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Lifeline Electric Rates and Alternative Approaches to the Problems of Low-Income Ratepayers

Ten Case Studies of Implemented Programs

July 1980

Prepared for:
U.S. Department of Energy
Economic Regulatory Administration
Office of Utility Systems

Under Contract No. AC01-79RG10066

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BOSTON EDISON RATE FREEZE

Program Summary

The Boston Edison rate freeze was ordered by the Massachusetts Department of Public Utilities (MDPU) in September of 1975. The freeze was imposed on the first 384 kwh/month and was maintained for 2-1/2 years. Revenue recovery was achieved by equally proportionate increases to other classes of customers and residential customers who used more than 384 kwh/month.

The rate was automatically available to all residential customers in individually-metered dwellings whose usage did not exceed 384 kwh.

Two of the determinants in this case included:

- 384 kwh per month was average residential consumption;
- Recognition of the fact that average residential customers did not significantly contribute to peak load growth and therefore should not bear the cost of additional investments.

Figure 1 shows a comparison of residential rates for 1974, 1975 and 1978. Rates for 1974 took the form of a

FIGURE 1
BOSTON EDISON COMPANY
Residential Rates

—— 1974	\$1.94	Minimum Charge	Includes 15 KWH
..... 1975	\$1.94	Minimum Charge	Includes 15 KWH
..... 1978	\$2.06	Minimum Charge	Includes 15 KWH

seven-step declining block. In 1975, rates for the first 384 kwh remained the same with an increase of over .5¢/kwh for consumption between 385 kwh and 1000 kwh per month. In 1978, all blocks to 384 kwh were increased slightly while usage from 385 to 1000 kwh was again increased by approximately .5¢/kwh. Changes in rates for usage in excess of 1000 kwh/month have been negligible.

In ordering the freeze, the Commission expressed the hope that data gathered could be used to resolve outstanding questions regarding lifeline or inverted rates vis a vis conservation.

Issue Development

The freeze on the first 384 kwh per month of residential usage for the Boston Edison Company was adopted by the Massachusetts Department of Public Utilities (MDPU) on September 30, 1975. The decision was rendered in a case in which Boston Edison was requesting an 18.7% increase for regular residential rates and a 15.3% increase for residential heating rates.

Originally, representatives of consumer groups had requested the first 300 kwh of residential usage be exempted from rate increases. The Massachusetts Consumers Council, the Attorney General and Citizens Action Program on Energy said that electricity is a basic necessity and that ability-to-pay should be a factor in rate setting. They also said that low-income users are the system's low kilowatt hour users and contribute least to increases in demand.

The MDPU, in response, did not deal with the issue of income and usage, saying the evidence was "inconclusive and insufficient to support the adoption of the 'lifeline' concepts." This was three years before it approved the Massachusetts Electric A-65 reduced rate program. However, the Commission was persuaded by the argument that residential

usage had remained "relatively steady" at an average of 384 kwh/month. It concluded that "a portion of residential usage which has not contributed to the increase in demand should not be required to bear its cost." Therefore, the first 384 kwh was exempted from the requested rate increase.

Subsequent Activity

The rate freeze was effective for 2-1/2 years. In Case No. 19300, in 1978, the MDPU ordered an equal percentage increase be applied to each customer class. It based its decision on the company's long-range forecasts that the residential class would make some contribution to growth in peak demand, "even if the precise amount is in dispute."

The MDPU also ordered that a summer surcharge of 1.6¢/kwh could be placed on residential usage; however, customers using less than 350 kwh/month were to receive a smaller surcharge. In tariffs submitted as a result of this case, the company excluded the first 350 kwh from the surcharge.

The MDPU's action was based on the following factors: (1) increase in the air conditioning load was the primary cause of growth in summer peak demand; (2) the residential customer with usage of 350 kwh is less likely to be using air conditioning than high users, therefore those low users are not contributing to summer peak consumption or demand. Average residential consumption had decreased from 384 to 350, "according to undisputed testimony,"¹ thus the exemption from the extra surcharge was dropped to a lower usage level.

¹Stated in Commission Order DPU, 19300, Feb. 28, 1978. Specific testimony was not cited in this passage.

In this case, Massachusetts Fair Share and the Massachusetts Union of Public Housing Tenants were active in intervening on behalf of residential consumers. Both urged retention of the 384 kwh exemption.

Additional Considerations

Section 114 Hearings

The MDPU is currently conducting a major investigation of income, usage and rate design to prepare for its Section 114 PURPA hearings. Two consulting groups have been hired. Yale's Institute for Social and Policy Studies will conduct a survey of the usage and demographic characteristics of residential customers. EBASCO, Inc. will analyze the data to determine benefits and costs of different rate designs. The study, as of this writing,² was not yet underway.

Other Programs Considered

Massachusetts has several very active consumer groups which participate in rate hearings and work toward structural reform before both the MDPU and the legislature. One of them, Massachusetts Fair Share, brought the issue of electric utility pricing policy to statewide debate in 1976.

Fair Share first introduced legislation in 1975³ that called for flat rate pricing--uniform charges to all electric utility customers. This effort was defeated by intensive business and industry lobbying. Fair Share then worked with legislators to develop a compromise plan.

²April, 1980.

³Under the initiative petition process.

The new legislation would still have provided for flat rates, with the following exemptions: (1) a "lifeline" rate for usage under 300 kwh; (2) an exemption from the uniform rate for electric space heating customers; (3) lower rates for off-peak hours.

This measure passed the Massachusetts House but died in the Ways and Means Committee of the Senate.⁴ Fair Share had, by then, collected enough signatures to have the measure placed on the November ballot. The referendum generated much controversy and press coverage and was supported by Governor Dukakis. Opponents of flat rates, represented largely by business and industry, formed an organization called The Council for Employment & Energy Use, and spent over \$200,000 in radio and newspaper advertising.

As it appeared on the ballot, the referendum was long and complicated. It also appeared as the seventh of a series of long questions the voters were asked to decide. The end result was that the flat rate referendum was soundly defeated.

Major Actors

Consumer Groups

Testifying in the 1975 rate case on behalf of residential consumers were the Attorney General, the Massachusetts Consumers Council and the Citizens Action Program on Energy. They strongly advocated a lifeline rate for low kwh

⁴The bill did not have the support of Senate Pres. Kevin Harrington. The Boston Globe reports that Harrington wanted the bill kept in the Ways & Means Committee. It is not known how much support the measure actually had in the Senate.

users, inferring that low-income people were small users and, therefore, would benefit.

In later cases, Massachusetts Fair Share has appeared before the Commission in conjunction with the Massachusetts Union of Public Housing Tenants. In 1978, they advocated, in order of preference: retention of the freeze on the first 384 kwh, inverted increases on residential usage, or an equal percentage increase to all classes. They based their arguments on the contention that the residential class had not contributed to increases in peak load or new demand and should not, therefore, bear any increased costs.

Generally, consumer groups have taken the view that residential inverted rates are warranted and equitable, according to sources contacted for this study.

Boston Edison

Boston Edison has consistently opposed the residential rate freeze. The company took the DPU to court to challenge many of the decisions made in the 1975 rate case, including the order of the 384 kwh exemption. Boston Edison argued that the DPU did not have the statutory authority to order the exemption and that the exemption was not supported by substantial evidence, in effect saying the exemption constituted irrational discrimination.

The Supreme Court of Massachusetts held that it has long been within the statutory powers of the Department to approve "different treatment for different classes of customers, reasonably classified."⁵

⁵Boston Real Estate Bd. & Department of Pub. Utils., 334 Mass. 477, 485, 136, N.E. 2d 243 248 (1956).

Furthermore, the court ruled that substantial evidence did exist for the exemption. It cited Boston Edison's own testimony that increased costs resulted ultimately from growth in peak-load demand and that the general service class of commercial and industrial users was primarily responsible for the growth. Since residential usage had remained steady in recent years, the court said, the evidence did support the DPU's ruling. This decision was issued April 19, 1978.

The company eventually appealed the case on other issues but did not pursue the matter of the residential exemption.

Department of Public Utilities

The MDPU has had a large turnover in staff in recent years, due to a reorganization of the Commission by the legislature. In March of 1975, seven part-time Commissioners were replaced by three full-time Commissioners. Current staff members are not familiar with much of the history behind the Boston Edison rate freeze. 0

Generally speaking, the DPU has approved lifeline rates, but has been cognizant of changes in peak load and the contributions the various classes make to those changes. According to its 1978 ruling (19300), the DPU opposes declining blocks, therefore it has opposed placing smaller increases on higher usage blocks in favor of uniform percentage increases.

Business and Industry

The most active intervenors representing non-residential customers in Boston Edison rate cases have been the General Services Administration, representing the federal

government, and General Motors. They both have argued that rate structures should be based exclusively on cost of service and that rates of return from all classes should be equalized. They have opposed the rate freeze, claiming that the residential class is being subsidized by commercial and industrial customers.

Governmental Process

The precise reasoning for the MDPU's order of the 384 kwh exemption is difficult to discuss at this point in time. Of all the programs being considered, this probably resembles the conventional lifeline rate the least, since the residential rate structure is still a declining block and the freeze was only in effect for a relatively short period of time.

The Commission agreed in principle with the rate structure proposed by the company. Boston Edison used a method by which it identified the class which contributed most heavily to growth of summer peak and assigned them proportionately higher increases. Overall, the company wished to assign increases according to the criterion of demand or the contribution each class made to peak and the need for new capacity and new investment.

While the company presented evidence that showed the commercial and industrial peak occurred at the time of system peak, and that these classes had caused the need for new capacity, it did not advocate the freeze on residential rates.

The Commission decided that because of its steady usage level which had not contributed to company growth, the residential class should not have to bear the extra costs of that growth. The rationale given for using the average consumption figure was this: low-income consumers had probably reduced their usage out of necessity and more affluent users probably increased their usage with items such as air conditioning. Since large users were not reducing the need for new capacity, but were, in fact, probably contributing to the need for additional capacity, only average or below average residential usage was exempted from the requested increase.

As mentioned, average consumption was said to be 384 kwh/month. Sources contacted say this figure probably came from evidence presented in a previous rate case.

In this and subsequent rate cases, the MDPU has consistently been opposed to a lifeline rate structure which takes into account ability to pay. On the issue of whether an inverted residential rate or rate in which the first block is frozen will provide an incentive to conserve, the Commission has also been noncommittal. The order merely said that data gathered as a result of the rate freeze exemption could be used in future hearings. However, in 1978, when the average residential usage was said to be closer to 350 kwh/month, the rate increase exemption was lifted.

Impact

The intended beneficiaries of the Boston Edison rate freeze were small-use residential customers.

Boston Edison served 508,870 residential customers in 1975, according to operating statistics presented in Moody's Public Utilities Manual. Statewide figures for that year indicated that 7% of the total population was below the federal poverty level guidelines. If that percentage is projected onto the population of the Boston Edison service area, then some 35,620 of its customers were below the federal poverty level. Approximately 12% of the state's population was age 65 or over. That percentage projected onto Boston Edison's service area population yields a total of 61,064 elderly customers. The demographic characteristics of the population served are summarized below.

- Approximately 12%, or 61,064 are elderly;
- Approximately 7%, or 35,620 are low-income;
- There were 21,378 elderly SSI recipients in Suffolk County in 1978 (approximately 4% of Boston Edison's service area population).

These estimates of low-income and elderly populations may be low since these groups tend to be concentrated in

urban areas such as Boston. The issue of master-metered households was not raised in the rate case hearing exempting the 384 kwh block. Benefits were not extended to this group (which has always been on a separate rate schedule) during the time the rate freeze was in effect.

Need Assessment

Residential customers served by Boston Edison had an average electricity consumption of 400 kwh per month in 1975. At the rates in effect in the early part of that year (prior to the rate freeze), that usage would have resulted in a bill of \$15.50.

If the implicit target group is considered, this consumption translates into approximately 2% of federal poverty income guidelines for a family of four (HEW 1979 poverty level).⁶

For a family with a moderate annual income of \$15,000, the \$15.50 bill is 1.2% of monthly income. In 1978, when the rate freeze ended, average electricity consumption was 415 kwh per month, or \$21.10, 3% of HEW's poverty income guidelines for a family of four.⁷ This bill represented 1.6% of monthly income for a family earning \$15,000 per year.

Although percentages of income spent on electricity do not seem high, they must be considered in the context of total energy costs. Most New Englanders heat their homes

⁶The service charge in 1975 was 12.5% of the average bill (\$1.94). In 1978, the average service charge was 9% of the average bill (\$2.06).

⁷\$8,375 per year or \$698 per month.

with fuel oil. Heating fuel costs in 1978 were \$137 or more per month during the winter season (see Massachusetts Electric report). Thus, total energy costs represent a much more substantial portion of a low or moderate income.

Targeting Effectiveness

The residential rate freeze was not "marketed" by Boston Edison and no bill inserts or publicity was required by the MDPU.

Since low-income usage in the Boston Edison service territory is not known, it cannot be determined whether the implicit targeting of the rate freeze was successful. However, average residential usage is known and is presented below.

Year	Average Usage*
1975	400 kwh/mo.
1976	408
1977	415
1978	415

*This usage was slightly higher than that estimated by the MDPU in its rate orders.

To compute the average usage, the total number of kwh sales for the residential class was divided by the number of customers for that year.⁸

⁸Boston Edison supplied total kwh sales, while the number of customers was taken from Moody's Public Utility Manual.

Thus, it appears that the average customer benefited from the 384 kwh exemption since average usage was only slightly above the exempted level. In addition, benefits accrued to customers who used more than 384 kwh because of that initial reduction in the bill; therefore, nearly everyone benefited from the freeze. Specific calculations are provided in the next section.

Calculation of Benefit Levels

Studies of the impact of the rate freeze have not been made by the Commission or Boston Edison. One indication of whether or not it benefited low-income people can be found in the County Data Book, however, which says that in 1970, 29.5% of Suffolk County's residents lived in owner-occupied homes. Since the freeze was not designed to benefit those in master-metered apartments, a large percentage of poor people in Boston Edison's service territory were probably not helped.

Benefits to homeowners, however, can be calculated. First, rates dating back to 1974 are presented in Table I, on the following page.

The changes that took place in residential bills between 1974 and 1975 are illustrated in Table II.

It can be seen that there was a significant increase to higher usage blocks although it is not known how much of the increase was actually due to a shift in revenue recovery because of the freeze. Additionally, it may be stated that the gross results of the change in rates from '74 to '75 actually provided a reduction for usage below 384 kwh/month: an increase had been requested but was not granted. The exact amount of the "reduction," however, cannot be determined.

TABLE I

BOSTON EDISON COMPANY'S RESIDENTIAL RATE SCHEDULES, 1974, 1975, 1978

1974 Rates

\$1.94 1st 15 kwh (min. charge)
 5.6¢ per kwh next 35 kwh
 4.3¢ per kwh next 50 kwh
 3.5¢ per kwh next 50 kwh
 3.2¢ per kwh next 150 kwh
 2.9¢ per kwh next 700 kwh
 1.5¢ per kwh next 500 kwh
 1.3¢ per kwh usage in excess of 1500

1975 Rates

\$1.94 1st 15 kwh (min. charge)
 5.6¢ per kwh next 35 kwh
 4.3¢ per kwh next 50 kwh
 3.5¢ per kwh next 50 kwh
 3.2¢ per kwh next 150 kwh
 2.9¢ per kwh next 84 kwh
 3.6¢ per kwh next 616 kwh
 1.41¢ per kwh usage in excess of 1000

1978 Rates

\$2.06 for the first 15 kwh or less per month
 5.93¢ per kwh for next 35 kwh/mo.
 4.56¢ per kwh for next 50 kwh/mo.

Table I (Cont'd.)

3.71¢ per kwh for next 50 kwh/mo.
3.40¢ per kwh for next 150 kwh/mo.
3.09¢ per kwh for next 84 kwh/mo.
4.13¢ per kwh for next 616 kwh/mo.
1.6 ¢ per kwh for use in excess of 1000 kwh/mo., with the exception of months July through October, when all use in excess of 350 kwh per month receives an additional charge of 1.6¢/ kwh.

Source: Moody's Public Utility Manual, 1974 & 1975
rates. Boston Edison Company, 1978 rates.

TABLE II
CHANGE IN BOSTON EDISON
RESIDENTIAL BILLS,
1974 TO 1975

KWH Use	% Change 1974-1975
100	--
200	--
300	--
400	+ .6
500	4.3
600	7.0
700	9.0
800	10.7
1000	12.0

It can be seen from Table II, above, and Table III, below, that residential usage in excess of 400 kwh per month received an average increase of approximately 7% up to 1000 kwh. If that increase had been applied to the first 400 kwh, the bills shown in Table IV might have resulted.

Thus, the benefits received by the average residential user amounted to \$1.00 or less. The impact of the rate freeze was clearly more significant in the higher usage blocks, where customers received greater increases. Unlike other targeted lifeline programs, this freeze did not result in a reduction of rates, per se; rather, it may have provided a psychological benefit to customers whose electricity bills were staying the same when the cost of everything else rose.

TABLE III
CHANGE IN BOSTON EDISON
RESIDENTIAL BILLS,
1975 TO 1978

KWH Use	% Change 1975-1978
100	5.9
200	5.9
300	6.0
400	6.4
500	8.0
600	9.0
700	9.8
800	10.4
1000	10.8

TABLE IV
POSSIBLE IMPACT ON RESIDENTIAL BILLS
WITHOUT RATE FREEZE
(BOSTON EDISON)

KWH Use	With % Increase	Change From Actual Bills
100	\$ 6.47	\$.42
200	10.06	.66
300	13.48	.88
400	16.58	1.08

Revenue Recovery

The revenue shortfall resulting from the rate increase exemption was recovered from all classes (including residential usage above 384 kwh) on a uniform percentage basis.

Although it is known that rates for the non-exempted classes have risen, it is not known how much of the increase was due to the freeze. The amount of increase caused by the freeze could have been used to determine amounts of shortfall. However, since this is unknown, actual amounts of shortfall cannot be determined.

Some hypothetical estimates can be made, however. For example, in the "Calculation of Benefit Levels" section, it was determined that the increase to a residential customer using 1000 kwh was 12% in 1975. If we assume that all of this increase occurred because of the need to recover revenue lost in the first block, this 12% increase could seem rather high. However, it translated into an increase of only \$3.60 in the customer's monthly electric bill. For usage of 500 kwh, the increase only amounted to 80¢. This does not appear to represent a meaningful part of a residential customer's income.

It was also calculated in the "Benefits" section that residential rates between 400 and 1000 kwh increased approximately 7% between 1974 and 1978. This would not appear to constitute a sharp, discontinuous increase in rates, since it is known that a rate increase would have been granted anyway. The same can be said of industrial and commercial increases: to what degree their rate increases were affected by the freeze cannot be readily determined from available figures.

Cross-class subsidization was one of the concerns of one large industrial customer in the Boston Edison service area, General Motors, and GM joined Boston Edison in suing the MDPU for ordering the rate freeze. The company claimed that increasing Boston Edison's margin of profit on power sold to industrial customers in order to offset the relatively low margin of profit on power sold to residential ratepayers constituted confiscation of its property in violation of the Massachusetts Constitution. The court, as was noted earlier, ruled that the MDPU had authority to approve different treatment for different classes of customers and said it found no support for GM's position.

Industrial classes may be particularly sensitive to changes in rate structure, particularly if a revenue shortfall is going to occur. In 1977, average industrial electricity prices in Massachusetts were the highest in the nation. Commercial and residential prices have not fared much better. Residential rates are the fourth highest, and commercial rates are the sixth highest in the country.

Efficiency

Marginal cost and peak load pricing were major factors in the rate freeze considerations.

As was discussed in earlier sections of this case study, the DPU assigned increases to those classes which contributed to growth in peak demand. The Commission wrote that the cost of new capacity far exceeds the cost of embedded capacity and that the customers most directly responsible for the additional capacity must pay more. The company, according to testimony, agreed, basically, that customers who had caused increased demand should pay more and suggested that the residential class be given less of an increase.

Average residential usage of 384 kwh was said to have remained steady "over the years," therefore it has not contributed to growth of peak. Residential customers with above average usage were not given any reduction because it was thought that usage in excess of the average probably did, in fact, contribute to peak growth.

All of the intervenors in the rate case agreed that the commercial and industrial classes had caused, or been primarily responsible for, increase in demand. Problems arose over the issue of how much of an increase should be given to various levels of residential usage. The Attorney General, representing residential consumers, argued that peak load pricing and marginal cost pricing foster conservation, at the same time General Motors argued that these same principles may discourage conservation.

Table V illustrates total kwh usage by class of customers since 1975.⁹ Residential and industrial use have both declined as a percentage of total company use, due to any number of factors that have affected electricity use since 1975.

Additionally, the company reports no additional costs in administering the rate.

Conservation

There is no evidence available to suggest that Boston Edison's rates have led to increased or decreased consumption in the frozen block. The MDPU, in the company's 1978 rate case, reported that average residential usage was

⁹It should be remembered that the rate freeze was based on load data from previous years.

TABLE V

BOSTON EDISON KWH SALES BY CLASS OF SERVICE AS PERCENTAGE
OF TOTAL SALES, 1975 TO 1979

Class of Service	Period Ended				
	1975	1976	1977	1978	1979
Ultimate Consumer	% of Total*	% of Total	% of Total	% of Total	% of Total
Residential	30	29	29	29	29
Commercial	48	49	49	50	50
Industrial	21	20	20	19.5	19.5
24 Municipal Street Lighting	1.5	1.5	1.5	1	1
Railroads and Railways	.5	.5	.5	.5	.5
Total Retail Service	100%	100%	100%	100%	100%

*Note: Rounded to the closest half percentage point.

Source: Boston Edison Company.

closer to 350 kwh than 384 kwh per month; however, statistics provided by the company do not agree with that figure (see section on targeting effectiveness). Given this disagreement, it is difficult to make a statement on the impact of the rate freeze on conservation. Average usage has remained, however, in the vicinity of 400 kwh per month since 1975, and this would seem to indicate there has been no increase in the exempted block. Since usage has remained the same, despite the "reduction" in rates relative to the increases in price of other goods, this may indicate that consumption has been relatively inelastic to price, at least in this instance.

Equity

Explicitly, the small-use residential customer was intended to benefit from Boston Edison's rate freeze and from simple bill calculations, this appears to have been accomplished. From available data it cannot be determined whether the implicit target group (low-income people) received meaningful benefits. This is due to the fact that their consumption patterns are not specifically known. However, since the rate freeze was only in effect for a short time and benefits were not extended to master-metered households, it is doubtful that the ability to pay criterion of equity was significantly addressed. It is also doubtful that the recovery mechanism led to a sharp or discontinuous increase in rates to other classes, which would have violated the good faith, reasonable expectation criterion of equity. Thus, the rate freeze may have been more beneficial as a signal to those classes who caused the need for new capacity, rather than a serious attempt to aid low-income people in paying utility bills.

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CALIFORNIA LIFELINE

Program Summary

California lifeline rates were a result of the Miller-Warren Act of 1975, Assembly Bill 167. The stated purposes of the bill included:

- To provide the residential customer with a buffer against energy costs for minimum life-sustaining needs;
- To provide for, and enforce, energy conservation by postponing the need for new generating facilities and promoting more cost-effective load management techniques.

The bill was designed to potentially provide benefits to all residential customers in both individually and master-metered units. Lost revenue is recovered from residential customers whose usage exceeds the lifeline amounts and all other classes of customers.

The rate structure has been designed to meet the needs of individual households and takes into account the following variables:

- Individual end-use allotments for basic residential use, electric water heating, electric space heating

- and life support systems;
- Different space heating allotments based on climatic regions of the state.

The availability of the allotments was announced primarily through bill inserts. Customers were asked to notify the company if they used electricity for space or water heating.

As shown in Figure 2, both lifeline and regular residential rate forms are flat with a difference of approximately 1.5¢/kwh between the two rate schedules. The extent of the lifeline benefits are determined by a series of end-use allotments.

Customers' conservation efforts are continuously enforced by a statement on each bill indicating the dollar-amount saved by staying within their lifeline allotment.

The legislation also prohibits the Public Utilities Commission from raising lifeline rates until the average system rate meets or exceeds the January 1, 1976 level by 25% or more.

FIGURE 2
PACIFIC GAS AND ELECTRIC COMPANY
Residential Rates

— Regular \$1.75 customer charge
- - - Lifeline for Basic Allowance \$1.75 customer charge
of 240 KWH

Issue Development

California has a relatively long history of rate reform and conservation-oriented activity in the legislature and in the Public Utilities Commission (PUC). Lifeline has been initiated in response to consumer groups who have been pressuring the PUC and the legislature to implement various forms of the rate since the late 1960's.

The term "lifeline" was first used when consumer groups argued to the PUC that a minimum amount of telephone service was essential to senior citizens and shutins. In 1968 and 1969, Pacific Telephone and Telegraph and General Telephone, respectively, instituted lifeline telephone rates--30 calls per month at \$2.50 with an increasing charge for each call beyond that amount. After this lifeline rate was established, consumer groups, particularly Electricity and Gas for People (EG&P) and Toward Utility Rate Normalization (TURN), turned their attention to electric and gas service.

Needs Assessment

Californians, on an average, spend 7% of their household budgets on energy costs. The share of the

household budget that goes toward energy purchases has increased 20% in the last two decades. Although this is still lower than the national average, low-income consumers are hard-hit by rising energy prices. It is estimated¹ that a 25% rise in energy prices would increase the amount spent on direct energy costs by the average household to 11.5% of its disposable income, whereas the average low-income household would spend 40% of its disposable income on energy costs.

Early PUC Activity

Prior to the enactment of the Miller-Warren Act, the PUC was already considering lifeline in its rate case hearings.

On September 21, 1975, the Commission adopted a lifeline gas allowance of 75 therms² and a lifeline electricity allowance of 300, 400 or 500 kwh per month, depending on geographic location, for Pacific Gas and Electric.³ The same allowances were established for Southern California Gas Company and San Diego Gas and Electric in late 1975.⁴ These usage levels were exempted from rate increases, which were spread across the remainder of the residential schedule.

Other Assistance Programs Considered

When lifeline was first proposed, and throughout its history in California, the utility companies and industries have advocated an energy stamp program or, at least, a

¹By the California Energy Commission.

²One therm equals 100,000 Btu's.

³Docket No. 84902.

⁴Decisions 85294 and 85018, respectively.

targeted lifeline rate for low-income users only. The legislature and the PUC have considered but rejected both ideas.

Studies in California show that, as a general rule, energy use increases with personal income.⁵ However, there is usually a small but significant number of low-income people who use large amounts of energy. A study by the Fresno County Opportunities Commission completed in February, 1977, has indicated that the electricity usage of poor people in Fresno was within the lifeline range, but gas usage was often well above lifeline levels. The principal reason for this was said to be that low-income people were living in poorly insulated homes.

According to a report by the PUC's Legislative Counsel, the answer was not energy stamps:

The obvious action in such circumstances is being provided in the way of federally and state-assisted weatherization programs. The California legislature and the Commission have also mandated utility-financed insulation programs.

The report concludes, in fact, that energy stamps may foster wasteful energy use. As a result, the PUC and the legislature have rejected a similar targeted lifeline rate because of their commitment to the conservation goals of lifeline.

Other Programs Implemented

In addition to lifeline and inverted rates, the PUC has implemented a number of other measures to further its

⁵The Los Angeles Senior Citizen Lifeline Electricity Rates, Timothy Sullivan, Rand Corporation, Santa Monica, California, January 1979.

conservation goals.

In 1976, the Commission began several investigations into time-of-use rates. TOU rates were implemented for customers who have demand meters for three large utilities (PG&E, San Diego Gas and Electric, and Southern California Edison). An investigation into TOU rates for large customers was initiated as well as experimental TOU rates for a limited number of customers using less than 500 kwh/month.

The Conservation Branch of the PUC has instituted a large scale voltage reduction program, and home insulation programs have been in effect for at least two years for all the major utilities.

Alternative energy programs are also being implemented. The PUC recently completed a year long study, Financing the Solar Transition.⁶ In January, 1980, the Commission ordered the state's four largest utilities to submit plans for financing solar energy programs. This is expected to lead to 175,000 new solar water heaters over a three-year period. The PUC's goal is to replace 10% of the state's electric water heaters by 1983.

In instituting these load management and alternative energy programs, the PUC works with the state's other energy regulatory authority, the California Energy Commission.

The Actors

One of the most active consumer groups in the life-line issue has been Toward Utility Rate Normalization

⁶The Power Line, Environmental Action Foundation Newsletter, Vol. 5, No. 8, March, 1980.

(TURN). When contacted for this study, spokeswoman Sylvia Siegal expressed the opinion that regulatory authorities have traditionally had an anti-residential interpretation of allocation of costs and that lifeline is cost justified because large users create new demands on the system. In addition, she says, the utility's revenues aren't hurt by a lifeline rate--the revenue is recovered by the increases on the tail block.

Electricity and Gas for People

No one from EG&P could be contacted directly for this report. However, statements made by an EG&P representative in a television appearance on February 1, 1974, have been obtained. They included:

1. Pacific Gas and Electric had record profits and dividends [in 1973] and further rate increases are not justified;
2. Lifeline rates should be developed for small usage to benefit low-income consumers;
3. PG&E's rates are not cost justified, they reward large users over small users. Conservers are penalized by paying a higher average rate per kwh.

EG&P also suggested that PG&E be municipalized so that the profit earned could be used for special services in San Francisco.

Business and Industry

Commercial and industrial users in California have actively opposed lifeline since it was first proposed. They claim that lifeline rates are discriminatory, not based on cost, and that industry will not settle in California because of high energy costs. The California Manufacturers Association took the PUC to court in 1979, over the issue

of lifeline gas rates.⁷ The State Supreme Court ruled in the PUC's favor, stating, in part:

. . . Within its "wide discretion" it follows that the commission may properly consider prospective shortages of natural gas and the need to conserve that commodity. . . . Having discretion to consider factors other than cost, the commission must necessarily create some disparity among users.

This decision indicated, in essence, that lifeline rates are not discriminatory because the PUC has the authority to consider factors other than cost of service when setting rates.

Estimates of the actual impact of lifeline and its effects on the California economy by commercial and industrial users are developed in the "Impact" section of this case study.

Utilities

Position papers regarding lifeline electric rates were obtained from one company, Pacific Gas and Electric. PG&E also strongly opposes lifeline. Its arguments against the rate can be summarized as follows:

1. Under a lifeline rate structure, residential customers are serviced below cost;
2. Lifeline represents a misallocation of resources--it does not provide the proper economic signals to conserve;
3. There is no certainty that lifeline benefits will accrue to those for whom they are intended. Wealthy customers with second homes will benefit;
4. The function of a utility is not to make social welfare determinations under lifeline. PG&E would

⁷CMA v. PUC, 595, P. 2d 98.

be put in a position of favoring one class over another and someone must be subsidized;

5. Lifeline treats symptoms, not causes. The people who need lifeline have problems because of their low income. The answer lies in raising incomes, not lowering the price of goods.

PUC's Ratemaking Philosophy

The California Public Utilities Commission issued a report in 1978 entitled California's Approach to Conservation-Oriented Ratemaking, and the steps the PUC has taken to implement its strong commitment to conservation are presented therein.

Declining blocks, the PUC says, are no longer economically justified. Even before the passage of the Miller-Warren Act, residential rates were being flattened and rates for the first blocks of power were being frozen. As of "inverted rate decision" No. 87585, July 17, 1977, "the highest residential rates are now substantially higher than any industrial rates, while lifeline rates remain lower" (for PG&E).

The PUC's philosophy is one which says conservation investment represents the most efficient use of California's available capital:

The CPUC is making what we consider to be a very important shift in emphasis in determining return away from the rate base and toward return on equity, recognizing that the big financial variable for utilities now is the cost of capital.

PUC Position on Lifeline

When contacted specifically for this report, PUC staff members did not offer opinions on lifeline. However, the document cited above, and others, and Commission orders

mandating lifeline before AB 167 indicate that the majority of Commissioners supported the idea. Since AB 167, the PUC's role has been to carry out the legislative mandate and rule on such issues as air conditioning allowances, allowances for life support devices, submetering requirements, etc.

PUC press releases have indicated there are several things the Commission considers in its rate cases: the volume of usage within the utility; its overall size; the make-up of its customers; the geographic and climatological nature of its service area; the potential for conservation; and the potential financial burden of effective lifeline conservation.

One Commission staff member, however, expressed a desire for more specific directions from the legislature on the matter of what to do after a 25% differential between lifeline rates and average system rates has been reached. The differentials vary from company to company and have been a source of controversy in rate case hearings. While the Commission should be allowed some flexibility in setting rate levels, this staff member thought some boundaries should be established, at least in this instance.

Governmental Process

The Legislature

Assembly Bill 167 was introduced in the California state legislature in 1974. The original proposal, reflecting TURN's and EG&P's recommendations, called for energy rates to be cut in half for use up to 500 kwh and 100 therms per month for all residential users. The bill was subsequently modified five times, with the PUC Legislative Counsel recommending that the details of rate design be left to the Commission. Commission staff also testified in favor of targeting the rate to low-income users and believed the bill as originally drafted would "unfairly spread the cost-of-service burden from small users to large users, including government."

The Energy Lifeline, or Miller-Warren Act, was approved by Governor Brown on September 23, 1975. Its final version declared that "light and heat are basic human rights, and must be made available to all the people at low cost for basic minimum quantities." AB 167 also said that present rate structures penalize small users of gas and electricity and encourage wastefulness by large users. One of the bills stated purposes was to conserve "scarce energy resources."

Every regulated electric and gas company was required to file a schedule of rates and charges providing a lifeline rate with the PUC. That rate was to be no greater than the rate in effect on January 1, 1976. The lifeline amount for each of the five end-uses of space and water heating, lighting, cooking and food refrigeration, was to be determined by the PUC. In effect, rates were frozen and subsequent increases placed on the tail block. The bill also states, "the PUC shall authorize no increase in the lifeline rate until such time as the rates for all customers of electrical or gas service exceed the lifeline rate differential by 25 percent or more."

Subsequent legislation, AB 1265 (1978) provided larger allowances for life-supporting devices, such as respirators or dialysis machines. Utility companies were required, in each individual case, to estimate the monthly consumption of the particular life-support device and to add that estimated usage to the customer's basic lifeline quantity. This allowance was established in PUC Order No. 88651, April 4, 1978.

In 1978, the legislature also considered establishing allowances for electric air conditioning. A bill (58279) was vetoed by the Governor with the recommendation that the PUC consider air conditioning in its "normal administrative process." The PUC has followed this recommendation and has established an air conditioning allowance for residents served by San Diego Gas & Electric, Electric Southern, Cal Edison, Needles Division of CP National and two PG&E jurisdictions.

PUC's Response

Chronology

After the lifeline bill was signed, the PUC promptly ordered an investigation for the purpose of determining lifeline allowances (Case No. 9988, initiated October 7, 1975).

At the same time, general rate cases for several of the major utilities were being considered by the Commission. As was noted, the PUC had already been considering rate structures which would encourage conservation; however, decisions rendered after January 1, 1976, had to take into account the new provisions of the Miller-Warren Act. It was necessary for the PUC, in these cases, to prescribe general lifeline quantities on an interim basis.

In conducting Case No. 9988, the Commission held four public hearings in Los Angeles and five in San Francisco, all in late 1975. Out of 36 intervenors who filed appearances, 20 participated actively. In 1976, more hearings were held in San Andreas, Visalia, San Louis Obispo, Los Angeles, San Diego and San Francisco. Data, of course, was collected from the utility companies.

Based on the input of these hearings, specific lifeline quantities were established in July of 1976 in Decision No. 86087. These quantities were reviewed in 1978 in Phase II of Case 9988, along with new issues such as air conditioning and second homes. The results of these cases are described below.

Rate Structure

Following its investigation, the PUC established a basic lifeline allowance of 240 kwh and 26 therms of gas

for all residences. Additional lifeline allowances were made for gas and electric space heating during the winter months⁸ in varying quantities governed by climatic zones, and for electric water heating. Winter allowances range from 240 kwh to 1,910 kwh per month for space and water heating in the coldest climatic zone.

These figures were derived using what the PUC calls an "inductive method." Quantities were based on the staff's concept of average consumption of the specified end-uses (lighting, cooking, food refrigeration, space and water heating). It was estimated, for example, that a family of four in a 1,000 square foot, five-room house would use specific lighting fixtures and appliances at certain times each day. The combined lighting, cooking and refrigeration load were calculated, then space and water heating estimates were added, using the California Department of Housing and Community Development's Energy Design Manual for Residential Buildings.

In calculating the allowances, the PUC also relied on data supplied by three combination electric and gas companies, five electric utilities, one publicly owned utility, and two gas companies: the companies were required to file information on the minimum energy needs of average residential users for each of the five end uses and differences in energy needs due to geographic, climatic and seasonal differences.

Not surprisingly, each utility participating had its own definition of "average" family and customers, and each had its own data base. Rarely was data on consumption by individual users available; however, some companies

⁸From November through April.

conducted studies using an actual sample of customers (PG&E) and some used the inductive method of the PUC (Sierra Pacific). Although characteristics of residential customers varied greatly among the utilities, their final estimates of minimum energy needs were very similar to those finally established by the PUC.

Summaries of the California lifeline allowances are provided on the following pages.

One of the early objections to lifeline was that it could benefit owners of second homes--people who did not "need" lifeline. A review of Investigative Case No. 9988 (Phase II of the lifeline investigation), in 1978 found that the administrative burden caused by trying to identify second homes would outweigh any possible benefits. That order also urged that any new multi-unit complexes constructed should be required to be individually metered to encourage conservation.

According to PUC directives, submetered units and multi-family units must be provided a lifeline rate. Owners of trailer parks who buy service wholesale (or on the general service schedule) must resell the service on a regular residential schedule (which would include the lifeline rate).

Administrative Experience

For this report, discussion of administrative problems or successes was only available for one utility, Pacific Gas and Electric.⁹ The PUC did not conduct a publicity

⁹Data was obtained from a paper presented by PG&E Vice President William Gallavan, December 14, 1977, to the Ninth Annual Conference of the Institute of Public Utilities.

TABLE VI
LIFELINE SUMMARY

	Electricity (Kilowatt- hours/month)	Gas (Therms/month)
<u>Basic Allowance</u>		
Each residence receives	240 ^a (190) ^b	26 ^{ac} (21) ^c
<u>Add Water Heating</u>		
If a resident has electric water heating and applies to the utility:	250 (200)	No change
<u>Add Space Heating</u> (Nov. through April)		
Each residence automatically receives:		
Climate Zone		
W 1	0	55 (33)
X or 2 increasingly	0	80 (48)
Y or 3 cold	0	115 (69)
Z 4	0	140 (84)
If a resident has electric heat, and applies to the utility:		
Climate Zone		
W 1	550 (330)	
X or 2 increasingly	800 (480)	Lose Gas
Y or 3 cold	1120 (675)	Heating
Z 4	1420 (850)	Allowance
<u>Add Space Cooling</u> (May through October)		
If resident is served by PG&E and has air conditioning, apply to utility and receive:		

Table VI (Cont'd.)

		Electricity (Kilowatt- hours/month)		Gas (Therms/month)	
All Other	increasingly	0		0	
Area B	warm	230	(140)	50	(50)
Area A		280	(170)	50*	(50)
If served by SoCal Edison, a resident <u>automatically</u> receives:					
Zone C	increasingly	0		-	
Zone H	warm	280	(280)	-	
Zone V		500	(500)	-	
If served by CP National in the Needles District, apply for:					
May and October		550	(550)	0	
June, July, Aug., Sept.		650	(650)	0	
If served by SDG&E, resident <u>automatically</u> receives:					
All Other	increasingly	0		0	
Zone V	warm	400	(400)	0	
If served by SoCal Gas Co., apply for:					
Depends on	increasingly	-		50	(30)
County of	warm	-		100	(60)
Residence					

Add Life-Support Device

A resident must inform his
utility and provide certain
information on energy con-
sumption and operating time
of the device

Device
Specific

Device
Specific

Table VI (Cont'd.)

	Electricity (Kilowatt- hours/month)	Gas (Therms/month)
<u>All Paraplegic/Quadriplegic Space Heating^d</u>		
A resident must inform his utility that a member of his household is a paraplegic or quadriplegic whose disability requires additional heat. Receive:		
Climate Zone		
W	110 (110)	15 (15)
X increasingly	160 (160)	25 (25)
Y cold	210 (210)	35 (35)
Z	270 (270)	35 (35)

^aSingle family residences and metered units of multi-unit complexes receive these quantities.

^bUnmetered units of multi-unit complexes receive quantities in parentheses.

^cIncludes allowance for water heating.

^dThis allowance is in addition to the regular space heating allowance and is available November through April.

Note: footnotes apply to all items in columns.

Source: California Public Utilities Commission.

TABLE VII
CLIMATE ZONES FOR MAJOR CITIES

	Climate Zone			
	Electric		Gas	
	Winter	Summer	Winter	Summer
Anaheim (M, G)	*	*	1	-
Berkeley (P, P)	X	-	X	-
Burbank (M, G)	*	*	1	-
Concord (P, P)	X	-	X	-
Downey (E, G)	W	C	1	-
Fremont (P, P)	X	-	X	-
Fullerton (E, G)	W	C	1	-
Garden Grove (E, G)	W	C	1	-
Glendale (M, G)	*	*	1	-
Hayward (P, P)	X	-	X	-
Huntington Beach (E, G)	W	C	1	-
Inglewood (E, G)	W	C	1	-
Lakewood (E, G)	W	C	1	-
Long Beach (E, M)	W	C	*	*
Los Angeles (M, G)	*	*	1	-
Modesto (M, G)	*	*	X	B
Norwalk (E, G)	W	C	1	-
Oakland (P, P)	X	-	X	-
Pasadena (M, G)	*	*	1	-
Pomona (E, G)	W	C	1	-
Riverside (E, G)	W	H	1	100**
Sacramento (M, P)	*	*	X	B
San Bernardino (E, G)	W	H	1	100**
San Diego (D, D)	1	-	1	-
San Francisco	X	-	X	-
San Jose (P, P)	X	-	X	-
Santa Ana (E, G)	W	C	1	-
Santa Clara (M, P)	*	*	X	-
Santa Monica (E, G)	W	C	1	-
Santa Rosa (P, P)	X	-	X	-
Stockton (P, P)	X	B	X	B
Sunnyvale (P, P)	X	-	X	-
Torrance (E, G)	W	C	1	-

E=Electric Company

G=Gas Company

M,*=Municipal Utility (not CPUC regulated)

**100=Therms/Month

Source: Questions and Answers on: California Energy Lifeline Program, Lawrence Sprowls, California Public Utilities Commission, September 27, 1979.

campaign advising consumers to conserve; instead, it directed the utilities to include notices in monthly bills. The PUC also asked that companies print the dollar savings from the lifeline rates on the bill in an effort to continually urge residents to conserve.

PG&E, which had 2,670,797 residential customers in California in 1976¹⁰ sent bill inserts after the initial lifeline order, requesting customers to notify the company if they used electric space or water heating. For efficiency's sake, the company assumed that all customers had gas space and water heating; therefore, forms had to be processed only for consumers who notified PG&E to the contrary. Additional notices and newspaper releases were also issued.

According to PG&E, several months passed before the number of customers claiming electric space or water heating matched the company's own census data and estimates. Many of the forms were incorrectly completed, and response was slow from master-metered complexes.

Although, as of late 1977, there were 84 residential electric rate schedules as a result of lifeline, PG&E reported that "once the schedules are designed and programming completed, it has not proved to be that difficult due to the degree of computerization."

However, these problems with initial implementation were reported:

- Class revenue forecasting was made more difficult because not enough was known about conservation and price elasticity;

¹⁰Moody's Public Utility Manual, 1978, p. 1473.

- Reaction was negative from owners of trailer parks and municipal utilities who had to pay more for general service and resell the power on residential lifeline schedules;
- The time required for handling residential billing complaints doubled because of the complexity of lifeline rates. Employees required some time in understanding the mechanics of the lifeline rate;
- Where space heating and water heating appliances within the individual units of a single-metered multi-family complex required different types of energy (some gas, some electric), it was necessary for overall lifeline allowances to be calculated manually for billing purposes.

In the "Impact" section of this report, specific costs to utilities for implementation of lifeline rates are discussed.

Subsequent Activity

PUC

The lifeline allowances established by the PUC in 1976 have remained in effect, and lifeline rates established in initial rate cases after the interim order have, for the most part, remained in effect as well.

For the first time since the passage of the Miller-Warren Act, Pacific Gas and Electric, the state's largest regulated utility serving the northern half of the state, was granted an increase in lifeline rates in Decision No. 90869, issued October 10, 1979: lifeline rates were increased one percent, non-lifeline residential rates increased ten percent and other classes were given a six percent increase. San Diego Gas and Electric, another large company in the southern part of the state, was also granted increases in both lifeline and non-lifeline rates in the summer of 1979.

In determining ECAC (Energy Cost Adjustment Clause) charges, the PUC has generally established a lifeline rate and a non-lifeline rate, both as uniform cents per kwh. The non-lifeline rate has been applicable to all non-lifeline classes.

There are indications that the reaction of commerce and industry to the California Lifeline Energy Program may be having an effect.

In the press release accompanying Decision No. 90869, the PUC recognized the costs to non-residential classes. As was stated in the decision,

It no longer appears appropriate to impose on other customer classes the burden created by our decision to limit the increase on the lifeline rates to less than that imposed on other classes. That burden should be borne by residential customers through the non-lifeline residential rate.

Legislature

A bill introduced in late '79 in the California legislature may substantially reduce lifeline benefits to residential customers in the state. Backed by the California Manufacturers Association (CMA), SB 279, called "Fairplay in Utility Rates," was sponsored by Senator Alquist. It "prohibits any class of customers being favored by rates which offer electricity or gas service at a loss." SB 279 also requires uniform definitions of cost. If passed, the bill allows a three-year phase-in period for the PUC and authorizes the Commission to exempt "poverty income households."

CMA contends that all residential service is provided below cost and that the subsidy by other classes has equalled some \$466 million annually. This bill, says CMA,

would reduce the subsidy to \$260 million and would cause an increase of about \$4.70/month for each electric customer and \$4.15/month for each gas customer.

As of this writing,¹¹ SB 279 was approved 7-0 by the Senate Energy and Public Utilities Committee, 21-7 by the Senate and 9-6 by the Assembly Committee on Finance, Insurance and Commerce. It was about to be heard in the Assembly Ways and Means Committee.

Other Considerations--Los Angeles' Lifeline

Although it is not regulated by the PUC, the Los Angeles Department of Water and Power (LADWP), a municipally owned utility, serving one of the largest urban populations in the country, has two lifeline rates in effect. The first, established in 1975, is a discounted rate for low-income senior citizens (62 or older) and disabled customers whose family income is less than \$7500 per year. Customers on the rate receive a 50% discount on all energy charges for the first 180 kwh used each month.

The second, called a universal lifeline rate,¹² eliminates the monthly service charge and raises the price per kwh. Under this structure, established in 1978, customers with less than average consumption have lower bills than those with higher than average consumption. These lifeline rates and the impacts they have are discussed briefly in this report.

Senior Citizen Rate

In 1975 the atmosphere was ripe in Los Angeles for

¹¹April, 1980.

¹²It is applied to all residential customers.

a lifeline rate, with both the CPUC and the state legislature in the process of implementing lifeline. Los Angeles had already exempted senior citizens from a 5% local utilities tax on electric consumption.

The senior citizen rate was implemented after the completion of a study by the Chief Legislative Analyst for the Los Angeles City Council, the City Administrative Office and the Department of Water and Power.

Entitled An Analysis of Electric and Water Lifeline Rate Alternatives, the report was designed to provide data to answer these questions:

1. Who should benefit [from an energy assistance or lifeline program];
2. The amount of the benefit;
3. Who should subsidize;
4. How much they should contribute.

The report made projections of the impact of various programs on three groups--low-income senior citizens, all low-income residents, and all residents. Projections were made in the areas of:

- Essential usage;
- Administrative costs;
- Benefits to recipients;
- Revenue loss;
- Rate increases or costs to be borne by other classes.

After being presented with the results of the study, the Los Angeles City Council (which acts as the regulatory

authority for the LADWP) approved the 50% discount for all electricity charges (including service charges, fuel cost adjustment charge, user's sales tax and the state surcharge). Rates on all other consumption were raised 1.8% to finance these discounts.

The number of eligible low-income senior citizen households in Los Angeles was estimated to be 106,700 (using HUD's Low-Income Guidelines), or 59% of the total senior citizen households, and 10% of total households. Benefits were projected to be \$4.90/month. Costs to other classes were anticipated at \$6,451,000 (1.8% increase). Expected administrative costs are summarized below.

Computer programming- for modification of customer billing and accounting system--	\$20,000
General administration and clerical--	90,000
Application receipt and processing--	
First year--	22,700
Subsequent years--	13,700

Administration and Marketing

The LADWP preliminary PURPA report¹³ indicates that the number of people participating is very close to the number eligible, so marketing procedures have apparently been successful. Several methods were used to inform elderly consumers of the rate: senior citizens groups have

¹³LADWP Preliminary PURPA Staff Report on Lifeline Rates, January 1980.

advised members of the program;¹⁴ the rate was described in newspaper ads and bill inserts; the lifeline rate was described in English and Spanish on each bill. The City Clerk's office determines eligibility by using records from the utility users tax exemption.

Universal Lifeline

Like the senior citizen lifeline rate, the universal lifeline rate was established upon completion of a comparative analysis of rate alternatives. Mayor Bradley appointed a Blue Ribbon Committee on November 14, 1975, to study and make recommendations on LADWP electric and water rates.

The Mayor's Blue Ribbon Committee Report on DWP Rate Structure: Electric Rate Structure Report was issued in April of 1977. It recommended the adoption of the universal rate with revenue to be recovered from within the residential class, as well as the elimination of declining blocks. It also presented long range goals and policies to guide future rate decisions, taking into account such factors as conservation, marginal cost pricing, simplicity, and impact on the bills of individual customers. Universal Lifeline took effect on December 10, 1978.

Los Angeles PURPA Hearings

The LADWP has already begun to prepare for its Section 114 PURPA hearings and has issued a preliminary report which is to be used as a basis for further hearings and comments. The LADWP has also included a preliminary staff recommendation:

Since PURPA does not prohibit lifeline rates, staff recommends that the Board retain the flexibility to include lifeline features in rates. Staff believes

¹⁴The report states that this is the most effective way to communicate lifeline rate information.

that such lifeline features should be designed as nearly as possible to be consistent with the PURPA goals of conservation, efficiency and equity.

In addition to analyzing the existing lifeline programs in Los Angeles, this report, issued in January of 1980, evaluates several motions by city council members to modify the rates. The proposals include:

- Extending lifeline rates to electric space and water heating customers (proposals A, B, C, in Table VIII);
- Developing an air conditioning lifeline rate for residents in the warmest areas of the city (proposal D);
- Spreading the costs of universal lifeline subsidy to all classes of customers (proposal E);
- Raising maximum income eligibility levels for senior citizens rate (proposal F);
- An examination of the marketing of the lifeline rates (proposal G).

The LADWP staff developed six criteria with which to analyze the impact of the proposals:

1. Conservation by ultimate end user;
2. Optimization of efficient use of facilities and resources (peak);
3. Equitable rates (eligibility criteria and estimated percentage of residential customers eligible);
4. Timeliness and cost of implementation;
5. Relationship to cost of service;
6. Overlap with other programs.

A table summary of the preliminary estimates of impact is presented on the next page.

TABLE VIII

CHARACTERISTICS OF ALTERNATIVE LIFELINE RATE STRUCTURES

Lifeline Plan	Impact on Conservation Compared to Non-Lifeline Rate Structure	Impact on Peak Compared to Non-Lifeline Rate Structure	Criteria, % of Class Participation	Startup Problems	Residential Energy Dis-counted	Increase Within Residential Class Only	Increase if Spread to All Classes
Universal Lifeline	positive	little change	none 100%	none	N/A	14.7%	0.0%
Senior Citizen/ Disabled Plan	little change	little change	age, income 9.9%	few	4.5%	2.1%	0.0%
PUC Plan	negative	little change	space & water heat 100.0%	many	49.6%	12.4%	4.0%
Council Proposals							
A	negative	little change	space & water heat 10.9%	many	9.6%	2.5%	0.8%
B	negative	little change	space & water heat 10.9%	many	7.2%	3.0%	1.0%

Table VIII (Cont'd.)

Lifeline Plan	Impact on Conservation Compared to Non-Lifeline Rate Structure	Impact on Peak Compared to Non-Lifeline Rate Structure	Criteria, % of Class Participation	Startup Problems	Residential Energy Dis-counted	Increase Within Residential Class Only	Increase if Spread to All Classes
C	negative	little change	space & water heat 10.9%	many	7.2%	N/A	1.0%
D	negative	increase	air conditioning 45.6%	many	16.5%	4.1%	1.3%
E	no change	no change	no change	none	no change	(10.1%)	4.9%
F	little change	little change	age, income 10.4%	few	4.7%	0.1%	slight
G	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Taken from LADWP Preliminary PURPA Staff Report on Lifeline Rates, January, 1980.

Impact

The intended beneficiaries of California's lifeline rate structures are all residential customers. Estimates of 1980 population for the state by the U.S. Bureau of Census indicate the following demographic characteristics in California:

Total population	22,538,000
Population 65+	10.5%
% Low-Income (1975 estimate)	10.4%
December 1979 population receiving SSI:	702,127
No. residential customers, Pacific Gas and Electric Company: ¹⁵	2,836,147 (1978)
San Diego Gas and Electric	645,137 (1978)
Southern California Edison	2,616,684 (1978)

California's population in 1970 was 78.5% urban. Although it is not known how many people live in master-metered households, provisions in the state's lifeline program do extend benefits to those households.

¹⁵Moody's Public Utility Manual.

In order to gain a more detailed demographic picture of the population which is intended to benefit from lifeline rates, the low-income population, one frequently cited study can be used. In 1976, the Fresno County Economic Opportunities Commission (FCEOC) conducted a study of 1700 low-income households served by Pacific Gas and Electric. This produced a 13-month record of electricity and natural gas consumption and a demographic profile of those customers.

The median age was 41, and approximately 13% were over age 55; some 63% of the recipients were renters; the average household consisted of 4.7 persons; approximately 82% of the respondents were unemployed.

It must be noted that the study focused on customers in dire need of energy assistance: the respondents in this survey had been threatened with disconnection of utility services and the FCEOC paid their overdue bills as part of a federally funded pilot subsidy program. Therefore, the respondents represented that part of the population with very low income. While the study may not have been representative of the "average" low-income family, it is one of the few that has specifically documented usage patterns of low-income people.

Need Assessment

Although specific figures on what percentage a low or moderate income household spends on energy were not readily available, some rough calculations can be made.

In Tables IX, X and XI, electric bills from 1979, obtained from the Federal Energy Regulatory Commission, are presented as a percentage of moderate (\$15,000) and low

TABLE IX
PACIFIC GAS AND ELECTRIC

KWH Use	Typical Bills	% \$15,000 Income	% Low- Income
100	\$ 4.65	.37%	.66%
250	9.09	.72%	1.3 %
500	20.70	1.6 %	2.9 %
750	32.71	2.6 %	4.68%
1000	44.72	3.5 %	6.4 %

TABLE X
SOUTHERN CALIFORNIA EDISON

KWH Use	Typical Bills	% \$15,000 Income	% Low- Income
100	\$ 6.02	.48%	.86%
250	12.05	.96%	1.7 %
500	21.61	1.7 %	3.0 %
750	31.04	2.48%	4.4 %
1000	40.48	3.2 %	5.8 %

(\$8,375)¹⁶ incomes. From these costs, it appears that electricity costs do not represent a substantial percentage of household income. For example, if average usage is 500 kwh, then poor families spend approximately three percent or less of their monthly income on electricity.

TABLE XI
SAN DIEGO GAS AND ELECTRIC

KWH Use	Typical Bills	% \$15,000 Income	% Low- Income
100	\$ 5.79	.46%	.83%
250	11.78	.94%	1.68%
500	23.87	1.9 %	3.4 %
750	35.96	2.8 %	5.15%
1000	48.05	3.8 %	6.88%

It must be remembered, however, that electricity is not the major energy source used in the home. Most residential energy use is accounted for by space heating (45%) and water heating (26%) and gas is by far the dominant fuel used for these two end uses. Therefore, the greatest needs will be met by lifeline gas rates rather than electric rates.

For an idea of the needs of those hardest hit by rising energy prices, the Fresno study can again be used as a reference. The Fresno study found that for the persons surveyed, the average income was \$317 per month and some 46% of that was spent on food. For these people, the bills

¹⁶HEW 1979 poverty level for a family of four.

given in Tables IX, X and XI could represent as much as 6% of their income. This could be considered a substantial amount of an income that is very low, particularly when considered in the context of total energy costs.

The financial problems of the respondents are further aggravated by the fact that of the houses occupied by the respondents, some 75% had never been insulated. Approximately 63% of the respondents were renters, and they said they were unwilling to invest income required for other necessities in a building they did not own. Another 40% who bought or were buying their homes, said they could not afford to insulate or they weren't aware of the advantages of insulation.

Targeting Effectiveness

There are several methods which could be used to evaluate how effectively a universal lifeline rate structure, such as California's, reaches the classes it is supposed to reach. In this case study, participation will be measured in terms of lifeline sales as a percent of total residential sales and in terms of whether low-income usage is within the lifeline block.

In regard to overall participation of residents on the rate, the PUC reported to the legislature on the impact of the program after the first year lifeline was in operation. Its report, dated February 1, 1977, contained figures on lifeline usage as a percent of residential sales. Those figures are presented in Table XII.

These figures were calculated before air conditioning lifeline allowances were granted. As the table indicates, at least half of residential sales were made at

TABLE XII
LIFELINE USAGE AS PERCENT OF RESIDENTIAL
SALES FOR VARIOUS CALIFORNIA
ELECTRIC COMPANIES

Utility	Lifeline Usage as Percent of Residential Sales
Alex Brown Electric Company	62.73%
Bay Point Power and Light	81.01%
California Pacific Utilities	
Lassen Division	65.93%
Weaverville Division	60.92%
Needles Division	34.97%*
Pacific Gas & Electric	50.28%
Pacific Power & Light	49.65%
San Diego Gas & Electric	54.04%
Sierra Pacific Power Co.	50.97%
Southern California Edison Company	57.55%
Southern California Water Co. (Bear Valley Electric District)	61.69%

*Needles is in a very warm climatic zone; these figures were generated before space cooling allowances were granted.

lifeline rates. There is some indication that this trend has continued: PG&E reports that 50% of its 1979 sales were at lifeline rates.

As in other inverted rate schedules, the benefits from the reduction in rates for the initial block extended to usage levels that exceeded that block. For example, Albin J. Dahl, an economist at the University of Nevada, wrote in a Public Utilities Fortnightly article in August of 1978 that actual benefits extend to 1200 kwh¹⁷ of electricity (for customers only having the basic allowance of 240 kwh). This, added to the fact that at least half of residential sales are lifeline sales, would seem to indicate that the majority of California residential customers are benefiting from the rate.

Finally, data on low-income usage can determine whether the implicit targeting of the lifeline rate has been successful. Although conclusive information on usage by the average low-income person is not available, the Fresno Opportunities Commission study does suggest that for the 1700 low-income households surveyed, the lifeline electricity allowance of 240 kwh per month was "adequate," i.e., their usage was at or below that amount.

In more general terms, there has been no large-scale campaign to "market" the lifeline rate in California. Widespread participation under lifeline rates could possibly be

¹⁷This is due to the fact that all residential customers receive rate reductions for the first blocks of usage. Given this discount, a customer would have to consume approximately 1200 kwh/month before his bill would equal a bill for the same amount of usage at non-inverted rates.

attributed to bill inserts, price signals on bills, or press coverage of the lifeline debate in the California legislature or in the PUC.

Calculations of Benefit Levels

Despite all that has been written about California's Energy Lifeline Program, statewide data on how much residential consumers are actually saving is hard to come by. One of the reasons for this, as in the case of Pepco and Boston Edison, is the amount of rate increases that have been placed on other classes as a specific result of the lifeline rate and, consequently, how much savings accrued to lifeline customers is not readily determinable. A comparative analysis, therefore, is difficult.

The PUC did, however, make a theoretical calculation of lifeline savings after the first full year of the implementation of the Miller-Warren Act. Its findings are summarized in Table XIII.

From this table, it would appear that lifeline rates had not had much of an effect. However, it must be remembered that a rate reduction did not occur, a rate freeze occurred, and this table was compiled after only one year. A better indication of impact can be gained from comparing lifeline rates to increases in non-lifeline rates over a period of years.

To do that, figures provided by Walter Cavagnaro, Director of the Utilities Division of the California Public Utilities Commission, were used. In 1979 testimony before the Wisconsin legislature, Cavagnaro reported

. . . the lifeline quantity rate has stayed constant over several years time, the inverted rate has caused rates for larger residential users of electricity to

TABLE XIII
THEORETICAL CALCULATION OF LIFELINE SAVINGS,
1976 TO 1977

Mo. KWH Usage	Utility	Bill at 1/1/76 Rates	Bill at 1/1/77 Rates ¹	Bills at 1/1/77 Rates Without Lifeline ²	Savings ³
240	Pacific Gas and Electric Company	\$ 7.73	\$ 7.63	\$ 8.61	(\$.98)
	Southern Cali- fornia Edison Company	11.65	11.65	11.65	(0)
	San Diego Gas & Electric Company	11.29	11.29	11.29	(0)
500	Pacific Gas and Electric Company	14.16	15.17	15.99	(\$.82)
	Southern Cali- fornia Edison Company	20.44	20.44	20.44	(0)
	San Diego Gas & Electric Company	21.60	21.60	21.60	(0)
1000	Pacific Gas and Electric Company	26.33	29.48	30.00	(\$.52)
	Southern Cali- fornia Edison Company	36.38	36.38	36.38	(0)
	San Diego Gas & Electric Company	41.46	41.45	41.45	(0)

¹Basic lifeline allowance--240 kwh/month.

²Theoretical calculation.

³Comparison of 1977 lifeline and non-lifeline rates.

increase significantly. For example, the average rate per kwh for residential service has increased from about 3¢ to 3-1/2¢ in the last three years. The average commercial rate had increased from about 4 to 5¢ and the rate for very large power customers over the last three years has increased from about 2 to 4¢. . . .

Translated, this means the rates for the residential class have increased 16% from 1976 to 1979. If that 16% had been applied to the lifeline block of 240 kwh, the monthly bills for the three major utilities would look like this:

TABLE XIV
THEORETICAL CALCULATION OF ELECTRIC BILLS
HAD LIFELINE NOT BEEN IMPLEMENTED

Companies	Monthly KWH Use	With Lifeline (Present Rates)	If 16% Increase Were Added to LL Block	Difference (Amount Saved)
PG&E	240	\$ 8.29	\$ 9.61	\$1.32
	500	20.14	21.46	1.32
SDG&E	240	11.77	13.65	1.88
	500	19.71	21.59	1.88
SCE	240	13.61	15.79	2.18
	500	30.60	32.71	2.18

*Energy adjustment costs and service charges have been added. The EAC also has a lifeline and non-lifeline rate.

These are rough, theoretical calculations. It is not known how much of an increase the first block actually would have received had the lifeline program not been

implemented, and had there not been a shortfall to be recovered. Also, only the basic 240 kwh allowance was assumed to be priced at the lifeline rates. Nevertheless, it appears as if the actual benefits from the freeze on the basic allowance are not very large nor would they constitute a significant percentage of monthly income.

Data on benefits provided by PG&E confirm this. Estimates of average benefits per year were \$55 per lifeline customer and \$42 per customer for all residential customers. The \$55 would constitute approximately .7% of the 1979 HEW poverty income level for a family of four and .4% for a moderate \$15,000 income.

Revenue Recovery

The revenue shortfalls resulting from California's lifeline rates were to be recovered from all other non-lifeline classes in a just and reasonable manner.

Estimates as to the amount of shortfall and how much non-lifeline classes have paid to recover the revenue vary among participants in the lifeline debate in California. Business and industry complain of having to provide a large subsidization to the residential class. The California Manufacturers Association provided Table XV below which indicates PG&E residential customers have received far less of an increase in electric rates than other classes. The CMA claims the residential class has been subsidized by the industrial and commercial classes by \$466 million annually.

Several opponents of lifeline have generated documents which illustrate the negative impact of what they

consider a quasi-tax on California's large users of electricity. An article entitled "California's Rate Experiments: Lifeline or Leadweight," by California Commissioner William Symons, Jr., published in Public Utilities Fortnightly, October 26, 1978, was representative of some of those documents.

TABLE XV

% INCREASE IN PG&E ELECTRIC RATES
December 31, 1974 - January 1, 1980

Class	Rate Increase
Residential	42%
Commercial and Small Industry	106%
Large Industry	145%

Symons quoted several companies who presented testimony before a legislative committee in 1978. Some excerpts are reprinted below:

Joseph Cleary of Airco Inc.:

At present . . . we do not look upon California with favor. Anything but. We would add plants here only if there were no other viable option. In other words, in close competition with other states, California would lose every time.

Airco has 23 power-intensive plants operating across the nation. Two are in California. Over the past two years, the average power price for these 23 plants has increased by about 12 percent. But for the two in California, it has increased by over 150 percent.

The large and disproportionate increase in California would be alarming enough if it were cost related. But it is not. Instead it results substantially from the CPUC's abandonment of cost-of-service principles.

If "California Means Business," as the governor says, it can prove it by changing the environment that business operates in here. It can start by replacing the social experimenters at the CPUC with commissioners who will restore objectivity to rate making and renew confidence in the CPUC.

Bethlehem Steel Corporation:

. . . A comparison of the California electrical energy costs with those in other western states indicates that there is a significant competitive disadvantage to California-based steel plants.

. . . As compared with the average unit cost of electric power in Seattle, the Los Angeles plant paid an operating cost "penalty" for power of \$4,815,616 in 1976 and \$4,279,620 for the first ten months of 1977.

Those "penalties" amounted to \$24.32 per net ton of shipment in 1976 and \$22.31 per net ton in the first ten months of 1977. In other words, higher electric power costs alone add somewhere between \$20 and \$25 to the cost of making a ton of steel in Los Angeles as compared with Seattle.

I expect that this is generally the case with all California steel plants as compared to steel plants located in other western states. I believe this competitive disadvantage could conceivably result in curtailment of operations and ultimately the cessation of all steel plant operations in this state.

Richard Pooler of Kaiser Aluminum:

Kaiser Aluminum and Chemical Corporation's Richard Pooler testified that:

. . . to produce a variety of goods in California, Kaiser pays a premium of \$17,000 to \$228,000 more in electrical power costs compared to other states.

. . . if this continues, our California plants will not be competitive with other plants or in foreign markets.

. . . last year we paid \$228,000 more in electrical

power costs at Moss Landing compared to an average cost for comparable operations in other states.

These large increases are detrimental to the future of our California refractories plants, because they compete with similar plants elsewhere in the U.S. and around the world. . . .

. . . In all these markets, competition is fierce from Japanese, German, Austrian, Mexican, and eastern U.S. producers. We are feeling particular pressure from Mexican producers competing in the western U.S. market.

. . . As Kaiser Refractories' California energy costs increase relative to other states and foreign nations, its products become less competitive.

These companies attribute at least part of the increases in electricity costs to lifeline and consider this type of rate making an anti-business posture by the CPUC.

Another perspective on this issue can be gained by observing revenue shifts among classes of customers between 1975 and 1978, as shown in Tables XVI and XVII. This data was obtained from the PUC Legislative Counsel's Digest.

Table XVIII indicates the difference between lifeline and system average rates. Including customer charges, lifeline rates for Southern California Edison were still higher than average rates. However, the lifeline rates for the other two companies are below average system rates.

Between 1976 and 1979, average system rates for PG&E had increased 41.8%, 24.76% for Southern California Edison, and 35.28% for San Diego Gas and Electric. At least a portion of these increases can be attributed to the need to recover shortfall from the lifeline usage. During these same years, however, lifeline rates were not increased. It should be noted, however, that the lowest

TABLE XVI

PACIFIC GAS AND ELECTRIC COMPANY
AVERAGE REVENUE BY CLASS OF CUSTOMER
ELECTRICITY

Class of Customer	Average Base Revenue (¢/kWh) (A)	Average ECAC* Revenue (¢/kWh) (B)	Average Total Revenue (¢/kWh) (C)
<u>1975</u>			
Residential	1.7	1.1	2.8
Small Light and Power	2.7	1.1	3.8
Medium Light and Power	1.1	1.1	2.2
Large Light and Power	0.6	1.1	1.7
Agriculture	1.2	1.1	2.3
Total	1.3	1.1	2.4
<u>1978</u>			
Residential			
Lifeline	2.4	1.0	3.4
Non-Lifeline	2.0	2.1	4.1
Total Residential	2.2	1.6	3.8
Small Light and Power	3.2	2.2	5.4
Medium Light and Power	2.3	2.2	4.5
Large Light and Power	1.5	2.2	3.7
Agriculture	2.1	2.2	4.3
Total	2.1	2.0	4.1

*Energy Cost Adjustment Clause.

Source: California PUC Legislative Counsel's Digest, speech delivered May 1979, by John D. Quinley, Supervisor Engineer of Electric Rate Structure.

TABLE XVII
SOUTHERN CALIFORNIA EDISON COMPANY
AVERAGE REVENUE BY CLASS OF CUSTOMER
ELECTRICITY

Class of Customer	Average Base Revenue (¢/kWh) (A)	Average ECAC* Revenue (¢/kWh) (B)	Average Total Revenue (¢/kWh) (C)
<u>1975</u>			
Residential	3.2	1.0	4.2
Lighting and Small Power	3.0	1.0	4.0
Large Power	1.8	1.0	2.8
Very Large Power	1.3	1.0	2.3
Agricultural Power	2.3	1.0	3.3
Street Lighting	4.6	1.0	5.6
Total	2.3	0.9	3.2
<u>1978</u>			
Residential			
Lifeline	3.5	.9	4.4
Non-Lifeline	3.5	1.6	5.1
Total Residential	3.5	1.2	4.7
Lighting and Small Power	3.4	1.5	4.9
Large Power	2.5	1.5	4.0
Very Large Power	1.8	1.5	3.3
Agricultural Power	2.8	1.5	4.3
Street Lighting	5.2	1.5	6.7
Total	2.8	1.4	4.2

*Energy Cost Adjustment Clause.

Source: California PUC Legislative Counsel's Digest, speech delivered May 1979 by John D. Quinley, Supervisor Engineer of Electric Rate Structure.

TABLE XVIII

AVERAGE SYSTEM & LIFELINE RATES (1978)

Utility	Gas			Electric		
	Lifeline	System Average	Difference as Percent of System Average	Lifeline	System Average	Difference as Percent of System Average
	(¢/therm)	(¢/therm)	(%)	(¢/Kwh)	(¢/Kwh)	(%)
<u>Including Customer Charges</u>						
PG&E	18.74¢	23.19¢	19.2%	3.2¢	3.7¢	13.5%
SoCal Gas/Edison	22.57	21.00	-7.5	4.6	4.3	-7.0
SDG&E	21.74	23.80	8.7	4.5	5.3	15.0
<u>Excluding Customer Charges</u>						
PG&E	16.52	22.69	27.2	2.6	3.6	27.8
SoCal Gas/Edison	16.40	18.80	12.8	3.9	4.2	7.1
SDG&E	19.00	22.30	14.8	3.9	5.1	23.5

Source: California PUC Legislative Counsel's Digest, speech delivered May 1979 by John D. Quinley, Supervisor Engineer of Electric Rate Structure.

non-lifeline residential rate was still priced higher than the lowest per unit cost for industry, according to Director Cavagnaro's testimony.

What all this indicates is that there has been a noticeable shift in revenue burden from the residential to other classes of customers. As in all lifeline rates, the issues are: is the shift cost-justified; and is it having a severe impact on the economy?

In regard to the latter, proponents of lifeline argue that the California economy is healthy. In 1978 Business Climate Rankings, the state placed number two in the nation behind Texas in the number of jobs gained. This contradicts the reports of severe damage to California industry by opponents of lifeline.

In regard to the former point, the PUC would argue that lifeline rates are consistent with its principles of marginal cost pricing. Said Director Cavagnaro:

. . . the lifeline rate program has resulted in fairly substantial increases in rates for the commercial and industrial customers, but I want to emphasize that they are rate levels that are still substantially below the marginal cost of providing electric service.

Efficiency

The California PUC's lifeline rate making was designed, in part, to move toward marginal cost pricing. To reiterate its philosophy presented previously, the PUC basically feels that declining blocks are no longer economically justified and that those customers contributing most to the cost of new capital should bear the burden. To cite Mr. Cavagnaro's testimony, however, marginal cost levels have not yet been reached for electric rates.

Marginal cost has been an issue not only in the PUC but in the California legislature as well. California's legislative activity has continued in the area of electric energy and capacity conservation. A "marginal cost test" has been developed by way of load management standards: any adopted standard must be shown to be cost-effective as compared to the cost of new capacity. This indirectly relates to lifeline because its opponents argue that marginal cost pricing should not necessarily benefit the residential customer alone.

Industry representatives in California argue that, either through their own initiative or because of state laws such as the one just mentioned, they too have decreased the need for new capacity by conserving energy; therefore, they feel they have been "penalized" by the increase in their energy costs as a result of lifeline.

In a less theoretical vein, there is no hard data readily available to indicate whether there has been a shift in peak or increase in demand because of the lifeline rate structure.

Lifeline implementation costs to California's utilities, taken from the CPUC's 1977 report to the legislature, are shown in Table XIX.

These implementation costs do not appear to have added any substantial burden, nor significantly impaired utility efficiency.

Conservation

Statewide data on the impacts of lifeline is not available, nor is evidence on whether there has been an

increase or decrease in consumption in the lifeline block. It is also difficult to attribute attempts to conserve energy to lifeline, given the many other conservation measures adopted in the state and the rising cost of energy.

TABLE XIX

LIFELINE IMPLEMENTATION COSTS TO VARIOUS UTILITIES

Utility	Implementation Costs
Alex Brown Electric Company	\$ 216.00
Bay Point Light & Power	425.00
California Pacific Utilities	29,100.00 ¹
Lassen Division	
Weaverville Div.	
Needles Division	
Pacific Gas and Electric	642,000.00 ¹
Pacific Power & Light	19,000.00
San Diego Gas & Electric	174,996.00 ¹
Sierra Pacific	34,025.00
Southern California Edison	404,900.00 ¹
Southern California Water Company (Bear Valley Electric District)	10,950.00 ¹

¹Relates to both electric and gas customers.

One frequently cited lifeline study, The Los Angeles Senior Citizen Lifeline Electricity Rate, by Timothy Sullivan for the Rand Corporation, made some theoretical assumptions about conservation, however. The report assumed an increased bi-monthly consumption of 13% in the cheaper lifeline blocks.¹⁸ This assumed increase would result in

¹⁸The lifeline block is 180 kwh per month and the rate is targeted to low-income elderly.

the sales of an additional 429,000 kwh to the LADWP. However, non-lifeline residential customers, whose rates increased 1.8% because of the revenue shortfall were assumed to have reduced their electricity use by .23% or three kwh per month. If the 900,000 non-lifeline households in Los Angeles reduced their consumption by that much, lifeline would have resulted in a net decline of more than 1.1 million kwh each month for the utility.

In reference to an attempt by Californians to conserve energy, Elrick and Lavidge, a consulting firm based in San Francisco, conducted a survey for Pacific Gas and Electric Company of characteristics of large residential electricity users in 1977. It found that significant numbers of Californians are conserving: about 60% of those sampled used less heat in recent years by lowering thermostats; over one-half used appliances less; about 15% made physical changes in their home. According to this study, it appears that residential consumers are conserving as the price for electricity beyond the lifeline block increases. This would seem to indicate that consumption is, at least, somewhat elastic to price.

Equity

Lifeline was intended to benefit all residential customers in California. Indications are that the majority of residential customers are receiving lower bills under lifeline than if there had been no lifeline.

Strictly in regard to electricity usage, lifeline does not significantly address the ability to pay criterion of equity. Assuming most low-income people do not use electric space or water heating and only receive the basic allowance of 240 kwh, benefits are relatively small;

however, savings do increase as allowances increase. In that respect, the value of the benefits increases. In other words, the central problem of helping low-income people pay for the major energy cost--space and water heating--is addressed.

To further that argument, when California is considered, electricity cannot be regarded apart from the lifeline rate for gas. In this state, the primary heating fuel (gas) is also priced at lifeline rates so that the major portion of energy use is given a lifeline break regardless of whether it is gas or electricity. If a customer does not receive a significant break on electricity bills, he or she may, in fact, receive one for gas bills.

People who oppose this rate structure believe the recovery mechanism has led to sharp rate increases which have violated the good faith/reasonable expectation criterion of equity; however, proponents argue that increases have been cost justified on marginal costing principles, that the impact has not been as severe as it has been reported, and that California's economy is still growing.

In summary, the California PUC is fulfilling its commitment to conservation oriented rate-making. The long range implications of that rate-making for keeping energy costs down and preserving scarce fuels, however, may not be fully realized for years.

FLORIDA POWER AND LIGHT CONSERVATION RATE

Program Summary

Florida Power and Light (FP&L) Conservation Rate

applies to all private residences and individually metered apartment units. It was designed to provide an incentive for residential customers to conserve by placing the majority of a requested increase on the second block of the existing two-block residential rate. This increased bills for consumption over 750 kwh/month and created, in effect, a slightly inverted rate (see Figure 3).

The rate is administered by FP&L. The Florida Public Service Commission (PSC) upon initiation of the rate, required that it be evaluated after its first year. The PSC performed the evaluation but found no conclusive results. The rate is being continued until FP&L's next rate request.

The rate was not advertised beyond bill stuffers which are provided by the utility for all rate changes. The rate also received extensive newspaper coverage which the utility apparently felt was sufficient advertising.

**FIGURE 3
FLORIDA POWER AND LIGHT
Residential Rates**

Issue Development and
the Governmental Process

Florida Power and Light Company's conservation rate was ordered in June, 1977 by the Florida Public Service Commission. The Order was the termination of hearings on the company's request for a rate increase to cover the cost of a new nuclear facility. FP&L requested a rate increase consistent with the existing declining block rate structure. The Commission, however, citing the need to conserve electricity, adopted a 16.12% increase for the residential class but applied most of the increase to the block of use over 750 kwh, creating an inverted or "conservation" rate.

The PSC maintained that the traditional declining block rate encouraged the use of electricity which added to the demand and, in turn, would require additional generating capacity. The inverted rate, on the other hand, would signal the consumer to conserve resources, arrest demand growth, and postpone the need to add to the generating plant, thus keeping costs lower in the long run.

The PSC established the rate on an experimental basis to be evaluated after the first year. This evaluation

was inconclusive and the PSC decided to continue the rate. It remains in effect.

Initiation and Adoption

The adoption of this rate raised some controversial issues. During the eight months of public hearings on the case, a conservation rate, as such, was never proposed: it was only mentioned tangentially in a discussion of flat rates being proposed by the Florida Office of Public Counsel. After all the briefs on the case had been filed and no additional public comment could be accepted, one of the Commissioners¹ proposed an inverted rate at the agenda conference.

In a previously opened docket² entitled "General Investigation into Electrical Rate Structures to See if They Tend to Promote Conservation of Energy," the PSC staff rejected the idea of a lifeline or conservation rate since they felt it was not based on "objective economic criteria." PSC staff continued to advise against adoption of the rate in this case; however, the Commissioners persisted and the rate was adopted as a 'conservation rate' to be consistent, at least nominally, with the hearings and record of proceedings. This conservation rate was then approved by two of the three Commissioners.

The dissenting Commissioner contends the issue was not properly raised, that FP&L was not given an opportunity to respond to the complex issues involved, and that no study

¹At the time of the hearing the PSC was composed of three elected Commissioners.

²Number 73694-EU, proposed Order No. 7258.

had been done to determine if the rate was based on the cost of service. None of these issues was resolved.

Although the conservation rate has almost the same effect as a lifeline rate, the PSC carefully notes the following distinction:

This lifeline rate, however, should not be confused with the energy-conservation rate approved by us. The two are completely different. The latter is an attempt to price electricity in a manner so as to increase the incentive to conserve electricity. . . . It is important to note that this incentive to conserve is not limited to a specific group, such as people in low-incomes, but is available to everyone. . . . It is not a form of welfare.³

Organizations Involved

The major groups involved as intervenors in this rate case were the Florida Industrial Power Users Group, Florida Power & Light Company, and the Florida Office of Public Counsel. However, because the conservation rate was never raised as an issue in the case, none of these groups directly supported or opposed that rate according to the official record.

The Florida Industrial Power Users Group (FIPUG), which represents industrial consumers of energy, took the position that rates, in general, should be based on cost of service. They were not, however, directly impacted by the conservation rate since revenue was recovered from the second residential block.

In regard to the issue of lifeline, FIPUG opposes lifeline rates in general, stating that lifeline is an

³PSC Order No. 7843, Docket No. 760727-EU (CR), p. 48.

ineffective device to assist people who can't afford the rising costs of electricity. They suggest using some form of energy credits or stamps, administered by a welfare agency. A subsidy to low-income people through the rate structure, FIPUG maintains, disguises the true costs of electricity and violates their overriding concern that rates reflect the cost of service.

They further believe that if the rates for the industrial class are raised to subsidize the residential class, these cost increases would eventually be passed on to the consumer in the prices of goods and food, and consumers, not industry, would bear the burden of the increase.⁴

It is interesting to note that 1978 residential customers account for 51%, industrial customers account for only 7.4% and commercial customers account for 34% of FP&L's kwh sales; therefore, subsidization of the residential class by the industrial class could have a substantial impact on industrial rates.

Florida Power & Light Co. also opposed the rate, once it was proposed, but since the official record was closed, they could not express their opposition on the record. They had originally planned to appeal the rate but found that they made \$5 million more under the inverted rate than they would have under the initially proposed rate and, consequently, decided to continue with it.⁵ (See Impact section of this case study for further discussion.)

⁴Correspondence from John W. McWhirter, Jr., Counsel to FIPUG, February 28, 1980.

⁵FP&L Annual Report 1978, p. 14.

The Public Counsel had recommended that the PSC order the implementation of a flat rate structure which most closely reflected the marginal cost of producing electricity. As part of this discussion, an inverted rate structure was also examined. The inverted rate was never formally proposed, however, because the flat rate was preferred. Whether this discussion of an inverted rate structure was the genesis of the conservation rate or not can only be speculated.

Other groups which were interested but did not directly intervene in the case include the Metro-Dade County Consumer Advocate's Office and the Florida Hotel & Motel Association. The Consumer Advocate's Office actively supported the conservation rate and organized a grass-roots public information and media campaign promoting the rate. The Florida Hotel & Motel Association, on the other hand, opposed the rate because it was felt that hotel and motel owners would be penalized by higher utility bills. This was based on the assumption that guests, who control the thermostats, have no real incentive to conserve.

Other Assistance Programs

Although no other lifeline or conservation rates are in effect in Florida, a statewide lifeline rate (15% discount on the first 500 kwh for all recipients of Supplementary Security Income (SSI) benefits was proposed by State Representative Margolis in HB 38 (introduced in 1979). The program would be administered by the Department of Health and Rehabilitation Services with revenue shortfalls made up by a sales tax credit for the utility company.

This lifeline proposal is unusual in that it is supported by the utility company and opposed by consumer

groups. The consumer opposition is based on several factors:

1. The proposed rate is discriminatory in that it applies only to SSI recipients;
2. The method of revenue recovery from the sales tax would result in an increase in the sales tax;
3. The PSC rather than the legislature is the appropriate body to institute a lifeline rate;
4. 500 kwh is not enough to supply the basic energy needs during the cooling season.

The utility companies support the bill as a more favorable alternative to a more universal lifeline rate which would affect their rate structure and subsidize one class at the expense of another.

Although this bill was originally proposed in 1979, it was carried over to the present legislative session and will be a part of the generic hearings on lifeline, still to be scheduled in accordance with Section 114 of PURPA. The docket for the hearings was initiated at the end of February, 1980.

The Florida Power Corporation, another utility company, had proposed an Energy Stamp Program to be administered by the Florida Division of Family Services. Vouchers were to go to all low-income households receiving Aid to Families with Dependent Children or food stamps and was to be funded by the state. This proposal was never implemented.

Utilities have also sponsored some experimental assistance programs including the Florida Power Company's experimental time-of-day and load-leveling rates, the Good Cents Homes, a utility sponsored promotion of energy efficient homes, and Tampa Electric's Home Energy Audits.

Major Events

Major events in the proceedings of FP&L's rate case were as follows:

Oct. 8, 1976--Docket initiated on rate increase

Nov. 3, 1976--Further investigation and proceedings ordered

Nov. 12, 1976--FP&L filed motion for Interim Relief

Jan. 11-14 and 18-21, 1977--Public Hearings held in Palm Beach Gardens, Fla.

Jan. 25, 1977--Hearings held in Miami

March 4, 1977--Order No. 7668 entered granting interim increase

June 16, 1977--Docket ordering conservation rate issued by PSC.

The conservation rate is not targeted to any special residential group; rather, it applies equally to all residential customers who pay 3.303¢/kwh for the first 750 kwh and 3.846¢/kwh for the second 750 kwh.⁶ The rate was determined by placing most of the initially requested increase on the second block of usage, thus changing it from a declining block rate to a slightly inverted rate. Since revenues were allocated to each customer class independently, there was no additional burden for the industrial or commercial classes.

The conservation rate, like any other regular rate, is administered by the utility company, and according to Mike Horne, a rate analyst at FP&L, required no additional costs for its implementation or administration.

⁶See Figure 3, rate profile.

Impact

The intended beneficiaries of FP&L's conservation rate are all those residential customers who use less than 750 kwh per month. Program eligibility is not contingent upon age or income levels.

Florida Power and Light served 1,818,468 customers in 1979 and services an area covering 27,650 square miles in 35 counties on the largely urbanized east and lower west coasts of Florida. Although no figures are available on the economic and demographic characteristics of FP&L's customers, some general information on the state level may be useful.

- Florida has an approximate population of 8,594,000;
- FP&L serves approximately 60% of the state;
- 1,512,000 of the state's population are elderly (approximately 17.6%);⁷
- The average household income in 1978 was \$17,505;
- Approximately 18% of the population have incomes at or below 125% of the federal poverty guidelines.

⁷This figure represents the highest concentration of elderly citizens in any state.

A typical electric bill for an FP&L residential customer using 1,000 kwh in January 1979 was \$38.55. This is lower than 9 of 12 Florida companies surveyed.

Need Assessment

A study conducted by the Urban Institute in Washington, D.C. calculated the mean heating expenditure for poverty households in Florida at \$244 in 1976-77 and \$263 in 1977-78. This represented 8% of the households' income in 1976-77 and 9% of their income in 1977-78. Compared to other states this is relatively low, as would be expected in a warm southern state like Florida.

Total home energy expenditures also consumed a relatively low percentage of a poverty household's income in 1976-77 and 1977-78, 17% for both years. The same study indicated that 16% of all poverty households spent at least 25% of their winter income for heat in 1976-77 and another 42% spent 6% of their winter income for heat. These numbers rose 1% each in 1977-78 to 17% and 43%, respectively.

In 1976-77 15% of all poverty households in Florida paid at least 25% of their winter income for total energy expenditures and 47% of the poverty households spent 6% or more. For elderly headed households, 13% were determined to be "in extreme need"⁸ in 1976-77. This comprises 42% of all needy households. These numbers remained relatively stable for 1977-78.

⁸"Extreme need" is defined as the necessity to spend 25% or more of income for heating during the six-month winter period. Source: Energy Need Among Low-Income Households: State-Specific Estimates Using Several Alternative Measures, by Wayne Lee Hoffman, The Urban Institute, Washington, D.C., June 1979.

It should be noted that these figures are for the entire state and may differ slightly within the FP&L service area.

To determine how income relates to electricity consumption in the FP&L service area, the research department of the PSC did a study which correlates electric use with income and other household characteristics.

One hypothesis has been that income and electricity usage are directly related; that low-income families use small amounts of electricity and high-income families use larger amounts. The study found that although this is generally the case, there are extreme cases. For example, for customers earning \$500 per month or less (\$6,000/yr.), electricity usage exceeded 750 kwh in 30.8% of the months studied and reached 1,000 kwh or more in 18.6% of the months.⁹

Targeting Effectiveness

Although the conservation rate was not targeted to a specific group of low-income persons, the research department of the PSC compared the effect of the inverted rate to what the rate would have been under the proposed declining block rate for 6 income brackets.¹⁰ The study compared

⁹Florida PSC "Correlations of Electricity Use and Household Characteristics" Research Department, March 1978, p. 14.

¹⁰The 6 brackets are:

Income Bracket	Income Range \$/Month	Income Bracket	Income Range \$/Month
1	0-250	4	751-1,000
2	251-500	5	1,001-1,500
3	501-750	6	1,501 & above

average monthly bills for both rates for each bracket.

Although the results were not very conclusive, they do indicate that while the inverted rate generally helps low-income customers (resulting in higher bills for high-income customers), there are cases in which it increases the burden on the poor and benefits those who are not needy. The report further indicates that the approved rate seems to help high-income customers more than hurt low-income customers, based on analysis of this data.¹¹

The study also found that high income/low usage customers are considerably more prevalent than high usage/low-income customers.

Benefit Level

The PSC required that FP&L's inverted rate be reviewed after its first year to determine its effect. The review, conducted by the rate department of the PSC, found no conclusive evidence to either support or reject the continuation of the rate. It was recommended that no action be taken on the inverted rate until the next rate change request was filed by FP&L. Table XX illustrates the distribution of bills issued to customers at various levels of consumption. As is indicated, consumption falls under 750 kwh more often in the winter than in the summer. Thus, more people benefit from the inverted rate structure in the winter. However, no trends or shifts in usage patterns were discernable over previous consumption levels.

Table XX further indicates that in the first twelve-month period the rate was in effect, beginning in June of

¹¹Ibid., p. 23.

TABLE XX
FLORIDA POWER & LIGHT
PERCENTAGE OF BILLS ISSUED AT
VARIOUS USAGE LEVELS

	Residential Rate			
	750 kwh	1000 kwh	1200 kwh	2000 kwh
1976				
July--Below	44.80	57.69	66.33	87.13
Above	55.20	42.31	33.67	12.87
Aug --Below	39.31	51.16	59.73	83.17
Above	60.69	48.84	40.27	16.83
Sept--Below	38.54	50.48	59.06	82.65
Above	61.46	49.52	40.94	17.35
Oct --Below	46.57	60.27	69.25	89.50
Above	53.43	39.73	30.75	10.50
Nov --Below	61.44	76.35	84.06	96.23
Above	38.56	23.65	15.94	3.77
Dec --Below	56.80	72.68	81.36	95.80
Above	43.20	27.32	18.64	4.20
1977				
Jan --Below	49.34	64.54	73.49	91.79
Above	50.66	35.46	26.51	8.21
Feb --Below	46.94	61.51	70.28	89.49
Above	53.06	38.49	29.72	10.51
Mar --Below	54.94	71.09	80.05	95.39
Above	45.06	28.91	19.95	4.61
Apr --Below	60.38	75.78	83.71	96.15
Above	39.62	24.22	16.29	3.85
May --Below	65.25	79.22	86.20	96.74
Above	34.75	20.78	13.80	3.26
Conservation Rate in Effect				
June--Below	53.02	67.17	75.56	92.26
Above	46.98	32.83	24.44	7.74

Table XX (Cont'd.)

	Residential Rate			
	750 kwh	1000 kwh	1200 kwh	2000 kwh
July--Below	37.03	48.67	57.12	80.82
Above	62.97	51.33	42.88	19.18
Aug --Below	38.00	49.85	58.41	82.27
Above	62.00	50.15	41.59	17.73
Sept--Below	40.44	53.08	61.99	81.12
Above	59.56	46.92	38.01	14.88
Oct --Below	46.10	60.20	69.50	89.90
Above	53.90	39.80	30.50	10.10
Nov --Below	62.70	77.70	85.30	96.60
Above	37.30	22.30	14.70	3.40
Dec --Below	62.40	77.80	85.60	96.90
Above	37.60	22.20	14.40	3.10
1978				
Jan --Below	48.90	64.30	73.50	92.00
Above	51.10	35.70	26.50	8.00
Feb --Below	49.05	63.92	72.72	91.29
Above	50.95	36.08	27.28	8.71
Mar --Below	49.69	65.63	78.50	92.80
Above	53.31	34.37	21.50	7.20
Apr --Below	63.08	78.64	86.25	97.19
Above	36.92	21.36	13.75	2.81
May --Below	60.50	75.22	82.97	95.58
Above	39.50	24.78	17.03	4.42
June--Below	44.93	58.72	67.73	88.35
Above	55.07	41.28	32.27	11.65

Prepared by the Rate Department, Florida Public Service Commission, August 10, 1978.

1977, average monthly usage fell below 750 kwh in only four of the months--November and December of 1977 and April and May of 1978.

Table XXI indicates that reductions in electricity costs peak at 750 kwh of usage and then decline. At 1,500 kwh usage, the customer pays more under the conservation rate than under the staff rate. Thus, it is clear that customers bills for usage below 750 kwh are lower under the conservation rate and a conservation incentive is provided.

Revenue Recovery

Revenue is recovered from residential users who consume over 750 kwh. Because of the way the rate was designed--applying most of the 16.12% requested residential class increase to the block of use over 750 kwh--there is no revenue shortfall per se, simply a shift in the burden of meeting revenue requirements to high-use customers.

This method of allocating revenue requirements was intended to serve as an incentive for conservation on the part of larger users; however, the rate has not been widely advertised and people may not realize that they can pay lower rates if they use less energy. (See discussion on Conservation, p. 95.)

Efficiency

The conservation rate was not based on cost-of-service studies nor on marginal cost pricing. This was despite the fact that FP&L had conducted several cost-of-service studies and the Florida Public Counsel had advocated a flat rate based on marginal cost pricing.

However, there was some discussion of the need to

TABLE XXI
CALCULATION OF BENEFIT LEVEL

Monthly Usage KWH	Monthly Bill		Savings with Conservation Rate/Month
	Staff Rate*	Conservation Rate	
200	\$ 7.12 + 3.50 = 10.62	\$ 6.61 + 3.20 = 9.81	\$+ .81 (7.63%)
500	17.80 + 3.50 = 21.30	16.51 + 3.20 = 19.71	+1.59 (7.46%)
750	26.70 + 3.50 = 30.20	24.77 + 3.20 = 27.91	+2.29 (7.58%)
1,000	35.02 + 3.50 = 38.52	34.38 + 3.20 = 37.58	+ .94 (2.44%)
1,500	51.67 + 3.50 = 55.17	53.61 + 3.20 = 56.81	-1.64 (-2.97%)

*Declining block rate originally proposed by PSC staff..

<u>Conservation Rate</u>		<u>Staff Rate</u>	
customer charge	3.20	customer charge	\$3.50
1st 750 kwh	3.303¢	1st 750 kwh	3.5612¢
over 750 kwh	3.846¢	over 750 kwh	3.33¢

manage electric consumption in the FP&L service area: industrial development is expanding in Southern Florida¹² and the population in FP&L's service area is growing at twice the rate of the remainder of the state.

Despite a recent slowdown in the load growth experienced by the company, new construction begun now and completed in the mid 1980's will cost from \$1,000 to \$1,500 per additional installed KW of capacity. Thus, the PSC reasoned that to the extent that reduction in wasteful consumption also reduces total demand on the system, such conservation measures can also reduce or postpone the need for increasingly expensive additions to plants.¹³ Thus, insofar as the rate is successful in its attempt to encourage conservation, it would also lead to greater efficiencies in the FP&L system.

As noted previously, the rate required no additional administrative costs and, in fact, the company realized a \$5 million "windfall" from the inverted rate, over and above the revenue it would have received from its proposed rate increase.¹⁴ This can be attributed to the fact that people continued to use the same high levels of energy and paid a higher price for it. (See Table XXI, Calculation of Benefit Levels.)

Conservation

The studies that have been conducted are inconclusive

¹²FP&L Annual Report 1978, p. 5.

¹³PSC Docket No. 760727-EU(CR) Order No. 7843, p. 32.

¹⁴FP&L Annual Report 1978 Employee Edition, p. 19.

as to whether or not the rate induced conservation. According to one report by the rate department of the PSC, the average number of kwh used per customer actually increased after the first year. The report, prepared pursuant to the PSC's requirements for an evaluation after the first year of the rate, found that FP&L experienced a 4.8% annual increase in residential customer growth and a 7% annual increase in consumption for the residential class during 1977-78. Consumption below 750 kwh rose by 5% and consumption above 750 kwh rose by 10%.¹⁵ Thus, the conservation rate did not appear to slow the rate of growth at all. The average residential consumption, not adjusted for weather, for the years 1975 through 1979 follows:

<u>Year</u>	<u>Average Annual Consumption (kwh)</u> ¹⁶
1975	11,125
1976	10,968
1977	11,370*
1978	11,790
1979	11,354

*1/2 year under inverted rate

The jump in 1978 can be explained, in part, by abnormal weather conditions. In addition, it takes time for people to adjust their lifestyle in response to the conservation price signals of the rate. Thus, any conservation effects may not be noticed for several years.

¹⁵Memorandum, August 10, 1978, from PSC Rate Department, "Florida Power & Light Company Residential Inverted Rate in Docket No. 760727-EU."

¹⁶Florida Power & Light Co., Dave Woolverton telephone conversation, February 26, 1980.

FP&L projects that average annual residential consumption will decline from 11,354 kwh in 1979 to 11,297 kwh in 1980. However, this cannot be fully attributed to the conservation rate and may be the result of improved energy efficiency of appliances and the residential building energy code.¹⁷

It appears that FP&L does very little advertising or public information dissemination concerning the rate structure and the public is not generally aware (per telephone call to Florida Power and Light) that they can benefit by reducing consumption to below 750 kwh. This is despite the PSC's explicit statement that the rate is intended to serve as "an economic incentive for the higher-consuming residential customer to eliminate unnecessary consumption."¹⁸

Based on the lack of conclusive data, it was decided to continue the experimental rate at least until the next requested rate relief is filed by the company so that more conclusive information on its impact could be available.

In an attempt to develop more useful information on which to evaluate the rate, in 1978 the Research Department of the PSC developed an econometric model to analyze the effects of the weather, income and price of electricity on average kwh usage per customer.¹⁹ It indicates that while weather

¹⁷FP&L "Items of Current Interest," prepared in conjunction with presentation to Security Analysts, Miami, Fla., February 1980, p. 15.

¹⁸Docket No. 760727-EU(CR), p. 32.

¹⁹Average kwh usage = $-286 + .51 (\text{degree days}) + .83 (\text{income}) - 95449 (\text{price})$
per customer

and income have a slight positive effect on consumption, the price of energy has a large, negative effect. This means that for each additional degree day, average kwh usage per customer would increase by .51 kwh or by approximately 1/2 kwh per month if income and price do not change. For each additional dollar of income, kwh usage would increase by .83 kwh per month, if weather and price do not change. On the other hand, as price increases by one-tenth of a cent, usage declines by 95.5 kwh per month.

Elasticities of each of the variables were also calculated:

Income = +3.22

Weather = + .18

Price = -2.09

The negative price elasticity of electricity indicates that electric consumption is, in fact, relatively price elastic: an increase in real price may result in a more than proportionate decrease in the use of electricity, all other things constant.²⁰ However, other factors can (and often do) outweigh the negative influence in price, resulting in an increase in consumption even when price is increased, which may have been the case here.²¹

Thus, although the preliminary analysis indicates that consumers are using more, rather than less electricity, it may take a few years for conservation measures to be

²⁰Memorandum, August 22, 1978, Re: Analysis of Factors affecting residential use of electricity for Florida Power and Light Company, prepared by Research Department, PSC, p. 3.

²¹Ibid., p. 5.

implemented and realize the full effects indicated in this model. In fact, in 1979, average annual consumption fell to slightly below the 1977 figure (the year the inverted rate took effect).

Equity

Because of the way the rate is structured and administered, any residential customer using less than 750 kwh/month benefits from the rate at the expense of those residential customers using more than 750 kwh. To the extent that electricity consumption is a correlate of income (low-income people use less electricity), the rate implicitly benefits low-income users.

Based on the study that links electric use to household characteristics discussed previously, one can conclude that low-income consumers benefit to some degree from the conservation rate; however, some upper income people who use less than 750 kwh of electricity per month also benefit.

Although the rate may benefit low-income persons (see section on Targeting Effectiveness) it has no direct relation to a person's ability to pay, either in its structure or in its effect. In fact, this was never discussed as an explicit objective of the rate.

A unique factor in considering the equity impact of this rate is the large number of tourists or people with second homes in Florida. In the former case, hotels and motels pay for electricity and guests, who control the thermostats, have no incentive to conserve. The higher electric rates are then passed on in the form of higher room rates which is efficient but may not be equitable. In the latter case, people with winter homes in Florida may

benefit from the conservation rate: these residents may come down for a month or two at a time during the winter when it is cooler and there is less use of air conditioning, and realize lower monthly bills than someone who lived in Florida year round. Since these people are generally more affluent, they also benefit from the conservation rate, possibly at the expense of lower income, year-round Florida residents who use more than 750 kwh/month.

FP&L's system peaks in the summer with the extensive use of air conditioners. There is some question as to whether 750 kwh, the cutoff for the lower inverted rate, is adequate for "life sustaining" electric needs during the cooling season in Florida: the company estimates that a 2-ton central air conditioning system uses 1450 kwh per month; the Citizen / Labor Energy Coalition in Palm Beach recommends a level of 750 kwh in the off-peak winter season and approximately 1200 kwh in the cooling season.²²

Further, the \$5 million in unexpected profits received by the company as a result of the rate may serve to postpone any rate increases that might eventually affect industry.²³ If this is the case, it could be said that residential customers are subsidizing industry which has serious equity implications.

The more general equity issues discussed in the Iowa-Illinois Small Use Rate case study also apply to FP&L's inverted rate. Briefly these include:

²²Karen Clark, Citizen /Labor Energy Coalition, telephone interview, February 26, 1980.

²³Telephone conversation with John W. McWhirter, counsel for the Florida Industrial Power Users Group, February 27, 1978.

1. Should the residential class bear the full burden for conservation?
2. Should large residential users "subsidize" the smaller users by bearing the full brunt of the residential class increase?

The above-mentioned Iowa-Illinois case study contains a more detailed discussion of these issues.

To obtain a complete picture of the equity of this rate, however, one would need to assess the equity of an inverted rate structure vs. the more traditional declining block rate structure since this is, in effect, the direction in which FP&L is moving.

IOWA-ILLINOIS GAS AND ELECTRIC

SMALL-USE RATE

Program Summary

Iowa-Illinois Gas and Electric Company's small-use rate was based on the cost of serving small residential customers, and was designed to provide a rate break for small users and to encourage conservation during summer months. Revenue recovery, per se, was not at issue during the rate case: the entire requested increase was granted, but a larger percentage of the increase was imposed on regular residential users.

The small-use rate is available to residential customers in single-family dwellings who meet the following criteria:

1. Daily usage does not exceed an average of 15 kwh per day for a customer's two highest billing periods from June through September;
2. Customer has had service at the same residence for the entire June through September period;
3. If a customer moves and the eligibility criteria have been met by the previous resident, the new owner qualifies for the rate.

Contingent upon June through September consumption, a customer is placed on the regular residential rate or the small-use rate beginning with the October billing period.

The company periodically explains the small-use rate through bill inserts and, during the qualifying period of June through September, a statement appears on residential customers' bills that specifies average daily usage.

The small-use rate is compared with regular residential rates in Figures 4 through 7. As shown, all small-use rates are flat. Regular summer rates are flat and regular winter rates are two-step declining block rates.

The service charge also differs: in Iowa the regular residential service charge is \$2.40 and the small-use service charge is \$2.15; in Illinois the regular service charge is \$2.50 while the small-use service charge is \$2.05. All rate schedules are subject to an energy or fuel adjustment charge.

Under the small-use rate it is possible for customers to save 11% to 14% over a twelve-month period.¹

¹The difference is due to different rates in Illinois and Iowa. Even though the same company serves both states, rates are set by two separate utility commissions.

FIGURE 4
IOWA-ILLINOIS GAS AND ELECTRIC
Illinois Winter Rates

FIGURE 5
IOWA-ILLINOIS GAS AND ELECTRIC
Iowa Winter Rates

FIGURE 6
IOWA-ILLINOIS GAS AND ELECTRIC
Illinois Summer Rates

FIGURE 7
IOWA-ILLINOIS GAS AND ELECTRIC
Iowa Summer Rates

Issue Development and
the Governmental Process

Iowa-Illinois Gas and Electric Company initiated the small-use rate in response to a customer load survey in which customers were divided into five strata or usage levels.² It was found that customers in the first strata had very even usage patterns: in the summer, they did not incur the same proportion of peak capacity costs as larger users. It was also found that large-use customers have about twice the amount of capacity-related costs per kilowatt-hour as do the small-use customers. The survey further demonstrated that the small-use customers generally use more energy in the winter (for space heating) than other customers, which is also beneficial to system demand since the system is summer-peaking.

In Illinois the small-use rate was adopted in a general rate case in December, 1978, along with a winter-summer rate differential for certain residential and commercial customers. In Iowa, the State Commerce Commission separated the hearing on rate structure from the general

²See Table XXII, next page.

TABLE XXII

STRATA FOR IOWA-ILLINOIS CUSTOMER LOAD SURVEY
(Based on August 1975 Sample Billings)

	Strata 1	Strata 2	Strata 3	Strata 4	Strata 5
Kwh	(0-386)	(387-763)	(764-1250)	(1251-2016)	(2016+)
Number of bills	33,703	33,807	26,497	17,491	4,767
Percent of residential customers	29%	29%	23%	15%	4%
Total kwh consumed	7,342,955	19,001,673	25,990,299	27,097,785	12,399,696
Average kwh/bill	218	562	981	1,549	2,604

Source: Dale Richardson, Iowa-Illinois Gas & Electric Company.

rate case and adopted the small-use and winter-summer differential rates on March 8, 1979.

Iowa-Illinois sought the rate increase to cover a \$100 million investment in a new coal-fired generating unit, Council Bluffs Unit 3, operated by Iowa Power and Light Company. The investment was expected to substantially reduce Iowa-Illinois' fuel and purchased energy costs.

The small-use rate was further justified by a cost of service study commissioned by the company and prepared by Gilbert Management Consultants of St. Louis. The study, based on 1976 data, indicated that "there was a considerable difference in the rate of return being earned on various classes of customers and rates."³

The load research and cost studies indicated a change in traditional cost patterns: capacity-related costs were increasing more than customer-related costs. Thomas L. Christensen, Director of Rates for Iowa-Illinois Gas and Electric testified that:

The capacity related costs, taking into account the new generating unit coming into service this year, have increased to the point where overall revenue required per kilowatt hour for capacity related and customer related costs will be greater for the larger use customer than for the small-use customer. . . . The difference in the cost of service will justify rates that are about 15% less for the small-use customer than for the large-use customer.⁴

³Iowa State Commerce Commission, Docket No. RPU-78-12, Testimony of Thomas L. Christensen.

⁴Ibid., p. 5.

Eligibility for the small-use rate is contingent on consumption during the months of June through September. Any customer who's two highest bills during this period average 450 kwh or less per month, or an average of 15 kwh/day, qualifies for the rate and is subject to the rate for the next 12 months. In most cases, customers who do not use air conditioning qualify for the rate.

Previous and Subsequent Attempts

Both Illinois and Iowa have attempted to implement a lifeline rate, but neither state has been successful.

In Illinois, the most serious lifeline attempt was House Bill 83 which proposed lower electric rates for consumers who used less than 500 kwh per month (1200 kwh for electric space heating customers). Subsequent attempts to pass lifeline legislation include HB 2027, HB 2609, HB 275 and HB 547 which are described in more detail in the case study of Illinois HB 83. The Illinois Power Company also has a small-use rate in effect.

In Iowa, a one-year demonstration lifeline program was put before the General Assembly in 1978 but was never passed. This program would have involved the six investor-owned utilities in Iowa and would have been targeted to low-income, disabled, or elderly households.

One year after the small-use rate was adopted the Iowa State Commerce Commission began its generic field hearings on lifeline. There was some feeling by consumer groups in both Iowa and Illinois that the initiation of the small-use rate was an attempt by Iowa-Illinois Gas and Electric to avoid the issue of lifeline rates which were under consideration in both states at that time.

Major Actors

Apparently the small-use rate, per se, was not very controversial at the time it was implemented: few groups actually intervened in the case and, those that did seemed to focus on the amount of the rate increase, its distribution among classes and the overall rate design rather than on the small-use rate.

The Quad-Cities Consumer Energy Council, a local group of concerned energy consumers, intervened in the Illinois case but not specifically in relation to the small-use rate. No consumer groups intervened in the Iowa case, although an attorney with Clinton County Legal Aid cross-examined the Consumer Council's general witnesses during the hearings. The Consumer Council's general opinion of the small-use rate, now that it has been implemented, is that:

- It was imposed as a poor substitute for lifeline;
- The rate differential between small and regular residential users is not significant;
- The residential class overall had a larger percentage increase (21.4%) than the industrial class and this is inequitable;
- Small users still paid a rate increase, the only difference is that it was a smaller percentage (9.5%) than regular users (24.3%).

Industry did not play a major role in this case either. After the rate was adopted, concerned industries supported the small-use rate since it was consistent with their stand that rates be based on the cost of service. They also supported it since it had no immediate or foreseeable impact on their own rates; however, they consistently opposed lifeline and have testified against it at hearings held by the ISCC as not being based on cost of service.

The energy manager for John Deere and Company, Iowa's largest employer with over 30,000 employees in eight plants, presented John Deere's position on lifeline at a hearing on September 27, 1979, in Davenport, Iowa. Their position is:

- That relief from electrical energy costs is necessary for low income groups;
- That a direct relief program approach should be used because it would be far more effective;
- The cost of service concept for rates is economically valid.

Major Events (Chronology)

IOWA

1978 Lifeline Bill introduced and failed

March 29	Iowa-Ill. filed for rate increase
Aug. 14	ISCC established date for hearing in electric rate design
Dec. 7	Small-use rate in effect

1979

March 8	Small-use rate approved
---------	-------------------------

ILLINOIS

General Lifeline

Small-Use Rate

1977

Jan. 27	HB 83 proposed and rejected in legislature
---------	--

1978

Jan. 11	Iowa-Illinois proposes rate increase for Illinois Service Area
---------	--

	<u>General Lifeline</u>	<u>Small-Use Rate</u>
Summer	Local hearings held in Rock Island and Moline at request of Quad-Cities Consumer Energy Council	
December 6		Rate increase and structure approved
December 7		Small-use rate in effect

Because Iowa-Illinois Gas and Electric Company serves two states, the process for increasing rates or changing the rate structure is more involved than for other companies: both the Iowa and Illinois Commerce Commissions must decide separately on the issues. As can be seen in the chronology, Illinois adopted its small-use rate structure three full months before Iowa. Further, the rates for each state are different: lower rates apply in Iowa than in Illinois; and Illinois has a summer-winter differential for its small-use rate because the ISCC found that monthly usage was slightly higher in the non-summer months. All of this makes administration of any rate more complicated for Iowa-Illinois than for other companies.

Lifeline appears to be more advanced as an issue in Illinois than in Iowa; however, the main consumer group involved, the Quad-Cities Consumer Energy Council, takes a bi-state approach to the lifeline issue and similar arguments are used in both states. In fact, consumer groups in both the Quad-Cities, Iowa and Illinois, Consumer Energy Council, feel that the initiative of the utility company to adopt the small-use rate was more a result of lobbying on the part of this group than was the load survey or cost of service study.

The Iowa Commerce Commission has consistently

opposed the issue of lifeline, calling it a "cruel hoax." Yet, they approved the small-use rate which has many of the same effects as lifeline. One plausible reason is that the small-use rate, based on the cost of service study, is more easily accepted by the industrial and commercial classes than lifeline, which is regarded as more of a "social" rate design. The fact that revenue is recovered from the regular residential users and not from the industrial or commercial users also makes this rate more acceptable to these groups.

The small-use rate was initiated by the utility company and approved by the ICC whereas previous lifeline proposals had been put before the legislature. There is some feeling that rate setting is an administrative rather than a legislative activity and, as such, should be initiated by the Commerce Commission rather than the state legislature.

Although the small-use rate was not approved in Iowa until March of 1979, it had actually been in effect since December 7, 1978. This is possible under an Iowa statute which enables a utility company to implement a rate increase or a change in the rate structure upon application for approval to the ISCC. The rate is subject to refund if it is not approved at a later date by the ISCC, which, in the past, has taken up to three years to decide a case.

In this case the ISCC did approve the small-use rate design in March of 1979 but still has not approved the rate level. A determination on this is expected in the Fall of 1980.

Illinois, on the other hand, has legislated a statutory limit of eleven months for ICC decisions on utility rate cases.

Impact

The intended beneficiaries of Iowa-Illinois' small-use rate are all those residential customers who restrict consumption to an average of 15 kwh per day during the summer months.

The company estimated that 20-25% of its residential customers were potentially eligible for the rate.⁵ The extent to which the rate would specifically benefit low-income and/or elderly consumers depends upon the extent to which these groups are small users. Although many studies indicate that there is a correlation between income and usage, there are numerous examples of low-income or elderly consumers using large amounts of electricity. Further, many elderly people must use air conditioning for health reasons and, thus, would not be able to qualify nor benefit from the rate.

Although no studies have been done to date which would indicate the socio-economic characteristics of the 30-35% of the company's customers that actually do qualify

⁵In 1978 the company served 148,582 residential customers.

for the rate, information is available for the Quad-Cities area in general.

- Quad-Cities area has an approximate population of 217,919;⁶
- The area is primarily urban;
- Approximately 10.58% of the population is 65 or over;⁷
- The state of Iowa has a larger elderly population (12.77%) than Illinois (10.3%);⁸
- Between 6% and 7% of the entire population of both states were estimated to have incomes at or below the poverty level.

Although these figures are not specific to the Iowa-Illinois G&E service area, they do provide some indication of the population characteristics of the region under discussion.

Need Assessment

Based on a study conducted by the Urban Institute in Washington, D.C.,⁹ the burden of energy expenditures for poverty households in Iowa and Illinois breakdown as follows:

	<u>1977-1978</u>	
	<u>Iowa</u>	<u>Illinois</u>
Mean heating expenditure of poverty households per season	\$400	\$325

⁶R. L. Polk Data (National Survey Company), 1974-1975.

⁷Iowa Office for Planning and Programming, Official Population Projections, November 1976.

⁸U.S. Census Bureau, 1975 Population Estimates.

⁹Source: Energy Need Among Low-Income Households: State-Specific Estimates Using Several Alternative Measures by Wayne Lee Hoffman, The Urban Institute, Washington, D.C., June 1979.

	<u>1977-1978</u>	
	<u>Iowa</u>	<u>Illinois</u>
Percentage of income for heat	13%	10%
Total home energy expenditures	\$664	\$630
Percentage of income for energy	20%	18%
Percentage poverty households in extreme need for heating expenditures	35%	22%
Percentage poverty households in moderate need for heating expenditures	75%	62%
Percentage poverty households in extreme need for home energy expenditures	26%	19%
Percentage poverty households in moderate need for home energy expenditures	66%	56%
Percentage elderly households in need of heating expenditures	29%	18%

Again, these figures are for a much larger area than Iowa-Illinois' service area but they indicate that the problem for poor and elderly in meeting rising energy expenditures is greater for households in Iowa than in Illinois, and that in both states the problem appears to be significant.

Targeting Effectiveness

In the first year (1978) of the small-use rate, 46,973 customers qualified for benefits. This number rose to 52,613 in the second year (after September, 1979),¹⁰ which represents approximately 35.41% of Iowa-Illinois' residential customers.

¹⁰Dale Richardson, Iowa-Illinois Gas and Electric Company, March 6, 1980.

The program is effectively self-administered: any customer using below an average of 450 kwh per month during the summer is automatically placed on the rate for a year. The program requires no certification procedures and therefore, additional administrative costs incurred by the company are minimal.

Benefit Levels

As stated above, no studies have been done which would indicate the extent to which different income groups benefit from the small-use rate. However, as indicated in Tables XXIII and XXIV, a low-income or elderly person in Illinois who used less than 450 kwh per month would save 10.51% on their electric bill in the summer and 11.52% in the winter. The same low-income person living in Iowa would save more, 16.06% in both the summer and winter. This money (\$3.00 per month in Illinois and \$4.00 per month in Iowa) could be used for other necessities such as food, but the actual dollars saved are relatively small. Also, if the person uses more electricity in the winter (say, 1000 kwh) the percent saved drops to 6.33% (\$3.00) in Illinois and 6.20% (\$3.00) in Iowa.

Revenue Recovery

Revenue recovery for this program was not a major issue: revenue is recovered from those residential customers using over 450 kwh per month. The rate was designed so that of the total rate increase allocated to the residential class in Illinois, a larger proportion was assigned to the regular residential users than to the smaller users. A similar approach was used in Iowa.

The company anticipates an increase in the differential between the small-use rate and the regular rate as

TABLE XXIII

CALCULATION OF BENEFIT LEVELS
ILLINOIS

Season	Customer Charge			Monthly Bill		
	KWH Use	Small Use Rate	Non-Small Use Rate	Small Use Rate	Non-Small Use Rate	Savings with Small Use Rate/Month
Summer*	200	\$2.05	\$2.50	\$11.36	\$12.81	\$1.45 (11.29%)
	450	2.05	2.50	22.99	25.69	2.70 (10.51%)
	1000	N/A	2.50	N/A	54.03	N/A
	700	N/A	2.50	N/A	38.57	N/A
	1500	N/A	2.50	N/A	79.80	N/A
Winter	200	2.05	2.50	10.36	11.81	1.45 (12.28%)
	450	2.05	2.50	20.74	23.44	2.70 (11.52%)
	1000	2.05	2.50	43.58	46.52	2.94 (6.33%)
	1500	2.05	2.50	64.34	67.28	2.94 (4.38%)

Summer--4 monthly billing periods June through September.

Winter--8 monthly billing periods of October through May.

*Rates for non-lifeline go down after 500 kwh in winter only.

Small-Use RateCustomer charge
\$2.05/monthEnergy charge Summer Winter
 4.653¢/kwh 4.153¢/kwhRegular RateCustomer charge
\$2.50/monthEnergy charge Summer Winter
 5.153¢/kwh 1st 500 4.653¢/kwh
 over 500 4.153¢/kwh

TABLE XXIV
CALCULATION OF BENEFIT LEVELS
IOWA

Season	Customer Charge			Monthly Bill		
	KWH Use	Small Use Rate	Non-Small Use Rate	Small Use Rate	Non-Small Use Rate	Savings with Small Use Rate/Month
Summer	200	\$2.15	\$2.40	\$10.35	\$11.99	\$1.64 (13.68%)
	450	2.15	2.40	20.60	24.54	3.94 (16.06%)
	1000	N/A	2.40	N/A	51.60	N/A
	1500	N/A	2.40	N/A	76.20	N/A
Winter	200	2.15	2.40	10.35	12.24	1.89 (15.44%)
	450	2.15	2.40	20.60	24.54	3.94 (16.06%)
	1000	2.15	2.40	43.15	46.00	2.85 (6.20%)
	1500	2.15	2.40	63.65	65.00	1.35 (2.087%)

*Rates for non-lifeline go down after 500 kwh in winter only. Summer and winter are defined as in Illinois.

Small Use Rate

Customer Charge

\$2.15/month

Energy Charge

4.10¢/kwh

Regular Rate

Customer Charge

\$2.40/month

Energy Charge

Summer	Winter	
4.92¢/kwh	1st 500 kwh	4.92¢/kwh
	over 500 kwh	3.80¢/kwh

future rate increases are applied in higher proportions to the regular rate than to the small-use rate.¹¹ This will increase the burden placed on regular users and may eventually lead to additional conservation.

Efficiency

Thomas L. Christensen of the Iowa-Illinois Gas and Electric Co., testified that the small-use rate is based on load research and cost studies that indicate:

- Capital costs of adding new generating capacity are much higher (\$452 per kw) than the average current investment (\$132 per kw);
- Capacity costs are increasing much more than customer related costs;
- The annual load factor based on coincident peak demand is twice as great for customers who do not use air conditioning as for those that do;
- Regular customers have about twice the amount per kilowatt hour of capacity related costs as the small-use customer, and these have been increasing over time (see Figure 8).

The small-use rate, theoretically, serves as an incentive for conservation, thus reducing the growth in peak demand and providing a means of load management. (See Figure 9.)

No studies were done, however, with respect to marginal cost pricing.

Conservation

To the extent that the rate is advertised and people know of its availability, it offers an incentive for residential customers to conserve because as they lower their

¹¹Dale Richardson, Iowa-Illinois Gas & Electric.

FIGURE 8 AVERAGE RESIDENTIAL COST OF SERVICE

These charts illustrate Iowa-Illinois Gas and Electric Company's changing costs of providing residential electric service from the mid 60's to the late 70's. Operating costs have been separated by small- and large-use customers and have been broken down into three basic operating cost components — customer, capacity and energy costs.

Actual figures were not provided; however, this information is presented as a *proportional* comparison of costs.

Information provided by Iowa-Illinois Gas and Electric Company

FIGURE 9 **IOWA-ILLINOIS GAS AND ELECTRIC COMPANY** **Residential Electric Usage** **1976-1977 Data**

The chart below illustrates vast discrepancies between the high user's kilowatt hour and peak demand consumption during summer months and usage patterns during the winter period.

Information provided by Iowa-Illinois Gas and Electric Company

consumption, they can also lower their electric bills. The company advertises the rate at the beginning of the summer and also provides bill inserts explaining how customers can qualify. Further, summer monthly bills tell the customer how much they are using each day so they know when to cut back to be eligible for the small-use rate.

As indicated in Table XXV below, an additional 5,645 (net) customers qualified for the rate in its second year of operation.

TABLE XXV
RESIDENTIAL CUSTOMERS QUALIFYING FOR
SMALL-USE RATE

Year 1	46,973
Year 2	- 7,270 (dropped)
	<u>+12,915</u> (added)
Total Year 2	52,613

Source: Dale Richardson, Iowa-Illinois Gas and Electric.

This increase of 12% may be cyclical; 1979 was a cooler summer than 1978 (even though the system achieved a new peak in August of 1979). On the other hand, Mr. Dale Richardson of Iowa-Illinois Gas and Electric Company felt that, based on his conversations, people were actually making an effort to reduce consumption to qualify for the rate. No hard evidence exists, however, to suggest that this is, in fact, the case. When the rate has been in effect for several years it may then be possible to compare usage patterns over time and evaluate the conservation effect of the rate.

Equity

Two equity issues surround the small-use rate.

These are:

Issue 1. Should small users get preferential treatment in terms of reduced electric rates just because they are small users?

Under the small-use rate, a large private home in the suburbs that didn't use air conditioning might qualify for the rate while a small apartment that used air conditioning might not. As the attorney for Clinton County Legal Aid pointed out in his cross examination, no distinction was made between the class, type or location of a dwelling unit in establishing the rates: the main criteria was load factor. Although the distinction is based on the cost of service and is therefore efficient, it is not necessarily equitable in terms of peoples' ability to pay. It could, conceivably, give higher income people an advantage over lower income people.

Issue 2. Should the residential class assume the entire burden of conservation and load leveling?

While the small-use rate offers an incentive for residential customers to conserve there is no analogous incentive built into the rate structure for the industrial classes. The industrial rate structure is designed so that the higher the consumption, the lower the per unit charge. Under this rate structure, a small industrial user also pays more per kwh than a large industrial user. If the company's goal is to conserve energy, reduce peak demand and control growth, as has been stated, a rate design similar to the small-use rate might be implemented for industrial users.

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MAINE DEMONSTRATION LIFELINE PROGRAM

Program Summary

The experimental Maine Demonstration Lifeline Program provided a reduced rate for elderly, low-income customers in a total of six municipalities in three utility company service areas in the state. Actual revenue loss was computed on a monthly basis and was recovered from all other classes of customers.

Households that met the following criteria were eligible:

1. Must have been single-member household with an income less than \$4,500 or two or more member household with an income less than \$5,000;
2. Must have been 62 years of age or older;
3. Must have maintained a permanent residence within the state for at least 183 days per year.

Verification of eligibility was handled by local outreach agencies in each of the participating municipalities. The applications were reviewed by the Public Utilities Commission and then forwarded to the utility company.

At the conclusion of the program, the Commission was required to conduct public hearings and report their findings and recommendations to the Legislature.

To publicize the program, state-issued press releases were used initially. The response was minimal and the outreach agencies localized distribution of the state releases, issued their own releases and used public service announcements in an attempt to reach those who were eligible.

The lifeline rate is compared to the participating company's regular residential rates in Figures 10 through 12. As shown, the regular residential rate structures differed from company to company, but all were declining block rates. Lifeline customers paid no service charge, minimum charge or fuel adjustment charge, but paid a flat 3¢/kwh for the first 500 kwh/month plus applicable sales tax. Consumption above the lifeline block was billed at the regular residential rate.

FIGURE 10
BANGOR HYDRO-ELECTRIC COMPANY

— Regular Residential Rates \$1.88 Includes minimum charge for first 15 KWH
..... LL Rate

FIGURE 11
CENTRAL MAINE POWER COMPANY

FIGURE 12
MAINE PUBLIC SERVICE COMPANY

Issue Development

Major Actors

A movement toward the establishment of energy assistance programs to benefit low-income households, and especially the low-income elderly had been gaining momentum throughout the early seventies. In 1970 virtually no organized programs for the elderly existed. At that time, a comprehensive study of the status and needs of Maine's elderly was conducted by the Maine Committee on Aging. This report, Steps for Maine's Elderly, was updated in 1975 to reflect changing conditions and was published under the title of Over 60 in Maine: A Progress Report.

Although the lifeline concept per se is not specifically documented in either report, the Committee has actively supported both the concept of lifeline and the Demonstration Program. The Chairman of the Committee is quoted in the Commission's Demonstration Report to the Legislature as follows:

Given the positive results of the demonstration program and the continued bleak financial status of many of Maine's elderly, we strongly urge the continuation and statewide expansion of the lifeline program. For these people the assistance provided by the lifeline program can be a significant factor in their continued ability to stretch tight budgets to cover basic necessities.

The Committee maintains an important position as a statewide advisory body to the Governor, Legislature, and state agencies on policies and programs related to the elderly.¹ This committee serves as a vital link between elderly citizens and their government and it is primarily due to their early efforts that the plight of Maine's elderly came to the attention of Legislators, and other decision makers.

In 1974, the Citizens Committee for Utility Rate Reform (CCRR) was created and adopted the establishment of lifeline as a major goal. Bruce Reeves, a founder of the group and, later, author of lifeline legislation, said he first recognized the "heat or eat" problem prevalent among the elderly while campaigning for a state Senate seat. The lifeline issue became a focal point of his campaign and consumed a great deal of his time during his tenure as Senator. He and the CCRR were the main forces responsible for the enactment of the 1975 Demonstration Legislation.

The Demonstration Program, according to Mr. Reeves, represented an attempted compromise between differing viewpoints. Citizen and consumer groups had been in favor of Reeves' legislative proposals which called for the permanent, statewide establishment of electrical lifeline rates for all Maine citizens over 62 regardless of income. Such a broad application, however, was viewed unfavorably by the power companies which, according to Mr. Reeves, lobbied successfully to reduce the scope of his original lifeline proposal.

¹See Figure 13, Relationship of Governmental Branches, next page.

FIGURE 13

**EXECUTIVE BRANCH
STATE OF MAINE
1976**

Providing Services to the Elderly

..... denotes advisory
 -.-.-.- resource relationship
 ————— direct line of authority

An official of the Central Maine Power Company (CMP) explained that it is the policy of the company to base rates on cost of service, and the lifeline rate structure did not, in the company's judgment, reflect that method of setting rates. Although the utilities were, and are, sympathetic toward the hardships faced by low-income persons and the elderly, he maintained that assistance programs are the responsibility of the government. This position appears to be fairly representative of electric utilities in general at the time. Similar remarks were made by spokesmen contacted at Bangor Hydro-Electric Company (BHE) and Maine Public Service Company (MPS).

Similar opinions were expressed by the state chambers of commerce and the Associated Industries of Maine who appear not to have become very involved in the lifeline controversy or in the demonstration evaluation. When contacted for this study, both organizations professed a policy against "special rates" aimed at income transfer by utility rate manipulations.

Testimony against lifeline was presented at the evaluation hearings by one of the small rural electric co-ops. This utility objected to across-the-board lifeline because it would unfairly burden a majority of customers: in addition, "some people in (the) area funding the lifeline program were making less money than senior citizens receiving the benefits of the program."

Dozens of articles describing and promoting the Demonstration did however, appear in Maine's three largest newspapers: Press Herald, Evening Express and Telegram. A staff member of the Division of Community Services noted the "excellent level of cooperation by the press" in educating the community concerning the program.

Other Assistance Programs

During the years of 1975-76, there were no state-funded or administered energy assistance programs, a situation that appears common at that time among the majority of states. Maine fully participated in federally-funded elderly and low-income assistance programs operating at that time, according to the Maine Committee on Aging 1976 report.

Previous Lifeline Attempts

As mentioned, earlier drafts of lifeline bills had been targeted to all small-use and/or elderly Maine citizens. These proposals called for the 3¢/kwh, 500 kwh/month lifeline block, later adopted for the Demonstration, with no income restrictions.

Thus, these forerunners of the Demonstration, if enacted, would have extended lifeline benefits to all of the approximately 301,000 residential electric customers who could limit their usage.² Neither the Commission nor the Legislature was prepared to implement changes in utility rate structures of this magnitude without a trial run. The Demonstration program became, in effect, that trial run.

Subsequent Lifeline Attempts

At least three statewide lifeline proposals have been considered by the state Legislature since the termination of this program.³

²Or, at least to the 11.8% of the total 1975 population who are elderly customers.

³These variations of the Older Citizens Lifeline Electrical Service [Demonstration Legislation] now are based, to some extent, on the conclusions yielded by this demonstration. They point up the importance of the pilot program's dual role as progenator and as benchmark, and are dealt with in a companion case study, Maine Legislative Document 1043.

In its Report to the Legislature at the conclusion of the Demonstration the Commission recommended two alternate approaches to lifeline implementation. The first called for the subsidization of lifeline costs by all taxpayers, not merely by other electric customers, which would broaden the base of support from 301,000 to 994,000.

The second alternative was the incorporation of the lifeline rate into the overall rate structure of regulated utilities as a percentage discount from the regular residential rate. The rate would have consisted of a two-step lifeline block⁴ with usage in excess of 1000 kwh/month being billed at regular residential rates. Under this plan the "reduction in revenue due to lifeline would be recouped from the basic rates of other customers."⁵

It is unclear whether the Commission proposed to restrict lifeline to the elderly or to all small users, or whether the discount rate was to be subsidized by all classes of customers (as per the demonstration) or only within the residential class.

In October, 1975, after the Demonstration Law had been adopted, Central Maine Power proposed an alternative lifeline rate⁶ that in essence became the Commission's second alternative described above. At the post-Demonstration

⁴0-500 kwh and 501-1000 kwh.

⁵Report of Public Utilities Commission on the Lifeline Demonstration Program, July, 1977, p. 62

⁶Lifeline rate of 3¢/kwh for the first 500 kwh, 2.374¢ for the next 500 kwh and 1.97¢ for all kwh in excess of 1,000 kwh.

Commission hearings in February, 1977, CMP proposed the adoption of an energy stamp program such as the one that had been recently completed by the Lehigh Valley (Pennsylvania) Community Action Committee in 1975.

The Commission noted that, according to the Pennsylvania Committee's final report, fuel stamps did not encourage conservation and that problems endemic to the federal food stamp programs would probably occur with a fuel stamp program as well. It has been estimated nationally that less than one-third of the eligible elderly are receiving food stamps, and in Maine, according to the Committee on Aging 1975 Survey of the Aged, 61% of all elderly SSI recipients are not participating in the food stamp program.

Besides this targeting problem, the possibilities of potential fraud and complex administrative problems were cited by the Commission as reasons for their rejection of energy stamps as a possible solution to the elderly/energy problem.

At the post-Demonstration hearings, the Union River Electric Cooperative, one of a small number of co-ops serving the sparsely populated areas of Maine, objected to the permanent establishment of a statewide lifeline program.⁷ Union River's manager proposed that, instead of electric lifeline rates, the 5% sales tax be forgiven for all persons over age 62 for all home heating fuels, including fuel oil. Since sales tax monies are, in effect, state funds, subsidization of the program would fall on all taxpayers, not just on other ratepayers.

⁷The specific objections of these co-ops will be discussed in a later section of this study.

Major Events

The following is a chronological listing of the main events that occurred during the Lifeline Demonstration Program:

<u>Date</u>	<u>Activity</u>
November, 1974	Lifeline legislation targeted to all elderly consumers in the state is introduced before the 107th legislature.
December, 1974 to April, 1975	Scope of lifeline legislation reduced as amendments are added requiring income limits, time restrictions, and location limitations.
May, 1975	Final version passed by both Houses.
June, 1975	Chapter 585, sections 81-85 (PL 1975) is signed into law by Governor Longley.
July, 1975	Interagency Lifeline Committee begins to set up administrative procedures.
August, 1975	<u>PUC Rules and Regulations</u> adopted and application process begins.
October 1, 1975	Effective date of Demonstration (per legislation).
November 24, 1975	Lifeline Day is declared statewide to encourage sign-up.
December, 1975	First lifeline customers are placed on the rate.
February, 1976	Sign-up period ends.
November-December, 1976	DCS conducts telephone evaluation survey of lifeline and non-lifeline participants.
December 31, 1976	Original deadline for PUC Report to Legislature.
January, 1977	Last lifeline customers are taken off the rate (due to bi-monthly billing cycles).

<u>Date</u>	<u>Activity</u>
February, 1977	PUC holds public evaluation hearings on the demonstration program.
July, 1977	Report of PUC to Legislature on the program is presented.

Governmental Process

Institutions Involved

The Public Utilities Commission was given overall responsibility for the program by legislative mandate, with the power to establish the rules and procedures necessary for its implementation. The Commission enlisted the Executive Department's Division of Community Services (DCS) including the five DCS outreach agencies located in the demonstration municipalities to help in the task of identification and verification of potential applicants.

Application forms were designed by the PUC and DCS, in conjunction with the Office of Economic Opportunity, Department of Health and Welfare and the State Planning Office.

The outreach agencies for the chosen municipalities were:

Portland: Cumberland-York Senior Citizens Council

Rockland: Mid-Coast Human Resources

Bangor: PenQuis Community Action Project

Ellsworth: Washington-Hancock Community Action
Agency

Caribou, Fort Kent: Aroostook Regional Task Force
of Older Citizens

The Attorney General's Office had been contacted by Representative Gail Tarr concerning a possible conflict between the Fourteenth Amendment guarantee of equal protection and the legislated surcharge. In a letter dated February 24, 1976, Edward L. Rogers, the Assistant AG affirmed the constitutionality of the surcharge.

The Bureau of Taxation was consulted for its opinion as to whether the sales tax normally applicable to electric sales was to be treated as a "periodic charge" for purposes of the Demonstration, and thereby excluded by the lifeline legislation. Both the Sales Tax Division Director and the Assistant AG concluded that a sales tax must still be charged to lifeline customers.

Finally, the Legislature itself was directly involved, through the actions of the 107th Legislature which enacted the Demonstration law and the 108th Legislature which reviewed the evaluation report.⁸

Story of Adoption

The Older Citizens Lifeline Electrical Service Law begins with a Statement of Policy which says:

It is the purpose of lifeline electrical service to alleviate the upward spiral in the cost of electrical service to older citizens and at the same time to encourage as well as reward the conservation of scarce energy supplies by adopting the approach of constant per unit cost for the use of electricity.

⁸Further lifeline activities of this body are described in the companion Maine case study.

This statement describes the essence of the program: each separate determinant of the program is discussed in detail below.

Targeting and Eligibility

Faced with the choice of extending lifeline to all small users, all low-income users, or all the elderly, legislators chose the sub-group of elderly, low-income, residential customers of the three largest electric utilities. It was explicitly stated, in the legislation, that "Older citizens today face a special crisis in surviving under the constant increase in the cost of living and particularly in the cost of fuel and utility service." Also, based on utility usage statistics, the Commission concluded that the target group had exhibited lower usage patterns in years preceding the Demonstration. Based on such "definable need," low-income elderly were chosen as the target group.

Unwilling to mandate extensive regulatory changes without thorough study, the legislators limited participation to low-income elderly who lived within certain municipalities. These cities, to be chosen by the Commission, had to represent one medium-sized and one large-size municipality⁹ located in the service territories of each of the three major utility companies.

The Commission, given the statutory responsibility for choosing the six Demonstration municipalities, based their decision on 1970 U.S. Census population figures. The following cities were chosen:

⁹Populations of 2,500-10,000 and over 10,000 respectively.

<u>Municipality</u>	<u>Population</u>	<u>Elderly Approximation*</u>
(CMP) Portland	65,116	7,684
(CMP) Rockland	8,505	1,004
(BHE) Bangor	33,168	3,914
(BHE) Ellsworth	4,306	543
(MPS) Caribou	10,419	1,229
(MPS) Fort Kent	4,575	540

*Note that "Elderly Approximation" is a simple calculation of the state percentage of elderly to total state population (11.8%, 1975 estimate, U.S. Census), and therefore represents the approximate elderly population of all income levels. Figures are supplied merely to suggest the scope of the eligible population.

One legislative spokesman said that, by limiting participation to the more densely populated areas of Maine, marketing efforts and therefore the participation rate would be enhanced, assuring "better information about possible effects of the program." The implied objective of the Demonstration, as stated by the Commission, was to gather representative data for possible statewide implementation of lifeline.

The definitions cited in the legislation for "income," "age," and "household" were identical to those described in the Elderly Householders Tax and Rent Refund Act, already established as law. Residency requirements did differ between the two laws, however. The definition of "residential customer"¹⁰ was less strict than the Elderly

¹⁰With a permanent homestead, living in Maine at least 183 days a year.

Householders Act definition of "a permanent abode during entire calendar year."

Estimates of potential participants varied between 4,000 and 5,000, based in part on previous Elderly Home-owners Act participation information and in part on the number of elderly living in the chosen municipalities. As described in the next section of this case study, the actual participation¹¹ fell quite short of the estimate.

The Commission recognized the importance of effective marketing of the program at the outset: several contacts noted that the PUC's final choice of the Department of Community Services was directly related to the accessibility and effective contact between DCS' outreach agencies and the elderly population.

The DCS and its five local outreach agencies assumed the major responsibility for publicizing the program, in addition to the enrollment of applicants. According to one outreach lifeline coordinator, the state-issued news releases "did not produce much response and were not localized." The same criticism can be applied to the less than effective statewide, "Lifeline Day." As the Commission stated in its Report, "it was not enough to have established the program and just wait for the applicants to come walking in. Extensive publicity, via local and statewide media, and personal contact before and after sign-up proved essential."

The outreach agencies employed, to varying degrees, local television, radio, and newspaper announcements, posters, flyers, bulletins, telephone or in-person contacts,

¹¹ 2,619.

and, in at least one instance, house-to-house canvassing. Although participating utilities did not include specific program information in the bills sent to customers, they did list the surcharge amount on all applicable bills. This surcharge was to become the focal point of criticism of the program and will be discussed in the next section of the case study. At the PUC's request, utilities also sent program termination notices after December 1, 1976 to all lifeline customers.

To protect the privacy rights of applicants, the PUC and DCS together designed a perforated lifeline application form. The top (financial) section of this form was to be retained by the local outreach agency and the detachable bottom (billing) section was sent to the utility, after inspection by the Commission.

Rate Structure

As previously discussed, the lifeline proposals introduced by Senator Reeves in 1974 defined the lifeline block as the first 500 kwh/month of electric usage, a threshold maintained in the Demonstration. A review of the rate profiles of Maine electric utilities for 1975 shows only one power company, Bangor Hydro-Electric, with an existing rate differential at the 500 kwh level. The other two participating companies show breaks at 300 kwh (CMP) and at 400 kwh (MPS).¹²

A flat rate¹³ was chosen for its potential as a most effective price signal. It was considered by

¹²Based on rate information effective May, 1975.

¹³3¢ per kwh for the lifeline block of 500 kwh/month.

legislative sponsors and governmental agencies to be a particularly important factor of the program. "This easily understood relationship between a customer's usage and his bill would enhance a customer's ability" to control usage and practice conservation. Although price signal effectiveness is discussed in the next section of this case study, it can be noted here that average usage of lifeline customers during the Demonstration was 300 kwh/month, well under the 500 kwh/month lifeline limit.

The statute establishing the program required that "the rate provided by this section shall not be supplemented by any minimum charges, service charges, connection charge or other periodic charge." As mentioned, lifeline customers would be required to pay applicable sales tax: the fuel adjustment charge, clearly a "periodic charge," would be omitted from participants bills for usage below 500 kwh. The Commission declared, however, that for lifeline customers' usage above 500 kwh/month, the fuel adjustment charge would be applied. One factor in this decision was that failure to apply this charge to "excess usage" might discourage conservation. In effect, this fuel adjustment charge became another consumer price signal.

Revenue Recovery and the Surcharge

Statutory provisions were made for the three electric utilities to file revised tariffs conforming to the lifeline rate requirements. The legislation also stipulated: "In the event that implementation shall cause a loss of revenue to a utility, the additional revenue shall be obtained from all other classes of energy use in a just and reasonable manner [Emphasis added]." Two phrases in the statute required additional interpretation: "loss of revenue" and "all other classes."

"Loss of revenue" could apply to either the loss of gross revenue only or to the loss of gross revenue plus the administrative costs incurred by the participating utilities. Although CMP petitioned the Commission to include administrative costs, the PUC ruled that "administrative costs did not decrease the company's total revenues." PUC maintained that the loss in gross revenue due to lower (lifeline) rates was a precise, easily computed figure while administrative costs were under the complete control of the utilities. Participating utilities were required to provide monthly reports of their lifeline administrative costs, however. An analysis of these costs and their effect on the utilities is discussed later.

The phrase in the statute "all other classes of energy use" had several significant consequences. The word "all" meant that the surcharge could not be limited to residential customers, but must also be applied to all other classes of service, such as industrial and commercial service, and area and street lighting. The word "other" excluded the imposition of the surcharge on that usage of lifeline customers which exceeded 500 kwh.

Over several alternatives, the Commission chose to have each utility impose a single surcharge amount on all non-lifeline customers located in participating municipalities. A uniform charge would provide broader based information than would the imposition of separate surcharges on each municipality.

Limiting the surcharge only to the inhabitants of the participating cities and towns was deemed a more just approach. It was judged unfair for other utility customers to pay a surcharge when the elderly poor within their community were not beneficiaries.

"Furthermore, the Commission wanted to see how the general public would react to a realistic surcharge . . . since the lifeline statute contemplated possible statewide implementation."¹⁴

The general method for computing the surcharge was described in the tariffs of Central Maine Power as follows:

The lifeline adjustment shall be determined by dividing:

- a. the difference in the preceding month between what lifeline customers:

would have been billed under Rate "A" (residential rate) and

what they were actually billed under Rate "LL" (lifeline rate);

- b. by the estimated kwh usage in the present month of the customers on the above rates in the trial areas.

In other words, the surcharge assessed on May's bills reflected revenue lost due to lifeline usage in April.

Administration, Placement and Functions

As mentioned, the Public Utility Commission¹⁵ and, to a lesser degree, the Division of Community Services¹⁶ were responsible for the program.

Verification of potential applicants was a problem anticipated by the legislation when it required that "All state agencies are authorized to provide . . . support

¹⁴Report of Public Utilities Commission on the Lifeline Demonstration Program, July, 1977, p. 10.

¹⁵By statutory mandate.

¹⁶By choice of the Commission.

services, informational services, evaluative services and other such assistance as may be requested by the Public Utilities Commission. . . ."

Verification of applicants' income information could not be accomplished by a simple match-up with the Bureau of Taxation's Elderly Household Tax and Rent Relief records. The Bureau did not have any formal method of verifying forms received, and other tax records, such as income tax data, were confidential. The activities of the Department of Human Services did not affect a large proportion of potential lifeline applicants. The utility companies refused to become involved in either identification or verification of applicants; they further insisted that final approval of each applicant be made by the Commission, regardless of which other state agency was chosen to assist the PUC.

The final solution was that the Community Service outreach agencies would, under Commission direction, handle the majority of both identification and verification procedures for their respective communities. The Commission would retain, per statutory language, overall administrative responsibility for the program. A coordinating committee was created, the Interagency Lifeline Committee, which helped in problem solving and the smooth transferral of information. The Committee consisted of representatives of the PUC, the DCS, the outreach agencies, and frequently the utilities.

Administrative Problems

The lifeline program took five months to establish, from July through November, 1975. When the legislation creating the program was enacted, it had been expected that

the program would commence in early fall, 1975. As the final Report relates:

During the early discussions on the implementation of the program, it became clear that this time table was hopelessly optimistic. It took time for the electric utilities to program their computers. Procedures had to be devised for processing . . . and billing . . . and to locate and sign up the applicants. Because of the extra time needed to prepare for the program, a starting date of December 1, 1975 was ultimately adopted [Emphasis added].

There were other problems with certain information provided by applicants as well: applicants living outside lifeline municipalities; duplicate applications; incorrect addresses; widows with accounts in deceased husbands' names; applicants who lived with their children or in master-metered buildings. In retrospect, the Commission judged the establishment of the program to have gone smoothly; application problems were resolved without great difficulty.

Even with a delayed December 1 start-up date, it proved unfeasible for all verified applicants to begin receiving electricity at lifeline rates on that date. The different monthly and bi-monthly billing cycles of the participating utility companies, and their different billing practices, actually resulted in some lifeline customers beginning on December 1 and some customers after that date. The actual length of the program, from first customer's first lifeline bill to last customer's last bill, was fifteen months. No customer received lifeline rates for more than a twelve-month period, however.

The majority of problems concerned complaints about the surcharge. A significant number of such complaints were from elderly or low-income people who were ineligible for lifeline but had modest incomes and objected to the "forced

subsidization" of their peers. CMP alone had received 549 complaints stressing a negative reaction to the surcharge and only two favorable responses. According to lifeline sponsor, former Senator Bruce Reeves, the utility companies "encouraged the public's ire by labeling the surcharge amount on all participating non-lifeline customers [bill] without explaining to them what this tax was all about."

One electric utility consumer, the Federal Government's General Services Administration (GSA) refused to pay the surcharge, stating that it would be a violation of federal law for GSA to extend payment in excess of the value of the service rendered. In their judgment, the value of the electricity was represented by the regular rates only.

Another major problem that occurred during the early months of the program was the master-meter problem, especially concerning the sizable number of potential applicants living in subsidized public housing.¹⁷ Since HUD's age and income qualifications were less strict than those of the lifeline statute, not all tenants in public housing projects were even eligible for lifeline.

In response to subsequent pressure, the Commission re-examined a rule which disallowed eligibility in master-metered situations. The rule was amended to include the participation of applicants who lived in master-metered non-profit housing where electricity was obtained at regular residential rates (i.e., not General Service rates). Landlords of such housing were required to pass along the lifeline savings to the tenants, computed according to a formula

¹⁷ Discussed in a following section.

established by the Commission and to submit monthly status reports to the Commission.

However, the U.S. Department of Housing and Urban Development ruled that the Demonstration was discriminatory since it did not apply to all public housing tenants, and therefore resulted in a double subsidy to lifeline tenants. In a letter to the Commission dated June 1, 1976¹⁸ HUD points out, "adequate utilities are (already) guaranteed to elderly tenants to within 25% of their adjusted incomes. . . ." Because of this "double subsidy" ruling only one public housing project¹⁹ remained in the lifeline program.

As noted, the Demonstration program, designed to last for one year, was actually operational for 15 months--from December 1975 until February 1977. With the program's termination, the PUC began its final statutory tasks of holding public hearings and presenting a "report [of] its findings and any recommendations concerning the rate to the Legislature." The Commission's assessment and additional relevant information concerning the impact of this Demonstration are presented in the following section of this case study.

¹⁸From Hays A. Harvey, Assistant Executive Director of the Portland Housing Authority.

¹⁹Deering Pavilion, operated by the Roman Catholic Diocese of Portland.

Impact

The intended beneficiaries of the Demonstration program were selected low-income elderly electric consumers. These consumers were judged by the legislature to be a group that is "facing a special crisis in surviving"²⁰ and, therefore, an appropriate target for a lifeline demonstration program.

In the service areas of the participating power companies, it had been estimated by DCS outreach spokesmen that between 4,000 and 5,000 persons would participate. With an approximate 15,000 elderly persons living in the demonstration communities, this would have meant that 30% of the total elderly population who lived in those communities was expected to participate in the program. This estimate proved to be higher than the actual number of participants.

Projected participation was based on current participation rates for the Elderly Homeowners discount

²⁰ Older Citizens Lifeline Electrical Service Law, Sec. 82.

program, and on the number of elderly living in the chosen municipalities.²¹ One possible explanation for the inflated participation estimate is a reference made in Over 60 in Maine: A Progress Report to an unusually high participation among elderly for the Homeowners and Renters discount.

This target population appears to have the following demographic characteristics:

TABLE XXVI
DEMOGRAPHIC CHARACTERISTICS OF MAINE TARGET POPULATION

(Utility) Municipality	Total (100%) Population	Elderly (11.8%) Approximation*	Low Income (12.0%) Approximation*
(CMP) Portland	65,116	7,684	7,814
(CMP) Rockland	8,505	1,004	1,020
(BHE) Bangor	33,168	3,914	3,980
(BHE) Ellsworth	4,603	543	552
(MPS) Caribou	10,419	1,229	1,250
(MPS) Fort Kent	4,575	540	549

*Note that "Approximation" figures represent simple calculations of U.S. Census percentages to total population, and are supplied merely to suggest the scope of the eligible population.

The target population is entirely urban, due to the requirement that the program be limited to the six

²¹Note that the combined total population of the chosen municipalities, however, accounted for less than 12% of the total state population.

municipalities listed above. Statewide, almost 70% of all housing is single-unit housing, and is therefore individually-metered. Within municipal areas, however, only 40% of all housing are single units. While the exact number of individually-metered households is not readily available, it is possible that many of the multiple-unit structures (60% of all housing structures) are not individually metered. Therefore an estimate of individually-metered households of approximately 50% might be more realistic. If this is the case, it is possible that half of the otherwise eligible target population would not be permitted to benefit from the program due to a master-metered situation.

Provisions for extending benefits to certain families in master-metered households were made in the Commission's Rules and Regulations, as mentioned previously. This action would have permitted Portland's elderly low-income non-profit housing dwellers to participate. However, Department of Housing and Urban Development (HUD) disallowed participation of unit occupants under HUD's administration; this resulted in the eventual participation of only one private non-profit development.

Additional energy-relevant demographic information includes the fact that all parts of the state have yearly degree day totals of over 7,000 degree days, and therefore are in the coldest climate range in the nation. Also, while 1975 DOE figures show that low-income households including elderly households use far less energy on a per capita basis, the energy used by these households is generally used less efficiently.²² This is attributed to the poor condition of

²²"1979-1980 Fuel Oil Availability, Affordability and Accessibility: Analysis and Recommendations," Pine Tree Legal Assistance, Inc., Augusta, Maine, June 1, 1979.

much of the low-income housing stock, often descriptively labeled as "energy sieves."

The problem is further exacerbated by the continually increasing cost of fuel oil, which doubled in price between 1978 and 1979, and the fact that eighty-five percent of all Maine households heat with fuel oil.

Alternate heating fuels in Maine include kerosene (over 40,000 households), wood (approximately 200,000 Maine homeowners utilize wood for some portion of their home heating needs) and electricity (used for heating by at least 30,000 households statewide).

Need Assessment

Of the total population of 935,000, there are over 197,500 individuals in the state of Maine whose annual income is at or below 125% of the federal poverty guidelines. Statistics indicated that over 60% of all Maine households had an after-tax income of less than \$10,000 in 1973.

According to the Department of Energy (DOE), in extremely cold areas of the country such as Maine, poor households spend up to thirty-five percent of their incomes on energy.²³ In comparison, the median income household nationally averages five percent of income for energy.

From a random sample of Demonstration participants furnished by the three utilities, it was concluded²⁴ that

²³"1979-1980 Fuel Oil Availability, Affordability and Accessibility: Analysis and Recommendations," Pine Tree Legal Assistance, Inc., Augusta, Maine, June 1, 1979.

²⁴By the Public Utilities Commission.

the target group had used less electricity both in the lifeline year and in earlier years. Average lifeline usage was computed at 249 kwh/month, as compared with about 520 kwh/month for regular household customers.

Based on Commission statistics, the average yearly income of the target population was \$2,938. If low-income persons of this income level spent 35% of their disposable income for fuel oil heating, as commonly appears to be the case, it can be calculated that: consumption patterns translate into \$1,040 for fuel oil and electricity and represent an energy expenditure of 35.4% of a low-income household's²⁵ disposable income.

It would appear, therefore, that the 500 kwh block discount offered by the program is more than sufficient to cover the electricity usage needs of the target group. The annual amount spent on electricity, approximately \$168,²⁶ does not seem to be a substantial percentage (less than 6%) of disposable income.

Targeting Effectiveness

Approximately 2,620 low-income elderly residents of the six selected municipalities participated in the program. As previously mentioned, this group represented 14% of the total state population of elderly citizens 60 years of age and older. The average age of participants was 75 and the average income \$2,938. Approximately 64% of the participants lived alone.

²⁵Based on 1975 CMP rates for 300 kwh/month cost of \$13.51.

²⁶\$14 per month for 300 kwh per month.

The actual participation rate was considered high; for example, 96.5% of eligible individuals who lived within MPS' territory were enrolled into the lifeline program. Average participation was pegged by the Commission at just over fifty percent of the eligible population.

The following table shows participation as a percentage of the total community population; it is supplied to illustrate the possible level of program impact on the population as a whole. Note that only 3.8% of the population within the communities chosen to participate were actual lifeline beneficiaries.

TABLE XXVII
DEMONSTRATION PROGRAM PARTICIPATION AS
PERCENT OF POPULATION

Utility	Participants	% of Community Total Population
CMP	1,517	1.5%
BHE	638	3.1%
MPS	<u>464</u>	<u>2.8%</u>
Totals:	2,619	3.8%

Overall, the program was popular with participants. A DCS survey of 598 lifeline participants indicated that 91% were in favor of continuing the program.

There often appears to be a direct relationship between successful marketing and program participation, especially for targeted programs. As noted earlier in this study, extensive marketing efforts were manned by the local outreach agencies to counteract anticipated difficulties in reaching the target population, and the Commission, in its Report, praised the efforts of the Aroostook Regional Task Force for its monumental recruiting efforts and for its 95% rate of participation.

The eventual disallowal by HUD of participation by the elderly living in master-metered public housing had the greatest effect on reducing participation because it disqualified over 850 housing units, the majority of which were occupied by elderly low-income residents. With regret, the Commission noted that the over 400 applications received in a four-month time span from only one housing authority had to be rejected due to the HUD ruling.

Calculation of Benefit Levels

Based on the average monthly usage of 300 kwh for lifeline customers, participants in the Demonstration saved between four and nine dollars monthly, or an average of thirty to forty-five percent, over the regular residential rate; this represented a savings of between 1.6% to 3.9% of their average monthly income.²⁷

TABLE XXVIII
AVERAGE MONTHLY SAVINGS OF PARTICIPANTS
IN LIFELINE PROGRAM*

Lifeline Customer Served by	Average Monthly Savings Over Regular Resid. Rate		Monthly Savings as % of Monthly Income
	Amount	Percent	
Central Maine Power	\$4.06	30.1%	1.6%
Bangor Hydro-Electric	4.03	31.0%	1.7%
Maine Public Service	8.95	49.8%	3.9%

*Source: Report of the Public Utilities Commission, p. 27.

²⁷ The range in amounts is primarily a reflection of the differing base rates of the participating utilities.

Revenue Recovery

The revenue shortfall resulting from the Demonstration program was recovered from all other classes of customers located in the Demonstration communities, according to the following formula:

$$\frac{RR-LL}{\text{non/LL kwh}} \quad (\text{Regular residential rate minus lifeline rate divided by non-lifeline monthly usage})$$

In other words, the exact assessment was determined by the total shortfall amount from the previous month's lifeline usage. This total was then divided by the kwh usage of current non-lifeline customers.

For the 1975-76 time period in which the Demonstration was in effect, a total of \$111,191 was collected to recover revenue lost during that year. An estimated shortfall amount, prior to the program's implementation, is not available. Based on the fact that average participation was half of what it could have been, it would follow that if shortfall projections had been made, such projections would have been larger than the actual shortfall amount.

A surcharge amount, labelled on each non-lifeline customer's monthly bill, averaged 6¢/month for CMP and BHE customers and 20¢/month for MPS customers.²⁸

Required by statute to provide for lost revenue "in a just and reasonable manner," the PUC had decided that every non-lifeline customer within the demonstration municipalities was to be assessed an appropriate surcharge

²⁸Maine Public Service rates are significantly higher than CMP's or Bangor's so the savings for MPS' customers were significantly greater. Correspondingly, the surcharges to MPS' customers were also greater.

factor.²⁹ In view of the possible statewide implementation of the program, it was judged that a single surcharge amount, to be determined by each participatory utility for all of that utility's non-lifeline customers, would produce the most effective indicator of actual cost for the public and would be less complicated for the utilities to assess and collect.

The apparent impact of this quasi-tax on lifeline subsidizers was not significant from a monetary standpoint, since it averaged less than 10¢/month; rather, it appears that its impact was primarily psychological.

The majority of the complaints regarding the Demonstration were about the surcharge, and a significant number of such complaints were from elderly or low-income people who were ineligible for lifeline benefits but had modest incomes and objected to the "forced subsidization" of their peers. CMP alone received 549 complaints, stressing the negative reaction to the surcharge.

At the Lifeline Hearing held by the PUC following the termination of the program, utility representatives were unanimously critical of lifeline; according to Robert F. Scott, Vice President of CMP, lifeline was not the "right answer to the problem." Contacted for this study, utility, Commission, and DCS spokesmen alike mentioned the unpopularity of the surcharge as the single greatest problem of the program.

²⁹According to statute ("all other classes of energy use") the surcharge could not be limited to the residential class alone, nor could it be imposed on that usage of lifeline customers which exceeded 500 kwh.

Concerning the question of possible price distortion, it appears that the average surcharge amount, representing less than 1% of a typical monthly electric bill, would not cause any significant distortion. If the participation rate during the Demonstration had been 100% instead of around 50% there would probably have been little distortion of the pricing mechanism.

However, since the implied purpose of the Demonstration was to gather representative data for possible implementation on a statewide basis, the Commission extrapolated a statewide surcharge figure of approximately \$800,000 per year.³⁰ This is what the program would cost if expanded statewide. The Commission went on to note:

This figure appears high, but the three electric utilities participating in the program had total electric revenues in 1976 from residential customers totaling over \$90,000,000, and from all customers of almost \$200,000,000. Viewed in that perspective the revenue foregone under lifeline seems relatively slight.

Efficiency

Concerning marginal cost the Commission noted that the historically accepted methods of cost allocation were being questioned:

Concepts of marginal cost pricing, when applied to the new economic realities . . . leave no doubt that present (declining block with no indication of peak-time usage) rate structure are not cost related in any economically meaningful sense. Consequently, to criticize lifeline on the basis that it is not cost-related is not persuasive.

Actual alterations in demand as a result of this

³⁰Based on total surcharges of \$111,191, divided by the 14% of the elderly population which lived in the demonstration cities.

lifeline program were judged to have been undefinably small, according to utility spokesmen contacted for this study. Participants represented only 3.8% of the total population of participating municipalities, and they showed about the same pattern of consumption during 1976 as they had during 1972-1975.

The following information reflects the impact on demand of 1975 (before lifeline) v. 1976 (after lifeline) for the three participating utilities:

CMP total system residential increased 8.3%
lifeline residential increased 2.7%

BHE total residential increased 6.5%
lifeline residential increased 2.6%

MPS total residential increased 4.6%
lifeline residential increased 2.7%

Total average residential increase 6.4%
Lifeline average increase 2.6%

A total average increase of 6.4% appears to be in line with a state system average growth rate of 5.2% for Maine³¹ and therefore supports utility statements that there was no significant alteration in demand as a result of the lifeline Demonstration program, either by participants or by subsidizers.

When contacted for this study, company administrators from all three participating power companies mentioned the burden of administrative reporting in terms of time and cost expended.

³¹ Source: Edison Electric Institute, Statistical Yearbook, 1972-1977.

The actual cost to the utility companies per applicant averaged \$14.22 for start-up and \$.56 per month for the twelve-month period. A cost breakdown per utility follows:

<u>CMP</u> startup	\$19.34/customer
ongoing	.53
<u>BHE</u> startup	11.51
ongoing	.28
<u>MPS</u> startup	11.83
ongoing	.88

The total administrative program costs of the utilities were:

<u>Utility</u>	<u>Amount</u>
CMP	\$31,499
BHE	8,771
MPS	9,884

However, a comparison of CMP's lifeline administrative costs (\$31,499) to that company's operating revenue for 1976 (\$155,005,000) shows that the lifeline program costs represent approximately .02% of operating revenue.

Therefore, it does not appear that administrative costs were substantial. Company spokesmen did vigorously object, however, to an administrative burden.

Although the costs were relatively small, the utilities did bear more of an administrative burden than the PUC as illustrated in Table XXIX on the following page.

Conservation

According to the Commission findings, almost half

TABLE XXIX

TOTAL ADMINISTRATIVE COSTS OF PROGRAM

	Total Cost	Total Per Person	Person Per Month
<u>Initial Administrative Costs¹</u>			
Outreach Agencies	\$11,185	\$ 5.11	\$.43
Div. of Community Services	5,036	2.30	.19
Public Utility Commission (est.)	3,500	1.60	.13
Subtotal	\$19,721	\$ 9.01	\$.75
Utility Companies	34,795	15.90	1.32
Total cost to 2/24/76	<u>\$54,516</u>	<u>\$24.91</u>	<u>\$2.07</u>
<u>Ongoing Administrative Costs²</u>			
Utility Companies	\$15,359	\$ 5.86	\$.53 ³

¹Related to establishment of program through 2/29/76 for 2,188 original applicants.

²From 3/1/76 to end of program for 2,169 total applicants.

³This figure is not a twelve-month average. The three participating utility companies' ongoing administration costs were reported for periods of 10, 12 and 13 months. This figure (\$.53) was derived by multiplying the number of active participants from each company times the number of months of administration for each company (to obtain person-months). The total cost was then divided by the total number of person-months from all three companies to obtain the person-per month figure. For further clarification, the formula used is set out below:

$$\text{Step 1 } (P_1 \times M_1) + (P_2 \times M_2) + (P_3 \times M_3) = \text{Total person-months}$$

Where P=number of participants (for each company)

M=number of months (duration of program)

$$\text{Step 2 } \frac{\text{Total Cost (All 3 Companies)}}{\text{Total person-months}} = \text{Cost per person per month}$$

of the lifeline participants (46%) used less electricity in 1976 than they had in 1975. Only 17% of the participants increased their usage by more than 25% over the previous year. Thus it appears that, at least in this case, lower rates did not lead to increased consumption: usage, overall, was not increased because price was decreased.

Also, the promotion of conservation by end-users was a specifically stated purpose of the lifeline statute. The flat rate of 3¢/kwh was intended as a strong price signal to promote this conservation, as was the lifeline brochure published by the DCS which stressed energy conservation as a part of the lifeline program.

The record of consumption of lifeline Demonstration program participants was superior to that of the average electric consumer. The Commission does admit that "Even if a majority of lifeline participants did not deliberately conserve electricity, in actual practice their record was better than regular residential customers." The target group was labelled more frugal than the general public: perhaps because of their poor financial situation they are forced as a group to practice conservation. The lifeline program did, however, allow many low income elderly to increase their electrical use "from austere stringency to more normal and adequate levels."³²

Equity

One serious objection to the Demonstration program was that it benefitted only a minority of the low-income elderly who conserved energy. Again, although actual

³²Source: Commission Report to the Legislature.

participation of those potentially eligible averaged around 50%, the Commission and legislative sponsors stated themselves satisfied that the program's targeting had been successful. The Commission noted no incidences of fraud connected with the program--though an actual audit had not been performed.

The target group, by circumstances inelastic in their usage of energy, did save between \$4-\$9 per month or an average of 2.4% of their disposable monthly income. Due to the comparatively strict³³ age and income requirements, the program was by nature geared toward some of those people least able to pay, to whom any discount may have been significant. The final Report argued that giving lifeline benefits only to the elderly poor may be appropriate because of their frugality and their use of relatively small amounts of electricity. Lower rates for this group, unlike lower rates for the remainder of the population, resulted in no increase in usage. Granting lower rates to those other groups who use small quantities of electricity, in the Commission's judgment, would probably result in usage increases.

While the "ability to pay" criterion may therefore have been upheld, there is some question concerning the "notional equality" criterion. As stated, the monthly bills of non-lifeline participants were increased an average 6¢/month for customers of two of the utilities, CMP and BHE: the average increase for MPS customers was 3-1/2 times that (20¢). With the least number of lifeline customers among the three utilities, MPS showed the second highest surcharge

³³Compared to HUD public housing eligibility requirements.

cost.³⁴ This can be explained by the fact that the company's rates were higher--both the rate and the fuel charge --than those of the two other companies and revenue losses were higher due to a greater difference between lifeline and regular residential rates.

If the Demonstration rate of 3¢/kwh were to be applied statewide to some of the very small electric cooperatives and companies, the lifeline rate would only be a small percentage of the regular rate and the revenue loss from the program would be enormous. For example, a regular residential customer of the Fox Island Electric Co-op using 500 kwh/month would pay \$57.68 to subsidize a lifeline customer's \$15 electric bill for the same 500 kwh/month. This represents a 41% increase in the non-lifeline customer's bill.

Since subsidizers' monthly bills reflected the lifeline shortfall of the previous month, the rates did vary from month to month. However, the actual amount of variation was small and the short-term nature of the Demonstration precluded any formal, Commission-ordered system increases. If the program had been extended statewide and on a more permanent basis, there exists the possibility of sharp, discontinuous increases, especially if a uniform energy charge were also implemented statewide and co-ops were required to participate in the program.

In a final appraisal of the program, the Commission was satisfied that the low-income elderly who participated "did obtain meaningful savings in their monthly electric

³⁴ 464 lifeline customers and \$32,263 in surcharges.

bills," and that administrative and operational problems were few. The surcharge inequities could be righted if the lifeline rate were made a percentage discount of the regular rate rather than a flat, specified rate as was done in California.³⁵ A standard surcharge amount could then be incorporated into the basic rates of each utility's customer classes as a part of a general rate design proceeding.

A less controversial³⁶ method of paying for lifeline was also presented as a matter for the legislature to consider: paying for lifeline out of general state revenues. This extends the cost burden to all taxpayers in the society, rather than just utility rate payers.³⁷

In conclusion, the stated purposes of the Demonstration appear to have been met. Low-income elderly persons were helped, representative data was gathered, and, to a degree, conservation was encouraged. The variations of lifeline which have been proposed by the Maine legislature since the Demonstration are based on conclusions obtained from this program. The impact of the 1975-1976 Maine Lifeline Demonstration reflects its dual role as progenator and as benchmark.

³⁵Refer to California case study for complete program description.

³⁶Utility, business and community spokesmen, as mentioned, were for the most part critical of what some economists term "rate manipulation to redistribute income."

³⁷See companion Maine case study for further discussion.

MASSACHUSETTS ELECTRIC CO. A-65 RATE

Program Summary

Massachusetts Electric Company's A-65 schedule was designed to provide a reduced rate for low-income, elderly customers in the company's service area. Revenue was to be recovered equally from all customer classes.

Individually metered customers¹ are eligible for the reduced rates if they meet each of the following criteria:

1. Must be 65 years of age or older;
2. Must be the head of a household or principal wage earner;
3. Must be presently receiving Supplemental Security Income from the Social Security Administration.

Verification of eligibility is handled by the local office of the Social Security Administration.

¹Under "unusual circumstances" the company may permit master-metered customers to be served under this rate.

The company is required to provide bi-monthly reports to the Massachusetts Department of Public Utilities (MDPU) on the number of applications received, verified and rejected. These reports also contain data on the kwh consumption and revenue effects of A-65 participation, as well as associated administrative costs.

To advertise the availability of this targeted rate reduction scheme, application forms were included as monthly bill inserts and ads were placed in newspapers throughout the company's service area.

The reduced A-65 rate is compared to the company's regular residential rates (A-22) schedule in Figure 14. Participants in both programs pay a flat \$1.67 for the first 22 kwh.² Beyond this initial block, the A-65 schedule provides a substantial discount (approximately 60%) up to a monthly consumption of 375 kwh. Off-peak rates are available for both A-65 and regular residential customers: all electricity consumed between 11:00 p.m. and 7:00 a.m. is priced at 1.099¢/kwh if the customer has installed an electric water heater approved by the utility company.

Both the reduced A-65 and regular residential rates are subject to the same Standard Fuel Adjustment Clause and Purchased Power Cost Adjustment.

²The flat charge can be avoided under both programs only for those months when (1) there has been no electricity consumed and (2) if total billings for the preceding twelve months equalled or exceeded \$9.00.

FIGURE 14
MASSACHUSETTS ELECTRIC COMPANY

Issue Development and the Governmental Process

In 1978, Massachusetts Electric Company proposed the A-65 rate reduction program to the MDPU on its own initiative. The reason for the proposal was to aid customers who were clearly being hurt by rising utility bills.

The MDPU expressed misgivings. It dismissed the notion that the program was beyond the Commission's power to approve, citing the precedent of Boston Edison Company v. Department of Public Utilities.³ The Commission was also concerned with many of the traditional arguments against lifeline rates: the rate was not cost-justified therefore other classes would subsidize it; low-income people may not have low electricity usage; discount rates would not encourage conservation; reservations toward "social rate making" in principle.

Nevertheless, the A-65 rate was allowed by the Commission on the grounds that the effect on other classes of customers would be minimal since only a small number of

³375 Northeastern Reporter, 2d, April 19, 1978.

customers would benefit from the rate. The MDPU approved the eligibility requirements, stating that the recipients would be "a clearly identified, stable group of customers who would be adjudged needy under any criteria" (DPU 19376).

Consumer groups did not play a major role in the initiation or implementation of the A-65 rate. One group, Massachusetts Fair Share, did, however, comment on the proposal in the original rate hearings. Their primary concern was that the company may have overestimated its potential losses and might realize a "windfall" from the increase to other classes. The MDPU sought to prevent this by requiring submission of detailed bi-monthly reports on the actual effects of the rate.

Mass Electric's large industrial and commercial customers objected to the A-65 rate. Nine of these customers, led by American Hoechst, Inc., appealed the MDPU's ruling to the Supreme Judicial Court of Massachusetts in September of 1979, after the program had been in effect for more than a year. These customers claimed that a reduced rate for the elderly poor constituted irrational and unlawful discrimination. Briefs were filed by the appellants, by Massachusetts Electric and by the Attorney General on behalf of the MDPU. The court ruled that the rate was not discriminatory and that it was within the MDPU's authority to establish the rate.

After approving the A-65 program, the major remaining issue for the Commission was the method of revenue recovery. Eligibility⁴ had already been agreed upon since it was presumed that this group was easily identifiable.

⁴Age 65, being an SSI recipient and a head of household.

Mass Electric originally wanted the revenue loss to be recovered from within the residential class. The MDPU said, however, the residential customers not on the rate would not benefit from it, therefore, they should be treated in the same manner as the industrial and commercial customers. Fair Share suggested the costs be borne by the company's shareholders: the Commission dismissed this suggestion and ruled that the costs would be shared equally by all customer classes.

In estimating its revenue loss, Massachusetts Electric used two assumptions. First, the company assumed that fifty percent of SSI recipients over 65 would participate in the A-65 program; second, that individuals to whom the A-65 rates were applied would exhibit a consumption pattern identical to that of regular A-22 residential customers. Representatives of Mass Electric, the SSA office and the MDPU could not explain how the number of eligible SSI recipients was determined or indicate what the number was.

Other Considerations

Massachusetts Fair Share has consistently pushed for "flat" utility rates--a uniform rate per unit of energy consumed--for all classes of customers. It has chosen to encourage this instead of lifeline because of its goal of assisting all consumers. Fair Share succeeded in gathering enough signatures (over 100,000) on petitions to put the issue on the November 1976 statewide ballot. The proposal evoked quite a response from business, labor, and politicians by way of advertisements and mailings warning that prices of goods would rise, and jobs would leave the state. The referendum was overwhelmingly defeated. (This referendum is also discussed in the Boston Edison case study.)

Section 114 Hearings

The Massachusetts DPU will hold its PURPA Section 114 hearings after an extensive study of income and electric usage has been conducted in conjunction with Yale University and EBASCO (see Boston Edison case study).

Administrative Experience

Massachusetts Electric experienced a number of problems in implementing its A-65 rate. Approximately six months passed between approval of the rate by the MDPU and the placement of customers on the rate. Before presenting the reasons for this lag time, it is necessary to explain the application process.

The utility company first sent applications to its residential customers as bill inserts. They were also included in newspaper advertisements. Once received by the company, Mass Electric gave the applications to the Social Security Administration's (SSA's) regional office in Boston for verification of age and SSI status. In completing the application, the recipients were required to authorize the release of their Social Security records to avoid problems with privacy laws.

If the SSA office confirmed the applicant's eligibility, Mass Electric notified the applicant. If information on the form needed to be corrected (an account number, for example), the company informed the applicant of the problem by mail so that he or she could reapply.

Confidentiality was one of the issues which caused the delay of the program's implementation: the SSA was unwilling to hand the company a list of names of eligible customers. Several weeks of negotiations passed before the company and SSA agreed on the method now being used.

When the A-65 rate was advertised, many consumers not familiar with SSI thought the rate was applicable to all recipients of Social Security. This was one of the reasons only 4,837 applications out of 26,129 were approved. Other problems endemic to SSI administration arose. For example, a widow would put her deceased husband's name on the application instead of her own.

Because of the time lapse between application and implementation, Mass Electric granted retroactive transfers of credit to many A-65 recipients. Credit was retroactive to the time of application.

According to its bi-monthly report of December 3, 1979, Massachusetts Electric has attempted to reach "additional customers who have failed to apply for it" in the following way:

1. Under the control and supervision of SSA personnel, an extract file for label printing was made from an SSA computer tape of those SSI recipients who were:
 - a. 65 years of age or older;
 - b. Heads of households;
 - c. Resided in zip code areas of Massachusetts served by Mass Electric;
 - d. Not already A-65 customers.
2. On November 30, 1979, the initial batch of approximately 18,000 application forms were mailed to the recipients who met the above-listed criteria. However, these people may or may not be customers of record of the company.
3. Upon completion of the Rate A-65 application and its return to the company, each application will be verified by the company to determine if the applicant is a customer of the company.
4. Qualified applicants will be transferred to Rate A-65.

5. It is anticipated that the mailing (Step 2 above) will be completed by December 7, 1979.

The tables on the following pages summarize two aspects of the administration of the A-65 rate; the small number of applicants actually placed on the rate, and the number of retroactive transfers.

TABLE XXX

MASSACHUSETTS ELECTRIC COMPANY
 RECAPITULATION OF RATE A-65 APPLICATIONS
 AS OF MAY 31, 1979

Total applications received to date	26,129
Applications which failed to qualify	<u>12,679</u>
Authorization forms mailed to applicants	13,450
Original authorization forms returned to date	8,397
Authorization forms from re-applications	+ <u>152</u>
Total authorization forms compared to SSI files for verification	8,549
Duplicate authorization forms	- 266
Authorization forms which did not pass SSI verification	- <u>3,446</u>
Authorization forms verified by SSI and eli- gible for transfer to Rate A-65	4,837

Source: Mass Electric's August 1979 report to the
 MDPU.

TABLE XXXI

MASSACHUSETTS ELECTRIC COMPANY
SUMMARY OF RETROACTIVE TRANSFERS MADE TO RATE A-65
AS OF JULY 31, 1979

Month Transfer Made	No. of Customers Transferred	Rate A-22 Billing Cancelled	Retroactive Rate A-65 Billing	Credits	Retroactive KWH Use Transferred
Nov. 1978	11	\$ 725.63	\$ 397.11	\$ 328.52	14,359
Dec. 1978	2,232	147,025.25	84,571.23	62,454.02	3,169,377
Jan. 1979	920	70,009.37	40,557.01	29,452.36	1,542,036
Feb. 1979	359	30,898.88	17,729.17	13,169.71	666,997
Mar. 1979	588	60,528.48	34,943.76	25,584.72	1,354,877
Apr. 1979	437	45,793.44	26,891.62	18,901.82	1,004,917
May 1979	8	1,239.71	735.58	504.13	27,908
June 1979	1	227.35	136.63	90.72	5,234
July 1979	1	213.88	147.44	66.44	5,640
Total	4,557	\$356,661.99	\$206,109.55	\$150,552.44	7,791,345

Source: Mass Electric's August 1979 report to the MDPU.

Impact

The intended beneficiaries of the A-65 rate are SSI recipients over the age of 65. An extremely rough estimate was made of the number of SSI recipients in Massachusetts Electric's service area since the figure was not available from the company or the Department of Public Utilities. This estimate was made only to give some idea of how successful the company's targeting efforts have been.

Basically, the estimate was made by taking the total number of SSI recipients in the state and subtracting from it the number of SSI recipients served by Boston Edison (the other large utility in Massachusetts). The remainder should provide some rough estimate of the number of SSI recipients served by Massachusetts Electric.

Also from statewide figures it is known that approximately 60% of SSI recipients are elderly. If these assumptions are made:

1. Number of SSI recipients in the state: 128,295
2. Number of SSI recipients in Suffolk County (served by Boston Edison): 36,456

3. Number of SSI recipients outside Suffolk County:
91,839
4. Mass Electric serves approximately 80% of the population outside Boston Edison's service territory which equals 73,471 SSI recipients
5. Number of elderly SSI recipients = 60% of total
6. Sixty percent of 73,471 = 44,082 which equals approximate number eligible for SSI rate.

It is not known what percentage of Massachusetts Electric's customers live in individually metered or master-metered households. If a large number of elderly SSI recipients reside in master-metered households, this could be responsible, in part, for the low rate of participation in the A-65 rate.

Needs Assessment

The target group is known to have an average consumption of 2,623 kwh per year. This usage translates into a bill of \$4.02 per month under the A-65 rates (excluding adjustment charges), or approximately \$9.00 under regular residential rates.

To put this figure in context, it is important to remember that the primary heating fuel in Massachusetts is oil. The Final Report of the New England Energy Congress (p. 259) estimates that low-income New Englanders paid about \$685 for the winter heating season in 1978 (November through March), or \$137 per month. Electric and heating bills combined amount to \$146 per month (with \$9.00 electric bill). As the figures indicate, the real need is in the area of heating, so the A-65 rate, though it helps, does not address the central problem.

Total energy costs are a substantial portion of income for a person who receives SSI benefits: maximum combined federal and state monthly benefits in December, 1979 equaled approximately \$240.⁵ While the electricity bill would seem to equal a small percentage of energy costs, the total energy costs represent a significant amount (60%) of SSI income. These costs would seem to indicate that there is a clear need for energy assistance for the elderly poor in Massachusetts.

Targeting Effectiveness

In the June 1978 - May 1979 program year, 4,837 customers benefitted from the A-65 rate. This is approximately 11% of the rough estimate of eligible recipients given earlier of 44,082.

It is generally agreed, by both Mass Electric and MDPU representatives contacted for this study, that the participation rate is low. This has apparently been due to ineffective marketing (confusion over what the program is, eligibility requirements, etc.). To ease the administrative problems⁶ and enable more customers to take advantage of the rate, the company is proposing to extend the rate reduction to all SSI recipients in its present rate case before the MDPU.

As described more fully in a previous section, these problems have included:

⁵SSI is usually supplemented with additional payments such as social security or pensions.

⁶For a more detailed discussion, see "Administrative Experience" discussed earlier in this case study.

- Applicants not knowing whether SSI or SSA recipients are eligible;
- The issue of confidentiality of names of recipients
- Problems endemic to SSI administration.

In addition to these administrative problems, participation may have been low because of the unknown number of elderly SSI recipients who live in master-metered apartments who are only eligible for the A-65 rate under unusual circumstances.

Calculation of Benefit Level

A-65 rates for Massachusetts Electric customers are reduced approximately 60% from the regular residential rates. The monthly bills can be calculated as follows:

TABLE XXXII

CALCULATION OF BENEFIT LEVELS FOR MASSACHUSETTS ELECTRIC A-65 RATE

KWH Use	A-65 Lifeline	Regular Residential Rates	Savings	Increase for Non-Recipients as a Result of Rate*
22	\$1.67	\$ 1.67	\$.00	.00¢
50	2.14	3.13	.99	.43¢
200	3.86	8.56	4.70	1.74¢
375	5.38	13.68	8.30	3.26¢

*Based on charge of \$.000087 (anticipated shortfall)

Note: Calculations are made from rates given in the Program Summary.

Assuming an A-65 recipient had an average usage of 200 kwh per month (the actual average is 219 kwh), the

saving realized from the rate equals \$4.70. If the maximum usage allowed for the discount (375 kwh) were used, the saving is \$8.30, or approximately 3.4% of SSI average monthly income. This figure (\$8.30) is 5.7% of monthly winter energy costs of \$146. This could well represent a meaningful part of an income that is very low.

Revenue Recovery

The revenue shortfalls resulting from the A-65 rate structure are recovered from all classes of customers on a uniform percentage basis.

When Massachusetts Electric proposed the rate, it anticipated its loss in revenue to be \$903,500 (using September 1977 as a test period). Based on this projection, the company charged all other classes not on the A-65 rate an additional \$.000087 per kwh to recover these revenues.

This estimate was well above the actual shortfall of \$245,500, and even when implementation expenses were added, the total cost to other classes was \$318,300, or \$.00002 per kwh. The discrepancy between the projected and actual costs was due to a low rate of participation and a low usage level by those on the A-65 rate.

It does not appear that the A-65 rate has a significant impact on other classes of customers. For a small business that uses 5,000 kwh per month, for example, the added cost because of the rate was only 43¢ per month (using the \$.000087 surcharge). A larger operation using 100,000 kwh paid \$8.70 a month extra.

Despite the seemingly small impact on other classes, the Massachusetts Manufacturers took the DPU to court over

the A-65 rate. This may have been because they feared a trend toward what they considered discriminatory rates, or lifeline rates, rather than because of a significant cost increase to businesses.

Even if the participation rate had been higher, in all likelihood, costs to other classes would be minimal. This statement is based on the fact that Mass Electric did project a very high participation rate and its cost was still only estimated to be the \$.000087 per kwh. Consequently, it seems the negative reaction by business may have been based on ideology and not justified on a cost basis.

Efficiency

In testimony presented on the A-65 rate, marginal cost pricing was not an issue.⁷ Due to the fact that A-65 rate usage comprises only .01% of total company sales and A-65 customers represent .7% of the number of total customers, the impact of the rate on company demand is likely to be negligible.

Implementation expenses reported by the company through December, 1979, totaled \$79,533. This represents approximately .015% of total 1978 operating expenses of \$528,323,000, which does not appear to be a significant amount. For a better indication of program costs aside from initial expenses, \$2,189 was spent on the A-65 rate during the months of October and November, 1979. These figures include administrative, clerical and processing costs.

⁷ For information on marginal cost and peak load pricing in Massachusetts see Summary of Utility Load Management Programs, by Arthur D. Little, Inc., February 14, 1978.

In contrast to total revenues, this evidence does not indicate that the costs of the A-65 rate significantly impaired utility efficiency.

Conservation

There is no evidence to suggest that the A-65 rate has led to increased or decreased consumption in the initial usage block. This is because elderly low-income usage prior to the establishment of the rate is unknown. All that is known is current A-65 usage is much lower than expected. This may not represent a change, but it may indicate that the elderly poor are only using amounts of electricity that are essential for basic energy needs. In this instance, consumption would be inelastic to price.

Equity

While the Massachusetts A-65 rate has only reached a fraction of the people it was intended to reach, the reduction it does provide (60%) is significant. The ability to pay criterion has been the rationale for the rate. Whether or not the actual saving is significant is, of course, a value judgment, but the argument that any expense saved from a monthly income of \$240 is important, could certainly be made. It is clear, however, that the A-65 rate will not meet all of a low-income person's energy needs.

Meanwhile, the service or rates to other classes has barely been affected and there have been no sharp increases to them which would have violated the good faith/reasonable expectation criterion of equity. In conclusion, it appears that this program is effective for the small number of people it reaches.

MICHIGAN OPTIONAL SENIOR CITIZEN RATE

Program Summary

Michigan's Optional Senior Citizen Rate was designed to provide a reduced rate for elderly customers who were shown to be low users. The Michigan Public Service Commission (PSC) ordered this rate for Detroit Edison and Consumers Power Company. Revenue was recovered by an additional per kwh charge for all other residential customers.

This rate is available to customers in individually metered residences if they meet the following criteria:

1. Must be at least 65 years old and the head of a household;
2. Must contract to remain on the rate for 12 months;
3. Must agree to allow the utility company to interrupt electric service to central air conditioners, water heaters, dishwashers and electric clothes dryers if and when implementing controls are available.

Both participating utility companies periodically include an explanation of the optional rate as a bill insert. The exact contents of these inserts varies and are discussed later in this case study.

The optional rate is compared to regular residential rates in Figures 15 and 16. The regular residential rate structure consists of three-block, moderately inverted rates. The Senior Citizen's Optional Rate is also a three-block inverted structure, but the blocks are considerably smaller and very steeply inverted. As shown, the initial block of the optional rate is approximately one-half that of the middle block, and the third block is approximately 40% more than the middle block.

Detroit Edison's optional rate schedule also contains a provision for electric space heating. It specifies a flat charge of 3.86¢/kwh for consumption in excess of 300 kwh during the months of November through May.

Consumers Power's schedule contains a provision for electric water heating that specifies a charge of 3.67¢/kwh for consumption between 301 and 700 kwh/month.¹

The optional rate is also subject to a monthly service charge and fuel adjustment charges as are regular residential rates.

¹The water heater must have a capacity of at least 30 gallons and must be company-approved.

FIGURE 15
DETROIT EDISON COMPANY

FIGURE 16
CONSUMERS POWER COMPANY

— Senior Citizen Optional Rates \$2.65 service charge
..... Regular Residential Rates \$2.65 service charge

Issue Development and the Governmental Process

The Michigan PSC has long recognized the impact of increased utility costs on low-income customers and has voiced a commitment to reduce utility costs and assure continued service for these customers. Tangible "[e]fforts in this direction began in 1969 with the elimination of promotional utility advertising and associated cost as an allowable expense in rate cases. . . ." ² Actual rate revision began in 1975 when the PSC abandoned the traditional declining block rate form in favor of a flat rate for all residential customers. In 1976 an inverted rate schedule was ordered and was maintained in 1978 but with more steeply inverted rates (see Figure 17). This trend continued and the PSC, also in 1978, ordered the implementation of the Optional Senior Citizens' Rate. ³

According to Commission Orders, the Optional Senior Citizens' Rate was proposed by the Commission staff and

²Programs for the Low Income Utility Customer,
Michigan Public Service Commission, p. i.

³Proposed for Detroit Edison and Consumers Power Co. in separate rate cases.

FIGURE 17
MICHIGAN ELECTRICITY RATES

originally contained the following requirements:⁴

1. Applicant must be 62 years of age and head of household;
2. Applicant must be receiving Social Security or Supplemental Security Income (SSI);
3. Applicant must be sponsored by a social welfare agency who could certify eligibility;
4. Applicant's sponsoring welfare agency must contribute 10% of the customer's bill directly to the utility on a monthly basis;
5. Applicant must contract to remain on the rate for 12 months;
6. Applicant must agree to allow the utility company to interrupt electric service to central air conditioners, water heaters, dishwashers and electric clothes dryers if and when implementing controls were available and rate schedules were approved.

The staff maintained that elderly low-income customers' utility costs tended to be lower than average residential customers and, therefore the proposed Senior Citizens Rate was not an outright subsidy. To substantiate this contention, the staff referred to a PSC study titled "A Profile of Energy Consumption by Low-Income/Elderly Citizens in Lower Michigan 1974-1975."

The stated purpose of the study was two-fold. "First, to provide some insight into the electric usage profiles of low-income elderly users and to compare these with those of typical residential users. Second, an attempt to address three major questions:

⁴As proposed in Consumer Power Company rate case U-5331. When proposed in the Detroit Edison rate case (U-5502), the 10% contribution from the sponsoring agency was dropped.

1. Are low-income elderly also low energy users?
2. Do low-income elderly have usage characteristics that suggest a tendency toward lower costs to serve them than average customers?
3. Would lowering of energy prices to low-income elderly serve as disincentives to energy conservation?"⁵

The survey focused on retired and low-income persons from three different inner-city areas around the state. A brief questionnaire was developed and distributed at senior citizens centers. The sample consisted of 93 households and was considered, by the Commission staff, to be a "good representation of retired low-income elderly citizens."⁶ Among other findings, the study indicated that the elderly have:

- Average family income well below that of typical families in the same area;
- Longer occupancy in same residence;
- 41% less consumption of electricity than average domestic users;
- Higher general load factor than average;
- Disproportionate percentage of income spent on utilities (13% vs 3%);
- Price of electricity does not significantly influence the level of electricity consumption (weather does).

Several of these findings were compared by the Commission staff to various national studies and statistics and were

⁵"A Profile of Energy Consumption by Low-Income/Elderly Citizens in Lower Michigan 1974-1975," Michigan Public Service Commission, February 25, 1976, pp. i, iii.

⁶Ibid., p. 4.

found to be in general agreement with national trends.

Based on these and other findings included in the report, the PSC staff drew the following conclusions:

1. The low-income elderly are low users of electricity;
2. The low-income elderly have little opportunity for wasteful usage;
3. The low-income elderly have electric usage characteristics tending toward a lower cost to serve than average customers:
 - a. Low-income elderly use electricity more uniformly and possess a higher load factor;
 - b. Low-income elderly have little growth potential resulting in lower future costs to the utility;
 - c. The low-income elderly live in older homes and utility company costs are lower because distribution investments are more fully depreciated and were purchased at historical lower costs;
 - d. The low-income elderly live in the same residence for longer periods resulting in lower costs of disconnection and reconnection.

In neither case did the utility companies nor the intervenors attempt to refute the problems or needs of low-income elderly customers: they took exception with the method proposed by the PSC to deal with the situation.

In the Consumers Power rate case the company objected to solving a "social problem through the manipulation of utility rates."⁷ The company also felt that the study upon which the proposed rate was based was not a formal cost of service study and therefore could not be used to support the Senior Citizen Rate. The company further objected to the proposed administration of the rate by stating that the

⁷Opinion and Order, Case No. U-5331, July 31, 1978, p. 96.

plan was quite possibly unworkable because the Commission had no authority over other state agencies. This last contention was a reference to the required participation and contribution of welfare agencies.

The Michigan Attorney General agreed with Consumers Power on the last point and added to it by stating that the proposal was not well thought out due, in part, to the fact that criteria for need had not been established.

Another intervenor, General Motors Corp., also objected to implementation of the Senior Citizens Rate. GM felt that relief for the needy was not a function of the PSC. They went on to say that "age, income levels, and monetary need are factors not related to [Consumers Power] cost of providing electric service and therefore are not factors which should be considered in the setting of rates."⁸

The ALJ⁹ was split in his support of the proposal. He felt the proposal contained a reasonable classification of customers, and sound principles of rate structure had been applied; however, he recommended that portions of the proposal requiring implementation and participation by the welfare agency be dropped.

While the Order for this case was being prepared, Michigan's Attorney General issued an Opinion which had at

⁸Ibid., p. 97.

⁹Administrative Law Judge serves as a hearing officer and is often responsible for findings of fact that appear in Commission Orders.

least tangential relevance to the case. The AG was responding to a request from a State Representative regarding the legality of the Legislature or the PSC creating a separate rate classification based on age and ability to pay.¹⁰ The question was prompted by House Bill 5430¹¹ which would have provided a 50% reduction in utility rates for qualifying consumers.¹² The Opinion stated, in part:

Therefore, either the Legislature or the MPSC can initiate rate classifications for utility service as a purely legislative function of the former, and as a delegated legislative power for the latter. However, when proposed rate classifications based on age and ability to pay have been considered, other jurisdictions have held that the agency needs supporting legislation to implement such rate classifications. Michigan statutes clearly prohibit discriminatory rate classifications. In view of these statutory prohibitions, it is my opinion that the Legislature would have to act to create any rate classification based on age and ability to pay. Such a classification should be held constitutional.

The Commission subsequently reasoned that this opinion did not preclude them from adopting the Optional Senior Citizen Rate. This was primarily based on the absence of a specific income requirement and the finding that low-usage elderly consumers were a proper subclass for the purpose of rate design. Additionally, the Attorney General's office represented the Commission staff during the rate case and also participated as an Intervenor, opposing the Senior Citizens' Rate on policy grounds. At no time

¹⁰Michigan Attorney General's Opinion No. 5335, June 28, 1978.

¹¹Introduced during the 1977 Legislative Session.

¹²Eligibility requirements included: 65 yrs. of age; annual income of \$8,000 or less; living with no more than one person under 65.

was it indicated that the proposed rate was discriminatory or illegal. Therefore, the Commission ordered the implementation of the Optional Senior Citizens Rate, raised the eligibility age to 65, and deleted the requirements calling for sponsorship by a welfare agency and 10% subsidy by the welfare agency, and receipt of Social Security or SSI benefits.

Since all efforts focused on the merits of adopting a targeted rate schedule, little was discussed regarding recovery of revenue that might be lost as a result. The Commission ordered that revenue recovery be restricted to the residential class and increased those rates by .01¢ per kwh, stating that,

In light of the seriousness of the problems of senior citizens and the magnitude of the assistance the optional rate would deliver, the Commission believes that the increase for regular residential ratepayers is minimal, and virtually inconsequential for the vast majority.¹³

The Commission also ordered that the monthly service charge and the fuel adjustment should be applied to those on the Optional Rate. Figure 16 provides a graphic comparison of the Optional Senior Citizens Rate and regular residential rates.

The administration of the program was left to the utility company.

Detroit Edison's rate case, Case No. U-5502, was

¹³Opinion and Order, Case No. U-5331, p. 100.

heard almost concurrently with Consumer Power Company's case and produced relatively few differences with the exception of intervenors who participated in the case. The Commission staff's proposal was the same as the original proposal for Consumers Power. Briefly, the intervenors and their positions in this case were as follows:

- A representative of Detroit Edison testified that senior citizens were a proper class for rate design purposes because they imposed lower demands and customer service cost on the system and because they neither created need for additional plant capacity nor benefitted from future plant additions.
- Attorneys for the Michigan Council of Senior Citizens' Organization opposed the rate and proposed instead, a steeply inverted rate for all residential customers.
- GM also opposed a special rate for senior citizens but recommended no alternative.
- The ALJ, in contrast to his position in the first case, opposed adoption of the special rate and proposed a four-block steeply inverted rate for all residential customers.

The results of the case were also similar.

- Eligibility, in this case, also included the stipulation that if the customer had an electric water heater it must be served under the controlled water heater rate.
- An additional provision was included for electric space heating.¹⁴
- The rate form and rate blocks were the same but per kwh charges were different (see Figure 15 for a graphic comparison).
- Revenue recovery was .017¢ per kwh.

¹⁴When all space heating is electric, usage in excess of 300 kwh is billed at 3.86¢/kwh between November and May.

During this case an attempt was also made by the Senior Citizens Organization to convince the Commission to eliminate the monthly service charge. They attempted to show that a monthly service charge was similar to paying an entrance fee for a supermarket or bakery prior to purchasing goods. The argument was rejected by the Commission.

As in the case of Consumers Power, Detroit Edison was made responsible for the administration of the Optional Senior Citizens Rate in their respective service area. The administrative approach of the two companies has been direct and simple and both take the form of explanatory bill inserts. Detroit Edison's insert includes eligibility information and a listing of per kwh rates. Consumers Power's insert contains eligibility requirements, a table which describes monthly charges and also presents a series of questions and answers to help customers decide whether or not this optional rate could save them money. The insert is a three-fold and includes a tear-off application form. The customer need only provide billing information (e.g., account number, address, customer's name), a social security number, and a signature which serves as certification of eligibility. A discussion on the rate of participation in the Optional Senior Citizens Rate can be found later in this case study.

Impact

The intended beneficiaries of the Michigan Optional Senior Citizens Rate are heads of households who are 65 years of age or older.

Detroit Edison and Consumers Power served a total of 2,729,113 residential customers in 1978.¹⁵ Based on U.S. Census Bureau population estimates and projections,¹⁶ approximately 250,000 senior citizens live in the service areas of these two companies. This, of course, is not a totally accurate estimate of customers who are actually eligible for the rate.

- The Census Bureau estimates for percentage of elderly are statewide and Consumers Power and Detroit Ed service area statistics may differ.
- Census Bureau figures represent individuals, utility companies are concerned with residences.
- Many senior citizens may be institutionalized, living with family, or living in master-metered dwellings where the rate does not apply.

¹⁵Moody's Public Utility Manual, pp. 573, 633.

¹⁶The Census Bureau estimated 1975 and 1980 statewide population would include 9% and 9.5%, respectively, citizens age 65 or over.

No estimates of eligible participants were made during the course of the hearings; however, a discussion of the number of residents actually benefitting from this rate appears later in this section.

The population of Michigan is primarily urban¹⁷ and is concentrated in and around the several major metropolitan areas.

Need Assessment

Based on information contained in "A Profile of Energy Consumption by Low-Income/Elderly Citizens in Lower Michigan," the following items seem to be of particular significance:

- The elderly use about 40% less electricity than the average household (about 7% less gas);
- An elderly family expends approximately 13% of its income for utilities vs. about 3% for the average family;
- Of the senior citizens surveyed for this profile, average income was approximately \$3,400 while the average income for a typical family from the same area was \$17,250.

A comparison of average monthly kwh consumption and actual amount expended is shown below for low-income elderly and total population average:

	Low-Income Elderly	Total Population
kwh	386	653
amount	\$12.47	\$20.89

¹⁷73.8% in 1970.

Based on these figures, at least, the Optional rate would appear to be benefitting those for whom the rate was intended. With the break-even point at approximately 550 kwh/month, low-income elderly can benefit from this rate. The average low-income elderly customer also is given additional incentive to conserve because even greater savings can be realized if consumption is kept below 300 kwh.

Additional information included in the study was:

Household Income Distribution (Total Sample)

<u>Group</u>	<u>Relative Frequency</u>
0 - \$3,000	47.3%
\$3,001 - \$6,000	39.2%
Over \$6,000	8.8%
Unreported	<u>4.7%</u>
Total	100.0%

Note: Per "1975 Michigan Economic and Population Statistics," Office of Economic Expansion, Michigan Department of Commerce--average Michigan per capita income = \$5,540 in 1973.

Targeting Effectiveness

It has been estimated by Commission sources that approximately 150,000 senior citizens are taking advantage of this rate. It is not known exactly what percentage of the eligible population this may be.

It is interesting to note, however, that the marketing approaches of Detroit Edison and Consumers Power differ slightly. Detroit Edison's bill insert is approximately 1/3 the size of Consumers Power. Detroit Ed's is a single

card that lists the eligibility requirements and the kwh charge for the optional rates. Consumers Power's bill insert is a three-fold which lists eligibility requirements, several questions and answers to help customers decide whether or not they would benefit from the rate, a comparison of bills under the optional rate and the regular rate, and a tear-off application form.

Administration of the program has not appeared to be a problem: (1) there are no certification problems, all a customer needs to do is mail in the application; and (2) there is such a sharp rise in the per kwh charge above 500 kwh/month, that the program is self-policing.

Benefit Levels

The following tables represent potential savings and penalties under the optional rate for both utility companies involved.

Reductions in electricity costs can amount to over \$4.00 per month for a savings of 28% or 29% over the regular residential rate. To an individual who has been spending an average of 13% of his annual income of \$3,400 for utilities this could be considered a meaningful reduction.

Revenue Recovery

The revenue loss resulting from the Senior Citizens Optional Rate is recovered from all other residential customers. For Detroit Edison customers the Commission added .017¢/kwh; for Consumers Power, .01¢/kwh. This does not seem to be a significant increase and, as noted by the Commission when these rates were implemented, few people probably even noticed the difference.

TABLE XXXIII

CONSUMERS POWER
(All charges include \$2.65 service charge)

Monthly Usage (kwh)	With Optional Senior Citizens Rate				Rate A	Rate A
	Senior Citizens Rate	Rate A (Regular Residential)	Difference		Without Senior Citizens Rate	Difference
			Amount	Percentage		
300	\$10.45	\$14.53	-\$ 4.08	-28.1	\$14.50	\$.03
500	21.35	22.45	- 1.10	- 4.9	22.40	.05
550	24.70	24.63	+ .07	+ .3	24.58	.05
1000	54.85	44.25	+ 10.60	+24.0	44.15	.10

Source: Opinion and Order, Case No. U-5331, issued and effective July 31, 1978.

TABLE XXXIV

DETROIT EDISON

(All charges include \$2.65 per month service charge)

Monthly Usage (kwh)	With Optional Senior Citizen Rate					Rate D1 Difference w/ & w/o Sr. Cit.
	Senior Citizens Rate	Rate D1 (Regular Residential)	Difference		Rate D1 w/o Sr. Cit.	
			Amount	Percentage		
300	\$10.90	\$15.40	-\$ 4.50	-29.2	\$15.35	\$.05
500	22.40	23.90	- 1.50	- 6.3	23.82	.08
550	26.28	26.23	+ .05	+ 0.2	26.13	.10
1000	61.15	47.15	+ 14.00	+29.7	46.98	.17

Source: Michigan PSC Opinion and Order, Case No. U-5503, p. 67; issued and effective, June 28, 1978.

It is suspected that the exact effect of this Optional Rate and the chosen method of revenue recovery will not be known until such time as one, or both, of the participating utility companies files for a rate increase. Only then will it be known with any certainty as to whether or not revenue requirements were, in fact, met.

Efficiency/Conservation

A relatively significant effect of this rate seems to have occurred in the area of demand.¹⁸ According to testimony presented in a Detroit Edison rate case in April of 1979, growth in the tail blocks of consumption has been lowered.

Arguing against inverted rates as a conservation incentive, a Detroit Edison witness¹⁹ stated that "growth in consumption is taking place in the lowest kwh block, the block where the charge is the lowest."

PSC staff witness Bhatia, expanding on the same information made the following point:

Staff agrees that a primary purpose of inverted rates was to encourage conservation and thereby reduce the customers electric bills both current and in the future. The staff is satisfied that inverted rates have stimulated conservation. The average use of domestic customers has remained constant in recent years as opposed to growth experienced in prior years . . . the average

¹⁸Probably contributing to this impact is the inverted block rate for all residential customers; nonetheless, the principle is basically the same.

¹⁹Viinikainen, from Bhatia's direct testimony, U-6006, p. 5.

use between 1975-1978²⁰ has remained around 5700 kwh per year. The Applicant's claim that growth in tail blocks has been lower further proves the case for inverted rates as a conservation incentive. Analysis of growth at consumption levels performed . . . in 1974 had clearly indicated a much faster growth in tail block than experienced in recent years. . . . While it is true that other factors have influenced the consumption behavior, in my opinion, the influence of inverted rate structure should not be minimized.²¹

Exact administrative costs for this optional rate were not available as a separate item from either company. It may be assumed, however, that costs are minimal and that the implementation of the rate has been absorbed by the companies simply as administration of another rate schedule.

Equity

As mentioned earlier, no exact figures are available to indicate the total population that might benefit from this rate. There are several considerations, however.

1. The rate is specifically targeted to heads of households 65 years of age or older. Although no age verification is apparent, customers provide their signature to verify eligibility on the application forms.
2. Since the break-even point for the optional rate is 550 kwh/month, only customers who use less than this amount can benefit. Even if a customer with higher usage did apply for the rate, chances are they would not remain on the rate beyond the initial twelve-month period due to the penalties imposed by the higher kwh charge.
3. Given the consumption profiles of the low-income elderly discussed earlier, these customers appear to be in a position to benefit from this program. With the break-even point at 550 kwh and average consumption of approximately 386 kwh for this subclass, they could clearly benefit.

²⁰ Inverted rates were implemented in 1976.

²¹ Bhatia, Case U-6006, direct testimony, pp. 5, 6.

Given these items of consideration, it would seem as though a tightly designed, self-policing rate such as this would be relatively successful in limiting participation to those for whom it was considered.

Assessing the magnitude of the relief provided by any lifeline rate or rate break is not easy. As far as potential savings under this particular rate, they appear to be about average, and the strong point of the program may well be its self-policing administration.

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NARRAGANSETT ELECTRIC CO. A-65 SSI RATE

Program Summary

Narragansett Electric Company's A-65 SSI schedule was designed to provide a discount of approximately 30% for low-income, elderly customers in the company's service area. Revenue is recovered from all residential usage not offered at the discount rate.

As originally designed, service under this rate was available for all domestic purposes in an individual private dwelling or an individual apartment, providing the customer met the following criteria:

1. Must be 65 years of age or older;
2. Must be head of household or principal wage earner;
3. Must be presently receiving Supplementary Security Income from the Social Security Administration.

As of December 30, 1979, the age criteria was deleted, expanding the eligible population by over 100%.

The customer assumes responsibility to annually certify eligibility by use of forms provided by the company.

Verification is handled by the local Social Security Office.

The company is required to provide quarterly reports to the Rhode Island Public Utilities Commission concerning the following:

1. Administrative costs incurred;
2. Number of customers applying;
3. A-65 revenue effects;
4. Domestic rate customer statistics;
5. Monthly billing information, i.e., actual usage, amount due, date of reading, etc.

To advertise the availability of the A-65 rate, an insert was included with all bills mailed for a one-month period, and ads were placed in newspapers throughout Narragansett's service area. Later, letters were sent to all qualified SSI recipients, and various senior citizen groups, community programs, and banks were called upon to assist in disseminating information.

The reduced A-65 rate is compared to the company's regular domestic rates (A-10) in Figures 18 and 19. The regular residential rate is a five-step declining block rate. The A-65 rate is a two-unit, three-step declining block rate. The first three-step unit extends to 375 kwh/month with a 2.3¢/kwh increase to the second three-step unit. The difference between the regular residential rates and the A-65 rate ranges from 2¢ to 3¢ per kwh, approximately. The second three-step unit, from 376 to 2000 kwh, is approximately .25¢/kwh higher than regular residential rates with only a minimal difference in rates for consumption in excess of 2000 kwh per month.

FIGURE 18 NARRAGANSETT ELECTRIC POWER COMPANY

November — June
 — Regular Rates (A-10)
 A-65

\$2.04 service charge includes 20 KWH/month
 \$2.10 service charge includes 20 KWH/month

FIGURE 19
NARRAGANSETT ELECTRIC POWER COMPANY

The A-65 rate includes a service charge of \$2.10 which includes the first 20 kwh/month and the same number of kilowatt hours are included in the \$2.04 service charge of regular residential rates. Both rate schedules are subject to fuel adjustment costs.

Issue Development

The history of the lifeline issue in Rhode Island is complex and varied. This particular program was initiated by the company in response to a standing request by the Rhode Island Public Utility Commission (RIPUC) for innovative rate proposals.

Previous Lifeline Attempts

RIPUC has been exploring alternative pricing schemes since the mid 1970's. During a 1976 rate relief case involving the Blackstone Valley Electric Company, the Commission ordered that the first 300 kwh/month of residential usage be exempted from any increase. This first block was to remain frozen for an indefinite, experimental time period while a more complete restructuring of rates was investigated (Docket No. 1184-85, February 18, 1976).

The freeze was continued by the Commission on September 1, 1976 (Docket No. 1232) and again on February 17, 1978 (Docket No. 1239). It was disallowed by the Supreme Court of Rhode Island on January 5, 1979: the issue of discount rates was remanded to the PUC for further investigation. This rate freeze, and the Supreme Court decision, is

discussed in greater depth in a separate case study of rejected Rhode Island lifeline legislation.¹

Activity in the legislature aimed at the establishment of discount lifeline programs has also been an ongoing effort. The Rhode Island General Laws were amended in 1977 to allow any public utility to offer "free or reduced rate service to any elderly person as defined by the Division" (Sections 39.2-2, -3, -5), and numerous proposals have been submitted to the legislature. The intent of these bills has been to extend reduced rate programs to disabled and low-income consumers. To date, these proposals have not been successful. A more detailed analysis is presented, as previously mentioned, in the companion Rhode Island Lifeline case study.

Subsequent Lifeline Attempts

Currently before the Commission are several rate design cases involving the flattening or inversion of residential rates. Three ongoing Newport Electric cases were begun in 1978 and were consolidated into one (generic) rate design case in 1979. Economic arguments were made for inverting the rate structure of the residential class. The most recent information available is that the Commission has ordered Newport to submit residential rate schedules that reflect a two-block inverted structure with a .9¢ differential between the first (0-300 kwh) block and the second (301-over) block. The company must also project revenue deficiencies, which will be used to help determine the method of recovery.

¹A brief description of these legislative attempts is, however, presented here as pertinent background information.

The Blackstone Valley Electric Company rate case now being heard before the PUC has produced intervenor arguments for a general flattening of that utility's residential rates. Economic theories that correlate low usage and high load factors are the basic argument for inverting or flattening rate structures in these rate hearings. A decision has not yet been reached in the Blackstone Valley case.

Finally, Narragansett filed for a general rate increase on November 30, 1979. The request includes permission to eliminate the age requirement for the SSI rate, making it available to all Narragansett electric customers who are receiving Supplemental Security Income benefits.

Legislative Lifeline Attempts

Several lifeline legislative proposals have been submitted for consideration by the 1980 General Assembly. Included are the resubmission of 1979 lifeline bills, as well as some new proposals. These are aimed at extending the authority of the Public Utilities Commission to allow it to exempt low-income elderly consumers from utility rate increases beyond rate levels in effect at the time of passage.

Other Assistance Programs

Federal weatherization and energy assistance programs are in operation under the administration of the state's Energy Office. In addition to these federal programs, the legislature has appointed a Special Joint Committee to study the feasibility of establishing an energy stamp program.² Findings and conclusions of the committee

²General Resolution 59, January, 1979.

are to be presented to the General Assembly by the end of the 1980 session in May (the time period was extended from a previous deadline of March 7, 1980).

Additional considerations of benefit to the elderly include "a strong and comprehensive program for seniors" (as described by the Assistant Director) coordinated under the state's Department of Elderly Affairs.

Major actors in this discussion of lifeline activities in Rhode Island are: the Coalition for Consumers Justice and the Narragansett Electric Company which proposed this discount program. To a lesser degree, certain segments of the business community through their Chambers of Commerce have opposed the establishment of discount or frozen rates in general, although they do not appear to have actively opposed Narragansett's SSI program. The response to the SSI program from the community has not been a strong one either. This can be contrasted to quite a strong community response to the issue of lifeline in general as discussed in the companion Rhode Island case study.

Major events in the establishment of this program began with public hearings held by the Commission in late 1977 and early 1978. Consumers of "all walks of life testified to the difficulties experienced in meeting the ever-increasing costs for the necessities of life including utilities."³ This testimony seemed to provide support for the PUC's long-standing commitment to explore alternative pricing schemes. An opportunity to pursue this commitment was provided by the Narragansett SSI proposal, offered by

³In its Order dated April 10, 1978.

the company during rate hearings in the spring of 1978. The Commission approved of Narragansett's proposal and ordered its implementation in Docket No. 1288.

The Governmental Process

Institutions involved are the Public Utility Commission, which approved and monitors the rate, and the Social Security Administration which verifies the eligibility of clients for the rate. These two governmental branches worked with the company to implement the program.

Targeting

Eligibility was targeted to that segment of the elderly population described by James Walsh, State SSI Relations Officer as "the poorest of the poor." The Commission has been "mindful of the plight . . . of low income and elderly citizens in meeting the spiraling costs of inflation . . . dramatized by the testimony of witnesses at special sessions where the public was given the opportunity to testify." PUC noted that the legislature had specifically provided for a rate of this type in 1977 when it amended the General Law to allow free service or service at a reduced rate for the elderly. As of April, 1978, no other utility had come forward with any such proposal. The Commission declared itself satisfied that eligibility criteria could be meaningfully determined if the discount program was targeted to elderly SSI recipients. The SSI requirement was praised

for "uniqueness . . . in the fact that only those with identifiable needs would benefit under the rate."

Intervenor Coalition for Consumer Justice (CCJ) had argued during the hearings that the proposal, with eligibility limited to SSI recipients, would not be broad enough to be meaningful. The Coalition proposed that the Commission should instead exempt all small-use residential customers from the proposed rate increase. The company responded that CCJ's proposal would benefit many persons who are not in need.⁴

Rate and Revenue

The rate was designed to provide a discount of approximately 30% to eligible consumers. As of the writing of this case study,⁵ Narragansett has proposed deleting the age requirement altogether, and in anticipation of PUC approval, has begun administration of the program under the new eligibility requirement.

The company proposed, and the Commission agreed, that deficits in revenue be made up by a surcharge on residential usage that exceeded the discounted amount of electricity.⁶ Surcharge estimates were based on company projections of SSI recipients. Original estimates of 8,200 were cut to approximately 4,000 following the testimony of SSI Officer James Walsh.

⁴Note that actual testimony taken from the hearings has been unavailable to this case study.

⁵April, 1980.

⁶A surcharge was placed on all non-participating residential customers. SSI participants using in excess of 375 kwh/month are also assessed the surcharge.

Administration

Administration of the program was to be handled by the utility company with certification provided by the local Office of Social Security. At the Commission hearings Mr. Walsh made a number of recommendations concerning administrative aspects of the program. He stated that the utility should deal with the state government rather than the Social Security Administration since the government has access to the same statistical information necessary for certifying eligibility. He also recommended that handbills not be included in residential monthly bills because they would only lead to confusion and complaints.⁷ His offer to design inserts, if chosen as a marketing device, was also declined by the company.

Authorization forms were designed by the company. These allow the Social Security Administration to verify that SSI payments are, in fact, being made to an applicant. Such verification is necessary to insure that only those who are eligible for the rate benefit from the rate. Without authorization forms, Narragansett would be barred by privacy laws from securing this information, and adequate eligibility verification would be virtually impossible.

Monitoring of the program has taken the form of Quarterly Reports which contain participation data furnished by Narragansett, along with a narrative detailing occurrences during the quarter. The Commission, when it established the rate, expressed an interest in the

data which can be gathered during the experiment that can be particularly helpful in the Commission's overall

⁷These problems did, in fact, occur and are discussed in greater detail later in this case study.

approach to rate restructuring. We believe that it will be especially useful to learn of the numbers of people who actually will receive benefits under this tariff and to study the administrative aspects of implementing a program of this nature.

A formal evaluation of the program has not yet appeared, but may await termination of the program.

Administrative problems have been cited by Narragansett and by the Commission. In the first Quarterly Report the company stated:

Most of the transactions with our customers were through the mail. With the exception of the added workload in the department, the operations went smoothly. We did, however, receive many phone calls from elderly people complaining that they should be permitted to take advantage of the A-65 rate, even though they did not meet all of the requirements.

The Commission also reported receiving a large number of complaints concerning customer ineligibility and the protracted certification periods. Complaints would appear to have been expected from a program of this nature and do not seem to have posed a major obstacle to program operation. A Narragansett spokesman has verified this assumption. He cited the preparation of the detailed Quarterly Reports as "being a bigger hassle" than administration of the program.

Certification lag time, though apparently unavoidable due to the Privacy Act, caused a start-up delay of several months. Customers were not actually put on the rate until September, 1978 although the company had hoped to begin the previous July. Credit was given retroactive to April for all applicants who qualified during the first and second quarters. The task of reviewing and calculating these necessary adjustments also proved to be very time consuming, reported Narragansett.

It was expected that all qualified customers would be on the rate by November 30, 1978, but this did not occur, either. Although every Quarterly Report shows attempts to expand publicity efforts and to sharpen the focus of these efforts, the acceptance rate continued to be disappointing. An initial campaign "blitz"⁸ resulted in 8,294 applications for the first quarter and represented almost half of the company's first quarter administrative costs.⁹ Subsequent reports (through September 30, 1979) show a steady decline in applications received. Of a total of 8,575 applications, only 929 were on the rate as of the last available reporting period.

The recent expansion of the target group to include all SSI recipients regardless of age presents an opportunity for the reassessment of certain administrative functions. For example, marketing techniques may need to be altered to reach disabled SSI recipients.

It is hoped, by both the Commission and Narragansett Electric, that a significant increase in participants will be realized.

⁸As it was described by a PUC staff member.

⁹\$6,548 out of a total of \$12,130.

Impact

The intended beneficiaries of the Narragansett discount rate program consist of elderly low-income and low-income disabled customers; that is, those residential electric customers currently receiving Supplemental Security benefits from the Social Security Administration.

In the service area of the Narragansett Electric Company, the population of potentially eligible elderly electricity consumers was originally estimated to be 8,200. This projection was made by the company during Commission hearings held in the spring, 1978. Information was not readily available regarding the basis for this estimate; however, following the testimony of James Walsh, regional SSI officer, the estimate was reduced to 4,000 potential applicants.

In 1979, a total of 15,123 persons received SSI benefits in the state of Rhode Island. Of this total, 6,088 were elderly SSI recipients. According to SSI spokesman Walsh, these SSI figures were only slightly less for 1978, the year in which the program was proposed.

No estimates were available concerning the number of disabled SSI recipients in the state.

The total population of Rhode Island appears to have the following demographic characteristics.¹⁰

	As Percent of Total Population (950,000)	Approximate Number in Service Area (Population 654,000*)
Elderly	12.2%	79,788
Low-Income	8.7%	56,898
All SSI	1.6%	10,464
Elderly SSI	.6%	3,924

*Source: Moody's Public Utility Manual, 1976.

Note that these simple calculations produce an approximate figure of 3,924 elderly SSI recipients as residing in the company's service territory, closely approximating the estimate of 4,000 presented by Mr. Walsh.

The population of the state and that of the service area is predominantly urban. Much of the target population is thought to be concentrated around the Providence area and in small towns along the Atlantic coast.

Information is not readily available as to the percentage of the target population which lives in master-

¹⁰Source: Unless otherwise stated, all figures are taken from U.S. Census statistics.

metered dwellings, and to whom the benefits of the discount were not available.

The "A-65" (SSI) rate schedule does state, however: "The company may under unusual circumstances permit more than one set of living quarters to be served through one meter under this rate" [Emphasis added].

There appears to be no evidence to the effect that any master-metered customers have ever been on this rate, and a company spokesman was unable to explain what might constitute "unusual circumstances."

An additional qualification to the estimate of eligible participants is a result of living arrangements. According to spokesmen from the regional SSI office and the State Department of Elderly Affairs, many of Rhode Island's elderly poor live with younger relatives. Such living arrangements, necessitated as much by income as by tradition, would not permit these households to benefit from the program since participation in the program is restricted, among other things, to heads of households.

Need Assessment

Statistics showing the energy consumption of the target population are not readily available. This group, however, as low-income consumers living in a cold climate are estimated to spend as much as 40% of their disposable income for home heating.¹¹ This "energy burden" is the result of poor housing stock and a general reliance on imported fuel oil as the primary home-heating source.

¹¹Source: New England Energy Congress Report.

Based on Narragansett's Quarterly Report data, the target population appears to be limiting consumption to under 400 kwh per month. At 400 kwh the monthly electric bill of a Narragansett residential customer would be approximately \$25.¹² An average winter fuel oil bill, however, is estimated by the New England Energy Congress to be \$1,100 for the five-month heating season. Therefore, it is possible that members of the target group may spend as much as \$1,225 for electricity and fuel oil during the heating season. This represents approximately 43% of the \$2,880 Supplemental Security annual maximum benefits.

Since it appears that the target group is limiting consumption to under 400 kwh/month, the discounted block from 21-375 kwh would seem to satisfy the consumption needs of many of these low-income consumers. If such a household's income were limited to only the \$240/month SSI benefits, this family would spend approximately 10.5% of their disposable income for electricity, and far more for home heating oil. Of this typical low consumption electric bill of \$25, 10% of that bill is the service charge.

This program, then, was originally implemented to help approximately 4,000 low-income elderly persons who have been repeatedly called "the poorest of the poor."

Targeting Effectiveness

Less than 1% of Narragansetts' residential customers are eligible to receive electricity under the terms of this discount rate. Removing the age restriction increases the actual number of SSI recipients statewide from 6,088 to

¹²Source: Domestic Rate A-10, RIPUC No. 500 (rates effective November 1, 1979).

15,123; this is still under 2.5% of Narragansett's residential customers.

As of the last reporting period¹³ 1,270 customers were actually on the rate, or approximately 31% of the eligible target group. Aside from participation problems resulting from master-metered situations, there may be other causes which account for the low participation rate. The complicated process necessary to certify applicants without infringing on their rights under the Privacy Act has caused a certification time lag. Each applicant must complete and mail an application form and, later, an authorization form. Both company and Social Security verification is necessary before the customer benefits from the rate. The entire application process, although possibly unavoidable, may take weeks to complete.

The company has steadily expanded its marketing efforts of the program, aimed at extending the availability of application forms. Despite these attempts, after the initial flood of applications, the number of applicants has drastically dropped, as the following table shows. During the third quarter of 1979 the company reported that letters explaining the program had been sent to the 3,565 SSI recipients who had not yet applied. It is important to note that, on the average, more than 50% of applications received are disqualified by the company during this first step in the verification process. It would appear that problems may exist with the application form itself or possibly, with application instructions.

¹³Third quarter, 1979.

TABLE XXXV

SUMMARY OF APPLICATION INFORMATION FOR
NARRAGANSETT ELECTRIC COMPANY A-65 SSI RATE

Reporting Period	Applications Received	Applications Rejected	Applications Forwarded to SS
4- 6/78	8,294	5,511	2,783
7- 9/78	72	--	108*
10-12/78	70	--	102*
1- 3/79	50	29	21
4- 6/79	33	18	15
7- 9/79	56	35	21

*Includes applications received the previous reporting period.

1980 data describing the response rate of those applicants under 65 years old may indicate whether or not certain participation problems are endemic to targeted income programs regardless of age factors..

Calculation of Benefit Levels.

The amount saved by customers on the rate was projected¹⁴ to be approximately \$5.75 per month. After the rate had actually gone into effect, the Providence Journal reported: "Qualified persons could save one-third or as much as \$9.00 on their monthly household electricity bills in comparison to what they would pay on the regular residential rate."

A simple comparison of typical bills using the regular residential (A-10) rates and the lifeline (A-65)

¹⁴By the company during the Commission hearings.

rates is presented below.

TABLE XXXVI
COMPARISON OF REGULAR (A-10) AND
LIFELINE (A-65) RATES

Monthly Usage	Monthly Bill*		Lifeline Savings	
	A-65	A-10	Amount	Percent
200 kwh	\$ 8.83	\$ 13.81	\$4.98	36.0%
375 kwh	14.25	23.26	9.01	38.7%
600 kwh	26.40	35.41	9.01	25.4%
1000 kwh	50.40	54.61	4.21	7.7%
1500 kwh	74.40	78.61	4.21	5.3%
2000 kwh	95.40	102.61	7.21	7.0%

*Based on November-June winter rates and including \$2.20 service charge.

According to these calculations, the maximum amount that can be saved by a low-income consumer is approximately \$9.01 per month. This savings is available to participants who limit their usage to 375 kwh monthly. This represents a 38.7% savings and is certainly a significant reduction. However, viewed in the light of a \$240 monthly income, the savings of \$9.01 equals only 3.75% of disposable income for SSI recipients. And of course participants who use more than 375 kwh/month, such as electric space heating customers, realize a lesser percentage of savings.¹⁵

¹⁵A participant consuming 1500 kwh only saves 5.3% of his regular bill.

Revenue Recovery

Shortfall is recovered from all residential customers not on the SSI rate and from all SSI customers for their usage over 375 kwh.¹⁶ At the PUC hearings, the company estimated that a typical monthly surcharge per residential customer would be 12¢. The estimate was based on an average shortfall amount¹⁷ divided on a per kwh basis among the remainder of the residential class.

From actual information provided by the Quarterly Reports the average monthly surcharge for A-10 customers is 10¢ per month. This lower-than-anticipated charge may be a reflection of the lower-than-anticipated A-65 participation rate. With an approximate 31% participation rate, the shortfall becomes correspondingly smaller than anticipated: this (smaller) amount is divided among the same number of subsidizers as the (larger) projected shortfall would have been. Obviously then, the surcharge would be less than originally projected.

Revenue Effects on Subsidizers

The per kwh surcharge of approximately \$.0002 does not appear to represent a significant distortion in pricing for the residential ratepayer.

¹⁶See Figures 18 and 19 for graphic rate comparisons.

¹⁷Number of eligible SSI customers times typical electric bill, using the proposed discount rate.

Industrial and commercial customers are not specifically impacted by this discount rate: subsidization is limited to the residential class. The lack of direct financial involvement by non-residential Narragansett customers may account for the fact that these classes do not seem to have taken an active stand concerning this discount lifeline program.¹⁸

There have been a sizable number of complaints and some confusion concerning the limited scope of the program's targeting, according to both the Providence Journal and company spokesmen.¹⁹ The majority of these complaints originate with low-income persons who are not eligible to participate or elderly SSI recipients who are not served by the company. There appears to have been little, if any, negative response from subsidizers to the surcharge itself, however.

Efficiency

The SSI discount rate has not been specifically based on marginal cost pricing. Rather, it represents an attempt by the company and the Commission to follow legislation which allows utilities to offer reduced rates to the elderly.²⁰ In an effort to ease "the plight of low-income

¹⁸This is not the case, however, concerning the concept of lifeline rates in general. Lifeline legislation and other experiments, such as Blackstone Valley Electric Company's rate freeze, were vehemently opposed by Chambers of Commerce and other business associations (see companion Rhode Island case study).

¹⁹The large proportion of rejected applications also speaks to an evident confusion among the target group regarding eligibility criteria.

²⁰Described in the Rhode Island Lifeline Legislation case study.

and elderly citizens in meeting spiraling costs," the Rhode Island PUC granted Narragansett the permission to offer this rate "on an experimental basis."²¹

The rate has not caused any appreciable alteration in the demand profile of the company. A utility spokesman explained that system demand will naturally not vary much when such a small sub-class is involved.²²

Administrative costs incurred by the utility range from an initial expenditure of \$12,130 to a quarterly low of \$400. According to a company official, administrative costs have not been a problem. The Social Security Administration has not submitted any cost calculations concerning this program: according to a spokesman, program verification has become "just a part of our job."

The following is a chronological listing of quarterly company administrative costs. Note that administrative costs tend to decrease with the decreasing number of applicants. However, administrative costs should not become a burden to the utility even if the participation rate increased significantly. This is because a large proportion of administrative costs are incurred from publicity and marketing efforts.²³ Therefore, as successful publicity causes an increase in the participation rate, marketing efforts can correspondingly decrease and publicity costs can be trimmed.

²¹RIPUC Docket Number 1288.

²²Small in number (1% of residential customers) and small in usage (averaging under 400 kwh/month).

²³The strongest example of this is the fact that approximately 60% of the initial administrative costs were directly related to publicity efforts.

Conservation

There does not appear to be any hard evidence to support the contention that lower rates lead to increased usage in the lifeline block. A comparison of monthly usage patterns of the target group has not been requested by the Rhode Island Commission nor presented by the company through the mechanism of the Quarterly Reports. Without previous usage data, such comparisons cannot be formulated.

Information is available that might permit speculation concerning the conservation efforts of the target group, however. A review of Narragansett Quarterly Report statistics show sizable differences in utility bills, and therefore in consumption between the average A-65 lifeline customer and the average A-10 regular residential customer. Based on this comparison of A-65 and A-10 electric bills, it does appear that the dollar differences between the average bills of these two groups of residential customers indicate a lower consumption pattern of the target group even when the discount is considered. What is not known is whether the target group is responding to this discount by increasing or decreasing their usage.

These low-income consumers, "the poorest of the poor," do apparently use less electricity than the average. Whether these, or any, low-income families are conserving by choice or by necessity is another question, and one that has not been addressed in the information that was available for this case study.

Equity

Approximately 31% of all those who are intended to receive the discount are actually benefitting from it. As previously noted, marketing and certification problems

account for some of this low participation rate and it is hoped that eliminating the age requirement will improve participation in the program.

This experimental rate is aimed at exploring some of the questions raised by the "ability to pay" criterion of equity as has been stated by both the Commission and the company.

The Rhode Island Commission "mindful of the plight of citizens . . . to meet the ever-increasing costs for the necessities of life including utilities" and doubtful "as to the wisdom and rationale supporting the existing declining block rate" has been experimenting with "a number of alternative pricing schemes."²⁴

The company, in a press release announcing the discontinuance of the age requirement, "Recognizing the effects of inflation on needy customers with fixed incomes," offers the reduced rate to help those "customers in special need."

Benefits average between \$5.00 and \$9.00 per month for usage within the 375 kwh lifeline block. Some savings, however, is realized by participants at any usage level. Maximum benefits represent a 38.7% savings over regular residential rates, but only account for 3.75% of a SSI monthly income of \$240.

Although the percentage of savings on each electric bill may be sizable in some respects, the subsidy costs are small, due to the fact that shortfall from the program is spread over almost 99% of the residential class. Non-lifeline

²⁴Source: RIPUC Docket Number 1288.

customers are actually charged \$.0002 per kwh, which increases the average residential electric bill by 10¢/month. The program, therefore, does not appear to have any substantial effects either on the subsidizing customers or on system costs.

In conclusion, while admittedly narrow in scope as it relates to both customers and savings, this rate experiment may provide the Commission with experience in the administrative complexities and pitfalls of a targeted rate and a clearer idea as to the income and usage effects of electric discounts on low-income people.

NORTHERN STATES POWER CO.

CONSERVATION RATE BREAK

Program Summary

Northern States Power Company's Conservation Rate Break was designed to encourage conservation and took the form of potential elimination of the monthly service charge. Revenue recovery was not a major issue during this rate case. The full requested increase was granted and only minor adjustments to the proposed rates were necessary: all residential rates were assessed an equal percentage of the additional increase necessary to recover anticipated losses.¹

The \$2.50 monthly service charge is waived for any residential customer² who uses less than 300 kwh/month, and half that amount (\$1.25) is waived for customers who use between 301 and 400 kwh/month. Customers who use more than 400 kwh/month are assessed the full \$2.50 monthly charge.

¹This was in addition to the originally requested increase.

²In an individually-metered dwelling.

Bill inserts were used to explain the rate break and a special message indicating that the Conservation Rate Break has been applied is printed on the customer's bill where appropriate.

Northern States Power has seasonal rate schedules and they are compared in Figure 20. The summer rate is a flat 4.21¢/kwh. The winter rate is a two-step declining block. The first step extends to 1000 kwh/month at a rate of 3.82¢/kwh, and usage in excess of 1000 kwh is billed at 2.26¢/kwh.

FIGURE 20
NORTHERN STATES POWER COMPANY
(Minnesota) Residential Rates

Issue Development

The emergence of lifeline as an issue in the state of Minnesota like in many other states, began in the mid 70's, not long after the '73 oil embargo. The major actors range from members of the Legislature to a senior citizens coalition and include various industrial representatives, the Public Service Commission, a Chamber of Commerce, and other state agencies. Events include attempts to legislate some form of lifeline rate, a chain of rate cases, and at least one State Supreme Court case. Some of the events impact directly on others, some do not. Few of the events, however, can stand alone nor can they be omitted from a discussion of the history of lifeline in the state of Minnesota.

In 1975 the PSC began to consider the concept of lifeline rates. A paper³ was noted by the PSC which discussed lifeline rates in general terms. As background, the author pointed to an 89.5% increase in fuel costs from July 1973 to July 1974⁴ and expressed the opinion that,

³"The Lifeline Rate Concept," Steven Mintz, Federal Energy Administration, Wash., D.C., Office of Consumer Affairs/Special Impact, 1975.

⁴Federal Power Commission, Statistics of Privately Owned Electric Utilities in the United States, Wash., D.C. (original source).

A promotional rate structure concept made some economic sense in the post-WWII period when there occurred long-delayed housing construction, large accumulations of personal savings built up during the war years, high employment, a baby boom, and an increase in the number of commercial and industrial establishments. However, the present situation is quite different. There is an urgent need to reconsider our patterns of growth and consumption. It is no longer reasonable to expect a utility rate structure to charge a small, low-income user 4.0¢ per kwh, a large, affluent user 3.0¢ per kwh, and an industrial user 2.0¢. A lifeline rate structure would seek to redress this situation. While it may not be the perfect solution, lifeline can help meet the immediate, short-run needs of consumers caught in the grip of spiraling prices, and offer a first step toward development of a more equitable rate structure.⁵

Several studies conducted in various parts of the country were cited with various results regarding income/usage correlation. Conclusions were also general: "Lifeline may not work for everyone in all places, but it should be tested. . . ."⁶

In 1977 the PSC ordered implementation of a lifeline rate for Minnesota Power and Light Company and based on "a healthy response and . . . good public effect," ordered its continuance in a 1979 rate case.⁷ Northern States Power Company was ordered to implement a Conservation Rate Break for residential customers in a 1978 rate case. This rate break is the subject of one of two case studies from Minnesota and is discussed in greater detail later in this case study.

⁵"The Lifeline Rate Concept," p. 4.

⁶Ibid., p. 27.

⁷Docket No. E-015/GR-78-514, Findings of Fact, Conclusions of Law and Order, April 9, 1979, p. 75.

Legislative efforts have ranged from a fact-finding hearing conducted by a Special Subcommittee on Utility Rate Structure to specific attempts to enact a lifeline block of 500 kwh per month with a general rate level formula. This latter attempt, House File No. 1243,⁸ is the subject of the second case study from Minnesota and is discussed at length in the companion Minnesota case study (see Volume 3).

Other nonrate programs and non-lifeline components of rate cases round out the energy (assistance) picture in Minnesota. They include, among others, seasonal rate differentials,⁹ extensive weatherization/conservation programs, and direct assistance programs. The legislative future of lifeline in this state is unclear; however, the PSC continues to be concerned with various forms of rate revision.

⁸Introduced April 6, 1977.

⁹Flat summer rate, two-step declining block winter rate.

The Governmental Process

On August 31, 1978, the Minnesota Public Service Commission (MPSC) issued an order requiring implementation of a Conservation Rate Break¹⁰ for Northern States Power Company's (NSP) residential customers. The rate break took the form of potential elimination of all or part of the monthly service charge, contingent on monthly consumption. The maximum savings possible was \$2.50 per month.

Two basic rate design issues were the focus of discussion in this case:¹¹

- The extent to which rates should be based on cost and the propriety of non-cost criteria; and,
- How costs should be defined, and measured.

A witness for the St. Paul Chamber of Commerce

¹⁰Docket No. E-002/GR-77-611.

¹¹The Commission did not confine its remarks to the record of this particular case. References were also made to a previous Minnesota Power & Light case (Docket No. E-015/GR-78-514) which also dealt with lifeline rates and a 1976 NSP case. Where appropriate, this case study also contains limited references to these other cases.

advocated strictly cost-based rates. He maintained that "any deviation from purely cost-based rates would result in misallocation of societal resources, and that cost-based rates would result in maximization of economic efficiency."¹² This position was supported by the MPSC staff, St. Regis Paper Company, the Minnesota Retail Federation, and Northern States Power Company. All three also advocated equalization of rates of return by class to eliminate subsidization. The Senior Federation and the Attorney General excepted.

Economists who testified on behalf of cost-based rates maintained that it would maximize efficient allocation of resources and that it was the "fairest" method of rate determination in that each class of customers paid their own full cost of service. The PSC felt that this theory was based on an unstated set of assumptions, none of which was true in the real world. The Commission attacked this theory and responded as follows:

It assumes, falsely, that "costs" can be defined, measured and allocated "correctly," or at least in a way which reasonable persons can agree upon as "correct."

It assumes, falsely, that the costs measured and allocated are the marginal costs, whereas the costs in evidence here, and typically used in rate regulation, are embedded or historic costs as to which the economic theory of efficiency maximization is applicable.

It assumes, again falsely, that "all other things are equal," in an ideal world where resources are equally distributed. It therefore does not deal with the harsh moral and political realities of a world in which some people will be unable to afford the essential services of life and others have such a superfluity of resources that no pricing signal can affect the profligacy of their use of those services.¹³

¹²Amended Order, Docket No. E-002/GR-77-61, p. 34.

¹³Ibid., p. 35.

The PSC went on to take issue with results of past cost-of-service studies conducted by NSP. The studies were consistent in that they all showed that the residential class did not pay its full cost of service, while the small commercial and industrial class was paying substantially more than the cost of its service. The studies were not consistent in that methodologies and theoretical bases differed. Although the studies reinforce each other in gross terms, the Commission felt they did not agree with sufficient specificity to warrant a "struggle toward the too idealistic precision of equalized rates of return by class." Rather, the Commission felt an obligation to the people of Minnesota: an obligation that could not be adequately met by theory alone. As further justification of this position, the Commission referred to a State Supreme Court Decision¹⁴ which upheld their authority to consider non-cost criteria in rate cases. It was clearly stated that the Commission did not support cost-of-service as the only consideration in rate cases and listed simplicity, stability, severity of billing impact and value of service as past and future non-cost considerations. This position was supported by the Minnesota Senior Federation and the Attorney General.

The PSC had recognized the importance of lifeline vis-a-vis conservation and expressed the hope that the next NSP case would address the issue. The additional participation of the Minnesota Energy Agency was specifically solicited at the same time.

Even though additional conservation information was requested, the PSC felt, at this point, that: ". . . the

¹⁴St. Paul Area Chamber of Commerce v. Public Service Commission.

rate structures finally adopted should communicate the desirability of conservation and should have a disincentive for the use of electricity beyond what is adequate to cover basic and essential quantities."¹⁵

Although the PSC strongly favored some form of rate break that also served as a conservation incentive, a final decision was difficult: an interim order was issued with no final decision. The Commission ordered, instead, that NSP submit four different proposals for consideration within 30 days. Some of the requirements to be satisfied included:

- The rate structure should be inverted for summer months;
- The structure for winter should be modified inverted rates;
- Lifeline block of 300 kwh, summer and winter;
- The rate should be no more than the system-wide average rate per kwh;
- Service charge was to be eliminated in at least two of the four proposals;
- Proposal was to include information on customer impact at various levels of usage.

Intervenors were also encouraged to submit proposals for the Commission's consideration.

It was clear that the Commission wanted to give adequate attention to their decision. They did not take their responsibility lightly nor did they delude themselves by thinking the final decision would be easy. The following excerpt from the Order demonstrates their concern:

¹⁵Docket No. E-002/GR-77-611, p. 36.

There is no question that lifeline is a blunt edged sword in attacking the utility problems faced by low income users. The Commission readily admits that it will favor some persons who do not need the favor and provide only modest assistance to others who need much more. However, the Commission believes that these infirmities are far outweighed by the overall benefits to the large number of needy persons who are able to conserve energy usage. The Commission is also convinced by the argument of the Attorney General that we have the power to order lifeline rates. We are not required to choose between issuing an order which reduces all evils or issuing no order at all. We believe that this type of economic reform may proceed one step at a time, addressing only the phase of the problem which seems most acute.

Besides the utility company, only the Senior Federation responded to the Commission's request to submit rate proposals. Even these proposals contained primarily the same arguments heard previously.

In its final order, the Commission refused to flatten rates, although this tendency was recognized as being logical and an eventual goal. It was felt that flattening rates at this point would be too drastic a change for residential space heating customers. The PSC, however, reaffirmed its intention to develop rates that would encourage conservation and turned its attention to the monthly service charge as had been suggested earlier by the Senior Federation and the Commission staff. This approach, however, was not without its problems either.

Electric utility bills for NSP customers had never before contained the monthly service charge as a separate item. Public acceptance of this billing form was questionable, at best. The Commission felt that, in some instances, the monthly service charge served as a disincentive for conservation and served the same purpose as promotional or

declining block rates, obscuring price signals associated with per kwh charges. Nonetheless, it was felt that the service charge could be presented in such a way that it could serve as a conservation incentive.

The Commission therefore ordered that bills for monthly usage of 300 kwh or less contain no service charge; bills for monthly usage of 301-400 kwh would contain a \$1.25 service charge; bills for monthly usage in excess of 400 kwh would contain a service charge of \$2.50. The PSC was satisfied that this was an "obvious reward for conservation and should attract considerable attention to the actual amounts of electricity being consumed by each customer."¹⁶ In order to emphasize this signal, the Commission ordered NSP to indicate on customers' bills that a Conservation Rate Break of \$2.50 or \$1.25 had been applied where appropriate. It was further ordered that Commission-approved bill inserts be mailed to customers explaining the rate break the first time that the break appeared on their bill.

The rate was implemented as an experiment and the Commission was clear in its intention to continually appraise and analyze the operation of the rate break.

As anticipated, implementation of the Conservation Rate Break was not without its problems: customers mistook the service charge as a new charge rather than clarification of a previously hidden charge. Eventually, however, this problem was resolved.

¹⁶Final Order, p. 5.

Impact

The intended beneficiaries of Northern States Power Company's Conservation Rate Break are all residential customers whose electric consumption can be held to 400 kwh per month or less.

NSP serves approximately 710,000 residential customers¹⁷ all of whom are potentially eligible for the rate break. No preliminary estimates were made for a participation rate, but a subsequent study has provided statistics on actual participation. The result of this study is discussed later in the section.

Although information germane to the NSP service area is not available, the state of Minnesota contains:

- Approximately 463,000 elderly;
- Approximately 32,823 Supplemental Security Income (SSI) recipients;
- Approximately 53,654 households that were required to expend 25% or more of their income for heating fuel during the winter months;

¹⁷Residential Electrical Use Study, Northern States Power Co., May, 1979, p. 45.

- Approximately 106,333 households that were required to expend 6% to 25% of their income for heating fuel during the winter months. (the average American household expends approximately 3% of its income on utilities).

The target population is essentially urban¹⁸ and is thought to be concentrated in the Minneapolis-St. Paul metropolitan area. NSP estimates that between 88,000 and 104,000 of their residential customers fall within the federal government's poverty guidelines.

No figures were available to indicate the percentage of total residential customers that were apartment dwellers or single-family residences. NSP estimates that 11% of their residential customers are apartment dwellers but this statistic represents only individually metered apartments. Master-metered apartments are not eligible for the rate break.

Need Assessment

Although preliminary assessments were not made, an extensive study of actual beneficiaries of the rate break was conducted. According to the NSP study "Conservation Rate Break Study," they exhibited the following characteristics:

52% Live in single-family homes
48% Live in apartments

42% Are 40 years old or less
42% Are over 61 years old

47% Consist of a one-person household
85% Consist of a household of two people or less

¹⁸ 66.4% as of 1970, U.S. Census Bureau.

46% Have no one home during the day
 33% Have only one person home during the day.
 52% Have a household income less than \$10,000
 28% Have a household income over \$15,000

They own fewer electrical appliances than other people--

	<u>Rate Break Customers</u>	<u>All NSP Customers</u>
Ranges	42%	59%
Refrigerator-Freezers	55%	75%
Freezers	22%	54%
Dishwashers	22%	47%
Water Heating	9%	19%
Color Televisions	69%	86%

Two Groups of Customers

A summary of the results of the study revealed that beneficiaries of the Conservation Rate Break belonged to two fairly distinct groups:

People 40 Years Old or Less (42% of the Respondents)

- who live in apartments (60% of the people 40 or less)
- equally divided between a one and two person household (39% and 40% of the people under 40, respectively)
- with annual household income of \$10,000 or more (72% of the people under 40)
- with fewer electrical appliances than average (in many ways, a function of living in an apartment)

People Over 61 Years Old (42% of the Respondents)

- who live in single family homes (65% of the people over 61)
- over half consist of a one person household, while one-third consists of a two person household (55% and 39% of the people over 61, respectively)
- most have people home during the day (57% have one person home, 32% have two persons home)
- the majority have annual household income under \$10,000 (81% of the people over 61)
- they also have fewer electrical appliances than the average NSP customer

These two groups account for 84% of the respondents. The middle group is equally split between single family dwellings and apartments, has income on the higher end of the scale, and generally consists of a one or two family household with no one home during the day. They also have a lower than average saturation of electric appliances.

In general, it appears that the people who benefit from the Conservation Rate Break are:

1. Apartment dwellers that work and have good income, but use less electricity because they live in apartments and are gone all the time.
2. Older people who live in single family dwellings, have relatively lower income, stay home during the day, but use less electricity because of less electrical appliances and lifestyles.

Targeting Effectiveness

In January of 1979,¹⁹ approximately 269,000 residential electric customers received Conservation Rate Break benefits. This number represents over 33% of the residential customers served by NSP.

¹⁹ Ordered to be implemented August, 1978.

After implementation of the rate break and early publicity, the program practically administers itself. If a customer maintains electricity consumption below 400 kwh per month, his bill is automatically credited with the appropriate amount. The program requires little marketing and no certification procedures.

Benefit Levels

Participation levels and characteristics exhibited by participants have been discussed earlier in this section but it should be emphasized that 42% of the beneficiaries are over 61 years of age and 52% have an annual household income of less than \$10,000.

Although this program is not targeted and is designed primarily to promote conservation, a substantial number of beneficiaries of this rate break are members of two of the groups that are usually considered to be in need of some assistance--the low income and the elderly.

The actual benefits provided by this program are, by many standards, not significant. A savings of \$2.50 per month can be realized if electric consumption is kept at or below 300 kwh per month: \$1.25 per month if consumption is between 301 and 400 kwh per month.

This may not appear to be a substantial savings, but as one senior citizen testified, "even two or three dollars is important to a person who is giving up meals to pay utility bills."

Revenue Recovery

Revenue recovery for this program was not a major issue. According to the final order for this rate case,

the full revenue increase as requested by NSP for the residential class was granted. The increase was to be realized by an approximately equal percentage increase to each kwh rate; therefore, the rate structure was not changed, additional subsidization was not imposed and the revenue burden was not shifted to high-use residential customers nor to another class of customers.

The full impact of this rate break, however, may not be felt until the next NSP rate case. At that time it may be discovered that revenue requirements have not been met, thereby prompting a request for a larger increase than anticipated, or filing for a rate increase earlier than had been expected.

Efficiency

Testimony presented during the rate case hearing dealt at length with cost of service. In theoretical terms, at least, rates that closely track the costs of service will promote the maximization of efficiency in the utility company's facility usage. As the PSC pointed out, however, opinions differed when it came to determining cost of service by marginal cost methods. The Commission consequently labeled marginal cost pricing a "dismal science," dropped the issue, and refused to drastically change the existing rate structure.

Conservation

Like the question of revenue recovery, no information is likely to be available regarding any actual demand shift, slowing of growth, or conservation effects of this rate until the next rate case. In all probability, the stage has already been set for the presentation of this information by NSP with their "Residential Electrical Use Study."

It should be pointed out, however, that conservation was the clear goal of the PSC in ordering the implementation of this rate break. The orders for this case are filled with references to conservation, and a concern for adequate price signals for customers was mentioned several times. This is underscored by the section of the final order that mandates the inclusion of information on a customer's bill that a "Conservation Rate Break" credit has been applied, where appropriate.

No information is available that would indicate whether or not these efforts have been successful.

Equity

Insofar as the explicit beneficiaries of this rate break are concerned, the rate is 100% equitable. Obviously, no one using more than 400 kwh per month benefits simply because of the construction of the program, and this was the primary intent of the Commission.

In response to the concerns of the Commission regarding the elderly and low-income consumers, the results are less than perfect but still significant. As previously mentioned, 42% of the beneficiaries are over 61 years old and 52% have a household income of less than \$10,000.

Other criteria of equity do not seem to be significantly affected: the existing rate structure was not altered, and the rate increase that was approved did not include imposition of any additional cross-subsidization.

The best measure of the significance of this program was expressed by the senior citizen who testified before the Commission, "even two or three dollars is important to a person who is giving up meals to pay utility bills."

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POTOMAC ELECTRIC POWER CO. RATE FREEZE

Program Summary

Beginning in 1973, the District of Columbia Public Service Commission (PSC) has ruled on a series of rate cases involving the Potomac Electric Power Company (Pepco). The results of these decisions have yielded a gradual change in the rate structure that is intended to benefit all residential customers in the District of Columbia (DC) portion of Pepco's service area. Revenue is recovered from all classes of customers on a uniform percentage basis.

These residential rates are only available to single-family dwellings and individually-metered multi-family dwellings.

The gradual change has been accomplished through rate "freezes" and a shift in revenue recovery to the tail block of the rate structure. Figures 21 and 22 trace the history of Pepco rates from 1973 to 1979.

The winter¹ rates have been changed from a five-step

¹Off-peak season for Pepco.

FIGURE 21
POTOMAC ELECTRIC POWER COMPANY
Pepco

FIGURE 22
POTOMAC ELECTRIC POWER COMPANY
November — May Residential Rates

declining block rate structure to a four-block structure that retains a three-step decline to 450 kwh. The last block is inverted.

The summer rate was originally a four-step rate with a three-step decline and the fourth step slightly inverted. The same basic structure has been retained but the kwh charge for the initial three blocks has been slightly lowered and the tail block has been substantially increased.

The overall trend has been a flattening of winter/off-peak rates and the first three blocks of summer/peak rates while the kwh charge in the tail block of the summer rate has been raised substantially.

Fuel adjustment costs are added to the D.C. Pepco rate and the service charge, which had been \$2.00 until it was raised to \$2.05 in 1979, includes the first 30 kwh/month.

Issue Development and the Governmental Process

The Potomac Electric Co. (Pepco) rate freeze was instituted in a 1973 rate case decision of the D.C. Public Service Commission. In that case, Pepco requested an increase for all blocks of power, but requested higher increases in the tail blocks of various rate schedules. Pepco also held that residential rates should be increased less than the rates for other classes of customers. The company based its requests on demand data from the various classes.

Major intervenors on the issue of rate structure included the General Services Administration (GSA), representing the federal government, and the Apartment House Council, representing apartment building owners in D.C. Both intervenors suggested the increase be spread across the board, on a uniform percentage basis, to all customer classes. The Apartment House Council testified that large disparities in rates of return between classes would be discriminatory.

The Commission was persuaded, however, by the arguments of Friendship House Association, a consumer group

representing low-income people. The association's spokesperson was economist Frederick Wells.

Wells suggested the PSC adopt an inverted residential rate structure, or at least, exempt the first 300 kwh/month from the requested rate increase. He based his suggestion on his research which compared load patterns of wealthy, high consumption areas in D.C. with those of poor, low consumption areas.

Because Pepco did not have usage data according to income, Wells selected 53 census tracts designated low-income in 1970, 1971 and 1972 and calculated average monthly kwh usage in those areas. He found that the ratio of monthly summer demand² to average monthly demand over the entire year was lowest in the D.C. low-income area.

Wells chose high-income tracts of similar densities in Montgomery County, Maryland, and in D.C., to contrast their summer usage with low-income tracts in D.C. He said that high-income summer usage was 55-67% higher than average monthly usage but low-income summer use was only 23% higher than the yearly average.

Friendship House was inferring, in its testimony, that an implicit targeting to low-income people would occur as a result of a freeze on an initial block of power. The group also recommended structural reform by way of inverted rates.

The PSC concurred with Friendship House that low-income users and residential consumers in general had not

²The average of June and July.

contributed to the need for new capacity. The decision (No. 5614) read, in part:

We must and do recognize that these classes of service [general service and high tension] account for some two-thirds of Pepco's total service in terms of volume and revenues, and account for all of Pepco's recent load growth in the District of Columbia. Residential usage has actually declined. . . . We believe we have an obligation to assist and encourage Pepco and its customers to avoid unnecessary use, without penalizing essential uses of electric energy [Emphasis added].

Consequently, the Commission exempted the first 400 kwh of power from the rate increase and ordered that the revenue requirement be shifted to residential usage in excess of 400 kwh/month and all other classes. Residential rates have since undergone a gradual inversion because of the increases on the tail block.

In the next Pepco rate increase request (No. 630), presented to the PSC in 1975, the Commission extended the freeze to 450 kwh: the 450 figure was said to be average residential use (based on Pepco data).

Commissioner William Stratton wrote a dissenting opinion in that case, noting that on October 30, 1975, the Commission presented unanimous testimony to the D.C. Council in opposition to a lifeline bill. Stratton termed the Pepco rate freeze "lifeline" and said a revenue loss of \$1.8 million would be borne by other classes.

Revenue loss is recovered from all other Pepco customers. Contacts at Pepco said the D.C. residential rate is not cost justified and, as such, the company has been opposed to the freeze. The GSA also opposes the freeze and has consistently urged the PSC to reduce disparities in rate

increases to various classes and grant the increases on a uniform percentage basis.³

The PSC may be softening its attitude toward the residential freeze: in 1979, it did grant a slight increase in the initial block, and said, in Order No. 7000, that other factors such as class peak demand, time of class peaks and sales volume must also be considered in rate design.

Other Considerations

The District of Columbia PSC receives its regulatory authority from the D.C. City Council. In July of 1975, Councilmember John Wilson introduced lifeline legislation to the Council (1-173) and it was referred to the Public Services and Consumer Affairs Committee, where it was defeated.

The bill called for "conservation estimates of the mean volume of gas and of electric power, consumed monthly (annual average) in the average dwelling unit in the District of Columbia." Estimates were to be made for space heating and cooling, cooking, and "any and all other services." Rates were to be no more than 75% of the average cost of supplying these volumes of gas and electricity and were to be applicable to every dwelling unit in the District of Columbia.

³It should be noted that Pepco is unusual in that it does not have any industrial customers.

Impact

The intended beneficiaries of the Potomac Electric rate freeze are small-use residential customers in the District of Columbia (implicitly, the freeze was intended to benefit low-income people). Pepco serves the entire population of D.C., about 696,100 (1978 estimate), and major portions of Montgomery and Prince George's Counties in Maryland, and a small portion of Arlington County in Virginia.

According to U.S. Census Bureau 1975 estimates, the population of the District of Columbia had the following demographic characteristics:

Elderly -	10.1%
Low-Income -	12.5%

Need Assessment

The implicit target group's (low-income people) consumption patterns are not specifically known, therefore it is difficult to make a statement regarding need assessment. The best available data on consumption are average usage figures and this data dates back to 1968. In 1974,

when the freeze was implemented, average residential consumption was 5,492 kwh per year or 458 kwh per month. This usage translated into a monthly bill of \$14.96 for the winter season in 1975.⁴ For a moderate income family earning \$15,000, this bill represents 1.2% of monthly income. For a low-income family of four (HEW poverty level), this bill represents 2.14% of monthly household income.

The same calculations can be made for 1978, after rates had been inverted. Average usage that year was 500 kwh per month--or a \$12.75 winter bill. This would constitute 1% per month of a \$15,000 annual income, and 1.8% of a poverty level monthly income. While electric bills do not represent a substantial part of moderate or low income, nevertheless they may be significant when considered in the context of total energy costs.

Targeting Effectiveness

If Pepco's rate freeze exemption was regarded as a means of helping the poor to afford basic utility services, this implicit targeting would succeed only if low-income people use small amounts of energy. However, usage by income level was not available for this study; only average residential usage is known.

Statistics provided by Pepco show the average usage has not exceeded 6,000 kwh per year (or 500 kwh per month) since 1974. Since benefits to residential customers extend beyond the frozen block of 450 kwh (because the initial reduction for that block is applied to all residential bills), it would appear that the average customer and many customers

⁴The service charge constitutes \$2.00, or 6.7% of this bill.

with above average usage are benefitting. Since "essential" usage is often defined or determined by average usage in many lifeline or inverted rate structures, it would also appear that a substantial portion of essential usage has been protected from rate increases; those who use only essential amounts of electricity are realizing benefits.

The rate freeze was not "marketed" nor advertised in any sense by the company.

Calculations of Benefit Levels

Studies of the benefits resulting from the rate freeze are not available. Calculations can be made, however, of changes in monthly bills over the years, based on the rates presented in Table XXXVII, below.

Monthly bills for various levels of usage are listed in Table XXXVIII.

It can be seen from Table XXXVIII that residential electric bills have changed very little since 1973. In fact, they have decreased up to a "break even" point--a point beyond which a customer cannot realize any more benefits from the initial reduction in the bill. In this case, for the entire period of 1973 through 1979, that break even point is 1000 kwh. Using base rates only, a customer would not pay more for a bill in 1980 than he or she would have paid for a bill in 1973 until 1000 kwh or more per month is used.

While the one- or two-dollar reduction in electricity bills resulting from the rate freeze may not appear to be a meaningful part of a residential customer's income, when it is considered that for six years, electricity costs

TABLE XXXVII

POTOMAC ELECTRIC POWER COMPANY RATE SCHEDULES--
1973, 1975, 1977 AND 1979

1973 Winter

Minimum charge including the first 30 kwh or fraction thereof of monthly consumption	\$2.00/mo.
Next 20 kwh	4.00¢/kwh
Next 150 kwh	2.88¢/kwh
Next 600 kwh	2.58¢/kwh
Next 600 kwh	1.8¢/kwh
Excess	1.55¢/kwh

1975 Winter

Minimum charge (1st 30 kwh)	\$2.00/mo.
Next 20 kwh	4.00¢/kwh
Next 150 kwh	2.88¢/kwh
Next 250 kwh	2.58¢/kwh
Consumption in excess of 450 kwh	2.41¢/kwh

1977 Winter

Minimum charge (1st 30 kwh)	\$2.00/mo.
Next 20 kwh	3.55¢/kwh
Next 150 kwh	2.38¢/kwh
Next 250 kwh	2.09¢/kwh
Consumption in excess of 450 kwh	2.50¢/kwh

Present Rates Winter (effective 1979)

Minimum charge (1st 30 kwh)	\$2.05/mo.
Next 20 kwh	3.67¢/kwh
Next 150 kwh	2.46¢/kwh
Next 250 kwh	2.17¢/kwh
Consumption in excess of 450 kwh	2.58¢/kwh

TABLE XXXVIII

MONTHLY BILLS*

KWH Use	1973	1975	Change	1977	Change	1979	Change
100	\$ 4.24	\$ 4.24	(-)	\$ 3.90	\$- .34	\$ 4.01	\$+.11
200	7.12	7.12	(-)	6.28	- .84	6.47	+.19
300	9.70	9.70	(-)	8.37	-1.33	8.64	+.27
400	12.28	12.28	(-)	10.46	-1.82	10.81	+.35
500	14.86	14.77	- 9¢	12.75	-2.02	13.18	+.43
600	17.44	17.18	-26¢	15.25	-1.93	15.76	+.51
700	20.02	19.59	-43¢	17.75	-1.84	18.34	+.59
800	22.60	22.00	-60¢	20.25	-1.75	20.92	+.67
900	24.40	24.41	+ 1¢	22.75	-1.66	23.50	+.75
1000	26.04	26.82	+78¢	25.25	-1.57	26.08	+.83

*Does not include fuel adjustment amounts.

have stayed the same or were reduced while the costs of other goods rose significantly, the benefits of the freeze may appear much greater.

Revenue Recovery

The revenue shortfall resulting from the Potomac Electric rate freeze was recovered from all classes of customers on a uniform percentage basis. Actual amounts of shortfall have not been determined and studies of the impact of revenue recovery are not available.

To get an idea of the rate increases to other classes since the rate freeze was implemented, Table XXXIX indicates rate changes since 1974.

TABLE XXXIX
POTOMAC ELECTRIC POWER CO. RATE CHANGE 1974 TO 1978

	Change 1974-1978
*D.C. non-exempted residential users	16.8% (.63¢ per kwh approx.)
General Service (D.C.)	44.0% (from 3.04¢ per kwh minimum average rate to 4.40¢ per kwh excluding service charge)

*Exempted block had no increases.

It is difficult to estimate how much of the disparity between increases in D.C. residential rates and all other rates was caused by the freeze.

For some indication of what the maximum impact of the rate freeze might have been, a comparison of rates for the District of Columbia and Maryland⁵ customers can be used. Table XXXX illustrates that while residential usage by D.C. residents has increased more than that of Maryland residents for the period between 1974 and 1978, increases in the average cost per kwh have been much higher for Maryland customers.

TABLE XXXX
COMPARISON OF AVERAGE USAGE AND PRICE PER KWH
FOR MARYLAND AND D.C.

	1974	1978	Average Increase
<u>Maryland¹</u>			
Average yearly residential usage	10,110 kwh	10,535 kwh	4.2%
Average cost/kwh	3.64¢	5.13¢	40.9%
<u>District of Columbia²</u>			
Average yearly residential usage	5,492 kwh	6,000 kwh	9.2%
Average cost/kwh	3.75¢	4.38¢	16.8%

¹No lifeline concepts used.

²First 450 kwh protected since 1975.

In considering these figures, it is important to remember that Maryland usage was still substantially higher than D.C.'s. One of the positions presented in Pepco rate cases in the early 1970's was that the need for an increase in plant capacity and capital investment was caused by the development of suburban Maryland. Thus, the fact that rate increases for D.C. customers were far less may have been in

⁵Parts of Maryland are also served by Pepco.

keeping with the D.C. Public Service Commission's contention that District of Columbia customers had not contributed to increase in demand.

Efficiency

Marginal cost was a factor in the ordering of the Potomac Electric rate freeze. This company may be unique in that residential sales are a relatively small part of its total revenue. The general service and high tension classes had, according to testimony, accounted for 2/3 of Pepco's total service in volume and revenues in 1972 and residential usage had declined. It seems that the evidence was fairly strong that the residential class had not contributed to the need for new capacity. Whether this evidence warranted a freeze on rates is a matter of opinion.

When the freeze was lifted in 1977, the Public Service Commission concluded that other classes had also decreased their demands on the system in relationship to the residential class.

In a less theoretical vein, there is no substantial evidence to suggest that the rate freeze has shifted peak demand or decreased demand. Like many other companies, Pepco's total demands have changed drastically since the Arab oil embargo of 1973. Prior to 1973, the company had an annual growth rate of 9%. Now it plans on a growth rate of approximately 3%.⁶ How much of this decrease is due to the rate increase exemption is almost impossible to tell.

In regard to shifts in peak demand, the charts presented in the Revenue Recovery section indicate that typical

⁶Pepco Annual Report, 1978.

residential use in D.C. is still under 500 kwh per month even in the hottest months of the year, when demand for electricity peaks.

The company reports no additional costs in administering the rate due to the freeze. Thus, utility efficiency does not appear to have been affected by the residential rate freeze.

Conservation

There is little evidence to suggest that the projected rate block for Pepco's residential customers has led to increased consumption. Average residential usage since 1973 has been:

<u>Year</u>	<u>Kwh per month</u>
1973	491.9
1974	457.6
1975	472.2
1976	482
1977	496.4
1978	500

Though there have been small increases in consumption since 1974, usage has remained, for the most part, approximately the same as the exempted block. Consumption remains low and appears to be inelastic to price.

Equity

The average residential customer and, indeed all residential customers with usage up to 1000 kwh per month have benefitted from Pepco's rate structure. Although they have not received a substantial reduction in their rates,

the rates have stayed the same while the costs of other goods have increased. Whether or not this particular form of lifeline significantly addresses the ability to pay criterion has to be considered with that in mind. If other residential rates throughout the country have increased from 30-50% in the last seven years while Pepco's rates have stayed the same, this would represent a saving of \$4-\$7 on a typical monthly bill. This may be significant to a welfare recipient but may not solve a substantial part of his or her need for energy cost assistance.

Price discrimination has been mentioned but has not been a source of great debate in the rate case hearings. No hard evidence has been produced to suggest that the good faith/reasonable expectation criterion of equity has been violated.

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