

MODELS OF LOW-INCOME UTILITY RATES

Prepared By:

Roger D. Colton
Fisher, Sheehan & Colton
Public Finance and General Economics
34 Warwick Road, Belmont, MA 02178
617-484-0597 * 617-484-0594 (FAX)**
rcolton101@aol.com (E-MAIL)

(last revised June 1995)^{/1/}

One mechanism to generate fuel assistance for low-income households is through the promulgation of an affordable utility rate. This Chapter describes the various types of low-income rates that are available to public utility regulators. The discussion below seeks to lay out the options available and the various strengths and weaknesses of such options. Eleven basic types of low-income rates have been identified. The discussion below will briefly explain each type and identify their pros and cons. The low-income rate forms discussed below include:

1. The straight rate discount;
2. The income-based rate discount;
3. The marginal cost based rate;
4. The available resource approach.
5. The percentage of income payment plan;
6. The fixed credit approach;
7. The percentage of bill approach;
8. Waiving the fixed monthly customer charge;
9. The inverted block rate approach;
10. The direct vendor payment approach; and
11. Usage-based discounts.

A brief explanation of each will be presented below.

THE STRAIGHT RATE DISCOUNT

^{/1/} Last revision prepared for the Residential Essential Services (RES) Task Force of Washington Gas Light Company, Washington D.C. (June 1995).

The straight rate discount is the model adopted by utilities in California , Massachusetts, Montana and West Virginia. Massachusetts utilities offer across-the-board discounts ranging from 30 to 40 percent to income-eligible households. Mass Electric Company, for example, at its own request in 1991, expanded its 35 percent discount to all LIHEAP-eligible households.^{/2/} In contrast, California utilities, as well as the Montana Power Company, offer an across-the-board 15 percent discount to LIHEAP households.

The basic advantage of an across-the-board discount is its ease in administration. All the utility needs to know is that the household is income eligible. The utility does not need to know the *precise* income level or Poverty status, since the discount remains the same regardless of what the household income is.

There are legitimate reasons *not* to endorse a straight rate discount in lieu of other alternatives. The purpose of a low-income rate should not simply be to provide rate relief to all low-income customers. Rather, the purpose of such a rate should be to recognize in advance those households who will likely find it impossible to pay their utility bills on a regular, timely basis and to collect the maximum amount of revenue from those households in the most cost-efficient and cost-effective way possible. Under a low-income rate, a utility should collect the *entire* bill from households who are likely to be able to pay their entire bill. The rate relief should be offered only to those for whom it can reasonably be determined will not pay their entire bill.

If low-income rates are viewed as a means of collection that will maximize the receipt of revenue from customers who cannot afford to pay their bills while at the same time minimizing all of the expenses associated with collection and nonpayment, across-the-board discounts have a less direct connection to collection savings and, therefore, may be more difficult to justify on a benefit-cost basis.^{/3/}

When viewed from this perspective, it is possible to determine the advantage of the income-based programs. Providing a 30 percent discount to a household with a monthly bill of \$50, in other words, is probably unnecessary to obtain payments while providing a 30 percent discount to a household with a \$150 bill is probably insufficient to obtain payments. In both of these cases, the discount is provided with no reasonable expectation that there will be any offsetting savings in expenses and with no reasonable expectation that there will be any enhancement of the revenue stream that is generated as a result.

While an across-the-board discount is easy to administer, it is not necessarily effective at redressing inability-to-pay problems nor efficient in doing so in any type of cost-justified manner. It will likely provide benefits to some customers who don't need it, while providing insufficient benefits to those households most in need.

THE INCOME-BASED STRAIGHT RATE DISCOUNT

^{/2/} The discount had previously applied to AFDC, SSI and similar recipients.

^{/3/} Across-the-board discounts may, however, as discussed in subsequent sections, be cost-based on marginal-cost grounds.

A variation of the straight rate discount is a targeted discount based on Poverty Level. Public Service of Colorado is testing this approach in a two year pilot program starting in the fall of 1993. In the PSCO program, PSCO will offer a discounted rate to selected income-eligible households. The rate will vary depending upon the participant's federal Poverty Level. A customer living at 25 percent of the federal Poverty Level, in other words, will pay a smaller percentage of a monthly bill than a customer living at 75 percent of the Poverty Level. The proposed percentage of bill to be paid by each Poverty Level range for PSCO is set forth below.

PSCO offered its rate to households whose incomes are at or below 100 percent of the federal Poverty Level. The rate will involve four tiers, with each tier having a different payment requirement. Under this approach, lesser payments are required from households living at lower federal Poverty Levels.

The PSCO rate will involve credits applied to the customer's heating bill. At present, the company provides the Colorado State LIHEAP program with estimates of a customer's six month heating consumption. These estimates will serve as the basis for the rate. Hence, if the heating bill provided to the LIHEAP agency is \$500, and the PSCO discount credit is 40 percent, the household will receive a \$200 credit being subtracted from the \$500 bill.

The intent of the pilot is to tie the discounted rate into the existing LIHEAP structure to the maximum extent possible. The credit will be provided as a monthly fixed credit during the twelve month program year as defined by LIHEAP. At present, PSCO provides an estimated heating bill to the state LIHEAP agency to serve as a basis for the LIHEAP grant. Under the pilot rate, that estimated heating bill will be multiplied by a predetermined percentage. The resulting lump sum will be divided by twelve to obtain a fixed monthly credit. The fixed credit will be provided to the pilot participants for each month in which a payment is made.

Households participating in the rate will be required to enter into 12-month Budget Billing plans with the company. Each bill will thus set forth: (1) the total fully embedded bill; (2) the PSCO credit reducing that bill in accord with the income-based discount matrix; and (3) the LIHEAP benefit *pro rated* for the particular month. The LIHEAP benefit will be provided *after* application of the PSCO credit and will not reduce the bill to less than \$0.

The PSCO rate discount matrix is set forth below:

Pilot Rate Discounts: Public Service Company of Colorado	
LEVEL OF POVERTY	Percentage of Bill Rate
0 - 25%	40% off
26 - 50%	20% off
51 - 75%	15% off
76 - 100%	10% off

To illustrate the operation of the rate, a hypothetical example is set forth below. PSCO provides an

estimated heating bill of \$500, with the PSCO credit being 40 percent. The \$200 credit ($500 \times .40 = 200$) is divided by the 12 months of the program year. For each month in which this participant makes a full bill payment, therefore, PSCO will provide a fixed credit of \$16.67 ($200 / 12 = 16.67$).

The fixed credit is independent of the actual energy bill. If a household increases energy consumption, that household bears full responsibility for the increased bill. If a household conserves energy, the household pockets the savings. The change in consumption, however, will presumably be reflected in the following year's estimated heating bill.^{/4/}

As can be seen, the PSCO rate discount combines elements of the straight rate discount discussed above, and the income-based percentage of bill and fixed credit approaches discussed below.

THE MARGINAL COST BASED RATE

An alternative rate model is a marginal-cost-based rate. Under such a program, the utility structures the customer's payment obligations explicitly to recover the variable costs of serving the customer plus obtain some contribution toward the fixed costs of the system.^{/5/}

In essence, this proposal is no different from the "incremental rates" that many states offer their large natural gas and telecommunications customers who have the ability and inclination to engage in bypass. If the program is structured so that it will recover the variable costs of delivering natural gas to program participants, the reasoning goes, all other ratepayers on the system are no worse off because of the program. To the extent that the program can be structured to make some contributions toward fixed costs, other ratepayers benefit from keeping those customers on the system.

This justification for low-income rates has been adopted in Pennsylvania and New York proceedings. The Pennsylvania Public Utilities Commission, in its November 1990 *Equitable Gas* decision, appropriately held:

Even assuming hypothetically that EAP participants would be benefitted at the expense of other ratepayers, that "subsidy" would be warranted by the Commission's previous endorsement of the principle of maximizing margin or contribution. Under this principle, sales to EAP customers are justified as long as the rates recovered the incremental cost of serving the customer plus some contribution toward fixed costs. According to Equitable's uncontested evidence, EAP is projected to recover the average commodity cost of gas when both the participants' direct payments (at the minimum 8% of household income) and assistance funding (for which they are required to apply under the Company's proposal) are considered.^{/6/}

^{/4/} The heating bill provided to LIHEAP each year will *not* reflect the fixed credit associated with the Percentage of Bill Rate. That heating bill, in other words, will reflect the bill prior to application of the Percentage of Bill Rate.

^{/5/} Indeed, such rates are akin to the interruptible, economic development, business retention and similar rates adopted for manufacturing plants.

^{/6/} *Pennsylvania Gas Commission vs. Equitable Gas Company*, 73 Pa.PUC 301 (1990).

Moreover, the *Equitable* decision correctly noted:

Flexible pricing reflects an identical policy objective of maximizing a utility's revenues. The Commission's approval of Equitable's Gas Rate 5 in 1982 is a case in point. That rate enabled Equitable to sell gas to industrial and other large users at a rate less than the otherwise applicable retail tariff upon proof that the customer had an available alternate fuel supply source that was cheaper than the regular retail tariff. (citations omitted). In the *UGI* case, the commodity cost of gas was specifically established as the floor rate.^{/7/}

"For these reasons," the Pennsylvania commission concluded, "the creation of EAP does not constitute unreasonable rate discrimination, and instead, is in the public interest."^{/8/}

In 1991, another Pennsylvania utility, National Fuel Gas Distribution Corporation, proposed an explicit marginal-cost-based rate for its payment-troubled customers. In support of this rate, the Pennsylvania utility explained to the Commission:

National Fuel has a number of programs designed to aid low-income consumers. Uncollectible balances remain, nevertheless, a significant concern. National Fuel's proposed discount rate is an additional attempt to address the growing problem of uncollectibles among its low-income residential customers.* * *A premise that repeatedly surfaces in discussions on this matter is that payment-troubled low-income customers are discouraged from making payments for their use of National Fuel's services by the apparent unaffordability of such services. The hypothesis therein is that if National Fuel's services were made more affordable for these customers, they would make a greater effort to pay for all or part of the services which they consume. The result, therefore, would be a greater dollar contribution by these customers to the cost of their service and thereby a reduction in the rate of growth of uncollectible balances. The net consequence of which would be a reduction in the subsidy exacted from remaining customers. The proposed Low-Income Residential Assistance Rate is an experiment which is designed to test that hypothesis.^{/9/}

Effective October 1, 1994, Brooklyn Union Gas offered a Reduced Residential Rate to low-income customers which consists of a minimum block charged based on the marginal cost.^{/10/} The New York State Public Service Commission approved a settlement agreement containing the rate.^{/11/} The

^{/7/} *Id.*

^{/8/} *Id.*

^{/9/} Direct Testimony and Exhibits of Vincent Esposito, at 3 - 4, *Pennsylvania Public Utility Commission v. National Fuel Gas Distribution Corp.*, Docket No. R-9111912 (1991).

^{/10/} *See generally, State of New York Public Service Commission v. Brooklyn Union Gas*, Case 93-G-0941 (1994).

^{/11/} Case 93-G-941, *Proceeding on Motion of the Commission as to Rates, Charges, Rules and Regulations*

marginal cost was estimated using a decremental or avoided cost study.

A low-income rate that explicitly sets per kWh (or per therm) charges equal to the variable cost of service plus a pre-determined fixed cost contribution might involve a fixed cost contribution of 4.5 cents per kWh (or 12-15 cents per therm).

Note again --this is crucial-- that under a marginal cost based rate, the price paid by the household is *not* simply the fixed cost contribution, but rather is the variable cost *plus* the fixed cost contribution. Thus, on the electric side, a 4.5 cent fixed cost contribution would be added to a variable cost which is likely going to be roughly 2.0 to 2.5 cents. On the natural gas side, the fixed cost contribution will be added to a variable cost that is likely going to be from 25 to 40 cents.

The marginal cost based rate has much to commend it. It explicitly meets the tests necessary to protect the low-income rate against claims of discriminatory ratemaking. It looks, smells and feels like its industrial counterparts: the economic development rate. It is well within mainstream regulatory thinking.

A marginal cost based rate does not explicitly consider affordability. The rate can and should be structured so as to provide rate discounts in the range of 35 - 40 percent. Still, there will be some very low-income households, who are very high users, whose energy bills will not be brought down to an affordable level by the rate. Based on either an available resource test, or a percentage of income test, these households will still be "in need."^{12/}

The marginal cost-based model is the best of the approaches that do not expressly consider affordability as one design criterion. The marginal-cost-based rate explicitly covers the variable cost of providing service. It falls within well-recognized and generally-accepted standards of regulatory control. It looks, smells and feels like industrial discount rates that are frequently approved in each of the electric, natural gas and telecommunications industries. While it perhaps is the most conceptually "pure" model, there may still be some low-income households who receive unaffordable bills under such an approach. Nonetheless, it is a model which is far superior to the straight across-the-board discount as defined and discussed above.

(. . .continued)

of the Brooklyn Union Gas Company for Gas Service, Opinion 94-22 (issued October 18, 1994).

^{12/}

The response to such an argument is that these low-income, high use, households should be targeted for conservation measures. The existence of a few such households should not scuttle the entire rate for all low-income households.

THE AVAILABLE RESOURCE MODEL

At the other end of the spectrum from the non-income-based straight rate discount and marginal cost based rate is the "available resource" model of low-income rates. At least two jurisdictions consider ability-to-pay in their low-income rates, but look *not* at energy bills as a percentage of income as their definition of need. Instead, these jurisdictions base their energy bills on a calculation of disposable income left after paying "necessary" household expenses. This is the principle underlying the Customer Assistance Program (CAP) adopted by Philadelphia Electric Company^{13/} as well as behind the entirely different WRBCC^{14/} payment plan approach offered by the Philadelphia Water Revenue Bureau. The Iowa Affordable Heating Payment Plan, also, is based on this available resource test.

The "available resource" definition of need states that it matters not so much what portion of a household's income is devoted to home energy bills. Instead, the utility asks simply whether there is enough household income to pay those bills at all, irrespective of whether household income is above or below a designated percentage of Poverty Level.

To base a utility bill upon this determination of available resources requires the construction of a household budget. Using income and expense statements provided by the customer to the utility, a determination is made of the extent to which low-income households have little or no income left after paying other essential household expenses. This model posits that the income available to pay heating costs includes only the amount remaining after gross income has been reduced by monthly out of pocket expenses for housing (rent, or mortgage, insurance, and taxes), recurring medical costs, child support or alimony payments, nonheating electricity usage, and the like.

Jurisdictions range in what portion of the "available resources" must be devoted to payment of the home energy bills. Iowa's Affordable Heating Payment Program (AHPP), for example, requires that 25 percent of the available income be paid toward home energy. PECO's program requires that 50 percent be paid.

Arguments against using this mechanism include criticism of the "Big Brotherism" inherent in evaluating what are "essential" household expenses, the administrative costs of making individualized determinations, and the inherent possibility of having different utility customer service representatives apply different standards to similarly situated households.

Clearly, the most effective way to match a low-income rate to an inability-to-pay is to engage in the individual income and expense statement process underlying the available resource programs. However, "effectiveness" is not the only criterion by which to gauge such a program.

One primary criticism of the available resource approach is its *inefficiency*. Given the realities of being poor in America, it serves no function to require households to prove their inability to pay, a foregone conclusion for households at or below 150 percent of poverty. One recent Washington State study

^{13/} This should not be confused with the Energy Assurance Program adopted by the Philadelphia Gas Works or the Customer Assistance Program adopted in Pennsylvania by Columbia Gas Company, both of which are percentage-of-income-based.

^{14/} Water Revenue Bureau Conference Committee (WRBCC).

found, for example, that "the net resources test is not a good means of establishing low-income "energy needs." It tends to prove too much. All one person households in all counties with incomes of less than \$8,000, for example, were found to have an "energy need" as measured by this test."^{/15/} That study concluded:

Several conclusions can be drawn from this net available resource data. First, a net available resource test does *not*, in fact, identify those households who, because of extraordinary or higher than normal [household] expenses, cannot afford to pay their home energy bills even though those [energy] bills are less than a designated percentage of income. When the test identifies nearly 100 percent of the population as being "in need," it becomes clear that the test simply confirms that low-income households have an absolute mismatch between income and expenses rather than confirming any relationship between extraordinary expenses and unaffordable energy bills. The net available resource measure of energy needs, in other words, is not effective at targeting assistance to those households who might otherwise be denied assistance because their energy burden (as a percentage of income) does not exceed a designated amount.^{/16/}

THE PERCENTAGE OF INCOME PAYMENT PLAN

The straight percentage of income payment plan (PIPP) is the low-income model that the Philadelphia Gas Works (PGW) adopted in 1989. After testing the program on 5,000 households, the Philadelphia Gas Commission directed that the program be expanded to 15,000 participants in 1991. A February 1993 evaluation of the program recommended that it be expanded to the entire LIHEAP population and be made permanent.^{/17/}

The PGW program is the "basic" PIPP approach. Energy bills are set equal to a percentage of the household's income. A "tiered" approach is most commonly used. This tiered approach differentiates required percentage of income payment amounts depending upon the federal Poverty Level at which the household lives. Thus, for example, a customer living at 0 - 50 percent of Poverty might pay five percent (5%) toward her home energy bills; a customer at 51 - 100 percent of Poverty would pay six percent (6%); and a household at 101 - 150 percent of Poverty would pay seven percent (7%).

Distinctions are also made between heating and non-heating customers. A heating customer might be asked to pay seven percent (7%) of the household's income toward her home heating bill, while a non-heating customer would be asked to pay three percent (3%) toward her domestic utility bill.

In order to be eligible for a straight percentage of income payment plan model, customers would be required to meet *both* of two requirements: (1) they must have annual income of at or below the

^{/15/} M. Sheehan and R. Colton (1994). *An Assessment of Low-Income Energy Needs in Washington State*, at 82 - 83, Fisher, Sheehan & Colton, Public Finance and General Economics: Scappoose, OR.

^{/16/} *Id.*

^{/17/} The evaluation recommended several program improvements, however.

eligibility guidelines (most often set at 150% of Poverty); *and* (2) they must have an annual bill that is at or *above* the required income percent. Bills that are at or below the required income percent are assumed to be affordable, even if a household is otherwise income eligible for the PIPP.^{/18/}

The household is thus billed each month at the PIPP amount, irrespective of consumption. If a household has an annual income of \$6,000 and a PIPP percent of six percent, therefore, the *annual* household payment due is \$360 ($\$6000 \times .06 = \360). The household thus owes \$30 per month ($\$360 / 12 = \30) as their PIPP payment.

Arguments against use of this approach to developing low-income rates include the definition's failure to account for household-specific expenses (such as high medical expenses), a failure to *justify* what percentage is to be deemed "affordable," and a failure to account for the large number of low-income households who pay their bills notwithstanding the fact that the bills exceed the affordable percentage.

THE FIXED CREDIT APPROACH

The fixed credit approach is the first of two modifications of the straight PIPP model. This fixed credit approach has been adopted by Central Maine Power Company (CMP).

The fixed credit approach begins as an income-based approach, much like the straight PIPP model. In order to be eligible for the rate, a household must meet *both* eligibility criteria: (1) that the household income is at or below 150 percent of Poverty; and (2) that the household bill is at or above the required income percent. Similarly, akin to a straight percentage of income model, the required percentage of income payment will likely be tiered, varying in proportion to the Poverty Level at which the household lives.

The difference in the fixed credit approach comes in the calculation of the bill to the household. The fixed credit calculates what bill credit would need to be provided to the household in order to bring the

^{/18/}

Under an income-based approach, if, because of relatively higher income or relatively lower home energy bills, the pre-determined percent of a household's income (plus LIHEAP) will exceed their annual gas bill, the household will receive no benefit. In those instances, the home heating bill is deemed "affordable" and the utility will collect the entire fully-embedded rate. Only in those instances where the household, due to low-incomes or high bills, faces an energy bill that exceeds a designated percentage of its income (if a heating customer), and a lower percentage of its income (if a non-heating customer), do we conclude that it is reasonable to expect payment problems in the near and long-term and offer the low-income rate as an alternative collection process for those bills.

To illustrate, assume a household has an annual income of \$15,000, an annual energy bill of \$700, and is asked to pay eight percent of her income toward her energy bill in an income-based program. Her income-based energy bill payment would be \$1200 ($\$15,000 \times .08 = \$1,200$). Hence, she would decide to *not* participate in the income-based rate, since her fully-embedded bill is \$500 *less* than the bill rendered under the low-income "discount."

One can thus easily determine that households who are likely to be able to pay their energy bills in a full and timely fashion are *not* the households who are likely to choose to participate in an income-based low-income rate. Instead, only those households who have a mismatch between income and utility bills will choose to participate.

household's energy bill down to a designated percent of income. To calculate the fixed credit involves three steps: (1) calculating a PIPP payment; (2) calculating an annual bill; and (3) calculating the extent of the fixed credit necessary to bring the annual bill down to the PIPP payment. Each step is explained below.

1. The first step in the fixed credit model is to calculate a PIPP payment. Again assume that the household has an annual income of \$6,000 and is required to pay six percent (6%) for its home energy bill. The required household payment is thus \$360. This is simply $\$6,000 \times 6\% = \360 .
2. The next step is to calculate a projected annual household energy bill. This calculation is to be made using whatever method the utility *currently* uses to project annual bills for other purposes. A utility, in other words, will probably have an established procedure for projecting an annual bill for purposes of placing residential customers (low-income or not) on an Equal Budget Billing Plan (where bills are paid in equal installments over 12 months). Let's assume for purposes of illustration that this existing process results in an estimated annual bill of \$960.
3. The final step is to calculate the necessary fixed credit to bring the annual bill down to the PIPP payment. Given an annual bill projection of \$960 and a PIPP payment of \$360, the annual fixed credit would need to be \$600 ($\$960 - \$360 = \600). The household's *monthly* fixed credit would be \$50 ($\$600 / 12 = \50).

Under the fixed credit model, therefore, the utility provides a \$50 fixed credit to the low-income household irrespective of the household's actual bill. If the household increases its consumption, and thus has a higher bill, the household pays the amount of the increase. If, in contrast, the household conserves energy and thus lowers its bill, the household pockets the savings.

The increase or decrease in the size of the bill need not be a result of the household's actions. If there is an extremely cold winter, and the heating bill increases, the household pays the increase. If there is a moderate winter, and the heating bill goes down, the household pockets the savings. The fixed credit provisions, in other words, effectively places the risk of changes in consumption on the household.

THE PERCENTAGE OF BILL APPROACH

The percentage of bill approach is more like the fixed credit model than it is to any other existing model. The percentage of bill approach is the approach adopted by Columbia Gas Company of Pennsylvania, and endorsed by the Pennsylvania Public Utility Commission as a result of that Commission's 18+ month study of how to control uncollectible accounts in Pennsylvania.

Again, the model begins by calculating a PIPP payment. As before, with an annual income of \$6000 and a six percent (6%) PIPP payment, the PIPP payment is \$360 per year.

As with the fixed credit model, the utility calculates an estimated annual bill. This estimate is developed using whatever methodology presently exists for doing so. This methodology is likely to be the method used for estimating annual bills for purposes of 12 month Levelized Budget Billing Plans. Let's

assume for the purposes of analysis that the estimated annual bill is \$1000.

It is the next step at which the percentage of bill approach differs from the fixed credit model. Under the percentage of bill model, the PIPP payment is simply converted into a percentage of the annual bill.

Under the assumptions above, with a PIPP payment of \$360 and an annual bill of \$1000, the proportion of the bill owed by the participating household is 36 percent. The utility would, therefore, bill the participant 36 percent of whatever the full bill would otherwise be. If the annual bill is \$1000, the percentage of bill model would bill the customer \$360. If, in contrast, the annual bill is \$1200, the percentage of bill model would bill the customer \$432 ($\$1200 \times .36 = \432). If the annual bill fell to \$800, the percentage of bill model bill would fall to \$288 ($\$800 \times .36 = \282).

Under the percentage of the bill approach, in other words, if the household increases its consumption, and thus its bill, the household payment goes up in direct proportion to the increase. Conversely, if the household conserves energy, and the consumption (thus the bill) goes down, the household payment goes down as well. As can be seen, unlike the fixed credit provision, where the household bears the entire risk of changes in the bill, under the percentage of the bill approach, the risk of increases in consumption is shared between the company and the customer in proportion to the percentage of bill percent.

WAIVED CUSTOMER CHARGE

Waiving a company fixed monthly customer charge is the form of low-income rate discount that has been adopted by a number of southern utilities.^{/19/} Utilities in Georgia and Alabama have pioneered the waived monthly customer charge. Pursuing such a discount will likely deliver benefits in the range of \$8 to \$12 a month (*i.e.*, \$100 - \$140 per year).

There are advantages to the waived customer charge approach to providing low-income discounts. The first involves its administrative simplicity. While a household would be required to demonstrate income-eligibility, such a demonstration is a "yes/no" proposition. Utilities need not determine the *precise* level of income^{/20/} so long as they are assured that the household is below the eligibility cap.^{/21/} Indeed, utilities adopting a customer charge waive tend to create categorical eligibility. For example, households who can show they receive public benefits such as Supplemental Security Income (SSI), Aid to Families with Dependent Children (AFDC), or LIHEAP will be provided with the customer charge waiver.

As above, establishing categorical eligibility for a customer charge waiver will reduce administrative burdens and increase participation. Moreover, since the customer charge is not a usage-based charge,

^{/19/} Customer charges can be discounted or frozen at existing levels, as well, without being completely waived. In many states, customer charges have been rapidly increasing.

^{/20/} Demonstrating a precise level of income is necessary in an income-based approach to permit the calculation of a percentage of income burden.

^{/21/} For example, one need only demonstrate that they receive AFDC or SSI, rather than demonstrating what their level of income is.

it can be waived with no fear that households will lose any "price signal" provided by rates and thus indiscriminately increase consumption.^{/22/}

Additional advantages of the customer charge waiver include its modest cost. Universally, the benefits of a waived customer charge will be lower than those benefits provided pursuant to either an income-based or a consumption-based discount. One study of Connecticut utilities found that "the waiver of the fixed monthly customer charge would represent an effective discount of from 8.3 percent to 12.2 percent of the annual bill, depending upon the company."^{/23/}

The disadvantages of a waived monthly customer charge are similar to the disadvantages of a straight rate discount. The waiver of the customer charge is not related to the energy burden of the low-income household. A household who has an energy burden of 30 percent receives precisely the same dollar discount as does a household with an energy burden of three percent. Indeed, unlike a straight rate discount, where the percentage discount remains the same but the dollar discount goes up as consumption does, the waived customer charge takes one more step away from targeting based on need. Accordingly, it is less likely than even the straight rate discount to generate off-setting savings in credit and collection expenses, working capital, and the like.

INVERTED BLOCK RATES

The inverted block rate is a commonly used rate design. Under an inverted rate, the price of energy increases as consumption goes up. Hence, an electric company might have three blocks of consumption priced as follows:^{/24/}

Potential Electric Inverted Block Rate	
Consumption Range	Rate/kWh
0 - 400 kWh	\$0.06/kWh
401 - 750 kWh	\$0.075/kWh
751+ kWh	\$0.10/kWh

From a low-income perspective, the theory is that low-income households systematically tend to have lower consumption. Accordingly, these households will benefit from the lower prices for the lower

^{/22/} For a discussion of why rates do not provide price signals to low-income households, *see generally*, Colton, (1990). "Customer Consumption Patterns within an Income-Based Energy Assistance Program." 24 *Journal of Economic Issues* 1079.

^{/23/} R. Colton (1992). *Filling the Gaps: Financing Low-Income Energy Assistance in Connecticut*, at 69 - 70, Fisher, Sheehan & Colton, Public Finance and General Economics: Belmont, MA.

^{/24/} Clearly, this approach can be used by a gas company as well.

consumption blocks.^{/25/}

There are substantive advantages to using an inverted block rate structure as a substitute for a "low-income" rate. Perhaps the biggest substantive advantage is the fact that block rates deliver benefits to low-income households outside of any low-income administrative structure. This results in two advantages. First, the delivery of the benefit is universal. No low-income household is denied the rate because she is either unable or unwilling to make that application.^{/26/} "Coverage" of low-income households, in other words, is 100 percent. In contrast, programs depending on a connection with LIHEAP often tend to be limited to 35 to 40 percent of the total low-income population.

A second advantage of the universal coverage aspect is the lack of *any* administrative cost. Since an inverted block rate applies to *all* households, low-income or otherwise, there is no need for a utility (or anyone else such as a LIHEAP agency) to engage in outreach, to have intake and income verification, or otherwise to engage in such administrative tasks. The customer will receive the lower price on the lower blocks merely by being an electric or gas customer.

A third advantage of the inverted block rate is the cost-justification that can be mustered in its favor. Irrespective of any impacts on low-income households, the general rule is that the cost of energy production increases as consumption goes up. Accordingly, pricing the initial block lower and the tail block higher most likely follows the system economics of a utility, even setting low-income interests aside.

In contrast to the substantive advantages of an inverted block rate, there are substantive *disadvantages* as well that likely make such an approach an unacceptable means of delivering benefits to low-income households. The first disadvantage is that inverted block rates may hurt those households who need help the most. Inverted block rates do not make judgments or distinctions about consumption. Whatever the cause of higher usage, the higher prices will apply. Accordingly, while as a class, low-income households tend to consume less than the residential population as a whole, there are low-income households with high consumption who will be hurt by inverted block rates. Low-income households with larger families and higher consumption, low-income households who live in energy inefficient dwelling units, and low-income households who have been forced to "double-up" families due to unaffordable shelter costs, will all be hurt by inverted block rates.

Indeed, households who *now* have high percentage of income energy burdens because of low incomes and high energy bills will likely see their bills go *up*, not down, as a result of inverted block rates.

Irrespective of the harmful impacts on specific households, inverted block rates carry the same disadvantage that straight rate discounts carry. While on the one hand, the universal nature of inverted blocks can be viewed as an advantage, on the other hand, the uniformity of this universal coverage can

^{/25/} The notion that low-income households systematically have lesser consumption is based in fact. *See generally*, U.S. Department of Health and Human Services, ***Low-Income Home Energy Assistance Program Annual Report to Congress, Fiscal Year 1992*** (Feb. 1994).

^{/26/} A November 1994 FSC study of Washington Gas Light in Washington D.C. found a relationship between the lack of telephones in a low-income house and the lack of participation in LIHEAP.

instead be viewed as a disadvantageous lack of targeting. A low-income household facing an affordable three percent energy burden, in other words, receives precisely the same rate break as the low-income household facing an unaffordable 30 percent energy burden. In the first case, the rate break is unnecessary to make bills affordable while in the second, it is insufficient.

THE DIRECT VENDOR PAYMENT PROGRAM

The direct vendor payment program is a low-income discount tied to receiving directly vendored payments from certain public assistance programs. The program, pioneered in Michigan, can, for example, allow households to directly vendor payments of portions of their AFDC benefits to the utility in exchange for a rate break --this might include, for example, arrearage forgiveness-- offered by the company. Moreover, at least one utility, Consolidated Edison, does not charge local sales tax on Home Relief accounts for which direct-vendored utility payments are received.

Direct vendor payment programs can be tied to any public benefit where the agency has the ability to make direct wire transfers of dollars to the utility. Such direct vendor payments are not uncommon. Indeed, in virtually every state in the nation, LIHEAP benefits are made in the form of direct vendor payments.

One situation where direct vendor payments are perhaps valuable is in dealing with tenants living in publicly assisted housing. Utility allowances provided to such tenants would be paid directly to the utility by the local Public Housing Authority (PHA). As a result of such payment, the utility will capture the full annual utility allowance to be credited against the annual utility bill.^{/27/}

Several advantages arise from the direct vendor payment program.

1. The direct vendoring of payments will eliminate most credit and collection expenses for the affected households during the course of the year as well. The "affordable" portion of the bill --i.e., that portion covered by the direct vendor payment, will *automatically* be paid each month to the utility.
2. The direct vendoring of payments will eliminate the greatest portion of revenue lag days for these customers. The transfer of payments from the public agency to the utility would be subject to negotiation. It should not be expected that the company would negotiate a payment timing involving substantial lag days.
3. A reduced rate for directly vendored accounts is a cost-based rate. The cost of serving these customers is clearly lower than the cost of serving other residential customers because the payment is guaranteed without the need to send individual bills and incur

^{/27/}

Houston Lighting and Power Company agreed in a rate case stipulation to operate a multi-year pilot program examining the direct vendor payment of utility allowances. The pilot program will involve the creation of a shadow billing computer program which will track what revenues and expenses would have been incurred had direct vendor payments been received and compare those results to what is actually happening in the absence of direct vendor payments. See, *Complaint of Kenneth D. Williams Against Houston Lighting and Power Co.*, Docket No. 12065, Stipulation and Agreement, at 30 (Feb. 22, 1995).

collections expenses.

While utility allowances for assisted housing seems clearly possible, as the Michigan utilities have shown, other public benefit programs, as well, can involve such direct vendor payments.

USAGE BASED DISCOUNTS

A final model available to provide low-income rate discounts involves a "usage-based" model. Central Power and Light Company (CP&L), in Corpus Christi, Texas, for example, has adopted its Economy Residential Service (ERS) rate for individually metered primary residential dwellings. This rate is available to customers if during the past twelve months, their monthly usage for each month has been 500 kWh or less. The customer will be allowed to remain on the ERS rate so long as their monthly usage is less than 5000 kWh (or 16.67 kWh per day). So long as the customer maintains consumption within the limits of the availability criteria for the rate, a discounted rate is applied to the entire consumption of that customer. When, however, the customer exceeds the allowable consumption cap, the discount is lost for the *entire* amount.

One of the primary purposes of CP&L's ERS rate was to deliver rate benefits to low-income, low-use customers. The use of the 500 kWh cut-off was intended to be a surrogate for low-income households.

A model with similar groundings has been adopted by Tucson Electric Power Company. TEP's "Residential Lifeline Discount Rate Program" offers differing levels of discounts based on a customer's monthly energy usage. To be eligible for the Tucson discount rate, a customer is required to be on the basic residential rate and to have income at or below 150 percent of the federal Poverty Level. Customer meeting these eligibility criteria are then eligible for rate discounts ranging from 15 to 25 percent. In addition, if a customer is age 65 years or older, he or she is eligible for an *additional* 10 percent off.

Tucson Electric Power Residential Lifeline Discount Program		
Monthly Energy Use	Discount	Senior Discount
0 - 300 kWh	25%	35%
301 - 600 kWh	20%	30%
601 - 1000 kWh	15%	25%
1000 - 1500 kWh	0%	15%
Over 1500 kWh	0%	0%

In 1994, more than 12,600 residential accounts, and nearly 5,000 senior accounts received the lifeline discount through the Tucson Electric lifeline rate.

SUMMARY AND RECOMMENDATIONS

In sum, there are numerous different low-income models that might be available to regulators. Ranking them depends on one's assumptions about the relative merits of targeting vs. universality of coverage. It is a policy decision, of course, whether it is "better" to increase the targeting toward need or to increase the universality of coverage. They are not mutually inconsistent and some utilities have combined a universal rate discount with an individually tailored rate for customers with substantial arrears.

Generally, the income-based programs are favored by those for whom targeting toward need is a priority. The preferred income-based approach is the model promulgated by the Pennsylvania Public Utility Commission: the income-based percentage of bill model. This model takes affordability into consideration, allows a customer to increase consumption given that rates are finally affordable, but does not permit a customer to indiscriminately waste energy without having to bear some portion of the responsibility. Since increases in bills might be attributable to other than customer behavior (*e.g.*, cold weather), the sharing mechanism inherent in the Pennsylvania model is a more fair approach than the Central Maine Power model which places the entire risk of increased consumption upon the customer.

The straight rate discount is favored by those from whom universality of coverage is most important. The across-the-board discount can be more broadly available with a minimum of administration expense. The marginal cost-based discount can be most easily justified as "cost-based." Where possible, discounts should be pursued for both customer and usage charges. As the Public Service Company of Colorado has shown, the advantages of a straight rate discount can be tied into an income-based model.