra Pacific Power* decision should not, however, be read too broadly. The Commission was not impressed with the fact that “the company seeks to recover an advertising expense of \$37,655 to collect \$59,390.”¹¹⁰

The Nevada Commission had previously made clear that whether it would approve a discount program not based on cost-of-service principles would involve a fact-specific inquiry. When examining one electric program, the Commission disapproved a proposed employee discount, holding that the proposed discount was discriminatory in contravention of statute.¹¹¹ The Commission did not find this to be the case as a matter of law, however. Rather, the Commission found the employee discounts to be “unreasonable because. . . they involve the sale of power and gas at below cost.”¹¹² Noting that the Commission’s disapproval of employee discounts had “already been thoroughly considered and found wanting” by a local trial court, the Commission nonetheless stated that “the facts involved in the instant proceeding are markedly different from the facts in that action.”¹¹³ (emphasis added). In a decision that mirrored the Staff’s discussion in its telephone Lifeline decision, the Commission then held that “the evidence of record indicates that employee discounts are unreasonable and discriminatory, contrary to statutory mandate.”¹¹⁴ (emphasis added).

The “Business Case” Model States

The consideration of the economic consequences of affordable rate programs has driven regulatory commission policy in Maryland. The Maryland commission has held that it may approve a low-income affordability program so long as the program delivers “concrete benefits” to ratepayers.¹¹⁵ These benefits, the commission has said, must be more than an “abstract assertion of benefit.” They must document that the program has “a legitimate, non-discriminatory primary objective.” Based on these tests, the Maryland commission approved the proposed Washington Gas Light RES Rate program as a pilot program.

An evaluation of the RES program was required by the Maryland commission, not simply to identify the impacts of the program but to isolate the impacts of the program from the impacts of other economic factors influencing the payment behavior of low-income customers. Washington Gas Light identified the following impacts of the RES program:

- The number of MEAP-qualified customers who have maintained timely payments with the Company has increased over the period November 2004 to April 2005.¹¹⁶

¹⁰⁹ Id.

¹¹⁰ Id.

¹¹¹ Re. CP National Corporation, 38 PUR4th 277, 282 (NV PSC 1980).

¹¹² Id., at 282.

¹¹³ Id., at 280.

¹¹⁴ Id., at 282.

¹¹⁵ In the Matter of the Application of Washington Gas Light Company for Authority to Increase Existing Rates and Charges for Gas Service and to Implement an Incentive Rate Plan, Case No. 8959, Order No. 78757, at 17 – 18 (October 31, 2003).

¹¹⁶ Washington Gas Light Company, Request for Extension of Washington Gas’ Residential Essential Service Pilot Program, at 2 (September 29, 2005).

- The percent of RES-eligible customers in arrears increased by 3 percentage points, from 38% to 41%, a lower rate than the percentage of MEAP-qualified¹¹⁷ customers in arrears, which increased by 9 percentage points, from 35% to 44%.
- Over the 2004-2005 heating season, the average arrearage per customer was lower for RES-eligible customers (\$464.88) than for MEAP-qualified customers (\$490.24). Moreover, the increase in the average arrearage per customer from the 2003-2004 heating season to the next was lower for RES-eligible customers (11%) than for MEAP-qualified customers (15%).

The importance of the RES program, Washington Gas said in support of its proposal to continue the affordability rate, was in the trends that can be viewed over time. “. . .even over the short period of time that the RES Pilot Program has been in effect, there appear to be positive trends among RES-eligible and MEAP-qualified customers with respect to RES Pilot Program participation levels and the levels of average account arrearages.”¹¹⁸ The staff of the commission agreed. Noting that low-income arrearages, in general, increased due to spiraling natural gas prices, nonetheless, “the total number of RES customers in arrearage decreased significantly. There is a correlation between an increase in customer arrearage and an increase in commodity gas prices. The decrease in number of RES program participants in arrearage shows that the program is effective and is actually reaching its goals of keeping low-income customers on service and promoting positive payment patterns, which in turn trickles to other firm customers by lowering collection costs and other costs associated with charge-offs and slow-payment patterns.”¹¹⁹

Several principles are evident in the business case analysis that has been accepted as sufficient to merit continuation of the Washington Gas RES program.

- First, the program is achieving the objectives that were established for it. It would be difficult to determine that a business case had been established for a strategy that was not generating the outcomes that were posited for the program.
- Second, the performance of the program was to be considered in light of the other economic factors that were influencing customer behavior. While perhaps more difficult to isolate, the improved performance of low-income program participants in a period of sharply increasing natural gas prices was even more impressive than had prices remained constant.
- Third, the difficulty in establishing an absolute cause-effect relationship was not fatal to the program’s business case. Rather than seeking to establish a direct cause-effect relationship, the program analysis that examined corresponding trends was found to be sufficient to establish the positive impacts of the program.
- Finally, the cost reductions flowing from achieving pre-determined outcomes were deemed to occur, rather than being proven. The fact that reductions in the number

¹¹⁷ MEAP is the Maryland Energy Assistance Program, the Maryland implementation of the federal Low-Income Home Energy Assistance Program (LIHEAP).

¹¹⁸ *Id.*, at 3.

¹¹⁹ Staff Recommendation on Washington Gas Light Company’s 2005-2006 Report on Residential Essential Services Program, Mail Log No. 102210, at 3, (August 15, 2006).

of accounts in arrears would result in a decrease in both the cost of collection and the costs of slow-payment pattern was found to also exist.

B. The Legislative Frameworks

The “legal” framework of energy assistance programs around the nation does not rest exclusively in the regulatory decisions of the various state utility commissions. It rests, also, in the statutory structures upon which many of the study programs are based. These statutory decisions exhibit considerable, though clearly not universal, differences on major program decisions. Patterns do appear. The discussion below summarizes and highlights the major policy decisions incorporated into law. A detailed discussion of each program’s statutory framework is provided in the appendices for each individual state.

Program Scope

The “scope” of a universal service program refers to the extent to which all low-income customers within a state are covered by the program. Some state programs are focused on delivering benefits to customers of a particular fuel type. The State of Maine, for example, has directed the implementation of a statewide electric universal service program. Maine lacks significant natural gas load. Maryland, too, however, has legislatively enacted an Electric Universal Service Program (EUSP) as part of its move to electric restructuring. No natural gas counterpart has ever been adopted.

In contrast, states such as New Jersey, Pennsylvania, Nevada and California have all mandated that programs be directed to both natural gas and electric customers. While Washington has made all programs optional to utilities and Oregon has made them voluntary for natural gas utilities, both states have such programs.

Coverage of the Program(s)

Most states that have enacted universal service programs restrict those programs to regulated utilities. Programs in New Jersey, Maryland, Pennsylvania and California are legislatively focused on regulated utilities. The state of Maine is one exception. The Maine legislation was directed not simply toward the state’s three investor-owned electric utilities, but to Maine’s consumer-owned electric utilities as well. Colorado’s Voluntary Energy Assistance Program is also statutorily extended to all public utilities, including municipally-owned entities and rural electric cooperatives. In California and Wisconsin, non-investor-owned utilities, while not required to participate in the state program, must, at a minimum, operate equivalent programs.

In contrast, the Nevada legislation exempts customers of non-regulated utilities from being required to pay into the universal service fund. The legislation goes on, however, to provide that customers of exempted utilities are prohibited from receiving any “money or other assistance” from the universal energy fund. Washington programs and Oregon natural gas programs are limited to regulated utilities by the nature of the approval process. Only programs proposed by a utility to the respective state regulatory commissions are authorized by statute. If a utility is not regulated, the statute, by its terms, is not applicable.

Program Design

Considerable variety exists in the design of the various utility programs around the nation. Maine and Pennsylvania allow each utility within the state to develop its own program design, so long as those designs are consistent with state prescribed minimum standards. New Jersey, Nevada and Maryland have all implemented uniform statewide programs. Washington relies upon voluntary program proposals that are initiated by each individual utility, as does Oregon for natural gas utility programs. While those program designs are similar, law or policy does not dictate the similarity. In Ohio, while the design of the PIPPs for the various utilities are fundamentally the same, operational differences do appear.

The decision of the Maine Commission acknowledged a unique approach argued by the state Office of Public Advocate. In its essence, the OPA urged that there should be rebuttable presumption favoring a uniform program. According to the OPA, “all three utility-sponsored programs should be similarly designed, except to the extent that demonstrably different customer needs exist.” While the Maine Commission rejected that approach given time constraints on the design and implementation of programs in the state, the Commission held open the possibility of imposing such a future requirement. Ohio considered similar arguments. One Ohio stipulation approved by the PUCO posited that: “although a uniform statewide PIPP Program is desirable, because of the diversity of circumstances among the natural gas, electric and combination utilities in Ohio, there is currently no single most efficient and effective PIPP program.”

Program design, also, varies by the type of benefit delivered. In most states (Maine, New Jersey, Pennsylvania, Ohio, Nevada, California), the programs are designed to deliver rate benefits to customers of the utilities in each state. Other states, however (e.g., Maryland, Wisconsin, Washington, and Oregon) generate a funding stream that is provided to agencies (state or local) that distribute federal LIHEAP funding. Those agencies either distribute increased fuel assistance benefits or distribute fuel assistance benefits to a larger number of customers than would have been served with federal funding alone.

Most, but not all states, have implemented burden-based programs. While the percentage of income that each state requires a customer to pay varies widely by state, Maine, New Jersey, Pennsylvania and Nevada all have tied their determination of benefits to an effort to reduce low-income energy bills to an affordable percentage of income. Washington and Oregon’s benefits are distributed based on a lump sum payment dictated by existing LIHEAP guidelines. Missouri’s current programs relate more to the management of arrears than to addressing current bills, while its prior Missouri Gas Energy (MGE) pilot project delivered percentage of income based benefits on current bills.

Program Support

Program support involves primarily the collection of funding in support of the low-income affordability programs. One primary question is whether program funds should be collected from all customer classes or from the residential customer class alone. Many of the Pennsylvania CAP programs, along with the voluntary programs in Oregon (natural gas only) and Washington, are based on financial support provided only by the residential class. In contrast, the Nevada legislation directs that funding will be collected from all “retail customers.” Program funding in Maryland and New Jersey, too, are statutorily directed to be collected on a per unit of energy basis from all customers. Wisconsin collects funds

from all customer classes, but not on a volumetric basis. The California commission has specifically held that it is not statutorily authorized to provide a discount to large industrial customers seeking to avoid paying some part of the support for that state's low-income programs.

The extent to which program funding is open-ended also varies by state. The Maine Commission has set a budget limitation by policy, limiting its program funding to roughly 0.5% of retail revenues. In contrast, Maryland established a funding ceiling in absolute dollar terms, while Nevada established a funding ceiling by capping the per unit of energy charge that could be imposed as a universal service charge.

Pennsylvania, New Jersey, Ohio, Wisconsin, and California stand at the opposite end of the spectrum. The objective of the programs in these states is to identify and serve the needs that are identified. Indeed, because the Pennsylvania PUC created an obligation on each utility to serve all eligible customers that seek to enroll in a company's Customer Assistance Program (CAP), the funding mechanism must allow for periodic adjustments to account for increased enrollment. Participation rates, the Commission said, "will fluctuate based on economic conditions, weather and utility prices." In eliminating participation ceilings, the Commission warned that utilities must be ensured of full cost recovery. "The Commission may not enforce the availability requirement of the Acts without also recognizing the right of utilities to full cost recovery." Wisconsin and California both base spending levels on a "needs assessment."

Finally, the voluntary programs of Washington, Oregon and Indiana operate programs with set dollar budgets. The programs in these states earmark a certain sum to be distributed in increased energy assistance. When the budget is exhausted, the enrollment of further program participants, and the distribution of additional benefits, halts.

C. Alternative Regulatory Theories

Unquestionably, numerous stakeholders have advanced creative justifications upon which to structure their low-income affordability programs. Some of those justifications have been approved, while others have not.

- The Ohio utility commission justified its low-income program based on a finding of an "emergency" caused by the tens of thousands of low-income Ohio customers who had lost their utility service;
- A Colorado fuel fund justified one of its low-income programs on the grounds that the utility was not using ratepayer funds, but rather a portion of the penalties imposed on the utility for failing to meet prescribed quality of service standards;
- Nevada Bell justified its telephone lifeline program on the grounds that keeping customers on the telephone system enhanced the value of the network to all customers, not merely to those receiving the lifeline rate;
- Indiana utilities justified their programs as part of a proposal for "alternative regulation" that was specifically authorized by statute.

The lines of analysis presented below do not necessarily apply in every state. The application of any given line of reasoning depends upon the specific statutes that exist in any given state.

Universal Service as a Public Health and Safety Measure

The regulation of natural gas and electric rates in any given state is governed not only by the statutes that specifically mention the ratemaking process, but by the statutes setting forth the broad regulatory mission of the state utility commission as well. Proponents of affordable rates should invoke these jurisdictional statutes in support of low-income affordability programs.

Invoking such statutes is akin to the work of environmental advocates who historically have sought to have utility regulators take into account the environmental implications of their decisions. In language that would sound familiar to the poverty advocate, one comprehensive review of public utility regulatory jurisdiction over environmental issues reported:

A common misconception is that public utility commissions are solely economic regulators, and have neither the authority nor the obligations to evaluate the environmental impacts of the entities they supervise or to make decisions on the basis of environmental considerations. Under this view, environmental protection agencies have the sole authority to address the environmental and public health implications of electric utility service.

Five years ago, a review of state statutes and decisions showed that this view was simplistic and ignores statutes in many states that "explicitly recognize the link between economic and environmental issues." A return to the question and a new review of relevant law demonstrates again. . .the utility commissions' implicit authority to consider environmental issues through their general charge that regulation of public utilities furthers the public interest.¹²⁰

Just as these environmental advocates heard that the obligation to consider the environmental implications lay elsewhere, poverty advocates hear that the public health and safety implications of utility ratemaking policy lies elsewhere. And just as the "general charge" of utility commissions contains language that could and should be used in furtherance of environmental protection, that same general charge can be used in furtherance of low-income protections as well. Just as environmental protection can be advanced through enforcement of the "general charge" of a utility commission, low-income protection can be advanced by enforcement of that language as well.

The policy language contained in the seminal statutory documents creating a state public utility commission need not be so broad as to be unenforceable. Instead, in particular, many such documents *direct* the utility commission to undertake its duties within the constraint of maintaining public health and safety. Consider, for example, the statutory charge of the Maryland Public Service Commission. The Maryland code provides explicitly that "in supervising and regulating public service companies, the Commission shall consider

¹²⁰ Michael Dworkin, et al., "The Environmental Duties for Public Utilities Commissions for 2006, 7 *Vermont Journal of Environmental Law* 6 (2005-2006).

the public safety. . .¹²¹ The fact that home energy service that is unaffordable to low-income households poses a public health and safety threat can no longer be questioned.¹²²

The way to conceptualize this approach to low-income rates is to think of these general charges as being the seminal documents of the agency, much in the same way that the charter of an organization, corporation, or municipality is the seminal document. Just as those charters are enforceable against an organization or corporation, so, too, would the charge of a state agency be enforceable. Policy declarations included in the charter documents of an administrative agency create enforceable obligations on the part of that agency.

Universal Service as a “Public Good”

The notion that assistance provided to low-income households supports the broader public interest is not an unusual idea. In the public utility industry, for example, universal service is considered by many authoritative sources to be a “public good” subject to the financial support of ratepayers as part of the general regulatory oversight of public utilities. The National Association of Attorneys General (NAAG) has reached this conclusion. “At its spring 1998 meeting, the National Association of Attorneys General (NAAG) adopted a resolution addressing competition issues in electric utility transactions. . .NAAG endorsed the following principles: . . .(11) Any system benefit charges which are imposed to support public goods such as . . .universal service, and low-income assistance, should be applied in a competitively-neutral and non-avoidable manner.”¹²³

The question which presents itself, of course, involves determining how to define “public good” so as to include universal service. Fire hydrants and streetlights, for example, have been found to be public goods. The basic telecommunications network has also been found to be a “public good” as a justification for spreading network costs over all customer classes in support of the promotion of universal service.

A state regulatory body could certainly adopt the definition of “public good” articulated by the National Regulatory Research Institute (NRRI) at Ohio State University within the context of universal service for telecommunications. NRRI states:

A public good can be defined as “any publicly induced or provided collective good” that “arise[s] whenever some segment of the public collectively wants and is prepared to pay for a different bundle of goods and services than the unhampered market will produce.” (note omitted). In sharp contrast to the private-good model. . ., the emphasis of the public-good model is on the *total* societal benefits—both direct and indirect—

¹²¹ Maryland Code, Public Utility Companies, §2-113(a)(2) (2007).

¹²² Marty Ahrens (June 2001). *The U.S. Fire Problem Overview Report: Leading Causes and Other Patterns and Trends*, at 55, National Fire Protection Association: Quincy (MA); Apprise, Inc. (April 2004). *National Energy Assistance Survey Report*, National Energy Assistance Directors Association: Washington D.C.; Apprise, Inc. (September 2005). *2005 National Energy Assistance Survey: Final Report*, National Energy Assistance Directors’ Association: Washington D.C.; Johns Hopkins School of Medicine (April 11, 2005). *Burn Injuries and Deaths of Children Associated with Power Shut-offs*, at 5, PowerPoint presentation to Maryland Public Service Commission, Baltimore: MD.; Frank DA, Roos N, Meyers AF, et al., Seasonal variation in weight-for-age in a pediatric emergency room. *Public Health Reports*, 1996; 111:366-371; Bhattacharya J, DeLeire T, and Currie J. Heat or eat? Cold-weather shocks and nutrition in poor American families. *Am. J. Public Health*. 2003; 93:1149-1154.

¹²³ Ilene Gotts and Gregory Racz, *Post-Script Regarding Electric Utilities Mergers*, Practising Law Institute, Corporate Law and Practice Course Handbook Series, at 433, 434 (July 1998). (emphasis added).

associated with network modernization. As applied to the telecommunications network, the public-good model is based upon the premise that the costs of achieving and supporting a modern, state-of-the-art network infrastructure are ultimately borne by the general body of ratepayers as opposed to limited subsets of customers who exhibit a high demand for specific new services. The public-good model is conducive to establishing social policies which provide for a “supply driven definition” of infrastructure.

* * *

Under the public-good model, infrastructure investment[s] that are in the “public interest” are mandated by regulatory commissions, which act as surrogates for marketplace forces for the very reason that those forces break down either because of the enormous risks involved because of uncertainty with respect to costs and demand or both, or because of the intangible or unmeasurable society benefits which are not valued by the marketplace. (emphasis in original).¹²⁴

This NRRI discussion can help guide a regulatory consideration of universal service for electric and natural gas customers in several ways.

- First, universal service is a “publicly induced or provided collective good” as described by the NRRI.
- Second, universal service is a “collective good” that not all ratepayers would choose to pay for. The fact that legislation imposing a system benefits charge generally finds it necessary to make it explicit that such a charge be “nonbypassable” evidences this.
- Third, universal service focuses on “the *total* societal benefits” rather than on the benefits to individual customers. Indeed, the benefits arising from universal service include not simply the benefits to participating customers, but also, in the words of NRRI, benefits “both direct and indirect.”
- Finally, universal service provides public values that are not valued by the marketplace. As NRRI points out, the public good approach applies “for the very reason that those [market] forces break down. . .because of . . .the intangible or unmeasurable society benefits which are not valued by the marketplace.”

Universal Service in Support of Business Competitiveness

Not all impacts arising from unaffordable home energy affect only the individual (or household) experiencing the unaffordable bill. An increasing body of research has documented how the problems associated with inability to pay affect the competitiveness of local business and industry as well. Special rates for energy customers, as well as state regulatory decisions regarding universal service ratemaking in the telecommunications industry, frequently are premised on their positive impacts on promoting business competitiveness. These considerations have also supported “implicit subsidies” generated

¹²⁴ National Regulatory Research Institute (October 1991). *The Public Good/Private Good Framework for Identifying POTS Objectives for the Public Switched Network*, NRRI: Columbus (OH).

by transferring costs from high-cost rural areas to lower-cost urban areas in both the energy and telecommunications industries.

The conclusion that assistance to low wage, poverty-level workers will promote the competitiveness of local business and industry is neither profound nor much disputed by researchers that consider the impacts of programs such as home energy affordability subsidies on private employers. One comprehensive study published in 2004 concluded:

Why the under-use of public benefits is a problem. When most people hear about the idea of marketing public benefits through employers, their initial reaction is “why would a company want to get involved with a social service program?”

In fact, employers have good reason to be concerned that large numbers of working people with low family incomes do not take advantage of the public benefits intended to help them and their families achieve economic sufficiency--benefits that also help employers by contributing to the economic stability of their workforces. These public benefits bolster the ability of low-income workers to meet their basic needs, in effect providing a wage supplement to employers.¹²⁵

This joint study, performed in collaboration with the Center for Workforce Preparation of the U.S. Chamber of Commerce and the Center for Workforce Success of the National Association of Manufacturers, reports that many low wage workers fail to access public benefits.

This not only hurts the workers who miss out on income and benefits; it also hurts their employers through higher turnover and increased absenteeism. Unreliable transportation, inadequate child care, and poor health are leading contributors to absenteeism, tardiness, and turnover among low-income workers. An evaluation of [households leaving the TANF program] in New Jersey by Mathematica Policy Research reported that 52 percent had been fired as a result of frequent tardiness or absenteeism related to child care or health problems. In the words of a call center manager who has hired many entry-level workers through the Annie E. Casey Foundation’s Jobs Initiative, “these peoples’ lives are in chaos. They have so many problems they cannot pay attention to work.”

An unpublished survey conducted by ASE in Detroit, Michigan, highlights workplace problems that employers can experience when employees’ non-work needs are not addressed. ASE asked entry-level workers and their supervisors in five companies about barriers to employee advancement. After “caring for a dependent,” “money problems” were reported more frequently than 19 other potential problems ranging from “understanding work assignments” to “getting along with colleagues.” “Financial worry about making ends meet” appears to contribute to absenteeism, distraction on

¹²⁵ Geri Scott (2004). “Private Employers and Public Benefits,” Workforce Innovation Networks (WINS): Boston (MA) and Washington D.C. WINS is a collaboration of Jobs for the Future, the Center for Workforce Preparation of the U.S. Chamber of Commerce, and the Center for Workforce Success, The Manufacturing Institute of the National Association of Manufacturers.

the job, strained relations with supervisors and co-workers, and a number of other factors that reduce productivity.¹²⁶

These results are confirmed by research in Indiana as well. The *Competitive Assessment* of the Indiana economy was prepared by Market Street Services for the Indiana Department of Commerce. According to the final report, released in January 2002, the purpose of that Department of Commerce sponsored study was “to help the State clearly assess its competitive position both in relation to other states and the nation.” Among the findings made by that Indiana Department of Commerce report were that “income inequality from unequal earnings” was among the top four of the “primary barriers or problems that exist today” impeding efforts to achieve “successful economic development in the near future.”¹²⁷ According to this Indiana report, having “pockets of poverty –whether the businesses locate there or not—is not a business climate asset overall.”

D. Energy Efficiency Program Components

Every state that has adopted a home energy affordability program has incorporated an energy efficiency component into that affordability initiative. Differences appear, however, in the rationale for the efficiency program, in the manner in which the efficiency program is integrated into the broader affordability effort, in the means of targeting the efficiency investments to particular households, in the linkage between the rate affordability and efficiency program components, and in the cost recovery for the program components.

Rationale for the Program

Some, but not all, low-income energy efficiency programs that are linked to the rate affordability programs of the study states focus on the pursuit of energy affordability as their primary reason-for-being. The New Jersey Comfort Partners program, for example, states quite explicitly that “the primary long-term goal of the Residential Low-Income program, known as NJ Comfort Partners, is to improve energy affordability for low-income households.”¹²⁸ In addition, New Jersey regulators expressed concern about how the design of efficiency programs for the residential population, generally, would tend to exclude low-income households from participation. As a result, low-income ratepayers would pay for such programs without being able to access such programs and receive the direct benefits from them.

In contrast is the Pennsylvania Low-Income Usage Reduction Program (LIURP). Pennsylvania’s LIURP initiative is primarily an energy conservation program rather than an affordability program. Indeed, the Pennsylvania state utility commission rejected “ability to pay” as a targeting criteria for its LIURP expenditures. According to the commission, ability to pay is neither an appropriate eligibility requirement nor a prioritization issue for LIURP.

¹²⁶ *Private Employers and Public Benefits*, at 5.

¹²⁷ *Indiana Competitive Assessment*, at 8.

¹²⁸ See, e.g., New Jersey Clean Energy Program Report, submitted to Board of Public Utilities, at 12 (March 31, 2003).

Instead, high usage is the most important eligibility requirement for customers who meet the income guidelines.”¹²⁹ According to the Pennsylvania commission:

The primary goal of LIURP is to achieve bill reduction through usage reduction. We have elaborated above that high usage is the best indicator for achieving this primary goal of LIURP. Another LIURP goal states that the reduction in energy bills should decrease the incidence and risk of customer payment delinquencies and the attendant utility costs associated with uncollectible accounts expense, collection costs and arrearage carrying costs. In view of this program goal, arrearage prioritization has been appropriately listed as the first prioritization among the highest users. Thus, placing income level ahead of arrearage level would be inconsistent with the goals of LIURP.¹³⁰

California’s Low-Income Energy Efficiency (LIEE) program took an even different approach in this respect. In directing that California’s utilities undertake an increasingly “outcome-driven” approach to their efficiency investments, the California commission noted that the outcome was to increase the penetration of households served by the efficiency programs rather than to increase the extent to which any given household received usage reduction investments. This penetration goal, however, as in New Jersey, had affordability rather than usage reduction as its primary objective.¹³¹

Finally, some states view the efficiency programs as an explicit means to reduce the costs of their rate affordability programs. To the extent that usage (and thus bills) can be reduced to low-income program participants, these states reason, the rate support that is required to maintain an affordable energy burden is lessened as well. The Maine utility commission, for example, held that the Central Maine Power was authorized by statute to use some part of its rate affordability benefits to fund energy usage reduction efforts—other than fuel switching—for high-use Electric Lifeline Program (ELP) customers.¹³² “The Commission agrees,” it said, “with the Company and the other parties that using ELP benefits to fund measures that reduce electric usage for ELP customers is in keeping with our legislative directive to implement low-income programs in an efficient manner, and the Commission’s goal of operating least-cost low-income programs.”¹³³ The Commission noted that “expending ELP benefits to finance electric reduction measures may reduce the long-term costs of the ELP, make electric bills more affordable for low-income customers, and cause less adverse rate impacts for the general body of ratepayers than continuing to provide high ELP benefits.”

¹²⁹ Re. Guidelines for Universal Service and Energy Conservation Programs, Docket M-00960890, Order Adopting Guidelines for Universal Service and Energy Conservation Programs in a Restructured Electric Utility Industry (July 11, 1997). (hereafter Pennsylvania LIURP Guidelines).

¹³⁰ Id.

¹³¹ The California legislature had directed that “the commission shall ensure that low-income ratepayers are not jeopardized or overburdened by monthly energy expenditures. Energy expenditures may be reduced through the establishment of different rates for low-income ratepayers, different levels of rate assistance, and energy efficiency programs.” California Public Utilities Code, §382(b) (2007).

¹³² Re. Modifications to Central Maine Power Company’s Electric Lifeline Program for the 1993-94 Program Year, Docket No. 93-156, Order, at 30, October 22, 1993).

¹³³ Modification Order, at 30.

Integrating the Efficiency and Affordability Programs

The connection between the rate affordability and energy efficiency components of home energy affordability program varies widely by state. In some states the connection is explicit and there is a specific effort to operate the programs in tandem with each other. Most states providing such integration, however, link their rate initiatives with their energy efficiency initiatives through a referral process. States such as Maine, Maryland and Pennsylvania refer high-use affordability program participants to their usage reduction programs, though such referrals do not have any “preference” in the receipt of efficiency services. States such as New Jersey and Wisconsin require high-use affordability program participants to accept efficiency services to the extent that such services are offered and the customer has sufficient dominion over his or her residence to authorize the acceptance of such services.

The process of sharing program participants is perhaps best illustrated by New Jersey. New Jersey regulators have found that the state’s rate affordability program will provide a steady stream of new participants into the energy efficiency program. “Under the partnership¹³⁴ both the NJ Comfort Partners Program and the Weatherization Assistance Program provide the same services to clients. Once a common pipeline is developed, only one program will serve each client. The Universal Service program will feed the pipeline for both the Comfort Partners and the Weatherization Assistance Program.”¹³⁵

Nevada, too, has a formal relationship between its low-income energy efficiency and its low-income rate affordability programs. The statutory mix of rate affordability and energy efficiency funding in Nevada is unique. Not only does the statute explicitly set the rate at which funds will be collected (on a per-therm and per-kWh charge), but it mandates the distribution of funds between rate affordability and energy efficiency program uses. The legislature dictated that twenty-five percent of the money in the Fund *must* be distributed to the Housing Division for programs of “energy conservation, weatherization and energy efficiency for eligible households.”¹³⁶ In addition, the Nevada program mandates the coordination of the rate affordability and energy efficiency programs. The statute requires preparation of a joint annual program plan, and creates a general oversight committee which is to be involved with the preparation of that plan.¹³⁷

In contrast to the efforts of New Jersey and Nevada to link their affordability and efficiency programs, in other states, the affordability and efficiency programs still operate independently.¹³⁸ In Colorado, for example, the low-income energy efficiency program is not a part of a broader affordability effort. Before being legislatively overturned in 2007, a Colorado state supreme court decision prohibited the implementation of any permanent,

¹³⁴ A written Memorandum of Agreement was developed between the state Board of Public Utilities and the state Department of Community Affairs (DCA), the state weatherization agency, spelling out the working relationship between the weatherization and rate affordability initiatives.

¹³⁵ In the Matter of Comprehensive Energy Efficiency and Renewable Energy Resource Analysis for 2005/2006. Final 2007 Program and Budgets, Docket No. EX04040276, Clean Energy Order, at 7 (December 21, 2006).

¹³⁶ N.R.S., §702.270(1) (2007).

¹³⁷ N.R.S., §702.280 (2007).

¹³⁸ Utility-funded programs such as those operated in Indiana, Oregon and Washington tend to provide some fixed amount of funding for weatherization. These programs, however, tend simply to expand the number of households served by the federal weatherization program rather than seeking to create an integrated affordability initiative, of which rate assistance and usage reduction are separate but integrated, parts.

broadscale rate affordability initiative.¹³⁹ The Colorado Energy Savings Partners program, however, had historically been exempted from the confines of this holding. In approving continuation of the ESP program as part of a Public Service merger proceeding,¹⁴⁰ the Commission approved the proposed continuation of ESP, noting that “the record contains uncontradicted evidence that ESP is cost-effective.”¹⁴¹ In approving ESP, the CPUC held that “because ESP is a cost-effective DSM program,” the *Mountain States* decision “does not require a contrary result.”¹⁴²

Indeed, in other states, the co-existence of efficiency and affordability programs can sometimes actively interfere with the appropriate delivery of efficiency measures. Maryland, for reasons different than California, has limited the efficiency investments delivered through its Electric Universal Service Program (EUSP). Even though the Maryland universal service program is statutorily limited to electric utilities, the efficiency investments mandated as part of that program are statutorily defined to include “weatherization” measures.¹⁴³ Early in the planning and design of the EUSP, the state LIHEAP agency proposed to use that language to incorporate into EUSP a series of services including conservation education, energy conservation through appliance replacement, and “teaching self-help strategies to encourage customers to promptly and regularly pay their electric bills.”¹⁴⁴ The commission rejected these additional services as being beyond the scope of the statute.

The program as proposed by [the state LIHEAP office] establishes a much broader and more comprehensive effort to assist low-income customers in their ability to pay their electric bills than is set forth in the Act. Conservation measures are worthwhile activities that the commission believes would be beneficial to low-income customers in managing their electric bills. Nevertheless, the commission believes it is paramount that the USP first accomplish the legislatively-mandated components of bill payment assistance, low-income weatherization, and retirement of arrearages.¹⁴⁵

To that end, the commission held that “any ancillary activities of the USP should be directly related to the three components of the program.”¹⁴⁶

The Maryland commission decided that while the delivery of energy audits was an integral part of providing weatherization under the EUSP statute, the delivery of energy efficient appliances was not. The commission determined, for example, that “energy audits are undoubtedly within the scope of any weatherization programs. Indeed, the Commission views energy audits as critical to any weatherization program.”¹⁴⁷ In contrast, “the commission does not view appliance replacement as within the scope of a weatherization

¹³⁹ *Mountain States Legal Foundation v. Public Utilities Commission of Colorado*, 197 Colo. 56, 590 P.2d 495 (Colo. 1979).

¹⁴⁰ In the Matter of the Application of Public Service Company of Colorado for Commission Authorization for New Century Energies, Inc. to Merge with Northern States Power Company, Docket No. 99A-377EG, Decision No. C00-393 (February 16, 2000). (hereafter PSCO Merger Order).

¹⁴¹ PSCO Merger Order, at 20.

¹⁴² *Id.*, at 21.

¹⁴³ xxx

¹⁴⁴ In the Matter of the Commission’s Inquiry into the Provision and Regulation of Electric Service (Universal Service), Case No. 8738, Order No.75935, at 8 (January 28, 2000).

¹⁴⁵ Order 75395, at 10.

¹⁴⁶ *Id.*

¹⁴⁷ *Id.*, at 11.

program. The commission acknowledges that some measures defined as ‘energy conservation’ are appropriate in the context of a weatherization program.”¹⁴⁸ The Commission views low-income weatherization to include structural or shell repairs or upgrades.”¹⁴⁹

The Commission then emphasized that its narrow construction was driven as much by resource constraints as by statutory constraints:

The commission recognizes that there are other measures that also may reduce energy consumption but do not fall within the parameters of weatherization. Energy conservation. . . may come within the scope of ‘universal service program,’ as defined and may be desirable. However, [the statute] speaks to low-income weatherization and not the broader category of energy conservation.

The commission notes that the USP has finite resources. The Act requires arrearage retirement and bill payment assistance in addition to low-income weatherization. With the limited amount of money that can be directed toward weatherization at this time, it is appropriate that the measures undertaken meet the narrower parameters defined above. Nevertheless, as funds become available with arrearage retirement completion, it would be appropriate to consider a redistribution of funds to broader low-income energy conservation measures.¹⁵⁰

Because of the benefits that arise from appliance replacements, the Commission said it would “revisit this issue when it is appropriate to do so.”

Summary

In sum, energy efficiency is generally viewed as one component of the home energy affordability programs in the study states. While the efficiency and rate affordability components are administratively coordinated in most states, jointly funded in some states, and linked by referrals in most states, the usage reduction and rate affordability programs still tend to operate as independent programs. The delivery of low-income rate reductions and energy assistance, and the delivery of low-income usage reduction, are still not considered to be interchangeable mechanisms for delivering affordability assistance.

Continuing today, the integration of efficiency and affordability programs is most noteworthy for what does *not* exist. The automatic qualification of a high-use affordability participant for the receipt of energy efficiency measures does not exist. Bill reductions through usage reduction and bill reductions through rate discounts/energy assistance are not found to be interchangeable.

¹⁴⁸ Id.

¹⁴⁹ In the Matter of the Commission’s Inquiry into the Provision and Regulation of Electric Service (Universal Service), Case No. 8738, Order No. 76049, at 2 – 3 (April 4, 2000).

¹⁵⁰ Order 76049, at 3.

In none of the states studied is the delivery of affordability assistance through rate reductions and energy assistance fully integrated with,¹⁵¹ rather than merely coordinated with, the delivery of usage reduction through energy efficiency investments.

E. Summary and Conclusions

Utility-funded low-income rate affordability programs have been adopted by multiple states around the nation. Some states have enacted legislation mandating the implementation of such affordability programs. These legislative states have differed in their approaches. States such as Maine, New Jersey and California have enacted legislation mandating the creation of a universal service program. Other states, such as Maryland and Nevada, have enacted what basically represent funding mechanisms, deferring to state agencies on issues involving how that money is best to be distributed. Yet other states—Colorado and Washington are examples—authorize regulatory approval of low-income affordability programs without mandating that such programs be brought forward in the first instance.

Low-income affordability programs created through legislative action have many different attributes, but common patterns emerge. As a general rule, even if the specifics of programs differ by utility service territory, programs are implemented statewide; Washington electric and natural gas programs and Oregon natural gas programs are exceptions, with program implementation depending on the initiative of individual companies. As a general rule, programs are limited to regulated utilities; Maine's Electric Lifeline Program, which extends to consumer and cooperatively-owned utilities, along with Colorado's Voluntary Energy Affordability Program, are the exceptions. In virtually all instances, all customer classes are called upon to financially support the programs; Pennsylvania is the exception. States are evenly split between whether they mandate a program to meet the need, with the budget depending on the program size or whether they mandate a budget, with the program size depending on the amount of money available to spend.

In several states, the low-income affordability programs have arisen out of regulatory action taken without prior explicit statutory authorization. Ohio's utility commission declared the state to be in an "emergency" due to the number of low-income households losing and remaining without utility service; it thus exercised its regulatory powers to ameliorate that emergency through implementation of the state PIP. The Pennsylvania state utility commission declared existing processes to be "wasteful," and adopted its CAP programs as a more effective and efficient tool to use in addressing low-income payment troubles.

Even state utility commissions that have expressed doubt about their regulatory authority to implement permanent statewide programs have adopted smaller programs using different aspects of their regulatory authority. The Missouri utility commission, for example, has held that it lacks statutory authority to adopt preferential rates. Nonetheless, that commission has approved multi-million dollar programs by electric and natural gas companies to deliver rate affordability and arrearage forgiveness through specifically-dedicated funds. Program proposals presented to the Missouri commission by agreement or stipulation are more likely

¹⁵¹ A fully integrated program might, for example, determine for any specific program participant the optimum mix of efficiency and rate affordability assistance required to reduce the low-income household's bill to an affordable energy burden.

to be approved as authorized by statute than requests for programs to be ordered over a company's objection.

The Colorado commission, even before the state supreme court decision proscribing preferential rates was legislatively overturned, approved a low-income energy efficiency program on the grounds that it was cost-effective, while also approving a rate affordability pilot to test whether it could be shown to be cost-effective. "If a program or rate has an economic justification," the Colorado commission held, "it is distinguishable from the circumstances at issue in *Mountain States*."

The Nevada utility commission took a middle ground. While an energy affordability program was eventually mandated by statute in that state, the commission had previously expressed concern about whether it could authorize discount rates. The commission nonetheless held that resolution of that issue depended on a fact-specific inquiry rather than legal doctrine. The Nevada commission approved a telephone discount rate, saying that it had the authority to adopt such a rate as an "investigation" into whether such a rate would improve affordability in support of the commission's factfinding.

Programs that have been found to be inefficient, or that have been found to benefit investors more than low-income customers, are more likely to be disapproved. Cost-recovery for an energy assistance program where a Nevada company proposed to spend roughly \$40,000 to raise \$60,000 was disapproved. A proposed Missouri arrearage forgiveness program was disapproved where the state commission found that the real impact was simply to reduce company uncollectibles between rate cases, with the reduced expenses redounding to the benefit of shareholders as increased earnings, more than to deliver affordability benefits to low-income customers.

The ultimate conclusion must be that, while legislative support for a low-income affordability program serves to remove any doubts about regulatory authority to adopt such programs, multiple avenues exist to pursue such programs under well-accepted regulatory principles.

Common Characteristics of Universal Service Programs

	ME	NJ	MD	PA	OH	IN	WI	MO	CO	NV	WA	OR	CA
Fuel type covered	E	G/E	E	G/E	G/E	G	G/E	G	G/E	G/E	G/E	G/E	G/E
Utility type covered	All	Regulated	Regulated	Regulated	Regulated	Voluntary	All	Voluntary	G/E	G/E	G/E	G/E	G/E
Statewide/Utility	State	State	State	State	State	Utility	State	Utility	Utility	State	Utility	Utility	State
Uniform design	No	Yes	Yes	No	Yes	No	Yes	No	No	Yes	No	No	Yes
Legislatively authorized	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes
Burden-based	Mixed	Yes	No	Yes	Yes	Mixed	No	No	No	Yes	No	No	No
Supported by what classes	Retail	All	All	Mixed	All	Mixed	All	Mixed	Residential	Retail	Residential	Residential	All
Cost Recovery	Rates	SBC	SBC	Rates	Rates	Mixed	Mixed	Rates	Mixed	SBC	Rates	Rates	Rates
Open-ended funding	Variable	Variable	Set	Variable	Variable	Set	Variable	Mixed	Mixed	Set	Set	Set	Variable
Funding administrator	PUC	PUC	PUC	PUC	PUC	Utility	PUC	Utility	Utility	PUC	Utility	Utility	PUC
Program administrator	LIHEAP	LIHEAP	LIHEAP	Utility	LIHEAP	Utility	LIHEAP	Utility	Utility	LIHEAP	Utility	Utility	Utility
Pilot/permanent	Permanent	Permanent	Permanent	Permanent	Permanent	Pilot	Permanent	Pilot	Permanent	Permanent	Permanent	Permanent	Permanent

NOTE: As with any summary table such as this, it is impossible to begin to capture the details and nuances of a program within the table. A detailed discussion of the statutory, legal and program frameworks of each state’s program(s) can be found in the appendices of this report.

IV. Affordability Program Design and Implementation

In Section III, we discussed the legal and regulatory framework of the ratepayer-funded low-income programs in the 13 states in the study. In a few states, we found that the authorizing legislation specified some elements of the program design. In other states, a program design was specified as part of the regulatory process. However, in many of the states we studied most program design and implementation of the program decisions were made by the program administrator. Program design choices have important implications for program costs, targeting, and the incentives for low-income customers participating in the program.

In this study, we collected information on 21 different low-income energy affordability programs. Each program has a unique design that attempts to account for the local conditions associated with the energy needs of customers, reflect program objectives, and account for the existing set of programs available to low-income households in that jurisdiction. In this section of the report, we identify the dimensions on which program design choices must be made, discuss the advantages and disadvantages of each design choice, and identify the designs of the programs that we reviewed.

A. Program Design Dimensions

The key dimensions for the analysis are:

- Funding – There are two related issues associated with program funding.
 - Funding Amount – In some jurisdictions, funding for a program is fixed, while in others, the regulatory authority has set a program goal and has authorized funding to whatever level is needed to reach the program goal.
 - Funding Source – Programs have been funded through System Benefit Charges (SBC), a rate rider for an individual utility, and through the existing rates of a utility. Further, in some jurisdictions the charges are levied on all ratepayers and, in others, charges are restricted to certain rate classes.
- Targeting – If program funding is limited, it is important to determine whether there are specific target groups that should receive priority for receipt of program benefits and/or a higher level of program benefits.
- Benefits – There are five related issues with respect to program benefit determination and distribution that must be decided.
 - Coordination with LIHEAP Benefits – It must be decided whether and how benefit determination will account for the receipt of LIHEAP benefits, or if ratepayer program benefits will be distributed with LIHEAP benefits.
 - Computation of Benefits – The three primary approaches to benefit computation that have been used are percent of income, rate discount, and benefit matrix.

- Benefit Level – Given a benefit computation approach, one needs to decide how large to make program benefits.
- Benefit Distribution – Benefits distribution models have included a monthly fixed payment, a monthly fixed credit, a monthly discount, and an annual credit.
- Preprogram Arrearage Forgiveness – The program must determine whether there will be forgiveness of preprogram arrears and what form that forgiveness will take.
- Program Operations – There are three related issues with respect to program operations that must be decided.
 - Program Administration – Some ratepayer-funded programs are administered by utility companies, others are administered by the state LIHEAP Administrator, and still others are administered by other state or community-based organizations.
 - Income Certification and Recertification – Procedures for qualifying customers for the program must be developed, as well as procedures for recertifying customers.
 - Benefit Period – If a monthly benefit is granted, the benefit can be continuous, can be for a fixed period of time, or can be dependent on payment.

Each of these program design and implementation elements can have a considerable impact on the program performance and effectiveness.

B. Program Funding

Funding Levels

A necessary first step in the program design process is to determine the program funding level. Individual states and utilities have made varying decisions with respect to funding. Table IV-1 lists the programs reviewed in this study and discussed in this section, along with the 2006 program funding and the number of program participants.¹⁵²

¹⁵² Note that the list of programs does not always include all of the programs in each state. For example, there are 15 CAP programs in Pennsylvania. Two of those were included in this study.

**Table IV-1
Ratepayer-Funded Low-Income Programs Included in Study**

Program Reference	Program Name	2006 Program Funding (millions)	2006 Program Participants
CA-CARE	California Alternative Rates for Energy	\$622.2*	3,368,783*
IN-CGCU	CGCU Universal Service Program	\$3.0	17,700
IN-NIPSCO	NIPSCO Winter Warmth Program	\$5.6	14,916
IN-Vectren	Vectren Universal Service Program	\$5.9	25,868
MD-EUSP	Electric Universal Service Program	\$34.4	83,853
ME-MPS	Low-Income Assistance Program (LIAP)	\$6.5*	30,000*
ME-CMP			
ME-BHE			
MO-Laclede	Assistance and Arrearage Program	\$0.4	2,184
MO-ELIR	Experimental Low-Income Rate (ELIR)	Ended in July 2006	
NJ-USF	Universal Services Fund	\$102.0*	162,490*
NV-EAP	Energy Assistance Program	\$8.8*	17,577*
OH-PIPP(E)	Electric Percent of Income Payment Program	\$104.8	209,960
OH-PIPP(G)	Gas Percent of Income Payment Program	Not available	194,400
OR-EWEB	Customer Care and Customer Care Plus	\$1.6	4,558
OR-OEAP	Oregon Energy Assistance Program	\$9.9	22,514
PA-PECO	Customer Assistance Program	\$70.0	116,829
PA-PGW	Customer Responsibility Program	\$70.2	76,045
WA-LIRAP	Low-Income Rate Assistance Program	\$3.2	6,980
WA-HELP	Puget Sound Energy HELP Program	\$8.5	17,973
WI-WHEAP	Wisconsin Home Energy Assistance Program	\$25.4	155,791

*Statistics for 2005

Some states have a fixed level of program funding while others have not established a funding limit. California has set a goal of maximizing enrollment in the CARE program. In 2005, funding for that program was about \$563 million. Currently, the New Jersey USF program does not have a funding limit. In 2005, funding for that program was about \$111 million. However, the NJ USF evaluation found that if all eligible households were served, about \$400 million would be required.

Other states do not allow funding to be open-ended. While there is no simple way to set an appropriate level of funding, there are analytic techniques that can help policymakers to set a total funding level in the context of the needs of low-income households. Such a process would include the following steps:

1. Affordability – Consider what level of energy bills would be affordable for low-income households. [Note: Some states set different levels for different types of households.]
2. Participation – Estimate the participation rate for low-income households. [Note: With unlimited enrollment, many programs reach about 50% participation. California has exceeded that level by minimizing the program enrollment requirements, eliminating recertification requirements under certain circumstances, and making special program outreach efforts.]
3. Modeling – Use data from the ACS to estimate the number of households that would be eligible for benefits and to estimate the total amount of benefits that would be granted through the program benefit computation formula.
4. Feedback – Once the estimated funding level has been determined, assess whether that amount is affordable to other ratepayers.

The need standard analysis developed in Section II is one example of an approach for estimating total energy need for low-income households. In that approach, the ACS data is used to determine the difference between a household's actual energy bill and an "affordable" bill based on a percent of income standard. Total low-income energy need is then estimated as the sum of all energy needs for low-income households. In Section II of the report, we furnished estimates of the total need for ratepayer-funded programs at two need standards – 5% of income and 15% of income, and the energy gap that remained after the availability of LIHEAP funds was considered. In Table IV-2, we present information that shows the share of the 15% need standard that could be met with the program in place for the states that we studied. The total coverage of LIHEAP and the ratepayer-funded programs range from 17% for Missouri (with only limited programs) to 118% for California. On average, the programs cover about 50% of the need at the 15% burden standard.¹⁵³

Table IV-2
LIHEAP and Program Funding
Compared to State-Level Need Statistics for 2005¹⁵⁴

State	Gross LIHEAP Allocation (millions)	Electric and Gas LIHEAP Share (millions)	Ratepayer-funded Programs (millions)	Total Need at the 5% Standard (millions)	Total Need at the 15% Standard (millions)	Total Coverage of 15% Need Standard
California	\$92	\$83	\$564	\$1,600	\$547	118%
Colorado	\$32	\$29	\$0	\$288	\$110	26%
Indiana	\$54	\$43	\$15	\$496	\$215	27%
Maine	\$32	\$5	\$6	\$68	\$28	39%

¹⁵³ [Note: This table is simply a way of comparing the level of funding across states. Since many programs do not target a percent of income and those that do often target a percent of income that is lower than 15%, the actual impact of each program is not to reduce the energy burden of households to 15% of income.]

¹⁵⁴ Sources: 2005 ACS (Estimated Need) and LIHEAP Clearinghouse (LIHEAP Funding)

State	Gross LIHEAP Allocation (millions)	Electric and Gas LIHEAP Share (millions)	Ratepayer-funded Programs (millions)	Total Need at the 5% Standard (millions)	Total Need at the 15% Standard (millions)	Total Coverage of 15% Need Standard
Maryland	\$34	\$28	\$30	\$291	\$144	40%
Missouri	\$48	\$39	\$1	\$606	\$231	17%
Nevada	\$4	\$4	\$13	\$148	\$69	25%
New Jersey	\$84	\$68	\$186	\$632	\$301	84%
Ohio	\$105	\$92	\$210	\$1,070	\$503	60%
Oregon	\$25	\$21	\$13	\$220	\$71	48%
Pennsylvania	\$146	\$107	\$191	\$1,040	\$491	61%
Washington	\$42	\$37	\$12	\$217	\$96	51%
Wisconsin	\$75	\$61	\$25	\$338	\$142	61%

Three factors have a significant impact on the estimated level of need and coverage.

1. Target Population – Some states have focused their programs on the lowest income households. For example, programs in Washington State cover 51% of the estimated need, in part because the program eligibility is restricted to 125% of poverty.
2. Need Standards - Some states have set need standards that are lower than 15% of income. For example, the New Jersey USF Program tries to limit electric and gas burden to 6% of income. The estimated total need for funding increases as the targeted percentage of income decreases.¹⁵⁵
3. Program Participation – Many states find that only 50% of eligible households participate. The estimated total need for funding decreases as program participation decreases.

Funding Source

There are three funding models that have been used with the ratepayer-funded low-income affordability programs that we studied.

- System Benefit Charge – In general, under an SBC system, there is a fixed surcharge on electric and/or gas service that is added to the bills of all customers of the targeted rate classes for all regulated utilities in the State.
- Rate Rider – In general, under a rate rider system, there is a fixed surcharge on electric and/or gas service that is added to the bills of all customers of the targeted rate class for the individual utility. The rider may or may not be changed on an annual

¹⁵⁵ Sometimes states set percentage of income burden targets at levels higher than are known to be “affordable.” In such cases, program designers acknowledge the need to balance affordability improvements and budget constraints.

basis to reflect a current program budget. The rider may or may not be reconcilable, with a true-up of program expenditures to the revenue collected for the program.

- Rates – In general, under a rates system, the utility base rates are set so as to include the costs of the low-income affordability program.

If one funds the program through an SBC or a rate rider, there are several ways to implement the charge.

- Customer Base – For some programs, all ratepayers contribute to the fund. For others, the surcharges are limited to residential customers. The broader the customer base subject to the surcharge, the less costly the surcharge is for any individual customer.
- Type of Charge – For some programs, there is a fixed surcharge for each account. For other programs, the surcharge is based on the volume of electricity or gas used. Some programs seek to meld these two approaches, with volumetric charges imposed subject to a cap.

The choice of funding source and funding type can have a significant impact on the nature of the program, as well as the direct cost of the program to ratepayers.

SBC funding offers the greatest flexibility for program funding. In general, under an SBC system, all regulated ratepayers in the state are charged for programs in the same way. Once the funds are collected, they can be used for program services at the utility level, or the funds can be consolidated into a statewide resource pool. In states where the economic status of ratepayers varies widely among utilities, a statewide pool is likely to equalize the cost of low-income affordability programs across ratepayers and ensure that the customers in the greatest need are served.

Both a SBC funding mechanism and a utility rate rider funding mechanism help to clarify the direct cost of programs to customers. Moreover, such a system makes the budget for the program clear and allows the program administrator (whether that is the state LIHEAP office, the utility, or a community based organization) to work to that budget. Further, using such a system, it is also possible to address issues related to program cost overruns (caused by higher than expected enrollment and/or greater than expected need) and/or cost underruns (caused by difficulties in enrolling customers) through a deferral account mechanism.

When programs are funded as part of base rates, the nature of the program is quite different. While a specific level of program commitment is often specified in the rate settlement agreement (e.g., a certain number of customers are to be enrolled in the program), there are many aspects of the program that will not be specified. Once base rates are set, it is in the interest of the utility to minimize costs. If that is interpreted as minimizing outlays for the low-income affordability program, there can be conflicts between program implementation strategies that result in the best program performance and program implementation strategies that result in the lowest nominal program cost.

On the other hand, some ratepayer advocates have suggested that SBC funded and rate rider funded program allow the utilities to collect for costs that are already included in rates. For example, an arrearage forgiveness program may reduce utility uncollectibles. But, a certain

level of utility uncollectibles are already included as part of base rates. If the low-income program reduces the cost of uncollectibles below the expected level, advocates suggest, the utility will receive a higher return than was planned in the rate settlement agreement.

As will be discussed in the Evaluation Section of the report, there is no definitive study that establishes how a ratepayer-funded low-income affordability program affects total costs for utilities. Some evaluations have attempted to measure these impacts. However, we have not found a study that has used an experimental design that is adequate to study this issue and yield definitive results.

C. Targeting

There are a number of different reasons that policymakers might wish to target certain groups of households. They include:

- Health Risks – Older individuals and young children are at greater risk of serious health consequences if service is disconnected or if homes are not kept warm in the winter and cool in the summer. The LIHEAP program explicitly targets these households. As a matter of public policy, there may be a reason to target these households with ratepayer-funded programs as well.
- Equity – If total program funding is limited, some policymakers feel that the lowest income households should be served first and receive higher benefits than those households that are higher income.
- Cost Avoidance – Some programs explicitly target payment-troubled customers. Program evaluation research has shown some programs can increase cash paid by a customer by reducing the payment requirement. Such programs can increase customer payments and can be designed to be cost neutral (program administration costs are offset by collection cost savings).

However, the different program targeting goals can conflict. There are two major issues that occur in targeting.

Issue #1 – Targeting payment-troubled households conflicts with targeting elderly households.

Discussion - Some ratepayer-funded programs target households that are behind on their energy bills. However, as we observed in Table III-5, only about 3% of elderly households had unpaid utility bills in 2003, while the average for all households was almost 9%. Therefore, any program that is either restricted to or targets payment-troubled households will be less likely to serve elderly households. However, the 2003 National Energy Assistance Survey demonstrated that 78% of elderly LIHEAP recipient households were classified as being “Vulnerable” or “In-Crisis” on the Energy Insecurity Scale. [Note: About 90% of nonelderly LIHEAP recipient households were in the “Vulnerable” and “In-Crisis” categories.] Low-income elderly households need ratepayer-funded programs but are served at lower rates by programs that target payment-troubled households.

Potential Solution(s) – The most significant problems occur when a program targets payment-troubled households **and** applies a restrictive definition for “payment-troubled” that requires the household to have a high level of arrears and/or a certain number of missed payments. PECO’s CAP program, however, allows customers to be classified as “payment-troubled” even if they do not have a history of payment problems. Another approach has been implemented by the Washington State LIRAP program. In that program, funding is allocated to three different programs – LIRAP Heat, Emergency Share, and Senior Outreach. Each program explicitly targets one of the three groups – low-income/high-burden, vulnerable, and payment-troubled.

Issue #2 – Targeting higher benefits to high-burden households appears to penalize households that conserve energy.

Discussion - Some ratepayer-funded programs target high burden households. While this approach targets the lowest income households, it also targets the households with the highest usage. Some advocates are concerned that such a program discriminates against households that have conserved energy by lowering their thermostats and being careful about use of their appliances. Such households would have a lower energy burden and would receive a lower benefit under many benefit computation procedures.

Potential Solution – A fixed payment percent of income program allows those households that have restricted their usage to a level that is unhealthy or unsafe to make modest and appropriate increases in their usage level. Because of the subsidy computation procedures, the subsidy would automatically adjust to account for the higher usage.

Table IV-3 shows the targeted customers for each of the programs in the study. Some programs do not explicitly target any group, while others have program components that explicitly target each group (WA-LIRAP). Among the programs studied, it is most common for the programs to target low-income and/or high burden households, usually by implementing a Percent of Income program.

**Table IV-3
Groups Targeted by Ratepayer-Funded Low-Income Programs for 2005**

Program	Vulnerable Households	Low-income / High Burden Households	Payment Troubled Households
CA-CARE			
IN-CGCU	X	X	
IN-NIPSCO			X
IN-Vectren	X	X	
MD-EUSP	X		
ME-MPS		X	
ME-CMP		X	
ME-BHE		X	
MO-Laclede			
MO-ELIR			

Program	Vulnerable Households	Low-income / High Burden Households	Payment Troubled Households
NJ-USF		X	
NV-EAP		X	
OH-PIPP(E)		X	
OH-PIPP(G)		X	
OR-EWEB	X		
OR-OEAP			X
PA-PECO			X
PA-PGW			
WA-LIRAP	X	X	X
WA-HELP			
WI-WHEAP	X		

D. Benefits

There are series of inter-related issues in the development of benefit computation and distribution procedures for ratepayer-funded programs that present major challenges in program design and implementation. The challenges include:

- Design Consensus – It is difficult to obtain consensus on the best approach among interested parties.
- Implementation – Benefit determination procedures often require the development of complex information systems.
- Client Understanding – Benefit determination formulas are often difficult for clients to understand.

In this part of the report, we review some of the alternative approaches and identify the advantages and disadvantages of each.

Coordination with LIHEAP

Every State has a LIHEAP program. Since that program already has an infrastructure for delivering benefits to low-income households, many ratepayer-funded programs have chosen to either integrate or coordinate the delivery of benefits with LIHEAP. Several options are available, including:

- Full Integration – Ratepayer funds collected for low-income affordability programs can be transferred to the state LIHEAP office for distribution. For example, in Wisconsin, about \$25.4 million in ratepayer funds were added to the WHEAP program, mainly to assist with electric bills for low-income households.

- Coordination – Ratepayer funds collected for low-income affordability programs can be coordinated with state LIHEAP benefit computation in some way. For example, in New Jersey, the USF program looks at the household's net energy bill (energy bill minus LIHEAP grant) in computing the USF benefit.
- Automatic Enrollment / Presumptive Eligibility – Information from the LIHEAP program can be used to enroll households in the ratepayer-funded program (CA-CARE) or can be used as an indicator that the household does not need to furnish any other program eligibility documentation (PA-PECO/CAP).

There are several important advantages to establishing a relationship between the LIHEAP program and the ratepayer-funded low-income program.

- Efficiency – By taking advantage of the LIHEAP infrastructure, it is likely to be less expensive to implement a low-income program.
- Equity – By accounting for LIHEAP benefits, there is greater equity among the households that receive benefits.
- Procedures – Since the LIHEAP program already has procedures in place for client outreach, intake, and eligibility determination, it may simplify the program design procedures.
- Program Integrity – A state's LIHEAP program will have procedures in place that ensure the fiscal integrity of the program.

At the same time, it is important to consider that the LIHEAP program and the ratepayer-funded program may have different goals, and that the utility may have some information on and connections to clients that are not available to the LIHEAP office.

- Program Goals – The goal of the LIHEAP program is to assist low-income households with their home heating and home cooling costs. An electric ratepayer-funded program may be more targeted to the use of electricity for water heating and/or appliances.
- Energy Usage – The utility will have information on the household's energy burden. Comparatively few state LIHEAP offices obtain that information for the purposes of establishing a benefit.
- Payment Problems – The utility Collections Department will have information on the payment history for a low-income household and can target those households that are having difficulty paying their energy bills.

Given the value that each organization brings to a program to serve low-income households, collaboration between the state LIHEAP office and affected utilities companies can result in a program is very effective in serving low-income households. The NJ USF program offers one model. In that program, the following relationship has been developed.

- Application – There is a joint application for LIHEAP and the USF program.

- Information Sharing – The utility companies refer payment-troubled customers to the program and electronically furnish information on energy usage to the LIHEAP office.
- Benefit Determination – The LIHEAP Office sets the USF benefit, taking into account the household’s LIHEAP grant, and electronically furnishes information to the utility on the household’s USF benefit.
- Benefit Distribution – The utility credits the benefit to the customer’s account and is reimbursed by the USF program fund for the benefit amount.
- Program Statistics – The LIHEAP Office and the utilities jointly furnish program reports to the NJ BPU.

In addition, the LIHEAP Office and the utilities work together with the NJ BPU on a Working Group to discuss both USF policies and USF technical issues.

Table IV-4 shows that, while there has been extensive use of the LIHEAP infrastructure to enroll clients in ratepayer-funded programs, only a few programs explicitly coordinate benefits between the two programs. In fact, only in Wisconsin is there direct integration of the benefit streams from the Federal LIHEAP funds and the ratepayer funds. [Note: We are aware that the Illinois LIHEAP funds are integrated with ratepayer funds as well.]

Table IV-4
Relationship of LIHEAP and Ratepayer-Funded Programs

Program	Integration of Benefits	Coordination of Benefits	Referral and/or Automatic Enrollment	Limited
CA-CARE				X
IN-CGCU			X	
IN-NIPSCO		X		
IN-Vectren			X	
MD-EUSP			X	
ME-MPS			X	
ME-CMP			X	
ME-BHE			X	
MO-Laclede				X
MO-ELIR				X
NJ-USF		X		
NV-EAP		X		
OH-PIPP(E)			X	
OH-PIPP(G)			X	
OR-EWEB			X	

Program	Integration of Benefits	Coordination of Benefits	Referral and/or Automatic Enrollment	Limited
OR-OEAP			X	
PA-PECO				X
PA-PGW				X
WA-LIRAP		X		
WA-HELP		X		
WI-WHEAP	X			

Computation of Benefits

Programs use a variety of methods for computing program benefits. They fall into three general classes.

- **Percent of Income** – In these programs, a client is assigned an “affordable bill” that is a percent of income (e.g., in a 5% of income program, a household with \$10,000 in income is assigned an “affordable bill” of \$500.). The client’s benefit is estimated as the total bill minus the affordable amount (e.g., if the actual bill is \$740 and the “affordable bill” is \$500, the benefit is \$240). [Note: In some programs, the program benefit is limited to some maximum benefit amount.]
- **Rate Discount** – In these programs, a client is granted a discount on rates. For example, the CA-CARE rate discount is 20%. So, while the nominal rate might be 10 cents per kWh, a CARE customer would be charged 8 cents per kWh. [Note: Several variations are possible. The PA-PECO program varies the discount amount by poverty level and limits the number of kWh discounted. The CA-CARE program exempts participating customers from high usage surcharges.]
- **Benefit Matrix** – In these programs, a benefit amount (or a rate discount) is set based on a number of factors. For example, the IN-CGCU program assigns points to a customer based on the customer characteristics. The rate discount is higher customers who receive more points.

The single most important advantage of the Percent of Income approach is that it directly targets a customer’s benefit to a measure of need. In general, households with higher energy burdens have a greater difficulty paying their energy bills. This program gives higher benefit to customers whose bills represent a higher percentage of income. However, some utilities find it difficult to implement a Percent of Income plan, particularly if it also involves a fixed payment in which the subsidy varies each month.

The advantage of the Rate Discount program is administrative simplicity. A rate discount is easier for a utility to implement, since most utilities already have different rates for different types of customers. The disadvantage of this approach is that tends to give higher income customers a larger benefit.

Example: Customer #1 has an income of \$20,000 and an energy bill of \$1,000 (5% of income). Customer #2 has an income of \$10,000 and an energy bill of \$800 (8% of income). With a Percent of Income program targeted at 5% of income, Customer #1 would receive no benefit and Customer #2 would receive a benefit of \$300; both customers would pay 5% of income after the program. With a 20% rate discount program, Customer #1 would receive a \$200 benefit and Customer #2 would receive a \$160 benefit. Net energy burden for Customer #1 would be 4% of income and for Customer #2 would be 6.6% of income. Under the Rate Discount Program, the higher income customer would receive a higher benefit and end up with a lower energy burden than Customer #1.

The advantage of the benefit matrix approach is that it allows the program to account for different factors that may contribute to a customer's need for the program. For example, the IN-CGCU program looks at the household's percent of poverty, income, dwelling type, and vulnerability status. The disadvantage of this type of computation procedure is that it is difficult to understand the relationship of any one factor to the level of benefit.

Table IV-5 shows the benefit computation procedure used for each of the 21 programs studied. There is considerable variation among the program in terms of the type of benefit computation procedure used.

**Table IV-5
Benefit Computation Procedure for Ratepayer-Funded Programs**

Program	Percent of Income	Rate Discount	Benefit Matrix
CA-CARE		X	
IN-CGCU		X	
IN-NIPSCO			X
IN-Vectren		X	
MD-EUSP			X
ME-MPS			X
ME-CMP	X		
ME-BHE		X	
MO-Laclede			X
MO-ELIR			X
NJ-USF	X		
NV-EAP	X		
OH-PIPP(E)	X		
OH-PIPP(G)	X		
OR-EWEB	X		
OR-OEAP			X
PA-PECO		X	
PA-PGW	X		

Program	Percent of Income	Rate Discount	Benefit Matrix
WA-LIRAP			X
WA-HELP			X
WI-WHEAP			X

Level of Benefits

If it is determined that a program will have fixed funding, setting the benefit level is particularly important. While a higher benefit level may improve the performance of the program in addressing the needs of program participants, it also may limit the number of households that can participate.

- Benefits for Percent of Income Programs – If the benefit for a program is computed using a percent of income, the size of the program benefit will be determined by the target percent of income. For example, the NJ USF program targets an electric and gas energy burden of 6% of income. By comparison, the PA-PGW gas program varies the percent of income by Poverty Group, with 8% for the lowest income group, 9% for the middle group, and 10% for the highest income group.
- Benefits for Rate Discount Programs – In these programs, a client is granted a discount on rates. Discounts range from 9% for the highest income group in the IN-CGCU program to 85% for the lowest income group in the PA-PECO program.
- Benefits for Benefit Matrix Program – In these programs, a benefit amount is set based on a number of factors.

Table IV-6 shows the distribution of average annual benefits for the programs studied. The benefits range from \$121 to \$1,105.

**Table IV-6
Average Annual Benefits for Ratepayer-Funded Programs**

Program	Percent of Income	Rate Discount	Benefit Matrix
CA-CARE		\$176	
IN-CGCU		\$121	
IN-NIPSCO			\$368
IN-Vectren		\$230	
MD-EUSP			\$410
ME-MPS			\$170
ME-CMP	\$285		
ME-BHE		\$168	
MO-Laclede			\$178
MO-ELIR			\$160
NJ-USF	\$626		

Program	Percent of Income	Rate Discount	Benefit Matrix
NV-EAP	\$715		
OH-PIPP(E)	\$434		
OH-PIPP(G)	Not available		
OR-EWEB	Not available		
OR-OEAP			\$321
PA-PECO		\$317 electric / \$99 gas	
PA-PGW	\$1,105		
WA-LIRAP			\$354
WA-HELP			\$344 electric / \$442 gas
WI-WHEAP			\$439 heating / \$159 electric

Benefit Distribution

The benefit distribution procedures are one of the most important elements of a program design. As is discussed in Section V of the Report, the benefit distribution procedure can have a significant impact on program effectiveness. The options for benefit distribution include:

- Fixed Monthly Payment – Most often associated with the Percent of Income plan, fixed payment programs ask a client to pay the same amount each month for the service. For example, in the PA-PGW program, the low-income households are asked to pay 8% of income for gas service. If a household has an annual income of \$12,000 (\$1,000 per month), they are asked to pay \$80 per month for gas service. The subsidy varies depending on the customer's retail bill.
- Fixed Monthly Credit - In these programs, the client's annual benefit is computed and then divided by 12 and paid on a monthly basis. If a household's expected benefit is \$600, the household is granted a credit of \$50 each month. In some programs, particularly for heating programs, the fixed credit is paid only during the winter months to offset high winter bills.
- Monthly Rate Discount – In these programs, the client receives a benefit based on the amount used each month.
- Fixed Annual Credit – In these programs, the client's computed benefit is paid in a one-time lump sum.

One important consideration in determining the benefit type is to understand who bears the risk for changes in price and/or weather.

- Under a fixed payment model, the client is insulated from price increases and/or more severe weather. Even if the retail bill increases, the client's payment amount stays the same.

- Under the fixed credit model (either monthly or annual), the client bears all of the risk for price increases and/or more severe weather. No matter how the retail bill changes, the client gets the same benefit.
- Under the rate discount model, the client and the program each bear some risk. If the client receives a 50% discount, they pay half of any increase and the program pays the other half.

Using a similar analysis, the fixed credit model give a client the greatest benefit from usage reduction, while the fixed payment model does not give the client any benefit from reducing usage unless they leave the program.

Probably the strongest reason to adopt the fixed payment model is to ensure that a client has a predictable energy bill. Given the other financial challenges faced by low-income households, having a constant energy bill may improve energy affordability.

Some analysts are concerned that having a fixed payment will encourage clients to “waste” energy. However, as discussed in Section V, evaluations of fixed payment programs have consistently demonstrated that program participants do not increase usage.

Table IV-7 shows the type of benefit distribution procedures used by the programs studied.

Table IV-7
Benefit Distribution Type for Ratepayer-Funded Programs

Program	Annual Credit	Monthly Credit		
		Fixed Payment	Fixed Credit	Rate Discount
CA-CARE				X
IN-CGCU				X
IN-NIPSCO	X			
IN-Vectren				X
MD-EUSP			X	
ME-MPS	X			
ME-CMP		X		
ME-BHE				X
MO-Laclede			X	
MO-ELIR			X	
NJ-USF			X	
NV-EAP	X			
OH-PIPP(E)		X		
OH-PIPP(G)		X		
OR-EWEB			X	
OR-OEAP	X			

Program	Annual Credit	Monthly Credit		
		Fixed Payment	Fixed Credit	Rate Discount
PA-PECO				X
PA-PGW		X		
WA-LIRAP	X			
WA-HELP	X			
WI-WHEAP	X			

Arrearage Forgiveness

Many programs have some procedure for arrearage forgiveness. In some programs, the benefits are targeted to customers with arrears. However, even when the program is not limited to payment-troubled customers, we still find that a substantial number of program participants start the program with arrears. If the program is able to reduce a customer's bill to an affordable level, but does not address outstanding arrears, this can result in ongoing payment problems for the customer.

Programs with arrearage forgiveness components have used one of three general approaches.

- Complete Forgiveness – Forgiveness of all preprogram arrears, either at the start of the program or when a certain number of regular payments have been made.
- Forgiveness Matching – Forgiveness of a certain amount of preprogram arrears for each payment made on arrears by the customer.
- Preprogram Arrearage Payment Plan – Full payment of the preprogram arrears by the customer, but over an extended period of time.

The most important goal of an affordability program is to make energy bills affordable for low-income customers. However, a complementary goal is to re-establish the ability of low-income customers to pay their energy bills consistently. Forgiveness programs for preprogram arrears support both of those goals. The choice of the forgiveness program model has much to do with one's beliefs with respect to affordability and incentives.

- Complete Forgiveness – A complete forgiveness model is preferred by those who believe that the preprogram arrears are caused by unaffordable bills and that any additional charge on the affordable payment given to a customer will cause further arrears.
- Forgiveness Matching – This model is preferred by those who believe that client payment behaviors are partially responsible for the level of preprogram arrears and that by "earning" arrearage forgiveness the client will develop a new level of understanding of the need to make consistent payments.

- Payment Plan – This model is preferred by those who believe that the client should bear complete responsibility for preprogram payment patterns.

Table IV-8 furnishes information on the preprogram arrearage forgiveness model used by each program. About half of the programs studied have some form of arrearage forgiveness plan.

Table IV-8
Pre-Program Arrearage Forgiveness Model for Ratepayer-Funded Programs

Program	Complete Forgiveness	Matching or Partial Forgiveness	Payment Plan or None
CA-CARE			X
IN-CGCU			X
IN-NIPSCO		X	
IN-Vectren			X
MD-EUSP		X	
ME-MPS			X
ME-CMP			X
ME-BHE			X
MO-Laclede		X	
MO-ELIR			X
NJ-USF	X		
NV-EAP	X		
OH-PIPP(E)		X	
OH-PIPP(G)		X	
OR-EWEB		X	
OR-OEAP			X
PA-PECO	X		
PA-PGW	X		
WA-LIRAP		X	
WA-HELP			X
WI-WHEAP			X

E. Program Operations

There are a number of program operations decisions that affect both the accessibility and the efficiency of a low-income program. The issues include:

- Program Administration – Is the program operated by the State LIHEAP Office, the utility, or by a third-party administrator hired by the Public Service Commission?
- Certification and Recertification – What are the requirements for qualifying for the program and for continuing to qualify for the program over the longer run?
- Benefit Period – How long is the client eligible to receive program benefits?

In this part of the report, we examine alternative decisions on these issues and discuss some of the advantages and disadvantages of each.

Program Administration

When a program has been authorized, the legislation and/or the Public Service Commission must determine what organization will administer the program. Statewide programs can be administered by either the state LIHEAP office or by utility companies. However, when programs are restricted to a specific utility service territory, they are always administered by the utility company. [Note: An alternative is for the Public Service Commission to engage a third-party as a program administrator. The New Hampshire Electric Assistance Program has been implemented in this fashion. In addition, there are a number of energy efficiency programs administered under this model.]

Programs Administered by State LIHEAP Offices

A number of statewide low-income affordability programs are administered by State LIHEAP offices. The advantages include:

- Infrastructure – The State LIHEAP Program has an existing infrastructure for program operations and benefit distribution. The ratepayer-funded affordability program can take advantage of that infrastructure and potentially reduce program administrative costs.
- Coordination of Benefits – When the State LIHEAP Office administers the program, it is easier for the ratepayer-funded program to coordinate benefits.
- Outreach – To the extent that the State LIHEAP Office has an existing outreach program that reaches households in need, the ratepayer-funded program can potentially reach households in need more efficiently.
- Fiscal Integrity – The State LIHEAP Office will have existing procedures to verify income eligibility for participating households.
- Automatic Enrollment – Some State LIHEAP Offices have been able to automatically enroll households from a number of different low-income programs in ratepayer-funded low-income programs.

Programs operated by State LIHEAP Offices have the potential to have lower administrative costs and to enroll more households more quickly than new programs initiated and administered by utility companies.

Programs Administered by Utility Companies

Many low-income programs are administered by utility companies. In some cases, the utility company directly enrolls customers and delivers all program services. In others, the company works with local community service agencies on some aspects of the program. The advantages include:

- **Linkage to Collections** – The utility can directly link program enrollment to collections activity. If the utility properly trains collections staff, the staff can identify low-income customers who are having difficulty paying their energy bill and can offer program enrollment as an alternative.
- **Targeting** – Since utility staff have direct access to energy usage information, they can target program benefits to households with the highest energy burdens and/or the highest energy usage.
- **Coordination of Benefits and Program Services** – Some utility companies contract with local community service agencies to enroll clients and give agency staff direct access to utility payment records. By doing so, these programs are able to both coordinate benefits (since the local agency is aware of benefits received through other programs) and target benefits to the highest burden households.

One additional benefit of utility program administration is that, by working with low-income customers in this proactive way, the utility can improve its relationship with the community and its low-income customers.

Analysis of Existing Programs

Table IV-9 furnishes information on the program administration approach used by the programs included in our study. Eight of the 21 programs are administered by the State LIHEAP office, eight are administered by utilities, but use local agencies for enrollment, and five programs are directly administered by utility staff.

**Table IV-9
Program Administration for Ratepayer-Funded Programs**

Program	State LIHEAP Office	Utility with Local Agency Intake	Utility with Utility Intake
CA-CARE			X
IN-CGCU		X	
IN-NIPSCO		X	
IN-Vectren		X	
MD-EUSP	X		
ME-MPS	X		
ME-CMP	X		
ME-BHE	X		

Program	State LIHEAP Office	Utility with Local Agency Intake	Utility with Utility Intake
MO-Laclede		X	
MO-ELIR			X
NJ-USF	X		
NV-EAP	X		
OH-PIPP(E)	X		
OH-PIPP(G)		X	X
OR-EWEB		X	
OR-OEAP	X		
PA-PECO			X
PA-PGW			X
WA-LIRAP		X	
WA-HELP		X	
WI-WHEAP	X		

Program Certification and Recertification

Policymakers are concerned with the fiscal integrity of ratepayer-funded low-income programs. As part of the focus on fiscal integrity, programs have certification procedures to determine whether a customer meets the eligibility requirements and recertification procedures to ensure that customers remain eligible after a certain period of time. However, while those procedures help to ensure the fiscal integrity of the program, they also are a barrier to program enrollment by eligible customers.

There tend to be three different levels of program eligibility certification.

- Comprehensive Certification – Most LIHEAP programs require clients to furnish a comprehensive set of certification documents that furnish information on the ages and employment status of all household members, all sources of income, participation in other assistance program, and proof of residency status.
- Income Certification – Some utility certification procedures are less complex and focus mainly on obtaining income verification documents. Since a utility will often only enroll the “customer of record” on an account, they are not as concerned about proof of residency.
- Self-Certification – The California CARE program has aggressively pursued enrollment of eligible customers. The CARE program asks customers to certify that their income is at or below a certain level, but does not require those customers to submit an income verification documents.

The advantage of comprehensive certification is that it provides the highest level of fiscal integrity for the program by establishing barriers to enrollment of ineligible customers.

However, barriers for ineligible customers are also barriers for eligible customers, since it is often time-consuming and difficult for customer to obtain all of the required documents.

Programs have used two procedures to improve customer enrollment rates.

- **Presumptive Eligibility** – Often, a program will use proof of certification for a similar low-income program (e.g., LIHEAP, Medicaid, Food Stamps) as verification that the household is eligible for the ratepayer-funded affordability program.
 - **Certification** – If this procedure is used during the certification process, it allows the customer to submit one document rather than many for program enrollment.
 - **Recertification** – If this procedure is used during the recertification process, it can eliminate the need for clients to submit any documents at all. By matching program participants to participant lists for other assistance programs, customers can be automatically recertified for the program.
- **Automatic Enrollment** – In some programs, participants of other energy assistance programs and/or other public assistance programs have been automatically enrolled by matching utility records to assistance program records and screening the assistance program records to determine eligibility. New Jersey enrolled more than 100,000 low-income customers in the USF program using this procedure.

Table IV-9 furnishes information on the program certification and recertification approach used by the programs included in our study. Most programs use a comprehensive certification process, including both income verification and other certification processes. Five of the 21 programs are operated by utilities and focus mainly on income verification. Only the California CARE program uses a self-certification procedure. Ten of the programs have either a joint application or use LIHEAP participation as evidence of eligibility for the program. New Jersey used automatic enrollment in its original program, but is not currently using that procedure. The Ohio Electric PIPP, PECO's CAP program, and PGW's CRP program automatically recertify active participants who enrolled in LIHEAP.

Table IV-10
Program Certification and Recertification for Ratepayer-Funded Programs

Program	Complete Certification	Income Verification	Self-Certification	Program Uses Presumptive Eligibility or Joint Application	Program Uses Automatic Enrollment
CA-CARE			X		
IN-CGCU	X			X	
IN-NIPSCO		X			
IN-Vectren	X			X	
MD-EUSP	X			X	

Program	Complete Certification	Income Verification	Self-Certification	Program Uses Presumptive Eligibility or Joint Application	Program Uses Automatic Enrollment
ME-MPS	X				
ME-CMP	X				
ME-BHE	X				
MO-Laclede	X			X	
MO-ELIR		X			
NJ-USF	X				X
NV-EAP	X				
OH-PIPP(E)	X			X	X
OH-PIPP(G)		X		X	
OR-EWEB	X				
OR-OEAP	X			X	
PA-PECO		X		X	X
PA-PGW		X		X	X
WA-LIRAP	X				
WA-HELP	X				
WI-WHEAP	X			X	

Program Benefit Period

Fourteen of the program in the study offered customers an ongoing monthly benefit (see Table IV-7). For such programs, it must be determined whether the program benefits are for a fixed period of time (e.g., twelve months), or whether receipt of program benefits is subject to certain program requirements (e.g., maintaining payments). Table IV-11 shows that about half of the program have a fixed benefit period and in half of the programs clients lose their benefits if they miss a certain number of payments.

**Table IV-11
Benefit Period for Ratepayer-Funded Programs**

Program	Annual Benefit	Fixed Benefit Period	Removal for Nonpayment
CA-CARE		X	
IN-CGCU		X	
IN-NIPSCO	X		
IN-Vectren		X	

Program	Annual Benefit	Fixed Benefit Period	Removal for Nonpayment
MD-EUSP			X
ME-MPS	X		
ME-CMP		X	
ME-BHE		X	
MO-Laclede			X
MO-ELIR			X
NJ-USF		X	
NV-EAP	X		
OH-PIPP(E)			X
OH-PIPP(G)			X
OR-EWEB			X
OR-OEAP	X		
PA-PECO		X	
PA-PGW		X	
WA-LIRAP	X		
WA-HELP	X		
WI-WHEAP	X		

F. Findings and Recommendations

Our research has demonstrated that there are many different options for designing programs. For each program that we studied, policymakers in that jurisdiction chose to exercise their judgment on what combination of design elements are best suited to their program, their clients/customers, and their circumstances. All of the programs successfully enrolled customers, delivered benefits, and made energy bills more affordable for low-income households. However, the program design choices do affect the way that a program performs, and the way that it affects both low-income customers and the utilities involved in the programs. Our analysis suggests that policymakers have important choices to make with respect to the key design elements.

- Program Funding
 - Program Funding Level – Policymakers must determine whether they will set a limit on program funding or serve all eligible customers with a fixed set of program benefits. While a program funding limit allows policymakers to project how the program will affect ratepayers, a fixed program benefit offers greater equity in treating all eligible customers in the same way.
 - Program Funding Source – A systems benefit charge (SBC) gives policymakers the greatest flexibility in terms of contracting for services and

delivering benefits across utility service territories. However, since most utilities have included the costs of write-offs and collections activities in their existing base rates, some advocates suggest that funding programs through base rates results in the lowest costs for ratepayers.

- Targeting – If policymakers have specific policy goals and/or the regulatory framework requires that the program to focus on certain customers, the program will be targeted to certain kinds of customers. In the absence of such requirements, program managers will need to conduct outreach to certain groups (e.g., elderly, households that speak a language other than English at home) if they hope to serve all customers who need the program.
- Program Benefits
 - Coordination with LIHEAP – Each state LIHEAP program delivers benefits to low-income ratepayers. Coordination with LIHEAP can help to reduce administrative expenses, improve the equity of programs at the state level, and simplify program design.
 - Computation of Benefits – Programs have used percent-of-income calculations, rate discounts, and benefit matrixes to set program benefit levels. Each approach has certain advantages; it is important for policymakers to understand the trade-offs associated with these options to ensure that the program is meeting policy goals.
 - Level of Benefits – The benefits made available to clients in the programs we studied range from about \$121 to \$1,105 per year. Higher program benefits may have a greater impact on clients. However, all programs are viewed as important by clients and even relatively small benefit levels delivered important affordability benefits.
 - Benefit Distribution – As will be discussed in Section V, benefit distribution procedures are extremely important. They have a significant impact on client risks and responsibilities. They also appear to have some impact on program success rates. Policymakers must be careful to choose the payment distribution procedure that best meets their policy goals.
 - Arrearage Forgiveness – Program often attempt to resolve payment problems. Arrearage forgiveness programs are an important program element for customers who enter a program with significant arrearages.
- Program Operations
 - Program Administration – Some programs are operated by state LIHEAP offices and others are operated by individual utility companies. Utility companies often contract with local community organizations for certain program services. There are advantages to each approach that must be considered in program design and implementation.

- Program Certification and Recertification – Policymakers must consider trade-offs between program fiscal integrity and customer participation barriers in designing certification and recertification procedures.
- Program Benefit Periods – When a program offers a customer a monthly benefit, it is important to consider whether receipt of the benefit will be contingent on consistent customer payments. While payment requirements may be an incentive for improved payment rates, they are administratively complex and result in many clients losing program benefits.

In the next section, we examine evaluations of affordability programs. Some of the evaluation findings may help policymakers select the program design options that best meet the needs of clients in their jurisdictions.

V. Affordability Program Evaluation

This section of the report reviews the results of affordability evaluations that have been conducted on the programs that are being researched in this study. As part of our data collection, we requested copies of evaluations that had been conducted and reviewed all reports that were received. The purpose was to develop information on the performance of the affordability programs included in this study.

The availability of evaluation information differed greatly by state and program. Many programs have not been evaluated, and the evaluations that have been conducted differed in terms of the scope and detail of the study. Pennsylvania's Public Utility Commission has developed a list of standard evaluation questions that all of the evaluations must address, and therefore these evaluations contain comparable information that describes the performance of the programs on a number of key dimensions. The NJ Universal Service program also included these questions when developing their evaluation requirements. As a result, these studies have the most complete data to address issues that are described in this section.

One of the goals of this evaluation review was to assess whether program performance indicators were related to the program design parameters. Because the program design parameters vary on so many dimensions and because few evaluation reports contain a comparable set of performance metrics, the extent to which program design could be definitively linked to program performance was limited. However, where possible, we compare and contrast evaluation findings and relate the findings back to program design options, utilizing both the performance indicators summarized in this document and our experience studying the design and implementation of these programs.

When reviewing the results of the evaluations, it is important to consider the program participants and analysis years that are included in the study. Programs evolve over time, electric and gas prices have increased, and other environmental factors have changed. Therefore, evaluations conducted today might yield results that are significantly different than some of those done only a few years ago. This review of the evaluation reports is helpful because it sets realistic expectations for what may be achieved by implementing affordability programs and provides insight on how various program models perform.

A. *Affordability Program Evaluation*

The Bureau of Consumer Services (BCS) of the Pennsylvania Public Utility Commission (PUC) has worked with utilities and interest groups in Pennsylvania to develop standard evaluation questions to guide Universal Services Program evaluations. These evaluations focus on the energy affordability programs, known in Pennsylvania as Customer Assistance Programs (CAP), but also review other low-income energy programs including the energy efficiency program known as the Low-Income Usage Reduction Program (LIURP). The evaluation questions are useful in framing affordability program evaluation research, and are listed below.

1. Is the appropriate population being served?
2. What is the customer distribution for each program by poverty guidelines?

3. What are the barriers to program participation?
4. What is the distribution of customers by payment plan?
5. What are the barriers to program re-certification?
6. What are the CAP retention rates and why?
7. Is there an effective link between participation in CAP and participation in energy assistance programs?
8. How effective are CAP control features at limiting program costs?
9. How effective is the CAP and LIURP link?
10. Does CAP participation improve payment behaviors?
11. Does participation in Universal Service Programs reduce arrearages?
12. Does participation in Universal Service Programs decrease service terminations?
13. Does participation in Universal Service Programs lower collection costs?
14. How can Universal Service Programs be more cost-effective and efficient?

The following evaluation activities usually need to be undertaken to answer the questions posed by the PA PUC.

1. *Program Administration Research* – Interviews are conducted with program managers and staff to confirm the scope of the evaluation, obtain relevant program documentation, identify key program informants, and target critical data sources. All program documents are reviewed to develop an in-depth understanding of detailed program design elements, program procedures, and program requirements.
2. *Program Operations Research* – Interviews are conducted with program operations staff and call center and contractor staff to assess whether program procedures are operating as intended. Service delivery procedures are observed to assess whether specific goals are being met during intake, service delivery, and follow-up. Statistics on program operations are developed.
3. *Customer Needs Assessment* – Data from the American Community Survey and the program's database are used to develop information on the number of customers who are eligible for the program and to assess the needs of customers for each program.
4. *Customer Interviews* – Program participants are contacted to assess the efficiency and effectiveness of program operations. Recent participants are contacted to assess the reasons for current nonparticipation. Non-participants who are eligible for program services are contacted to identify potential program barriers.
5. *Data Retrieval* – Systems are developed to obtain payment, usage, arrearage, and collections information for participants and non-participants.
6. *Data Analysis* – Demographic characteristics, retention rates, recertification rates, arrearage forgiveness, and the impact of the program on affordability, payment behavior, arrearages, service termination, collection costs, and energy usage are analyzed.

The comprehensive set of questions prepared by the BCS present a thorough approach to the development of an evaluation that can assess the performance of the affordability program.

B. Affordability Program Evaluation Reports Reviewed

Ten independent affordability evaluations were reviewed for this report. Table V-1 lists the states, programs, reports, authors, report dates, and program years studied for each of these reports. All of the evaluations were reported between 2003 and 2006, and cover 2001 through 2005 program participants.

**Table V-1
Affordability Evaluations**

State	Program	Report Title	Author	Report Date	Program Year Studied
IN	NIPSCO Winter Warmth	Impact Evaluation of NIPSCO Winter Warmth Program	Roger Colton	08/05	CY 2005
MD	Electric Universal Service Program	Electric Universal Service Program Evaluation	PA Government Services	10/06	PY 2005
MO	Experimental Low-Income Rate	The Impact of Missouri Gas Energy's Experimental Low-Income Rate (ELIR) On Utility Bill Payments by Low-Income Customers	Roger Colton	10/03	2002-2003
NV	NV Fund for Energy Assistance and Conservation	State Fiscal Year 2005 Evaluation of the NRS 702 Energy Assistance Program and Weatherization Assistance Program	H. Gil Peach & Associates	05/06	SFY 2005
NJ	Universal Service Program	Impact Evaluation and Concurrent Process Evaluation of the New Jersey Universal Service Fund	APPRISE	04/06	FY 2005
OR	Energy Assistance Program	Oregon Energy Assistance Program Evaluation	Quantec	01/03	2001-2002
OR	Eugene Water and Electric Board - USP	2002 Low-Income Assistance Programs Evaluation	Quantec	08/03	CY 2002
PA	PECO Customer Assistance Program	PECO Energy Universal Services Program Final Evaluation Report	APPRISE	04/06	CY 2003
PA	PGW Customer Responsibility Program	PGW Customer Responsibility Program Final Evaluation Report	APPRISE	02/06	CY 2003
WI	Wisconsin Home Energy Assistance Program	Year 3 Low-Income Program Evaluation Report	PA Government Services	10/04	FFY 2004

C. Affordability Program Targeting

The needs analysis conducted in this study showed that there are over 7 million households in the U.S. with an energy burden above 15 percent. Despite the over \$4.5 billion in Federal and ratepayer utility assistance program funding, there are not enough funds to meet the full need for energy assistance. Therefore, it is important that programs target

resources where they can provide the greatest benefits. Table V-2 examines information from affordability evaluations on how program benefits have been targeted.

Table V-2
Characteristics of Households Served by Affordability Programs

Program	% of Eligible Served	Poverty Level		Children	Elderly	Energy Burden	
		FPL	% of Participants				
MD: EUSP	33%			25%	33%	25% total burden 16% electric burden	
NJ: USF	45%	<=100%	49%	13%	37%	Electric burden: <10%: 66% 10-15%: 15% >15%: 19%	Gas burden: <10%: 45% 10-15%: 23% >15%: 32%
		101-150%	32%				
		>150%	19%				
PA: PECO CAP	45%	<=100%	55%	56%	20%	Combination: 16.2% Electric only: 11.0%	
		101-150%	29%				
		>150%	7%				
PA: PGW CRP	30%	<=100%	72%	27%	8%*	15.5% gas burden	
		101-150%	26%				
WI: WHEAP		<75%	50%			20% total burden	

*PGW has a grandfathered senior discount program. Many of their seniors participate in this program, rather than in the CRP.

Key findings include:

- Percent of eligible population served:* Evaluation data showed that only one third to less than one half of the eligible households are served by these programs. The NJ USF program serves a high proportion of households because of the linkage with LIHEAP and other programs; all LIHEAP and Food Stamp program participants are automatically enrolled in the NJ USF program. PECO's CAP manages to also serve 45 percent of the income-eligible households, partially due to the fact that the program does not restrict benefits to households with an energy burden above a certain level. While the PGW CRP serves 30 percent of the income-eligible population, program participation continues to increase steadily, despite the longevity of the program. PGW also has a separate program for elderly low-income households. It appears that many low-income elderly households prefer the senior discount to the CRP.
- Poverty Level:* Analysis of the poverty level of program participants showed that most programs are targeting those who have the lowest income level. By comparison, because the NJ USF uses auto-enrollment for all LIHEAP recipients, and does not limit the program to those who are behind in their utility bills, they have a larger share of participants with income above 100% of the FPL than do the other programs.
- Elderly Participants:* In most states elderly households make up approximately 30 percent of the low-income households. However, in some of the programs shown in this table, the elderly represent a much smaller percentage of the population served. Seniors represented 37 percent of the NJ USF participants, as this program originally provided automatic enrollment for all seniors who participated in the Lifeline program, a utility discount program for low-income seniors in NJ. However, at this time, automatic screening of Lifeline clients has been discontinued. The NJ USF evaluation estimated

that in the absence of the Lifeline automatic enrollment, the participation rate by elderly households would have been about half of the rate for the average eligible household. Elderly households represent only eight percent of participants in the PGW CRP program. However, PGW has another program (that no longer is enrolling new households) for elderly households called the Senior Discount, and approximately 65,000 elderly households participated in this program in 2004.

- *Energy Burden:* The table shows that the programs are serving customers with high average energy burdens. Average total burdens range from 16 percent for the PECO CAP to 25 percent for the Maryland EUSP. The NJ program serves some of the lower burden households since the program enrolls all LIHEAP households with net electric or gas burden over three percent of income.

D. Affordability Program Retention and Recertification

Table V-3 examines program retention and recertification rates. Some of the programs studied remove customers from the program when they do not pay their bills. Others do not remove customers from the program. Most of the programs require customers to verify their program eligibility every year or every other year if they participate in LIHEAP. Table V-3 shows that recertification is a challenge for these programs. While most customers remain in need for program assistance, only 40 to 65 percent reenroll or recertify.

Table V-3
Affordability Program Retention and Recertification

Program	Retention Rate	Recertification Rate
MD – EUSP	100% (no removal)	65% reapplied
NJ – USF	100% (no removal)	44% reenrolled
PA – PECO CAP	96% remain for 12 months	
PA – PGW CRP	63% remain for 12 months	41% recertified ¹

¹Some program participants were not required to recertify because they received LIHEAP.

E. Affordability Program Customer Survey Findings

Table V-4 examines findings from surveys of affordability program participants. This table shows that despite the benefits provided by the programs, the majority of participants reported that they needed additional assistance to pay their utility bills. However, pre and postprogram questions found that the programs had a large impact on the ability of customers to pay their energy bills.

The surveys also showed that a significant percentage of participants, ranging from seven to 17 percent, continued to use unsafe heating methods such as the kitchen oven or stove. This may be due to heating systems that are not functioning properly or homes that are in poor condition. The 2005 National Energy Assistance survey found that 27 percent of respondents used their kitchen oven or stove to provide heat. This is additional evidence

that ratepayer-funded program participants may have some of their needs met by the program, as they are less likely to use this unsafe heating method.

Most participants reported that they were satisfied with the programs.

**Table V-4
Affordability Program Customer Survey Findings**

Program	Need Additional Assistance	Bill Payment Difficulty	Unsafe Heating (Stove/Oven)	Program Satisfaction
MD – EUSP		83% were concerned about their monthly electric costs		93% were satisfied with the program
NV – Fund for Energy Assistance and Conservation		94% said they were having problems paying utility bills when they received Energy Assistance.		
NJ – USF	67%		Post: 16%	Because of automatic enrollment, few clients were aware of the program.
OR – Energy Assistance Program				Satisfaction with application process: 78% completely satisfied and 18% somewhat satisfied.
OR – EUSP				84% rated provider as excellent or good.
PA – PECO CAP	60%	56% said very difficult to pay bill prior to enrolling 9% said very difficult while enrolled in the CAP.	Pre program: 14% While participating: 7%	76% very satisfied 20% somewhat satisfied
PA – PGW CRP	57%	63% said very difficult to pay bill prior to enrolling 15% said very difficult while enrolled in the CRP.	Pre program: 35% While participating: 17%	69% very satisfied 25% somewhat satisfied
WI – Wisconsin Home Energy Assistance Program (WHEAP)				Average satisfaction of 4.6 out of 5.

F. Affordability Program Payment Impacts

This section examines the impact of the affordability programs on energy burden, bills, and payments. The evaluations show that the programs had positive affordability impacts. It is

hypothesized that, by reducing the monthly customer payment requirement, affordability programs may also increase the regularity of bill payment and improve customers' payment patterns. Improvement in payment patterns is expected to be greater for plans that provide a discounted monthly bill with an equal monthly payment than for those that provide a single annual credit. The evaluations that were reviewed show that few programs could document a statistically significant improvement in customer payment patterns. However, most of the programs we reviewed did not furnish an equalized monthly payment plan. The one program that did provide an equalized monthly payment as a percentage of the customers' annual income did support the hypothesis and result in an improvement in payment behavior.

Table V-5 displays the impacts of the program on bill affordability.

**Table V-5
Bill Affordability**

Program	Energy Burden		Bill	Subsidy
MD – EUSP	Benefit reduced total energy burden from 25% to 21%			\$410
MO – ELIR				\$199
NJ – USF	Post Electric: <2%: 15% 2-4%: 41% >4%: 44%	Post Gas: <2%: 23% 2-4%: 29% >4%: 48%	Post Electric and Gas Bill: \$1,668	\$626
OR – Energy Assistance Program				\$240
OR – Eugene Water and Electric Board - USP				\$358
PA – PECO CAP	Electric or combination burden Pre: 12.0% Post: 8.6% Gross Δ: -3.4%** Net Δ: -3.7%**		Electric or combination bill Pre: \$1,209 Post: \$897 Gross Δ: -\$312** Net Δ: -\$354**	
PA – PGW CRP ¹	Gas burden Pre: 15.5% Post: 9.5% Gross Δ: -6.0%** Net Δ: -10.9%**		Gas bill Pre: \$1,347 Post: \$1,042 Gross Δ: -\$304** Net Δ: -\$547**	\$660
WI – WHEAP	Benefit reduced total energy burden from 20% to 13%.			\$322

**Statistically significant at the 99% level. *Statistically significant at the 95% level.

The findings from our review of the program evaluations include:

- **Energy Burden:** The table shows that the programs resulted in a significant reduction in energy burden for program participants. In the NJ USF program, about 56% of participants had electric bills that were less than 4% of income and 52% had gas bills that were less than 4% of income. The PGW CRP targeted burdens of eight, nine, or ten percent for gas usage and achieved an average post energy burden of 9.5 percent, a gross reduction of 6 percentage points and a net reduction of almost 11 percentage points.

- *Subsidy*: Average bill subsidies ranged from \$200 to over \$650. The highest subsidy programs were the PGW CRP, which limited gas burden to eight, nine, or ten percent of income, but had no limit on the program subsidy; and the NJ USF, which limited gas and electric burden to 3 percent each, but capped the benefit amount at \$1800.

Table V-6 displays the impact of the program on payments.

Table V-6
Payments

Program	# Payments	Cash Payments	Assistance Payments	Total Payments
MD – EUSP				Pre: \$1022 Post: \$790 Gross Δ: -\$232* Net Δ: -\$194
MO – ELIR	No improvement seen in number of payments made.			
NJ – USF		Post: \$705	Post: \$267	Post: \$1,602
PA – PECO CAP	Pre: 8.4 Post: 8.2 Gross Δ: --0.2** Net Δ: -0.2**	Pre: \$948 Post: \$716 Gross Δ: -\$232** Net Δ: -\$241**	Pre: \$46 Post: \$51 Gross Δ: \$5** Net Δ: -\$2**	Pre: \$994 Post: \$768 Gross Δ: - \$226** Net Δ: -\$241**
PA – PGW CRP ¹	Pre: 6.7 Post: 8.1 Gross Δ: 1.4** Net Δ: 1.6**	Pre: \$711 Post: \$798 Gross Δ: \$88** Net Δ: -\$26**	Pre: \$161 Post: \$22 Gross Δ: -\$139** Net Δ: -\$164**	Pre: \$872 Post: \$821 Gross Δ: -\$51** Net Δ: -\$190**
WI – (WHEAP)	In the 6 months prior to WHEAP payment, on average 56% of the WHEAP participants sent a payment each month, compared to 41% in the six months following WHEAP payment.			

**Statistically significant at the 99% level. *Statistically significant at the 95% level.

The findings from the review of evaluations include:

- *Payment regularity*: Affordability programs aim to improve the ability of customers to afford their energy bills and aid in regular bill payment patterns. Results of the evaluations studied show that few of the programs result in improved payment regularity. This may be related to the fact that most of the programs studied do not provide an equal monthly bill, and therefore do not assist customers in establishing regular bill payment patterns.¹⁵⁶ The one program in this study that showed a statistically significant increase in bill payment regularity, the PGW CRP, provided an equal monthly payment plan. Under this gas subsidy program customers often receive a negative subsidy in the summer months to reach their monthly constant percentage of

¹⁵⁶ Customer surveys conducted as part of affordability program evaluations showed that equal payment plans are a highly valued component of the program. In the PGW evaluation 30 percent of customers cited equal monthly payments as a benefit of the program, compared to 40 percent who cited lower energy bills. Note, this program provided an average annual subsidy of \$660.

income payment bill. Another evaluation¹⁵⁷, not included in this review, of PG Energy's affordability plan, found that the average number of customer payments increased from six payments in the year prior to enrollment to ten payments in the year after enrollment. This program also provides an equal monthly payment plan.

- *Cash payments:* Many of the programs studied did not provide an analysis of the amount of cash payments made. The PGW CRP showed a statistically significant gross increase in the amount of cash payments made by program participants compared to the year prior to program enrollment. This may be related to the equal monthly payments and the establishment of a regular bill payment pattern.

Table V-7 below provides results from two other evaluations, not included in this review. Both programs have an equal monthly payment plan, and both show statistically significant increases in the amount of cash payments made after the participants enrolled in the program.

Table V-7
Cash Payment Impacts

	Pre Enrollment Cash Payments	Post Enrollment Cash Payments	Gross Change	Net Change
PG Energy	\$773	\$1022	\$249**	\$154**
TW Phillips ¹⁵⁸	\$710	\$892	\$182**	\$65**

**Statistically significant at the 99% level.

- *Assistance Payments:* Ratepayer assistance programs can sometimes reduce the amount of LIHEAP benefits credited to the utility, because of a decreased need for this assistance or because of a lack of customer incentive due to the way the benefit is credited. Some programs credit the LIHEAP benefit to the customer's payment responsibility, and some credit it to cover the ratepayer subsidy. The NJ USF is tied to the LIHEAP application. Because of this integration, these program participants received the highest average amount of assistance payments. Other programs may increase the amount of LIHEAP funding received by program participants if they can integrate the applications in this manner.
- *Total Payments:* All of the programs studied showed a reduction in total payments as compared to the pre-program year. This is partially due to the reduction in assistance payments and may also be due to a program bill that is less than the pre-program payment. One of the common goals of the affordability programs is to enable customers to maintain consistent utility bill payment practices. As a result of providing more affordable bills, customers may be more likely to make regular bill payments, and increase the total amount of payments that they make. Detailed analysis of the PECO CAP showed that the decline in total payments was likely related to the structure of this program benefit, which required most customers to pay less on the program than they had paid in the year prior to enrollment.

¹⁵⁷ PG Energy, Universal Services & Energy Conservation Programs Evaluation Final Report, August 2005, APPRISE Incorporated.

¹⁵⁸ T.W. Phillips Energy Help Fund Program Evaluation Final Report, November 2004, APPRISE Incorporated.

Table V-8 examines the impact of the affordability programs on bill coverage.

**Table V-8
Bill Coverage**

	Cash Coverage	Total Coverage	Payment Compliance
MD – EUSP		Pre: 84% Post: 73% Gross Δ: -11%* Net Δ: -7%	
MO – ELIR			27% of participants carry arrears in any given month, compared to 52% of the comparison group.
NV –Fund for Energy Assistance and Conservation		Pre: 56% Post: 74%	
NJ – USF	Post: 68%	Post: 96%	100% +: 44% 90-<100%: 30%
PA – PECO CAP	Pre: 80% Post: 81% Gross Δ: 0% Net Δ: 4%**	Pre: 85% Post: 89% Gross Δ: 4%** Net Δ: 6%**	100% +: 36% 90-<100%: 19%
PA – PGW CRP	Pre: 57% Post: 82% Gross Δ: 25%** Net Δ: 30%**	Pre: 71% Post: 84% Gross Δ: 13%** Net Δ: 19%**	100% +: 40% 90-<100%: 15%
WI –WHEAP		WHEAP participants moved from an average of paying 84% of their bill to 81% of their bill in the 6 months after WHEAP payment.	

**Statistically significant at the 99% level. *Statistically significant at the 95% level.

The findings from the review of the program evaluations include:

- **Cash Coverage Rate:** Cash coverage rates for program participants are still quite low. Program participants need LIHEAP and other assistance to meet bill payment obligations even after receiving ratepayer-funded program assistance.
- **Total Coverage Rate:** Average total coverage rates usually improved after program enrollment, but still fell short of covering the total bill. The NJ USF program achieved a post program total coverage rate of 96 percent. This level of success was achieved because of the integration with LIHEAP, the aggressive program structure, and the fact that the program did not target customers who were already behind on their bills, but rather served all LIHEAP participants.

The average total coverage rate for the Maryland EUSP participants declined from 84 percent in the year prior to participation to 73 percent in the year after participation. However, this finding could be attributable to the way that the analysis results are presented. A large percentage of program participants are served by a utility that provides both electric and gas service. A decision was made whereby all customer payments would first be credited to cover the full gas portion of the bill, and the remainder would be credited to the electric portion of the bill. If the analysis shown in

the report examines only the electric part of the bill and payments credited to the electric portion of the bill, even for this joint service utility, this result would be expected. A smaller percentage of the electric bill would appear to be covered by the customer, as all payments are first credited to the gas portion of the bill. An analysis of the total coverage rate of both the electric and gas bill or and/or a separate analysis of this utility from the other utilities is needed to fully understand changes in customers' bill payment.

- *Payment Compliance:* Payment compliance statistics show that more than half of the customers do not meet their full bill payment obligations after enrolling in the affordability programs. NJ USF participants are most likely to pay their bills, with 44 percent paying 100 percent or more of their bills and 30 percent paying 90 to 100 percent of their bills.

Table V-9 displays statistics on arrearage forgiveness and customer balance.

**Table V-9
Shortfall, Arrearage Forgiveness, and Balance**

	Arrearage Forgiveness	Balance
MO – ELIR		Of those who have arrears, the average amount of arrears is \$104 for participants and \$173 for the comparison group. 80% of participants achieved a \$0 balance, compared to 60% of the comparison group.
NV – Fund for Energy Assistance and Conservation	In FY 2005, 5447 households received arrearage forgiveness, averaging \$403.	
NJ – USF	39% participated in arrearage forgiveness component of the program.	Electric < \$60 Pre: 72% Post: 85% Gross Δ: 13% Gas <\$60 Pre: 78% Post: 82% Gross Δ: 4% PSE&G: <\$60 Pre: 57% Post: 73% Gross Δ: 16%
OR – Energy Assistance Program		Modeled: \$340 reduction in arrears.
OR – E USP		Modeled: \$251 reduction in arrearages due to program
PA – PECO CAP	68% received arrearage forgiveness, mean amount was \$392	Pre: \$573 Post: \$326 Gross Δ: -248** Net Δ: -\$374**
PA – PGW CRP	76% received arrearage forgiveness, mean amount was \$182	Pre: \$1539 Post: \$1611 Gross Δ: 72** Net Δ: -\$229**
WI –WHEAP		By the end of the 6 th month following a WHEAP payment, participants accumulated 68% of their pre-HEAP payment arrearage.

**Statistically significant at the 99% level. *Statistically significant at the 95% level.

The findings from the review of program evaluations include:

- *Arrearage Forgiveness:* Because customers come into the program with arrears and do not pay their full bills, arrears would continue to grow on average if arrearage forgiveness was not provided. Program evaluations showed that significant percentages of the program participants received arrearage forgiveness, and the average amount ranged from \$182 to \$403.
- *Balance:* Most of the programs showed a reduction in customer balances, due to the program's arrearage forgiveness. However, these programs need to do a better job of working with customers to reduce balances, or the customers will continue to face challenges in maintaining utility service.

G. Impacts on Utility Collection Costs and Write-Offs

Some of the evaluations that were reviewed analyzed the impact of the affordability programs on collections actions and service terminations. These findings are summarized in Table V-10.

- *Collections actions and service terminations:* The programs studied showed that the affordability programs resulted in a reduced number of collections actions and service terminations in the year following program enrollment. However, the previous analysis showed that balance reductions were due to arrearage forgiveness and that customers were not paying their full bills. Therefore, it is important to study how customers are faring in the longer term and how programs can be more successful in enabling customers to meet their bill payment responsibilities on an ongoing basis.
- *Collections costs:* Despite the significant reduction in the number of collections actions and service terminations, the reduction in collection costs is small, averaging seven to sixteen dollars per participant. These reductions may cover part or all of the administrative costs of the program.

The evaluations are generally not able to assess whether programs are cost neutral. To measure cost neutrality, a program would have to measure the net cost of services for customers prior to enrollment (cost minus payments) compared to the net costs after program enrollment. Further, the analysis would require an experimental design where customers in similar situations were randomly assigned to test and control groups. Utility cost of service information is generally inadequate to measure true service delivery costs. Additionally, programs that we have researched have not employed an experimental design. Therefore, we have not found any evidence to either support or refute the hypothesis that programs can be cost neutral. However, based on their design, certain programs are unlikely to be cost neutral. If a program results in large reductions in payments by customers, it is unlikely to be cost neutral.

**Table V-10
Program Impacts on Utility Costs**

Program	Collection Actions	Service Terminations	Collection Costs
MO – ELIR	Collection letters Treatment: 6.4 Comparison: 29	Pre: 2.8% Post: 1.0%	\$127 annual per participant average savings
NJ – USF			
OR – Energy Assistance Program			Average \$7 per participant savings in collections costs and arrearage carrying costs.
OR – EUSP			Average \$8 per participant savings in collections costs.
PA – PECO CAP	# of Actions Pre: 7.3 Post: 2.3 Gross Δ : -5.0** Net Δ : -5.4**	Percent shut off Pre: 4.1% Post: 1.5% Gross Δ : -2.5%** Net Δ : -2.1%**	Average \$8 reduction in collection costs.
PA – PGW CRP	# of Actions Pre: 8.7 Post: 8.8 Gross Δ : 0.0 Net Δ : -1.4**	Percent shut off Pre: 15% Post: 4% Gross Δ : -10%** Net Δ : -12%**	Average \$16 reduction in collection costs.

**Statistically significant at the 99% level. *Statistically significant at the 95% level.

H. Impacts on Energy Usage

Some of the evaluations that were reviewed analyzed the impact of the affordability programs on energy usage. These findings are summarized in Table V-11. Energy affordability programs reduce the cost of using energy, and therefore program managers are concerned that they may result in increased energy usage. However, evaluation results in the table below show that that this is not an issue.¹⁵⁹ Program evaluations find small and insignificant increases in energy usage, or sometimes even declines in energy usage.

**Table V-11
Program Impacts on Utility Costs**

Program	Energy Usage
MO – ELIR	Treatment: 68 therms Comparison: 86 therms
NJ – USF	Gas Pre: 1,194 therms Post: 1,106 therms Gross Δ : -88 Electric Pre: 7,204 kWh Post: 7,179 kWh Gross Δ : -25

¹⁵⁹ One exception is where the discount is provided on electricity, and not on the heating fuel, so customers switch to using electric space heaters to reduce their total utility expenses.

Program	Energy Usage
OR – Energy Assistance Program	
OR – EUSP	
PA – PECO CAP	Electric non-heaters Pre: 7,258 kWh Post: 7,309 kWh Gross Δ : 51** Net Δ : 53
PA – PGW CRP	Pre: 1,184 ccf Post: 1,199 ccf Gross Δ : 15** Net Δ : 16**

**Statistically significant at the 99% level. *Statistically significant at the 95% level.

I. Affordability Program Evaluation Summary of Findings

Table V-11 summarizes some of the key findings from the evaluations that were studied. While all of the programs resulted in improved bill affordability and some programs resulted in increased bill payment compliance, all of the programs still have a majority of customers who do not meet their reduced bill payment obligations. The needs analysis showed that populations differ greatly in the states studied and therefore program design will need to take these population characteristics into account. However, the following general conclusions can be made with respect to these programs.

- *Targeting Benefits to Need* - Programs can improve their impact by providing benefits to customers that are related to the amount of assistance that they need. Indicators of need include arrearages, energy burden, and an unsafe or unhealthy home environment.
- *Facilitating Long-Term Participation* - Many customers continue to need energy assistance over time. Programs can improve affordability by facilitating reapplication or recertification and by allowing customers to continue to participate in the program, even after they have paid off their full arrearage.
- *Forgiveness of Preprogram Arrears* - Arrearage forgiveness is an important component of the program. However, the programs need to improve bill payment compliance. One potential method for improving payment compliance is to provide an arrearage forgiveness component that is tied to bill payment, and to educate customers about this requirement.
- *Integration with LIHEAP* - One of the reasons for the relative success of the NJ USF program was the integration with LIHEAP. Research has shown that there is a large affordability gap, and that the combination of LIHEAP and the ratepayer-funded program benefits may result in improved performance.
- *Equal Monthly Payments* - Customer surveys have shown that customers place great value on equal monthly payments. Comparison of the evaluation results, showing that PGW customers and participants in other programs with equal payments have more continuous and increased cash payments on the programs, provides further evidence that equal payments improve program performance.

- *Refinement of Program Operations* - Process evaluation findings often provided detailed recommendations for improving the programs' operations and reducing administrative costs. This report is focused on program design issues and will not explore the operational issues in detail. However, from an evaluation perspective, the process analysis is important and can provide insight into program refinements that may significantly improve program performance.
- *Comprehensive Evaluation* - Evaluations that were reviewed differed greatly in terms of the amount of program targeting and performance statistics that were available. Use of an evaluation question list can help ensure that all important program issues are addressed in the evaluation.

Table V-11
Key Findings and Recommendations

Program	Key Findings and Recommendations
IN – NIPSCO Winter Warmth	<ol style="list-style-type: none"> 1. The program prevents service disconnections and helps to resolve arrears. 2. The program helped customers to meet deposit requirements and restore service.
MD – EUSP	<ol style="list-style-type: none"> 1. Customers do not understand what portion of their electric bill they are responsible for. 2. Separate certification for MEAP and EUSP increases administrative burden. 3. Agencies need more written material about program changes. 4. Payment behavior worsened after program participation.
MO – ELIR – Experimental Low-Income Rate	<ol style="list-style-type: none"> 1. Promptness and completeness of bill payment improved. 2. Collection activities and returned checks declined. 3. No increase in energy consumption. 4. Collection costs declined.
NV – NV Fund for Energy Assistance and Conservation	<ol style="list-style-type: none"> 1. Provide equal billing to encourage regular bill payment.
NJ – USF	<ol style="list-style-type: none"> 1. Test alternative approaches to benefit distribution so that the client is asked to pay the same amount each month. 2. USF participants are not aware of the program and do not understand its benefits. Test alternatives to improve education. 3. Increase coordination with HEA, Food Stamps, and Lifeline applications 4. Improve funding and oversight of intake agencies, and improve system tools to increase application efficiency. 5. Develop incentives for high usage USF participants to participate in Comfort Partners, the usage reduction program. 6. Conduct outreach to non-participants to improve participation of the highest need households.
OR – Energy Assistance Program	<ol style="list-style-type: none"> 1. Program meets a need for crisis assistance and goals are achieved cost-effectively. 2. Data collection and reporting needs to be improved 3. Administrative effectiveness needs to be improved.
OR – Eugene Water and Electric Board - USP	<ol style="list-style-type: none"> 1. Integrate delivery of low-income programs. 2. EWEB needs to set clear goals by which to measure its success. 3. Enhance the energy education component of the program.
PA – PECO CAP	<ol style="list-style-type: none"> 1. Increase participation of customers with income below 25% of the FPL. 2. CAP customers decrease payments when they come on the program. Re-examine CAP payment structure. 3. Increase the percentage of combination customers who receive LIHEAP.

Program	Key Findings and Recommendations
PA – PGW CRP	<ol style="list-style-type: none"> 1. Program should provide additional education to customers about arrearage forgiveness, termination for lack of payment, LIHEAP, energy conservation, and make-up payments if they re-enroll in the CRP. 2. Integrate LIHEAP benefit into the CRP payment formula. 3. Consider modifications such as CAP credit limits, wait out period before re-entry, and enforcing the CWP requirement to reduce the cost of the program. 4. Continue every other year recertification for LIHEAP participants.
WI – Wisconsin Home Energy Assistance Program (WHEAP)	<ol style="list-style-type: none"> 1. The percent of energy bills paid by participants decreased after the participant received a WHEAP benefit. Strategies should be evaluated to improve payment behavior.

VI. Energy Efficiency Program Design and Implementation

While energy efficiency programs are often mandated through a public utility commission or state legislation, most aspects of program design and delivery are usually selected by the program administrator. Program design choices have important implications for targeting, energy savings, and cost effectiveness.

In this study, we collected information on 13 different low-income energy efficiency programs. These programs are designed to account for local needs and to complement other existing low-income energy efficiency and energy affordability programs. In this section of the report, we identify the dimensions on which program design choices must be made, discuss the advantages and disadvantages of each design choice, and identify the design choices made for the 13 energy efficiency programs that we reviewed.

A. *Program Design Dimensions*

The key dimensions for the analysis are:

- Funding – Decisions must be made with respect to the overall funding level and how those funds will be allocated. Some programs set goals or restrictions on the number of households to be served or the average level of spending per home served.
- Eligibility and Targeting – Decisions must be made with respect to the types of households that will be eligible for service delivery and whether certain groups of households should be targeted.
- Service Delivery – The program may determine a maximum level of investment per home. The program must determine what measures are eligible for selection and the measure selection procedure.
- Program Operations – There are several operational decisions that must be made.
 - Program Manager – The program may be managed by the PUC, another state agency, the utilities, or a third party administrator.
 - Service Delivery Contractors – The program may use private service delivery providers, weatherization agencies, community action agencies, other nonprofit groups, or a mix of these different types.
 - Data Manager – The data may be managed by a state administrator, the contractor, or the utilities.
 - Quality Control – The program must decide whether it will conduct internal or external quality control, what percentage of jobs will be reviewed or inspected, and how jobs will be targeted for inspection.

B. Funding and Delivery

The program must determine the level of resources that will be devoted to the program each year. Some programs set goals for the number of households to be served or the average level of spending per home served. Other programs do not specify that a certain number of households must be served.

Table VI-1 lists the programs studied in this report, the 2006 program expenditures and the 2006 number of customers served. Annual funding ranges from \$300,000 for an individual utility's program, Laclede Gas in Missouri, to nearly \$131 million for California's Low-Income Energy Efficiency (LIEE) Program. While Colorado Springs served 136 households with its Home Efficiency Assistance Program, a small program targeting the working poor, California served over 163,000 households with its LIEE Program.

Table VI-1
Ratepayer-Funded Low-Income Programs Included in Study

Program Reference	Program Name	2006 Program Expenditures (millions)	2006 Program Participants
CA-LIEE	California Low-Income Energy Efficiency Program	\$130.6	163,197*
CO-E\$P	Colorado Energy \$aving Partners	\$11.8	3,899
CO-HEAP	Colorado Home Efficiency Assistance Program	\$0.17	136
ME-LIARP	Maine Low-Income Appliance Replacement Program	\$2	3,370
MD-EUSP	Maryland Electric Universal Service Program	\$1	639
MO-LGWP	Laclede Gas Weatherization Program	\$0.3	191
NV-FEAC	Nevada Fund for Energy Assistance and Conservation	\$2.6*	847
NJ-CP	New Jersey Comfort Partners	\$16.6	7,190
OH-EPP	Ohio Electric Partnership Program	\$12.4	8,476*
OR-ECHO	Oregon Energy Conservation Helping Oregonians	\$6.9	2,228
PA-PECO-LIURP	PECO Low-Income Usage Reduction Program	\$5.6	7,537
PA-PGW-CWP	PGW Conservation Works Program	\$2.1	2,747
WI-WAP	Wisconsin Weatherization Assistance Program	\$54.9	8,833

*Statistics for 2005

Some programs specify a home spending limit and/or a targeted average cost per home. There are advantages and disadvantages to each of these parameters.

- Per Home Spending Limit:* Program administrators sometimes set spending limits to ensure that resources are distributed across households and that no one household receives too large of a program benefit. This might be especially important in programs that have somewhat limited resources and that are trying to serve a targeted number of households. However, by setting such limits, programs lose some flexibility to serve households with greater needs. For example, households that have extensive health and safety issues that must be addressed prior to providing weatherization services may not be served when programs have these limitations. These restrictions also mean that providers must sometimes walk away from a home before all cost-effective opportunities for energy efficiency are addressed. Table VI-2 shows that three states have spending limits, ranging from \$3,000 to \$5,000.
- Targeted Average Expenditure:* Programs sometimes set a targeted average expenditure. The goal of this parameter is often to ensure that a minimum number of homes is served by the program. The disadvantage of this approach is that it may discourage providers from addressing all of the opportunities in some homes with greater needs. We have seen that providers sometimes misinterpret the average expenditure goal as a limit on the amount that can be spent. When creating such a program parameter, administrators should make sure contractors understand that some homes may be provided with higher service levels, as long as on average the level is not exceeded. Table VI-2 shows that five of the 13 programs have targeted per home expenditures ranging from \$2,000 to \$5,876.

**Table VI-2
Specified Spending Levels**

Program	Per Home Spending Limit	Targeted Per Home Average Expenditure
CA-LIEE	None	None
CO-E\$P	None	\$3,000
CO-HEAP	\$5,000	\$2,500
ME-LIARP	None	None
MD-EUSP	None	None
MO-LGWP	\$3,000	\$2,000
NV-FEAC	\$4,000	\$2,700
NJ-CP	None	None
OH-EPP	None	None
OR-ECHO	None	None
PA-PECO-LIURP	None	None
PA-PGW-CWP	None	None
WI-WAP	None	\$5,876

The work that energy efficiency programs can perform in low-income homes depends not only on the program funding and measure guidelines, but the condition of the homes that are to be treated. In many cases, especially for the highest users, targeted homes are in such bad condition that significant repairs must be made prior to the implementation of energy efficiency services. To the extent possible, these homes should be referred to housing repair programs and then referred back to the energy efficiency program when the repairs are completed.

C. Eligibility and Targeting

While all programs set limitations on the income or poverty level for program participants, some programs also require that customers participate in energy affordability programs or have certain levels of energy usage.

- *Poverty Level* – Program specifications for poverty level range from 150 percent, the most common standard, to 225 percent. The CO-HEAP explicitly targets the working poor and only households with income above the state LIHEAP and WAP standard and below 225 percent of the poverty standard are eligible for the program. All of the other programs serve households with income below a certain level.
- *Participation in Affordability Program* – Programs sometimes require that households participate in the corresponding energy affordability program to receive energy efficiency services. Often the goal of this requirement is that program participation reduces the subsidy provided by ratepayers when energy usage declines. The extent to which the ratepayer subsidy is reduced depends on the structure of the affordability program. However, by restricting benefits to affordability program participants, the program may not serve high usage, high energy burden households who do not participate in the affordability program. Four of the 13 programs studied impose this restriction.
- *Energy Usage* – Programs that serve higher usage households usually result in higher savings. For this reason, programs sometimes restrict participation to households with energy usage above a certain level. The disadvantage of this approach is that it sometimes excludes households that have great need for the program. Some of these households may have usage that is low because of great effort made to conserve energy so that bills remain affordable. The 2005 NEA showed that one third of respondents kept their home at a temperature that they felt was unsafe or unhealthy because they did not have enough money for their energy bill in the past year. Table VI-3 shows that two of the 13 programs set energy usage requirements for program participation.

Program eligibility parameters are displayed in Table VI-3.

**Table VI-3
Program Eligibility**

Program	Poverty Level	Participation in Affordability Program	Energy Usage
CA-LIEE	200%	no	no
CO-E\$P	185%	no	no
CO-HEAP	186% - 225%	no	no
ME-LIARP	150%	LIHEAP	no
MD-EUSP	175%	EUSP	no
MO-LGWP	150%	no	no
NV-FEAC	150%	no	no
NJ-CP	175%	no	no
OH-EPP	150%	PIPP	>4,000 kWh for baseload Heating/Cooling >6,000 kWh for wx
OR-ECHO	60% of SMI	no	no
PA-PECO-LIURP	200%	no	>600 kWh/month for baseload >1,400 kWh/month for electric heating >100 ccf/month gas heating
PA-PGW-CWP	150%	CRP	no
WI-WAP	150%	no	no

Beyond setting eligibility limits, programs sometimes try to target certain households for service delivery. Table VI-4 shows the groups targeted by the programs studied in this Report. The most commonly targeted group was those with high energy usage, in an effort to serve those most in need and to maximize program savings. Other targeted groups include those who are payment troubled or who have arrearages; households with elderly or disabled members or with young children; and affordability program participants.

**Table VI-4
Program Targeting**

Program	High Energy Usage	Arrearages/ Payment Troubled	Elderly	Disabled	Young Child	Other
CA-LIEE						
CO-E\$P	X					
CO-HEAP						Working poor

Program	High Energy Usage	Arrearages/ Payment Troubled	Elderly	Disabled	Young Child	Other
ME-LIARP						
MD-EUSP	X					
MO-LGWP	X	X				
NV-FEAC			X	X	X	Wx related health and safety hazard
NJ-CP	X					USF/HEAP
OH-EPP						
OR-ECHO			X	X	X	
PA-PECO-LIURP	X	X				CAP, LIHEAP
PA-PGW-CWP	X					Gas heating
WI-WAP			X	X	X	

D. Benefits

Energy efficiency programs vary widely in the type of benefits provided. The programs with lower funding levels, those serving lower usage households, or those providing baseload usage services spend less per home and have a smaller variety of eligible measures. The most comprehensive programs spend several thousand dollars per home on average and include health and safety repairs and furnace replacement, as well as the more common weatherization measures. Table VII-5 displays the average program expenditures and the most commonly found eligible measures.

**Table VI-5
Program Benefits**

Program	2006 Average Expenditures*	Eligible Measures					
		Insulation	Air sealing	Furnace Replace	Refrigerator	Water Heater	CFL
CA-LIEE	\$658*	X	X	X	X		X
CO-E\$P	\$3,035	X	X		X		X
CO-HEAP	\$1,231	X	X	X		X	X
ME-LIARP	\$480				X		X
MD-EUSP	\$1,565						
MO-LGWP	\$1,602	X	X	X			
NV-FEAC	\$2,468*	X	X	X	X		X
NJ-CP	\$2,303	X	X	X	X	X	X
OH-EPP	\$834	X	X	X	X	X	X

Program	2006 Average Expenditures*	Eligible Measures					
		Insulation	Air sealing	Furnace Replace	Refrigerator	Water Heater	CFL
OR-ECHO	\$3,074	X	X	X			
PA-PECO-LIURP	\$522*	X	X	X	X	X	X
PA-PGW-CWP	\$775*	X	X				
WI-WAP	\$6,176	X	X	X	X	X	X

*2005 statistic.

Expenditures per home range from \$480 for the Maine low-income appliance replacement program, which focuses on refrigerators and CFLs, to over \$6,000 per home for the Wisconsin Weatherization Assistance Program. Most of the programs provide insulation and air sealing. With the exception of the gas utility programs, most provide refrigerator replacement and CFLs. Another measure decision is whether the program should provide health and safety measures. While these measures usually do not contribute to the cost-effectiveness of the program, they sometimes provide services that allow the household to receive other weatherization measures. Many programs provide smoke detectors and/or carbon monoxide detectors because of the important benefits of these measures.

Table VI-6 shows that all of the programs provide energy education as a part of service delivery. However, the level of energy education that is provided can vary widely by program. Often programs develop detailed energy education procedures, but without adequate training and reinforcement these procedures are unlikely to be implemented according to the protocols. Some of the programs also provide energy education that is separate from service delivery, either as a workshop, or an additional follow-up visit. Follow-up to the initial energy education can provide reinforcement for the client, and increase the energy savings from the program.

**Table VI-6
Energy Education**

	Part of Service Delivery	Separate From Service Delivery	Follow-up
CA-LIEE	X	X	
CO-E\$P	X		
CO-HEAP	X		
ME-LIARP	X		
MD-EUSP	X		
MO-LGWP	X		
NV-FEAC	X	X	X
NJ-CP	X	X	X
OH-EPP	X	X	X

	Part of Service Delivery	Separate From Service Delivery	Follow-up
OR-ECHO	X	X	
PA-PECO-LIURP	X	X	X
PA-PGW-CWP	X		
WI-WAP	X	X	X

Programs can determine the measures to install in the home through a diagnostic audit and testing, through the use of a computerized audit, or through the use of a priority list. The diagnostic audit involves visual inspection, blower door testing to determine the extent and location of air leakage, pressure pan diagnostics to determine the pressure boundary, and duct blaster to determine duct leakage. An infrared camera is also used at times to pinpoint missing insulation and insulation damage. Some programs use a priority list to determine which measures should be installed in the home. Table VI-7 identifies the measure selection methods used by the programs included in this study.

**Table VI-7
Measure Selection Method**

	Audit	Computerized Audit	Priority List
CA-LIEE	X		
CO-E\$P			X
CO-HEAP	X	NEAT	
ME-LIARP	X		
MD-EUSP	X	NEAT	
MO-LGWP	X	NEAT	
NV-FEAC			X
NJ-CP			X
OH-EPP	X	SMOC~ERS	
OR-ECHO	X	REM/Rate	
PA-PECO-LIURP	X		
PA-PGW-CWP	X		
WI-WAP	X	NEAT	

E. Program Operations

There are many operational aspects of energy efficiency programs that can be delegated to various program actors. These include the program manager, the service delivery contractors, the data manager, and the quality control team. Additionally, the program must

develop service delivery procedures, data management systems, and quality control procedures.

Table VI-8 displays the choices that are made by the programs studied relating to program responsibilities and the reported administrative costs.

- *Program Manager* – Almost all of the programs are managed by the state or by the individual utilities. The advantage of a state-run program is that customers across the state receive equivalent benefits and there is an opportunity for utilities to collaborate and develop best practices for a joint approach. The advantage of utility managed program is potentially greater involvement and commitment by the participating utilities, and utility specific knowledge that can be used in program design and implementation.
- *Service Delivery Contractors* – Programs use private for-profit contractors, Community Action Agencies, other nonprofits, and local government organizations to provide service delivery. Private contractors often bring experience, data management capabilities, the ability to hire additional staff, and cash flow management. Nonprofits, including Community Action Agencies, bring knowledge of low-income households, sometimes have the ability to provide joint service delivery with WAP, and can easily refer households to other low-income programs that their organization provides, sometimes including low-income energy affordability programs.
- *Data Manager* – Programs use the state, utilities, and contractors as the program data managers. When the state manages the data, it is usually collected from the individual contractors and stored in a central location. When the contractor manages the data, it is stored at the contractor and sent to the state or utility as requested. The advantages of a state managed data system (or utility managed in the case where the utility manages the program) are that the data are readily available for management, reporting, and evaluation. The advantages of a contractor managed data system are that the contractor may have a functional database that has been tested and can be readily adapted for the program, the contractor may have resources and expertise in data management and the contractor can design and provide detailed reports to the program manager.
- *Quality Control* – Programs should include a quality control component to ensure that services are delivered appropriately to participating households. Most of the programs use the state to oversee the work of the contractors or agencies that are providing services. Programs are also likely to use the same contractors or nonprofits that provide service delivery to conduct quality control. A few programs use third party quality control contractors. The advantages of having an external contractor perform quality control are that the contractor may have more systematic procedures and may have more time to devote to quality control than state employees who have many other responsibilities. A third party quality control inspector may be more objective about program assessment. When using a third party contractor, the program must ensure that the contractor has complete knowledge of the program design and procedures.
- *Administrative Costs* – The percent spent on administration for the programs are also recorded in the table. While these numbers may provide some information about the relationship between the program design and the costs that are incurred, it is important

to note that programs' accounting of administrative costs can vary significantly. In most cases, we report the program manager's administrative costs, and do not include the additional administrative costs of the local providers.

**Table VI-8
Program Management and Operations**

	Program Manager	Service Delivery Contractors	Data Manager	Quality Control	Admin Costs
CA-LIEE	Utility	CAA, Contractors	Utility	3 rd Party Contractors	9.4%
CO-E\$P	State	County government, Nonprofits	State	State	
CO-HEAP	Utility	Nonprofit	Utility	Non-profit	28.0%
ME-LIARP	PUC, Efficiency ME	CAA	State	State	5.0%
MD-EUSP	State	CAA, Contractors, nonprofit	State	State	
MO-LGWP	Utility	CAA	Utility	CAA	7.5%
NV-FEAC	State	CAA	State	State	4.7%
NJ-CP	BPU, Utilities	Contractors	Utilities	3 rd Party Contractors	4.0%
OH-EPP	State	Contractors, nonprofit	State	State	7.3%
OR-ECHO	State	CAA	State	State	5.0%
PA-PECO-LIURP	Utility	Contractor	Contractor	Utility	8.0%
PA-PGW-CWP	Utility	Contractors	Utility	Contractor	13.5%
WI-WAP	State	Nonprofits and City government	State	State	2.7%

Other operational parameters to be considered include the service delivery procedures, the data management systems, and the quality control procedures. Service delivery usually entails an audit visit where minor measures are installed, followed by additional visits for more intensive weatherization measures and refrigerator delivery. Data are usually collected on paper while doing the field work, and inputted into the database at a later time. Quality control sometimes focuses on specific types of work or providers that have shown problems in the past. A percentage of home serviced, often about five percent, is often selected for quality control inspection.

F. Findings and Recommendations

Our research has demonstrated that there are many different options for designing programs. For each program that we studied, policymakers in that jurisdiction chose to exercise their judgment on what combination of design elements are best suited to their program, their clients/customers, and their circumstances. All of the programs successfully enrolled customers, delivered energy efficiency services, and reduced energy bills for low-income households. However, the program design choices do affect the way that a program performs, and the way that it affects both low-income customers and the utilities involved in the programs. Our analysis suggests that policymakers have important choices to make with respect to the key design elements.

- Program Funding
 - Program Funding Level – Policymakers must determine the overall level of funding and how that funding will be allocated. The California LIEE program spent over \$130 million on energy efficiency services for over 160,000 customers in 2006, while other statewide programs spent in the range of \$5 to \$30 million and served between 2,000 and 10,000 customers.
 - Investment Level – Most programs invested a significant amount of resources in each home, in part to cover the fixed cost associated with serving a home. Some programs set a limit on spending or set a target for the average spending per home.
- Targeting – While programs set income limits for eligible customers, some of those limits were higher than the income limits for the affordability program in that state. Some programs restricted energy efficiency program participation to those customers that participated in the affordability program. Some programs restricted program participation to those customers whose energy usage exceeded a target threshold, while others merely targeted the highest energy users.
- Program Benefits
 - Expenditures and Measures – Average expenditures per home ranged from \$522 to over \$6,000. In most programs, a comprehensive set of program measures were eligible.
 - Energy Education – All programs included an energy education component. About half of the programs had special energy education services that were delivered separately from the installation of measures. Some of the programs paid for energy education follow-up activities.
 - Measure Selection – All programs had a protocol for measure selection. Most used an audit procedure of some type, with many using a computerized audit. A few programs used the priority list approach.
- Program Operations – A variety of program management options are available, including management by the utility, the state WAP office, or the Public Service Commission. Whatever management procedure is used, it is important to have an

extensive service delivery network of qualified providers, a well maintained program database, and a quality control procedure.

In the next section, we examine evaluations of energy efficiency programs. Some of the evaluation findings may help policymakers to select the program design options that best meet the needs of clients in their jurisdictions.

VII. Energy Efficiency Program Evaluation

This section of the report reviews the results of energy efficiency evaluations that have been conducted on the programs that are being researched in this study. As part of our data collection, we requested copies of evaluations that had been conducted, and we reviewed all reports that were received. The availability of evaluation information differed greatly by state and program. Many programs had not been evaluated, and the evaluations that had been conducted differed in terms of the scope and detail of the study. Where possible, we compare and contrast evaluation findings and relate the findings back to program design options.

A. *Efficiency Program Evaluation*

Comprehensive evaluation of energy efficiency programs involves many different research activities. This research provides an understanding of how the program is designed and implemented, the results that the program achieves, and how the results can be improved. The following evaluation activities are usually needed to provide this information.

1. *Evaluation planning and background research* – The evaluation plan is developed, program managers and staff are interviewed, and all documents related to the program are reviewed. Program performance statistics are collected and analyzed.
2. *Review of specifications and procedures* – Program protocols are reviewed to determine whether they can effectively provide energy efficiency services and education to low-income households.
3. *Provider survey* – Providers are asked to furnish information on their understanding of program procedures, implementation of these procedures, and recommendations for the program.
4. *Service delivery observations and inspections* – Service delivery is observed and inspections of completed jobs are conducted. Quantitative data on contractor performance are developed.
5. *Customer survey* – Customers who received services are contacted to provide information on their understanding and satisfaction with program services, usage reduction education received, and changes in behavior that resulted from the education.
6. *Usage impacts* – Raw and weather-normalized energy usage before and after program services were received are analyzed. Estimates are made of the program's impact on energy usage of program participants by type of service provided and by contractor.
7. *Cost effectiveness* – The cost-effectiveness of the program and of individual program measures are analyzed.
8. *Payment impacts* – Customer payments, bill coverage rates, and balances before and after program services were received are analyzed. Estimates are made of the program's impact on the affordability of energy service.

B. Energy Efficiency Evaluation Reports Reviewed

There were twelve independent efficiency evaluations on eight different programs that were reviewed for this report. Table VII-1 lists the states, programs, reports, authors, report dates, and program year(s) studied for each of these reports. All of the evaluations were reported between 2003 and 2007 for households who received services between 2002 and 2005. For the most part, these evaluations are good representations of current program procedures. However, programs are often modified in response to recommendations that are made. One case where many program modifications have been made since the evaluation was conducted was in the New Jersey Comfort Partners Program. Overall, the reports that are reviewed provide a good overview of the findings from energy efficiency program evaluations.

**Table VII-1
Efficiency Evaluations**

State	Program	Report Title	Author	Report Date	Program Year Studied
CA	CA Low-Income Energy Efficiency Program	Impact Evaluation of the 2002 California Low-income Energy Efficiency Program Final Report	West Hill Energy	06/05	PY 2002
CO	CO Energy Savings Partners	CO Energy Savings Partners Impact Evaluation Report	Michael Blasnik	06/06	7/02 – 12/04
NV	NV Weatherization Assistance Program	State Fiscal Year 2005 Evaluation of the NRS 702	H. Gil Peach & Associates	05/06	SFY 2005
NJ	NJ Comfort Partners	NJ Comfort Partners Affordability Evaluation Final Report	APPRISE	02/04	2002-2003
NJ	NJ Comfort Partners	NJ Comfort Partners Impact Evaluation Report	Michael Blasnik	01/04	2002
NJ	NJ Comfort Partners	NJ Comfort Partners Participant Survey Findings Final Report	APPRISE	05/03	2002
OH	OH Electric Partnership Program	Ohio EPP Impact Evaluation, Results for April 2004 – March 2005 Participants	Michael Blasnik	06/05	4/04 – 3/05
OH	OH Electric Partnership Program	Ohio EPP Process Evaluation Final Report	APPRISE	07/05	7/04 – 9/04
PA	PECO Low-income Usage Reduction Program	PECO Energy 2005 LIURP Evaluation Final Report	APPRISE	04/07	CY 2005
PA	PECO Low-income Usage Reduction Program	PECO Energy Universal Services Program Final Evaluation Report	APPRISE	04/06	CY 2003
PA	PGW Conservation Works Program	Impact Evaluation of PGW's Conservation Works Program – Calendar Year 2003	Michael Blasnik	09/05	CY 2003
WI	WI Weatherization Assistance Program	Year 3 Low-Income Program Evaluation	PA Government Services	10/04	FFY 2004

C. Energy Efficiency Program Targeting

Targeting of energy efficiency programs will vary by the program mandate, goals, and scope. Some programs explicitly target subgroups of the low-income population and some

programs tend to serve particular subgroups due to the program design. Table VII-2 displays statistics that were available in the evaluation reports reviewed on the population served by the programs studied.

**Table VII-2
Efficiency Program Targeting**

Program		Poverty Level		Children	Elderly	Renter	Affordability Program Participant
		FPL	%				
CO E\$P						22%	
NJ CP					45%		
OH EPP	High-use			50%	32%	43%	100%
	Mod-use					58%	
	TEE					26%	
PECO LIURP		<=50%	25%	64%	19%	49%	73%
		51-100%	40%				
		101-150%	25%				
		>150%	9%				
PGW CWP		76%	median		16%		100%
WI WAP				19% (< 6)	35%	32%	

The findings from the review of evaluations include:

- Poverty Level:** Most energy efficiency programs that we have reviewed focus on serving households that fall below the program's eligibility criteria, and do not explicitly target households in particular poverty level groups. The only report that provided poverty level data was the PECO LIURP evaluation. This evaluation showed that about 25 percent of the households had income below 50 percent of the FPL, 40 percent had income between 51 and 100 percent of the FPL, 25 percent had income between 101 and 150 percent of the FPL, and 9 percent had income above 150 percent of the FPL.
- Vulnerable groups:** Households with children and elderly members are considered vulnerable because these individuals are more susceptible to extreme temperatures. Because of this need, some efficiency programs try to target these customers for service delivery. In the review of program evaluations, we found that households treated are likely to have children under 18. Households with elderly members are also often treated by these programs because seniors are more likely to be home during the day and to be available for service delivery.
- Renters:** Energy efficiency programs sometimes do not reach renters because they require landlord agreement and/or co-payment for services delivered. Even when renters do receive service delivery, they sometimes receive a small subset of potential program services. For example, they may not receive refrigerators and heating system services. While 49 percent of PECO's LIURP recipients are

renters, expenditures per home are much lower for renters than they are for homeowners. An examination of the services received by OHIO EPP participants shows the same trend. Approximately half of the moderate and high-use baseload recipients are renters, but only 26 percent of the targeted energy efficiency service recipients, who receive shell measures as well as baseload measures, are renters.

- *Affordability Program Participants:* Efficiency programs often target customers who participate in affordability programs. Depending on the structure of the affordability program, such targeting can reduce the subsidy that is provided by ratepayers, further improve the affordability of energy for program participants, or provide a combination of the two benefits.

The Ohio EPP and the PGW CWP both provide services exclusively to affordability program participations with the goal of reducing ratepayer subsidies. Because these programs are fixed payment programs, the customers' payments remain the same when usage is reduced, and the reduced costs of energy usage reduce the subsidy that ratepayers provide.

The majority of PECO LIURP customers also participate in their affordability program. Because this is a discount program, the reduced costs that accrue due to a reduction in energy usage are shared between the customers and the ratepayers, at the same ratio as the part of the bill that the customers pay. For example, if customers pay 75 percent of the retail bill and receive a 25 percent discount, customers will receive 75 percent of the benefit when usage drops, and ratepayers will see their subsidy decline by 25 percent.

One of the most consistent findings from energy efficiency program evaluations is that customers with higher usage provide greater opportunities for savings, and therefore programs that target high usage yield higher savings and more cost-effective service delivery. As a result of this knowledge, programs are often designed to target the income-eligible customers with the highest usage or with usage above certain target levels. Some programs are specifically designed with specific tiers of service depending on the pre-treatment usage level. A rule-of-thumb that is often used is that electric customers should have annual baseload usage that is at least 6,000 to 8,000 kWh, and heating and/or cooling usage of at least 8,000 kWh. Gas usage that is targeted for service delivery is often 1,200 ccf.

Table VII-3 examines the pre-treatment usage of customers who participated in the evaluated programs. The table shows that most of the programs described in the table serve customers with average usage that exceeds these targets. One notable exception is the CA LIEE program that serves customers with an average electric usage of only 5,000 kWh and an average gas usage of only 400 therms. This is related to the profile of energy usage of these customers. The needs analysis section estimated that only 24 percent of CA households had baseload usage over 8,000 kWh and only 5 percent had gas usage of over 1,200 therms.

All of the other programs listed in the table have considerably higher pre-treatment electric and gas usage. One of the best targeted programs, the Ohio EPP, serves electric customers with average baseload usage of 13,500 for the high-use program, 6,500 for the

moderate use program, and nearly 30,000 for the TEE which provides shell as well as baseload measures.

**Table VII-3
Pre-Treatment Usage**

Program		Pre-Treatment Usage
CA LIEE	Electric	5,074 kWh
	Gas	408 therms
CO E\$P	Electric	8,202 kWh
	Gas	919 therms
NJ CP	Baseload Electric	6,705 kWh
	Electric Heat	13,067 kWh
	Gas Heat	1,195 ccf
OH EPP	High-use	13,525 kWh
	Mod-use	6,468 kWh
	TEE	29,364 kWh
PECO LIURP	Electric Baseload	11,188 kWh
	Electric Heat	21,956 kWh
	Gas Heat	1,206 ccf
PGW CWP		1467 ccf

Cost-effective measure installation opportunities are a function of the usage level of the customers treated by the program. Table VII-4 examines measure installation rates by program. The Ohio EPP, with the highest electric pre-treatment usage, has the largest average number of CFLs installed per home. This program averaged over 16 bulbs per home for the high-use baseload program, over 12 for the moderate use baseload program, and nearly 16 per home for the TEE program, which also provides shell measures. This program also found frequent opportunities for refrigerator and freezer replacement.

Refrigerator and freezer removal is a measure that can provide high levels of saving, because often old, high energy usage appliances are removed from circulation. However, this is a challenging measure to have customers agree to, as it involves removing something from the home without a replacement. Programs shown in the table only achieve a removal in one to four percent of the homes served. Another barrier to this measure is that service providers do not have great incentive to work towards removal, as they do not receive financial reward for this difficult intervention. One recommendation made in the Ohio EPP was that the program reward providers with a financial incentive if they succeeded in convincing a customer to have an old refrigerator or freezer removed from the home.

**Table VII-4
Measure Installation Rates**

Program	Measure Installation Rates							
	CFL	Refrigerator	Freezer	Refrigerator and/or Freezer Removal	A/C	Insulation	Air Sealing	Thermostat
CO E\$P	4.6	29%				76%		
NJ CP	5.5	51%				57%		
OH EPP	High-use	16.4	58%	20%	2%			
	Mod-use	12.3	58%	11%	1%			
	TEE	15.9	39%	12%	4%			
PECO LIURP	4.0	10%	0%	1%	2%	13%	18%	
PGW CWP						16%	19%	66%

D. Energy Efficiency Program Customer Surveys

Evaluations of energy efficiency programs often include surveys with program participants because this activity provides information that cannot be obtained from other evaluation activities. Some of the informational objectives of these surveys include:

- Customer understanding of the program and services received
- Retention of energy efficiency measures
- Changes made to energy use behaviors as a result of energy education
- Impact of the program on comfort and health
- Use of unsafe heating devices such as kitchen ovens or unvented space heaters
- Satisfaction with program staff and program services

Table VII-5 displays some of the findings from customer surveys that were included in the evaluations reviewed. The table shows that many of the customers surveyed noted that the winter and/or summer comfort of their home had improved since program delivery.

**Table VII-5
Customer Survey Impacts**

Program	Winter Comfort	Summer Comfort	Unsafe Heating	Satisfaction
NJ CP	67%	56%		96% very or somewhat satisfied
OH EPP				97% very or somewhat satisfied
PECO LIURP	34% overall,	25% overall,	14% in the	89% very or somewhat satisfied

Program	Winter Comfort	Summer Comfort	Unsafe Heating	Satisfaction
	50% with heating service	40% with heating service	past year (after service delivery)	
WI WAP	68%			Averaged 4.6 out of 5.0

E. Energy Efficiency Program Usage Impacts

One of the primary issues addressed by energy efficiency program evaluations is the amount of energy saved by the program. When analyzing the change in energy usage that is due to the program intervention, there are at least two important adjustments that are often made to provide the most accurate estimate of this impact.

- **Weather normalization:** Energy usage, especially heating and cooling usage, is highly dependent on temperature. Changes in temperature from year to year can make it appear that the program is having a large effect on participants' energy usage or that the program is having a smaller than expected impact on participants' energy usage. To provide an accurate estimate of the program's impact, evaluations make use of a technique called weather normalization. Under this approach, the relationship between temperature and energy usage is estimated for each household included in the study. The parameters from this relationship are then used over a 12-year or longer time period to estimate what the customer's energy usage would have been in an average weather year.
- **Comparison groups:** When measuring the impact of an intervention, it is necessary to recognize other exogenous factors that can impact changes in outcomes. Changes in a client's energy usage, between the year preceding service delivery and the year following service delivery, may be affected by many factors other than program services received. Some of these factors include changes in household composition or health of family members. To control for these exogenous factors, we examine the change in outcomes for program participants compared to the change in outcomes for another group of households. This group of households is called a comparison group. The comparison group is designed to be as similar as possible to the treatment group, those who received services and who we are evaluating, so that the exogenous changes for the comparison group are as similar as possible to those of the treatment group.

Usage impact evaluations often use customers who participated in the program at a later date as the comparison group. These participants serve as a good comparison group because they are eligible for the program and chose to participate. Data for the comparison group participants for the two years preceding service delivery are used to compare their change in usage in the years prior to receiving services to the treatment group's change in usage after receiving services.

The difference between the pre and post-treatment usage for the treatment group is considered the gross change. This reflects the actual change in behaviors and outcomes for those participants who were served by the program. Some of these

changes may be due to the program, and some of these changes are due to other exogenous factors, but this change in energy use is the customer's actual experience. The net change in energy use is the difference between the change for the treatment group and the change for the comparison group, and represents the actual impact of the program, controlling for other exogenous changes.

Table VII-6 displays the gross and net weather normalized energy usage electric impacts that were reported in the evaluations we reviewed. Some of the program evaluations provide gross and net impacts, and some only provide gross impacts. Gross electric savings range from 366 to 3,461 kWh and from 4.7 to 12.5 percent of pre-program usage. Comparison group adjustments to electric usage impacts often show increased estimates of program savings, as all households have been increasing their electric usage over time with the introduction of additional technological electronic devices into the home. Without the use of a comparison group, the treatment group's increase in usage that would have happened in the absence of the program services is not factored into the analysis.

**Table VII-6
Weather Normalized Electric Usage Impacts**

Program	Gross Δ		Net Δ		
	KWh	Percent	kWh	Percent	
CA LIEE	366	7%			
CO E\$P	383	4.7%	440	5.4%	
NJ CP	Electric Baseload	694	10.4%	787	11.7%
	Electric Heat	883	6.8%	1,082	8.3%
OH EPP	High-use	1,684	12.5%	1,615	12.2%
	Mod-use	811	12.5%	697	10.8%
	TEE	3,461	11.8%	3,151	10.7%
PECO LIURP	Electric Baseload	1,115	10.0%		
	Electric Heat	1,629	7.4%		
WI WAP	833	11%			

Graph VII-1 displays the relationship between the amount of pre-treatment electric usage and kWh saved by the program. Gross savings are shown in this graph, as net savings are not available for all of the evaluations. Although there are outliers, the chart shows a clear increase in the amount of savings as the pre-treatment usage increases. The one lower outlier, the CO E\$P, focused on gas measures, and had lower refrigerator and CFL installation rates than the other programs shown in the graph. Therefore, the lower than predicted savings are as would be expected.

**Graph VII-1
KWh Saved By Pre-Treatment Usage**

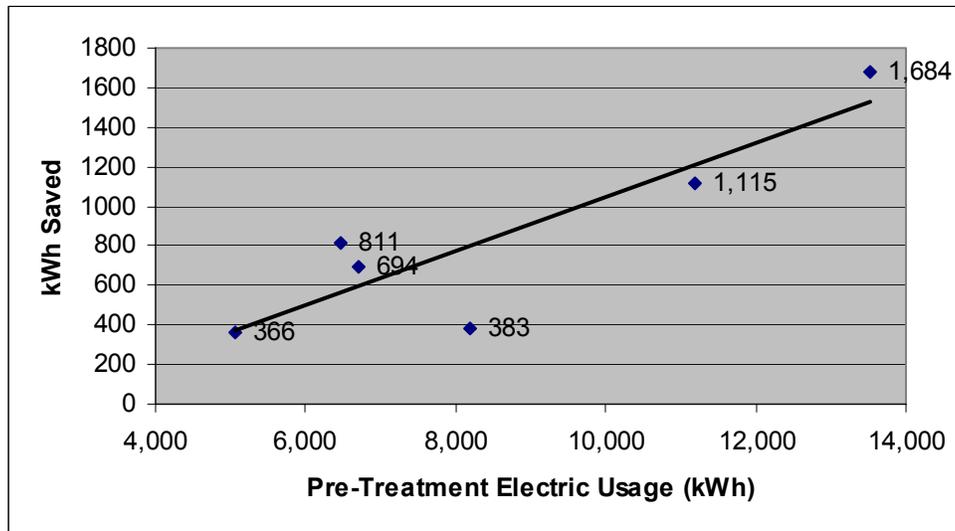


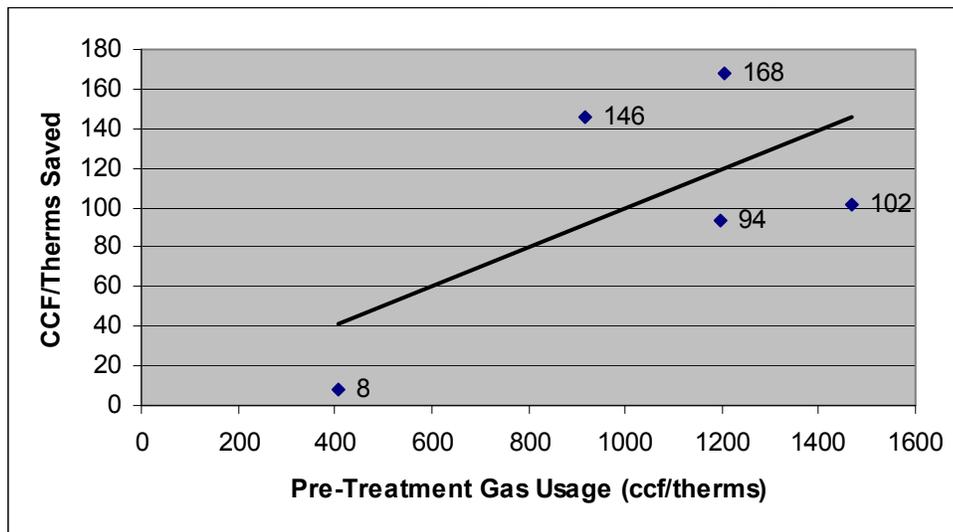
Table VII-7 displays the weather-normalized natural gas usage impacts from the evaluations that were reviewed. The table shows savings that range from 8 therms/ccf to 156 therms/ccf and from two percent of pre-treatment usage to nearly 16 percent of pre-treatment usage.

**Table VII-7
Weather Normalized Gas Usage Impacts**

Program	Gross Δ		Net Δ	
	Amount	Percent	Amount	Percent
CA LIEE	8 therms	2%		
CO E\$P	146 therms	15.9%	125 therms	13.6%
NJ CP	94 ccf	7.9%	82 ccf	6.9%
PECO LIURP	168 ccf	13.9%		
PGW CWP	102 ccf	7.0%	130 ccf	8.9%
WI WAP	156 therms	15%		

Graph VII-2 displays the relationship between the amount of pre-treatment gas usage and ccf/therms saved by the program. This chart shows that there is a relationship between increased pre-treatment gas usage and increased program savings. However, there is greater variability between the predicted and actual savings in this relationship, than in the electric one shown above. While all of the electric baseload savings programs focus on refrigerator and CFL replacement, the gas measure selection is more variable. Additionally, installation of gas efficiency measures such as air sealing and insulation have greater variability in their effectiveness.

**Graph VII-2
CCF/Therms Saved By Pre-Treatment Usage**



F. Energy Efficiency Program Cost Effectiveness

The cost-effectiveness of an energy efficiency program is the extent to which the program results in savings that cover the cost of providing the energy efficiency services. Cost-effectiveness can be examined narrowly from the perspective of only the savings in energy usage, or more broadly in terms of both energy impacts and non-energy impacts. Non-energy impacts that are considered sometimes include increases in economic activity that result from the program, reductions in environmental pollutants due to decreases in energy usage, and increases in participants' health and safety. These non-energy benefits are beyond the scope of this study, which focuses on the reductions in energy costs that accrue to program participants and/or to ratepayers.

Cost effectiveness can be measured in several different ways. We examine two different methods that were included in the reviewed reports.

- *Savings to Investment Ratio (SIR)*: The SIR is the ratio of the amount of savings that results from the program to the costs that were incurred in providing program services. An SIR of one or greater indicates that the program yields at least one dollar of savings for each dollar spent on program services. Programs sometimes require that measures have an SIR of one or greater.

When computing the SIR, benefits are usually calculated as the present discounted value of energy savings over the lifetime of the measures that are installed. Several assumptions are made when computing the present discounted value of the program's benefits. These assumptions include:

- *Measure life*: The measure life is the length of time over which the measures will be used and the program will achieve usage reductions. Often assumptions are

12 years for refrigerators, 7 years (or 10,000 hours if daily use is known) for CFL's, and 15 years for shell measures.

- *Discount rate:* The discount rate is the rate at which future cost savings are discounted because savings today are worth more than savings in the future. This is often assumed to be 5 percent.
- *Future energy prices:* Usage reduction is often valued at the retail cost of gas or electricity. Sometimes expected changes in energy prices are factored into the valuation.
- *Cost per Unit Saved:* The cost per unit saved is the amount of resources that are devoted for each unit of energy that is saved as a result of the program services over the measures' lifetime. The savings are usually discounted to the present to calculate the total present discounted savings.

The program is often evaluated as cost-effective if the cost per unit saved is less than or equal to the current or expected future retail price of gas or electricity. For example, six cents per kWh saved cost would be viewed as cost-effective savings in New Jersey, where the price of a kWh averaged about 12 cents in 2005.

Table VII-7 displays the cost-effectiveness estimates that were provided in the reviewed evaluation reports. The table shows that most of the programs would be viewed as cost effective. The Ohio high-use and TEE programs and the PGW CWP have SIR's that are above one. Most of the electric and gas costs per unit saved are below the retail cost of electricity and gas.

**Table VII-7
Cost Effectiveness**

Program		SIR	Cost per Unit Saved
CO E\$P			\$1.43 (therm)
NJ CP	Electric Baseload		\$0.06 (kWh)
	Electric Heat		\$0.13 (kWh)
	Gas Heat		\$0.97 (ccf)
OH EPP	High-use	1.50	
	Mod-use	0.87	
	TEE	1.27	
PECO LIURP	Electric Baseload		\$0.05 (kWh)
	Electric Heat		\$0.12 (kWh)
	Gas Heat		\$1.02 (ccf)
PGW CWP		1.62	

G. Energy Efficiency Program Bill and Payment Impacts

One of the goals of energy efficiency programs is to make energy more affordable for low-income households through reduced energy usage, and result in improved bill payment compliance. Many of the evaluations that we reviewed analyzed the impact of the programs on participants' energy bills and bill coverage rates. These results are displayed in Table VII-8.

The previous analysis showed that many of these programs reduce usage by about eight to fifteen percent. If energy prices are increasing, gross changes in energy costs will not be as large, but we should see relative reductions in the net changes in bills. Most but not all of the programs studied resulted in gross and/or net reductions in the participants' average energy bills. The NJ Comfort Partners program reduced combination customers' bills by \$234 on average, as compared to the comparison group, the Ohio EPP reduced bills by \$160 and the PGW CWP reduced bills by \$64 as compared to the comparison group.

If customers come close to covering their bill prior to receiving energy efficiency services, the approximately ten percent reduction in energy usage may be enough to help customers meet their bill payment obligations, in the absence of rising fuel prices. Table VII-8 shows that some programs had increased bill coverage rates, but in general significant improvements were not seen.

**Table VII-8
Bill and Payment Impacts**

Program		Bill	Coverage Rate
NJ CP	Electric Non-Heating	Pre: \$793 Post: \$721 Gross Δ: -\$72 Net Δ: -\$95	Pre: 101% Post: 107% Gross Δ: 6% Net Δ: 4%
	Electric Heating	Pre: \$1341 Post: \$1360 Gross Δ: \$19 Net Δ: \$24	Pre: 107% Post: 106% Gross Δ: -1% Net Δ: 2%
	Gas Heating	Pre: \$992 Post: \$1124 Gross Δ: \$131 Net Δ: \$78	Pre: 104% Post: 95% Gross Δ: -9% Net Δ: -1%
	Combination	Pre: \$1656 Post: \$1685 Gross Δ: \$29 Net Δ: -\$234	Pre: 99% Post: 99% Gross Δ: 0% Net Δ: 7%
OH EPP	High-use	Pre: \$1205 Post: \$1143 Gross Δ: -\$62 Net Δ: -\$160	Pre: 58% Post: 59% Gross Δ: 1%
PECO LIURP		Pre: \$1540 Post: \$1493 Gross Δ: -\$47	Pre: 89% Post: 93% Gross Δ: 4%
PGW CWP		Pre: \$732 Post: \$892 Gross Δ: \$160 Net Δ: -\$64	Pre: 95% Post: 89% Gross Δ: -6% Net Δ: 1%

H. *Energy Efficiency Program Evaluation Summary of Findings*

All of the programs resulted in energy savings and for most of the programs the savings were a cost-effective investment of resources. However, the programs vary significantly in the type of customers they target, the energy services they deliver, the overall savings levels, and the cost-benefit ratios and other measures of cost-effectiveness.

- *Targeting* - Programs can have the greatest overall impact if they target lower income households, households with vulnerable household members, and customers that are participating in a ratepayer-funded affordability program. However, at the same time, by focusing on the highest users, programs can yield the highest level of energy savings and can be the most cost-effective. In most cases, programs can jointly target both high users and key demographic groups. However, it is important to clearly communicate those joint objectives in program implementation.
- *Customer Impacts* – In addition to reducing energy usage, programs can have an impact on the health, safety, and comfort of low-income customers. Those evaluations that studied the issues found enhanced levels of both winter comfort and summer comfort for program participants. In addition, one evaluation found a lower level of unsafe use of a stove or oven for heat.
- *Electric Usage Impacts* – Evaluations found that programs saved between 366 kWh per year and 1,629 kWh per year. The higher level of savings was associated both with a higher level of investment in services and targeting higher usage households.
- *Gas Usage Impacts* – Evaluations found that programs saved between 8 ccf per year and 168 ccf per year. The higher level of savings was associated both with a higher level of investment in services and targeting higher usage households.
- *Cost Effectiveness* – Some program evaluations measured the Savings-to-Investment Ratio (SIR), while others measured the program cost per unit of energy saved. Most programs were cost effective. Three of the four programs evaluated had a SIR greater than 1.0, with one program achieving a SIR of 1.62. The average cost per unit saved ranged from 5 cents per kWh to 12 cents per kWh for electric programs, and between 97 cents per ccf and \$1.43 per therm saved for gas programs. Those programs that targeted high users were measured to have the highest level of cost-effectiveness.
- *Energy Bill Impacts* – All programs were measured to reduce energy bills and make energy more affordable for low-income households. However, the programs only had small impacts on payment coverage rates for low-income households.

Ratepayer-funded energy efficiency programs for low-income customers appear to be a cost-effective approach to reducing energy bills over the long run. These programs can effectively complement the impacts of affordability programs.

VIII. Findings and Recommendations

In this study, we have developed comprehensive information that can help policymakers to make decisions with respect to low-income affordability and energy efficiency programs, including:

- Energy Needs – Development of population and energy statistics that document the energy needs of low-income households.
- Legal and Regulatory Framework – Identification of the legislative initiatives and regulatory decisions that are the foundation for existing low-income energy programs.
- Program Design – Documentation of the program design options and analysis of how those options affect client incentives and program effectiveness.
- Program Evaluation – Review of program evaluation studies to document program impacts and to examine how different program models perform.

In this section, we summarize the findings and recommendations with respect to each of these topics.

A. *Energy Needs*

The LIHEAP Home Energy Notebook for FY 2005 documents the rapid growth of the low-income energy bill and can be used to assess aggregate need for energy assistance once policymakers have established an affordability threshold.

- *Energy Expenditures and Burden* – Total energy expenditures for low-income households grew rapidly from 2000 to 2005, increasing by over 40% in just five years. Statistics show that LIHEAP benefits only cover about 5.3% of the total energy bill for low-income households.
- *Need for Assistance* – The median energy burden for low-income households was 9.9% of income, compared to 2.8% of income for households that are not low-income. More than 7.1 million low-income households had an energy burden that exceeded 15% of income and the amount of energy assistance needed to reduce energy burdens to 15% of income was about \$6.1 billion. At its 2005 funding level, LIHEAP benefits only covered about one-fourth of this amount.

These statistics demonstrate why state and local policymakers have found it necessary to supplement LIHEAP funds with state and local resources.

Other reports and data sources furnish other evidence regarding the national need for energy assistance.

- *2003 NEAS* – The 2003 National Energy Assistance Survey found that 88% of recipients reported that LIHEAP was “very important in helping them to meet their

energy needs.” Without their LIHEAP benefits, 39% of recipients indicated that they would have had to “keep their home at an unsafe or unhealthy temperature” and 39% reported that they would have had “their energy services disconnected or discontinued at a time when it was needed to heat or cool their homes.”

- *SIPP Measures of Well-Being* – The “Measures of Well-Being” topical module from the 2003 Survey of Income and Program Participation (SIPP) demonstrates that most low-income households keep up with their energy bills, despite the high energy burden. Almost 80% of households with incomes at or below the poverty level pay all of their utility bills.
- *2001 RECS* – The national RECS data also show that energy efficiency programs could be a cost-effective way to reduce energy burdens for many low-income households. Research on energy efficiency programs demonstrates that programs that target high usage households tend to be very cost effective. The data show that there are about 8.0 million low-income households with high electric and natural gas usage that could be targeted by these programs.

These national data demonstrate the overall need for assistance. However, lower level data are needed to furnish state and local policymakers with an understanding of the needs of low-income households in their jurisdiction and the best options for meeting those needs. We used data from the American Community Survey (ACS) for FY 2005, along with weather data from NOAA and energy price data from EIA, to look at state-level energy needs for low-income households. From these data sources, we were able to develop state-level indicators of need that are more directly relevant to state and local policymakers. Examples of the different circumstances faced at the state level include:

- *Energy Expenditures* – Median low-income baseload electric expenditures ranged from about \$621 in California to about \$906 in Maryland. Median gas expenditures ranged from about \$379 in California to \$1,020 in Ohio.
- *Energy Burden* – Median low-income baseload electric burden ranged from about 4% to 9% and median gas burden ranged from about 3% to 10%. [Analysts suggest that total energy burden of 6% of income represents a moderate energy burden and that 11% of income represents a high energy burden.]
- *LIHEAP Coverage of Need* – At the 15% affordability standard level, LIHEAP coverage at the state level ranged from 6% of need in Nevada to 43% in Wisconsin.

Based on these statistics, it is clear that the issues facing the policymakers in each state are somewhat different and require careful analysis of local conditions.

B. Legal and Regulatory Framework

Utility-funded low-income rate affordability programs have been adopted by multiple states around the nation. Some states have enacted legislation mandating the implementation of such affordability programs. These legislative states have differed in their approaches.

- *Legislative Mandate* – States such as Maine, New Jersey and California have enacted legislation mandating the creation of a universal service program.
- *Legislative Funding* – States such as Maryland and Nevada, have enacted what basically represent funding mechanisms, deferring to state agencies on issues involving how that money is to be best distributed.
- *Legislative Authorization* – Other states – Colorado and Washington are examples - authorize regulatory approval of low-income affordability programs without mandating that such programs be brought forward in the first instance.

Low-income affordability programs created through legislative action have many different attributes, but common patterns emerge.

- *Statewide Coverage* – As a general rule, even if the specifics of programs differ by utility service territory, programs are implemented statewide; Washington electric and natural gas programs and Oregon natural gas programs are exceptions, with program implementation depending on the initiative of individual companies.
- *Regulated Utilities* – As a general rule, programs are limited to regulated utilities; Maine’s Electric Lifeline Program, which extends to consumer and cooperatively-owned utilities, along with Colorado’s Voluntary Energy Affordability Program, are the exceptions.
- *Financial Support* – In virtually all instances, all customer classes are called upon to financially support the programs; Pennsylvania is the exception.
- *Program Budget* – States are evenly split between whether they mandate a program to meet the need, with the budget depending on the program size or whether they mandate a budget, with the program size depending on the amount of money available to spend.

In several states, the low-income affordability programs have arisen out of regulatory action taken without prior explicit statutory attention devoted to the issue.

- *Ohio “Emergency”* – Ohio’s utility commission declared the state to be in an “emergency” due to the number of low-income households losing and remaining without utility service; it thus exercised its regulatory powers to ameliorate that emergency through implementation of the state PIP.
- *Pennsylvania “Wasteful Activities”* – The Pennsylvania state utility commission declared existing processes to be “wasteful,” and adopted its CAP programs as a more effective and efficient tool to use in addressing low-income payment troubles.
- *Indiana “Alternative Regulation”* – Three Indiana utilities sought and obtained approval of their low-income programs from the Indiana Utility Regulatory Commission under the state’s Alternative Utility Regulation (AUR) statute. The AUR allows the IURC to set aside all or parts of its traditional regulatory authority when it finds it to be in the public interest to do so.

- *Maryland “Concrete Benefits”* – The Maryland state utility commission approved a Washington Gas Light low-income winter rate discount after finding that the affordability initiative delivered “concrete benefits” to all customers, including nonparticipants.

Even state utility commissions that have expressed doubt about their regulatory authority to implement permanent statewide programs have adopted smaller programs using different aspects of their regulatory authority.

- *Missouri* - The Missouri utility commission has held that it lacks statutory authority to adopt preferential rates. Nonetheless, that commission has approved multi-million dollar programs by electric and natural gas companies to deliver rate affordability and arrearage forgiveness through specifically-dedicated funds. Program proposals presented to the Missouri commission by agreement or stipulation are more likely to be approved as authorized by statute than requests for programs to be ordered over a company’s objection.
- *Colorado* - The Colorado commission, even before the state supreme court decision proscribing preferential rates was legislatively overturned, approved a low-income energy efficiency program on the grounds that it was cost-effective, while also approving a rate affordability pilot to test whether it could be shown to be cost-effective. “If a program or rate has an economic justification,” the Colorado commission held, “it is distinguishable from the circumstances at issue in *Mountain States*.”
- *Nevada* - The Nevada utility commission took a middle ground. While an energy affordability program was eventually mandated by statute in that state, the commission had previously expressed concern about whether it could authorize discount rates. The commission nonetheless held that resolution of that issue depended on a fact-specific inquiry rather than legal doctrine. The Nevada commission approved a telephone discount rate, saying that it had the authority to adopt such a rate as an “investigation” into whether such a rate would improve affordability in support of the commission’s factfinding.

Programs that have been found to be inefficient, or that have been found to benefit investors more than low-income customers, are more likely to be disapproved. Cost-recovery for an energy assistance program where a Nevada company proposed to spend roughly \$40,000 to raise \$60,000 was disapproved. A proposed Missouri arrearage forgiveness program was disapproved where the state commission found that the real impact was simply to reduce company uncollectibles between rate cases, with the reduced expenses redounding to the benefit of shareholders as increased earnings, more than to deliver affordability benefits to low-income customers.

The ultimate conclusion must be that, while legislative support for a low-income affordability program serves to remove any doubts about regulatory authority to adopt such programs, multiple avenues exist to pursue such programs under well-accepted regulatory principles.

C. Affordability Program Design and Implementation

Our research has demonstrated that there are many different options for designing programs. For each program that we studied, policymakers in that jurisdiction chose to exercise their judgment on what combination of design elements are best suited to the objectives they seek to achieve, their clients/customers, and the specific circumstances in their state. All of the programs successfully enrolled customers, delivered benefits, and made energy bills more affordable for low-income households. However, the program design choices do affect the way that a program performs, and the way that it affects both low-income customers and the utilities involved in the programs. Our analysis suggests that policymakers have important choices to make with respect to the key design elements.

- Program Funding
 - Program Funding Level – Policymakers must determine whether they will set a limit on program funding or serve all eligible customers with a fixed set of program benefits. While a program funding limit allows policymakers to project how the program will affect ratepayers, a fixed program benefit offers greater equity in treating all eligible customers in the same way.
 - Program Funding Source – A systems benefit charge (SBC) gives policymakers the greatest flexibility in terms of contracting for services and delivering benefits across utility service territories. However, since most utilities have included the costs of write-offs and collections activities in their existing base rates, some advocates suggest that funding programs through base rates results in the lowest costs for ratepayers.
- Targeting – If policymakers have specific policy goals and/or the regulatory framework requires that the program focus on certain customers, the program will be targeted to certain kinds of customers. In the absence of such requirements, program managers will need to conduct targeted outreach to certain groups (e.g., elderly, households that speak a language other than English at home) if they hope to serve all customers who need the program.
- Program Benefits
 - Coordination with LIHEAP – Each state LIHEAP program delivers benefits to low-income ratepayers. Coordination with LIHEAP can reduce administrative expenses, improve the equity of programs at the state level, and simplify program design.
 - Computation of Benefits – Programs have used percent-of-income calculations, rate discounts, and benefit matrixes to set program benefit levels. Each approach has certain advantages; it is important for policymakers to understand the trade-offs associated with these options to ensure that the program is meeting policy goals.
 - Level of Benefits – The benefits made available to clients in the programs we studied range from about \$121 to \$1,105 per year. Higher program benefits may

have a greater impact on clients. However, all of the programs are viewed as important by clients and even relatively small benefit levels deliver important program benefits.

- Benefit Distribution – Benefit distribution procedures are extremely important. They have a significant impact on client risks and responsibilities. They also appear to have some impact on program success rates. Policymakers must be careful to choose the payment distribution procedure that best meets their policy goals.
- Arrearage Forgiveness – Programs often attempt to resolve payment problems. Arrearage forgiveness programs are an important program element for customers who enter a program with significant pre-existing arrearages.
- Program Operations
 - Program Administration – Some programs are operated by state LIHEAP offices and others are operated by individual utility companies. Utility companies often contract with local community organizations for certain program services. There are advantages to each approach that must be considered in program design and implementation.
 - Program Certification and Recertification – Policymakers must consider trade-offs between program fiscal integrity and customer participation barriers in designing certification and recertification procedures.
 - Program Benefit Periods – When a program offers a customer a monthly benefit, it is important to consider whether receipt of the benefit will be contingent on consistent customer payments. While payment requirements may be an incentive for improved payment rates, they are often administratively complex, and can result in many clients losing program benefits.

There are many options for program design and implementation. It is important for policymakers to understand the implications of these choices as they establish affordability programs.

D. Affordability Program Evaluations

All of the affordability programs resulted in improved bill affordability for participating customers and most programs resulted in increased bill payment compliance. However, programs vary considerably with respect to the share of participating customers who meet their bill payment obligations, even on a reduced bill. The needs analysis showed that populations differ greatly in the states studied and therefore program design will need to take these population characteristics into account. The following general conclusions can be made with respect to these programs.

- *Targeting Benefits to Need* – Programs can improve their impact by providing benefits to customers that are related to the amount of assistance that customers

need. Indicators of need include arrearages, energy burden, and an unsafe or unhealthy home environment.

- *Facilitating Long-Term Participation* – Many customers continue to need energy assistance over time. Programs can improve affordability by facilitating reapplication or recertification and by allowing customers to continue to participate in the program, even after they have paid off their full arrearage.
- *Forgiveness of Preprogram Arrears* – Arrearage forgiveness is an important component of the program. However, the programs need to improve bill payment compliance. One potential method for improving payment compliance is to provide an arrearage forgiveness component that is tied to bill payment, and to educate customers about this requirement.
- *Integration with LIHEAP* – One of the reasons for the relative success of the NJ USF program was the integration with LIHEAP. Research has shown that there is a large affordability gap, and that the combination of LIHEAP and the ratepayer-funded program benefits may result in improved performance.
- *Equal Monthly Payments* – Customer surveys have shown that customers place great value on equal monthly payments. Comparison of the evaluation results, showing that PGW customers and participants in other programs with equal payments have more continuous and increased cash payments on the programs, provides further evidence that equal payments improve program performance.
- *Refinement of Operational Procedures* – Process evaluation findings often provided detailed recommendations for improving the programs' operations and reducing administrative costs. This report focused on program design issues and did not explore the operational issues in detail. However, from an evaluation perspective, the process analysis is important and can provide insight into program refinements that may significantly improve program performance.
- *Comprehensive Evaluation* – Evaluations that were reviewed differed greatly in terms of the amount of program targeting and performance statistics that were available. Use of an evaluation question list can help ensure that all important program issues are addressed in the evaluation.

Evaluations have demonstrated that ratepayer-funded affordability programs have been successful in achieving many of the goals established for them. However, continued efforts to improve program design and operations are required to realize program potential.

E. Energy Efficiency Program Design and Implementation

Our research has demonstrated that there are many different options for designing programs. For each program that we studied, policymakers in that jurisdiction chose to exercise their judgment on what combination of design elements are best suited to their program, their clients/customers, and their circumstances. All of the programs successfully enrolled customers, delivered energy efficiency services, and reduced energy bills for low-income households. However, the program design choices do affect the way that a program

performs, and the way that it affects both low-income customers and the utilities involved in the programs. Our analysis suggests that policymakers have important choices to make with respect to the key design elements.

- Program Funding
 - Program Funding Level – Policymakers must determine the overall level of funding and how that funding will be allocated. The California LIEE program spent over \$130 million on energy efficiency services for over 160,000 customers in 2006, while other statewide programs spent in the range of \$5 to \$30 million and served between 2,000 and 10,000 customers.
 - Investment Level – Most programs invested a significant amount of resources in each home, in part to cover the fixed cost associated with serving a home. Some programs set a limit on spending or set a target for the average spending per home.
- Targeting – While programs set income limits for eligible customers, some of those limits were higher than the income limits for the affordability program in that state. Some programs restricted energy efficiency program participation to those customers that participated in the affordability program. Some programs restricted program participation to those customers whose energy usage exceeded a target threshold, while others merely targeted the highest energy users.
- Program Benefits
 - Expenditures and Measures – Average expenditures per home ranged from \$522 to over \$6,000. In most programs, a comprehensive set of program measures were eligible.
 - Energy Education – All programs included an energy education component. About half of the programs had special energy education services that were delivered separately from the installation of measures. Some of the programs paid for energy education follow-up activities.
 - Measure Selection – All programs had a protocol for measure selection. Most used an audit procedure of some type, with many using a computerized audit. A few programs used the priority list approach.
- Program Operations – A variety of program management options are available, including management by the utility, the state WAP office, or the Public Service Commission. Whatever management procedure is used, it is important to have an extensive service delivery network of qualified providers, a well-maintained program database, and a quality control procedure.

There are many options for program design and implementation. It is important for policymakers to understand the implications of these choices as they establish energy efficiency programs.

F. Energy Efficiency Program Evaluation

All of the programs resulted in energy savings and for most of the programs the savings were a cost-effective investment of resources. However, the programs vary significantly in the type of customers they target, the energy services they deliver, the overall savings levels, and the cost-benefit ratios and other measures of cost-effectiveness.

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