Energy Affordability Program Design Options

By Jacqueline Berger and David Carroll
APPRISE

More than a dozen states have recently designed and implemented energy-affordability plans that benefit low-income customers. Many others have considered how to best implement new affordability programs. These plans have usually been funded with ratepayer dollars and aim to supplement the state's LIHEAP and other energy assistance programs while minimizing administrative costs.

APPRISE has evaluated several energy-affordability programs and has a comprehensive understanding of potential benefits and drawbacks that may result from different program models. This paper describes options for designing such a program and provides information on the advantages and disadvantages of program models for achieving several program goals.

I. Program Design Options

Many different energy-affordability plan options have been implemented by states and utilities around the nation. These programs differ in terms of administration and eligibility, benefit determination and benefit distribution. This section provides a menu of options for the design of a ratepayer-funded, low-income energy-affordability program. In later sections, we describe advantages and disadvantages of various program models.

- **Program Administration and Eligibility**

One decision to be made in the design is the level to which the ratepayer-funded affordability program is integrated or coordinated with LIHEAP and other state-run assistance programs. We define three levels of coordination.

Integration. One option is to integrate the delivery of LIHEAP and ratepayer-funded benefits. For example, in the New Jersey USF program, both the program application and the benefit determination are integrated with LIHEAP. There is a joint application for LIHEAP and the USF. In the benefit determination, a 3 percent energy burden is targeted for electric and gas service or a 6 percent burden for electric heating service. When calculating the burden, LIHEAP benefits are subtracted from annual energy costs to obtain the net energy costs. The USF benefit is then calculated so that net energy costs are no more than the targeted percentage of income.

Coordination. Another option is known as "presumptive" or "adjunctive" eligibility. Under this approach, individuals who currently receive LIHEAP could be determined to be presumptively eligible for the ratepayer-funded program. That is, they could be given the benefits without submitting a separate application and/or income documentation. This method still allows the ratepayer-funded program to specify a higher income eligibility limit than for LIHEAP, and/or for households to receive the ratepayer-funded program without receiving LIHEAP. These households, however, would be required to complete an application and provide income documentation for the ratepayer-funded program.

Independence. The third option is to have the LIHEAP and ratepayer-funded programs operate independently of one another. They would require separate applications, and benefits for the two programs would be determined independently of one another.

- **Benefit Determination**

Programs that determine the household's benefit level by targeting a particular energy burden must establish a method for calculating or estimating the household's energy costs. Three methods for constructing the costs are using the actual bill, developing an estimated bill or utilizing the average bill.

Actual bill. The New Jersey USF program uses the previous year's annual bill adjusted for expected changes in prices as an estimate of the next year's bill. Utilities send cost data electronically to the state administrator, who then uses those data to calculate the benefit amount.

Estimated bill. Another option is to use an estimated bill. An estimate bill can be based on state-level averages by household size, heating fuel, geography and other demographic characteristics. APPRISE has used Census data to develop average energy costs by fuel, household size and utility type for New York State's LIHEAP office. The office uses these "proxy costs" to develop benefit levels for households who do not provide actual energy bills.

Average bill. A third method is to use the statewide average bill as an estimate of electric costs for all households in the state.

- **Benefit Distribution**

Two different methods for distributing the program benefit are to fix the credit that will be applied to the household's bill or to fix the amount that the household is asked to pay.

Fixed credit. The New Jersey USF program utilizes a fixed credit approach. Under this model, the state calculates the customer's affordability energy burden as 6 percent of income. The difference between this calculated affordable energy cost and the customer's predicted energy costs is the program benefit. The annual benefit is divided by 12 to determine the monthly household credit. Each month, this credit is applied to the household's bill regardless of actual energy usage or energy costs.

Fixed payment. The Philadelphia Gas Works Customer Responsibility Program utilizes a fixed payment approach. Under this approach, the customer's discounted energy charge is calculated as 8, 9 or 10 percent of income, depending on poverty level. This annual charge is divided by 12, and each month the customer is charged this amount. In months where the actual cost is higher, the household is receiving a discount, and in months where the actual cost is lower, the household is receiving a negative discount.

II. Administrative Efficiency

Two important decisions for program administration are the level of coordination between the ratepayer-funded program and LIHEAP and the method that will be used to determine the benefit level.

Program integration can provide benefits by reducing the administrative costs that are associated with the program. When there is one application process for the two programs, there is one less process to implement. The benefits of this approach are apparent when comparing the administrative costs of the New Jersey USF, run by the state LIHEAP administrator, and the Customer Assistance Programs (CAPs), operated independently by each utility in Pennsylvania. Administrative costs of the New Jersey USF are estimated at about 3 percent of program costs, as compared to administrative costs of the Pennsylvania CAPs that averaged 11 percent for electric companies and 5 percent for gas companies in 2005.

While the actual bill may be the preferred method for calculating energy costs, the use of such data can be challenging if data management and data transfer capabilities have not been developed by the

administrator and the utilities. This method requires utility companies to send electronic data on customer costs to the program administrator.

III. Targeting Benefits

Three different methods for benefit determination discussed above were the use of the actual bill, an estimated bill or the state average bill. Use of the actual bill may best target benefits and uniformly reduce energy burden. This method ensures that the greatest benefits are provided to those households with the greatest difference between actual and targeted energy burden. Table 1 shows that this method can reduce energy burdens for households with differing gross energy burdens to a targeted level.

Table 1
Demonstration of Bill Calculation Methods

	Household 1	**Household 2**
Income	$10,000	$10,000
Electric bill	$500	$2000
Gross energy burden	5%	20%
Actual Energy Bill Method		
Targeted 5% burden bill	$500	$500
Benefit	$0	$1,500
Net bill	$500	$500
Net burden	5%	5%
Estimated Energy Bill Method		
Targeted 5% burden bill	$500	$500
Estimated energy costs	$800	$1700
Benefit	$300	$1200
Net bill	$200	$800
Net burden	2%	8%
Average Energy Bill Method		
Targeted 5% burden bill	$500	$500
Estimated energy costs	$1000	$1000
Benefit	$500	$500
Net bill	$0	$1500
Net burden	0%	15%

As stated above, however, there are administrative challenges related to the use of actual energy costs. Therefore, an intermediate level of targeting is to use modeled energy costs as a proxy. Energy costs can be modeled with various levels of precision depending on the household demographic data that are

collected as part of the application process. This method is administratively less complex, but it does not provide benefits that are as accurately targeted to energy burden level.

Table 1 assumes that this method will somewhat overpredict energy costs for the low-cost household and somewhat underpredict energy costs for the high-cost household. As a result, the low-cost household has a net energy burden of 2 percent after receiving program benefits, and the high-cost customer has a net energy burden of 8 percent after receiving program benefits.

The simplest approach is the use of a state level average electric cost to calculate the household's gross energy burden. However, this method will not do a good job of targeting benefits to households with higher need. Table 1 shows that this method would result in a net energy burden of 0 percent for the low-cost household and a net energy burden of 15 percent for the high-cost household. This method, therefore, may not do a good job of providing affordable energy bills for households with the greatest costs and the greatest need for assistance.

IV. Usage Reduction Incentives

The various program models that were described above will have different implications for household usage reduction incentives.

- **Benefit Determination**

The previous section showed how the use of the household's actual bill provides greater benefits and more equalized energy burdens for households with higher energy usage. It can be argued that this method "rewards" households who do not work hard to conserve energy, as households who used more energy in the past year will receive greater benefits in the following year. However, energy usage relates to individual household circumstances and individual household need, as well as to energy conservation behavior. For example, a household with a medically necessary device, an old home in poor condition or a household with many members would be expected to use more energy. Therefore, use of the actual bill also provides greater benefits to those households with the greatest need.

Use of an estimated bill would adjust for some differences in need that relate to household size, geography or other factors that may be incorporated into the model. However, it would not adjust for other specific household differences that cannot be incorporated into the model. The use of an estimated bill would reward households who have lower than average energy consumption given their household characteristics.

- **Benefit Distribution**

The fixed credit and fixed payment models also have different implications for usage reduction incentives. The fixed credit model provides a benefit level that is not dependent on current energy usage. Regardless of the household's actual energy usage, the same benefit will be applied to the customer's bill each month. As a result, this method does provide incentives for energy conservation. However, this model does not provide protection for factors that are outside the household's control. If there is an especially cold winter or there is an increase in household size, there will not be an increase in program benefits, despite the increase in need.

The fixed payment model provides the household with a fixed payment level that does not vary with usage. Therefore, this type of benefit provides additional protection for the client. Previous studies have shown that the fixed payment model does not lead to increased energy usage. The one exception is where the customer's heating fuel is not subsidized. Without a corresponding benefit for the household's

heating source, this method can lead the customer to use electric heat instead of the primary heating source, if the other heating fuel becomes unaffordable. This phenomenon has been observed in programs that have a fixed payment program for electricity but no comparable benefit for the heating fuel.

V. Program Linkages

There are many potential program linkages that can provide benefits to the ratepayer-funded program participants, including LIHEAP, usage reduction programs and other social assistance programs.

- **Linkage to LIHEAP**

The New Jersey USF program provides an example for how the ratepayer-funded energy assistance program can be linked to LIHEAP. This linkage can provide advantages for targeting and benefit distribution. If the ratepayer program ignores LIHEAP benefits, customers who receive LIHEAP will pay considerably less than the targeted percentage of income. If the ratepayer program assumes that LIHEAP benefits will be received, customers who fail to apply for LIHEAP will pay considerably more than the targeted percentage of income.

- **Linkage to Usage Reduction Programs**

There are benefits to linking the ratepayer-funded energy assistance program with usage reduction programs. To the extent that the ratepayer subsidy is dependent on the household's actual energy usage, the linkage will provide benefits to ratepayers by reducing the subsidy that the household receives. To the extent that the subsidy level is fixed, the usage reduction program will provide further assurance that the household's bill is affordable.

- **Linkages to Other Assistance Programs**

Linkages of the payment assistance program to other social services can ensure that eligible and needy households receive program benefits. In New Jersey, for example, households who apply for food stamps automatically are screened for the USF program. This linkage requires that the other program application collect all of the information necessary for the payment program application. There are many other social assistance programs that also could serve as an entry point for the ratepayer-funded payment assistance program.

VI. Summary

This paper reviewed program design options and the implications of these different options for administrative efficiency, benefit determination and usage reduction incentives.

Administrative efficiency. Integration with LIHEAP can reduce program costs. There may be administrative challenges to using the household's actual bill to calculate program benefits.

Benefit determination. Use of actual bills ensures that the greatest benefits are provided to those households with the greatest difference between actual and targeted energy burden. However, use of actual bills "rewards" households with greater energy usage. Use of estimated bills does not target benefits as well to those with the greatest energy burdens, but does provide incentives for reduced energy usage.

Benefit distribution. The fixed credit model provides the same benefit regardless of customer usage, and therefore provides an incentive for usage reduction. However, it does not provide protection for the

customer against changes in energy bills. The fixed payment model provides the same payment regardless of customer usage, and does not provide an incentive for usage reduction. However, this method does protect the customer against changes in energy costs.

The report also explored the benefits that could accrue from linking the program with other low-income programs. These benefits included reduced costs, more accurate calculation of household need when LIHEAP is taken into account, and the enrollment of needy households through linkage with other social programs.

Jacqueline Berger, Ph.D., is the Director of Program Evaluation for APPRISE, a Princeton, New Jersey-based nonprofit research institute dedicated to collecting and analyzing data and information to assess and improve public programs. David Carroll, M.P.A., is the President of APPRISE.