Re: AB 377

This is the supplemental information requested during the hearing February 22, 1979 relative to this bill.

The information was supplied to the committee members from the office of Mr. Branch of Sierra Pacific Power Company.

Sierra Pacific Power Company

February 23, 1979

To: Vince Laveaga

From: Bill Branch

Subject: Lifeline Rates

As requested by Assemblyman Horn during the course of yesterday's hearings relating to lifeline rates (A.B. 377), I am attaching copies of certain studies and other articles of information referred to in my testimony.

During the course of my testimony, I mentioned the study on lifeline consumption made by PG&E. That study was quite voluminous and was borrowed from PG&E and, unfortunately, returned to them. If the committee wishes, I can contact PG&E and get a copy.

Additionally, if there is anything else I can provide the committee, please let me know.

WCB

P. O. BOX 10100 / RENO, NEVADA 89510 / TELEPHONE 702/789-4011

December 15, 1976

To: John Nunn

From: Bill Branch

Subject: Lifeline Rates

I just received some information concerning lifeline rates which was developed by the National Association of Regulatory Commissioners (NARUC) following a survey of a number of state regulatory commissions. The attached extracts provide some interesting insights into the basic impacts of lifeline rates in the states of New York, Ohio, Oregon, Rhode Island, and West Virginia.

I suggest you retain this information in your lifeline rate file since I am certain we will be faced with this situation in Nevada some day.

WGB

NEW YORK

Summary of Testimony by Joe D. Pace on Lifeline Rates.

In testimony before the New York Commission, Joe D. Pace presented information on lifeline rates (Case No. 26806). He computed the effect of lifeline rates on residential bills with revenue recovery from all classes (Table JDP-3 of his testimony).

"For convenience, throughout the rate discussion, I will focus on data specific to the Long Island Lighting Company (LILCO). Data relating to the other New York utilities are summarized in Exhibit _____(JDP-3).

"The residential rates offered by LILCO as of August 1, 1975, and approved by the New York Public Service Commission resulted in an average charge of 5.67 cents per kilowatt-hour for kilowatt-hours billed at or below the 300 per month level. LILCO's average charge, therefore, was above the 300 kilowatt-hour illustrative lifeline rate level by 2.67 cents. In order to determine the impact on LILCO's revenues of reducing rates for all kilowatt-hours under 300 by this amount, one must know the number of kilowatt-hours the Company sells in this range. This can be determined by consulting the Company's bill frequency analysis which shows the total number of residential kilowatt-hours billed within specified consumption ranges. The bill frequency analysis for 1974 shows that LILCO sold 2.46 billion kilowatt-hours at the rate applicable to the first 300 Kwh of residential use per month. This constituted 47.4 percent of LILCO's total residential sales during this period and 21.6 percent of its total sales to ultimate customers.

"LILCO's lifeline revenue loss thus would come to $65,856,580 (2.46 billion kilowatt-hours x 2.67 cents per kilowatt-hour). To offset this, an additional charge of 0.74 cents per kilowatt-hour would be required on the approximately 8.93 billion kilowatt-hours sold to residential customers above the 300 kilowatt-hour a month level and to other retail customers.

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"A little mathematical exercise reveals that the breakeven point is approximately 1,350 kilowatt-hours--that is, a residential customer using less than this amount would experience a reduction in his electricity bill. The LILCO bill frequency analysis indicates that, in 1974, 96 percent of the residential bills were below the breakeven level, and these bills accounted for 79 percent of the kilowatt-hours sold to residential customers. In short, virtually all residential customers would see their bills reduced. Such a lifeline proposal merely would shift rate burdens from the residential class as a whole to the commercial, industrial and other classes."

Pace indicated that a lifeline rate with recovery drawn from all classes, would give most residential customers a benefit: "This results simply from the fact that only residential customers will benefit from the lifeline rate scheme, but other customer classes typically pick up between one-half and two-thirds of the tab for the program."

Pace investigated the incidence of a lifeline rate with revenue recovery from only the residential customer class (JDP-5). Under such a proposal customers using even modest amounts of electricity--such as 600 Kwh--could find their bills increased.

In order to determine what effects a basic lifeline plan might have on various income groups in New York State, Pace examined the 1970 Census data. "In general, the available evidence for New York State indeed does indicate that, for a number of reasons, a substantial segment of the poor would not be helped by a basic lifeline plan, while a significant number of more affluent customers would benefit." Factors which could result in the poor not benefiting from a lifeline rate included the following: electricity included in rent payments with landlord billed on a commercial schedule; substantial use of electricity (water heating, cooking, space heating, large family home occupancy).

"In sum, a lifeline rate focused only on small residential users of electricity in New York State will fail to reach the renting poor whose utility costs are included in their rent payments, those who pay their own electricity bills but have electric water heating and possibly as well those with large families living in single-family dwelling units. The Census data indicate that at least 25 percent of the poor fall into these categories and thus would be bypassed by a lifeline rate plan. In contrast, perhaps 30 percent of the affluent would be subsidized.

"Also, it should be stressed that a crucial defect of all lifeline rate proposals is that they are unable to provide any major assistance to those who heat with fuel oil. Yet it is precisely this group, into which 55.8 percent of the poor in New York State fall, that has been hardest hit by rising energy costs. Moreover, this is a problem that can be expected to worsen as time passes. The moratorium on attaching new gas customers which prevails throughout the State means that, regardless of income, anyone occupying a new dwelling unit will have to use fuel oil or electricity for space and water heating and electricity for cooking. Under a lifeline rate plan, then, such customers would be doubly discriminated against--in addition to having no access to existing relatively low-cost natural gas supplies, they are unlikely to have access to any lifeline rate savings."

Pace advocated the use of income tests rather than lifeline rates in cases where the policy goal is to relieve the electricity cost burdens borne by the poor. He suggested this could be done through the use of energy stamps. He noted the advantages of

energy stamps: low administration costs in conjunction with existing food stamp programs; benefits based on income rather than electric usage; use for fuel oil bills as well as electricity; and a potentially greater level of aid. He also noted the disadvantages: difficult funding; possible low rate of participation.

He examined the relationship between marginal cost pricing and lifeline rates.

"Turning then to the first cost argument for lifeline, the basic marginal cost line of reasoning is one with which I agree. Economic efficiency is best served by rates based on marginal cost and such rates should be considered for this reason. If marginal cost does exceed average revenue requirements, then economic theory does teach that rates should be reduced most below marginal cost where demand is least affected by rates. Since the customer charge level may have little effect on kilowatt-hour consumption, the elimination of the customer charge provides a logical and convenient way to reduce rates below marginal cost if necessary in order to comply with the revenue constraint. Something like a simple lifeline rate structure (perhaps a flat per kilowatt-hour charge with little or no customer charge) could result from the application of marginal cost pricing principles. Adopting the marginal cost approach then, given the right cost conditions, could offer a way to reduce the bills paid by low-use customers, encourage 'conservation' by higher use customers, and maintain the economic integrity of the rate structure.

"In all fairness, however, marginal cost pricing, which is justifiable on other grounds, cannot be viewed as either a universal or a perfect solution to the energy cost problems faced by the poor and the elderly. This is so for several reasons. First, it should be noted that the marginal cost approach offers potential relief to low-use customers only if marginal cost in fact exceeds average revenue requirements. This cost situation may not prevail for some companies. Second, if the customer charge acts as a revenue adjustment lever, small disagreements with regard to the true marginal cost level could yield dramatic swings in the rate burden borne by low-use customers. Third, obviously the marginal cost methodology must be applied to <u>all</u> rates and classes. To the extent that the residential class in general and small residential customers specifically have been undercharged in the past, they may be no better off after all marginal cost rate adjustments have been carried out. Finally, the marginal cost approach may not meet all of the objectives of the social ratemakers. In particular, the marginal cost approach may not be consistent with giving longer lifelines to customers using electric water or space heating. Thus, the low-income or elderly customers who are not low-use customers may face increased bills.

"In sum, it seems clear that the marginal cost approach, under some circumstances, does offer the potential for simultaneously rationalizing rate structures and meeting the lifeliners at least halfway. However, the degree an' stability of relief (if any) that might be expected are open to question in each case."

RATE EFFECTS ON LIFELINE DESIGN WITH REVENUE RECOVERY FROM ALL CLASSES

300 Kwh/3¢ Plan

	LILCO	Central Hudson	Con Ed	Niagara Mohawk	New York State Electric & Gas[1]	Orange and Rockland	Rochester Gas & Electric
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Present Average Revenue from Kwh Billed Below 300 Kwh Level (¢/Kwh)	5.67¢	6.21¢	8.67¢	4.50¢	3.94¢	7.23¢	4.66¢
Lifeline Rate (¢/Kwh)	3.00¢	3.00¢	3.00¢	3.00¢	3.00¢	3.00¢	3.00¢
Loss Per Kwh (¢/Kwh)	2.67¢	3.21¢	5.67¢	1.50¢	0.94¢	4.23¢	1.66¢
Total Lifeline Revenue Loss ($ Million)	$ 65.9	$ 16.0	$ 312.5	$ 49.4	$15.3	$ 15.1	$ 11.8
Required Surcharge (¢/Kwh)	0.74¢	0.62¢	1.18¢	0.26¢	0.22¢	1.08¢	0.33¢
Effect on Residential Bills:							
300 Kwh	$-7.71	$-8.75	$-15.57	$ -3.66	$-2.36	$ -11.87	$-4.52
500 Kwh	-6.24	-7.50	-13.21	-3.14	-1.93	-9.71	-3.86
750 Kwh	-4.40	-5.95	-10.26	-2.50	-1.38	-7.02	-3.04
1,000 Kwh	-2.55	-4.39	-7.31	-1.85	-0.83	-4.32	-2.22
1,500 Kwh	1.13	-1.27	-1.42	-0.56	0.26	1.06	-0.58
Breakeven Point (Kwh)	1,346	1,704	1,620	1,718	1,379	1,401	1,675
Percent of Bills Below Breakeven	93.0%	96.0%	99.2%	98.5%	92.2%	96.0%	97.2%
Average Increase in Nonresidential Rates	15.53%	16.41%	19.83%	13.40%	9.34%	29.15%	9.53%

[1]Preliminary.

[illegible] supplied by individual utilities.

RATE EFFECTS OF LIFELINE DESIGN WITH REVENUE RECOVERY FROM RESIDENTIAL CLASS

300 Kwh/3¢ Plan

	LILCO	Central Hudson	Con Ed	Niagara Mohawk	New York State Electric & Gas [1]	Orange and Rockland	Rochester Gas & Electric
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Present Average Revenue from Kwh Billed Below 300 Kwh Level (¢/Kwh)	5.67¢	6.21¢	8.67¢	4.50¢	3.94¢	7.23¢	4.66¢
Lifeline Rate (¢/Kwh)	3.00¢	3.00¢	3.00¢	3.00¢	3.00¢	3.00¢	3.00¢
Loss Per Kwh (¢/Kwh)	2.67¢	3.21¢	5.67¢	1.50¢	0.94¢	4.23¢	1.66¢
Total Lifeline Revenue Loss ($ Million)	$ 65.9	$ 16.0	$ 312.5	$ 49.4	$ 15.3	$ 15.1	$ 11.8
Required Surcharge (¢/Kwh)	2.41¢	2.44¢	13.69¢	1.35¢	0.95¢	4.18¢	1.69¢
Effect on Residential Bills:							
300 Kwh	$ -7.71	$ -8.75	$ -15.57	$ -3.66	$-2.36	$-11.87	$ -4.52
500 Kwh	-2.89	-3.86	11.80	-0.96	-0.47	-3.52	-1.15
750 Kwh	3.13	2.24	46.03	2.42	1.91	6.92	3.07
1,000 Kwh	9.16	8.35	80.25	5.79	4.28	17.36	7.29
1,500 Kwh	21.21	20.56	148.70	12.54	9.02	38.23	15.72
Breakeven Point (Kwh)	620	658	414	571	549	584	568
Percent of Bills Below Breakeven	65.4%	72.3%	82.0%	71.1%	68.8%	75.0%	70.9%

[1] Preliminary.

Source: Currently effective rate schedules and 1974 billing records supplied by individual utilities.

CENSUS DATA RELATING TO ELECTRICITY USE IN NEW YORK STATE

1970

	Long Island	New York City	Westchester & Rockland	Upstate	Total New York State
	(As a Percent of Total Sample)				
	(1)	(2)	(3)	(4)	(5)
Low-Income Families (Income Less Than $4,000)					
Electric Payments Included in Rent	9.1	18.9	17.5	15.3	17.0
Pay for Electricity and Use Electricity For:					
Water Heating	7.8	1.2	2.8	17.1	7.3
Cooking	22.1	1.4	6.7	24.2	11.0
Space Heating	1.8	0.8	1.4	1.7	1.2
Cooking Only	18.3	1.2	3.5	13.3	6.6
Live in Single-Family Home	70.7	6.4	22.4	45.8	24.8
Five or More Persons in Family	9.3	7.1	4.6	5.7	6.7
High-Income Families (Income Exceeding $20,000)					
Use No Major Electric Appliances[1]	44.6	81.1	67.9	31.3	59.3
Live in Multi-Family Home	4.9	60.9	14.8	5.5	29.4
One or Two Persons in Family	20.4	39.5	26.1	26.5	30.5

[1] Electricity not used for space heating, water heating or cooking.

Source: U.S. Bureau of the Census, Public Use Samples of Basic Records from the 1970 Census, computer tape.

OHIO

Summary of Information furnished by the Ohio Public Utilities Commission based on "Lifeline Rates and an Economically Justified Rate Structure" by S. Enkara and R. Wayland

"The concept of lifeline rates was originally developed by the Vermont Public Interest Research Group in 1973. Applied to electricity rates, lifeline would charge each residential customer a relatively low uniform rate per KWH for the first several hundred kilowatt-hours consumed monthly."

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"More specifically the proposed lifeline rate approaches are aimed towards offering two major social advantages: 1) Help the poor, by assuring that each household obtains the minimum amount of energy required for 'a decent standard of living.' 2) Promote conservation, by rewarding customers consuming small amounts of electricity and punishing large users.

"The Lifeline Rate Bill, as it is presently being presented in Ohio, would guarantee a minimum rate as follows:

"A. To the first 400 KWH of usage, for all residential customers other than total of electric dwellings.

"B. To the first 1,200 KWH of usage, for totally electric dwellings.

"The minimum rate would be the lowest unit rate charged to any customer, in any block of the rate structure. For example, in the case of Cleveland Electric Illuminating Company, for the general residental customer category, the minimum rate would be the electric furnace operation tariff.

"Base rate + Fuel Cost Adjustment

1.1 + .01333 = 1.113 ¢/KWH to the first 400 KWH of electric energy usage."

The authors noted that the immediate short-run effect of the implementation of the lifeline rate would be a revenue displacement for the utility companies. The authors calculated the displacement by consulting the utility companies' bill frequency distribution, calculating total revenues under the proposed lifeline rates, and comparing them with the total revenue under the present rate structure. Based on calculations using the Bill Frequency module of the PUCO Corporate Finance Model for Ohio Power Company and Cleveland Electric Illuminating Company and based on calculations by Cleveland Electric, Columbus and Southern Ohio, Ohio Power, Cincinnati Gas and Electric, Ohio Edison, and Dayton Power and Light of calculations of the revenue displacement which would be incurred due to lifeline rates, Enkara and Wayland developed the following table. In the calculations all customers were assumed to continue to consume the same amount of electricity as if there had been no price changes: there was no adjustment for changes in quantities demanded due to price changes.

	Residential Revenues Present Rates	Residential Revenues Lifeline	Displacement	% of Present Revenues
Ohio Power	136.228	64.859	71.369	53%
Dayton P&L	86.777	52.334	34.443	40%
C&S	93.895	52.062	41.833	45%
Cleveland El.	145.791	71.265	74.526	52%
CG&E	105.581	59.678	45.903	44%
Ohio Edison	193.736	96.384	97.352	51%
Toledo Edison	65.174	33.499	31.675	48%
Total	827.182	430.081	397.101	48%

$: 1 x 10^6

Since the proposed lifeline rate would apply to the first 400 KWH (1200 KWH for all electric homes) consumed per month by every residential customer on the system, residential customers using more than 400 KWH would not necessarily find their electricity bills increased. The authors determined the "break even" level of consumption for the six major electric utilities.

"We determined the break-even level of consumption for the six major electric utilities in Ohio. The process involved: 1) The estimation of residential 'humpback rates' by dividing the revenue displacement figures by non-lifeline residential KWH, and adding this revenue recovery factor onto the remaining blocks of the current tariffs, 2) the estimation of the revenue distribution that resulted from the humpback rates.

"The break-even level of consumption for the general residential category on the average is 670 KWH, and for the all electric 2,260 KWH. In detail:

"General Residential:

	Lifeline Rate ¢/kwh	Displacement $:1 x 10^6	Required Surcharge ¢/kwh	Breakeven Point kwh	% of bills above Breakeven	% of bills below Breakev
Ohio Power	1.380	40.775	5.766	612	29.4	70.6
DP&L	0.600	23.108	2.420	729	26.0	74.0
C&S	1.246	37.843	4.807	645	32.2	67.8
Cleveland El.	1.100	68.451	6.188	627	21.6	78.4
CG&E	1.126	42.227	2.921	754	29.7	70.3
Ohio Edison	1.231	90.188	5.335	639	31.2	68.8
Average	1.114	50.432	4.573	668	28.4	71.6

The authors noted that 70% of the residential customers were below the break-even point.

"The above figures indicate that under the basic lifeline rate approach, benefits are not restricted to low use residential customers only. Therefore, the approach would not provide an efficient instrument for transferring benefits from high to low users, presupposing, of course, that low users are also low income customers."

The authors indicated that based on a study by Columbus and Southern Ohio using data on the low income group obtained from the Franklin County Welfare Department, there is a low correlation between low income and low usage of electricity. The study indicated that 50% of low income bills are over 500 KWH per month, while only 44% of the total residential class bills are over 500 KWH. Based on this data it was concluded that low usage does not imply low income.

Noting that the costs of electricity vary with capacity, volume, and time the authors indicated that peak users should be charged for the sum of peaker running costs and the incremental capacity costs because they contribute directly to a system's need for capital investment in generation transmission, and distribution capacity.

"However, the current structure of rates deviates substantially from the above mentioned norms. The low income electricity user, whose use is primarily off-peak is now paying a full share of generating and transmission capacity at a time when his contribution to peak is either zero or trivial. A rate structure which will reflect the peak-off peak cost differential would lower electricity bills for the low income off-peak consumer, and at the same time provide the incentive for the peak consumers to try and lower their electricity bills as well.

"To the extent that the price elasticity of electricity demand is larger than zero, the peak-off peak price differential would also help promote conservation in the sense that: 1) future capacity increases in generation and transmission will be curtailed, 2) an increased utilization of existing capacity will result, and 3) in the long run the capacity mix will be altered to include more base units with relatively low running costs.

"Lifeline rates or any other inverted rate structure completely ignore the above mentioned cost and demand consideration, and in that sense tend to distort the efficient operation of utility markets."

OREGON

Before the Public Utility Commissioner of Oregon. Investigation of reduced rates for energy consumed by certain persons (on the Commission's own motion).

Pursuant to ORS 756.515, on September 8, 1975, the Public Utility Commissioner [Commissioner] issued Order #75-781, and began this rulemaking investigation to resolve whether the Commissioner should order reduced rates for energy consumed by poor persons and senior citizens.[1] The order made every Oregon energy utility regulated by the Commissioner a respondent.

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The Problem

Intense demand existed for this investigation. In Oregon, since 1970, while inflation has reduced purchasing power, some energy utility rates have increased almost 100 per cent. Although it is not clear whether poor persons use more energy than other citizens, all parties agree the poor and aged, especially those on fixed incomes, pay disproportionate shares of their income for essential utility services, and are most in need of help.

It also is understandable that pressure for relief focused upon the Commissioner, for it is his statutory responsibility to assure utility rates are just and reasonable, and to oversee the different rates which utilities apply to their different customers. The Commissioner, however, is not alone in considering this problem. In Oregon, the Joint Interim Committee on Trade and Economic Development also is investigating utility rates charged the poor and elderly. Several bills are pending in Congress which directly address the issue of poor persons and energy costs.[2] Various federal agencies, especially the Federal Energy Administration, are engaged in rate reform programs throughout the country.

The Proposals

The proposed solutions took two basic forms: Discounts for eligible poor persons; and reduced rates for all residential customers for minimum "essential" quantities of energy. Both solutions raise difficult legal and economic issues. Utility stamps or increased welfare benefits require action by the Legislative Assembly, which will not reconvene until January, 1977. Discount rates would help the poor, but might be outside the Commissioner's jurisdiction. Lifeline rates might penalize rather than benefit some poor persons. Descriptions of the various proposals received, and the legal and economic issues raised, follow.

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The Commissioner's Authority

Discount rates clearly discriminate in favor of poor persons. No party offered evidence in this proceeding, nor is the Commissioner aware of evidence from any other proceeding, in Oregon or elsewhere, which indicates it costs less to serve poor or aged residential customers than it does to serve average and above-average income customers of any age.

The Commissioner represents the entire public, and must obtain for all customers of regulated utilities adequate service at fair and reasonable rates. ORS 756.040.[4] He must classify each utility's services using reasonable criteria, and each regulated utility must conform its rate schedules to the Commissioner's classifications. ORS 757.230(1).[5]

Discount rates would provide direct aid to needy customers of Oregon's regulated utilities. To establish eligibility standards and administer the discounts would be possible. However, such a program may be implemented only if the Commissioner has authority to discriminate between customers on the basis of income levels. That is, to authorize lower rates for poor persons than for persons who are not poor.

The Commissioner rejects the argument that the statutes cited above forbid discrimination by utilities but permit the Commissioner himself to discriminate. This argument implies the "reasonableness" of a rate depends wholly on who proposes it. If the Commissioner might order discriminatory rates because such rates are forbidden only to utilities, might the Commissioner order utilities to provide special rates to political candidates because ORS 757.305, which forbids such discounts, refers only to utilities? The answer is obvious. The statute which requires the Commissioner to provide reasonable classifications of service, ORS 757.230(1), must be read in conjunction with the statute which forbids utilities to charge different rates for identical service under like conditions. ORS 757.310(1)(b). The Commissioner must provide reasonable rates to the public, based upon reasonable classifications of service, and reasonable rates are the same for different customers served under like conditions. The Commissioner must prescribe only reasonable rates, and no discriminating rate is reasonable.

Thus, any consideration which would impose different rates for "like and contemporaneous service" is unreasonable and, if such considerations are unreasonable, the Commissioner had no authority to impose such rates.

Oregon is not the only jurisdiction to have considered this question. Other courts and commissions have reviewed regulatory statutes similar to Oregon's and uniformly have held that commission-ordered discount rates based upon age or income are discriminatory and, therefore, illegal. Moore v Gilbert, 131 Vt. 545, 310 A 2d 27 (1973); Washington Utilities & Transportation Comm. v Pacific Power & Light Co., 10 PUR4th 449 (Wash. U&TC 1975); Re Central Vermont Public Service Corp., 7 PUR 4th 67 (Vt. PSBd. 1974); Re Public Service Co. of New Hampshire, 95 PUR3d 401 (N.H. PUC 1972); Public Utility Comm. v Philadelphia Electric Co. 91 PUR3d 321 (Pa. PUC 1971); Re New England Telephone & Telegraph Co., 89 PUR3d 417 (R.I. PUC 1971; Re New England Telephone & Telegraph Co., 84 PUR3d 130 (Mass. DPU 1970); Re Potomac Electric Power Co., 84 PUR3d 250 (D.C. PSC 1970); Re Louisville Transit Co., 82 PUR3d 1 (Ky. PSC 1969); Re Mountain States Telephone & Telegraph Co., 2 PUR3d 123 (Utah PUC 1954).

The cases cited by Legal Aid for the proposition that the Commissioner may discriminate are not on point. No jurisdiction with statutes similar to Oregon's has implemented discount rates based solely on age or income. The Commissioner is charged to protect the public generally from unjust and unreasonable practices. ORS 756.040(1). The case law and statutes make clear that discriminatory rates are unjust and unreasonable and therefore beyond the Commissioner's power.

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The Commissioner began this investigation because he wanted to help the poor and aged who cannot easily afford essential utility services. However, the Legislative Assembly has not delegated to the Commissioner the power to impose discriminatory rates. Regardless of how desirable such rates might be as social policy, benefits to the poor and elderly which do not reflect the cost of service must come from the Legislative Assembly.

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Although the Commissioner is powerless to impose discount rates himself, he will seek legislative action on this subject and will participate directly and vigorously in the Interim Committee's work, in the coming legislative session, and in the programs offered by Congress and the federal administrative agencies.

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With clear authority to establish social welfare policy, the Legislative Assembly also can monitor all state and federal welfare programs and the sources and extent of aid given to different groups. Without such overview, as independent agencies aid various segments of society, the total aid given each group is unknown, and unequal treatment of different groups becomes likely.

The Commissioner wants relief for the aged and poor, regardless of whether that relief takes the form of increased cash grants, utility stamps, or some other legislative proposal which equitably effects the desired solution.

Lifeline Rates

Some proposals advanced in this investigation would not require the Commissioner to discriminate on the basis of age or income. The major proposal of this nature was the lifeline rate advanced by Legal Aid.

A "lifeline" rate provides all residential customers, whether poor or rich, with a minimum amount of energy at a low uniform rate. In theory, it assures all customers the ability to obtain essential energy services at low cost. Revenues lost by lowering the cost of the lifeline amount are recovered by increasing the cost per unit of energy consumed by other customers in excess of the minimum amount. Some lifeline proposals also require commercial and industrial customers to pay increased rates which contribute to recovery of the lost lifeline revenues.

However, Legal Aid did not support its lifeline proposal solely because it thought it would benefit the poor and elderly. Legal Aid asserts its lifeline proposal is cost justified and more properly reflects correct pricing than the utility rate schedules now in effect.

Legal Aid's proposal includes seasonal rates, higher in winter than in summer. It reduces customer minimum charges and increases the cost of energy used in the highest quantity block (the tail block), to 100 per cent of Long Run Incremental Costs, [LRIC].[8] The ultimate is a severely inverted average unit cost schedule which charges full LRIC for all tail block use.

It must be repeated that Legal Aid's lifeline proposal was designed to encourage conservation, not to benefit any particular customer class. Legal Aid supports this lifeline rate because Legal Aid believes it will serve the interests of the poor and the elderly by providing low users of energy with reduced rates.

Opponents to Legal Aid's lifeline proposal contend the evidence shows it would not necessarily benefit the poor or elderly, but might in fact raise their rates. The Utilities and the Staff dispute Legal Aid's methodology in assigning LRIC to electric tail block rates and in its treatment of customer costs. The Utilities and the Staff contend Legal Aid's proposal is inapplicable to Oregon's natural gas industry and, as to Oregon's electric utilities, would not enhance conservation efforts.

The Hearings Examiner found these objections valid and proposed the Commissioner reject Legal Aid's lifeline proposal as inequitable and ill-advised.

The lifeline proposal does not offer help to the poor and elderly. Reduced rates for small users and increased rates for large users will benefit the poor and elderly only if they, as a class, use less energy than other customers. The evidence presented in this proceeding did not support this contention.

Legal Aid assumes a high correlation between low income and low energy consumption. This contention, however, is based upon average use by income class. It does not consider the substantial discrepancies in energy use by individual low-income persons. This high correlation also is disputed by studies in the record[9] and in the published literature which establish high correlation between family size and energy use but not between energy consumption and income class.

Oregon's heritage of low-cost hydroelectric power has led to heavy reliance on electric appliances to meet essential needs of both poor and average income groups. Substantial numbers of utility customers in all income groups use electricity for cooking, water heating, and space heating. According to one exhibit (Ex. 28), 17 per cent of PGE's welfare customers heat their homes with electricity. These welfare customers use 43 per cent more energy than the system average of all PGE customers. Based upon 1970 census data, 71.6 per cent of low-income Oregon households use electricity for water heating, and 24.4 per cent use electricity for space heating. 24.9 per cent of elderly families pay their own electric bills and use electricity for space heating.

Dr. Joseph Pace, Vice President of National Economic Research Associates, testified for Pacific Power & Light Company in opposition to Dr. Coyle's lifeline proposal. He presented persuasive testimony that a substantial number of low income persons use enough energy to place themselves in the middle or upper usage blocks in Oregon. Dr. Pace's testimony and exhibit (Ex.22) make clear that the poor cannot be identified by the amount of energy they consume, and that Legal Aid's lifeline proposal does not offer meaningful aid to Oregon's poor and needy.

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[9]Lawrence Pinson, a consulting economist, testified on behalf of OCFEUR. He described a 1973 study of Seattle City Light's residential customers which found only a .65 correlation between income level and energy consumed. Floyd Keller, Commercial Manager of Clark County PUD, estimated 20 to 40 per cent of the poor would not benefit from Legal Aid's lifeline proposal.

The Commissioner concludes that, although Legal Aid's lifeline proposal would reduce rates to every low income customer who uses little energy, it would do so at the expense of equally needy persons who must use more than minimum amounts of energy. This investigation should not help some of the needy at the expense of others equally in need.

Legal Aid's proposal rests on two premises. First, customer charges, as typically imposed, are too high and include cost components not properly applicable to individual residential customers. Second, full incremental pricing should apply at the highest usage level of all customer classes so as to communicate to all customers the expected future cost of energy. Only thus can the public make economic plans for the future. Because full incremental costing for all energy sold would produce excess profits, Dr. Coyle reduces the unit cost of earlier consumption levels, including the customer charge, according to the rule of inverse elasticity. The ultimate schedule is a severely inverted average unit cost schedule which charges full LRIC for all tail block use.

In his early testimony, Dr. Coyle and Legal Aid seemed unaware that the Commissioner already had adopted LRIC as the relevant economic method by which to set prices. They also seemed not to realize the Commissioner already had directed Oregon's major electric and gas utilities away from declining block price schedules. Their belief that Oregon's energy utilities still promote energy usage is totally incorrect. Since the energy crisis began, Oregon's energy utilities vigorously have encouraged customer conservation.

Legal Aid's proposal might be relevant and innovative for a state which still maintains declining block rate schedules, load growth promotion, and uneconomic rate structures which do not reflect the rising cost of electrical energy. However, the basic theoretical assumptions on which Legal Aid based its lifeline proposal already control utility rates in Oregon.

Certain aspects of Legal Aid's LRIC lifeline rate differ from the LRIC rates which the Commissioner already has adopted. Legal Aid believes electric utility rate structures should be further inverted by reducing customer charges and applying LRIC principles only to the tail block. The Staff and the Utilities contend present customer costs are more accurate than those in Dr. Coyle's proposal and that it is more appropriate to apply incremental pricing to broader usage levels than the tail blocks alone.

The proper customer charge for residential customers of Oregon's major electric utilities has been considered in past hearings. Legal Aid's proposed reduction results from adjustments to present cost allocation methods and because all prices including customer charges are reduced so as to offset the excess revenues which would otherwise flow from full LRIC charged at the tail block.

There was not sufficient evidence to indicate present treatment of distribution system costs, industrial customer costs and other factors should be changed by this investigation. These matters were discussed at length in the record and the briefs, and the Commissioner finds the record in this proceeding does not present sufficient evidence to justify recomputation of the customer charge for each electric utility. However, they will be examined closely in future individual rate cases. If evidence justifies reduction in customer charges for residential customers, such reductions will be ordered.

The Commissioner also rejects Dr. Coyle's proposal to impose full incremental costs in the tail block of all customer schedules. The proposal rests primarily on the assumption today's load growth occurs at the tail block as present customers increase their usage. This is incorrect. The evidence showed very significant load growth occurs as new customers appear and other customers increase usage below tail block levels. Dr. Coyle's proposal would present an inappropriate economic message at all consumption levels other than the highest, and would provide incentive for increased consumption rather than conservation.

Full incremental pricing clearly encourages conservation, above the tail block level. This may be true particularly for residential space-heating customers who would be encouraged to shift from electricity to fuel oil and natural gas for heating. Today's natural gas and fuel oil shortage weakens any rate proposal which would increase consumption of fuels likely to be in short supply.

The evidence shows that the present LRIC-based rate structures offered by Oregon's major electric utilities are more economically appropriate than Legal Aid's proposal. Present rates spread incremental costs properly to all usage levels and thus distort resource allocation less than would Dr. Coyle's proposal.

Dr. Coyle designed Legal Aid's lifeline proposal for application to electric utilities. Yet Legal Aid proposed to apply this proposal to gas utilities also. The record shows neither Legal Aid nor Dr. Coyle were familiar with the peculiarities of the Pacific Northwest's gas situation.

Legal Aid's proposal to raise the cost of gas for industrial use by increasing interruptible gas costs to the level of firm gas costs also is inappropriate as it would not reflect, in any manner, the lower quality of service provided interruptible gas customers.

Incremental costs of the gas industry generally, and particularly of the Pacific Northwest's distribution companies, are not related to production costs, but primarily to world-wide commodity costs of fuel oil and non-regulated natural gas. Costs primarily depend not on conservation but on the Canadians' price for gas at the border.

Legal Aid and its experts understandably concentraded on electric rates and seem to propose changes in gas rates almost as an afterthought, without regard to the nature of Oregon's gas supply. On this basis, it would be inappropriate to make any changes in Oregon's gas rate schedules based upon Legal Aid's proposal.

Legal Aid's lifeline proposal will not be adopted in this proceeding. The Commissioner finds insufficient evidence lifeline rates would benefit the poor and elderly. As a proposal to change Oregon's gas utilities' rates on economic grounds, the proposal has no relevance and is inappopriate. As a proposal to change Oregon's electric utilities' rates, Legal Aid's proposal is not wholly without merit. Much that Legal Aid proposes has already been adopted, but further investigation and possible implementation of some aspects, as proposed, will be reserved for future individual rate cases.

OREGON

Furnished to NARUC by the Public Utility Commissioner of Oregon: Report to Francis J. Ivancie, Commissioner of Public Utilities, City of Portland on "Residential Consumption of Electricity in Portland, Oregon and Lifeline Electric Rates;" by Morton Paglin and Giles H. Burgess.

Summary

In order to evaluate a lifeline rate proposal the authors analyzed the socio-economic characteristics of residential electricity consumption in Portland, Oregon. The average electricity consumption in Portland is 1200 Kwhs per household, with a wide variation.

A random sample of more than 6,000 PGE residential customers was selected to estimate the average household consumption representative of each census tract in the city. For 101 census tracts the model was used to estimate the relationship of electricity consumption to a number of variables. A linear relationship was investigated using least squares regression.

The equation examined was:

$$E = b_0 + b_1 C + b_2 H + b_3 Y + b_4 F + b_5 S$$

E denotes the household electricity consumption in kilowatt hours in an average month.

C is the "degree of dependence" upon electricity for cooking (variables may take on values of either 0 or 100 percent for any single household, but may take on any value within that range as the household average for each census tract observation).

H is the "degree of dependence" upon electricity for heating (variable is defined in the same fashion as C).

Y is the family income (median income issued to measure the household average for each census tract).

F is the family size (average family size is used as the basis for each census tract observation).

S is the propensity to occupy single family dwelling units (variable may take on values of either 0 or 100% for any single household, but may take on any value within that range as the household average for each census tract observation).

The study was based upon cross sectional data reported in the 1970 U.S. Census of Population. Census units containing 1200 to 1500 households located in compact, contiguous areas within major

census divisions and reflecting a high degree of homogeneity in their composition with respect to income, housing, and population characteristics were used. Variables C,H,Y,F, and S were obtained from the 1970 Census. The dependent variable, electricity consumption or E, was independently estimated for each of the census tracts by means of a random sample on the 1971 residential billings of customers served by Portland General Electric.

THE RESULTS

The coefficients of Equation 1 were estimated by ordinary least squares regression procedures. The results of the regression are reported in summary as Equation 2 below:

$$E = -220.225 + \underset{(1.637)}{4.449}C + \underset{(2.188)}{4.404}H + \underset{(1.519)}{0.018}Y + \underset{(2.295)}{191.385}F + \underset{(3.187)}{3.864}S$$

Figures in parenthesis are t-ratios.

The analysis of variance is reported in Table 6. The regression is statistically significant at the 99.9 percent level of confidenee and reveals that $R^2 = .602$, i.e. 60.2 percent of the variation, in average monthly household electric consumption is accounted for by the explanatory variables in the regression. The sample means and standard deviations of the six variables for the cross-section are shown in Table 5.

TABLE 5. SAMPLE MEANS AND STANDARD DEVIATIONS FOR THE SAMPLE OF 101 CENSUS TRACTS IN THE CITY OF PORTLAND.

Variable	Mean	Standard Deviation
E	1089.75	297.73
C	84.44	12.11
H	16.32	11.24
Y	7463.83	2571.44
F	2.37	0.34
S	71.75	25.77

TABLE 6. ANALYSIS OF VARIANCE OF THE REGRESSION.

Source	Degrees of Freedom	Sum of Squares	Mean Squares
Regression	5	5,340,203.01	1,068,040.50
Residual	95	3,523,900.51	37,093.69
Total	100	8,864,104.02*	

F-ratio = 28.79

*Contains rounding error.

FINDINGS

We have found that the lifeline rate proposal would fail to achieve its major purpose of providing rate relief to low and fixed income families. It has been the assumption of the advocates of lifeline rates that the rates would help low income electricity users. However, we find that many low income persons would, in fact, pay significantly higher electric bills because of their relative dependence upon electricity for such uses as home heating, while many high income persons would receive a subsidy due to their relatively low dependence upon electricity.

The establishment of electric rates in this manner - to levy taxes and to provide subsidies - would, in effect, produce an unfair and regressive tax on consumption. Those families with the least ability to pay (that segment of the population who are low-middle and middle income families and who are heavy users of electricity) would be required to bear the largest relative burden of the shift in the rate schedule.

In the remaining sections of this report, we present the following:

1. Our study of the relationship between residential electricity consumption and five important socio-economic factors that "explain" it,

2. Our analysis of the lifeline rate proposal using the information generated in our study, and

3. The supporting data and analysis used in our study which appears as an appendix.

APPLICATIONS OF THE ANALYSIS TO THE LIFELINE RATE PROPOSAL

The lifeline rate proposal has as its main purpose a shift of benefits to low income households by a 25 percent reduction in the rate for the first 800 kwhs of monthly electricity consumption to all residential customers, and an increase in the rates for higher consumption blocks.

Under the existing rate structure, there is a $3.85 minimum charge for the first 50 kwhs of electricity consumption with an incremental charge of 1.254¢ per kwh up to 900 kwhs per month. A rate of 1.837¢ per kwh is charged for all consumption above 900 kwhs. In the lifeline rate proposal considered in this paper, the charges for the first 50 kwhs would fall to $2.89 and the incremental charge from 50 to 800 kwhs would be set at $.94 per kwh. This charge increases to 1.86¢ from 800 to 900 kwhs and reaches a top rate of 2.74¢ per kwh for consumption blocks above the 900 kwh monthly level. Under this proposed lifeline rate, with the present pattern of residential consumption, the revenue losses in the lower brackets would be offset by gains in the higher consumption brackets, leaving total revenues unchanged. Hence, no outside subsidy from other classes of users would be required to implement the proposal.

The efficiency and equity of the lifeline rate scheme depends upon the extent to which electric power consumption is related to income. Insofar as other factors such as electric heating and cooking, type of living unit and family size markedly affect electric usage, lifeline rate schemes are comparable to highly inequitable tax and transfer measures in which many recipients of the transfer are unintended beneficiaries while many other families are unintentionally taxed with higher rates.

The results of our statistical analysis reveal the source of probable inefficiencies and inequities contained in the lifeline rate proposal: (1) Our multiple regression analysis shows that income is the weakest of the five independent variables in determining electricity consumption. This means that family size, type of cooking and heating units, and type of residence are far more significant in determining the amount of electricity used than is family income. Yet few persons would argue that families should be subsidized or taxed with higher rates simply because they live in apartments or houses which use electricity for cooking and heating rather than other energy sources. (2) The study indicates that there is almost no correlation between electric heating and income in the Portland area. This is indicated by the low correlation coefficient between electric heating and income which is estimated to be .0464. (3) Families, including many with below median incomes and consuming more than the average 1200 kwhs per month would, in effect, be taxed with higher electric rates. (4) There would also be many unintended beneficiaries. Typically, these would be small families with above average incomes who reside in homes or apartments served by natural gas and/or oil as the main energy source.

RHODE ISLAND

Excerpt from the testimony of John W. Wilson before the Public Utilities Commission of Rhode Island, Blackstone Valley Electric Company, Docket No. 1185.

Q. ELECTRICITY RATE STRUCTURE INVERSION HAS ALSO BEEN PROPOSED AS A MEANS OF IMPROVING INCOME DISTRIBUTION. ARE ARGUMENTS OF THAT TYPE ECONOMICALLY MERITORIOUS?

A. They are, to the extent that present rates are out of line with actual costs and tend to favor high income groups. A regressive situation of that type would be economically unjustifiable and socially objectionable as well. However, the basic observation that large volume users obtain service at lower average unit costs than small volume users does not necessarily prove that regressive income redistribution is taking place. As I have indicated previously, there are some economies of scale inherent in off-peak increased consumption by on-line customers, and apparently discriminatory rates may merely be a reflection of that cost phenomenon. In general, it can be argued that income redistribution objectives should be pursued more directly and, that aside, there are reasons to believe that this social objective would not necessarily follow from rate inversion.

To the extent that substantial rate inversion provides an economic incentive for large volume users whose demands were relatively more price elastic, to turn to energy alternatives in order to avoid paying premium tail block rates for electric power service, their demands would diminish and so might overall economies on the system as a whole. As a result, average unit costs would rise. To the extent that current incremental rates exceed the marginal or "out-of pocket" costs of service, discouragement of large volume off-peak loads such as water and space heating by rate inverstion would reduce the revenues available for covering fixed costs. Small appliance and lighting customers, whose demands are comparatively inelastic, even in the long run because there is little opportunity to substitute other fuels, would then be burdened with a larger share of capital

costs, including fixed charges for periods when generating facilities were under-utilitized. Secondly, to the extent that inverted rate structure proposals transcend the residential customer class, certain industrial and commercial electricity expenditures could rise substantially. There can be little doubt that the bulk of these higher production costs would be tranlated into higher prices for products and services. Thus, to the extent that low income groups spend a relatively larger percentage of their incomes on immediate consumption needs, the ultimate impact would be similar to that of a regressive sales tax. Ironically, the burden of inversion could fall more heavily on those consumers who are supposedly to benefit from the rate design change.

A final criticism of rate inversion, as a means of improving income distribution, depends on a broader view of American political economy. Income maintenance programs such as social security, unemployment compensation, progressive income taxes and direct income support payments are generally accepted as a necessary exception to a pure market economy. The design of each of these programs focused on the primary intended effect: income distribution. Not ignoring the possible shortcomings of specific programs, these measures are explicit means designed to improve the lives of those citizens who require such assistance. It is a similar intention which has lead some to advocate rate structure inversion as a means of accomplishing income redistribution objectives, but the practical disadvantages of this approach are important and should be considered. The problems of regulation would be greatly compounded. Under current regulatory requirements rate design must not be unduly or unjustly discriminatory nor detached from the cost of service. Inversion, however, would diverge from the cost of service principle. Income transfer programs are a separate consideration requiring social and political judgment as well as economic analysis. Using rate design as a means of altering income distribution would remove incomes policy from the social and political forum where these determinations are properly made, and where income redistribution decisions can be made independent of electric utility rate structures which should be required to play their proper role of resource allocation.

Q. ARE LIFELINE RATES AS ESTABLISHED FOR EXAMPLE BY A LEGISLATIVE ACTION, A DIFFERENT MATTER THAN RATE STRUCTURE INVERSION?

A. Yes; that is a different matter for several reasons. First where legislatures have determined that lifeline rates are necessary, the income redistribution decision has obviously been made in a proper political and social forum. Second, lifeline rates apply to only a small and defined segment of total electric power demand, and leave basic rate structure determinations with respect to the great bulk of power sale to be determined on the basis of cost responsibility relationships.

Q. CAN YOU GIVE SOME EXAMPLES OF LIFELINE RATES?

A. Only California and Maine have established formal lifeline rates. The California decision required action by the State legislature with the signature by the Governor and subsequently an order by the PUC. Starting on January 1 1976, the lifeline rate goes into effect:

> Under the regulation order, any increase in rates is prohibited for customers less than 75 therms of gas and 300 to 500 kilowatt hours of electricity per month, depending upon climate, location and the availability of alternative fuels.
>
> All future rate increases are to be applied to customers above this amount until the average rate charge to all customers is 25% higher than that being paid for the basic amounts. When that point is reached, the basic lifeline rates may be increased as long as the 25% differential is maintained.

The State of Maine has a lifeline rate for senior citizens, based on income.

Q. ARE THERE OTHER WAYS IN WHICH LIFELINE RATES CAN BE ESTABLISHED?

A. Yes; it is possible for quasi-lifeline rates to be established implicitly without action by legislative authorities. For example, in the latest rate increase granted to the Potomac Electric Power Company by the District of Columbia Commission, rates were raised for all classes of customers except residential users under 450 kilowatt hours per month. The initial impact of this type of procedure is to flatten rates, but if the process is repeated sufficiently in subsequent Commission decisions, rates would ultimately be inverted.

Q. WHAT IS THE PURPOSE OF LIFELINE RATES IN THOSE JURISDICTIONS WHERE THEY HAVE BEEN INSTITUTED?

A. The primary purpose, of course, is to prevent or moderate economic hardships for low income consumers with relatively small power demands who cannot really reduce consumption in response to higher rates without incurring serious hardships. In addition, other purposes have also been stated. For example, the California Commission indicated that lifeline rates were not only supposed to prevent undue economic hardship, but that they were also useful in the promotion of fuel conservation and in the interest of reducing pollution from excess utility growth and expansion?

Q. ARE THESE ADDITIONAL REASONS VALID?

A. The additional purposes may be meritorious but whether or not lifeline rates will actually achieve those ends is questionable. Lower rates to low income consumers must, of course, be offset by higher rates to other users in order for the utility company to attain its overall revenue requirement. Total electric power demand will be less under this arrangement only to the extent that price elasticity is greater for those users whose bills are increased than it is for those users whose bills are reduced.

Q. ARE THERE OTHER POTENTIAL PROBLEMS THAT SHOULD BE CONSIDERED IN DESIGNING AND IMPLEMENTING LIFELINE RATES?

A. Yes. If lifeline rates are to fulfill their basic purpose there should be some mechanism to assure that they apply only to those consumers requiring income assistance. Simple rules based upon kilowatt hours consumed per month are at best a rough approximation to this objective, and in some instances may be contrary to it. For example, in some cities low income consumers have recently been housed in public projects that are equipped with all electric appliances including electric space heating. Where that is the case and a kilowatt hour rule is adhered to these low income consumers would actually be on the subsidizing end rather being subsidized. In addition, in many areas low income residents often live in overcrowded dwelling units where a considerably larger number of people than average are served off a single electric utility meter. Conversely, comparatively well-off apartment dwellers who use small quantities of electricity could nevertheless be

subsidized by lifeline rates. Thus for example, it can be argued that lifeline rates if established on the basis of kilowatt hours per month, may benefit apartment dwellers most, and childless couples or small families and provide little or few benefits to some needy individuals for whom they were intended.

Q. WHAT ALTERNATIVES ARE SUGGESTED TO THE CONCEPT OF LIFELINE RATES?

A. The most frequent argument that is made is that taxpayers, not ratepayers, should subsidize low income households burdened by high energy costs where that is required. For example, this might be accomplished by an "energy stamp program" similar to the food stamp program. The objective might also be accomplished through higher welfare payments or increased social security benefits. The major difficulty with these alternative solutions, when they are contemplated as alternatives within the regulatory context, is that they are matters beyond the discretionary control of public utility regulatory commissions.

Q. ARE THERE GOODS AND SERVICES IN OUR ECONOMY THAT ARE PRICED ON A BASIS OTHER THAN COST WHICH ONE MIGHT POINT TO AS A JUSTIFICATION FOR LIFELINE OR OTHER NON-COST ORIENTED UTILITY RATE STRUCTURES?

A. Yes; there are. For example, education is considered a "merit" good and it is heavily subsidized by society. Very few people have advocated pricing education at the "cost of service". Other products, such as liquor and tobacco are sometimes considered as lacking social merit, and on that basis they have been heavily taxed in an effort to reduce consumption. A pertinent question with respect to lifeline rates is whether electricity service is a merit good comparable to education. It would seem that that argument could be made. For instance, the courts have defined electric utility service as being affected with the public interest, and legislatures as well as utility commissions have viewed electricity as being so important that utility companies should not be allowed to go bankrupt or cease operations. If electricity is important, then perhaps it should be subsidized by lifeline rates so that no one is deprived of an essential commodity. In short, if electric power can be equated with food, education, and health care, there are strong social arguments in behalf of lifeline rate

Of course, if a decision is made to subsidize electric energy consumption by low income groups it is still possible that an energy stamp program or some other means of implementation as might be determined by legislative authorities would be superior to Commission imposed lifeline rates. Moreover, if lifeline rates are selected as a preferable method of subsidizing low income consumers, commisions must still face the difficult task of designing plans so as to assure that those requiring such subsidies indeed receive them, and those consumers who do not require public income support do not qualify.

In any event an initial step which might be taken by this Commission which would be consistent with both the general philosophy of lifeline rates as well as over-riding cost considerations is to tilt any rate increases that are granted away from the initial blocks in each rate category. That will result in a general flattening of rates which would imply smaller increases for small volume customers as well as a movement in the direction of a uniform energy charge which would be justified on the basis of pure marginal cost considerations.

Q. DOES THIS CONCLUDE YOUR PREPARED TESTIMONY?

A. Yes, it does.

"Rate Systems Based Upon Ability or Willingness to Pay"

"This part of our report will discuss briefly the following specifics: the 'lifeline service rate system', 'rates based on price elasticity', 'rates based on small or large quantity users of electricity', and 'energy stamps'. These matters are grouped together because they have an element of discrimination which may favor a subdivision of a broader class of customers. They involve admitted discrimination for part of a customer class based upon certain customer's inability or unwillingness to purchase their usual electricity load without a rate preference.

"For example, 'lifeline rates' assume that the low users are also the economically disadvantaged, who require an admitted subsidy from other customers of the utility. The accompanying staff report shows in clear terms based upon factual data that both the tax-subsidized poor and others in West Virginia are within common usage ranges. It shows that any 'lifeline' (low first block) rate will afford the same benefit to many moderate and middle income customers as it does to the tax-subsidized poor.

"If the temptation exists to help by lifeline rates all low users, whether or not they are low income citizens, there are still other objections. As previously stated, a rate discrimination favoring one group of customers will adversely affect other groups of customers, whether they be other residential customers, other industrial customers or all other customers. If the lifeline billing determinent is set too low, there will be little, if any, aid to many low users. If they are set high enough to be of any significant benefit to low users, the shift in rate burden to other customers will be substantial to them. To the customers who have to pay more because of the impact of lifeline rates, it will be just as if the utility was given a rate increase 'across the board' because of an increase in total costs. If this is not so, the utility would be forced to absorb the loss of revenue. Since your Public Service Commission has attempted or is attempting to set the retail rates of each West Virginia electric utility at the lowest possible reasonable level of revenue requirements necessary for it to adequately serve its customers, we believe it would be an injustice if the electric utility was made to absorb this loss and may amount to confiscation."

Jack

An Analysis of the Declining Rate Issue

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Bill Heaney - Legislative Affairs

President Carter has called the energy crisis "the moral equivalent of war". Whether or not one agrees with the President's assessment of the situation or his energy program, nearly all agree that the energy crisis is a collection of extremely complex technical and social problems. This paper will deal with one of these problems: What kind of social policy will best help alleviate the burden rapidly rising energy prices have placed upon those living on low or fixed incomes? Many proposals dealing with this problem have been debated in the Minnesota Legislature, but to date no unified social policy has emerged. Proposals have fallen into two general categories: 1.) Price administration through restructuring the electric utility rate table (the so-called "lifeline rate" plan) and 2.) Some form of tax relief or income supplementation through the state taxes. An example of the latter type of proposal is the bill proposed by Minnesota Public Service Commissioner Katherine Sasseville. This act would set aside annually up to $20 million from the sales taxes on sales of electricity, natural gas and other fuels. This money would then be redistributed in lump sum payments to those meeting income requirements. In this study both types of programs will be discussed.

First we shall examine the arguments for lifeline proposals. Lifeline supporters argue that electricity is one of life's necessities and there is some quantifiable minimum amount necessary to sustain life. They also contend that the low income consumers are by necessity among the smallest users of electricity. "Lifeliners" conclude that selling a "subsistence" amount of electricity (typically 300-500 kWh per month) at reduced rates will insure that low income families will be able to afford the minimum necessary amounts. By requiring that kWh consumed above the lifeline level be sold at a higher rate, lifeline proponents contend that higher income consumers will make up the revenues lost on the lifeline sales and will be encouraged to conserve energy.

Upon closer examination of the technical details of lifeline rates, we shall see that lifeline legislation will not promote conservation and will not benefit all low income families. Before a deeper analysis of these technical details is done, it should be pointed out that the basic premise behind lifeline rates is in error (i.e., there is a quantifiable minimum necessary amount of electricity). While energy is a necessity of life, electricity is just one of its forms. No two consumers need or use the same amount of electricity, so it is nearly impossible to quantify the minimum necessary amount. What would be sufficient for a customer with a gas water heater would be insufficient for a customer with an electric water heater (which average 375 kWh per month). 1/

All lifeline proposals, in effect, require that the lifeline amount of electricity be sold below the cost of producing and delivering the energy. This is because residential electric customers are already being sold the first few hundred kWh's per month at the lowest possible price. For example, a bill introduced into the Minnesota Legislature last year specifically required that the lifeline amount be sold at as

1/ "The Residential Demand for Energy: Estimates of Residential Stocks of Energy Using Capital." by Data Resources Inc. January 1977, Section 4, Page 1.

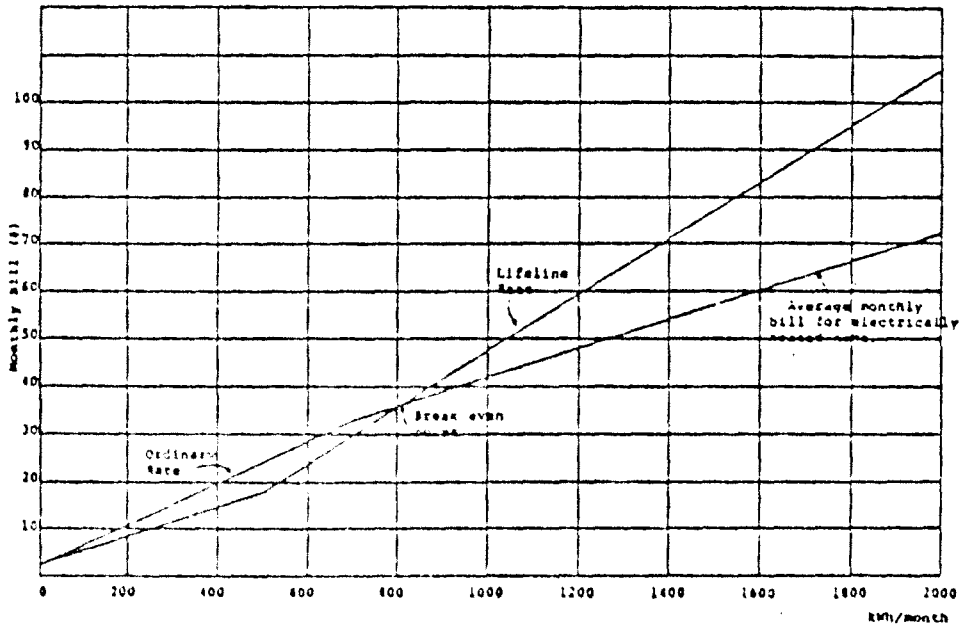
much as 50% below cost. If the lifeline amount of energy is sold below cost, then the rate on other sales must be increased to recover the lost revenues. As noted before, "lifeliners" are in general agreement with this proposition. What would happen to a customer's monthly bill should lifeline rates go into effect? Let us assume for the moment that the lifeline level is set at 500 kWh per month. All customers would pay less per kWh on the first 500 kWh and more on additional kWh used. Whether one's total monthly bill would be higher or lower under lifeline rates depends on how much he uses. This is because after having saved on the first 500 kWh, it would take a few hundred more kWh under the penalty rate before one's bill is higher under lifeline rates than under ordinary rates. The monthly usage separating those whose bills would go up after implementation of lifeline rates from those whose bills would go down, the "break-even point", can be thought of as separating those who get service below cost from those who pay more than cost for service. The "break-even point" is a figure of central importance in the consideration of any lifeline rate plan because it is the division line between those who are subsidized and those who subsidize. Table I shows a lifeline rate designed to sell the first 500 kWh per month at a reduced rate.

TABLE I

Lifeline Rate	Ordinary Rate
$3.00 Service Charge, plus	$3.00 Service Charge, plus
3¢ per kWh for the first 500 kWh	4.2¢ per kWh for the first 700 kWh
6¢ per kwh for all additional kWh	3.0¢ per kWh for all additional kWh

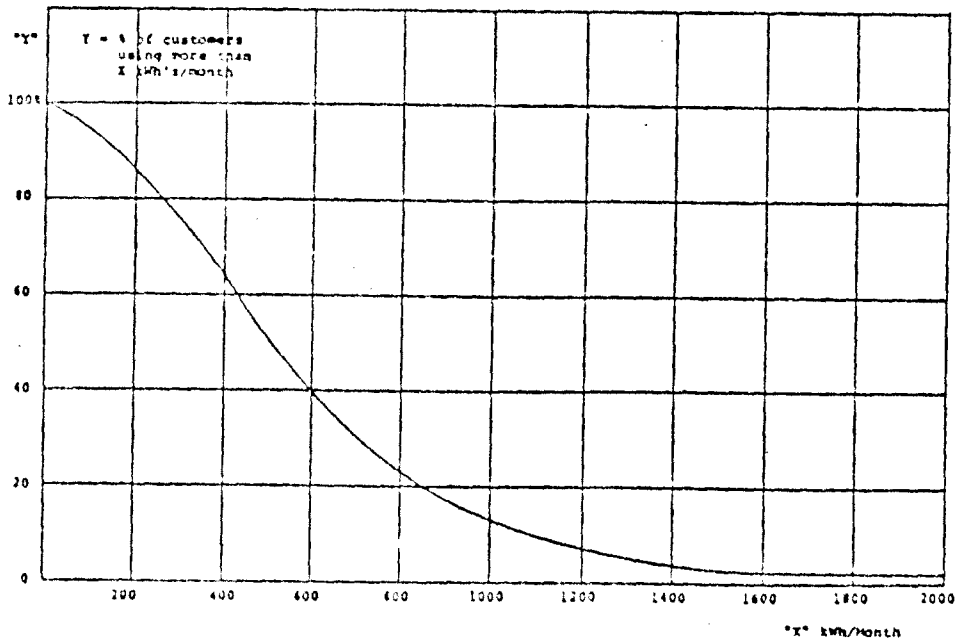
We have attempted to make this rate realistic and typical of lifeline rates. For comparison MP&L's ordinary residential rate (proposed rate subject to refund) is also listed. Figure 1 shows the monthly bill a customer would have under both rates vs. monthly energy use.

Figure 1
This figure shows monthly bill vs. month consumption under ordinary and lifeline rates.



It can be seen that the break-even point is 800 kWh per month, so everyone (regardless of income) using above 800 kWh per month subsidizes everyone using below 800 kWh per month. Naturally every lifeline rate plan will produce a different rate, but all share the features illustrated here. Figure 2 shows what percentage of customers would benefit under lifeline rates.

Figure 2
MP&L Co. Residential Customer Energy Distribution



This graph shows the percentage of customers who use above any given monthly kWh level. It shows 23% of MP&L's residential customers use more than 800 kWh per month. This leaves 77% of MP&L's customers below 800 kWh per month and therefore benefiting under the example lifeline rates. If the only purpose of this rate is to aid low income customers, it seems to have missed its mark because 77% of MP&L's residential customers do not fall into the low income category. Later we shall see that some low income customers do fall into the 800 kWh per month or greater group. In this example many dollars originally intended to provide relief to low income households go to subsidizing middle class and affluent customers. As can be seen from Figure 1, the impact on those customers who do pay more can be quite severe. (Owners of electrically heated homes could expect an average monthly increase of around $25.00.) Some lifeline supporters might argue that this is actually desirable, because those who conserve are rewarded while those who waste a lot of electricity are penalized. This is not a sound argument. Price elasticity is the measure of how much a change in price causes a change in consumption. Due to difficulty in measurement, no precise value for the price elasticity of electricity is known. It is known, however, that for some customers the demand is relatively inelastic (i.e., increases in prices do not cause decreases in consumption). Examples of this would be owners of electrically heated homes. Such individuals can only turn down their thermostats so much. For these individuals, lifeline rates would artificially cause a large jump in prices and would constitute discrimination more than an incentive to conserve.

It is by no means clear that distortion of pricing structures encourages conservation. Many economists believe that such distortions actually work counter to the efficient allocation of resources by preventing consumers from receiving proper price signals. Clearly the 77% of MP&L's residential customers who would be able to buy electricity below cost would not be encouraged to conserve. Furthermore, those customers using above 800 kWh per month are not necessarily wasting electricity. Table 2 shows the results of an MP&L appliance saturation survey.

TABLE II: Appliance Saturation Survey and Customer Characteristics Data

% of MP&L customer with air conditioners = 13%

Average monthly consumption for all electric homes = 1700 kWh

Average consumption for MP&L rural residential customers = 850 kWh

Estimated average monthly kWh consumption for a household with a given # of occupants. (Excluding air condtioned and electrically heated homes)

# of Occupants	Estimated Monthly kWh
1	280
2	490
3	680
4	860
5	1030
6	1190
7	1350
8	1500
9	1650

Customer Characteristics

	Customers Using more than 800 kWh/month	Customers using less than 800 kWh/month
Avg. # occupants/household	4.5	2.5
Avg. % use electric ranges	88%	62%
Avg. % use electric water heaters	Above 94%	48%

Residential customers using above 800 kWh per month tend to have bigger families and a higher percentage of electric ranges and water heaters than customers using below 800 kWh per month. These customers have higher consumption because their appliance mixture is weighted towards the use of electricity (as opposed to gas) for cooking and water heating. Because of their larger families (hence more cooking, water heating and washing), they are not likely to be able to reduce their electricity consumption. Reducing air conditioner use is probably the only area where many residential customers could save a significant amount of electricity. However, Table 2 shows that only about 13% of MP&L's residential customers have air conditioners. Due to our climate, they are expected to have relatively few hours of usage. In southern Minnesota where there is more air conditioning, a pricing policy might have some impact on consumption. NSP has implemented seasonal rates which charge more per kWh during the air conditioning season.

Another group of residential customers with above average consumption are farmers. MP&L's rural customers average 850 kWh per month so a significant number of farmers could expect higher bills under lifeline rates. Farmers have a high monthly consumption because they have large motor loads (for material handling), refrigeration loads (especially dairy farmers) and they use electricity for heating animals and equipment. In Vermont, farmers lobbied against lifeline legislation because they recognized the effect it would have on their bills.

So we have seen it is not true that residential customers with higher consumption are necessarily big wasters. Many are farmers, owners of electrically heated homes, have larger families and use electricity for cooking or water heating. In Minnesota most electricity is generated by coal, nuclear power or hydro power. Penalizing those who use electricity in order to subsidize those who use gas or fuel oil, for example, would seem to be a poor conservation policy and contrary to our national objectives of maximizing our utilization of less scarce resources.

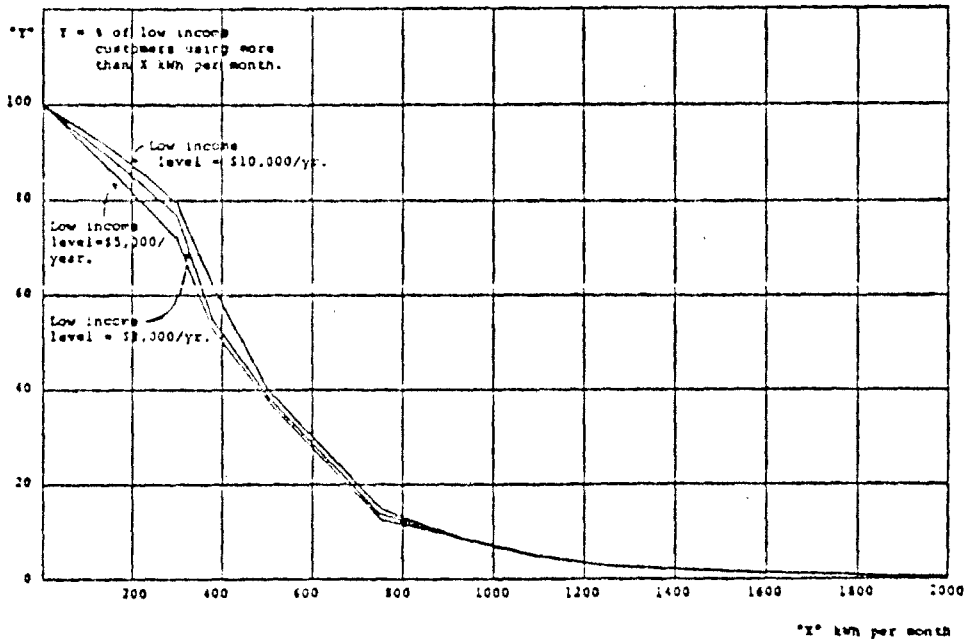
Other studies support these conclusions. In a February 1977 study on utility rate design conducted by the FEA 2/, it was concluded that lifeline rates offer no net energy savings, while reducing the overall fairness of electricity rates and working counter to the efficient allocation of resources.

Lifeline supporters might argue that the main purpose of the lifeline plan is to provide rate relief to low income consumers and any conservation or rate equity considerations are secondary. It could be argued that the example rate was poorly designed and that lowering lifeline level could remove its deficiencies. However, it can be shown that even with the high lifeline level and break-even point, of the example rate, a significant portion of low income citizens fail to benefit under the lifeline plan. In Minnesota 10-15% of all low income families have their electric bill included in their rent. These people are not likely to benefit from any lifeline rate legislation. The 120 municipal electric utilities, serving nearly 200,000 residential customers, do not have their rates regulated by the MPSC. Minnesota's 51 rural electric co-ops, serving 450,000 customers, may be removed from rate regulation by the MPSC (depending on the outcome of pending legislation). Since the Legislature will almost certainly have to use the Public Service Commission as the vehicle to implement the lifeline legislation, all low income customers served by municipals and perhaps all those served by co-ops will not receive any benefit from lifeline legislation.

2/ "Electric Utility Rate Design Proposals" Interim Report by the Federal Energy Administration. February 1977, Pages 76-78.

In addition, there is a significant portion of low income consumers who would actually pay more under lifeline rates. Figure 3 shows the percentage of low income customers using more than any given monthly kWh level.

Figure 3
MP&L Low Income Customer Energy
Frequency Distribution.



This graph was produced from an MP&L customer survey performed by Reichman Research Inc., an independent marketing research organization. This survey, with over 90 low income customers, has a reasonably high degree of statistical validity. It will be noted that the actual income level designated as low income is not critical because there is not a significant difference between the shapes of the $5,000, $8,000 and $10,000 per year curves. This graph shows that about 12% of MP&L's low income customers use more than 800 kWh per month. These individuals will be faced with a peculiar hardship; their electricity bills will go up to subsidize other customers, who in many cases actually have higher incomes.

The example lifeline rate has been shown to have no effect on at least 10-15% of Minnesota's low income families and could create a hardship for an additional 12%. All in all, about 25% of all low income families receive no benefit under the example lifeline rate which, as previously remarked, is a very generous rate. Any lifeline rate with a lower lifeline level will benefit even fewer low income families. Figure 3 makes it easy to see what the effect of lowering the lifeline level (and hence the break-even point) would be. A low use lifeline (lifeline level 300 kWh per month giving a break-even point of about 500 kWh per month) would cause increased bills for 38% of MP&L's low income consumers. However, Figure 2 shows 48% of all MP&L customers (low, middle and upper class) would get lower bills under this lifeline rate. The facts are simply that the correlation between income and monthly kWh consumption is not strong enough to design a viable lifeline rate. Many of

Minnesota's low income families are large energy consumers because they have large families, they farm (approximately 10-15% of low income families farm) or use electric water heaters (25-50% of low income families use electric water heaters). Furthermore, many higher income consumers may use little electricity because they are single or have small families or they may use gas for cooking and water heating. The Minnesota Legislature will have to decide if such individuals should receive the benefits of a subsidy intended to aid (and partially financed by) low income citizens.

These arguments have been substantiated in recent lifeline rate studies carried out by the Tennessee Valley Authority. 3/ The TVA found that under lifeline rates 26% of low income customers would have paid more for electricity while 49% of the affluent and middle class customers would have paid less.

The facts are that lifeline rates pose an insoluble problem in rate design. Setting the break-even point too low causes a significant portion of low income families to pay higher bills. Setting the break-even point too high creates extreme hardships for those who do end up paying more and will produce no net energy savings.

A final point is that only a small part of low income customers needs would be met by lifeline rates. The "expected value" to low income customers of a lifeline rate is their average savings under the rate. Taking into account the fact that some will lose money, for customers earning below $10,000 a year the "expected value" of the example lifeline rate is only about $1.30 per month. This amount hardly seems adequate for its intended purpose. When it is realized that for most familiilies home heating fuels (which are not affected by lifeline legislation) are a much bigger portion of their monthly budget than expenditures for electricity, it can be seen that lifeline rates provide at best, only a partial solution to the problem.

Other experts agree that lifeline rate plans are very questionable. In direct testimony regarding MP&L's 1977 rate case, Kennedy E. Lange, an Economist and Senior Rate Analyst for the MPSC, testified "The difficulties with such income transfers are several. One peculiar characteristic is that it applies to only one necessity in no particular relationship to other needs ... it provides the recipient with no options, except in the comparatively minor sense of freeing up a portion of income which might otherwise be dedicated to use of electricity."

"But the needs of such individuals are not limited to electricity and the problem is not the price of electricity. It is their lack of income. The obvious (and appropriate) solution is income adequacy not price administration. An effective and efficient means to provide adequacy exists at the disposal of our legislature in the form of the income tax."

"The national or state legislatures are or can be exposed to all relevant criteria in determining income adequacy, can index that judgment to all costs of necessity and possess the near perfect tool to administer that

3/ See "Lifeline Rates" Fact Sheet October 1977 by Reddy Communications. The June 1977 TVA Study is discussed.

judgment through their taxing authority."

Lange also mentioned the significant benefit targeting problems previously discussed and later suggested that in the absence of a negative income tax, the next best solution would be some kind of lump sum reimbursement or tax credit for low income taxpayers. In order that wasteful energy consumption would not be encouraged, the size of the tax relief would be unrelated to the individual's energy consumption. This seems to be the form of the proposal of Commissioner Sasseville. In this study we will not analyze or recommend any specific piece of legislation. Suffice it to say that several options exist which do not suffer from the draw backs of lifeline rate plans. Minnesota's progressive tax structure could easily accommodate tax relief programs in one of several ways. Such a program could be built into the Minnesota low income tax credit, senior citizen tax credit or into the renters or circuit breaker tax credit. The chief advantage of such a program would be that aid would be directly tied to income level. In this manner no dollars would get sidetracked to economic classes who are not intended to receive benefits.

The Minnesota State Legislature is faced with a question of basic social policy: will assistance be provided to low income families to help them meet the rising cost of energy? If so, will they provide an efficient solution? Will they risk creating hardships for some of those they intend to help? Will they target certain groups (such as farmers or owners of electrically heated homes) for increased prices? Will they try to provide a complete solution or will they implement a 5% solution?

Public Utilities
FORTNIGHTLY

California's Lifeline Policy

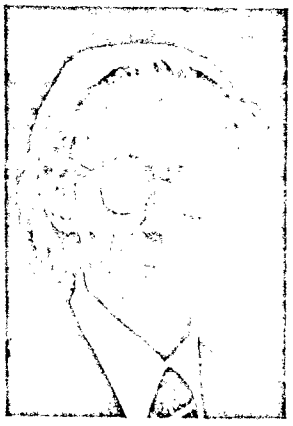
By ALBIN J. DAHL

THE era of low-cost energy has ended. The contemporary problem of the high cost of energy cannot be solved short of a major breakthrough in energy-related technology. Regulatory commissioners and their staffs, lawmakers, and spokespersons for consumer groups expound proposals for mitigating the impact of the high and rising price of electricity. The policies suggested may be classified under the broad headings of load management, conservation, and innovative designs of rate schedules.

The state of California, through its legislature, adopted a "lifeline" policy in utility rate making in 1975 which required the creation of inverted rate schedules for residential users of electricity and gas.[1] Our purpose here is to describe the experience of the Pacific Gas and Electric Company with lifeline allowances and electric and gas rates determined by the California Public Utilities Commission in implementing that state's Energy Lifeline Act, and to draw some conclusions regarding that kind of policy. Because of space limitations, much of the detailed analysis presented in this article is confined to usage of electricity. However, the same analysis also applies to use of natural gas.

At this date there are scattered lifeline rate programs in effect around the nation. Their genesis was the concept that an irreducible minimum of utility service necessary to sustain life under contemporary conditions should be available to individuals at rock-bottom prices. One of the earliest and certainly the most thoroughgoing program was instituted in California at the beginning of 1976. This article constitutes an analysis and critique of California's rate schedule reform, particularly of the measure of its success in meeting its declared goals of providing for the welfare of low-income consumers and inducing conservation in household uses of electricity and natural gas.

[1]Assembly bill 167, an act adding § 739 to the Public Utilities Code, approved by the governor of California on September 23, 1975.



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Innovative Residential Rate Designs

As of 1977, public utility commissions in seven states had been persuaded by reformist philosophy to adopt some form of an inverted residential rate schedule; i.e., in which the rate per kilowatt-hour (kwh) rises as quantity of electricity consumed increases. The inverted schedule is predicated on the notion that residential consumers will be constrained in their use of electricity if the price they must pay per kwh rises as quantity consumed increases. Hence it is argued that an inversion will

induce conservation in residential use of electricity. Conservation, especially restraining demand during seasonal peak demand hours, will make possible postponement of system expansion at a sharply rising cost per kilowatt (kw) of new generating and transmission capacity.

Furthermore, according to proponents, the inverted residential rate design contributes to social justice because relatively small quantities of electricity are sold at the lowest rate of the schedule, thus permitting consumers to buy electricity for basic needs at a price below full cost of service. The social justice (or welfare) argument subtly assumes that low-income consumers use small quantities of electricity. But this hypothesis cannot pass the tests of analytical scrutiny or of verification by sampling records of low-income individuals' use of electricity and gas. As we shall see, low-income consumers tend to use large quantities of electricity and gas and therefore inverted rate schedules are regressive on a large percentage of the low-income population billed for utility service according to inverted designs.

Inverted rate schedules of the kind we have mentioned discriminate among consumers and this is one of the reasons why inversions were rejected by the Wisconsin Public Service Commission in 1974[2] and by the California commission that same year. The staff of the California commission explained that: ". . . the immediate inversion of rates would [offend] the following . . . principles of rate design: (1) they should not be *discriminatory*; (2) they should lead to stable revenue; (3) they should promote an efficient allocation of resources, thus discouraging wasteful use of energy; (4) they should reflect a sense of historical continuity."[3]

But in 1975, as we have seen, the California legislature adopted a *lifeline* policy which compelled the state commission to adopt an inverted rate schedule for residential users of electric and gas.

The Lifeline Concept

The lifeline concept is that a minimum basic allowance of household energy should be supplied at discounted rates and that consumption of electricity and gas in quantities exceeding allowable limits should be billed at higher (nonlifeline) rates, continuing from the quantity reached by the lifeline limit. A lifeline plan is much more comprehensive than a simple inverted schedule but the ostensible objectives of welfare and conservation are the same. These innovative rate designs shift the burden for contributing revenue for energy utility service from one group of ratepayers to other groups. When a state adopts a lifeline policy, basic allowances are specified in detail. In California the Energy Lifeline Act froze residential lifeline rates at the level prevailing on January 1, 1976.

Lifeline plans were rejected in Alabama, Illinois, Indiana, Florida, Idaho, Louisiana, Maine, Mississippi, New Hampshire, New Mexico, South Dakota, Texas and West Virginia. However, New Jersey and Oregon have adopted lifeline plans. Lifeline legislation is under consideration in Michigan, Minnesota, South Carolina and Utah. Lifeline rates are under study by the state regulatory commission in Nevada and Pennsylvania.

In Ohio an experimental lifeline electric rate schedule for the identifiable elderly poor was tested by local authorities during 1977. Georgia has adopted a modified version of a lifeline rate design. Residential customers are billed for their total use of electricity at one of two alternative rates, depending on the quantity of electricity used; large-quantity users pay a higher rate than low-quantity consumers. For at least one major electric utility company in Georgia, the large user residential rate is inverted on a seasonal basis to manage the load in summer peak demand service territory. Puerto Rico has a lifeline allowance for all residential consumers of electricity.

Last year the Colorado commission adopted a lifeline policy granting a 50 per cent discount on the first 250,000 cubic feet of gas supplied to persons whose incomes were low enough to qualify them for the Colorado property tax credit or rent credit (less than $7,300 annually for single persons and less than $8,300 for married couples). The commission allowed Public Service Company of Colorado to increase rates slightly for all other consumers to compensate for the cost of the lifeline subsidy.

The Mountain States Legal Foundation challenged the commission action in a court of law. On March 28, 1978, Judge Robert Kingsley of the Denver district court struck down the disputed lifeline natural gas subsidy, quoting with approval the argument of the plaintiff that the utilities commission cannot adopt a lifeline social welfare program unless it is authorized by statute enacted by the Colorado legislature and signed into law by the governor. The court held that the commission had gone beyond the bounds of the powers granted to it by the state public utilities code and by the Colorado constitution.

This decision of the Denver district court may be appealed. But unless it is reversed, it is legal precedent compelling public utility commissions to obtain legislative authority before implementing a "lifeline" welfare program of any kind or an inverted rate schedule designed to subsidize residential use of small quantities of electricity and gas.

On the national scene, the public utility policies section of the National Energy Act, as originally formulated in the House of Representatives and the Senate, contained incongruous provisions. The House version of the legislation required that electric utility rates be *cost justified*. But § E of the Senate bill permitted departure from cost justification by providing that residential electric rates may be below cost while all others should reflect the costs of service. These are contradictory provisions, for if residential electric rates were established below full cost, rates for all other classifications of customers would have to be above full cost to make up for the residential subsidy. The Senate version of the legislation also proposed compelling

[2]Re Madison Gas & E. Co. (Wis 1974) 5 PUR4th 28, 34, 42.
[3]California PUC, Decision No. 85559, Case No. 9804, 1974, p. 21.

electric utility companies to charge persons sixty-two years of age and older and all Social Security and railroad retirement recipients rates as low as they charge industrial customers. But cost of providing electric service to large industrial customers is less than that associated with serving residential customers. Rich old people would have had cheap electricity that someone else would have had to subsidize.

All of these lifeline provisions were rejected by the House-Senate Conference Committee but their sponsors are likely to introduce proposals of this kind again.

California is the only state which has enacted a very broad lifeline act providing for basic allowances of electricity and gas at discounted rates for all residential end users irrespective of financial status and declaring that scarce energy resources must be conserved. Here we find the familiar twin goals of welfare and conservation.

California's Energy Lifeline Legislation

Section 1 of the Miller-Warren Energy Lifeline Act of 1975, which became effective January 1, 1976, states that "light and heat are basic human rights and must be made available to all people at low cost for basic minimum quantities."[4]

The meaning of "low cost" is indicated by the provision that "the lifeline rate shall not exceed rates in effect as of January 1, 1976," and that "no increase in the lifeline rate [shall be authorized] until the average system rate in kwh or cents per therm has increased 25 per cent or more over the [level prevailing on January 1, 1976]."[5] However, at least for PG&E, the rate freeze antedates January 1, 1976, because in its order allowing the company additional revenue in the fall of 1975, the state commission exempted from any rate increase the first 300 kwh of electricity and 75 therms of gas in residential use.

The California commission which is charged with responsibility for implementing lifeline policy, interprets the statute as providing that after system rates for electricity and gas, excluding the lifeline rates, have risen by 25 per cent above the January 1, 1976, level, the commission shall have discretionary authority to determine an appropriate new level for the lifeline rates.[6] However, the history of the legislation and its preamble imply that lifeline quantities of electricity and gas shall be served at rates below system average cost.

In determining basic domestic minimum needs for electricity and gas, the Energy Lifeline Act directs the state commission to consider *only* the following five residential end uses: (1) lighting, (2) cooking, (3) refrigeration, (4) water heating, and (5) space heating. To safeguard against wasteful use of household energy, the legislature instructed the commission to ascertain the smallest quantities of electricity and gas, for the five uses specified, required to maintain health and a reasonable level of comfort for an average residential end user of energy. The average user is defined by the commission as "a family of four people, living in a five-room, 1,000-square-foot, well-insulated, single-family dwelling unit."[7]

The lawmakers reference to a need "to encourage conservation of . . . energy . . ." and to "minimum energy needs" mandated that the commission must stringently determine lifeline allowances. It is notable that the statute makes no provision for lifeline allowances of electricity in various commonplace residential end uses — e.g., air conditioning, well pumping, clothes washing and drying, dishwashers, television, garbage disposals, etc. Apparently these omissions are intentional for as we have already seen, lifeline energy policy is designed to achieve a measure of conservation in the use of energy.

Implementing the Energy Lifeline Act: Electric and Gas Allowances

In October, 1975 the commission required electric and gas utilities with all or part of their service territory in California to estimate minimum energy needs in each of the five categories specified in the lifeline act; in estimating energy needs for space heating, the utility entities were instructed to recognize climatic variations.

Prior to adoption of the lifeline policy by the California legislature, management of electric and gas utility companies had no need for data on end uses of service; e.g., whether a household is equipped with an electric or gas range, the quantity of electricity or gas used for cooking, and the quantity of electricity needed for adequate household lighting. Because this kind of information is fragmentary, the respondent utility entities could only estimate lifeline quantities. The commission held hearings to consider the adequacy of lifeline estimates by utility management and considered commission staff recommendations.

The negotiated interim lifeline allowances for electricity are tabulated below:[8]

Lifeline Allowances for Electricity End Uses	*Single-family Dwellings* (In Kilowatt-hours	*Unmetered Units Of Multifamily Structures* Per Month)
Basic allowance for lights, cooking, and refrigeration	250	190
Water heating	250	200
Space heating, winter, November 1-April 30:		
Zone 1, mild	550	330
Zone 2, temperate	800	480
Zone 3, cold winter	1,120	675
Zone 4, very cold winter	1,420	850

The commission adopted a statewide set of four climatic zones and the lifeline allowance of electricity for space heating varies with the zone, as tabulated above.

[4] See footnote 1.
[5] Public Utility Code, § 739(b).
[6] California PUC, Decision No. 85559, Case No. 9804, p. 73.
[7] California PUC, Decision No. 86087, Case No. 9988, 1976, p. 11.
[8] See footnote 7.

The three types of lifeline allowances, basic, water heating, and space heating, may not be commingled; each is a separate allowance. The water-heating allowance is provided only for households with electric water heaters; only households equipped with an electric heating *system* qualify for the space-heating electricity allowance.

The commission also determined lifeline allowances for gas for cooking, water heating, and space heating; the allowance for the latter varies with climatic zone as seen below:

Single-family Dwellings or Metered Units of Multiunit Complexes
(Therms Per Month)

Climatic Zone	*Cooking*	*Water Heating*	*Space Heating*
1	6	20	55
2	6	20	80
3	6	20	115
4	6	20	140

The lifeline gas allowances cannot be commingled; each is a separate allowance. Only households with gas-fired equipment qualify for the gas water-heating and space-heating lifeline allowances.

One problem, unsolved at the time of the commission's interim order on lifeline quantities of energy, is that natural gas is supplied to most areas of California but not all. Where gas is available it is used for space and water heating by many residential customers who cook with electricity. "Since in this interim phase, no method was found to identify users [who have access to gas but cook with electricity] our lifeline electricity quantity will . . . duplicate the allowance for cooking [provided for] in our lifeline volume of gas."[9] Therefore some residential users receive a duplicate cooking allowance.

On April 5, 1978, the commission made permanent the lifeline plan it had adopted on an interim basis. In implementing the lifeline policy adopted by the legislature the commission and energy utility companies of California encountered numerous fundamental and procedural problems. Some of the difficulties are described in the sections which follow.

Residential Landlords and Master-metered Apartments

The statute requires determining a lifeline allowance for each residential *end user* of electricity and gas rather than for each residential *customer*; by this choice of the words *end user*, the lawmakers recognized that many residential accounts of utility companies are those of master-meter landlords whose rents compensate the cost of electricity and gas used by tenants. Examples of landlord accounts include (1) the owner of an apartment complex providing a laundry facility and including cost of electricity for its use in the rent; (2) space heating master-metered by the landlord who is compensated by quoting rent which includes heat; (3) master-metered porch and hall lights at apartment complexes. Landlord accounts of the kind enumerated do not qualify for lifeline allowances and rates.

But lawmakers intended to allow lifeline quantities of electricity and gas to tenants of master-metered apartments. Therefore the statute provides that lifeline allowances be applicable to each unmetered apartment and the allowances are *cumulative*. For example, if a master-meter landlord operates 500 apartments, his lifeline basic allowance is 190 kwh per month multiplied by 500, or 95,000 kwh. The allowances are lower for unmetered units of multihousehold structures and complexes (for electricity, 190 kwh instead of 240 kwh), on the assumption that typically these units are occupied by one or two persons and provide less than 1,000 square feet of living space.

In brief, each master-meter residential landlord is given a lifeline allowance of 190 kwh per month multiplied by the number of apartments in his complex. It is hoped that he will pass the cost advantage on to his tenants in form of lower rents. This may be an heroic assumption. Thus the commission declared: ". . . presumably the legislature thought that lower lifeline rates would be passed on to the ultimate utility user through lower rents. . . . Therefore if [master-meter] landlords find it necessary to raise rents to their tenants, it must be for some reason other than gas and electric rates being charged to them by utilities regulated by this commission."[10]

It is possible that landlords of large apartment complexes might find it to their advantage to provide electricity to their tenants at a commercial rate and disregard the potential benefits of lifeline allowances.

The lifeline legislation, as implemented by the commission, offers master-meter residential landlords an inducement to submeter their apartments. For submetered apartments, the lifeline basic allowance is 240 kwh per month, 50 kwh per month higher than for master-meter apartments. Renters of submetered apartments are billed for electricity and gas by the utility company providing the service. However the 240 kwh per month allowances are cumulative for the apartment complex. If the landlord operates 100 submetered apartments, the complex is allowed a lifeline of 240 kwh per month times 100 or 24,000 kwh. If renters use less than 24,000 kwh in any month because of "away from home" life-styles, vacations, or if there are vacant apartments, the landlord's hall lighting and other services account will be billed at the lifeline rate for the lifeline allowances not used by his renters. In terms of our illustrations, if tenants *as a group* use only 20,000 kwh of their basic allowances in any month, the landlord's domestic service account will be billed at the lifeline rate to a maximum of 4,000 kwh; any quantity in excess of 4,000 kwh would be billed at nonlifeline rates.

The commission recognizes that the cost of submetering or individually metering all rental units at apartment complexes, mobile home parks, and trailer parks would be prohibitive. However, in April, 1978,

[9]See footnote 7.

[10]See footnote 7.

energy utility companies were ordered to "encourage" residential landlords to submeter. In its commentary, the commission stated that lifeline allowances for rental units which are not submetered should be phased out over a reasonable time and that these allowances should be denied to new customers. "We also believe that within a reasonable time the lifeline quantities for submetered multifamily housing units should be adjusted to conform to those currently designated for multifamily housing units which are not submetered."[11]

The commission order of April, 1978, requires separate metering for individual *end-user* electric and gas service in each rental unit of new residential complexes. Apparently in recognition of economies from operating central space- and water-heating systems, the commission order requiring separate metering of gas service at new residential complexes applies only where tenants will use gas directly for operating individual water heaters or furnaces, or both.

Municipal Distribution System and Trailer Parks

The Miller-Warren Act exempts wholesale electric and gas transactions from lifeline allowances and related price regulations. Therefore customers of municipally owned distribution systems which buy electricity for resale from PG&E were excluded from the benefits of lifeline allowances and rates. Similarly owners of trailer parks who buy electricity and gas from PG&E for resale to end users were excluded from the provisions of the lifeline legislation. But the commission extended lifeline benefits to residential end users of the PG&E's wholesale customers. If a municipal distributor of PG&E electricity claims that 33.7 per cent of its residential end users consume at lifeline quantities, the commission ordered a reduction in the wholesale transaction price to enable the municipal distributor to pass along lifeline benefits to its qualifying customers. ". . . the result is that these [residential end users] enjoy virtually the same lifeline benefit as a customer on the PG&E system, and [the company's] commercial and industrial customers are subsidizing [customers of municipally owned distribution systems]. [For] trailer parks, a rate schedule with a block multiplier representing the number of submetered units is utilized."[12]

Unneeded Income Transfers to Owners of Second Homes

The Miller-Warren Act does not specifically limit lifeline to principal places of residence. However in its report to the legislature, the commission recommended that each customer of an energy utility company be allowed only one lifeline allowance or set of allowances; i.e., only for the principal residence. Identification of second homes of customers is extremely difficult, except in a resort area. " . . . customers could simply put [utility] service under each spouse's name and [the company] would have no way other than by inspection of determining that a given service was for a second home."[13] Prorating lifeline allowances would be a costly administrative chore for operating utility companies. Failure to grant a lifeline allowance on the erroneous assumption that a residence was a "second," probably would lead to lawsuits against the utility company. Furthermore second homes sometimes are occupied by tenants during some months of the year and denial of lifeline allowances to renters would offend the intent of the statute. Therefore energy utility companies granted lifeline allowable quantities and rates to all households without attempting to distinguish primary from secondary residences. Continuation of this policy was ordered by the commission on April 4, 1978. The order authorized utility companies to disallow lifeline quantities for second homes in areas in which a large percentage of residential housing is composed of vacation-type, second home, units. The companies and areas affected by the order were specified.

Fortunate persons can divide their allowances among two homes, each occupied intermittently or on a seasonal basis. If the allowances are high enough, it may be easy to stay within these limits at each location and there may be no incentive to conserve household energy. There are approximately 116,000 second homes served by Pacific Gas and Electric Company.

Unresolved Administrative Problems

In some areas, one company provides electric service and another distributes natural gas or propane. This gives a resident an opportunity to claim the electric water- and space-heating lifeline allowances even though he uses natural gas or propane for these purposes. Verification of lifeline entitlements in these areas is not feasible until uniform customer account numbers are adopted by the two companies.

The lifeline allowance for space heating does not please everyone. Residents in the coastal areas of northern California experience a number of cold days and nights between May 1st and November 1st. They complain that some measure of a lifeline space-heating allowance should be extended into spring and summer months for coastal areas. And residents of rural areas which lack natural gas utility service complain that the lifeline allowance for electric space heating is inadequate.

Furthermore, a greater percentage of PG&E customers in rural areas exceed lifeline allowances and by greater margins compared with residents in San Francisco and other central Bay area cities where winter

[11]California PUC, Decision No. 88651, Case No. 9988, 1978, p. 13-a. (There is also the problem of determining a reasonable differential to cover the cost of master-meter customers who provide a submeter service. PUC Decision No. 86087 established 10 per cent electric and gas rate differentials to cover the cost of submetering service. The Public Utilities Code requires that "such costs shall not exceed the average cost that the serving utility would have incurred in providing comparable services beyond the master meter to the submeter tenants.")

[12]"Lifeline Electric Rates in California: One Utility's Experience," presented by William M. Gallavan, vice president, rates and valuation, Pacific Gas and Electric Company, to the ninth annual Conference of the Institute of Public Utilities, Graduate School of Business Administration, Michigan State University, December 14, 1977, p. 9.

[13]See footnote 12.

and summer temperatures are mild, on the average. Therefore because the frequency of rural residential use of energy at nonlifeline rates exceeds that in urban Bay area communities, rural customers complain of having to bear an excessive share of the revenue requirements burden.

In San Francisco not only is the climate mild the year-around but also the average size of apartments and houses is relatively small. Therefore in that Bay area city the basic lifeline allowance is adequate for total usage of electricity by about two-thirds of PG&E customers. But this contrasts with the situation in the Central valley city of Fresno where average winter temperatures are below those of the central Bay area and summers are hot; in Fresno the basic electric lifeline allowance covers only a relatively small proportion of usage. Rural residents of California's Central valley complain because there are no lifeline allowances for air conditioning or for domestic water pumping.

No equitable formula has been devised for filtering lifeline benefits to residents who rent single rooms by the week or month in hotels, boarding and rooming houses, and dormitories. Furthermore it is practically impossible to extend lifeline allowances to residents of homes for the aged and nursing homes, especially since it is the policy of some operators to collect a fixed sum to cover cost of care when an applicant is accepted for admission to the home. The consensus is that any attempt to provide lifeline allowances for occupants of single rooms of all classifications would result in insuperable administrative costs and doubtless would benefit the owners of these kinds of facilities rather than the residents.

Critique of California's Lifeline Plan

Customers maximize the benefit of lifeline rates when they limit their use of electricity and gas to the basic allowance and other allowable lifeline quantities, if any. On the average, 73 per cent of PG&E's residential end users, many of whom are low-income individuals, exceed their 240-kwh basic lifeline allowance each month. Some low-income households exceed their electric and gas basic allowances by considerable margins and therefore the intended welfare assistance of lifeline policy is only partially effective. Progressively potential savings are sloughed off as lifeline allowances are exceeded until, for customers having only the 240-kwh per month basic allowance, the benefit of a lifeline rate is completely exhausted at 1,200 kwh of electricity per month. But most of the residential end users of electricity and gas in California benefit to some extent from the lifeline policy because there are no "needs" qualifications to be satisfied for participation in the lifeline plan.

Lifeline allowances provide "by-product" windfall increases in real income for many individuals of substantial wealth and income, however. The use of household energy rises with income but there are many deviations from the trend. For example residents of moderate to substantial wealth and income often occupy small but luxurious apartments and dine out frequently. Travel and recreation away from home fit into their life-styles and therefore they find it easy to confine their use of energy to the basic lifeline allowance and thereby receive an unneeded income transfer.

On the other hand, PG&E studies confirm that low-income households often use rather substantial quantities of electricity and gas. Low-income individuals were found occupying houses having inefficient heating systems, undersized room air conditioners, and lacking adequate insulation.

The conservation effect, if any, and the magnitude of the welfare effect of lifeline policy and of simple inverted schedules will depend on the quanity at which the rate inversion occurs and the size of the increase in the rate or rates at and beyond the point of the inversion. Since the inversion in PG&E's residential end-user schedule is very moderate, customers apparently see little incentive for staying within their basic lifeline allowance. The cost penalty for exceeding the basic allowance for electricity is significant only if consumption exceeds a sizeable 1,200 kwh per month.

Average residential usage of electricity by PG&E customers has been practically unchanged since January 1, 1976, when lifeline rates became effective. Therefore there is "little conclusive evidence as to the [alleged] link between lifeline and conservation. . . . customers respond more to their total bill than to any marginal price for the block in excess of lifeline [allowances]."[14]

An additional subsidy feature of PG&E's rate schedule for residential end users of electricity and gas is subtle in contrast to the well-publicized lifeline rates. As we have already seen, in the instance of PG&E the residential low-quantity electric and gas rate freeze antedated January 1, 1976. As a consequence of this action by the commission, lifeline rates, and a flattened upward slope of nonlifeline rate blocks when lifeline allowances are exceeded, PG&E's rate of return on residential electric service is at an estimated 3.67 per cent for 1978 at rates in effect in January of this year. This 3.67 per cent compares with an average 8.48 per cent rate of return for all classifications of customers. The estimated rate of return on service to all other classifications of customers exceeds the 8.48 per cent average in order to offset discrimination in favor of residential customers. The highest rates of return, averaging 13.72 per cent, are for serving commercial and industrial customers. The cost of electricity in residential usage is 4.93 cents kwh[15] and it is sold for 3.83 cents kwh. This compares with an average cost of 3.85 cents kwh for commercial and industrial use and an average price of 4.66 cents kwh.[16]

Residential lifeline and nonlifeline rates are subsidized principally by commercial, industrial, and agricultural customers. Residential customers pay less than the full cost of service and therefore other classifications of customers must make up for the revenue deficiency by

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[13] See footnote 12.

[15] This cost includes an 8.48 per cent rate of return on capital investment

[16] "Allocation of Costs between Regulatory Jurisdictions and Classes of Electric Customers, Year 1978, Estimated." Costs and rates of return are from the electric department, Pacific Gas and Electric Company.

paying more than full cost, for no lunch is free. In the long run prices of industrial goods and farm commodities and markups for distribution must compensate the full cost of doing business, including the cost of electricity and gas. Therefore lifeline and nonlifeline rate structures which subsidize household use of energy will lead to higher prices for *other* services and goods consumers buy. "The cost of this subsidy will be the indirect kind that is 'hidden in every can of orange juice and [in] every sack of potatoes, and consumers never know what is hitting them.'"[17] Lawmakers and the state commission have hidden the cost of an inefficient social welfare policy in a highly discriminatory energy utility rate structure.

The complex general purpose, no-eligibility-requirements lifeline policy of California ties together welfare and conservation goals. But as the quantity of electricity and gas to be offered at subsidized prices increases beyond a limit, welfare and conservation objectives begin to pull in opposite directions. The welfare effect may become more viable but a subsidized price for an increasing quantity of electricity will weaken or completely vitiate the conservation objective. A "no-eligibility-requirements" lifeline plan is cost inefficient because (1) it results in income transfers to individuals who do not need financial assistance and (2) many low-income individuals exceed their lifeline allowances. "Using rate structures for welfare purposes is using a shotgun when a rifle should be used."[18]

Public utility rate structures should perform a resource allocation function; they should not be a means of redistribution of income. Social welfare should be provided for openly through tax and welfare assistance plans. The Lifeline Energy Act of California has moved utility companies close to quasi-welfare agencies. As Paul L. Joskow observed: ". . . the answer is not to set a special price for [the poor], but through the legislature . . . to supplement their incomes . . . and if society's members decline to do the latter, regulatory commissions should not do it for them. For when we deviate from cost-based rates in pursuit of social objectives, we begin to distort the efficiency with which resources are allocated by giving price signals to consumers which do not properly reflect cost."[19]

The cost of the electric lifeline subsidy is shared by a large number of customers. But "as the dollar value of the lifeline subsidy continues to grow, concern over the financial burden on [these] other customers as well as the distortion of conservation-consumption decisions will become more significant."[20] For 1976 approximately 50 per cent of PG&E's residential electric sales and 17 per cent of total system electric sales were at lifeline rates. And the lifeline sales as a percentage of total sales are expected to trend higher. As of December 1, 1977, the average system electric rate had increased by 72 per cent above the level of January 1, 1976. This suggests a need for an increase in the lifeline electric rate to reduce the dollar value of the lifeline subsidy estimated at $181 million as of December 1, 1977, for PG&E.[21] But the majority of the California commission has postponed a decision on raising the lifeline rate although, as we have seen, the statute authorizes such an increase for an energy utility company after rates for the system have risen by 25 per cent or more.[22]

An Incredible Lifeline Rate for Natural Gas

When the commission allowed PG&E additional revenue in September, 1975, the company was not permitted to increase rates for small quantities of natural gas supplied to residential customers. Therefore the lifeline rate for PG&E natural gas, $1.42 per million Btu, is of September, 1975, vintage. But at this writing, the wholesale price at which the company buys natural gas for retail distribution is $1.75 per million Btu. Hence the company is constrained to supply natural gas at a lifeline price below the commodity cost of service. The fixed cost associated with distribution of gas to residential customers is 55 cents per million Btu. Therefore the lifeline rate of $1.42 per million Btu for natural gas compares with full cost of service of $1.97 per million Btu.

Nonlifeline revenue per therm of natural gas for subsidization of residential lifeline gas consumption is less than the nonlifeline revenue per kwh of service which subsidizes residential use of electricity. Therefore the incidence of the subsidy burden falls heavier in commercial and industrial billings for natural gas as compared with nonlifeline billings for electricity. The price of natural gas sold to commercial and industrial customers reflects this burden and therefore it has risen to a level at which it is no longer competitive with either coal or fuel oil. As a result, furnaces at some industrial plants have been converted from burning natural gas to coal or fuel oil of low-sulfur content. This leaves fewer PG&E industrial accounts over which to spread fixed costs and eventually the result will be even higher prices for natural gas in commercial and industrial uses. Curtailment of deliveries of natural gas to industrial

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[17] Opinion of Commissioners Vernon L. Sturgeon and William Symons, Jr., California PUC Decision No. 86087. Sturgeon and Symons concurred in the commission lifeline allowance decision only because it was policy mandated by the state legislature.

[18] Testimony of Paul L. Joskow, associate professor of economics, Massachusetts Institute of Technology, California PUC, Decision No. 85559, p. 80.

[19] See footnote 18.

[20] See footnote 12.

[21] "In addition to this [lifeline subsidy of $181 million] there is a subsidy of approximately $90 million due to the [residential classification of PG&E customers] being served below cost of service, as calculated on a monthly peak responsibility basis. Thus the total subsidy is $271 million. Of the lifeline quantity about $30 to $35 million is retained within the residential class and assessed against customers who exceeded their lifeline allowances." Quoted from William M. Gallavan (see footnote 12).

[22] ". . . residential sales in the lifeline category still do not share in the necessary rate increase. Instead the majority continues to put the decision off . . . if it is an offset case, the decision language suggests the commission will treat the problem in the future in a general case. If it is a generic case, it is suggested that we will handle the problem in the future in a case for a particular utility. This has gone on and on. This buck passing has got to stop. Briefs were filed on this issue in today's case. It is irresponsible to close down this investigation without providing an answer." Commentary of dissenting Commissioners William Symons, Jr., and Vernon L. Sturgeon, California PUC, Decision No. 88651, Case No. 9988, April 4, 1978.

customers during winter season shortages will thrust an increased burden for compensating fixed costs on the nonlifeline users of natural gas.

In brief, the subsidy to lifeline users of natural gas approaches incredibility. For PG&E, cost-of-service studies on the peak month basis introduced into a 1978 rate case show large industry paying rates for natural gas which equate to a 42 per cent rate of return, whereas the company's rate of return on natural gas sales to the residential class is minus 2 per cent.

Ostensible national and state policy is to urge or compel conservation in the use of fossil fuels. But in PG&E service territory, revenue contributed by commercial and industrial users of natural gas subsidizes a lifeline price below the company's commodity cost. Given this hefty subsidy for a lifeline allowance, the residential customer is encouraged to indulge in wasteful consumption of natural gas.

"Lifeline, as administered by the commission majority, has made a shambles of rational prices for energy in California. Runaway lifeline now costs one-half billion dollars a year. The expense falls heavily on the manufacturers, commercial enterprises, and farmers who produce in California."[23]

No Significant Correlation between Income and Use of Electricity and Gas

In 1973, PG&E analyzed patterns of electric and gas residential usage by low-income customers in the company's service territory. The 1973 study was based on a sample of 4,614 gas and 4,560 electric customers identified as "low income" by use of census data. The sample included low-income customers in 34 counties, 50 cities, and 182 census tracts. The recorded monthly usage of electricity and gas of each customer sampled for the prior two years was analyzed.

In the Bay area sample cities of Berkeley, Oakland, Richmond, San Jose, and San Francisco the winter peak month consumption of electricity by low-income individuals sampled exceeded system average peak month consumption in those same sample cities. In this area, the saturation rate for electric central heating is extremely low.

Analysis suggests complementary explanations for this high winter peak month use of electricity by low-income individuals. But whatever the reasons, low-income individuals sampled reached high average peak month levels of use of electricity, exceeding the system city peak average use by considerable margins.

The higher than system average ratio of *peak use* average use for low-income individuals sampled suggests that they are increasing their winter or summer consumption of electricity by proportionately greater quantities than are system users in the five Bay area winter peak cities referred to above and in the three summer peak Central valley cities of Bakersfield, Fresno, and Stockton.

The electric average capacity factors (ACF) of an energy utility's customer are the analog of the company's measures of its load factors. There are two ACF's for a customer: (1) the ratio of average month usage to the peak month usage and (2) the ratio of the minimum monthly usage to the peak month usage. A comparison of the ACF's for this eight-city subsample with those for the system showed that for each of the Bay area and Central valley cities enumerated the ACF's for the sample were lower than those for the system in those same cities.

These findings lead to the conclusion that the low-income individuals sampled have a very high usage of electricity for a few months and a sharply lower usage for all other months. They increased their use of electricity sharply in response to seasonal variations in the weather, and therefore their increased demand tends to be on peak, contributing to need for additional generating and transmission capacity destined for inefficient (low-level) utilization for most of the year, reducing the system load factor and raising cost of service. These findings suggest that a peak responsibility price for low-income individuals would be justified by a cost-of-service standard of pricing and that subsidized rates tend to encourage inefficient and wasteful use of electricity and gas. Other things being equal, over time energy utility customers will respond to a higher total bill for electricity and gas by decreasing their demand for service.

Only two of the eight cities and one county showed higher average monthly consumption by the sample than by the system. But comparing average use of electricity and gas by the low-income sample with the system average fails to produce meaningful results because variations in usage across the PG&E system are buried in the averages.

Therefore frequency distributions of usage of electricity and gas by the sample and by the system were developed to test the low income-low use hypothesis. A comparison of frequency distributions of the eight Bay area-Central valley cities subsample with the city-system month electric usage leads to the conclusion that substantial numbers of low-income customers use large quantities of electricity, although larger percentages of *system* customers are in the outer usage intervals than sample customers. The average monthly usage of electricity in the Bay area is 300 kwh. Nearly 50 per cent of low-income sample customer months exceed that average in every Bay area city except San Francisco. In Central valley cities the average monthly consumption of electricity is 600 kwh. In Bakersfield and Fresno, 20 per cent of the low-income customer months exceed this 600-kwh average. Furthermore, it was found that substantial numbers of low-income customers also use large quantities of electricity on an annual basis. The frequency distribution of electricity consumption by month for a ten-county subsample indicates that low-income sample usage in the Bay area counties is greatest in winter with large numbers of customer months in intervals above 600 kwh per month. In Central valley counties low-income sample usage is very high in summer peak months.

For rural areas, the low-income sample frequency

[23]See footnote 22.

distribution usually has a higher percentage of customer month totals in outer block intervals than that for the system frequency distribution. This observation may be explained by the energy-using effect of inferior quality housing occupied by low-income individuals.

In brief, frequency distributions for the system as a whole and for the sample indicate that substantial numbers of low-income sample customer months are in the outer usage intervals. A study completed in 1977 confirms the finding of the PG&E 1974 analysis of consumption patterns of low-income consumers.[24]

A Lifeline Allowance for Air Conditioning

Basic needs are relative, not absolute. In a society characterized by a rising standard of living, the concept of basic needs is continually expanding. Is not an unsatisfied demand for air conditioning as basic as that for space heating? Additions to the list of basic needs were inevitable. In 1977 the California legislature extended the scope of lifeline policy to include air conditioning. The governor vetoed the act, apparently with the understanding that the commission would of its own accord order lifeline rates and quantities for air conditioning. As anticipated, on April 4, 1978, the commission, by a 3-to-2 vote, ordered electric utilities to determine lifeline allowances for air conditioners to permit residential end users to maintain a temperature of 85 degrees in "appropriate climatological areas." Lifeline will be extended to include air conditioning during months of May through October by a company-by-company approach as applications for rate increases are considered.[25]

Electric utility companies will encounter formidable administrative problems in extending lifeline allowances for residential end-user air conditioning. It will be necessary to estimate the appropriate allowance, if any, of electricity for air conditioning during summer months according to type of equipment (water cooler, room air conditioners, central air conditioning) and climate; e.g., coastal, moderately hot, hot, and very hot. Customers will have to be surveyed to determine qualification for the air-conditioning lifeline allowance. If the commission orders a lifeline allowance adequate for operating central air-conditioning equipment, it will be to the financial interest of customers to claim a central air-conditioning allowance on which to operate a room air conditioner. The heavy burden of verifying claims for substantial quantities of electricity for air conditioning at subsidized prices would be thrust on management of energy utility companies.

Adding to the Summer Peak-load Demand

One of the most striking disclosures of the study by the rate department of Pacific Gas and Electric Company was that on the average the ratio of peak use to average use for the sample of low-income customers was higher than that for the average end use residential customer of the electric system as a whole. This higher than average peak to average use ratio for the sample of low-income customers was observed in summer peak service territories of San Jose and cities and towns of the San Joaquin valley. The inference drawn by the investigators is that there may be a rising air-conditioning saturation rate for low-income individuals as increasing numbers of used room air conditioners and water coolers are priced within their means. In possession of low-income households, these electric inefficient air conditioners tend to be operated intensively during weather-sensitive peak demand hours because heat penetrates dilapidated housing due to inadequate insulation and decrepit roofing.

Offering an additional lifeline allowance for air conditioning is likely to accelerate its increasing saturation rate and lead to needle peaking. A lifeline allowance for air conditioning will perform a welfare function but sacrifice conservation. Subsidizing weather-sensitive use of electricity for operating air-conditioning equipment can be expected to accelerate the need to expand the electric system at rising capital cost per kw of new capacity to meet summer peak-load demand. This assumes that over time consumers will respond to their total bill for electricity by using more at subsidized prices than they would if they were billed for the full cost of electric service. Strict adherence to a conservation goal suggests a peak responsibility price for use of air conditioners during critical hours of summer peak demand for electricity.

Lifeline Allowance for Life Support Equipment

In its April, 1978, order providing that appropriate lifeline allowances be determined for air conditioning, the state commission also extended the scope of lifeline to include electricity for operating life support equipment such as kidney dialysis machines and iron lungs. The lifeline allowance for this kind of device is to be determined by the servicing utility company on a case-by-case basis, considering estimated kwh for a month's operation.

An Open Category

The commission asserted that it has power to designate lifeline allowances for electric and gas usage other than those specified in the Energy Lifeline Act.[26] The commission has already extended a lifeline policy to telephone and water service under its general authority to regulate public utility prices.

Rural residents of California who pump well water complain that there should be a lifeline allowance for electricity put to this use. But the commission (so far) has excluded domestic well pumping from a lifeline allowance on the grounds that the typical residential end user of electricity and gas does not pump water. However the majority opinion stated that "we will in future rate

[24] "Characteristics of Residential Electric and Gas Users," Ulrick and Lavidge, Inc., report for Pacific Gas and Electric Company, September, 1977.

[25] See footnote 11.

[26] See footnote 11.

proceedings consider [lifeline for pumping water] where significant need by customers receiving such service is demonstrated." Reasonable *average* lifeline allowance for pumping water would be practically impossible to determine because the electric power requirements vary with depth of the well and type of pump used.

Pressure by consumer groups to extend the scope of lifeline to additional uses is a reasonable expectation. For example, why exclude clothes washing machines from a lifeline allowance? And why exclude clothes dryers during winter months when clothes cannot be hung on a line to dry in the fresh air? Once *cost of service* as the standard for pricing is abandoned, concessions to a nebulous *welfarism* seem to be nearly limitless.

"Lifeline" has come a long way since it was proposed to the California commission by Edward L. Blincoe, president of the Utility Users League of California. In 1968 the commission approved the state's first lifeline rate; it was a "low-cost *limited service* telephone line for senior citizens and shutins to use to check on each other and summon emergency assistance [when needed]."[27] It is a long leap from this *special purpose* telephone application to the complex general purpose, no eligibility requirements, of the Energy Lifeline Act of 1975.

Policy Recommendation and Conclusion

Issuing "energy stamps," analogous to food stamps, is the alternative to welfare utility rate designs most frequently suggested. But energy stamps would compound familiar problems generally encountered in administering food stamp policy. The most expeditious way of coping with the impact of rising cost of utility service on low-income people would be through appropriate adjustment of welfare payments provided for under existing legislation. The California Department of Benefit Payments already has a staff of nearly 35,000 workers who determine eligibility of applicants for assistance under various state welfare programs.

In brief, social welfare should be provided for openly through tax and welfare programs. Welfare assistance should not be concealed in a highly discriminatory energy utility rate design. Rate structure should not be designed to accomplish a welfare goal.

Subsidizing the cost of insulation and roof renewals for low-value housing would remedy causes for high weather-sensitive demand for electricity and gas by low-income individuals. By contrast a lifeline subsidy perpetuates the unsolved problem of individuals lacking the means for improvements which could conserve energy. The broad-range conservation objective should be accomplished by use of the techniques of load management. Tying welfare and conservation goals together in the rate structure is cost inefficient because many low-income individuals consume large quantities of electricity and gas and others receive unneeded income transfers. Public utility rates should be based on cost of service, for once cost justification is abandoned, there no longer is a standard by which to evaluate pricing.

[27]California PUC, Decision No. 74917, in Re Pacific Teleph. & Teleg. Co., Application No. 49142.

Energy Quest

The search for energy need not always be a somber affair. It may be fun — if a new game called "Energy Quest" is the way it is done. The game challenges players to generate as many kilowatt-hours of electricity as possible before an "oil embargo" strikes and ends the game. Designed to portray a national energy scenario that is in a constant state of flux, the game permits budding entrepreneurs to test their talents in the development and management of their choice of nine different energy sources.

Played on a board reminiscent of the familiar Monopoly board, Energy Quest is concerned with approaches to energy sites which are available for purchase and development. By utilizing the sites, which range from mines to electric power generating stations, the players face the task of synchronizing various efforts and producing energy in the ultimate form of electricity. A medium of exchange (money) is provided and the player who can prudently accumulate enough money to carry him over some of the rough spots while continuing down the road to successful ventures has the best chance of coming out a winner.

What Monopoly is to real estate, Energy Quest may become to the world of energy enterprises. It incorporates operations in uranium, coal, oil, natural gas, and geothermal, wind, solar, tidal, and nuclear energy into a game format simulating the trials and tribulations of the contemporary energy arena.

With energy an evermore prominent topic in the news and in the public consciousness, it may have been inevitable that someone should attempt to translate the exciting world of energy production into a light and enjoyable form of entertainment. Weldon Productions, Inc., of Columbia, South Carolina, has done that with Energy Quest.

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Welfare and Conservation Objectives in Electric Rate Designs

by Albin J. Dahl

The era of low cost energy has ended. The contemporary problem of the high cost of energy cannot be solved short of a major break-through in energy-related technology. Regulatory commissioners and their staffs, lawmakers, and spokespersons for consumer groups expound proposals to mitigate the impact of the high and rising price of electricity. The policies suggested may be classified under the broad headings of load management, conservation, and reform of rate schedules.

This article is limited to a review of innovative rate designs for residential use of electricity, i.e., rate schedule reform in pursuit of twin goals of (1) providing for the residential consumer's welfare and (2) conservation in household use of electricity. Our purpose is to make policy recommendations in the light of Florida's experience with an inverted residential electric rate design and California's Energy Lifeline Act.

The Change from a Decreasing Cost Industry to Increasing Costs

The price of electricity for residential use rose by 34.8 percent over the 20-year period ending in 1976, while the Consumer Price Index (CPI) rose by 102.3 percent. This comparison, showing that the cost of electricity for residential use rose only about 1/3 as much as the CPI for the 1957-1976 period, underscores the significance of rate *reductions* for residential and commercial customers which became effective over the years 1957-1970. These reductions are explained by economies of scale, as larger and more efficient generating facilities were built and by economies associated with extra high voltage transmission lines and interconnections among electric systems. In brief, until about 1970, providing electric utility service was a long-run decreasing cost industry. Residential electric rates[1] declined from 2.56¢ per kwh in 1957 to 2.10¢ per kwh in 1970, a decrease of 18 percent; commercial rates declined from 2.44¢ per kwh to 2.01¢, a decrease of 17.6 percent over the same period of years. Industrial rates were virtually unchanged.

But subsequent to 1970, sharply rising capital and fuel costs could not be offset by additional economies of scale or by further cost-reducing innovations in technology. Electric utility service has become a long-run increasing cost industry.*

The average cost of constructing efficient size base load generating capacity increased from $200 per kilowatt (kw) in 1970 to $600 per kw in 1976 and the cost is estimated at $1,000 per kw by 1985. Thus the capital cost of expanding an electric utility to serve a rising base load has tripled since 1970 in this highly capital intensive industry.

According to the Federal Energy Administration, $3.47 must be invested to yield a dollar of annual sales of electricity. This compares with 67¢ per dollar of annual sales for the automobile industry.[2]

The cost of fossil fuel for steam generation of electricity increased sharply after 1970; the percentage increases are as follows:

	Increase 1970-1975
Oil	403 percent
Natural gas	176 percent
Coal	177 percent
Average for fossil fuel	252 percent

About 74 percent of the nation's generating capacity is fired with fossil fuels, and fuel averages approximately 25 percent of the total cost of steam generation of electricity. The rise in the prices of fossil fuels has increased the cost of steam generation of electricity, on the average, by 63.6 percent (25% of 252%, the average increase in the cost of fossil fuel).

In view of these soaring capital and fuel costs, it is not surprising to find that from 1970 to 1976 the price of electricity for residential use rose faster than the cost of living index. Residential electric rates rose by 64.3 percent, 1970-1976, while the CPI rose by only 46.6 percent over the same period. The percentage increase in rates for residential use of electricity would have been even higher had it not been for the policy of regulatory commissions in most jurisdictions to apply the highest percentage rate increases to the industrial classification of customers.

The Price of Electricity Varies by Area

Table 1 lists bills for 500 kilowatt hours (kwh) of electricity in residential use for July 1977. The amount of these bills varies from $10.50 for Seattle, Washington, and $14.70 for Nashville, Tennessee, to $53.47 for New York City.

Seattle benefits from low cost hydroelectricity from generators installed in dams at Federal multiple purpose water projects. A municipally owned electric distribution system also contributes to low cost electricity. Nashville is served by

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*More precisely, in terms of micro economics, the industry long-run cost function has shifted upwards.

Table 1

Electric Bills for Selected Cities

City	500 Kwh Residential Electric Bills for July, 1977
Atlanta, GA	$18.82
Baltimore, MD	24.83
Boston, MA	31.01
Chicago, IL	22.82
Cleveland, OH	26.20
Dallas, TX	21.96
Denver, CO	18.55
Detroit, MI	25.59
Kansas City, MO	24.56
Los Angeles, CA	24.77
Miami, FL	22.66
Minneapolis, MN	25.51
Nashville, TN	14.70
Newark, NJ	32.80
New Orleans, LA	23.78
New York, NY	53.47
Philadelphia, PA	28.15
Richmond, VA	30.31
Rochester, NY	23.71
San Francisco, CA	19.31
Seattle, WA	10.50
Tucson, Az	29.70
Reno, NV	22.46 *
Las Vegas, NV	15.31 *

Source: Bills Reported Monthly on FPC Form 3-P (Electric Bill Data for U.S. Bureau of Labor Statistics), "FPC News," Aug. 12, 1977, Federal Power Commission, Washington, D.C.

**Calculated from rates provided by Nevada Public Service Commission*

the electric system of the Tennessee Valley Authority, a public corporation financed partly by the Federal government. The cost of electricity is highest in New York City because Consolidated Edison, which serves New York City, has two distinct cost disadvantages: (1) a low load factor (i.e., very substantial excess generating capacity in off-peak hours); (2) its steam generators are fueled with oil, the highest priced fossil fuel. Differences in approaches of regulatory commissions in setting rates contribute to the geographical variations in the price of electricity.

Innovative Residential Rate Designs

Public utility commissions in seven states have been persuaded by reformist philosophy to adopt some form of an inverted residential rate schedule, i.e., in which the rate per kwh rises as quantity of electricity consumed increases. The inverted schedule is predicated on the notion that residential consumers will be constrained in their use of electricity if the price they must pay per kwh rises as quantity consumed increases. Hence it is argued that an inversion will induce conservation in residential use of electricity.

Furthermore, according to proponents, the inverted residential rate design contributes to social justice because relatively small quantities of electricity are sold at the lowest rate of the schedule, thus permitting consumers to buy electricity for basic needs at the minimum price. But this social justice (or welfare) argument subtly assumes that low-income consumers use small quantities of electricity. As we shall see in our discussion of a "lifeline" basic allowance of electricity for residential consumers, low-income households often use rather substantial quantities of electricity because of their "stay-at-home" lifestyles. The minimum rate of an inverted rate schedule does not compensate full cost of providing service and therefore consumers who use large amounts of electricity are subsidizing the small quantity customers. Tinkering with rate designs of the kind reviewed in this article shifts the burden for contributing revenue for energy utility service from one group of rate payers to other groups.

An Inverted Rate Design in Florida

In July 1977, when the Florida Public Service Commission issued its order allowing Florida Power & Light Company additional revenue, the commission inverted the company's residential rate schedule. The inversion was designed (1) to promote social justice by discounting the price of electricity in residential consumption up to 750 kwh per month, and (2) to induce conservation of electricity in residential use and restrain rising peak load demand by charging a premium (or penalty) rate for electricity consumed in excess of 750 kwh per month. However residential demand for electricity in excess of 750 kwh per month for operating air conditioners held steady even at the premium price.

The service territory of Florida Power & Light includes much of the southern part of the state and in summer months nearly half of the company's residential customers would rather pay the penalty rate for electricity consumed above 750 kwh per month than forego the comfort of air conditioning, a necessity for some, but indispensable for others. Indignant customers complained that the penalty rate had raised their bills to a ridiculously high level. Apparently nearly every household possessing air conditioning equipment uses more than 750 kwh of electricity per month in a hot and humid summer peak load service territory. The conservation-effect of the penalty rate was small. A spokesman for Florida Power & Light said that "inverted rates will tend to exaggerate seasonal swings in the company's earnings and revenue by inflating electric bills in hot summer months, when many [residential] users consume more than the 750 kwh limit. . ."[3] A study by the public service commission indicates that in August, 47 percent of the company's customers exceeded the basic allowance and paid the penalty rate.[4]

But the welfare-effect of the inverted rate schedule apparently was substantial, for a study of electric utility residential customers of Gainesville, Florida, indicates that low income households do not possess air conditioning equipment; therefore, an allowance of 750 kwh per month at a discounted price would be adequate for this group of rate payers. During the summer months in southern Florida, one group of residential consumers, generally those with air conditioning equipment, paid a price for electricity which more than compensated the full cost of the utility service

and thereby subsidized the electric bills of another group.

The Public Service Commission and the company are under fire. A law suit has been filed in the Broward County, Florida, Circuit Court challenging the legality of the inverted rate structure on grounds that it is discriminatory, in violation of the State Constitution.[5] The court is asked to disallow the inversion and order Florida Power & Light to refund "excessive charges" allegedly paid by some of its customers. The company is a defendant although management opposed the inverted rate design it was compelled to accept by order of the commission.

In Florida, the welfare effect was working for households not using air conditioning equipment; but the conservation effect did not work very well. In hot, humid weather the demand for electricity to power residential air conditioners was strong even at the premium price. Households with air conditioning subsidized prices for those who used less than 750 kwh of electricity per month.

Inverted rate schedules do not satisfy the criterion of *fairness* to consumers and this is one of the reasons why inversions were rejected by the Wisconsin Public Service Commission in 1974[6] and by the California Public Utility Commission (PUC) that same year. If one consumer pays less than full cost for a supply of household energy, someone else must make up for the revenue deficiency by paying more than full cost, for no lunch is free. The staff of the California PUC explained that:

> the immediate inversion of rates would [offend] the following . . .principles of rate design: (1) they should not be *discriminatory;* (2) they should lead to stable revenue; (3) they should promote an efficient allocation of resources, thus discouraging wasteful use of energy; (4) they should reflect a sense of historical continuity.[7]

But in 1975 the California Legislature adopted a *lifeline* policy which compels the PUC to adopt an inverted rate schedule for residential users of electricity and gas.

The Lifeline Concept

The lifeline concept is that a minimum basic allowance of household energy should be supplied at discounted rates and that consumption of electricity and gas in quantities exceeding allowable limits should be billed at higher (non-lifeline) rates, continuing from the quantity reached by the lifeline limit. The lifeline concept is much more comprehensive than a simple inverted rate schedule, as in Florida. When a state adopts a lifeline policy, basic allowances are specified in detail; furthermore, in California the Energy Lifeline Act froze residential lifeline rates at the prevailing level (see below, our case study on California's Lifeline Act).

Lifeline allowances are under consideration in a number of states.[8] In Florida, one municipal electric utility is experimenting with a lifeline rate for the identifiable elderly poor. Similarly in Maine, a one-year test of lifeline rates for the identifiable elderly poor has been completed. The results of the test program will be reported to the Legislature for consideration before enacting any rate reform legislation. In Ohio an experimental lifeline electric rate schedule for the identifiable elderly poor is being tested by local regulatory authorities.

Georgia has adopted a modified version of a lifeline rate design. Residential customers are billed for their total use of electricity at one of two alternative rates, depending on the quantity of electricity used; large quantity users pay a higher rate than low quantity consumers. For at least one major electric utility company in Georgia, the large user residential rate is inverted on a seasonal basis to manage the load in summer peak demand service territory.

Lifeline legislation is being considered in Alabama, Florida, Illinois, Indiana, Michigan, Minnesota, New Mexico, Oregon, South Carolina, Utah, and West Virginia. Lifeline rates are being considered by the state regulatory commissions in Colorado and Pennsylvania.

Puerto Rico has a lifeline allowance for all residential consumers of electricity.

California is the only state which has enacted a very broad lifeline act providing for basic allowances of electricity and gas at discounted rates for all residential end users irrespective of financial status and declaring that scarce energy resources must be conserved. Again we find the familiar twin goals of welfare and conservation.

California's Energy Lifeline Legislation

Section 1 of AB167, the Miller-Warren Energy Lifeline Act of 1975, which became effective January 1, 1976, states that "light and heat are basic human rights and must be made available to all people at low cost for basic minimum quantities."[9]

The meaning of "low cost" is indicated by the provision that "the lifeline rate shall not exceed rates in effect as of January 1, 1976" and that

> no increase in the lifeline rate [shall be authorized] until the average system rate in kwh or cents per therm has increased 25 percent or more over the [level prevailing on January 1, 1976].[10]

The California Public Utilities Commission, which is charged with responsibility for implementing lifeline policy, interprets the latter provision to mean that after system rates for electricity and gas, excluding the lifeline rates, have risen by 25 percent above the January 1, 1976 level, the commission shall have discretionary authority to determine an appropriate new level for the lifeline rates.[11] However, the history of the legislation and its preamble imply that lifeline quantities of electricity and gas shall be served at rates below system average cost.

In determining basic domestic minimum needs for electricity and gas, the Energy Lifeline Act directs the PUC to consider *only* the following five residential end uses: (1) lighting, (2) cooking, (3) refrigeration, (4) water heating, and (5) space heating. To safeguard against wasteful use of household energy, the Legislature instructed the PUC to ascertain the smallest quantities of electricity and gas, for the five uses specified, required to maintain health and a reasonable level of comfort for an average residential end user of energy. The average user is defined by the PUC as "a family of four people, living in a five-room, 1,000 square foot, well-insulated, single family dwelling unit."[12]

The lawmakers reference to a need "to encourage conservation of. . .energy. . ." and to "minimum energy needs"

mandated that the PUC must stringently determine lifeline allowances.[13] It is notable that the statute makes no provision for lifeline allowances of electricity in various commonplace residential end uses, e.g., air conditioning, well-[illegible]ping, clothes washing and drying, dish washers, tele-[illegible]on, garbage disposals, etc. Apparently these omissions [illegible] intentional for as we have already seen, lifeline energy policy is designed to achieve a measure of conservation in the use of energy.

Implementing the Energy Lifeline Act: Electric and Gas Allowances. In October, 1975, the PUC required electric and gas utilities with all or part of their service territory in California to estimate minimum energy needs in each of the five categories specified in the Lifeline Act; in estimating energy needs for space heating, the utility entities were instructed to recognize climatic variations.

Prior to adoption of the lifeline policy by the California Legislature, management of electric and gas utility companies had no need for data on end uses of service: e.g., whether a household is equipped with an electric or gas range, the quantity of electricity or gas used for cooking, the quantity of electricity needed for adequate household lighting. Because this kind of information is fragmentary, the respondent utility entities could only estimate lifeline quantities. The PUC held hearings to consider the adequacy of lifeline estimates by utility management and considered commission staff recommendations.

The negotiated lifeline allowances for electricity are tabulated below:[14]

Lifeline Allowances for Electricity End Uses	Single Family Dwellings	Unmetered Units of Multifamily Structures
	(in kilowatt hours per month)	
Basic allowance for lighting, cooking, and refrigeration	240 kwh	190 kwh
Water heating	250 kwh	200 kwh
Space heating, Winter, Nov. 1 - Apr. 30:		
Zone 1, mild	550 kwh	330 kwh
Zone 2, temperate	800 kwh	480 kwh
Zone 3, cold winter	1120 kwh	675 kwh
Zone 4, very cold winter	1420 kwh	850 kwh

The PUC adopted a statewide set of four climatic zones and the lifeline allowance of electricity for space heating varies with the zone, as tabulated above.

The three types of lifeline allowances, basic, water heating, and space heating may not be commingled; each is a separate allowance. The water heating allowance is provided only for households with electric water heaters; only households equipped with an electric heating *system* qualify for the space heating electricity allowance.

The PUC also determined lifeline allowances for gas for cooking, water heating, and space heating; the allowance for [illegible]e latter varies with climactic zone as seen in next column:[15]

The lifeline gas allowances cannot be commingled; each is a separate allowance. Only households with gas fired equipment qualify for the gas water heating and space heating lifeline allowances.

Climatic Zone	Single Family Dwellings or Metered Units of Multi-unit Complexes (therms per month)		
	Cooking	Water Heating	Space Heating
1	6	20	55
2	6	20	80
3	6	20	115
4	6	20	140

One problem, unsolved at the time of the PUC's interim order on lifeline quantities of energy, is that natural gas is supplied to most areas of California but not all. Where gas is available it is used for space and water heating by many residential customers who cook with electricity.

> Since in this interim phase, no method was found to identify users [who have access to gas but cook with electricity] our lifeline electricity quantity will. . .duplicate the allowance for cooking [provided for] in our lifeline volume of gas.[16]

Therefore some residential users have received a duplicate cooking allowance.

Most residential end users consume more than their 240 kwh per month lifeline basic allowance for electricity and, therefore, they pay an inverted nonlifeline rate for the quantity consumed in excess of the lifeline allowable. The electricity allowances for water heating and space heating are more adequate. However in California, except for a relatively few rural areas where natural gas is not available, water heating and space heating are fueled with gas.

Our critique of lifeline policy deals with electricity, but with slight modification, the same analysis applies also to natural gas.

Would a Reasonable Lifeline Allowance Help Low Income Groups? There are indications that reasonable lifeline electric allowances would provide a windfall increase in real income in the form of subsidized electric bills for many persons of substantial wealth and income. But many low income persons, whom lifeline policy is designed to assist, might be paying more for electricity. This anamoly is explained by low correlation between levels of household disposable income and quantities of electricity consumed. The use of household energy rises with income, but there are many deviations from the trend. This observation has been confirmed by studies in TVA service territory and in Phoenix, Arizona.

A study of electricity use patterns of residents of various income levels in the service territory of Tennessee Valley Authority, TVA, showed that a lifeline policy similar to that adopted in California would increase the electric bill for 29 percent of the low income families and lower the bill for 49 percent of high income households.[17]

Similarly, a study by the National Economic Research Associates on the effect of lifeline minimum quantities and discounted rates in Phoenix, Arizona, indicated that the cost of electricity would *increase* for 37 percent of the households in the poorest section of Phoenix and *decrease* for from 26% to 32% of the consumers in the most affluent part of the city.[18]

The effect of contrasting lifestyles on the use of household energy is a plausible explanation for the findings of these studies. Residents of moderate to substantial wealth and income probably dine out frequently; travel and recreation away from home fit into their lifestyles, and therefore they find it easy to confine their use of electricity to the lifeline allowance and benefit from the discounted rate.

But the intended welfare assistance to low income people is only partially effective, for they tend to use relatively large quantities of electricity and gas because large households and the elderly often adopt stay-at-home lifestyles.

Benefits to Owners of Second Homes. A lifeline policy was not intended to aid owners of second homes. But lifeline allowances are allocated to each dwelling place, and therefore fortunate persons can divide their allowances among two homes, each occupied intermittently or on a seasonal basis. If the allowances are high enough, it may be easy to stay within these limits at each location and there may be no incentive to conserve household energy. There are approximately 116,000 second homes served by Pacific Gas & Electric Company.[19]

The California portion of Sierra Pacific Power Company's service territory is in the Tahoe Basin resort area. According to the 1970 U.S. Census, there were 7068 primary residential units in Sierra Pacific's California Tahoe service territory and 9135 second homes; of the total of 16,203 residences, 56 percent were secondary homes.

A study by Sierra Pacific measured the shift in the burden for contributing revenue to owners of primary residences in a recreational area. In 1977 the company's data processing department analyzed 25,254 residential accounts in its Tahoe, California service territory. Of the 25,254, 53 percent, or 13,417, were primary residences, and 47 percent, or 11,837, were secondary homes. On the basis of a sample of 1.5 percent of the company's California customers, it was found that the average annual use of electricity by primary residences was 8100 kwh and 4900 kwh at secondary residences. A revenue deficiency of approximately $556,200, due to subsidized prices for lifeline quantities of electricity used at second homes, was calculated based on rates filed with the PUC in February, 1977.[20] This revenue deficiency must be contributed by the company's California customers who use electricity in quantities above lifeline allowances. There is no basis in equity for shifting the financial burden from those who own second homes in the area to those whose primary residences are there. Rate payers whose principal dwellings are in the resort area subsidize electric and gas service for second homes occupied part-time.

Natural gas service is provided by South Tahoe Gas Company in Sierra Pacific's California service territory. Therefore an estimated 9135 owners of second homes serviced with both electricity and gas in this Tahoe area also benefit from discounted prices for a lifeline allowance of natural gas.

Residential Landlords and Master-Metered Apartments. The statute requires determining a lifeline allowance for each residential end *user* of electricity and gas rather than for each residential *customer;* by this choice of the words *end user,* the lawmakers recognized that many residential accounts of utility companies are those of master-meter landlords whose rents compensate the cost of electricity and gas used by tenants. Examples of landlord accounts include (1) the owner of an apartment complex providing a laundry facility and including cost of electricity for its use in the rent; (2) space heating master-metered by the landlord who is compensated by quoting rent which includes heat; (3) master metered porch and hall lights at apartment complexes. Landlord accounts of the kind enumerated do not qualify for lifeline allowances and rates.

But lawmakers intended to allow lifeline quantities of electricity and gas to tenants of master-metered apartments. Therefore the statute provides that lifeline allowances be applicable to each unmetered apartment and the allowances are *cumulative.* For example, if a master-meter landlord operates 500 apartments, his lifeline basic allowance is 190 kwh per month multiplied by 500, or 95,000 kwh. The allowances are lower for unmetered units of multihousehold structures and complexes (for electricity, 190 kwh instead of 240 kwh), on the assumption that typically these units are occupied by one or two persons and provide less than 1,000 square feet of living space.

In brief, each master-meter residential landlord is given a lifeline allowance of 190 kwh per month multiplied by the number of apartments in his complex; *hopefully,* he will pass the cost-advantage on to his tenants in form of lower rents. This may be an heroic assumption. Thus the PUC declared:

> presumably the Legislature thought that lower lifeline rates would be passed on to the ultimate utility user through lower rents. . .Therefore if [master meter] landlords find it necessary to raise rents to their tenants, it must be for some reason other than gas and electric rates being charged to them by utilities regulated by this Commission.[21]

It is possible that landlords of large apartment complexes might find it to their advantage to provide electricity to their tenants at a commercial rate and disregard the potential beneifts of lifeline allowances.

The lifeline legislation, as implemented by the PUC, offers master-meter residential landlords an inducement to submeter their apartments. For submetered apartments, the lifeline basic allowance is 240 kwh per month, 50 kwh per month higher than for master meter apartments. Renters of submetered apartments are billed for electricity and gas by the utility company providing the service. However the 240 kwh per month allowances are cumulative for the apartment complex. If the landlord operates 100 submetered apartments, the complex is allowed a lifeline of 240 kwh per month x 100 or 24,000 kwh. If renters use less than 24,000 kwh in any month because of "away from home" lifestyle vacations, or if there are vacant apartments, the landlord hall lighting and other services account will be billed at the lifeline rate for the lifeline allowances not used by his renters. In terms of our illustration, if tenants *as a group* use only 20,000 kwh of their basic allowances in any month, the landlord's domestic service account will be billed at the lifeline rate to a maximum of 4000 kwh; any quantity in excess of 4000 kwh would be billed at nonlifeline rates.

Summary and Conclusions

Last summer the Florida Public Service Commission, in requiring a major electric utility company to use an inverted residential schedule, assumed that a penalty rate would restrain the demand for electricity to power air conditioners; apparently the conservation effect was small. But in other seasons 750 kwh of residential electricity per month, priced at a rate below full cost of service is likely to induce wasteful use of electricity, inasmuch as it is estimated that 80 percent of the utility company's customers will not consume at the penalty rate during the *winter* season. Welfare and conservation goals can be achieved by means of an inverted rate design provided that only a strictly limited quantity of electricity is offered at a subsidized price. But we have seen that many low income households consume relatively large quantities of electricity and would tend to consume service into the range where the penalty rate applies, and other households would receive unneeded income transfers. Therefore tying welfare and conservation goals together in an inverted rate schedule is cost-inefficient. Finally, as the quantity of electricity to be offered at a subsidized price increases beyond a strictly defined limit, welfare and conservation objectives begin to pull in opposite directions. The welfare effect becomes more viable but a subsidized price for an increasing quantity of electricity will weaken or completely vitiate the conservation objective.

"Lifeline" has come a long way since it was proposed to the California PUC by Edward L. Blincoe, president of the Utility Users League of California. In 1968 the commission approved the state's first lifeline rate; it was a "low cost *limited service* telephone line for senior citizens and shut-ins to use to check on each other and summon emergency assistance [when needed]."[22] It is a long leap from this *special purpose* telephone application to the complex *general purpose*, no eligibility requirements, of the Energy Lifeline Act of 1975.

Inverted rate designs and lifeline have the same objectives in common, viz., providing for social welfare and conservation of energy resources. As our discussion suggests, provision for lifeline allowances is a more comprehensive procedure than merely designing an inverted rate schedule. Our critique of inversions also applies to lifeline. Adequate lifeline allowances will result in income transfers to individuals who do not need financial assistance, and beyond a limit the allowance will weaken the conservation effect.

Studies to which references have been made, viz., in TVA service territory, Phoenix, Arizona, and Gainesville, Florida indicate that the lifeline approach to welfare is extremely cost-inefficient. Approximately 35 percent of the low-income households would pay more for electricity under a hypothetical lifeline policy tested in two of the areas studies. In the Gainesville study 28 percent of the middle income households included in the sample would receive an unneeded income transfer. "Using rate structures for social welfare purposes is using a shotgun when a rifle should be used."[23]

Commissioners Vernon Sturgeon and William Symons, Jr., concurred in the PUC lifeline allowance decision only because it was based on policy mandated by the State Legislature. Lifeline rates are subsidized by nonlifeline residential rates and by commercial and industrial customers of energy utility companies. Therefore "[much of] the cost of this subsidy will be the indirect kind that is 'hidden in every can of orange juice and [in] every sack of potatoes, and consumers never know what's hitting them'."[24] Lawmakers have hidden the cost of social welfare in a discriminatory energy utility rate structure.

Issuing "energy stamps," analogous to food stamps, is the alternative to welfare utility rate designs most frequently suggested. But energy stamps would compound familiar problems generally encountered in administering food stamp policy. The most expeditious way of coping with the impact of rising cost of utility service on low income people would be through appropriate adjustment of welfare payments provided for under existing legislation. The California Department of Benefit Payments already has a staff of nearly 35,000 workers who determine eligibility of applicants for assistance under various state welfare programs.

In brief, social welfare should be provided for openly through tax and welfare programs. Welfare assistance should not be concealed in a highly discriminatory energy utility rate design. Rate structure should not be designed to accomplish a welfare goal.

The conservation objective should be accomplished by use of the techniques of load management, i.e., minimizing fluctuations in demand for electricity over a 24-hour period and over seasons. Time patterns in the use of electricity can be influenced by imposing a penalty rate on consumption during hours of peak demand and a discounted rate for off-peak use. The combination of a penalty and a discount is designed to induce users of electricity to shift part of their demand to off-peak hours. Also various nonprice techniques of direct control to shut-off air conditioners and water heaters for 15-minute periods on a rotating basis have been developed to curtail the use of electricity during critical hours of weather-sensitive peak demand.

Footnotes:

[1]Statistics on electric rates are based on Table 45-s, *Statistical Year Book of the Electric Utility Industry for 1976.*

[2]Statistics are based on "Electric Rate Reform," *Congressional Quarterly*, March 26, 1977, pp. 543-547.

[3]*The Wall Street Journal*, Nov. 1, 1977.

[4]*Ibid*

[5]*The Wall Street Journal*, Aug. 31, 1977.

[6]*Re Madison Gas & Electric Company*, 5 PUR 4th 34 at 42.

[7]Generic Rate Case, Decision No. 85559, Case No. 9804, 1974, p. 21. Regarding an efficient allocation of economic resources, the following is notable: ". . . the answer is not to set a special price for [the poor], but through the Legislature . . . to supplement their incomes . . . and if society's members decline to do the latter, regulatory commissions should not do it for them. For when we deviate from cost-based rates in pursuit of social objectives, we begin to distort the efficiency with which resources are allocated by giving price signals to consumers which do not properly reflect cost." Testimony of Dr. Joskow, PUC Decision No. 85559, p. 80.

[8]Based on "Status of Rate Structure Innovations by States," Sept., 1977, published by Edison Electric Institute, New York City, NY.

[9]Sec. 1(a). Assembly Bill 167 is an act adding Sec. 739 to the Public Utilities Code, approved by the Governor of California on Sept. 23, 1975.

[10]Public Utilities Code, Sec. 739(b).

[11]Decision No. 85559, Case No. 9804, Generic case investigating electric utility rate structures, California Public Utilities Commission, p. 73.

[12]Decision No. 86087, Case No. 9988, California PUC, p. 11.

[13]*Ibid.*, p. 8

[14]Source: *Ibid.*, p. 30

[15]Source: *Ibid.*, p. 56

[16]*Ibid.*, p. 38.

[17]Joseph C. Swidler, Analysis of Part V of Title I of the National Energy Act (H.R. 8444), July 26, 1977, p. 15.

[18]National Economic Research Associates research report on lifeline rates in Phoenix, Arizona, *Electrical Week*, McGraw-Hill, July 21, 1975.

The same conclusion, i. e., that the lifeline rate structure does not accurately identify low income consumers, was drawn from a study in Gainesville, Florida, by William E. Roth, "Micro-data Measurement of Residential Rate Restructuring," *Public Utilities Fortnightly*, Jan. 15, 1976, pp. 28-34:

"The lifeline rate, if implemented for the . . . homes [in the Gainesvill sample] would result in the 5 middle income homes with low consumptio levels receiving unwarranted income transfers. The two low incom homes with the larger consumption levels would receive little or n benefit from a lifeline rate structure despite their justifiable need.

[19]Decision No. 85559, Case No. 9804, California PUC, p. 75.

[20]The study and its results are presented in testimony of Jack (McElwee, Supervisor of Rates and Regulation, Sierra Pacific Pow Company.

[21]Decision No. 86087, Case No. 9988, California PUC, p. 10.

[22]A telephone lifeline rate was first authorized in Decision No. 749 dated Nov. 8, 1968 re Pacific Telephone application No. 49142. Quote from PUC Decision No. 86087, p. 7, footnote 3.

[23]Quoted from testimony of a witness for San Diego Gas & Electr Company, PUC Decision No. 85559, p. 80.

[24]Opinion of Commissioners Symons and Sturgeon, PUC Decisi No. 86087.

Public Utilities
FORTNIGHTLY

California Rate Experiments: Lifeline Or Leadweight?

By WILLIAM SYMONS, JR.

FIRST, what happened to utility rate regulation in the Golden State? Until 1975, our utilities had rate structures indistinguishable from those in all other states. The central feature of these rates was the declining block — which, despite innumerable misinformed contentions to the contrary, was rooted in cost, rather than antithetical to it. Nor were such rates "promotional" — they merely allocated energy according to the best cost, supply, and demand projections available at the time. As a matter of policy, cost-of-service rates also held cross-subsidization among customer classes to a minimum. To the extent that any class overpaid, it was business rather than residence, since the former normally paid a higher rate of return than the latter.

California Begins Marching to a Different — And Very Peculiar — Drummer

All this began to change very dramatically in 1975, when several reform-minded people were appointed to the California commission.

William Symons, Jr., is a member of the California Public Utilities Commission. He served as president of the commission during a two-year term beginning in 1968. Prior to being appointed to the commission, he was a member of the California state senate. Commissioner Symons has served as a member of the executive committee of the National Association of Regulatory Utility Commissioners since 1968 and during the same period he has been one of four state members of each of the NARUC-Federal Communications Commission joint boards.

The California reform program, which made its tentative debut in that year, and continues to the present, has several key features:

"Striving to Better, Oft We Mar What's Well"

—King Lear, I iv 347

*For the last several years, the rate design experiments conducted by the California Public Utilities Commission have received extraordinarily favorable press. Only recently, as the consequences of those experiments have begun to materialize has that coverage begun to change — most notably in this magazine,—which recently published two articles highly critical of California's new rate structure.**

It has been my good fortune to serve on the California commission for two terms —spanning the 12-year period from 1967 to 1978. This experience has given me a perspective enjoyed by fewer and fewer of my counterparts — a chance to see firsthand not only how traditional regulation worked, but also the consequences of overthrowing it to meet the supposed exigencies of the Brave New World of permanent resource shortages.

I have two reasons for writing this article. One is to share the lesson I have learned over the last twelve years. The second is to correct the misconceptions which still remain about precisely what has happened in California. Some of what I have to say will inevitably repeat points made in the two articles alluded to earlier. My goal is to minimize such repetition, while providing a different, up-to-date perspective, and correcting the minor errors contained in the earlier commentaries.

—BY THE AUTHOR.

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*"Utility Rates under the National Energy Act, *Quo Vadis*?" by Daniel J. Reed, 102 PUBLIC UTILITIES FORTNIGHTLY 11, July 20, 1978; "California's Lifeline Policy," by Albin J. Dahl, 102 PUBLIC UTILITIES FORTNIGHTLY 13, August 31, 1978.

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1) *Lifeline* — I will not discuss the history or mechanics of this program, as they were very ably

covered by Albin J. Dahl in the August 31, 1978, issue of this magazine. I wish merely to correct one mistaken impression created in his piece: that lifeline was imposed on the commission by the legislature. This is true only in the most formal sense, in that we do have a lifeline law. But the story of lifeline did not begin or end with the legislature, for the commission had begun implementing lifeline months before the legislature acted. Moreover, two of our newer commissioners lobbied for the lifeline bill, and later took much of the credit for its passage.

However, considerations as to the real origination of lifeline fade in significance when compared to the way in which the commission administered the program.

Not waiting for the law to be effective, the commission created its own lifeline quantities and rate design in a general rate hike beginning in the fall of 1975. Since the statute called for the commission to freeze the rate for lifeline use until system averages rose at least 25 per cent above January 1, 1976, levels, this premature imposition of lifeline had a "double-dipping" effect and exaggerated the impact of the freeze. Moreover, the law empowered the commission to raise lifeline rates once the 25 per cent ceiling was pierced. My agency unfortnately chose not to exercise that power. Lifeline rates for Pacific Gas and Electric Company customers, for example, remained frozen and even fell slightly while system average rates *doubled*.

Since "California lifeline" is not limited only to the elderly or to the needy but is universally applied to all residential users, this type of grand implementation caused a massive shift in revenue load from residential users to customers in the agricultural, commercial, and industrial classes — exceeding half a billion dollars annually.

The shift has become so severe that a substantial volume of energy is delivered at less than cost. For example, in PG&E's most recent general rate case, the company gas department witness reported residential customers paying a negative 2 per cent rate of return, while large industrial customers were being required to pay a 42 per cent rate of return. Selling energy to residentials at a dead loss can be a tremendous burden where residential sales average one-third to two-fifths of total sales.

2) *Flat and Inverted Rates* — The commission's lifeline proposal combined with and complemented a program to flatten and invert rates. In midsummer, 1977, the commission suddenly inverted all natural gas rates. Residential use was divided into five tiers. The first and cheapest was lifeline. The middle three featured charges which rose with use, and the fifth was a penalty charge for supposed waste. The commodity charge for commercial and industrial use was set at a price slightly higher than the highest residential or penalty tier.

The commission is now embarked on a series of decisions to flatten electric rates. The first of these concerning PG&E, was issued September 6, 1978. Subsequent decisions affecting the remaining California utilities can be expected in the near future.

3) *Time-of-day Rates* — I have no objection in principle to this sort of rate reform, since it is an extension of the cost-of-service principle. I object most strenuously, however, to the way this concept has been implemented in California.

Time-of-day rates based on costs would identify those customers most responsible for the peak and charge them for the higher costs they impose on the system. In the main, this would mean higher residential and commercial charges, and lower or unchanged industrial ones, since this is the pricing which corresponds most closely to peaking costs.

Unfortunately, the California commission decided to go about the whole thing backwards. It imposed time-of-day rates first on the very largest users, those whose demand exceeds 4,000 kilowatts. We are now in the process of extending those rates to those in the 1,000- to 4,000-kilowatt class, and some thought is being given to extending coverage to users with demand over 500 kilowatts. However, this last extension is many months away at best. Through the whole process the residential class has not only remained unaffected but has even had its use at system annual peak encouraged by means of a new lifeline allowance for air conditioning. How the commission reconciles this allowance with its often-voiced commitment to conservation or to lowering peak load totally escapes me.

It should surprise no one that a rate reform program as comprehensive and radical as this received a good deal of attention at the height of the energy crisis. At first, virtually all of that attention was positive, and dissenting opinions were ignored. As data on the program have accumulated, a far more critical viewpoint has begun to emerge.

The readers of this magazine have been exposed to several aspects of that new viewpoint. I would like to take advantage of my perspective as a commissioner to offer several more.

My basic objection to the entire rate reform program was that behind all the razzle-dazzle about conservation the program appears to have one driving goal —securing maximum political advantage out of a scheme which promotes massive redistribution of income via utility rates. In funding this escapade California gives businesses "the business."

How else can a program that prices up to one-third of sales below cost be explained? As a matter of fact, the California Public Utilities Commission staff is unable to produce evidence that this rate structure is conservation effective. Our most recent report indicates that average residential usages since the first of the year were *increasing* in two cases out of three for our major gas companies, and in three cases out of three for our major electric companies.[1] How else can we account for an alleged commitment to conservation while the lifeline program was being introduced and extended to — of all things — domestic air conditioning? How else can we account for a

[1] "Gas and Electric Sales Trend January, 1973, through May, 1978," California Public Utilities Commission Energy Conservation Team, Figures 2 and 4, July 3, 1978.

gas rate structure which pegs all commercial and industrial rates to a level *higher* than residential use defined by the commission as wasteful? And how else can we account for an electric rate structure which forced northern California businesses to absorb single-handedly the enormous costs of the 1975-77 drought? In short, the drift of California commission policy over the last few years has been nothing more glamorous or principled than providing a windfall to the politically populous, leaving the utility's remaining customers holding the bag.

The Piper Must Be Paid

While the unhappy features of the new California rate structure may not have been reported to out-of-state observers, the problems have not been lost on the California business enterprises. As they came to realize the scope of the injustice and harm that restructuring has visited upon them, outrage and resistance have grown. Calls for economic justice and sanity have become the principal point of their presentations before the public utilities commission.

The problem has also come to the attention of the state legislature. In response, the joint committee on the state's economy recently held hearings on the effect of rate design on California's economic well-being.[2] Typical of the remarks were the following by 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 per cent. But for the two in California, it has increased by over 150 per cent!
>
> 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.

Some telling cost comparisons were made by a representative of 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.

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.

Owens-Corning Fiberglas Corporation's Gerald Fuller believes that:

> . . . recent actions by a state regulatory body — the public utilities commission — . . . are contrary to recent progress in encouraging business growth in California.
>
> . . . the PUC actions can only be termed antibusiness in their effect. The commission is clearly discriminating against industrial and commercial customers. No other state is discriminating in this manner. . . . (T)he cost of gas to industry in California is much higher than in those areas which have

[2]Combined senate-assembly hearings of the joint committee on the state's economy, February 15th and 16th, Sacramento, California.

experienced the worst shortages; namely, the Midwest and Great Lakes area, and the Southeast.

• • • •

. . . the PUC policy will place some industries at a competitive disadvantage. . . . (T)hey will pay penalty rates and be put at an economic disadvantage to competitors in other nearby states. Such conditions will force companies with expansion plans, such as ourselves, to look elsewhere than California for competitive plant sites.

• • • •

. . . they can have a devastating effect on job-creating commerce and industry in California. . . .

R. R. Imsande of Anheuser-Busch, Inc., testified:

To indicate the magnitude of the problem in California, I would like to refer to the following few statistics. For example, electricity supplied by PG&E to our Fairfield Brewery costs us 3.6 cents per kilowatt-hour. Electricity supplied to our Merrimack Brewery by Public Service Company of New Hampshire costs us 2.7 cents per kilowatt-hour. Electricity supplied by Houston Power and Light Company to our Houston Brewery costs us 2.0 cents per kilowatt-hour. Electricity supplied by Union Electric Company to our St. Louis Brewery costs us 2.2 cents per kilowatt-hour.

On a total dollar basis, we paid over $2,175,000 in 1977 for electricity at our Fairfield Brewery. If we were billed at the Houston rate, our electric cost would have been $1 million less in 1977.

• • • •

Much of the California increase has been due to the inequitable and misguided rate structures which have been imposed in this state.

• • • •

. . . The commission should not . . . embark upon dangerous and inequitable courses which can do great damage to the California economy and the best interests of its citizens.

Daniel Phelan of Fibreboard Corporation noted:

. . . we are *paying 300 per cent of what our competitor in Montana would for the same electric usage*; over three times as much as our competitor in Oregon; two and one-half times as much as we would pay in Louisiana or Colorado, 190 per cent of what our competitor in North Carolina pays; and 140 per cent of what we would pay if our plant were located in the Los Angeles area. We are now paying $1,270,000 a year more for an equal amount of electricity than our nearest competitor in Oregon for a business that grosses only $12 million per year. It is difficult to survive with that kind of cost penalty.

These complaints give but the vaguest indication of the anger now prevading California's business community. Even more fundamental than that, however, is the fact that by its rate reform the commission has virtually single-handedly transformed California from a cheap energy state to one of the most expensive energy states in the union. This is especially unfortunate in view of the fact that California's prosperity and economic healthy growth have long relied on reasonable energy prices.

Regulation by Gimmickry

The harm that the commission has done to the economy of California, and the preposterous rationale for the performance of that harm, are bad enough. What has been even worse, however, is the refusal of the commission to admit its errors and to acknowledge the damage it is doing to its utilities. With unconscionable alacrity it has resorted to gimmickry to sustain its faltering rate structure.

The need for gimmickry has arisen for several reasons. Our inverted natural gas rate structure has so increased the cost of gas that oil has been made a relative bargain. As a result, numerous industrial users have prematurely abandoned gas as their primary fuel. This presents an enormous problem to the utilities because, under inverted rates, industrial users provide the margins necessary to meet the utilities' revenue and profit requirements. In the world of inverted rates the loss of only a few industrial customers can mean financial catastrophe to the utility. Economic downturns also have similar effects on both the electric and gas operations of our utilities.

To deal with the new revenue instability, California adopted a parade of expedients. Chief among them are the following:

1) *It confiscated refunds due industrial customers and spent this money warding off this year's rate increases.* Many large users of natural gas have left PG&E to burn coal or oil. Refunds totaling $130 million for overpayments on 1972-76 Federal Power Commission-regulated gas supplies have been returned to California. Utility tariffs, equity, and statutory considerations dictate that this money be returned to the customers who overpaid. But, in its rush to shore up the new rate structure, the commission has converted these funds to pay for 1978 gas.

2) In a separate effort to halt the hemorrhage in lost industrial sales, *the commission conspired with the California Air Resources Board to force industry to return to burning of gas regardless of price.* This proposal raised such a furor that it has been shelved for the time being.

3) In a further effort to keep the utilities whole, *the commission concocted an astounding "supply adjustment mechanism," or S.A.M.* This mechanism guarantees a profit margin on sales, whether sales occur or not, by virtue of a surcharge on customers' bills. These surcharges are delayed and will begin taking effect on January 1, 1979. A similar device is now in the works for electric sales.

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4) *The commission introduced price discrimination.* It split the formerly uniform G-50 schedule for priority three and four, medium and large industrial gas customers. Twenty-nine per cent of these customers have been shifted into a new G-52 group which pays less for gas, even though they use gas for the identical purposes as those customers left behind in the G-50 group. The only distinction is that between the "haves" and the "have nots." Gas customers capable of using an alternate fuel (No. 5 and No. 6 fuel oil) are treated to a lower rate. Customers without such an alternative must pay a higher rate. It is as discriminatory as setting bus fares lower for the person with a car and higher for the person without one.

5) *Lastly, the commission has prematurely deducted from utility revenue requirements potential Proposition 13 property tax reductions.* This action helped allow my agency to tout a recent PG&E electric rate increase of $229 million as a $41 million reduction. I describe this act as premature for two reasons. First, the commission has an investigation pending into the Jarvis-Proposition 13 tax reductions, and no finding has yet been made as to their scope, size, and timing. Secondly, Proposition 13 tax savings will not begin accruing to utilities until 1979. Standard regulatory practice dictates that rate reductions not occur till actual savings are realized.

A rather simple message emerges from all this: California's rate reform experiment is a failure. It must not be repeated by other states. Rather than sweeping the country, as was earlier thought certain, our floundering experiment will have to be dismantled over the next few years or even sooner. Undoing the damage will require the making of many very difficult decisions. My sympathy and support extends to the commissioners, as yet unappointed, who will have to make those tough decisions.

Public Attitudes on Government and Taxes

The Advisory Commission on Intergovernmental Relations reports that an annual poll on government and taxes has indicated little support for a widely held notion that people are getting "fed up" with property taxes.

In answer to a question, "Which do you think is the worst tax," there was only a margin of 2 per cent between those who answered "the property tax" (32 per cent) and those who said "the federal income tax" (30 per cent). Moreover, over the five years that the ACIR has asked this question, the two taxes have remained consistently close in the contest for the "worst tax."

The 1978 poll did reflect one instance of significant regional variation: Respondents in the West felt much stronger about the local property tax, with 44 per cent claiming it is the worst tax. The income tax garnered only 23 per cent of the western vote.

These and other findings are contained in ACIR's latest publication entitled 1978 "Changing Public Attitudes on Governments and Taxes." In this report, the ACIR notes that a "significant shift in the public estimates of the relative effectiveness of the three levels of government appears to have taken place just after the passage of Proposition 13." In ACIR's poll, taken just prior to the adoption of Proposition 13, respondents indicated that they "got the most from their money," from the federal government, followed by local, then state government. In sharp contrast, a few weeks after the California vote, three national polls found that in response to similar questions, the federal government ran a "poor third."

There appears to be a distinct polarization in the views of the electorate on two issues: whether the federal government exercises too much or too little power; and whether special federal aid should be provided to needy central cities. Some 38 per cent of the respondents said the federal government has too much power; 36 per cent said it should use its powers more vigorously to promote the well-being of all segments of the population. Only 18 per cent felt the federal government is now using just about the right amount of power for meeting today's needs. Similarly, 47 per cent of the respondents favored special federal aid to needy central cities; 45 per cent opposed it.

There was no clear consensus concerning the ability of state and local governments to deal with problems. Thirty-six per cent felt state and local government was too fragmented and disorganized; 33 per cent that they should be given more power.

Lifeline Rates in PNM's (PUB. SVC. CO. OF NEW MEXICO) Service Territory - kWh Consumption and Income

Market Research Department

August 1975

D. J. Peck

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Introduction

This report addresses the possible effectiveness of lifeline rates in PNM's service territory. About a year ago, the lifeline rate concept was considered by many to be an acceptable means of income redistribution for the purpose of isolating, at least to some degree, the low and fixed income households from rapidly increasing energy costs. After much criticism of the concept it has become somewhat of a mute topic as a national policy, but on a specific Service area basis several regulatory commissions have and are still considering implementation of the concept. The results of this analysis demonstrate that lifeline would be a very ineffective means of income redistribution in PNM's service territory.

Also addressed in this report are the relationships among kilowatt hour consumption and gross household yearly income, people per household, age, and ethnic group of respondent. Results indicate that about 26 percent of the variance in kilowatt hour consumption can be accounted for (explained) by changes in the above mentioned independent variables. The prediction is subject to a standard error of 267 kWh/month, average use is 494 kWh/month.

LIFELINE RATE BACKGROUND

Lifeline rates have been proposed as a means of negating, at least in part with respect to increased energy costs, the adverse effects that double-digit inflation has had on the low and fixed income families of the nation. John C. Sawhill, FEA's former Administrator, in his opening remarks at FEA's Second Utilities Conference on September 19,

1974, expressed interest and support for lifeline. He said:

"Under this proposal, the first 400 kilowatt hours a month for each residence would be billed at a rate lower than the average cost. Customers who use more than the minimum amount would pay higher rates to offset this rate reduction for the poor and the elderly existing on fixed incomes. I feel very strongly that the poor and elderly must not bear the brunt of recent price increases.

This provides both incentives for conservation and relief to low income families faced with higher costs for their necessities of life. I endorse this approach and am very anxious to see more innovations like this adopted."[1]

Steve Mintz of the FEA's Office of Consumer Affairs/Special Impact prepared a basic paper on the Lifeline Rate Concept. His concluding remarks stemming from his analysis of the concept are as follows:

Conclusion

Objections not withstanding, lifeline is perhaps the brightest concept to emerge from the energy crisis. The low-income household and the low fixed-income elderly household are dependent upon electricity to maintain health and home. When the price of electricy rises to a point where it begins to consume an unusually large share of income, life style is threatened. Lifeline would guarantee an amount of electricity which can provide for the basics of life at a reasonable rate. Beyond that low rate, a signal is given in the form of a higher rate to all those desiring

more electricity; if you want to use more power, you must pay for it - the choice is yours.

Lifeline may not work for everyone in all places, but it should be tested by FEA as a demonstration project. It is a concept designed to distribute energy to people in a fair manner.[2] (Emphasis added)

On December 19, 1974, Mr. Mintz discussed the lifeline rate concept at a FEA Consumer Affairs/Special Impact Advisory Committee meeting. Committee Chairman Lee C. White indicated that the group might well endorse the concept at its next meeting in the form of a specific recommendation to the FEA. Meanwhile, White said, "We should lobby this idea with Administrator Zarb and Secretary Morton."[3]

The Lifeline Rate Concept as presented by Mintz has received much criticism. Quoting from a report prepared by J. D. Pace, NERA, titled Review of Mintz Lifeline Rate Paper, "Our review reveals that this paper (Mintz) is replete with distortions of basic economic concepts and omissions of relevant material. Thus, it fails to provide a basis for rational policy decisions." One of the main criticisms from NERA is the assumption that must be made if the lifeline rates are to be an effective means of transferring benefits to the poor, that there must exist a very strong positive correlation of income to kilowatt hour usage. Mintz discusses averages, and in most instances, averages do reveal a positive correlation between income and usage. But, as NERA has demonstrated, examination of the distribution of usage among the income categories reveal a good proportion of inconsistencies in the relationship.

One very important point that has been made by Mintz and more importantly also made by NERA is that the income-usage relationship varies by area. Mintz stated in his "Lifeline Rate Concept" report that, "... it is this sort of effort (analysis of income-usage relationship) that utilities must make in their own service areas to test the applicability of lifeline for themselves."[4] One of NERA's conclusions, after reviewing the results from several research efforts regarding income-usage relationships, is:

> "Income may have an important upward effect upon the consumption of electricity in some areas and not in others. This uncertainty underscores the importance of evaluating the situation within the service territories of individual utilities, since false conclusions may be reached by applying results from one area to another."[5]

Although the lifeline rate concept is somewhat divorced from allocating costs by a cost of servicing methodology, it is, in the minds of many, a socially acceptable arrangement worth pursuing. In New Mexico, ranked 49th in per capita income, lifeline rates may be viewed by governmental officials as an efficient means of income redistribution. Transferring some of the burden of income redistribution from government to the utilities. This might be especially true in light of both Mintz's and NERA's qualifying statement that the income-usage relationship will have to be examined in each specific area to determine if lifeline is an efficient means of transferring benefits to those in need. The reaminder of this report will examine the income-usage relationship (along with other socio-economic and demographic characteristics of the population) in New Mexico and the methodologies

employed to examine this relationship.

DATA BACKGROUND

In November, 1974, PNM conducted one of the most comprehensive company wide customer surveys in its' history. Five hundred and eighty-one of our residential electric customers were personally interviewed to obtain a representative measure of our customers attitudes, opinions, and awareness toward many issues important to PNM. The aggregate results were presented in the initial report which was followed by a second report presenting the results segmented by socio-economic, demographic and longitudinal variables. Although a considerable amount of valuable information has been obtained from the analysis of the date, it was felt that ample information was obtained for use in analyzing the efficiency of the lifeline rates in PNM's service territory.

As stated previously, 581 customers were surveyed, additionally, 32 customers were surveyed in the pretest of the questionnaire. Combining the survey and the pretest we obtained a sample of 613 customers. Although the pretest customers were excluded from previous analysis due to some changes in questionnaire construction (from the pretest to the final survey) the information related to the income-usage relationship remained unchanged and it was decided to include them in this sample. To obtain usage by customer data, each customers record was searched by name or address with the aid of our customer inquiry system. In 33 instances we could not locate the specific customer in question, presumably due to such things as service in landlords or other unrelated member of household's name, pole number on our records for the address, or incorrect recording by the interviewer, thus reducing

the sample to 580 customers. The exclusion of certain customers due to lack of information was fairly evenly distributed throughout the divisions of our system, thus retaining the overall representativeness of the sample. A comparison of the characteristics (income, ethnic, kWh usage, appliance saturations, etc.) of the sample to census data, previous appliance saturation surveys, and general information contained within the company, indicate that the survey is in fact very representative of our total customer population.

SURVEY RESULTS

Examining only the consumption averages by income categories indicates that lifeline rates might be an effective means of income redistribution in PKM's service area. The results of this survey suggest that the average kilowatt hour comsumptions, based on a twelve month average, for the various income categories are as follows:

Annual Household Gross Income (1974)	Average Monthly Consumption
$ 0 to $ 1,000	286 kWh
$ 1,001 to $ 2,500	267 kWh
$ 2,501 to $ 5,000	369 kWh
$ 5,001 to $ 7,500	393 kWh
$ 7,501 to $10,000	457 kWh
$10,001 to $15,000	577 kWh
$15,001 to $20,000	735 kWh
$20,000 and up	835 kWh

But, as stated previously, one of NERA's main criticisms with Mintz's

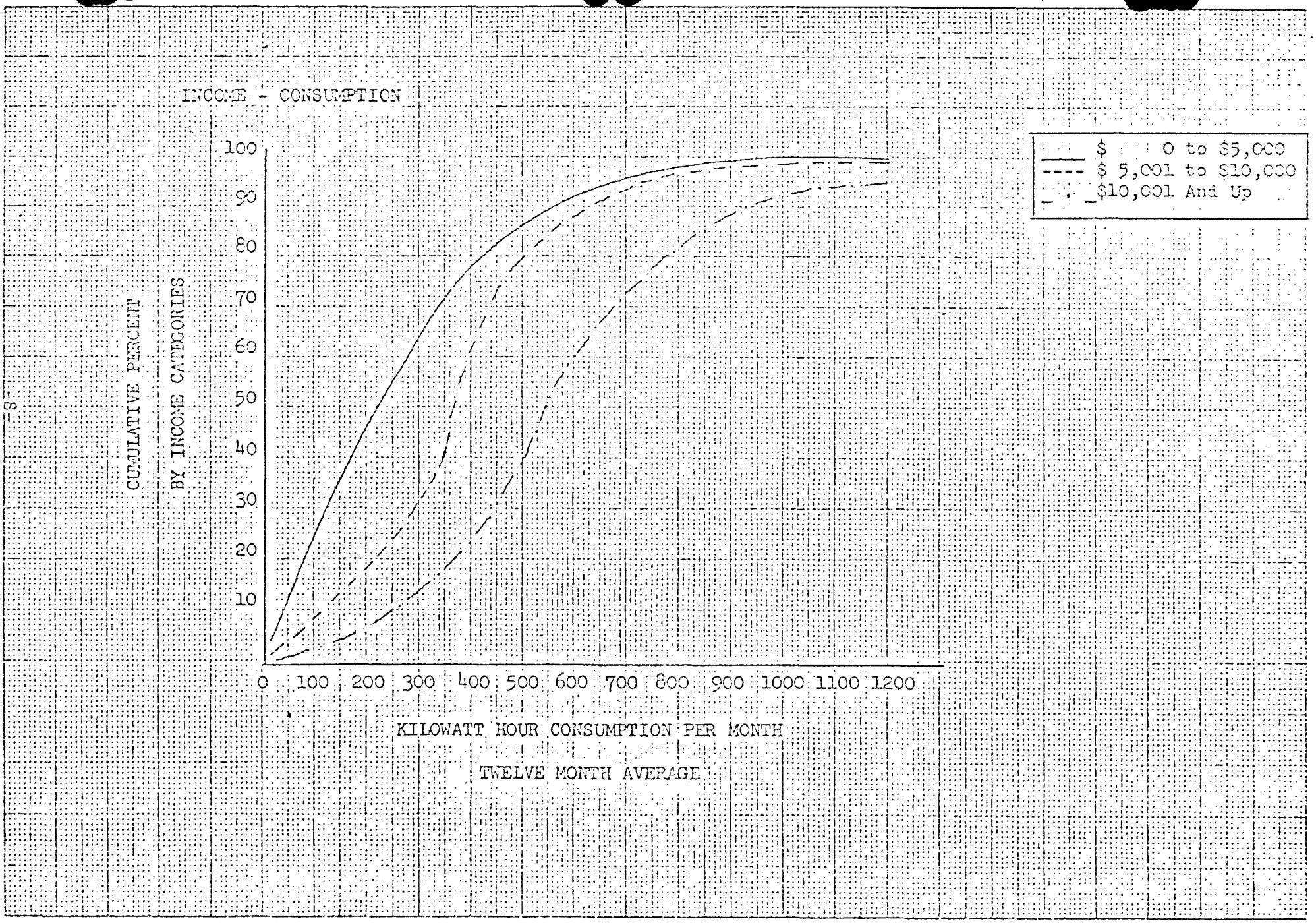
analysis was that he based his conclusions on the examination of averages and averages can be very misleading. The following table presents the ranges of consumption for each income category:

Annual Household Gross Income (1974)	Average Monthly kWh Consumption*		
	Lowest	Highest	Range
$ 0 to $ 1,000	23	825	669
$ 1,001 to $ 2,500	53	825	772
$ 2,501 to $ 5,000	77	1076	999
$ 5,001 to $ 7,500	53	1250	1197
$ 7,501 to $10,000	61	1335	1274
$10,001 to $15,000	69	1506	1437
$15,001 to $20,000	143	2997	2854
$20,001 and up	203	2114	1911

*Note: these are monthly averages over a twelve month period thus decreasing a month by month overall variance.

This large dispersion of consumptions within each of the income categories suggests, at least in PNM's service area, that income may not be a very strong predictor of consumption and thus distracting from the efficiency of lifeline rates.

After regrouping the income categories into three larger categories, those of less than $5,001, $5,001 to $10,000 and more than $10,000, a table of the cumulative percentage of average monthly consumption for each of these income categories was constructed. The table is as follows, a graphic presentation is on the following page:


INCOME - CONSUMPTION
CUMULATIVE PERCENT
BY INCOME CATEGORIES
100
90
80
70
60
50
40
30
20
10
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
KILOWATT HOUR CONSUMPTION PER MONTH
TWELVE MONTH AVERAGE
$ 0 to $5,000
$ 5,001 to $10,000
$10,001 And Up

Kilowatt Hour Consumption/Month	Gross Household Yearly Income (1974) Cumulative Percentage		
	$0-$5,000	$5,001 to $10,000	$10,001 And Up
0 - 100 kWh	11.3%	3.0%	1.0%
101 - 200	31.3	12.0	3.6
201 - 300	49.6	30.6	8.2
301 - 400	69.6	49.8	15.9
401 - 500	82.6	75.5	32.4
501 - 600	89.6	85.7	52.0
601 - 700	95.7	89.9	65.9
701 - 800	96.6	94.7	75.2
801 - 900	99.2	97.7	83.4
901 - 1000	99.2	97.7	86.5
1001 - 1250	100.0	98.9	93.7
Over 1250	100.0	100.0	100.0

Under the proposed lifeline rate structure the first 400 kilowatt hours consumed in a month are billed at a low subsidized rate, irrespective of cost of service. This assumes that these 400 kilowatt hours will help maintain an adequate life style at a low percentage of income for those low and fixed income families. The results of this survey indicate that only about 70 percent of those making less that $5,000 a year would benefit by the reduced rates. Also, some 50 percent of those making between $5,000 to $10,000 and about 16 percent of those making more than $10,000 a year would also benefit by the reduced rates.

There are questions about the legitimacy of charging one rate for those who use less than 400 kilowatt hours and charging a different rate for those same first 400 kilowatt hours for those using more than 400

kilowatt hours. It's also unlikely that any utility would consider recovering the lost revenues from a decreased rate for the first 400 kilowatt hours in the 401st kilowatt hour. Therefore, it seems likely that the revenues lost from the rate decrease in the first 400 kilowatt hours would have to be recovered over consumption beyond the lifeline level. As NERA has demonstrated, recovering lost revenues in this fashion means lower bills for those using well in excess of 400 kilowatt hours. Assuming 800 kilowatt hours as the breakeven point, (a realistic estimate), about 97 percent of those making $5,000 or less would benefit from the reduced rates. But roughly 95 percent of those making between $5,000 to $10,000, and 75 percent of those making more than $10,000 would also benefit from lifeline. Creating a situation where high users, consuming more than 800 kilowatt hours/month, would be subsidizing low users (if you can call 400 - 800 kWh/month low users) more than they are now under the existing rate structure. Undoubtedly, the commercial and industrial customers would also be called on to make up at least part of the lost revenues. The amount of the added electricity costs to the commercial and industrial sectors that would be transferred back to the low and fixed income families adds another weakness to the lifeline concept.

It is evident that lifeline rates would be a very inefficient means of transferring benefits to the low and fixed income families in PNM's service territory.

Explanation and Prediction - Income

Using a simple regression analysis with usage as the dependent variable and income as the independent variable we find that about 17 percent of

the variance in kilowatt hour consumption can be accounted for (explained) by changes in income. At this point a few qualifying statements must be made. First of all, regression analysis is a linear least-squares fitting technique. The weakness of this technique is that it fits the most representative straight line (equation) to describe the relationship over the entire range of the relationship but it will not detect a curvilinear relationship if one exists. Secondly, prescribed survey techniques dictate that, to increase response rate related to income questions, respondents should be asked to indicate what income category represents their approximate income rather than asked for their exact income. Income categories were used in this survey. Therefore, inherent weaknesses exist in the resultant regression equation due to approximate income figures rather than exact incomes, the consumption figures are accurate. Although this may have weakened the predictive (explanatory) strength of the regression equation it is acceptable. In comparison, other studies of this nature have selected block house values from several year old census tract data as a surrogate variable for income. I believe income categories to be a more valid approach.

For predictive (explanatory) purposes, the regression equation tells us that, as a very general rule, every $1,000 increase in annual gross income will result in a 21 kWh increase in consumption per month. Also that the intersection, in this instance, defined as no family income, is 321 kWh/month, i.e. a household without any income will use 321 kWh/month. For a household with an $8,200 income, their predicted usage would be 493 kWh/month (8.2 x 21 + 321). The graph on the subsequent page is a representation of the income-usage relationship. The solid line is the best linear representation of the relationship.

The two broken up lines are the boundaries of which we can expect 2/3 of our customers to fall within. An example, given a family's income to be $10,000, our best prediction of consumption would be 531 kWh/month, 2/3 of the time the actual usage would lie between 250 to 812 kWh/month. The standard error is large and therefore the strength of the prediction weak. Again, only 17 percent of the variance in consumption can be accounted for by changes in income.

Explanation and Prediction - Other Variables

The variables, age of head of household, education of head of household, people per household, and ethnic group of respondent were used as the independent variable in several simple regression analyses with usage as the dependent variable.

Age - A linear relationship did not exist between age of head of household and usage. Examination of a cross tabulation of usage by age reveals a curvilinear relationship. Usage increases as age increases from 18 to about 45 and then usage decreases as age increases. By comparison, the age category of 35 to 54 is the greatest consumers of electricity, while the categories of 25-34 and 55-64 are next in consumption. The 18-24 and 65 and over age categories consume the least electricity.

Education - The regression equation tells us that about 7.6 percent of the variance in usage can be accounted for by changes in the amount of education of the head of household. That for every additional year of formal and/or vocational education beyond the 6th grade will result in an increase of 25 kWh per month. This prediction is subject to considerable error. Educational level

is positively correlated with income, electric appliance ownership and Anglo-American ethnic group membership. It is negatively correlated with people per household and age.

People per household - About 6 percent of the variance in usage can be accounted for by changes in the number of people per household. As a general rule, for every one additional person per household the usage will increase 45 kilowatt hours per month. For a single member household the predicted usage would be 387 kWh/month. The standard error of the prediction is very large, 300 kWh/month, hence the predictive strength is weak.

Ethnic Group - In this instance, since the variable values were 1 for Anglo-American and 0 for others (96% of the others were Spanish-Americans), the results will yield the same as a comparison of the average usage for each group. The results show that the average Anglo-American household will use 142 kilowatt hours more per month than the other (Spanish-American) household. The interesting information obtained from the regression is the size of the standard error. It is more than twice the magnitude of the kWh difference accounted for by changes in ethnic group. Meaning that there are considerable inconsistencies in the relationship.

Stepwise Regression - Each of the above regressions have examined bivariate relationships in isolation of the other independent variables. Stepwise regression is a quick and efficient means of obtaining the best predictive equation using all of the given independent variables. This procedure does not always yield the true optimum, but it usually does fairly well. Stepwise examines all of the variables and selects the variable which is the best

predictor. The second independent variable to be added to the regression equation is that which provides the best prediction in conjuction with the first variable, and so on. If a variable is really a linear combination of variables already in the equation it will add little to the predictive strength of the equation. A good example is education, if we know the income level of a household, the additional information of education adds little strength to our prediction.

Employing all five of the independent variables used in the above simple regressions the resultant stepwise regression equation is as follows:

$$\text{Predicted kWh Usage/Month} = I\ (17.5) + P\ (57.8) + E\ (116) + A\ (2.5) + Ed\ (1.8) - 38$$

where

I = $1,000 of Income

P = People per household

E = Ethnic group → 1 = Anglo-American, 0 = Other than

A = Age of head of household

Ed = Head of household's years of education - 6

The above equation is subject to a standard error of 267 kilowatt hours. In comparison, the simple regression using income as the only independent variable is subject to a standard error of 281 kWh. The addition of the variables, people per household, ethnic group, age and education, did not greatly increase the accuracy of the prediction. Using all five variables, we find that about 26 percent of the variance in kWh consumption can be accounted for (explained) by changes in the independent variables.

The reason that the simple regression coefficients are not additive, hence not equal to the stepwise regression coefficients in that the independent variables themselves are intercorrelated. The following is a table of correlation coefficients for the variables:

	Usage	Income	People/hh	Age	Educ.	Ethnic Group
Usage	1.000	0.416	0.245	0.002	0.276	0.219
Income	0.416	1.000	0.062	-0.044	0.461	0.297
People/hh	0.245	0.062	1.000	-0.385	-0.013	-0.247
Age	0.002	-0.044	-0.385	1.000	-0.208	0.089
Education	0.276	0.461	-0.013	-0.208	1.000	0.411
Ethnic Group	0.219	0.297	-0.247	0.089	0.411	1.000

For a better understanding of our residential customers it is helpful to know how the above variables correlate with electric appliance ownership. The following is a table of correlation coefficients:

	Electric				
	Space Heat	Space Cooling	Cooking	Water Heating	Dryer
Usage	0.213	0.092	0.408	0.284	0.371
Income	0.054	0.069	0.305	0.026	0.265
People/hh	0.078	-0.057	0.020	0.007	0.062
Age	-0.027	0.071	-0.026	-0.001	-0.092
Education	0.004	0.054	0.303	0.015	0.233
Ethnic Group	-0.007	0.168	0.305	0.022	0.177

The independent variables used in the stepwise regression are by no means an all inclusive list of socio-economic and demographic characteristics of the population. In the future we will be more atuned

to the data requirements of this type of analysis and will collect the necessary data if this type of analysis is desired. Although only five independent variables were used in this analysis their relationship to consumption have been of great interest. However, using this limited number of characteristics one thing that can be said is that consumption varies within various segments of the population and the variances are probably due to something which is difficult if not impossible to measure, like life style.

FOOTNOTES

1
Remarks by the Honorable John C. Sawhill, Administrator, REA, Before the Second FEA Electric Utilities Conference, Wash., D.C.: Sept. 19, 1974, p. 10.

2
The Lifeline Rate Concept, by Steve Mintz, Staff Member FEA's Consumer Affairs/Special Impact Advisory Committee, 1974, p.27

3
Excerpts from, Lifeline Rates, Jules Joskow, NERA to Energy Research Group, January 2, 1975, p. 1

4
Mintz, p. 7

5
Income and Electricity Consumption, Kent P. Anderson, NERA to J. B. Mulcock, Jr., Nov., 19, 1974

Lifeline Rates & Energy Stamps

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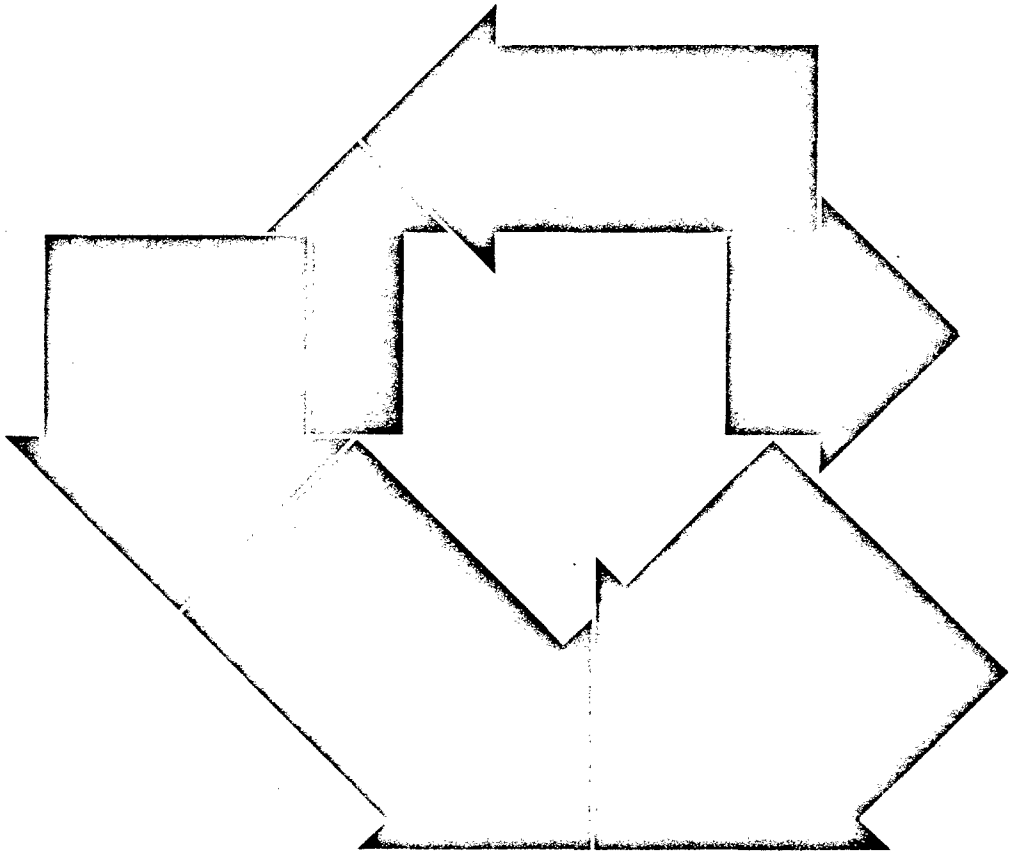
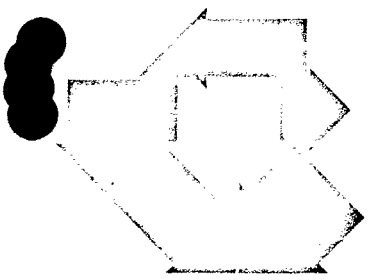
n/e/r/a

Presented at NERA Conference
on Peak-Load Pricing
and Lifeline Rates
at the Waldorf Astoria,
New York, New York,
June 17, 1975.





I. Introduction

My concern is with two policy instruments that have been suggested to aid the poor and the elderly in dealing with rising energy costs: lifeline rate and energy stamp proposals.

A prevalent, and understandable, utility reaction to this topic is: "Why us?" Surely it is not the utility's responsibility to see that all groups in our society are provided with adequate incomes or sufficient price subsidies to enable them to obtain the necessities of life. If, as we have all been taught, ratemaking merely were an art, perhaps this view would prevail—after all, who says art has to be socially significant. But ratemaking is not an art; it is a science—a political science. Therefore, regardless of your conception of your social responsibilities, the realities of the ratemaking process are such that, if your rates are alleged to impose particular hardships on the poor and the elderly, then obtaining the rate increases you require is going to be even tougher.

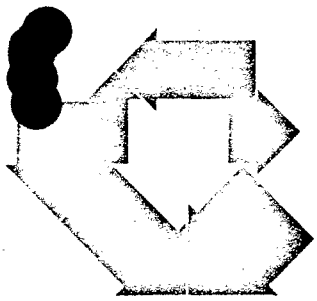
II. Definition

The logical place to begin is with a definition of the term lifeline rate. A lifeline rate is simply a low uniform charge for the first several hundred

OUTSTANDING LIFELINE PROPOSALS

Table 1

State	Lifeline Level (Kwh)	Rate	Applicability	Method of Revenue Recovery
New Jersey	300	3¢	Residential	Determined by Commission
Massachusetts	300	3¢	Residential	"equitably from all classes"
Alabama	400	20% reduction	Residential	From commercial industrial and from residential users of over 1,230 Kwh in summer
Maine	500	3¢	Residential, 62 years or Older	"from all classes equitably"
Florida	700	Lower than Average cost	Residential	To be determined
Vermont	Determined by PSB	rate for succeeding blocks	Residential	"equitably from all classes"
California	Determined by Commission	75% of average cost of service	Residential, Electricity and Gas	not stated
California	Determined by Commission	To be determined	Residential, 65 years or older, all utilities	not stated
New Jersey	All usage by qualified customers	25% reduction	Residential, 65 years or older, income under $8,000, electricity, gas and phone	Reimbursed by State Treasurer
Michigan	All usage by qualified customers	50% reduction	Residential, 65 years or older, income under $8,000, electricity, gas and phone	not stated



kilowatt-hours consumed by each residential customer. The lifeline level varies from proposal to proposal, but in each case is supposed to cover the minimum necessary electricity requirement. The lifeline proposals also provide that revenues lost as a result of lowering rates for "minimum necessary use" may be recovered in an "equitable" manner by increasing the rates applied to residential consumption beyond the lifeline level and to commercial and industrial use. The lifeline rate approach then generally yields a partially inverted residential rate structure and somewhat increases commercial and industrial rates.

Table 1 shows outstanding lifeline proposals. To our knowledge, these cover all of the outstanding formal proposals—that is, those that have been introduced as bills in state legislatures. Intervenors' proposals in individual rate cases are not included. Lifeline proposals have blossomed into considerable variety: the predominant lifeline level still is 300 kilowatt-hours, but proposals range as high as 700 kilowatt-hours, and several proposals now are addressed explicitly to benefiting the elderly.

Our latest inquiry into the status of these proposals indicates that the Vermont lifeline bill is dead for this year, but will be introduced in the next session; the first of the New Jersey bills is dead and all of the remaining bills are in committee. One of the California bills has passed the Assembly and is on its way to the Senate.

There are still a lot of people pushing lifeline bills. This effort seems to be concentrated among consumer groups—the same groups that are against fuel adjustments and the like. As far as we can tell, there have been at most, only two or three public hearings concerning any of these lifeline bills—in New Jersey, I am sorry to say, no one came. The sponsor of the lifeline bill in New Jersey was asked no questions, and no one voiced any opposition to the concept. Initially, it seemed that the FEA might be a strong supporter of lifeline, but the agency is now reported to be divided on this issue.

III. Places Where Lifeline Will Not Work

Speaking of the FEA, about a month month ago Jules Joskow, Vice President of NERA, and I had a meeting with Steve Mintz, the author of the FEA paper which so strongly advocated lifeline rates. After being bombarded by replies from industry, Mr. Mintz had a different attitude toward lifeline rates by the time he arrived at that meeting. He opened the meeting with the question: *"Is there anyplace the lifeline rate concept could work?"* As I am prone to do, I answered the question in the negative—*"Let me tell you where it won't work"*. Off the top of our heads, when we counted up all the problem areas, it seemed that we had eliminated most of the country.

We came back from that meeting with the notion that this question really ought to be addressed more systematically. And today I would like to impart to you the results of that investigation.

I must point out that the data which follow are drawn from a 1970 census computer tape which is nationwide in scope, but which provides data only for a sample of one out of every 1,000 households. Thus, for some states, the sample sizes are quite small, yielding results to be taken only as indicators of the facts for a given area. Considerably more detailed data are available for individual states or areas; we have found that, in order to reach firm conclusions about a particular area, such data should be consulted.

In order to proceed, I must make two basic assumptions. First, by my definition, a lifeline plan doesn't work if it fails to benefit a substantial segment of the poor or, on the other hand, if it inadvertently benefits a substantial segment of the affluent. In other words, I am making the assumption that those who offer lifeline proposals have as their true objective helping the poor and/or the elderly. Second, I am assuming that the lifeline rate is structured in such a way that it reduces rates only for low-use customers.

Let me turn now to our findings. Lifeline rates would only benefit customers who are classified as residential customers: rates applicable to commercial and industrial customers would rise. We first sought to determine the proportion of the poor living in master-metered dwelling units—that is, those who do not pay their own electricity bills, but have utility costs included in rent. Table 2 is a map indicating our findings. *In 13 states, including the three largest states in the country, over 15 percent of the poor do not pay their own electricity bills.* In these states lifeline rates will fail altogether to reach one out of every six or seven poor families for this reason alone. Moreover, *in 14 additional states, at least 10 percent of the poor do not pay their own electricity bills.* If you know your population statistics, you may note that nine of the 10 largest states in the coun-

Table 2

Poor = Income Under $4,000

10-15%

Over 15%

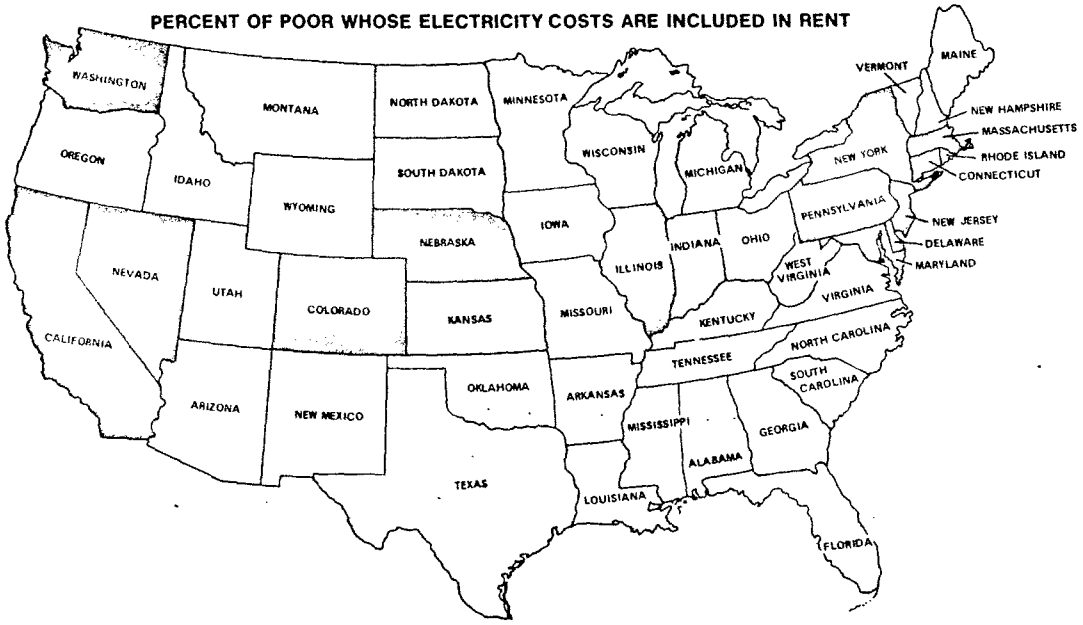
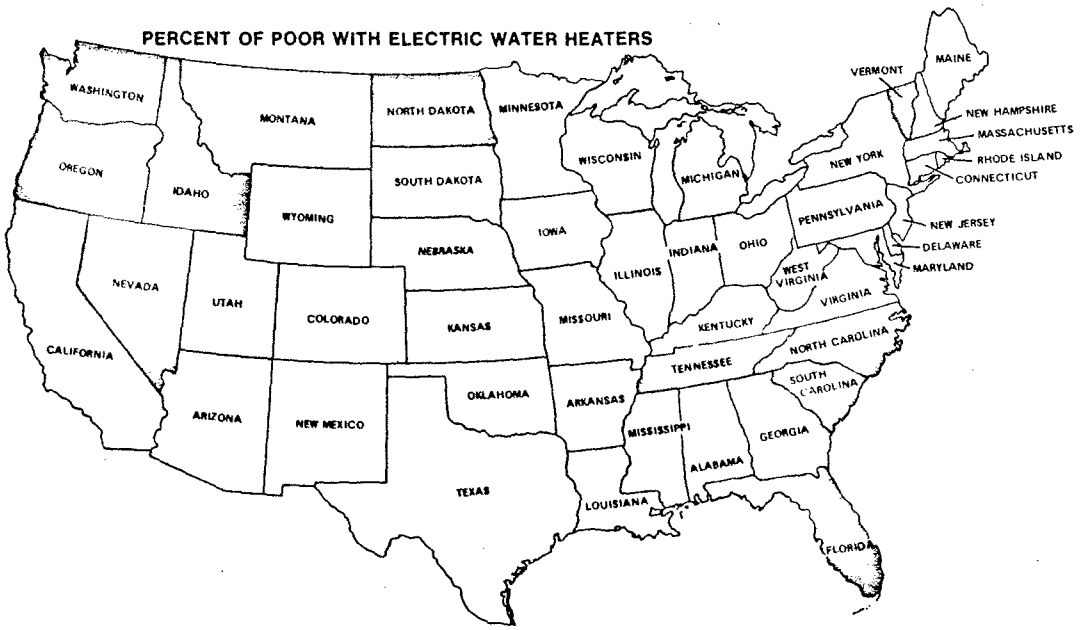


Table 3

Poor = Income Under $4,000

.25-50%

Over 50%



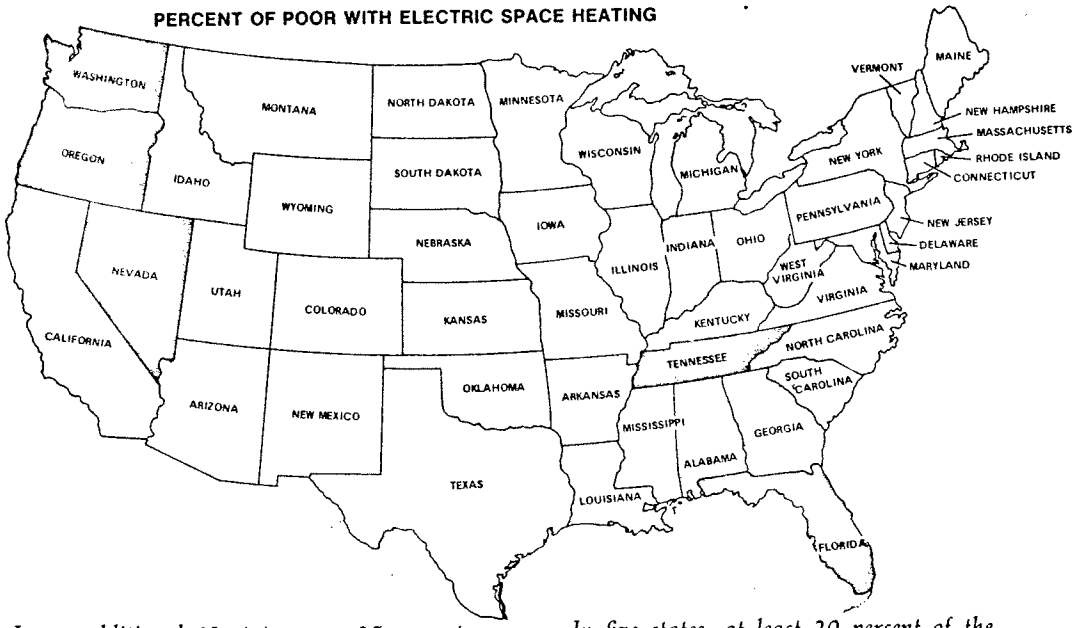
try are highlighted on this map.

In our investigation of the workability of lifeline rates, we asked what basic electric appliances consume enough electricity to boost consumption above the lifeline benefit level. The answer comes to mind immediately—an electric water heater. Table 3 is a map highlighting states in which a high percentage of the poor have electric water heaters. *In 10 states, over 50 percent of the poor have electric water heaters.*

Table 4

Poor = Income Under $4,000

Over 20%



In an additional 13 states, over 25 percent of the poor have electric water heaters. If lifeline rate relief is restricted to residential customers using, say less than 500 kilowatt-hours a month, all of these people will be bypassed.

In five states, at least 20 percent of the poor live in electrically heated houses. (See Table 4.) No lifeline plan will help these people. Indeed, institution of the lifeline concept could raise rates very substantially for this group.

Table 5

Poor = Income Under $4,000

5-10%

Over 10%

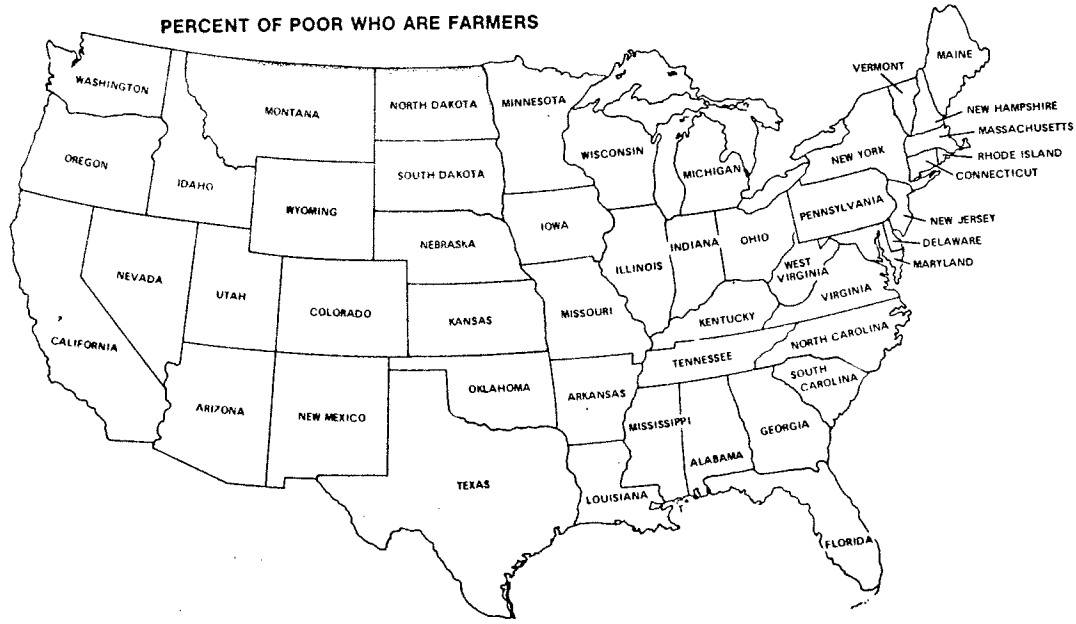


Table 5 focuses on farmers. The theory is that many farmers, who are far from affluent, are nevertheless substantial users of electricity. I understand, for instance, that the farmers in Vermont recognized the lifeline implications for them and were instrumental in defeating the proposal there. *In three states, over 10 percent of the poor are farmers. In an additional eight states, between 5 and 10 percent are farmers.*

To create Table 6, I have added together for each state the percentage of the poor who do not pay their own electricity bills, the percentage who do pay their own bills and have electric water heaters, and the percentage who are farmers. This combination represents the proportion of the poor who will derive no benefit from any lifeline plan restricted to those using less than, say, 500 kilowatt-hours per month as the Table shows. *In 14 states, over one-half of the poor would be left out. In an additional*

Table 6

Poor = Income Under $4,000

25-50%

Over 50%

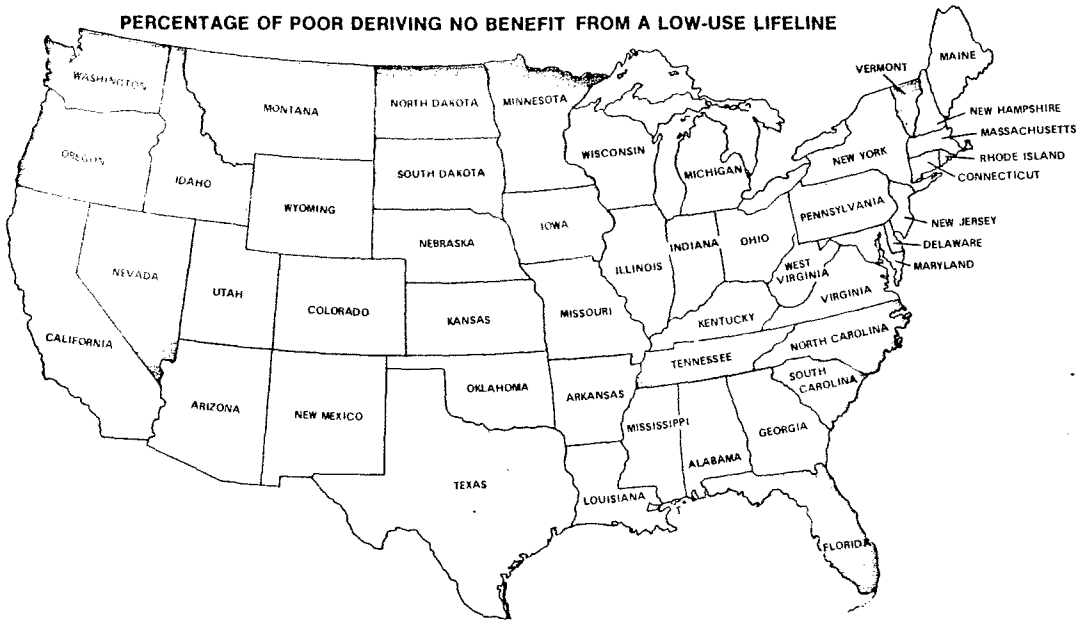
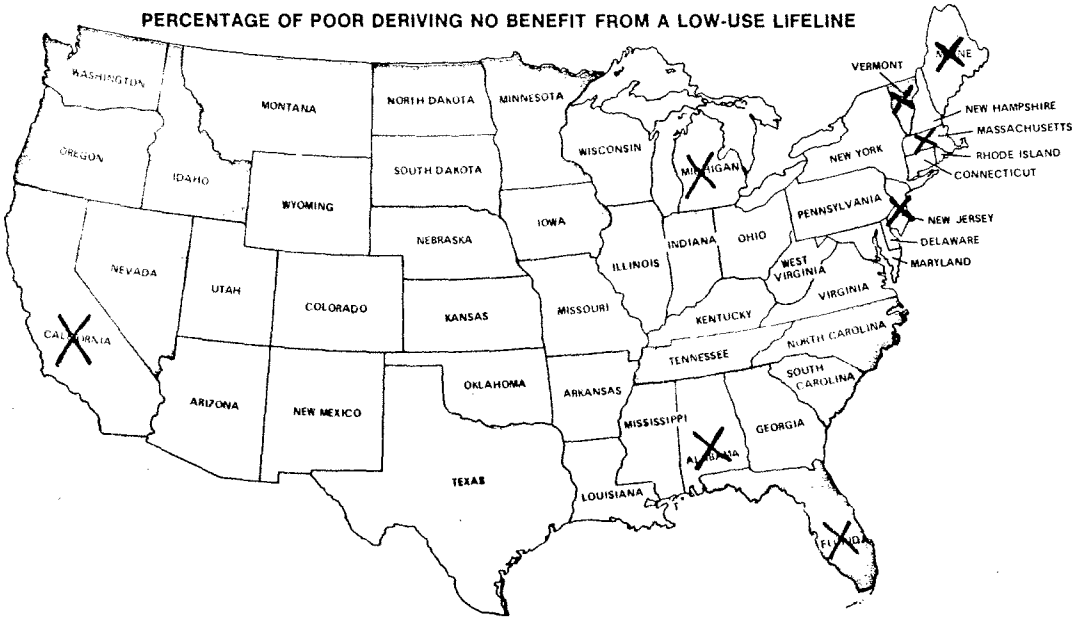


Table 7

Poor = Income Under $4,000

25-50%

Over 50%



25 states, over one-fourth of the poor would be bypassed. By any reasonable definition, lifeline should be judged a failure as an instrument to benefit the poor in all of these states.

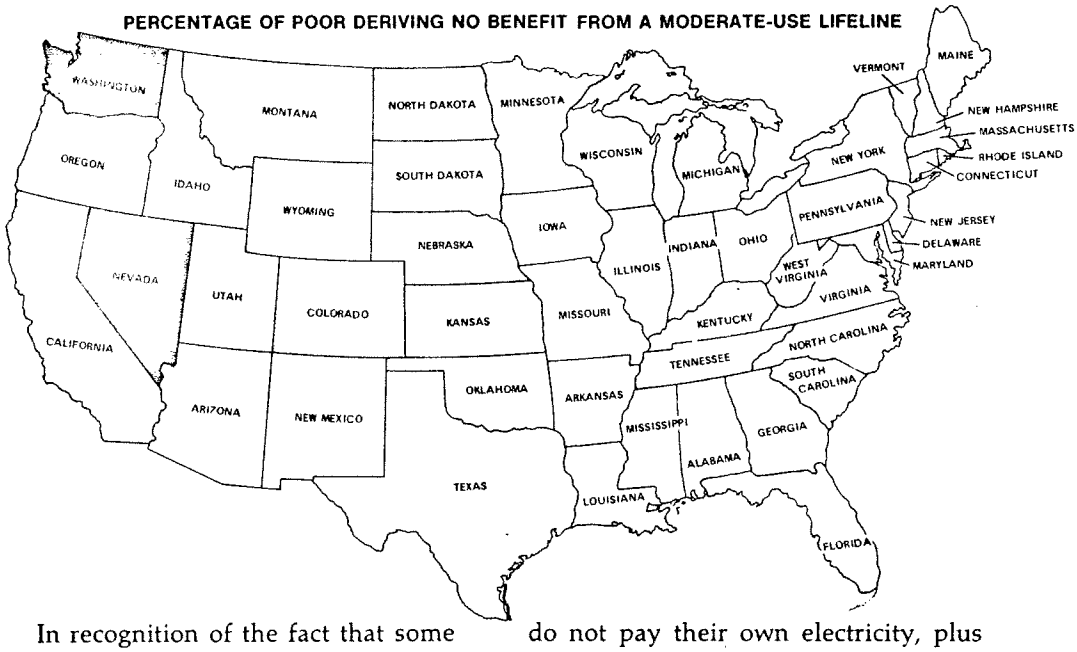
Table 7 indicates those states in which lifeline rates have been proposed. Interestingly, two of the proposals (Florida and Vermont) fall into the most unworkable areas and all of the remaining six proposals fall into the over-25-percent-unworkable areas.

Table 8

Poor = Income Under $4,000

20-40%

Over 40%



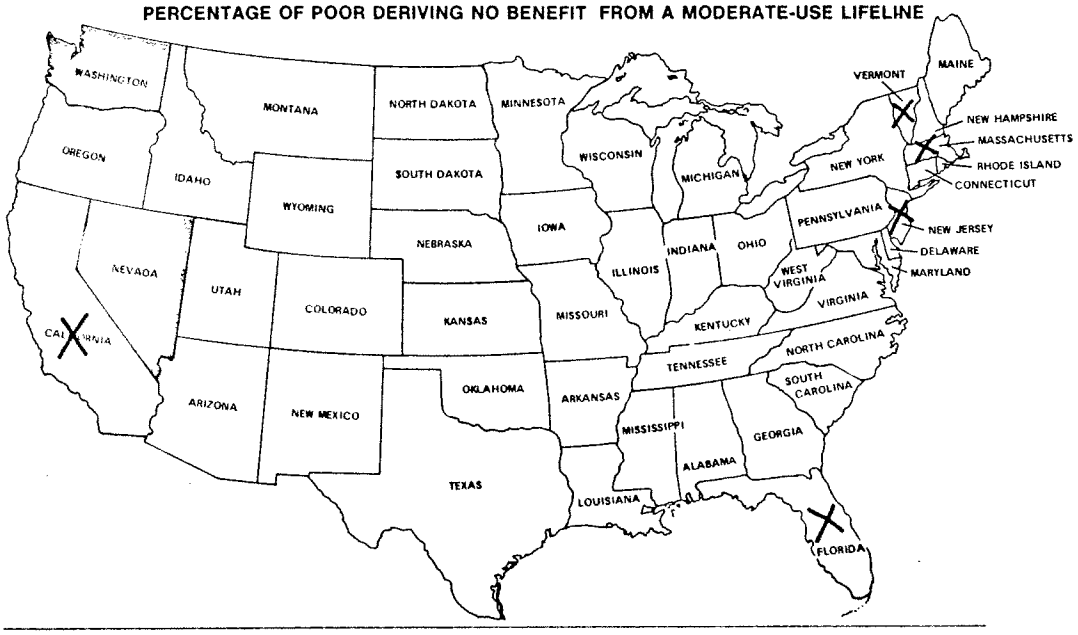
In recognition of the fact that some proposed lifeline levels are set as high as 600 or 700 kilowatt-hours, in Table 8 I have taken into account electric space-heating saturations. Table 8 shows the combined percentage of the poor who do not pay their own electricity, plus those who do and have electric space heating, plus the farmers. This combination represents the proportion of the poor who will not benefit even if the lifeline rate reduction goes up to,

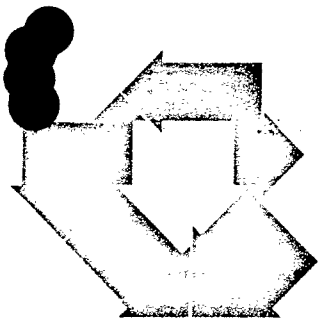
Table 9

Poor = Income Under $4,000

20-40%

Over 40%





say, the 700- or 800-kilowatt-hour level. *In the District of Columbia, Nevada and Washington, over 40 percent of the poor would fail to benefit under this plan. In an additional 20 states, over 20 percent of the poor would be bypassed.* Five of the eight states in which lifeline proposals have been offered fail even this test. (See Table 9.)

IV. The True Effects On Rates Of Lifeline

Before I started reviewing the data, you will recall that I made two assumptions—first, that our true interest is in helping the poor and/or elderly and, second, that lifeline rates are designed so that the benefits are focused on low-use residential customers. I would like now to drop that second assumption—I don't want to assume any longer that lifeline rates benefit only low-use residential customers; I want to consider what actually could be expected to result if the lifeline proposals now offered were adopted.

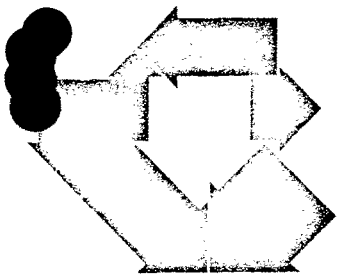
Too many people have the notion that if the lifeline level is set at, say, 300 kilowatt-hours, people using less than 300 kilowatt-hours a month will benefit while everyone else will pay a little more. But this is not the case. Using the 300 kilowatt-hour level for illustrative purposes, it must be recognized initially that *all* customers would receive a reduced rate for the *first* 300 kilowatt-hours they consume per month. They would not have to consume less than 300 kilowatt-hours a month in order to benefit. Thus, a customer using 1,000 kilowatt-hours per month would save money on the first 300 kilowatt-hours and pay something extra for each of the additional 700 kilowatt-hours he uses. Depending on the specific lifeline proposal instituted, he may or may not find his overall bill reduced.

In order to find out what is true for a particular company and a particular proposal, two steps are required. First, you have to determine the cost of the application of the lifeline rates to the first 300 kilowatt-hours used by each

Table 10

COMPUTATION OF LIFELINE EFFECT
(Surcharge All Classes)

1. Required Lifeline Reduction Per Kilowatt-Hour	2 cents
2. Kilowatt-Hours Billed Below 300 Level	1,000,000
3. Lifeline Revenue Loss (1x2)	$20,000
4. Nonlifeline Sales, All Classes (Kilowatt-Hours)	4,000,000
5. Required Surcharge Per Kilowatt-Hour (3÷4)	0.5 cents
6. Net Change in Residential Bills	
300 Kilowatt-Hours	−$6.00
500 Kilowatt-Hours	−$5.00
750 Kilowatt-Hours	−$3.75
1,000 Kilowatt-Hours	−$2.50
1,500 Kilowatt-Hours	0
2,000 Kilowatt-Hours	+$2.50



customer. This involves determining from a company's bill frequency analysis the amount of residential kilowatt-hours sold in the below-300-kilowatt-hour category and multiplying this by the lifeline saving per kilowatt-hour. For illustrative purposes, assume your bill frequency data show that you sell one million kilowatt-hours in the 300-and-below billing blocks and you know that the mandated lifeline reduction is 2 cents per kilowatt-hour. That comes to $20,000 total cost. (See Table 10.)

Where is the utility going to get back this $20,000? Since the lifeline proposals generally contemplate equitable recovery from all customer classes, the most straightforward assumption is that the $20,000 cost will be spread evenly over all remaining residential, commercial and industrial kilowatt-hours sold. If the utility sells, say, four million kilowatt-hours in these other areas, then a charge of one-half cent per kilowatt-hour would be required to make up the $20,000 loss.

Given this, the residential customer using 1,000 kilowatt-hours a month saves 2 cents on the first 300, or $6.00, and pays an additional half-cent on the remaining 700 kilowatt-hours, or $3.50, for a net *saving* of $2.50 a month. Indeed, in my example, the benefit extends all the way up to the 1,500 kilowatt-hour level.

Generally, anytime the revenue recovery is drawn from all classes, residential customers using even relatively high amounts of electricity will save money. This results simply from the fact that only residential customers benefit from the lifeline rate scheme, but other classes typically pick up between one-half and two-thirds of the tab for the program.

In short, the lifeline proposals as currently framed merely provide a means of shifting rate burdens from the residential class to the commercial and industrial classes. Thus, it is difficult to argue either that these plans would focus benefits on the poor and the elderly or that the typical residential customer would perceive an incentive to conserve as a result of the institution of lifeline rates.

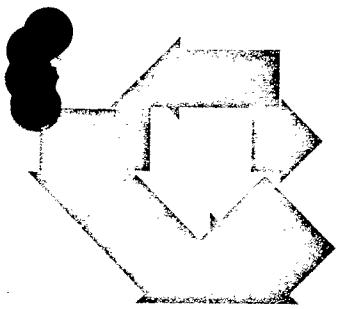
Now I don't want to leave the impression that this is an unsolvable problem. With a little ingenuity and a free hand, you can make rate schedules do jumping jacks. The secret lies entirely in the way you go about recovering your lifeline revenue loss.

A perfectly sensible approach would be to restrict the revenue recovery to the residential class. The commercial and industrial classes would be unaffected and the aggregate revenue from the residential class would be the same. Only the residential rate structure would be changed. Since the residential customer class would have to pick up the entire tab for the lifeline program, the necessary surcharge goes up substantially. If total residential sales are 2.2 million kilowatt-hours, with one million billed in the under-300-kilowatt-hour blocks and the other 1.2

Table 11

COMPUTATION OF LIFELINE EFFECT
(Surcharge Residential Class)

1. Required Lifeline Reduction Per Kilowatt-Hour	2 cents
2. Kilowatt-Hours Billed Below 300 Level	1,000,000
3. Lifeline Revenue Loss (1x2)	$20,000
4. Nonlifeline *Residential* Sales (Kilowatt-Hours)	1,200,000
5. Required Surcharge Per Kilowatt-Hour (3÷4)	1.67 cents



million billed at greater levels, then the necessary surcharge per kilowatt-hour is 1.67 cents (see Table 11). The consumer of 1,000 kilowatt-hours a month would save $6.00 on the first 300 kilowatt-hours, but would pay $11.69 more on the last 700 kilowatt-hours for a net *increase* in his bill of $5.69 a month. The breakeven point would come at the 660 kilowatt-hour level (see Table 11-A).

I am sure you recognize that an infinity of games can be played in order to restrict the lifeline benefits to lower levels of use. For example, one could recover the entire lifeline revenue loss by adding a surcharge to kilowatt-hours billed in the 300-to-500-kilowatt-hour blocks. Or one could load the entire lifeline surcharge onto the three-month peak period.

COMPUTATION OF LIFELINE EFFECT (continued)
(Surcharge Residential Class)

Table 11-A

6. Net Change in Residential Bills	
300 Kilowatt-Hours	−$ 6.00
500 Kilowatt-Hours	−$ 2.66
750 Kilowatt-Hours	+$ 1.51
1,000 Kilowatt-Hours	+$ 5.69
1,500 Kilowatt-Hours	+$14.04
2,000 Kilowatt-Hours	+$22.39

In concluding on the lifeline rate, it seems clear that one *could* tailor the revenue recovery in such a fashion that the lifeline benefits are restricted to fairly low-use customers. However, existing proposals do not do this. Moreover, the problem that inevitably remains is the first problem that we reviewed here—benefiting low-use residential customers is not the same thing as benefiting poor and elderly customers.

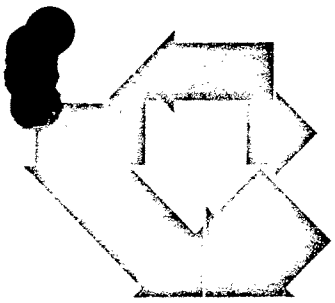
V. Fuel Stamps

A direct income test underlies the fuel stamp proposals which now are receiving increasing consideration as a means of assisting the poor and the elderly coping with the energy crisis.

We now know of five energy stamp bills introduced at the federal level. Three are aimed at all low-income households and one is aimed at those who are both poor and old. Two of the bills would fix monthly benefits at $25, one would pay 30 percent of utility costs and one would seek to cover the increase in fuel costs since the '73-74 season. Our understanding is that these bills are languishing in committee.

Beyond this, at least two experimental fuel stamp programs already are under way at the local level. Under the demonstration fuel stamp program in operation in Pennsylvania, those who are eligible for food stamps also are eligible for the fuel stamps. Booklets containing $75 worth of stamps are provided at $25 each to low-income families. These stamps may be used to pay either utility or fuel oil bills. The Colorado program provides aid in the form of vouchers made out to the low-income individual or directly to the company supplying his energy needs. The amount provided varies between $30 and $45 per month (but cannot exceed 60 percent of the monthly bill, or $150 for the January-April demonstration period).

The comparative advantages offered by a fuel stamp program are many. First, as long as the eligibility standards parallel those for existing food stamp or other public assistance programs,



the costs of administering a fuel stamp program should be low.

Second, under such a program, the poor are identified directly so that benefits are allocated according to income rather than according to electricity usage. If desired, the elderly also can be identified directly. When utility costs are included in rent, fuel stamps can be used to make a portion of the rent payment. Potentially, therefore, fuel stamps provide a sharply focused means of providing energy cost relief to the poor.

Third, since fuel stamps may be used to pay gas or fuel bills as well as electricity bills, unnecessary discrimination against the poor who happen to use electricity for cooking, water heating or space heating is avoided.

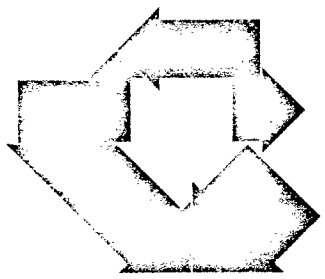
Finally, a much more meaningful level of aid can be provided than the $6- to $8-a-month savings offered by the lifeline rate approach. Potentially, therefore, fuel stamps offer a way to solve all the problems associated with lifeline rates.

The fuel stamp concept is not without some practical disadvantages of its own. Primarily, there is an explicit requirement for new tax revenues to pay for the fuel stamps. In a period of budget cutbacks at every level of government, it is an understatement to say that tax revenues may be difficult to raise. Moreover, some apparently see the fuel stamp alternative as an insidious way to shift the burden associated with assisting the poor and the elderly from the utility to the taxpayer. This view overlooks the fact that, in reality, the lifeline proposal also requires a "tax" on all nonlifeline electricity consumption, although the surcharge necessitated by lifeline may not be labeled as such.

I would like to consider the cost of a national fuel stamp program. There are today roughly six million families in the U.S. receiving food stamps. If we assume that each of these families also would receive fuel stamps with a net value of, say, $15 per month, then the annual price attached to a national fuel stamp program would be roughly $1 billion. This would add a little less than 6 percent to the $19 billion in total welfare benefits now paid out. If this were financed by additional personal and corporate income taxes, roughly a 0.7-percent increase in tax revenues would be required.

But let us suppose instead that the fuel stamp program were financed by a tax on electricity, natural gas and fuel oil sales. Our very rough numbers indicate that this would require about a 1.5-percent increase across-the-board in such energy prices. Although this may not be a very pleasant prospect, and while it can be argued that there is no basis for recovering the cost of a fuel stamp program entirely through the taxation of utilities, the rate increases that your larger customers might be required to bear even under such a program compare favorably with the lifeline surcharges likely to be required.

In order to protect my professional standing, let me end by repeating Psalm 23 from the new economic testament according to Paul Samuelson—economists always favor solving basic income distribution problems such as those we have been discussing by directly supplementing the income of the poor with revenues derived from a general income tax. Practically speaking, however, recognizing that the income structure of the U.S. is not going to change overnight, a well-administered fuel stamp program seems to offer the best solution to helping the poor and the elderly deal with rising energy costs.



JOE D. PACE

Vice President, received his Bachelor's degree in Economics from the College of William and Mary and his Master's and Doctoral degrees in Economics from the University of Michigan, specializing in industrial organization and public utility economics. He has served as a planner with the Washtenaw County Planning Commission, Ann Arbor, Michigan and has taught at the University of Michigan.

Since joining NERA, Dr. Pace has been concerned with economic analyses of various antitrust issues as they relate to the utility industries. His work in this area has included a comparison of the economic performance of combination gas-electric companies with noncombination companies; a study of the impact of power pools and similar ventures on the competitive viability of governmentally-owned electric companies; and an analysis of the propriety of wholesale pricing practices of electric utilities. In these studies he has concentrated on the nature of markets, demand, competition and costs in these regulated industries. For the past several years, Dr. Pace has dealt extensively with the economic problems raised by antitrust inquiries accompanying nuclear plant licenses and has presented expert testimony in this area.

Dr. Pace has published articles in *Public Utilities Fortnightly* and in *The Antitrust Bulletin*. He has appeared as an expert witness before the Senate Subcommittee on Antitrust and Monopoly, before the Federal Power Commission and before the Atomic Energy Commission.

[redacted]

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JUL 4 3 1978

July 5, 1978

To Members of the
Rate Research Committee

Gentlemen

Attached, for your information, is a copy of the report from the Maine Public Utilities Commission concerning the "Lifeline Demonstration Program," carried out in Maine. This study is informative with regard to the implementation and the various effects of lifeline rates.

Sincerely yours

Jack L Schenck
Vice President

Attachment

Printed under Appropriation 1187-1001

REPORT OF

PUBLIC UTILITIES COMMISSION

to the

108th LEGISLATURE

on the

LIFELINE DEMONSTRATION PROGRAM

PURSUANT TO

CHAPTER 585, PUBLIC LAWS, 1975

JULY, 1977

STATE OF MAINE

Public Utilities Commission

AUGUSTA
04333

July, 1977

To the Honorable Members of the House of Representatives
and Senate of the 108th Legislature:

Enclosed is the Commission report on lifeline rates required of us by 35 M.R.S.A. §85. We have complied with the statutory requirements, but this Report should not be read as an exhaustive analysis of the policy choices or tariff possibilities inherent in the lifeline concept.

Respectfully,

Ralph H. Gelder
Chairman

RHG/hmc
Encl.

ACKNOWLEDGMENTS

The Commission could not have administered the lifeline program successfully without the cooperation of many individuals and organizations. Credit and recognition are due Attorney John D. Molloy of the Commission staff for his administrative and liaison work in implementation of the program, and to our Chief Electrical Engineer Guy E. Twombly for guidance in the formulative stages of the experiment.

The Commission would like to express its particular appreciation to the Division of Community Services, headed by Timothy P. Wilson, which acted throughout as a coordinate agency in the establishment and administration of the program. Mary Ellen Twombly, the lifeline coordinator for the Division, provided indispensable leadership to the outreach agencies. Largely due to Ms. Twombly, the cooperation between the Commission and the Division of Community Services was of the highest quality.

The Commission would also like to express its appreciation to the three participating electric utilities. Despite reservations about the program, they usually did their best to make that portion of the lifeline program within their domain operate smoothly and successfully. Utility representatives answered the Commission's many questions and requests for information.

We would particularly like to thank the following people: Robert W. Leason, Manager of Customer, Marketing & Rate Services, and Frederick E. Anderson, Director, Rate Department, Central Maine Power Company; Frederick L. Ames, former Assistant Treasurer, and Carroll A. Brochu, Assistant Treasurer, Bangor Hydro-Electric Company; and Frank E. Livingston, Secretary-Treasurer, Maine Public Service Company.

MAINE PUBLIC UTILITIES COMMISSION
Ralph H. Gelder, Chairman
Peter A. Bradford
Lincoln Smith

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I. SUMMARY OF LIFELINE PROGRAM

In 1975, the Maine Legislature enacted the Older Citizens Lifeline Electrical Service law designed "to insure an adequate electric utility service to older citizens at a price they can afford." This law created a one-year demonstration program which would allow low income elderly in selected communities to obtain electricity at rates more favorable than other residential customers.

Under the program, eligible low income elderly would receive a lifeline rate of 3¢ per kilowatt hour for the first 500 kilowatt hours used each month without any additional charge for fuel. Above 500 kilowatt hours per month, lifeline rates would be the same as regular residential rates, and would include the fuel charge.

The electrical lifeline law gave the Public Utilities Commission responsibility for operating the lifeline demonstration program. The Commission promulgated rules and procedures for the program and chose the six demonstration municipalities within the service areas of the three electric utilities directed to participate in the program: Portland and Rockland (Central Maine Power Company); Bangor and Ellsworth (Bangor Hydro-Electric Company); Caribou and Fort Kent (Maine Public Service Company).

The Commission requested and received the assistance of the Executive Department's Division of Community Services in signing up lifeline applicants. The Division in turn obtained the help of the various Community Action Organizations in the demonstration municipalities. Applicants were secured under procedures established jointly by the Commission and Division of Community Services and then the utilities were informed of those persons eligible for the program. The first electricity was supplied at lifeline

rates to lifeline customers on December 1, 1975. Some 2,619 low income elderly persons ultimately participated in the one-year demonstration program.

The law provided that should implementation of the program cause a loss of revenue to a utility, additional revenue could be obtained from other customers of the utility. The Public Utilities Commission therefore established a surcharge on the utility bills of other customers in the demonstration communities to cover the loss of revenue from implementation of lifeline rates to low income elderly.

All considered, the program ran smoothly. There was some adverse public reaction to the surcharge, especially in Caribou and Fort Kent where the surcharge was relatively high. Among the participants themselves, the program was popular.

The lifeline program ended in early 1977 and the Commission began its evaluation of the program. It gathered data from the utilities, conducted with the Division of Community Services a telephone survey in the demonstration communities and held a public hearing on the program in February 1977.

The results indicated that the lifeline program provided significant benefits in the form of cheaper electric rates to participating low income elderly. It did not impose significant financial burdens on the participating utilities. The lifeline program had no apparent impact on the electric consumption. The people on lifeline rates showed about the same pattern of consumption during 1976 as they had in years prior to lifeline program. Apparently the relative poverty and frugality of the lifeline group has tended to hold any expansion in consumption to rates below that of residential users as a whole.

Lifeline rates are fundamentally subsidy rates. That is, no study establishes that they are related to costs of service, and they necessarily result in some customers paying costs resulting from the consumption of others. This Commission has repeatedly questioned whether electric rates in general are sufficiently cost-related, and a major rate redesign study is currently underway. Since we cannot conclude that the present rates are not shot through with subsidies, we cannot criticize lifeline rates simply because they are not cost-related. We simply note that the decision as to whether to continue this particular subsidy is up to the Legislature. Our own efforts have been directed toward relating rates to costs, but we have not yet succeeded to a point at which we can assert that this subsidy is any less costly or rational than others still existing in electric rate structures.

If the Legislature decides to continue the program, then one of the major problems is how the utilities should recover their losses in revenue, i.e. what form the subsidy should take. The lifeline surcharge during the demonstration program was unpopular and could be discarded if other alternative sources of revenue for funding the program are established. The most palatable method would appear to be some form of general State or Federal funding. If the surcharge continues, consideration should be given to computing it on a per customer basis rather than a per KWH basis.

Due to the wide disparity among the residential rate levels of Maine's electric utilities, the Commission believes that it would be desirable to calculate lifeline rates as a percentage of regular residential rates. Also, to prevent fraud, the lifeline application form should contain a waiver giving the administering agency authority to verify data with all other agencies of State Government.

Clearly, current rate structures for residential service place the greatest cost per kilowatt hour upon small users of electricity, including the low income elderly. While this fact does not prove the existence of a subsidy one way or the other, it can be fairly stated that the low income elderly have difficulty meeting high energy costs that go well beyond the cost of electricity. Programs such as lifeline and the recently enacted Federal Emergency Energy/Fuel Assistance Program can mitigate this burden. Even if the lifeline concept is adopted, the problems arising from other energy costs will persist. Lifeline is at best an inadequate solution to the real energy problems of the poor, which are rooted in the high costs of home heating oil, kerosene, and electric power in quantities well above the lifeline maximum for those who heat electrically.

II. IMPLEMENTATION OF LIFELINE PROGRAM

1. The Statute

The lifeline demonstration program was established by the Older Citizens Lifeline Electrical Service Law, P.L. 1975, C. 585, 35 M.R.S.A. C. 4, §§81-85, passed by the 107th Legislature and signed by Governor Longley on June 26, 1975. The text of the law is included as Appendix A of this report.

Section 82 of the law sets forth the statement of policy, which reads in part:

> "It is declared that it is a policy of the State of Maine to insure an adequate electrical utility service to older citizens at a price they can afford. It is the policy of the State that older citizens be able to receive electrical service for basic necessities of modern life, such as lighting and refrigeration, at a stable, fair and reasonable minimum cost and to encourage the reduction of electrical power consumption for all other uses beyond such basic necessities."

The definitions for the statute are provided in Section 83. The terms "household," "household income," "income" and "older citizens" were taken from the Elderly Householders Tax and Rent Refund Act, 36 M.R.S.A. §§6101-6121. A "residential customer" is an individual with a permanent abode in Maine who is present in Maine more than 183 days in a year. This definition is less strict than the Elderly Householders Tax and Rent Refund Act, which has as a standard "was domiciled in this State and owned or rented a homestead in the State during the entire calendar year preceding the year in which he files claim for relief..."

Section 84 sets forth the rules and operational guidelines of the lifeline demonstration program. The Public Utilities Commission is given responsibility for the program and the power to establish the rules and procedures for putting it into operation. Under this provision the Commission sought and obtained the assistance of the Executive Department's Division of Community Services, assistance which proved essential in the operations of the program.

Section 84 also prescribes the lifeline rate and directs the Commission to choose in the service areas of Maine's three largest electric utilities -- Central Maine Power Company, Bangor Hydro-Electric Company and Maine Public Service Company -- one municipality with a population between 2,500 and 10,000 and one with a population over 10,000. Section 84 provides in addition that in order to qualify for the lifeline program, a single household must not have had income over $4,500 and a larger household must not have had income above $5,000.

Section 85 provides for a review of the program after its completion.

Finally, the enacting sections of the lifeline law (P.L. 1975 C. 585, Section 2) provided that the three electric utilities would file revised tariffs conforming to the lifeline statute at the Commission's direction. It also provided that:

> 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.

Since lifeline rates would inevitably be lower than regular residential rates, it was obvious that the electric utilities would suffer an actual loss of revenue from implementation of the program. Consequently,

this section led the Commission to impose a per kilowatt hour surcharge on non-lifeline customers in the demonstration communities to make up for the loss of revenue.

The lifeline program took five months to establish from July through November 1975. During that period, a number of complex issues had to be resolved such as the lifeline rate and the amount of surcharge.

2. Lifeline Rate

The language of the statute, Section 84(2) reads:

> (The Public Utilities Commission shall) "Establish the lifeline electrical service rate for a period of twelve months. The first rate step of the lifeline rate shall not be more than 3¢ per kilowatt hour for each of the first 500 kilowatt hours of electricity utilized in any monthly billing period....Where any existing rate for a particular usage level is lower than the lifeline rate established by the Commission, the lower rate shall prevail." (Emphasis added)

The sponsors of lifeline clearly intended to establish a simple 3¢ per kilowatt hour (hereinafter KWH) rate for the first 500 KWH. They further intended that any usage over 500 KWH would be at regular residential rates, including the fuel charge. However, the underlined sentence in Section 84(2) created some ambiguity as to rate structure. The Commission decided to interpret the word "rate" in Section 84(2) as meaning the total rate. Since no base residential rate of any of the three utilities at a usage level of 500 KWH was less than $15.00, the statute's 3¢ per KWH for the first 500 KWH would not have to be lowered. This permitted the Commission to adopt a rate structure of 3¢ per KWH for the first 500 KWH, and then a return to the residential rate blocks for usages above 500 KWH.

The flat rate of 3¢ for the first 500 KWH was considered particularly important by the sponsors and the Division of Community Services. This easily understood relationship between a customer's KWH usage and his bill would enhance the customer's ability to practice conservation.

The statute also required that "the rate provided by this section shall not be supplemented by any minimum charges, service charge, connection charge or other periodic charge. . ." This language made inapplicable such tariff provisions as Central Maine Power's minimum charge of $3.00 per month. Thus if a lifeline customer used 50 KWH, his bill would be $1.50, rather than $3.00. Lifeline customers were not charged for switching over from residential to lifeline services and new lifeline customers were not charged for the connection of electrical service. The Commission also decided that this language did not affect contracts for line extension service.

The Commission inquired of the Sales Tax Division of the Bureau of Taxation whether the sales tax was a "periodic charge" excluded under Section 84(2). The Director of the Sales Tax Division and the assistant attorney general working with the Bureau of Taxation both concluded that despite Section 84(2), a sales tax must still be charged to lifeline customers.

Finally, the fuel adjustment charge, clearly a "periodic charge," was prohibited on usage below 500 KWH. The question was whether the fuel adjustment charge could be applied to lifeline customers' usage above 500 KWH. The Commission decided that the fuel adjustment charge should be applied to that portion of a lifeline customer's usage which exceeded 500 KWH. One factor in this decision was that failure to apply the fuel adjustment charge to usage over 500 KWH would discourage conservation by lifeline customers.

3. Lifeline Surcharge

As mentioned above, the Commission interpreted the law to require the imposition of a surcharge, because implementation of the lifeline program would inevitably mean that the utilities would suffer a loss of revenue. Two phrases in the statute required interpretation: "Loss of revenue" and "all other classes of energy use".

The phrase "loss of revenue" had two possible interpretations. The loss in revenue might be only the loss in gross revenue. This would be the decrease in money received from lifeline customers because they would be paying bills at lower rates. The other interpretation would include not only the loss in gross revenue caused by lifeline rates, but also the administrative costs of the program.

The Commission took the position that administrative costs did not decrease the company's total revenues. Unlike the loss in gross revenue due to lower lifeline rates, which was a precise, independent figure which could be easily computed, administrative costs and the allocations involved were under the complete control of the utilities. The Commission requested the participating utilities to provide monthly reports of their lifeline administrative costs.

Central Maine Power's lifeline rates were approved by the Commission on November 18, 1975. Shortly thereafter, on December 5, 1975, Central Maine Power filed its "Petition to reopen proceeding for Amendment Order," in which it sought the inclusion of all administrative costs in the surcharge. This was denied as the Commission reaffirmed its position that the "loss of revenue" should be limited to the loss of gross revenue.

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 business 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.

The Commission decided that the best way to handle the surcharge would be for each utility to have a single surcharge, and impose it on the customers within those two municipalities in its territory where lifeline was being offered. This choice was made over two alternative approaches. One would have imposed a separate lifeline surcharge for each community, with that community's revenue loss being made up against all non-lifeline customers within that community. Since the lifeline statute contemplated a possible statewide implementation of the lifeline program, such a geographical division would not have provided the information needed to assess a more broadly based program. Another alternative would have imposed the surcharge over the utilities' entire service area, rather than limiting it to the demonstration municipalities. This would have produced difficulties for the utilities, since the surcharge would have been so small when spread over the entire system that it might not have been collectible. Furthermore, the Commission wanted to see how the general public would react to a realistic surcharge. Spreading it over the entire system would have led the public to underestimate the true cost of the lifeline program. Also, since only the demonstration municipalities' inhabitants benefited from the program, it would have been unfair for other utility customers to pay a surcharge when elderly poor within their own community were unable to benefit.

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:
   i. would have been billed under Rate "A" (residential rate) and
   ii. 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 estimated KWHs reflected lifeline usage in April.

4. Constitutionality of the Program

During the early phases of the program, the constitutionality of the lifeline statute was questioned. On November 20, 1975, Representative Gail H. Tarr, of Bridgton, Maine, asked the Maine Attorney General's office to review the constitutionality of the surcharge provision of the statute.

On February 24, 1976, the Attorney General's office sent an opinion letter to Representative Tarr affirming the constitutionality of the surcharge. A copy of this opinion letter is attached as Appendix B.

5. Choice of Demonstration Municipalities

The statute gave the Commission the responsibility for choosing the six demonstration lifeline municipalities. The six chosen, with their 1970 census populations, were:

Central Maine Power Company

Portland	65,116
Rockland	8,505

Bangor Hydro-Electric Company

Bangor	33,168
Ellsworth	4,603

Maine Public Service Company

Caribou	10,419
Fort Kent	4,575

6. Application Form and Verification of Potential Applicants

During the early stages of the program, it was hoped by some utility representatives that lifeline applicants would simply complete a form that would be verified by the Bureau of Taxation from their information concerning those who had applied for the Elderly Householders Tax and Rent Relief Act.

A check with the Bureau of Taxation revealed, however, that the Bureau did not have any formal method of verifying the forms which were sent in by applicants under the Elderly Householders Tax and Rent Relief Act. Other tax records, such as income tax records, were confidential and could not be used to verify the financial information supplied by lifeline applicants.

It was suggested that the Department of Human Services might be able to assist the Commission. However, it was soon realized that Human Services' activities did not affect a large proportion of the potential lifeline applicants.

The electric utility companies themselves stated plainly that they did not want to get into the business of approving lifeline applicants. The utilities simply wanted to have the names, addresses and (where possible) the account numbers of lifeline applicants supplied to them. They also insisted that the final approval of applicants must be made by the Commission itself, because under the statute it was given the burden of administering the lifeline program.

The solution ultimately arrived at was to have the participating outreach agencies, under the direction of the Executive Department's Division of Community Services sign up the lifeline applicants for the Public Utilities Commission. These outreach agencies were (1) for Portland, the Cumberland-York Senior Citizens Council, (2) for Rockland, Mid-Coast Human Resources, (3) for Bangor, the PenQuis Community Action Project, Inc., (4) for Ellsworth, the Washington-Hancock Community Action Agency, (5) for Caribou and Fort Kent, the Aroostook Regional Task Force of Older Citizens. The applicants supplied the outreach agencies with the detailed information about their income that was required by Section 83(3) of the lifeline statute.

The Commission and the Division of Community Services together developed a lifeline application card. (See copy included as Appendix C) The card was designed to be cut in two immediately above the duplicate space for the Applicant's name towards the bottom. The top portion, which contained the financial information about the lifeline applicant required by the statute, was kept by the outreach agency. The bottom portion of the card was kept by the utility, after inspection by the Commission.

It was recognized that some lifeline applicants would be elderly people living with children where the household's total income was less than $5,000. Under the lifeline statute, it was possible for the children to have the electric service placed in the resident parent's name, so electricity could be obtained at lifeline rates, even though the children would pay the bill. This income information was required if children not residing with their parents paid their parent's bill. During the administration of the

program, it became clear that a small number of people took advantage of these possibilities.[1]

The lifeline application cards were handled as follows: First, they were completed by the applicant or an outreach agency worker with the applicant's assistance. The cards, both top and bottom, were consecutively numbered by each outreach agency, such as E103 for lifeline applicant 103 in Ellsworth. The top part of the card was then detached and kept by the outreach agency, while the bottom part was mailed to the Commission.

The Commission staff examined the cards to make certain there were no irregularities and recorded the name of each applicant and his card number before sending it to the utility.

1. One related difficulty with the lifeline statute's definition of "household" was perceived, but to the Commission's knowledge it never arose. The statute defines household as "a claimant and spouse and members of the household for whom the claimant under Title 26, Chapter 901 is entitled to claim an exemption as a dependent under Title 36, Chapter 801..." This language does not in theory include most examples of the case described above of a lifeline applicant living with his children. Under the above definition, his children would not be part of his "household" unless they were his dependents under the applicable tax laws. In most cases, the children would have the larger income, and the parent eligible for lifeline would have a very small income. Therefore, the children could not be the parent's dependents. But if the children were not dependents and therefore not part of the household, under the lifeline statute they could have any level of income and yet use lifeline as a method of achieving electricity at lower rates through their parent. In practice, we ignored the dependency requirement. We interpreted "household" as meaning the totality of people within the living unit, and applied the income tests to this totality.

7. Commission's Rules and Procedures

On November 3, 1975, the Commission adopted its "Rules and Procedures for Older Citizens Lifeline Electrical Service." A copy of these Rules and Procedures appear as Appendix D. They deal with a number of technical issues involved in the actual implementation of lifeline. They are self-explanatory, with a few exceptions. These exceptions, dealt with in Regulations 2 and 3, relate to those multiple unit dwellings which are served by a single meter.

The problem - an important one in any lifeline program - is caused by the fact that the electrical usage shown on the single meter has to be divided among more than one household. If all households served by the single meter are on lifeline rates, the utility will have no problems computing the bill. Where a utility has multiple households served by a single meter, the bill is computed by the utility as though the total KWH usage were divided equally among the households and each billed separately. In fact, a single bill is sent to the person in whose name the electrical service is obtained - presumably the landlord. How the landlord divides up the bill is a matter to be resolved between himself and his tenant or tenants, although in its Rule and Regulation 2 the Commission expressed the hope that where the electricity was paid as part of the rent, the rent would be reduced by the lifeline saving.

Rule and Regulation 3 applies to situations where a master meter serves a multiple unit dwelling. Under this Rule and Regulation as initially enacted, eligible households within such dwellings could only obtain lifeline by having individual meters installed. The problems created by attempting

to divide master meter usage between lifeline and non-lifeline households were initially felt to preclude the application of lifeline to otherwise eligible households. Two distinct types of housing were affected. One type was public or non-profit housing for the elderly. The other was housing for profit owned by private landlords, either multi-family houses or apartment buildings.

A number of reasons were advanced to support the Commission's initial refusal to extend lifeline to all master metered households. One utility suggested that with a master meter it was impossible accurately to divide electrical use between lifeline customers and ineligible customers. The result would be that certain KWH usage would be billed at the wrong rate, which might violate the law.

The utilities also were alarmed at the computer and bookkeeping problems which would arise from attempting to provide lifeline in such hybrid situations. However, once the potential problem was limited to a few large housing projects in Portland, Central Maine Power felt increasingly confident that it could provide a solution.

The Commission itself was reluctant to provide lifeline in such situations because the program was only a year-long demonstration. Here the Commission was haunted by a policy it had adopted many years ago, which allowed the master metering of multiple customers in new buildings.

The Commission was also concerned about the possibility of fraud by landlords in master meter apartments. Since any hybrid bill at mixed residential and lifeline rates would initially be received by the landlord, there was real concern that some landlords would manipulate these bills for

their own benefit instead of the tenants. Consequently, the Commission originally denied lifeline service to otherwise qualified applicants who were on a master meter serving some households eligible for lifeline.

However, as soon as Rule and Regulation 3 was promulgated, efforts were begun to change this rule with respect to those elderly poor living in publicly subsidized or private non-profit housing projects. This pressure primarily came from Portland, where most of these projects are located. The Commission ultimately did change its mind and amend Rule and Regulation 3 so that residents of such public and non-profit housing projects could go on lifeline. The Commission did not reverse its position with respect to private landlords.

8. Signing up Applicants

As soon as the application cards were printed and distributed to the outreach agencies, the signing up of lifeline applicants began. The result was a flow of lifeline cards to the Commission and the utilities. Attending to various problems these cards created was a major day-to-day administrative activity for those involved in the lifeline program thoughout most of its existence. This was so because lifeline applications were completed and processed, not only in late 1975, but during the first half of 1976.

The major burden of signing up applicants rested upon the lifeline coordinators in the Division of Community Services and the five participating outreach agencies. The speed with which applicants were signed up depended upon the size of the community and the degree of organization and effort of the outreach agency. Stephen M. Farnham, lifeline coordinator for

Aroostook County Action Program and the Aroostook Regional Task Force of Older Citizens describes his actions in his Lifeline Activity, dated December 18, 1975. Since it describes the most elaborately organized and successful initial effort to sign up lifeline applicants by the five outreach agencies, his report is quoted here in full:

> "The Lifeline Project was given priority status in the two assigned communities by the Task Force and the Aroostook County Action Program. It was decided by both agencies that a coordinated effort by outreach workers in both communities would be most effective. It was also decided that only one agency would be responsible for administration of the program to avoid any duplication of effort. Steve Farnham, Task Force Outreach Director, was assigned as project coordinator.
>
> "Four outreach personnel were assigned to the project - two from each agency. Celina Bourgoin, Esther Levesque in Fort Kent and Lewella Fitzherbert, Betty Kierstead in Caribou. All were fully trained in background of Lifeline and all were experienced in determination of income through the Tax and Rent Program. Offices were established in each community with a target of 90% completion within four weeks. Offices were to be open afternoons only, with Task Force transportation programs utilized effectively (this proved not to be necessary as no applicant requested transportation). Office space was donated in Caribou at the Aroostook County Courthouse Building. In Fort Kent the Senior Center was utilized, each being first floor offices, centrally located, and accessible to the handicapped. Information phones were set up utilizing existing phone lines to take calls during the morning hours.
>
> "It was also decided that only the four outreach workers would take applications. No applications would be distributed to any individual, agency, or organization including Maine Public Service. This was agreed to by all parties concerned, as too many access points to applications would result in confusion.
>
> "At this point we felt ready to begin publicizing Lifeline. The State-issued releases did not produce much response and were not localized. An agency release was prepared and issued to area media (a copy is attached). Results follow:
>
> 1. Bangor Daily News
>   10/20 - State Press release
>   10/25 - State Press release with Bangor, Ellsworth localization.
>   10/27 - Task Force issued release.
>
> 2. Aroostook Republican (Caribou)
>   10/29 - State Press release
>   10/29 - Task Force issued release

3. St. John Valley Times (Fort Kent)
   10/29 - State press release
   10/29 - Task Force press release

4. WAGM Television (Aroostook County)
   10/30 - Task Force press release
   11/1 - Public Service announcements (three per day)
   11/14 - " " " " " "

5. WFST Radio (Caribou & Fort Kent)
   10/30 - Task Force press release
   11/1 - Public Service announcement
   11/14 - " " "

6. WEGP Radio (Caribou)
   10/30 - Task Force press release
   11/1 - Public Service announcements
   11/14 - " " "
   11/24 - Call-in talk show discussion
   12/4 - " " " "

7. WDHP Radio (Caribou & Fort Kent)
   10/30 - Task Force press release
   11/1 - Public Service announcement; talk show discussions
   11/14 - " " " " " "

8. WSJR Radio (Fort Kent)
   10/30 - Task Force news release
   11/1 - Public Service announcement
   11/14 - " " "

"In addition, it was decided to contact all churches in the two communities and explain the program enlisting their support. A telephone contact was made with eleven churches in the two towns and a release was submitted in each instance to be published in the church bulletins (a copy is attached). Over 12,000 people were informed in this manner. Town and city managers and welfare officials were made aware of the program and tied into the referral system.

"Offices opened November 3rd in both towns processing applications from 1:00 p.m. to 4:00 p.m. Two outreach workers and one supervisor were on hand the first week. The morning hours were utilized to do non-Lifeline work (except in one instance where an information phone was manned by an outreach worker). The offices remained open until November 21st on a five day per week basis. As of November 21st over 80% of eligible recipients had been processed.

"We had been utilizing five volunteers from the Franco-American Gerontology Program of UMPI in Caribou. They were conducting a house-to-house survey of the elderly informing them of Lifeline. Shut-ins were located and scheduled for a home visit by an outreach worker. These volunteers put in 198 hours of service, identifying 907 elderly. After the initial four weeks, home visits

were started using only one outreach worker in each community. 213 telephone or physical contacts were made in Fort Kent on possible eligibles resulting in 19 applications during the follow-up period. This brought Fort Kent to 100% completion. In Caribou 483 telephone or physical contacts were made in follow-ups resulting in 33 applications. Caribou is now 93% complete.

"All record keeping has been done by the Task Force office and all reports issued by that office. Weekly progress reports were issued to the Division of Community Service, the Public Utilities Commission, and the Aroostook County Action Program. Follow-ups in Caribou and Fort Kent are being done to identify anyone we possibly may have missed.

"Lifeline posters have been placed in conspicuous places the elderly may frequent in both towns (drug stores, post offices, town offices, food stamp offices, stores, etc.). Visits were also made to senior clubs serving each town.

"In summary our Lifeline effort has had five steps:

1. Coordination of personnel and efforts
2. Training
3. Publicity
4. Processing of applications
   a. includes identification of all elderly
   b. visitations of shut-ins
5. Follow-up on all elderly

"As a result of the joint efforts of the Aroostook Regional Task Force of Older Citizens and the Aroostook County Action Program, 96.5% of eligible individuals have been enrolled into Lifeline in Caribou and Fort Kent."

As the signing up process continued, it became apparent that it was not enough to have established the program, and wait for the applicants to come walking in. Extensive publicity and personal contacts proved essential. For example, during the routine work of the Cumberland-York Senior Citizens Council toward the end of the lifeline program and after it was over a large number of eligible lifeline applicants were encountered who had never learned of the program. Newspaper articles, television or radio announcements and word of mouth information from fellow senior citizens had never reached them. As of April 1977, people still were showing up at the Council, saying: "I've just heard about this lifeline program. How can I sign up for it?"

During the early phases of the program, the Division of Community Services published a leaflet on the program. A copy of this leaflet is included in Appendix E. It stresses energy conservation as part of the lifeline program.

Meetings were held by the Interagency Lifeline Committee, consisting of representatives from the Commission, the Division of Community Services, and the outreach agencies. Utility representatives frequently attended these meetings. A variety of problems were discussed at these meetings and the outreach agencies used them to compare each other's performances, which proved to be a spur to further efforts.

Most problems encountered at the meetings were routine. The outreach agencies generally reported no difficulty in getting the income information from applicants; phrases such as "down to the last penny" were used by several outreach agencies. However, the outreach agencies found some confusion on the part of some applicants about the nature of the income information that was sought.

Starting on October 24, the outreach agencies began to have lifeline applicants fill out cards and send the bottom half of the cards to the Commission. As the utilities began to receive their portions of the lifeline cards from the Commission, annoying technical problems emerged, which to some extent kept recurring throughout most of the application phase of the lifeline program.

A study of the lifeline files reveals the range of problems which arose. There were applicants who lived outside the demonstration municipalities, a difficult problem to detect because postal zones are not coextensive with political boundaries. There were a few duplicate applications. The failure of some applicants to write their account numbers on the bottom of the application form created problems in Portland, where the housing patterns are most complex. Without the account number, the utilities did not have an entirely reliable method of locating lifeline applicants. Some applicants were from master metered buildings, and a few had incorrect addresses. There were problems with deceased persons, with unrelated successors, and with other people (not the applicant) at the account's location. The cards revealed that a large number of widows, especially in Aroostook County, kept their electric accounts in their deceased husband's names. These problems, while time-consuming, were resolved without too much difficulty. They represented only a very small percentage of the total number of lifeline applicants, and as the program became well-established the number of problems diminished.

In retrospect, establishment of the program went smoothly and without major difficulty. Indeed, the cooperation between such diverse groups as the Commission, the Division of Community Services, the five outreach agencies and the three electric utilities was remarkable.

9. Commencement Date of Program

When the lifeline statute was enacted, it had been expected that the program would begin early in the autumn of 1975. This explains why the statute directed the Commission to report its findings and any recommendations concerning the lifeline rate to the Legislature prior to the last day of 1976. But this assumed that the program would end considerably before December 31, 1976.

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 (except for Maine Public Service Company, which had no computer at the time of the lifeline program). Procedures had to be devised for processing lifeline applicants, producing bills at lifeline rates and computing the surcharges. The outreach agencies had to locate and sign up the applicants in the various municipalities. Because of the extra time needed to prepare for the program, a starting date of December 1, 1975, for the lifeline program was ultimately adopted.

The timetable set by the legislation may have assumed that all lifeline applicants who were found to be eligible on the starting date would begin to receive electricity at lifeline rates on that date. This proved impractical. The participating electric utilities read meters and sent out bills on a staggered basis: Central Maine Power reads meters and bills monthly; Bangor Hydro-Electric Company reads meters and bills its residential customers bimonthly, with the exception of customers who have all-electric heat; Maine Public Service Company reads meters and bills its residential customers bimonthly, except for a few who live in commercial zones and therefore get their meters read monthly with their commercial neighbors. Because of these different billing cycles, it seemed unrealistic to have the three electric utilities begin applying lifeline rates on December 1 to customers who had already qualified.

The solution adopted was to have each customer who qualified for lifeline before December 1, 1975 to obtain lifeline service at the beginning of his first billing cycle which began on or after December 1, 1975. Thus Central Maine Power Company had lifeline customers who began service at lifeline

rates on any day beginning December 1, 1975 and ending December 31, 1975. These customers obtained lifeline for a year, through the last billing cycle which began before December 1, 1976 but continued on after that date. On their first billing cycle beginning after December 1, 1976, they resumed regular residential rates. This meant that some Central Maine Power lifeline customers received electricity at lifeline rates through December 31, 1976, and were billed at lifeline rates in early January 1977. The last lifeline surcharges were applied by Central Maine Power during January 1977. Bangor Hydro and Maine Public Service lifeline customers went on lifeline at any time between December 1, 1975 and January 31, 1976. Their last electricity supplied to lifeline customers at lifeline rates (depending on the cycle) was supplied between December 1, 1976 and January 31, 1977, with the last lifeline bills mailed in early February 1977. Those two companies' last surcharges were applied in February 1977.

Because of the billing cycle problem and the different billing practices of the three utilities, the actual length of the program was 15 months. No customer, however, received lifeline rates for more than a year.

III. LIFELINE PROGRAM IN OPERATION

The lifeline program went into operation on December 1, 1975 when the first electricity was supplied at lifeline rates. This section summarizes statistical and operating facts about the demonstration program and discusses several problems that occurred while it was in operation.

1. Summary Statistics

About 2,620 low income elderly Maine citizens participated in the lifeline demonstration program in the six municipalities selected by the Public Utilities Commission. The number of participants and their home communities within the service areas of the three participating electric utilities are shown below:

TABLE I

Number of Participants in Lifeline Program

Utility	Municipality	Population of Municipality (1970 Census)	No. of Participants
Central Maine Power	Portland	65,116	1,229
	Rockland	8,505	288
Bangor Hydro-Electric	Bangor	33,168	497
	Ellsworth	4,603	141
Maine Public Service	Caribou	10,419	290
	Fort Kent	4,575	174
TOTAL			2,619

Source: Numbers of participants from the Division of Community Services

The participants in the program had an average age of 75 years and an average annual income of $2,938. Approximately 64 percent of these individuals lived alone. The age, income and percentage living alone for the six demonstration communities are shown in Table II below:

TABLE II

Age, Income, and Living Status of Lifeline Participants

Municipalities	Average Age (Years)	Average Annual Income	Percentage Living Alone
Portland	74.0	$3,207	66.9%
Rockland	74.7	3,061	67.7
Bangor	75.0	2,945	74.0
Ellsworth	77.0	3,200	63.1
Caribou	78.0	2,647	47.2
Fort Kent	71.7	2,571	36.8
Total	75.1	$2,938	59.3%

Source: Division of Community Services

Additional information on the age, income and other characteristics on lifeline participants can be found in Appendix Tables 2 and 3.

Lifeline participants used much less energy than regular residential customers both in the lifeline year and in early years. Based on data from a random sample of participants furnished by the three utilities, lifeline customers used on average about 249 KWH of electricity per month, as compared with about 520 KWH for regular household customers. The monthly KWH usage data for lifeline participants in the six demonstration communities are shown in Table III below.

TABLE III

Average Monthly KWH Usage of Lifeline and Regular Residential Customers

Municipality	Lifeline Customers (KWH)	Regular Residential Customers (KWH)
Portland	228	554
Rockland		610
Bangor	224	490
Ellsworth	258	435
Caribou	334	514
Fort Kent	278	
Total Average	264	521

Source: Based on data submitted by participating utilities

Additional data on monthly KWH usage is presented in Appendix Tables 5-12.

Based on the average monthly usage of 300 KWH for lifeline customers, the average monthly savings for participants in the service areas of the three utilities are shown in Table IV below:

TABLE IV

Average Monthly Savings of Participants in Lifeline Program

Lifeline Customer Served by:	Average Monthly Savings From 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: Based on data submitted by participating utilities and Division of Community Services

As Table IV indicates, the dollar savings are primarily a reflection of the regular residential rates of the utility from which the lifeline customer purchases electricity. Maine Public Service rates are significantly higher than CMP's or Bangor Hydro Electric's, so the savings in Caribou and Fort Kent were significantly greater for participants in those two communities. Additional data on the savings to lifeline participants are shown in Appendix Tables 13-16. The regular residential rates of the three participating utilities are shown in Appendix Table 4.

To make up the loss of revenue from savings made available to lifeline customers from the program, a surcharge was assessed on other customers in each of the six demonstration communities. The following surcharges were imposed on a customer who used, for example, 500 KWH of electricity per month:

TABLE V

Monthly Surcharge Imposed on
Customers to Pay for Lifeline Program

	Highest Month	Lowest Month	Average Month
Central Maine Power	9 cents	2 cents	6 cents
Bangor Hydro-Electric	7	4	6
Maine Public Service	46	18 (credit)	20

Source: Based on data submitted by participating utilities.

The three companies incurred certain costs to administer the program. Based on data furnished by the companies, the table below summarizes those administrative costs:

TABLE VI

Administrative Costs of Lifeline Program
Reported by Electric Utilities

	Central Maine Power	Bangor Hydro Electric	Maine Public Service
Total Cost throughout Program	$31,499	$8,771	$9,884
Total Cost of Program through February 29, 1976 (Mostly start-up costs)	23, 416	6,411	4,968
Total Cost of Program After February 29, 1976	8,083	2,360	4,916
Average Monthly Cost of Program After February 29, 1976	808 (10 months)	182 (13 months)	410 (12 months)
Average Monthly Cost per Participant After February 29, 1976	44 cents	28 cents	89 cents

Source: Based on data filed monthly with Commission by participating utilities.

Additional data on administrative costs are shown in Appendix Tables 19 through 25.

2. Master Meter Problem

A major problem that occurred during the early months of the program was the master meter problem. The Portland Housing Authority was eager to have the Commission change its Rule and Regulation 3 to allow its eligible tenants to obtain lifeline. These tenants had actually completed their lifeline applications. Between November 1975 and February 1976, over 400 applications from Portland Housing Authority had been received by the Commission. The Cumberland-York Senior Citizens Council urged the Commission to allow these citizens to participate.

The practical reason why not all tenants in the public housing projects were eligible for lifeline was due, first, to a U. S. Department of Housing and Urban Development requirement that 10 percent of the units be reserved for disabled people, and second, the divergence between housing projects' age and income qualifications and those of the lifeline statute. These divergences were:

	Portland Housing Authority	Lifeline
Age	60+	62+
Maximum Income, one person	$5,700	$4,500
Maximum Income, two people	$6,500	$5,000

Despite these differences, the Commission felt compelled to re-examine the question of whether low income elderly living in master metered housing should be eligible for lifeline. On February 20, 1976, it amended its Rule and Regulation 3 to permit low income elderly in public housing to be eligible for lifeline. A copy of this amended Rule and Regulation 3 is included as Appendix F. Because its provisions address certain problems basic to any lifeline program, some explanation is necessary.

3(a)(i) limits the amendment to public housing or non-profit private housing. This avoided the more difficult problem of private landlords during the demonstration program.

3(a)(ii) requires that the landlord obtain electricity at residential rates. This eliminated all housing projects outside of Portland, and certain projects within Portland, because they were on General Service or other non-residential rates.

3(a)(iii) made landlords agree that the savings affected by lifeline would go to the lifeline customer.

3(a)(iv) was designed to provide data to compute the landlord's electric bill. The section requires that landlords furnish the Commission with the total number of households in apartment dwellings. Landlords were also required to submit a monthly report of all tenants in the apartment complex who had become ineligible for lifeline.

By the end of March 1976, three Portland housing projects and one private project, Deering Pavilion, owned by the Roman Catholic Diocese of Portland, had tenants receiving electricity at lifeline rates. However, this arrangement was abruptly ended, when the United States Department of Housing and Urban Development ruled that Maine's Lifeline program was discriminatory because it did not apply to all tenants in the public housing building and resulted in a double subsidy to lifeline tenants who were already receiving rent subsidies related to their incomes. A copy of the letter from Mr. Haney, Assistant Executive Director of the Portland Housing Authority to the Public Utilities Commission discontinuing the Authority's participation in the lifeline program is attached as Appendix G.

Mr. Haney's letter meant that during the remainder of the lifeline program only one project, Deering Pavilion, operated by the Roman Catholic Diocese of Portland, remained in the lifeline program under the amended Rule and Regulation 3. All the efforts by the Portland Housing Authority to secure participation of its tenants in the Lifeline program ultimately came to naught.

3. Refusal of U. S. Government to Pay Surcharge

In December 1976 the Federal Government's General Services Administration (GSA) in Boston contacted the Commission with respect to the lifeline surcharge. An employee of the GSA informed the Commission that because of the language of 31 U.S.C. §529, the Federal Government would not pay the surcharge. The applicable language from §529 reads:

> "And in all cases of contracts for the performance of any service, or the delivery of articles of any description, for the use of the United States, payment shall not exceed the value of the service rendered, or of the articles delivered previously to such payment."

The GSA believed that this section precluded them from having to pay for a service in excess of the value received. The GSA's interpretation was that the value of the electricity was represented by the regular rates only. Since the surcharge was in excess of the value received, it was a charge which the GSA could not pay under 31 U.S.C. §529.

On January 21, 1977, the Commission asked the GSA for an opinion letter with respect to the non-payment of the surcharge. On April 13, 1977, the Commission was informed by the GSA that their Business Management Division had concluded the surcharge could not be paid, because it was not for services rendered as was required by §529. The GSA also informed the Commission that they did not regulate military installations.

In its initial contact with the Commission in December, the GSA also cited the case of United States v. N. Y. Rayon Importing Co., Inc. 329 U. S. 654 (1947). This case, when examined, was found to address a different question, the recovery of interest against the United States. The case held that no interest could be recovered unless there were "(1) specific provision for the payment of interest in a statute or (2) an express stipulation for the payment of interest in a contract duly entered into by agents of the United States." (id at. 659)

The GSA's refusal to pay the surcharge is of potentially major significance. This would particularly be the case in localities where the United States Government is a major consumer of electricity. Clearly, if the GSA's position is legally correct, and were followed by the military, any surcharge would encounter major problems.

4. Notice to Customers of Termination of Program

As December 1, 1976, approached, the outreach agencies and the Division of Community Services became concerned about customers' reactions to the end of the program. It became apparent that some lifeline customers had forgotten that the demonstration program would last only one year. Other customers had forgotten that they were on the program. Still others, while aware they were on the program, had forgotten its purpose.

The Commission wanted to avoid a situation where the participating utilities would be inundated by telephone calls from bewildered lifeline customers after their first bills were mailed at residential rates. The Commission suggested that a special notice be placed in customers' bills, notifying them that the program was ending. This suggestion was followed by the utilities.

IV. PUBLIC REACTION TO LIFELINE PROGRAM

The public expressed its reaction to the lifeline program in three ways. First, the Commission received many letters about the program during its duration and after its termination. Second, the Commission held a public hearing at the Augusta Civic Center on February 17, 1977, to allow the public to express its views about the program. Finally, the Division of Community Services and the outreach agencies conducted a telephone survey of lifeline customers and the general public in Portland, Bangor and Fort Kent, giving many an opportunity to record their views on specific questions about the program.

1. Comments on the Program

The Commission received 44 complaints by letter or telephone from customers about the lifeline program. They came from the following locations:

Central Maine Power

Portland	13
Rockland	4
Outside demonstration municipalities	4

Bangor Hydro

Bangor	8
Ellsworth	2
Outside demonstration municipalities	4

Maine Public Service

Caribou	7
Fort Kent	2
Outside demonstration municipalities	0

A petition from Fort Kent was entitled:

> "We the undersigned, wish to protest the unfair discrimination against us in giving us a surcharge on our electric bills for this older citizens lifeline electrical service law. We feel this law should be repealed."

This petition was signed by 430 people. Since the total population in Fort Kent in 1973 was only 4,702, this petition is obviously a significant expression of community sentiment. The Commission also received nine favorable letters concerning the program, six of them from Bangor. At the Lifeline hearing on February 17, 1977, the Commission received an additional 134 favorable letters from Lifeline participants, 117 from Fort Kent and 17 from Caribou.

Almost all of the complaints from the demonstration communities were about the surcharge. A significant number were from elderly people who were ineligible for lifeline but had modest incomes and objected to having to pay a surcharge for other elderly people. Several elderly citizens worried about the younger generation, who were themselves having a difficult time caring for their families. Other correspondents thought that lifeline was inconsistent with self-reliance. One woman in Caribou wrote:

> "What has happened to the American people? Why can't sons and daughters help parents instead of asking the public to do their duty for them?"

Many correspondents were afraid that lifeline, if successful would be expanded statewide and possibly cover other fuels, becoming in essence another massive welfare program. For example, a man from Fort Kent observed:

> "My reason for opposing 'Lifeline' is simple: I feel we have to draw the line somewhere. Both Income Tax and Social Security, e.g., started small, but look at them now: They've mushroomed; they've grown to ridiculous proportions. Like Income Tax and Social Security, 'Lifeline' appears to me to be another attempt to take my money (admittedly not much right now) and give it to someone else. As far as I'm concerned, this trend must stop, and, in fact, reverse."

The letters favoring the program stressed the benefits which the savings due to lifeline gave them. The following two letters are typical.

A man in Fort Kent wrote:

"This program help me in saving money toward paying for my oil bill this winter. We do have a small check on S.S.I., but we could never save enough to pay our bills this winter, without saving this way. I'm getting only 132.00 S. Security & my wife gets 133.00 S.S.I. So, you see what I mean, when I say it did help us-.

Thank you"

A woman in Bangor wrote:

"I would like for you to know how much the Electric Lifeline means to me to have it continued.

"I am on a set income and I have a hard time to meet my bills with high rents and cost of living, increase in Blue Cross & Blue Shield; also I have to buy special food as I am on a special diet which costs more than a plain diet of cheaper foods, and medications are very high, as you know.

"All in all taken into consideration, I would think that the lower cost of electricity for Senior Citizens with set incomes like myself it would be cheaper than to have us go on relief, which I will have to do. I just can't stand any more high prices."

2. The Lifeline Hearing

The Commission's lifeline hearing was held on February 17, 1977, shortly after the termination of the program. Witnesses appeared from electric utilities, the Division of Community Services and the general public. This hearing provided a forum for the expression of a wide range of opinions.

Utility representatives were unanimously critical of the program. They stressed the negative reaction of customers to the surcharge. One utility witness, Mr. Robert F. Scott, Vice President of Central Maine Power, said that this company had received 549 complaints from customers objecting to the program, by letters, telephone calls or by notes written upon bills. The company received two favorable responses.

Mr. Scott also initially asserted that the lifeline program had resulted in no savings of energy by lifeline customers because they increased their usage by 2.7% during 1976. This, Mr. Scott said "is in the opposite direction from that intended by the Legislature." However, Mr. Scott later admitted that during 1976 regular residential customers increased their usage by 8.2% (the actual figure was 8.3%). Thus, lifeline customers consumed relatively less KWHs than other users.

Mr. Scott said he did not think lifeline was the "right answer to the problem." He proposed energy stamps as an alternative program, a suggestion which has been made by others, including other utility executives:

> "If there is a system that people have to go and qualify for food stamps, then it seems to me that this same agency, whatever the agency is in the State, could handle an energy stamp program that would help not only the electric customer, but all energy users that use energy in the home. And I say in the home to exclude gasoline in automobiles."

A later witness Mr. Stephen Aucoine, presented to the Commission an evaluation of the only fuel stamp project in the country. It was conducted in Lehigh and Northampton Counties, Pennsylvania, which include the cities of Allentown, Bethlehem and Easton. The program was planned and administered by the Community Action Committee of Lehigh Valley, Inc.[1] The program was funded by a grant from the Office of Economic Opportunity. The purpose of the project was "to insure that an adequate amount of various energy forms was available to the poor and the elderly by providing redeemable energy vouchers while encouraging energy conservation." Under the project fuel

1. For those who seek further information on this program, the address of this agency is 520 East Broad Street, Bethlehem, Pennsylvania 18018. Its telephone number is (215) 691-5620.

voucher booklets worth $75.00 were sold to eligible persons for $25.00. The vouchers could be used toward the purchase of coal, heating oil, natural gas, wood, and other home heating fuels as well as electric utilities. The net $50 subsidy figure was derived from estimates of an average $50 per heating season increase in costs over the base year 1973-1974.

The Pennsylvania Committee's report suggests that energy stamps would not encourage conservation. In appraising the success of its energy stamp program, the Committee concluded that:

> "there was greater energy conservation by the participants before they received fuel vouchers than during the period in which they were given the subsidy." (Emphasis in the original)

> "Our findings suggest that fuel voucher program recipients, despite efforts to encourage them to conserve fuel, used their $50 subsidy to purchase more fuel at higher prices thereby diminishing both the economic relief intended and our nation's fuel supply. Recipients were more concerned with staying warm than with saving money and fuel."

Mr. Timothy P. Wilson, the Director of the Division of Community Services, who was responsible for that Division's lifeline activities, suggested two other objections to energy stamps. He observed that elderly people could not always get out to pick up the stamps. He also said that there have been many problems of fraud with food stamps, and continued, "I've got that same problem when you talk about fuel stamps." Mr. Wilson also alluded to problems in administering an energy stamp program, in particular, installing safes in rural areas to hold undistributed energy stamps. In contrast, Mr. Wilson indicated that there was little, if any, fraud or serious administrative problems involved in the lifeline program.

Another alternative to lifeline was proposed by Mr. David E. Honey, Manager of the Union River Electric Cooperative, Inc., which serves a sparsely settled area of eastern Maine just north of Ellsworth. Mr. Honey said that if a permanent lifeline program were adopted, 22 percent of his customers would be on lifeline and would be supported by the other 78 percent, who would have a 10 percent surcharge on their bills to pay for lifeline. He stated that some people in his area funding the lifeline program were making less money than senior citizens receiving the benefits of the program. As an alternative to lifeline Mr. Honey proposed taking the 5 percent sales tax off all energy sold to people over 62. This would include fuel oil sales and even wood.

Many witnesses at the hearing favored continuation of the program. One of the sponsors of the Lifeline Law, former State Senator Bruce M. Reeves, testified:

> "What the Legislature was concerned with when it debated this bill was basically how to help Maine's elderly who were the hardest hit by the rising power company bills, because the elderly's income was so fixed and they had to use a certain amount of electricity for life's necessities.
>
> "And, secondly, the Legislature was concerned that the low income elderly, particularly those living by themselves paid the highest rate per kilowatt hour than any other group of customers."

Mr. Reeves then evaluated the lifeline program:

> "My conclusion is that this has been an extraordinarily successful demonstration and, incidentally, several other legislators from other states have shown an interest in starting such a special rate for the elderly . . . I am interested in other experiments, whether they are energy stamps or whatever. But I think meanwhile the old people in Maine are desperate. They need this. It's not a perfect situation; it's not a perfect program, but it does work and I hope that you will recommend it further to the legislature."

Representative Kathleen Watson Goodwin, Chairman of the Maine Committee on Aging, was unable to attend the hearing, but sent a memorandum to the Commission, which stated in part:

> "Given the positive results of the demonstration programs and the continued bleak financial status of many of Maine's elderly, we strongly urge the continuation and statewide expansion of the Lifeline program. According to a recent study commissioned by the Maine Committee on Aging entitled Over 60 in Maine: A Progress Report, the median real income of aged single people is $2,850 and aged couples is $5,660 (1975). Furthermore, 39% of all aged persons are below the low income level established by the Bureau of Labor statistics and another 26% are within the low to intermediate income level. 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."

Mrs. Adella Ives, an outreach worker from Rockland, presented a petition in favor of the program signed by 33 participants. Mrs. Ives listed the names of another 32 who would have signed the petition, but whom she was unable to visit due to the weather.

Another witness was Mary Ellen Twombly, the lifeline coordinator for the Division of Community Services. Ms. Twombly testified that she had asked the outreach agencies to derive statistics on the age and income levels of lifeline participants from the application forms. The resulting statistics which Ms. Twombly presented at the hearing appear in Appendix Tables 2 and 3. These data reveal that the average yearly income of lifeline participants was $2,938. The average age was 75 and 64% of the participants lived alone.

Ms. Twombly also developed some statistics on the savings lifeline customers were able to make. The findings are contained in Appendix Tables 13 through 16. They show that the economic benefit of lifeline to a participant depends on two variables, the level of rates and the size of the participants' income.

Thus, in the territory of Maine Public Service Company, since that utility's rates are higher than those of the other two utilities, the savings in dollar terms to lifeline participants there were greater than elsewhere. And because of the lower average income level in Aroostook County, the total benefit of lifeline is doubly magnified.

3. The Telephone Survey

In attempting to determine if the Lifeline Demonstration Project was successful or not, the Division of Community Services conducted a telephone survey in selected demonstration areas during November and December of 1976. The communities surveyed were Portland for Central Maine Power Company, Bangor for Bangor Hydro-Electric Company, and Fort Kent for Maine Public Service Company. The survey was designed to determine the feelings and attitudes of the general public, as well as the project participants, regarding the lifeline concept and related subject areas. The survey forms used in the project are shown in Appendix H.

A. Findings from Survey of Lifeline Participants

589 lifeline participants were surveyed. The figures were as follows:

Portland	320	26% of lifeline participants
Bangor	200	40% of lifeline participants
Fort Kent	69	40% of lifeline participants

The lifeline participants answered the survey's questions as follows:

1. 84% of the participants surveyed noticed a saving on their electrical bills.
2. An overwhelming percentage, 91%, indicated they would like the Legislature to continue the program.

3. A somewhat smaller percentage, 66%, indicated that Lifeline should be available for all persons over 62, regardless of income. 17% were opposed.[1]

4. 43% indicated no difference in their power consumption from pre-lifeline days and only 32% indicated that less power was used when they were on lifeline than before they were on the program.

5. 49% of the participants were aware of the surcharge; 34% were not.

6. Only 37% considered the surcharge to be a fair way of recovering the cost of the program. 32% felt it was not a fair way and the balance had no opinion. These percentages varied with the municipality. In Portland, 48% of the participants believed the surcharge was fair, while only 24% believed the surcharge to be unfair. In Fort Kent, 91% thought the surcharge was unfair; only 6% thought it was fair. (It must be remembered that lifeline participants did not pay the surcharge.)

7. The responses to the question asking who should cover lifeline's costs was statistically inconclusive with 69% of the participants surveyed having no opinion. The 31% that did respond, however, indicated approximately equally that either the power company or the state or federal government should subsidize the cost. Energy stamps were clearly an unpopular choice, with only 1.5% approving.

8. 53% of the participants favored an inverted rate structure for utilities favoring small users, as opposed to the present structure which favors large electrical users. The reaction to this question was remarkably strong in Fort Kent, where 93% of those polled preferred an inverted rate structure.

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1. Because some people either did not respond to questions or did not know, percentages in this data, such as the ones here, will add up to totals less than 100%.

9. The responses to the question of whether the respondent could take advantage of peak load pricing were approximately even, with 41% saying yes and 39% saying no. There was, however, remarkable divergence between municipalities with respect to the question. In Portland, 52% said they could take advantage of an 8 P.M. - 7 A.M. lower rate period, whereas 33% said they could not. In contrast, in Fort Kent, only 28% said they could, while 71% said they could not.

B. Findings from Survey of Non-participants

1,060 non-participants in the program were surveyed. The figures were as follows:

Portland	316
Bangor	344
Fort Kent	400

The Fort Kent results are particularly significant because its 400 people surveyed are 8.5% of Fort Kent's total 1973 population of 4,

1. 48% of those surveyed were familiar with the lifeline project. The figures varied between municipalities. Whereas in Fort Kent 69% of the respondents knew about lifeline, apparently because of the high surcharge, only 40% in Portland were familiar with lifeline, and only 30% in Bangor were. (The Bangor surveyors only questioned the 30% who were familiar with the program. The very large number of those in Bangor who answered no further questions in the survey (22% of the total) for the three municipalities affects the responses below).
2. 67% favored special low electric rates for people 62 and over, while only 6% were opposed.

3. 42% opposed lower rates for all those 62 and over regardless of income, while only 28% approved. This varies markedly from the lifeline participants' favorable response.
4. 35% felt when asked directly that the low rate should be available for low income elderly only.
5. 20% of those questioned were 62 and over. Only 15% of those who gave their age in Fort Kent were over 62, whereas 38% in Portland were.
6. 24% of those surveyed had incomes less than $5,000 per year. 35% of those in Portland were below that level, as were 27% in Fort Kent.
7. 57% were aware of the lifeline surcharges while only 16% were not aware. In Portland, 59% were aware and 30% unaware; and in Fort Kent, 79% were aware and 15% unaware.
8. The response to the question regarding the fairness of the surcharge was approximately even, with 33% indicating it was fair and 31% indicating it was unfair. These figures conceal a wide geographical variation: In Portland, 55% of the general public thought the surcharge was fair, while only 19% thought it was not. In Fort Kent 62% thought the surcharge was unfair, while only 25% thought it was fair. Appendix Tables 17 and 18 show the surcharge was many times higher in Fort Kent than in Portland.
9. Of 351 people, 3% of the total questioned, who specifically responded to this question concerning alternatives to the surcharge, 45% of them [15% of the total questioned] thought that the state or federal government should make up the lost revenue, while 42% [14% of the total] thought the power company should. 12% [4% of the total] thought that both governments and power companies should make up the loss. Only 7% [2% of the total] favored energy stamps.

10. With respect to inverted rate structures, 40% of the non-participants favored them and 26% were not in favor of them. In Portland, 55% were favorable and 19% were not. In Fort Kent 56% were favorable and 31% were not.

11. When asked if they could take advantage of substantially lower electric rates between 8 P.M. and 7 A.M., 45% indicated that they could, and 26% said they could not. In Portland, 62% said they could, and 27% said they could not. In Fort Kent, only 52% said they could, and 42% said they could not.

Further data on the lifeline telephone survey appears in Appendix I.

V. ISSUES RAISED BY LIFELINE PROGRAM

1. Lifeline Rates are not Cost-Related

A frequently raised objection to the lifeline concept is its deviation from rate structures based on cost. This objection assumes that present electric rate structures are based on costs actually incurred by the utility. However, the rate structures currently used by Maine electric utilities are in no way related to the costs that arise from the consumption by a particular customer.

Briefly, the declining block rate structure results in a high charge per KWH for the initial block of KWH usage, and a declining charge per KWH for each additional block of KWH usage. For example, if a Central Maine Power customer consumes 50 KWH in a month, the first 25 KWH he purchases will cost $3.40 and the second 25 KWH will cost $1.09 (25 x .0434 KWH). The current rate structure for the three participating utilities is shown in Appendix Table 4.

The theory behind this structure is that at low levels of usage, the bulk of the cost is recovery of capacity and customer costs which occur irrespective of the amount of electricity produced. At higher levels of production, these costs are spread over more units of electrical output, hence unit costs are lower.

While this approach will recover costs for a company as a whole, it does not necessarily lead to cost related treatment of each individual customer. Even more important is whether consumption by individual customers adds to peak. Consumption off peak may add little to overall costs, but this possibility is not reflected in the current rate structures of Maine utilities.

whether consumption occurs on or off peak was not so critical when the costs of plant construction and fuel were low. The current costs of constructing new plant are enormous. For instance, in its recent prospectus for the sale of common stock, dated March 17, 1977, Central Maine Power said that it plans to spend through 1988, $669,974,000 on new generating facilities. Given such an expense, it is unrealistic in cost terms for Central Maine Power to encourage electric use through rate design that gives no indication of the cost of peak time usage in terms of the construction of more operating plants. The new plant cost is so high that the increases in peak time electrical usage are producing the most expensive plant cost, which is the reverse of the situation during the 1960's. Similarly, fossil fuel costs and the problems of obtaining an adequate supply of fuel make peak time electrical consumption expensive because it is during the peak hours that the fossil fuel units must be added to the baseload hydro and nuclear mixture.

The answer to this dilemma is to price the increased consumption of electricity according to its actual costs. President Carter recognized this in his speech to Congress on April 20, 1977:

> "We must also reform our utility rate structure. For many years we have rewarded waste by offering the cheapest rates to the largest users. It is difficult for individual States to make such reforms because of the intense competition among States for new industry. The only fair way is to adopt a set of principles to be applied nationwide.
>
> "I am, therefore, proposing legislation which would require the following steps over the next two years: first, phasing out promotional rates and other pricing systems that make natural gas and electricity artificially cheap for high-volume users and which do not accurately reflect actual costs; next, offering users peak-load pricing techniques which set higher charges during the day when demand is great and lower charges during the day when demand is small." Congressional Record: April 20, 1977, page H3329.

Although the President in his speech did not specifically refer to declining block rates, the fact sheet issued on April 20, 1977 on his energy program specifically mentions them:

> "Conventional utility pricing policies discourage conservation. The smallest users commonly pay the highest per unit price due to practices such as declining block rates. Rates often do not reflect the costs imposed on society by the actions of utility consumers. The result is waste and inequity. The President will therefore submit legislation which contains the following provisions:
>
> ". . . State public utility commissions must require their regulated electric utilities to phase out and eliminate promotional, declining and other rates for electricity that do not reflect cost incidence.
>
> ". . . to shift energy use from peak to nonpeak periods, electric utilities would be required to offer daily off-peak rates to each customer who is willing to pay metering costs and to offer lower rates to customers willing to have their power interrupted at times of highest peak demand." Weekly Compilations of Presidential Documents, April 25, 1977, Vol. 13 No. 7, Pg. 576.

At present both peak-load pricing and rate redesign are being actively considered by Commissions and economists. Rate redesign proposals vary from flattening the current declining block rates to flat rates and inverted rates. The historically accepted methods of cost allocation are also being questioned. Concepts of marginal cost pricing, when applied to the new economic realities, create profoundly different analyses of the real costs electric utilities confront today and leave no doubt that present rate structures 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.

2. Lifeline Rates and Conservation

The statistics collected by the Commission on the lifeline program disclose the participants' patterns of use. Appendix Table 2 shows the low income levels of lifeline participants. Appendix Table 14 reveals that through lifeline, participants could annually save a week's income because of the program. Appendix Table 15 reveals that the savings in percentage terms on total bills are substantial, especially for participants with small monthly KWH usage levels.

Was there any conservation? The table below indicates that lifeline customers increased their usage during 1975 by a significantly smaller amount than did regular residential customers.

TABLE VIII

Increases in Usage, 1975 to 1976

	Residential	Lifeline
Central Maine Power	8.3	2.7
Bangor Hydro-Electric	6.3	2.6
Maine Public Service	4.6	2.7

Source: Appendix Tables 7, 11 and 12.

Another study was made of the changes in KWH usage by a random sample of lifeline customers from 1972 to 1976, as compared with the changes in usages by regular residential customers. The results of this study appear in Appendix Table 6. They show that except for Fort Kent, lifeline customers during this period increased their usage by a significantly smaller amount than did regular residential customers. Appendix Table 6 also reveals graphically that lifeline customers use far less electricity than do regular residential customers.

Appendix Table 6 suggests that lifeline customers are more frugal than the general public, and perhaps because of their financial situation, are normally forced as a group to practice conservation. An additional explanation is that because of their lack of income many lifeline customers do not have the electrical appliances which most residential customers have.

To conclude, these statistics make it clear that the low income elderly did not use the lifeline program, despite its significant savings, to increase their use of electricity. Lifeline customers increased their usage - for a variety of reasons - less than did regular residential customers. Even if a majority of lifeline participants did not deliberately conserve electricity, in actual practice their record was better than regular residential customers. And the statistics also suggest that the lifeline program allowed many low income elderly to increase their electrical use from austere stringency to more normal and adequate levels. This tendency to conserve has relevance to the questions of basing rate-making on costs. Under declining block rate structures currently in use by Maine utilities, those residential customers who use the fewest kilowatt hours are in fact paying the most per KWH of all electrical customers. And those low usage customers - the elderly poor and others - are the people least able to pay these high rates per KWH.

3. Lifeline as a Social Program

A number of people have objected to manipulating utility rate structures to implement a social program. In this regard it should be emphasized that any rate structure has social consequences. Current declining block rate

structures place a heavier burden on those elderly and other low income customers who use small amounts of electricity. Obviously this has social consequences.

Despite utility company protestations, the Legislature clearly has the prerogative to make social judgements concerning rate design which heretofore have been left primarily to management; provided, of course, that the utility continues to earn a fair return on its invested capital.

Rate redesign that produces a better balance between peak time and off peak users may be the best approach to providing some relief to most consumers. To the extent that special rate differentiation based on age and income is deemed warranted, lifeline may be a valid solution.

There appear to have been no more than isolated and unsubstantiated allegations of fraud. No one actually brought a fraud complaint to the attention of those running the program. The use of outreach agencies familiar with their communities, together with the fact that all the accounting, billing, and collection was done by the utilities, may have prevented any widespread fraud. However, the program was not audited, so no firm conclusion on fraud is possible.

4. Lifeline is Burdensome to the Utilities

Concerns were raised that the lifeline program would cause an excessive administrative burden on the electric utilities. However, the data collected from the utilities on administrative costs does not bear out this concern. The costs do not seem excessive. One would expect the initial costs of establishing a wholly new program to be high, yet once the program was actually in regular operation, after February 29, 1976, the administrative costs became very small.

Moreover, the Commission does not believe that the companies incurred substantial "out-of-pocket" expenses as a result of the program. To our knowledge, the utilities did not hire extra personnel or increase the capacity of their computers because of lifeline. The salaries and wages of the utilities' personnel and the costs of computers would have been incurred had the lifeline program never begun. The increase in the utilities' expenses appears to have been only a very small portion of the total administrative costs resulting from the program.

VI. POSSIBLE MODIFICATIONS AND ALTERNATIVES TO LIFELINE PROGRAM

1. Paying for Lifeline and Alternative Federal Programs

It is difficult to estimate the cost of a Statewide Lifeline Program, although an extrapolation of Appendix Table 17 suggests it might be about $800,000 per year[1] - not a small amount and one which would have to be reflected in rate increases. 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 revenues foregone under lifeline seem relatively slight.

Whether lifeline should be paid for through general taxation is, of course, a matter for the legislature to consider. Paying for lifeline out of general revenues avoids the surcharge problem and extends the burden of the program over all taxpayers in the society, rather than just the utility ratepayers. To the extent that subsidizing the poor elderly is a responsibility of the general population, rather than the responsibility of the ratepaying segment of that population, it is arguably proper for lifeline to be paid for out of general federal or state revenues. Such a program has been enacted by Congress and approved by President Carter on May 4, 1977, as

1. The total surcharges billed over the year the program was in operation totaled $111,191. Approximately 14% of Maine's population over 60 lived in the six demonstration municipalities according to the 1970 census. (No actual figures for people 62 and over were available.) An extrapolation suggests the cost of about $800,000 for a statewide program. This figure does not include any additional administrative costs due to the program.

part of a Supplemental Appropriation Act, HR 4877. The program is under the Community Services Administration, and is called the Emergency/Fuel Assistance Program.

On April 28, 1977, the President of Central Maine Power, Elwin W. Thurlow, sent a telegram to President Carter urging him to sign this legislation. Mr. Thurlow said the legislation which provides $200 million to assist low-income families with their fuel and energy bills is needed to assist needy families and individuals in obtaining energy and fuel supplies.

> "Assisting low income families with their energy and heating needs through this program is a much better alternative to a social need than the limited effects of an electrical lifeline program such as was tested in Maine last year.
>
> "Under the lifeline test established by the 107th Maine Legislature low-income elderly received electricity at a lower cost than that paid by other consumers. The loss to the company was added to the bills of remaining customers in the test communities. The federal program is not restricted to the elderly but is available to all low-income families who can prove need. It is broader in that it covers all forms of energy and does not penalize electric customers through a surcharge on their electric bills."

2. Reimbursing Utilities for the Cost of Lifeline

How should the utilities be reimbursed? If state or federal money is used to pay for the lifeline program, then the best method is to have the customer pay his share of his bill at a special low rate to the utility. The customer would pay for all his electrical use, albeit at a lower cost. The difference between this lower rate and regular residential rate would be paid by the state or federal government directly to the utility.[1] The fact that a

1. To the extent the program is financed by higher individual State income taxes, a part of the burden would be shifted to the Federal Government because state income taxes are a legitimate deduction from Federal income taxes. The actual effect on any individual would depend on his or her tax bracket.

participant pays his entire bill, although at a lower rate, is not given a direct refund or rebate representing the government's contribution, may curtail increased use.

The Emergency Energy/Fuel Assistance Program does provide for the payments to be made to the energy and fuel suppliers, not the actual participants. This should minimize the tendency of participants to increase their usage, unlike the situation with the Pennsylvania fuel stamp program described earlier.

3. Lifeline and Comprehensive Rate Redesign

One serious objection to the Maine Lifeline demonstration program is that it gave its benefits only to a minority of those who consume small quantities of electricity. Many poor, disabled and other customers use small quantities of electricity, yet they were unable to benefit from lifeline.

It can be argued that giving lifeline benefits only to the elderly poor would be appropriate because of their frugality and their use of relatively small amounts of electricity. Thus lower rates for this group, unlike lower rates for the remainder of the population will result in no increase in usage, unlike the probable result of granting lower rates to those other groups who use small quantities of electricity. On the other hand, we have seen that declining block rate structures may not conform to the economic realities which electric utilities face today. A general rate redesign, based on more precise concepts of cost, would result in lower rates for all those who do not use peak hour electricity. This could make a special lifeline program unnecessary. Such a general rate redesign has another advantage. It would not result in any surcharge, although the bills of users of large quantities of peak hour electricity would be increased.

4. Accounting for Different Residential Rate Levels Among Utilities

One significant problem with the lifeline program was caused by the fact that Maine Public Service Company's rates were higher - both the rate and the fuel charges - than the rates of the other two participating utilities. This meant that both the savings due to lifeline and the lifeline surcharge were much higher in Aroostook County than elsewhere. (See Appendix Tables 4, 15 and 18) **This disparity is due to the lifeline rates; being a fixed amount - 3¢ per KWH - instead of a percentage of the utility's residential rates, such as 66 2/3% or 75% of residential rates.**

The use of a fixed figure like 3¢ per KWH in a statewide program could work hardships on particular utility companies. When applied to some of the very small electric cooperatives and companies, for example the lifeline rate would be only a small percentage of the regular rate, and the revenue loss from the program would be enormous. Using 1975 figures (the last year for which complete figures are available), the difference between the residential and lifeline rates for utilities located on islands off the Maine coast is shown in Table IX below:

TABLE IX

	500 KWH Monthly Usage			
Company	Residential Rate (including fuel)	Life-line	Difference Amount	%
Fox Island Electric Co-op. (Vinalhaven, North Haven islands)	$36.34	$15.00	$21.34	41.3%
Isle Au Haut Electric	52.06	15.00	37.06	28.8
Matinicus Light & Power Co. (Matinicus Island)	52.70	15.00	37.70	28.5
Swans Island Electric Co-op, Inc.	32.58	15.00	17.58	46.0

These companies are located on islands many miles off the coast. The unusual difficulties these islands face in supplying electricity to their customers explain their high rates. Because of the great difference between lifeline and regular residential rates in such situations either an exception for these companies would have to be made, or else a lifeline rate which is a percentage of the residential rate should be adopted.

One percentage method was included in a Lifeline Bill, L.D. 1317, which was before the 108th Legislature in 1977:

> "For the first 500 kilowatt hours utilized each month, the lifeline rate shall be a flat per kilowatt hour rate which is determined by taking the applicable residential base bill amount for a monthly usage of 500 kilowatt hours, adding to it the average monthly fuel adjustment charge for the preceding calendar year and multiplying the sum by 75%;"

Using the current rate schedules shown in Appendix Table 4, the percentages of regular rates for 500 KWH and 300 KWH for the State's major electric utilities are in Table X shown below.

TABLE X

	500 KWH	300 KWH
Central Maine Power	79.7%	66.6%
Bangor Hydro-Electric	75.1	65.3
Maine Public Service	63.4	55.9

The table shows that the 75% lifeline rate calculation described above would result in savings to lifeline customers comparable to those produced in the demonstration program. Percentage rates may be particularly useful as a method of avoiding the requirement of repeated legislative or commission juggling of the lifeline rates. Thus, whenever an electric utility is granted

a rate increase or decrease, the lifeline rates could change proportionately.

Under the lifeline demonstration program, participants who used extremely small amounts of electricity each month paid very small bills. Thus a customer who used 35 KWH in one month would have, under the lifeline rate of 3¢ per KWH, a bill (before taxes) of $1.05. The utilities have a very high rate for the first few KWH consumed each month. This high initial rate is designed to cover plant costs and administrative expenses such as meter reading and bill preparation which are incurred regardless of the KWHs actually consumed.

It is, of course, possible to design a tariff for a lifeline program that would recognize the monthly administrative expense separately.[1] For example, a minimum monthly bill for all residential customers (including lifeline customers) exclusive of any energy used could be established. In California for the three major electric utilities, these minimums are between $1.05 and $3.00.

1. This separation has been made by Maine Public Service Company in its most recent tariffs, in which it has separated out a "Customer Service Charge" and an "Energy Charge." (See Appendix Table 4) California's three major electric utilities make a similar separation.

The Maine lifeline rates allowed a lifeline customer to save, no matter what his usage was. As one can see from Appendix Table 15, the smaller the usage, the larger the saving in percentage terms. By the time a customer was using 1000 KWH per month, the percentage savings were slight. The dollar savings, of course, were constant above 500 KWH.

Frederick E. Anderson, the Director of the Rate Department of Central Maine Power Company, suggested an approach which would result in lifeline customers using in excess of 1000 KWH per month paying the same for electric service as a regular residential customer. Mr. Anderson wrote the Commission on October 22, 1975:

> "We feel that the lifeline rate form as proposed at the Conference fails to fulfill one important requirement of the law which is '. . . to encourage the reduction of electrical power consumption for all uses beyond such basic necessities.'
>
> "To achieve this objective, the lifeline rate must have equality at some Kwh usage level beyond 500 Kwh with the rate under which service to all other residential customers is provided. To accomplish this conservation objective, we are proposing the lifeline rate shown in Attachment A. The first 500 Kwh are priced at 3.0¢. The next block is designed to achieve equality in the base bill amount between Residential Service Rate A and Lifeline Service Rate LL at a usage level of 1000 Kwh (existing break point in Residential Service Rate A)."

Mr. Anderson's proposal provides savings to levels of energy usage below 500 KWH and completely eliminates those savings at levels of usage above 1000 KWH. Mr. Anderson's proposed lifeline rate schedule is based on Central Maine Power October 1975 rates as shown in Appendix Table 25. It was incorporated in L.D. 1317.

5. California's Lifeline Program

On September 23, 1975, California's Governor Brown signed the Miller-Warner Energy Lifeline Act.[1] The Lifeline Act directs the Public Utilities Commission to designate a lifeline quantity of gas and electricity necessary to supply the minimum energy needs of the average residential user for end uses of space and water heating, lighting, cooking and food refrigeration. It also requires the Public Utilities Commission to require electrical and gas corporations to file a revised schedule of rates and charges providing a lifeline rate, which shall not be greater than the rates in effect on January 1, 1976. The law prohibits any increase in the lifeline rate until the average system rate in cents per kilowatt hour or cents per therm increased 25 percent or more over the January 1, 1976 level.

This program does not decrease rates, but instead holds lifeline rates constant when a rate increase is granted. The California Commission on October 7, 1975, issued its First Interim Opinion - Preliminary Considerations with respect to lifeline. This 58 page opinion is primarily directed towards the determination of what lifeline quantities of electricity and gas are for purposes of the Act. The Commission divided California up into four climatic zones for purposes of determining the minimum amounts of electricity and gas needed for space heating. The resulting lifeline amounts for electricity found by the Commission are as follows:

1. This statute is Section 739 of the California Public Utilities Code, and Chapter 1010 of the 1975-1976 California statutes.

TABLE XI

Lifeline Amounts of Electricity
Designated by California Public Utilities Commission

A.) Single Family Residences and Metered Units of Multi-Unit Complexes

Climatic Zone No.	Degree Days	Basic Residential Use KWH/mo.	Water Heating KWH/mo.	Space Heating KWH/mo.
1	2,500	240	250	550
2	2,500	240	250	800
3	4,500	240	250	1,120
4	7,000	240	250	1,420

B.) Unmetered Units of Multi-Unit Complexes

Climatic Zone No.	Degree Days	Basic Residential Use KWH/mo.	Water Heating KWH/mo.	Space Heating KWH/mo.
1	2,500	190	200	330
2	2,500	190	200	480
3	4,500	190	200	675
4	7,000	190	200	850

NOTE: These quantities are additive. Thus a customer with water heating in climatic zone 4 would obtain 390 KWH at lifeline amounts. If he had space heating, he would obtain 1240 KWH at lifeline amounts.

It should be noted that all parts of Maine have yearly degree day totals over 7,000 degree days, and are thus in climatic zone 4.

In California lifeline rates have an energy charge analogous to our fuel adjustment charge added to the rates for lifeline KWHs. The California utilities have separate rate levels for various geographical areas. The rate schedules for each geographical area consist of only two rate blocks. The present rate structure of the California electric utilities for a given geographical area is somewhat flatter than the rate structure of the three Maine electric utilities.

The California lifeline program is more complex than the Maine demonstration program. However, the California program's effort to define a minimum quantity of energy appears to have merit and to warrant consideration in developing any permanent program in Maine. The same is true of the phasing in of the California lifeline rate.

VII. CONCLUSIONS AND RECOMMENDATIONS

The low income elderly who participated in Maine's demonstration program did obtain meaningful savings in their monthly electric bills. The operational problems with the program were few and its administrative burdens were not severe. If the Legislature were to extend lifeline statewide, the Commission believes the program could be extended in substantially the form it took during the demonstration project. However, it is not a substitute either for overall redesign of electric rates or for a comprehensive program designed to enable Maine's poor people to purchase minimum quantities of energy at rates that they can afford.

The major problem is how to pay for lifeline. The per kilowatt surcharge was clearly unpopular. Possible alternative methods for consideration would include:

(1) Payments of federal or state funds, as in the recently enacted Emergency Energy/Fuel Assistance Program, directly to the utilities to reimburse them for the loss of revenue from lifeline rates.

(2) Incorporation of the lifeline rate into the overall rate structure of the electric utilities, which will mean that the reduction in revenue due to lifeline would be recouped from the basic rates of other customers. Ideally, lifeline rates would be incorporated as part of a general rate redesign proceeding.

In our view, the lifeline rate should be a percentage discount from the utility's regular residential rate. This computation rate will provide substantially larger savings at lower usage levels.

If a lifeline customer uses over 1000 KWH in any month, his bill should be the same as though he were a regular residential customer. This requires

a rate block between 500 and 1000 KWH per month which makes up the difference. This rate block will have a single rate, somewhat higher than regular residential rates, which will mean that by 1000 KWH the difference in basic rates will reach zero.

The remainder of any such program, including the methods of signing up applicants and the use of the outreach agencies, should remain essentially as it operated during the demonstration program except for more comperehensive verification procedures. However, we suggest that the lifeline applications be sent directly from the outreach agencies to the utilties after verification with other state agencies as necessary. Any disputes about lifeline applications should be resolved between the utility and the outreach agencies, with a right of appeal to the Commission.

APPENDICES

CHAPTER 585

AN ACT to Provide Lifeline Electrical Service for Older Citizens.

Be it enacted by the People of the State of Maine, as follows:

Sec. 1. 35 MRSA c. 4 is enacted to read:

CHAPTER 4

OLDER CITIZENS LIFELINE ELECTRICAL SERVICE LAW

§ 81. Title

This chapter shall be known as the Older Citizens Lifeline Electrical Service Law.

§ 82. Policy

It is declared that it is a policy of the State of Maine to insure an adequate electrical utility service to older citizens at a price they can afford. 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 services. 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. It is the policy of the State that older citizens be able to receive electrical service for basic necessities of modern life, such as lighting and refrigeration, at a stable, fair and reasonable minimum cost and to encourage the reduction of electrical power consumption for all other uses beyond such basic necessities.

§ 83. Definitions

As used in this chapter, unless the context otherwise indicates, the following words shall have the following meanings.

1. Household. "Household" means a claimant and spouse and members of the household for whom the claimant under Title 36, chapter 901 is entitled to claim an exemption as a dependent under Title 36, chapter 801 for the year for which relief is requested.

2. Household income. "Household income" means all income received by all persons of a household in a calendar year while members of the household.

3. Income. "Income" means the sum of Maine adjusted gross income determined in accordance with Title 36, chapter 801, the amount of capital gains excluded from adjusted gross income, alimony, support money, nontaxable strike benefits, the gross amount of any pension or annuity including railroad retirement benefits, all payments received under the Federal Social Security Act, state unemployment insurance laws, and veterans disability pensions, nontaxable interest received from the Federal Government or any of its instrumentalities, workmen's compensation and the gross amount of "loss of time" insurance, cash public assistance and relief, but not including relief granted under Title 36, chapter 901. It does not include gifts from nongovernmental sources or surplus foods or other relief in kind supplied by a governmental agency.

4. Older citizens. "Older citizens" means a residential customer 62 years or older.

5. Residential customer. "Residential customer" means an individual who maintains a permanent place of abode within this State and is present in this State for more than an aggregate of 183 days each year.

§ 84. Lifeline demonstration program

The Public Utilities Commission shall establish the rules and procedures for, and put into operation, a demonstration lifeline electrical service program that shall include the following:

1. Selection of size of municipality. Selection of a medium-sized municipality, 2,500 to 10,000 population, and a large municipality, population over 10,000, in each of the service areas of the Central Maine Power Company, the Bangor Hydro-Electric Company and the Maine Public Service Company, 6 municipalities in all. These 6 municipalities shall be the municipalities in which the demonstration program is conducted.

2. Establish a lifeline rate for a period of 12 months. Establish the lifeline electrical service rate for a period of 12 months. The first rate step of the lifeline rate shall be not more than 3¢ per kilowatt hour for each of the first 500 kilowatt hours of electricity utilized in any monthly billing period. A residential customer who is an older citizen shall pay not more than the lifeline rate for electricity utilized in any month at his principal dwelling. The rate provided by this section shall not be supplemented by any minimum charges, service charge, connection charge or other periodic charge to an older citizen who is a residential customer in a principal dwelling. Where any existing rate for a particular usage level is lower than the lifeline rate established by the commission, the lower rate shall prevail. No claim for lifeline rate otherwise allowable shall be granted to claimants of single member households with household income in excess of $4,500 for the previous calendar year; and no claim otherwise allowable shall be granted to claimants of households of 2 or more members with income in excess of $5,000 for the previous calendar year.

All state agencies are authorized to provide whatever support services, informational support, evaluative services and other such assistance as may be requested by the Public Utilities Commission in carrying out the objectives of the demonstration lifeline electrical service program.

§ 85. Review

After the completion of the one-year demonstration program, the Public Utilities Commission shall hold a public hearing or hearings to review the lifeline service rate to insure that it is adequate to effect the purposes of this chapter. It shall report its findings and any recommendations concerning the rate to the Legislature prior ot the last day of 1976.

Sec. 2. Transitional provisions.

1. Central Maine Power Company, Bangor Hydro-Electric Company and Maine Public Service Company shall file with the Public Utilities Commission revised tariffs in conformance with this Act in accord with the direction of the commission.

2. 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.

APPENDIX B

JOSEPH E. BRENNAN
ATTORNEY GENERAL

RICHARD S. COHEN
MARTIN L. WILK
DEPUTY ATTORNEYS GENERAL

STATE OF MAINE
DEPARTMENT OF THE ATTORNEY GENERAL
AUGUSTA, MAINE 04333

February 24, 1976

Honorable Gail H. Tarr
R.F.D. #1
Brighton, Maine

Re: The Constitutionality of Section 2, Chapter 583, Laws of 1975, An Act to Provide Lifeline Electrical Service for Older Citizens.

Dear Representative Tarr:

This opinion is in response to your telephone call to this office and your letter dated November 20, 1975, to Deputy Attorney General Martin Wilk, in which you asked whether subsection 2 of Section 2 of Chapter 585, Laws of 1975, An Act to Provide Lifeline Electrical Service for Older Citizens (L.D. 20), is constitutional.

Subsection 2 provides that:

> 2. 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.

The only question raised by that subsection is whether it satisfies the requirements of the Fourteenth Amendment of the United States Constitution and Article I, Section 6-A of the Maine Constitution that the State shall not deny any person within its jurisdiction equal protection of the laws. We think that the statute satisfies these constitutional requirements.

Pursuant to the Act, the Public Utilities Commission (PUC) has implemented a one year demonstration older citizens' lifeline electrical service program for six municipalities the PUC has selected, three with a population of over 10,000 and three with a population between 2,500 and 10,000, in each of the service areas of the Central Maine Power Company, Bangor Hydro-Electric Company and Maine Public Service Company. 35 M.R.S.A. § 84. The three larger communities that have been selected for the demonstration project are Portland, Bangor and Caribou; the three smaller ones are Rockland, Ellsworth and Fort Kent. Any citizen of 62 years of age or older who meets the income limitations provided in the statute shall not pay more than three cents per kilowatt hour (Title 35 M.R.S.A. § 84 sub-§ 2) "for each of the first

500 kilowatt hours of electricity utilized in any monthly billing period at his principle dwelling." The subsequent rates for additional usage, while varying from utility to utility, correspond to the standard residential rate for the second and third steps in the utility's declining block residential rate structure. For example, in Central Maine Power service area, the rate applicable to lifeline customers for the second five hundred kilowatt hours (KWH) is 2.16 cents per KWH; thereafter, all KWH are billed at 1.97 cents. The lifeline rate is applicable whether or not the recipient limits his residential consumption to 500 KWH per month. If he uses 25,000 KWH, he would still receive the lifeline rate for the first 500 KWH used.

The lifeline rate of 3 cents per KWH for the first 500 KWH consumed, established by the PUC under the statute, or $15.00 with no additional charges of any kind whatsoever permitted (35 M.R.S.A. §84, sub§ 2), is substantially less than the comparable standard rate for each of the three utilities involved. With the fuel adjustment charge added, the standard rate would be $18.07 for CMP, $20.32 for Bangor Hydro and $25.10 for Maine Public Service.

It is not known at this time to what extent each recipient of the lifeline rate will use the full 500 KWHs at the three cent rate. That consumption level, however, is about average for a typical residence in the CMP service area.

Under Section 2, subsection 2 of the Act, the other ratepayers in each municipality (those not qualified as lifeline ratepayers) will be required to pay for the loss of revenue their particular utility incurs as a consequence of the lower lifeline rates. Accordingly, in the Maine Public Service (MPS) area (Caribou and Fort Kent), to the extent that the lifeline recipients use the full 500 KWH, the difference between $25.10 on each bill that the MPS would have collected and the $15.00 that it does collect from the lifeline rate customer, or $9.90 per month, will be added to the bills to be paid by the other ratepayers in those particular towns. Because the statute provides that the revenue dificiency shall be collected "from all other classes of energy use in a just and reasonable manner" (underlining supplied), the PUC has decided to impose a surcharge based solely on KWH usage, regardless of the rate otherwise applicable to each ratepayer. See, e.g., PUC Order in F. C. #2165, appended hereto. 2/

2/ CMP has protested the PUC's decision to not permit the costs incurred by CMP in administering the program to be added to the surcharge as a part of its resulting loss of revenue. See CMP's Petition to Reopen Proceedings, etc. in F. C. #2165, appended hereto. See also PUC Rules and Procedures for Older Citizen Lifeline Electrical Service, November 3, 1973, p. 3, appended hereto. If CMP's protests were to be successful, the surcharge would be increased accordingly.

As of January 27, 1976, 1,966 persons in the six demonstration communities had applied for and qualified as lifeline rate customers. 3/ Inasmuch as the surcharge is based on KWH usage, it is expected that, given the number of ratepayers in the demonstration communities, the resulting economic impact of the surcharge on residential customers in these demonstration communities will be very small indeed. Industrial users could, of course, depending on their KWH usage, pay more substantial surcharges which, in turn, would be passed on to their customers in the form of higher prices for their goods or services.

Heavy users of electricity, such as those residential ratepayers having large families with heavy washing, drying and/or electric heating loads as well as the larger industrial firms, would, of course, pay more of the subsidy for the lifeline rate customers than would more modest users of electricity. 4/ Landlords with single meter apartment houses will presumably choose to pass their subsidy costs on to their tenants, unless prevented from doing so by the terms of a lease.

Lifeline rate customers do not pay any part of the subsidy, even on their electrical usage that exceeds 500 KWH per month. 5/

3/ As the PUC recognizes in its Rules and Procedures for Older Citizens' Lifeline Electrical Service, Rules 2 and 3, not all those eligible may qualify as lifeline customers. Potential lifeline rate customers living in a multiple unit dwelling with a single meter will be eligible for the preferred rate only if all households within the dwelling so qualify. (Even if they do, the lifeline customers apparently receive the resulting benefits in fact only if the landlord chooses to follow the PUC recommendation that he reduce rents accordingly. See Rule 2).

4/ The statute can, and inevitably will, result in persons living on welfare and on marginal incomes, but not satisfying the age requirements of the lifeline rate customer, subsidizing the latter. In some instances, if such marginal income families have heavy electrical load requirements, their subsidy of the lifeline rate customer may be more substantial than that of more affluent persons in the same community having lesser needs for electricity. In that connection, we are aware that much of the cheaper housing in Maine is heated with electricity, often with relatively inefficient radiant electrical heat, because of the low initial capital costs.

5/ The utilities, with the approval of the PUC, have interpreted "classes of energy use" in subsection 2 of Section 2 of the Act as essentially synonymous with classes of service. Lifeline service customers are treated as a class of use and, therefore, are exempt from the surcharge imposed by subsection 2 for their KWH usage beyond the first 500 KWH monthly. See, e.g., CMP's Rate LL appended to the PUC Order in F. C. 2165.

Honorable Gail H. Tarr

As a consequence of subsection 2 of Section 2 of the Act, taken in conjunction with the other provisions of the Act and under the plan that has been developed by the PUC for the implementation of the lifeline service program (which plan, it should be noted, follows the requirements of the statute reasonably), the following differences in rate treatment result:

1. Lifeline customers receive preferable rate treatment over others in the community who do not qualify as lifeline recipients.

2. Ratepayers other than lifeline customers living in demonstration communities will pay for the subsidized rate for the lifeline customers in their communities while similarly situated ratepayers outside the demonstration communities will not pay any of the subsidy, regardless of their KWH usage.

3. Ratepayers, other than lifeline customers, living in the same demonstration communities will pay different amounts of surcharge according to their respective KWH usage.

This statute is presumed constitutional at the outset. As stated by the Supreme Judicial Court of the State of Maine in State v. Norton, 335 A. 2d 607, 614 (1975):

> "In passing upon the constitutionality of any act of the legislature the Court assumes that the legislature acted with knowledge of constitutional restrictions, and that the legislature honestly believed that it was acting within its rights, duties and powers. All acts of the legislature are presumed to be constitutional and this is a 'presumption of great strength.' . . . The burden is upon him who claims that the act is unconstitutional to show its unconstitutionality . . . Whether the enactment of the law is wise or not, and whether it is the best means to achieve the desired result are matters for the legislature and not for the Court." (Citations omitted.) State v. Fantastic Fair & Karmil, 158 Me. 450, 466, 467, 186 A.2d 352, 262,263 (1961).

Turning to the first category of difference, we have no difficulty whatsoever with preferential treatment being given to persons 62 years of age or older with limited incomes as specified in the statute. Public assistance to such groups of persons would undoubtedly be sustained as a legitimate exercise of the Legislature's powers to protect the public welfare. 6/ The only question remaining, then, is whether the manner of imposing the resulting economic burden of the subsidy to that group is so arbitrary or unfair as to deprive any of the other ratepayers paying the subsidy equal protection of the laws.

6/ In New York, it has been held that a county government's Department of Social Services was required to meet the immediate needs of a welfare recipient by paying the sum that would make the recipient current in his obligation to the utility that provides power for heating and lighting his home. Ingram v. Fahuy, 358 N.Y.S. 2d 604.

Honorable Gail H. Tarr

The relevant criteria here regarding the resulting disparity in the burden of this social welfare program carried by various persons is well stated in the recent decision of the United States Supreme Court in Weinberger v. Salfi, 422 U.S. _____(June 26, 1975), at 45 L.Ed 2d 522, 541, quoting from one of its prior opinions,

> "In the area of economics and social welfare, a State does not violate the Equal Protection Clause merely because the classifications made by its laws are imperfect. If the classification has some 'reasonable basis,' it does not offend the Constitution simply because the classification 'is not made with mathematical nicety or because in practice it results in some inequality.' Lindsley v. Natural Carbonic Gas Co. 220 U.S. 61, 78, 55 L Ed 369, 31 S Ct 337. 'The problems of government are practical ones and may justify, if they do not require, rough accomodations - illogical, it may be, and unscientific.' Metropolis Theatre Co. v. City of Chicago, 228 US 61, 69-70, 57 L Ed 730 S Ct 441 . . . ."

Applying that criteria here, the difference in treatment between those in demonstration communities and those outside of those communities (category (2)) is not serious, in our view, from a constitutional standpoint. One purpose of the demonstration or pilot program was to try to determine, by examples in communities of different sizes, what the economic impact would be on other ratepayers in such communities if the program were to be adopted statewide. Assuming no other constitutional problems with the plan, then, the discrimination that results between equal consumers of electricity in different communities could be justified on the ground that it is an inevitable result of a legislative determination to treat this aspect of the economic welfare problems of the elderly poor as a local responsibility solely for the purposes of the demonstration project. The difference in treatment results from that determination, not from any arbitrary or invidious classification. We think the Legislature has the lawful authority to make that determination. It follows that the resulting discrimination between comparable energy users in different communities is not constitutionally impermissible.

The remaining (third) category of difference in treatment is that between big and little users of electricity. The inquiry here is whether the discrimination based on KWH usage is reasonably related to the promotion of some legitimate legislative purpose of this statute.

The underlying policy or purpose of the statute, as originally introduced, was to provide aid to Maine's elderly through lifeline preferential electric rates. See 35 M.R.S.A. § 82. It was pointed out during debate that three-quarters of Maine's 114,000 elderly citizens support themselves solely with social security payments and this means

that most of them live on $40 a week. See Senator Cummings' comments, Senate Record, June 4, 1975, p. B1622.

A secondary policy of the statute is (35 M.R.S.A. § 82) "to encourage the reduction of electrical power consumption for all other uses beyond" the basic necessities of modern life, such as lighting and refrigeration, needed by Maine's older citizens. The sponsors of the legislation were of the view that the bill would encourage such energy conservation. See the comments of Senator Reeves, Senate Record, June 4, 1975, at B1622, and on June 9, 1975, at B1753, and the comments of Representative Goodwin, House Record, June 9, 1975, at B1740 and June 20, 1975, at B2202. Whether or not the proponents of the bill were factually correct in their statements that the bill would encourage the recipients of the lifeline rate to conserve electricity, it is reasonably clear from the legislative history that the proponents of the bill did profess a concern that the bill help achieve energy conservation. Subsection 2 of Section 2 of the statute should encourage other ratepayers in the demonstration communities to conserve electricity because the surcharge is based solely on KWH usage. The more electricity used the more the ratepayer must pay in the way of a surcharge.

It may also be pointed out in defense of this statute that today, in an inflationary period, the increased usage of electricity, especially during peak demand periods, increases the cost of electricity, as it requires the construction of expensive new generating and transmitting facilities, all to the detriment of the elderly poor when they attempt to pay their electric utility bills. It can be argued, then, that there is an element of fairness in imposing a surcharge based on KWH usage to help subsidize the electric bills of the elderly poor.

The statute is not without precedent in offering a preferential rate with discrimination resulting against other ratepayers. While utilities are prohibited from giving (35 M.R.S.A. § 102) "any undue or unreasonable preference or advantage to any particular person, firm or corporation," they are free to provide (35 M.R.S.A. § 103) "service at free or reduced rates for charitable or benevolent purposes * * *." While section 103 fails to specify upon whom the resulting burden of the subsidized service to the charity shall fall, it seems clear that the other ratepayers would have to pay the subsidy so that the utilities would still receive a reasonable rate of return as required by law. See 35 M.R.S.A. § 51.

The legislative debate on this bill (L.D. 20) reflects the concern of a number of legislators, including yourself, that if enacted, it would impose an economic burden on poor people who are large users

Honorable Gail H. Tarr

of electricity, and several legislators recommended, instead, that the lifeline rate be subsidized directly out of the tax base.8/ As we have pointed out, however, the resulting differences in treatment between small and large users of electricity does bear some relationship to an objective of the statute. The legislature has broad discretion to enact laws which affect some groups of citizens differently than others and the equal protection clause will be offended only if the classification rests on grounds wholly irrelevant to the achievement of the State's objective in enacting the statute. In making that determination, the statute will be sustained if any state of facts may reasonably be conceived that would justify it. E.g. McGowan v. the State of Maryland, 366 U.S. 420 (1961); see Weinberger v. Salfi, 45 L.Ed.2d at 549, n.15.

For the reasons stated above, we believe the statute would be sustained if challenged on the ground that it denies equal protection of the laws.

If we could be of any further assistance to you with regard to this inquiry, please do not hesitate to call on us.

Sincerely yours,

EDWARD LEE ROGERS
Assistant Attorney General

ELR:mfe
enclosures

8/ See, e.g. the comments of Representative Berry from Buxton and your own comments, House Record, June 9, 1975, at B1740 and the comments of Senator Cyr of Aroostook, Senate Record, June 4, 1975, at B1622 and those of Senator Katz, June 9, 1975, at B1754. Senator Katz stated the issue as follows:

> "Now if your * * * answer to the needs of the elderly is to give them some kind of preferential rate * * * and say that everybody else who uses electricity is going to have to * * * [pay more], including all the low income people in this state, all the marginal people with large families, who are large users of electricity, this is not my idea of compassionate social welfare legislation at all."

APPENDIX C

APPLICATION FOR MAINE ELECTRIC LIFELINE SERVICE

YOUR NAME (first, middle initial, last)

CURRENT HOME ADDRESS (number, street, apartment number)

CITY OR TOWN, ZIP CODE

MAILING ADDRESS (if same, write "same")

DATE OF BIRTH (month, day, year)	TOTAL PERSONS IN HOUSEHOLD
DID YOU LIVE 183 DAYS (six months) OR MORE IN MAINE LAST YEAR? YES ☐ NO ☐	NOW ..... LAST YEAR .....

The Lifeline Electrical Service Demonstration Program will be operated December 1, 1975 to December 1, 1976 starting with the first monthly billing cycle for the applicant following receipt of application.

FOR INFORMATION OR ASSISTANCE CALL TOLL FREE 1-800-452-4617, OR THE LOCAL DESIGNATED LIFELINE AGENCY IN YOUR COMMUNITY.

As provided by law, the Maine Public Utilities Commission established the Lifeline electrical rate of 3 cents per kilowatt hour up to 500 kilowatt hours in any month for citizens 62 and over who live in the following municipalities only:

BANGOR, CARIBOU, ELLSWORTH, FORT KENT, PORTLAND, ROCKLAND

Send your completed application to your local designated Lifeline Agency or directly to Lifeline, State of Maine, Augusta, Maine 04333.

LINE WHERE CARD IS CUT IN TWO

YOUR NAME (first, middle initial, last)

CURRENT HOME ADDRESS (number, street, apartment number)

CITY OR TOWN, ZIP CODE

MAILING ADDRESS (if same, write "same")

NAME OF PERSON PRESENTLY BILLED FOR ELECTRIC SERVICE IN YOUR HOME (if same, write "same")

MAILING ADDRESS OF PERSON PRESENTLY BILLED FOR ELECTRIC SERVICE IN YOUR HOME (if same, write "same")

ELECTRIC COMPANY ACCOUNT NUMBER (if available)

(see other side)

DETERMINATION OF INCOME QUALIFICATION FOR LIFELINE
(THE INFORMATION BELOW MUST BE FULLY PROVIDED)

REPORTING YEAR: 19..... (last calender year) TYPE OF INCOME	Annual Amount Received by Applicant (A) $	Annual Amount Received by others in household (B) $	Total Household Income (A plus B) $
1. Salaries, wages and earnings			
2. Interest and Dividends			
3. Social Security and/or SSI			
4. Other pension or annuity			
5. Other Income			
TOTAL INCOME			

OTHER INCOME THAT MUST BE INCLUDED	WHERE TO INCLUDE
Capital gains, alimony, support money	5
Strike benefits, taxable and non-taxable	5
Railroad Retirement and Veterans Disability	4
State Unemployment Insurance	5
Non-taxable interest from federal government	2
Workman's compensation and "loss of time" insurance	5
Cash public assistance and relief	5

TYPE OF INCOME NOT TO BE INCLUDED AS INCOME

1. Gifts from non-governmental sources.
2. Food Stamps.
3. Other relief in kind (household objects etc., not including cash or money) supplied by a government.
4. Refunds under the Elderly Householders Tax and Rent Refund program.

FOR SINGLE MEMBER HOUSEHOLDS TOTAL LIMIT IS $4,500. FOR TWO OR MORE MEMBER HOUSEHOLDS TOTAL INCOME LIMIT IS $5,000.

Under penalty of perjury, I declare that I have examined this application and to the best of my knowledge and belief, it is true, correct and complete.

APPLICATION MUST BE SIGNED

Signature of Applicant _____ Date _____

Signature of preparer if other than applicant based on all information of which he or she has any knowledge. _____ Date _____

APPENDIX D

STATE OF MAINE

PUBLIC UTILITIES COMMISSION

RULES AND PROCEDURES FOR OLDER CITIZENS
LIFELINE ELECTRICAL SERVICE

* * *

Authority: These rules are established pursuant to 35 M.R.S.A. chapter 4 §84.

Tariffs:

Central Maine Power Company, Bangor Hydro-Electric Company and Maine Public Service Company shall file with this Commission tariffs establishing Lifeline Electric Service to become effective December 1, 1975. Said tariffs shall remain in force for twelve consecutive months for each respective billing cycle commencing on or after the specified effective date.

The Lifeline rate shall be limited to 500 kilowatt hours per month which shall be priced at 3¢ per kilowatt hour. Usage in excess of 500 kilowatt hours per month will be charged at regular established rates with applicable fuel adjustment charges added.

Rules and Regulations:

1. Lifeline Electric Service customers shall be limited to a single service at the place where they live.

2. Where each household within a multiple unit dwelling served by a single electric meter is otherwise qualified to receive Lifeline Electric Service, and where applications for service have been submitted, the utility shall give appropriate credit for the Lifeline rate in computing the bill for service. It is anticipated

that in all such cases the rent charged to each household shall be reduced by the amount Lifeline Electric Service reduces that part of the bill for service allocated to each household.

3. Where not all households within a multiple unit dwelling served by a single electric meter are eligible for Lifeline Electric Service, those eligible may receive service if individual meters are installed, or if all households served by the single meter become eligible for Lifeline Electric Service.

4. Where a Lifeline Electric Service applicant's dwelling is wired for service from more than one electric meter, (such as a separate meter for water heating) he may elect to install one meter, otherwise the Lifeline rate shall apply to his residential service meter only.

5. There shall be no service connection charge applicable for Lifeline Electric Service.

6. The provisions of Lifeline Electric Service shall not affect any existing (such as for a line extension) contracts between an eligible household and an electric utility company.

7. All other Rules and Regulations applicable for residential service shall remain in effect provided such rules and regulations are not specifically prohibited by the Older Citizens Lifeline Electrical Service Law.

Records:

Each electric utility company shall keep and maintain accurate records showing:

a. Name, address, date of services and account number for each Lifeline customer.

b. Kilowatt hour usage for each billing period, amount of bill, and amount which would have been billed under regular residential rates, including service connection charges for each account.

c. The difference between the amount billed and that which would have been billed under regular rates.

Lifeline Surcharge:

The loss of revenue within each municipality resulting from Lifeline Electric Service may be recovered monthly from other classes of service within said municipality by applying an appropriate surcharge factor to the kilowatt hour sales on each bill. Costs of administration of the Lifeline program shall not be recovered through this surcharge.

Reports:

Each utility shall report the following information to the Commission at least once monthly, except where the information may not be available due to bi-monthly billing. Then such report may be submitted bi-monthly.

a. A customer summary for each billing cycle showing name, account number, kilowatt hours taken and amount of bill.

b. A copy of the Lifeline surcharge computation together with related revenue data.

c. Such other information as the Staff may request from time to time.

Dated at Augusta, Maine, this 3rd day of November, A.D., 1975.

BY ORDER OF THE COMMISSION

Howard M. Cunningham
Howard M. Cunningham
Secretary

A true copy.
Attest: Howard M. Cunningham
Howard M. Cunningham, Secretary

APPENDIX E

FOR MORE INFORMATION WRITE THE
DIVISION OF COMMUNITY SERVICES
STATE HOUSE
AUGUSTA, MAINE 04333
CALL TOLL FREE 1-800-452-4617

This information was prepared by the Division of Community Services in conjunction with the Older Citizens Lifeline Electrical Demonstration Program. Published under Appropriation No. 4028-1010.

DIVISION OF COMMUNITY SERVICES
STATE OF MAINE, AUGUSTA, MAINE 04333

Lifeline Conservation

Where Can You Save On Your Electric Bill?

HERE IS THE COST OF THE TYPICAL ELECTRIC APPLIANCE ON A MONTHLY BASIS UNDER THE LIFELINE RATE OF 3 CENTS PER KILOWATT HOUR –

AIR CONDITIONER	$2.15
BLANKET	.37
CLOCK	.02
CLOTHES DRYER	.99
COFFEE MAKER	.27
DISHWASHER	.91
FAN (CIRCULATING)	.04
HAIR DRYER	.04
FRYING PAN	.47
HEATING PAD	.02
HOT PLATE	.22
IRON	.36
MIXER	.03
RANGE WITH OVEN	$2.94
RADIO	.22
RADIO/RECORD PLAYER	.27
REFRIGERATOR (12 cu. ft.)	3.04
SEWING MACHINE	.03
SHAVER	.00
TELEVISION (B& W)	.30
TELEVISION (color)	1.10
TOASTER	.14
VACUUM CLEANER	.12
WASHING MACHINE (Automatic)	.26
WATER HEATER	10.55
WATER HEATER (quick recovery)	12.03

This chart is based on average usage by a family of the appliances listed. You can estimate your monthly electric bill by adding up your appliances used.

ENERGY CONSERVATION TIPS FROM THE MAINE ELECTRIC LIFELINE PROGRAM

HOW TO MAKE YOUR LIFELINE ELECTRIC RATE SAVE YOU EVEN MORE!!!!!

– – – LIGHTING

LIGHTING ACCOUNTS FOR 16 PERCENT OF ALL ELECTRICITY USED IN YOUR HOME. HOW CAN YOU CUTDOWN ON YOUR ELECTRICITY USED FOR LIGHTING AND SAVE MONEY?

1. Fluorescent lighting is much more economical than regular bulbs. Fluorescent lamps give up to 5 times as much light for the same energy as regular bulbs and last up to 10 times longer.

2. Try using lower wattage bulbs. For example, 40 or 60 watt bulbs may give enough light in place of a 100 watt bulb.

3. People were right when they used to shut off lights to save electricity. You save energy by turning off lights or appliances whenever they are not needed.

– – – APPLIANCES

SOME ELECTRICAL APPLIANCES ACTUALLY SAVE MONEY. FOR EXAMPLE, AN ELECTRIC SHAVER THAT COSTS PRACTICALLY NOTHING TO OPERATE (A NICKEL A YEAR) REPLACES A REGULAR RAZOR WHICH REQUIRES A GOOD DEAL OF HOT WATER, A HIGH COST ITEM. HOW CAN YOU SAVE IN APPLIANCE USE?

1. Manual defrost refrigerators use less than automatic defrosting units. However, never let frost build up to more than one quarter of an inch before defrosting.

2. Using small kitchen appliances can save money in preparation of small meals. Toasters, waffle irons, electric grills and skillets usually use LESS electricity than an electric range.

3. It is a myth that an oven must be preheated before baking. Preheating is often not necessary.

4. If you have both a large oven and a small oven, use the small one whenever possible.

5. Use a tea kettle rather than a pan for heating or boiling water; it can save you energy.

APPENDIX F

STATE OF MAINE

PUBLIC UTILITIES COMMISSION

RULES AND PROCEDURES FOR OLDER CITIZENS
LIFELINE ELECTRICAL SERVICE

Rule and Regulation 3, As Amended

3. (a) Where not all households within a multiple unit dwelling served by a single electric meter are eligible for Lifeline Electric Service, those eligible may receive electricity at Lifeline rates if the multiple unit dwelling satisfies the following requirements:

(i) it is public housing or non-profit housing;

(ii) the landlord is charged for electricity at residential service rates;

(iii) the landlord agrees in writing to refund to each household on Lifeline, or reduce the rent of each household on Lifeline by, the pro rata amount each household has saved in electricity costs because of the Lifeline program. Copies of this written agreement shall be supplied to the Commission and the electric utility.

(iv) the landlord agrees to submit to the electric utility each month, at a date chosen to conform with the utility's billing cycle, the following

information with respect to each meter serving Lifeline households: (A) the total number of households currently served by the single meter, (B) the number of households currently on Lifeline, (C) the names of customers whose households previously on Lifeline became ineligible for Lifeline during the preceding month.

(b) For each multiple unit dwelling eligible under (a) above, during each billing cycle the kilowatt hours to be billed at Lifeline service rates for each single meter shall be computed by multiplying the total kilowatt hours used by that fraction whose numerator is the number of households on Lifeline and whose denominator is the total number of households served by said meter. The remaining kilowatt hours shall be billed to non-Lifeline households at residential service rates.

(c) The landlord of any multiple unit dwelling eligible under (a) above shall refund to, or reduce the rent of, each household on Lifeline according to the following computation:

R equals the total bill for all households at regular residential rates, as though no households were on Lifeline.

B equals the total bill for all households as computed pursuant to (b) above. This will be the actual bill received by the landlord under the Lifeline program.

N equals the number of households on Lifeline.

The refund or rent reduction to each household on Lifeline shall be:

$$\frac{(R - B)}{N}$$

This amount shall be recomputed for each month's bill. The landlord shall remit to each eligible household on Lifeline the refund or rent reduction as computed above either monthly or bimonthly.

Dated at Augusta, Maine, this 20th day of February, A.D., 1976.

BY ORDER OF THE COMMISSION

Howard M. Cunningham
Howard M. Cunningham
Secretary

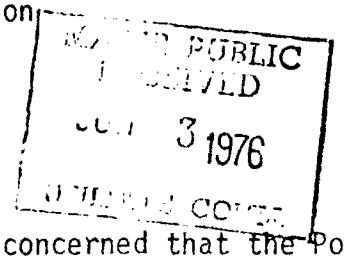
A true copy. Howard M. Cunningham
Attest: _____
Howard M. Cunningham, Secretary

PORTLAND HOUSING AUTHORITY
211 CUMBERLAND AVENUE, PORTLAND, MAINE 04111
Administrative Office (207) 773-4753
Rental and Occupancy Office (207) 774-3911
Social Services (207) 774-8418

APPENDIX G

June 1, 1976

Mr. John D. Molloy
Maine Public Utilities Commission
State House Annex
Capitol Shopping Center
Augusta, Maine 04333



Dear Mr. Molloy:

I regret to have to inform all concerned that the Portland Housing Authority will not be able to continue to participate in the State of Maine Lifeline Program for the Elderly. The Department of Housing and Urban Development has reviewed the various aspects concerned with our participation in the program and has asked that we discontinue our participation for the following reasons:

1. The purchasor of the utilities involved is the Portland Housing Authority, not the elderly tenant.
2. Utilities are provided by the PHA to the tenant as part of contract rent. Adequate utilities are guaranteed to elderly tenants within 25% of adjusted income. Since this precludes elderly tenants from being affected by the upward spiral in the cost of electric service, it appears that LRPH already achieves the policy objective of the State Law.
3. Permitting participation of only some tenants results in a discriminatory practice, violating the spirit and intent of Public Housing Law.
4. Use of the Maine Life Line Program would result in a double subsidy which must be reflected in reduced performance funding subsidy.

On behalf of the Portland Housing Authority, I wish to thank all of those who worked so hard in allowing our participation in the Lifeline Program. I am disappointed that your efforts cannot be rewarded by success, but I am even more disappointed that our low income elderly will not be able

to benefit from the program. I agree with and am consoled by the fact pointed out by the Department of HUD that "Utilities are provided by the Portland Housing Authority to the tenant as part of contract rent and adequate utilities are guaranteed to elderly tenants within 25% of their adjusted income, and this precludes elderly tenants from being affected by the upward spiral in the cost of electric service."

Sincerely,

Hoyt A. Haney
Assistant Executive Director

HAH:vfs

cc: Mr. Robert W. Leason
Manager, Customer Services
Central Maine Power Company

Cumberland/York Senior Citizens Council

Ms. Mary Ellen Twombly
Executive Coordinator
State of Maine
Division of Community Services

Mr. Creeley S. Buchanan
Area Director, HUD
ATTN: Ms. Doris Desautel, Chief, HPMB

APPENDIX H

TELEPHONE SURVEY FOR PARTICIPANTS OF LIFELINE PROGRAM

Hello, my name is_____and I'm calling for the Maine Public Utilities Commission. We are conducting a survey of attitudes among those of you who have participated in the experimental Lifeline Electrical Program, and I wonder if I might have a few moments of your time to ask some questions.

	Yes	No	Don't Know	Refused
1. Have you noticed the savings on your electric bill?	___	___	_____	_____
2. Would you like the Legislature to continue the program	___	___	_____	_____
3. Would you like a Statewide Lifeline Program for all persons over 62 regardless of income?	___	___	_____	_____
4. Have you used less power since you went on Lifeline?	___	___	_____	_____
5. Are you aware that all other electric customers in _____ who were not on Lifeline paid for the program with a small surcharge on their bills.	___	___	_____	_____
6. Do you believe the surcharge is a fair way to recover the costs of the Lifeline program?	___	___	_____	_____
7. (If "no") how would you like the loss in money to the power company because of Lifeline to be made up?	___	___	_____	_____
A. By the Power Company?			_____	
B. Through energy stamps like food stamps?			_____	
C. Directly by the State or Federal Government?			_____	
8. Do you feel that people that use small amounts of electricity should pay less per Kilowatt Hour used, than the larger users of electricity?	___	___	_____	_____
9. If electric rates were substantially lower between 8 P.M. and 7 A.M. than during the rest of the day, would you be able to use this period of lower rates in order to make savings in your electric bill?	___	___	_____	_____

TELEPHONE SURVEY ON LIFELINE TO THE GENERAL PUBLIC

Hello, my name is_____, and I am calling for the Maine Public Utilities Commission. We are conducting a survey of attitudes in_____concerning the older citizens Lifeline Electrical Program, and I wonder if I could have a few moments of your time?

	Yes	No	Don't Know	Refused
1. Are you familiar with the Lifeline Electrical Program?	___	___	___	___
2. Do you feel that a special low electric rate for people over 62 is desirable?	___	___	___	___
3. Do you feel this rate should be for all people over 62 regardless of income?	___	___	___	___
4. If "no", do you feel this rate should be only for people over 62 whose income is less than $5,000?	___	___	___	___
5. What is your present age?	_____			
6. Is your income less than $5,000?	___	___	___	___
7. Are you aware of the Lifeline surcharge on your electric bill?	___	___	___	___
8. Do you feel the surcharge is a fair way to recover the costs of the Lifeline Program?	___	___	___	___
9. If "No", how would you like the loss of money to the power company because of Lifeline to be made up?	___	___	___	___
A. By the Power Company?		_____		
B. Through energy stamps, like food stamps?		_____		
C. Directly by the State or Federal Government?		_____		
10. Do you feel that people that use small amounts of electricity should pay less per Kilowatt Hour used, than the larger users of electricity?	___	___	___	___
11. If electric rates were substantially lower between 8 P.M. and 7 A.M. than during the rest of the day, would you be able to use this period of lower rates in order to make a savings in your electric bill?	___	___	___	___

APPENDIX I

MAINE LIFELINE DEMONSTRATION PROJECT
PARTICIPANT SURVEY - DECEMBER, 1976

	Total	Ft. Kent	Bangor	Portland
Number Sampled	589	69	200	320
Savings noticed	+84%	+100%	+71%	+88%
Program should be continued	+91%	+100%	+77%	+97%
Lifeline should be available to all 62+	+66%	+70%	+57%	+70%
Less power was used during demonstration period	-43%	-48%	+32%	-50%
Were aware of surcharge	+49%	+64%	+48%	+46%
Consider surcharge fair	+37%	-91%	+31%	+48%
Who should pay cost of lifeline	(No clear opinion)		Power Co. (15%)	Power Co. (8%)
Favor inverted rates	+53%	+93%	+44%	+50%
Favor low rate period	+41%	-71%	-38%	+52%

Sample size = 589 (30%)

Total participants = 1975

"+" = yes response, "-" = no response

SOURCE OF DATA: Telephone Survey, November - December, 1976
Maine Division of Community Services-Research

Participating Agencies:

Aroostook County Task Force on Senior Citizens
Penquis Community Action Program, Inc.
York-Cumberland Senior Citizens Task Force

MAINE LIFELINE DEMONSTRATION PROJECT
GENERAL PUBLIC SURVEY - DECEMBER, 1976

	Total	Ft. Kent	Bangor	Portland
Estimated Total Population[1]	99,004	4,702	33,429	60,873
Number Sampled	1,060(1%)	400(8.5%)	344(1%)	316(.5%)
Question Response Totals:				
Were Familiar with Lifeline	+48%	+69%	-49%	-56%
Desire Low Rate for 62+	+67%*	+82%	+67%	+87%
Desire Low Rate for all 62+	-42%*	-53%	-20%[2]	-50%
Desire Low Rate for 62+ Low income only	+35*	+55%	+17%[2]	+30%
Mean Age	36 yrs.	42 yrs.	17 yrs.[2]	49 yrs.
Percentage Aged 62+	20%*	14%	10%	38%
Income Below $5000/yr.	-46%*	-59%	-23%[2]	-54%
Were Aware of Surcharge	+57%*	+78%	+29%[2]	+59%
Consider Surcharge Fair	+33%*	-62%	+21%[2]	+55%
Who should pay cost of lifeline[2]	65%* (No opinions)	+32% (Gov'mt.)	+3%[2] (Gov'mt.)	+7%[2] (Gov'mt.)
Favor Inverted Rates	+40%*	+56%	+19%[2]	+42%
Favor Low Rate Period	+45%*	+52%	+21%[2]	+62%

*Significant findings

[1]1973 Population Estimate, U.S. Bureau of the Census

[2]Results questionable due to 67%+ rate of non-response

SOURCE OF DATA: Telephone Survey, November-December, 1976
Maine Division of Community Services-Research

Participating Agencies:
Aroostook County Task Force on Senior Citizens
Penquis Community Action Program, Inc.
York-Cumberland Senior Citizens Task Force

APPENDIX TABLES

APPENDIX TABLES (Continued)

APPENDIX TABLE I

Number of Participants in Lifeline Program

	12/1/75	2/29/76	6/30/76	Final Data of Program	Final Count on Records of Out-Reach Agencies
Central Maine Power					
Portland	495*	945	1,221	1,299**	1,229**
Rockland	121*	266	281	281	288
	616	1,211	1,502	1,580	1,517
Bangor Hydro Electric					
Bangor	166*	423	496	506	497
Ellsworth	75*	134	139	142	141
	241	557	635	648	638
Maine Public Service					
Caribou	178	252	293	297	290
Fort Kent	138	168	176	178	174
	316	420	469	475	464
Total Customers	1,173	2,188	2,606	2,703	2,619

* This figure does not include lifeline cards from four municipalities which were received on December 1. The utilities had not, however, received these cards at the time the program formally began on December 1. If these cards are included, the totals are: Portland, 547; Rockland, 151; Bangor 208; Ellsworth, 98.

** Including 118 at Deering Pavilion, an apartment complex for senior citizens owned by the Roman Catholic Diocese of Portland.

NOTE: Except for the final column, these figures include all applications received by the Commission and processed by the utilities, even though some applicants were found ineligible for lifeline.

Source: All information is from the Commission's own records, except the final column, which was based on the records of the outreach agencies.

APPENDIX TABLE 2

Income of Participants
In Lifeline Program

Municipality	Number of Participants	Average Yearly Income	Lowest Yearly Income	Income of Oldest Participant
Central Maine Power				
Portland	1,229	$3,207	$1,004	$1,680
Rockland	288	3,061	1,104	1,580
Bangor Hydro Electric				
Bangor	497	$2,945	$ 774	$3,116*
Ellsworth	141	3,200	1,000	1,722
Maine Public Service				
Caribou	290	$2,647	$1,005	$1,664
Fort Kent	174	2,571	1,006	2,499
TOTALS AND/OR AVERAGES	2,619	$2,938	$ 982	$2,044

* 2 member household

Source: These statistics were compiled and computed by the five participating outreach agencies and the Division of Community Services.

APPENDIX TABLE 3

Age of Participants in Lifeline Program

Municipality	Number of Participants	Average Age (Years)	Age of Oldest Participant (Years)	Participants Living Alone	
				Number	Percent
Central Maine Power					
Portland	1,229	74.0	93	822	66.9%
Rockland	288	74.7	96	195	67.7
Bangor Hydro Electric					
Bangor	497	75.0	100	368	74.0
Ellsworth	141	77.0	96	89	63.1
Maine Public Service					
Caribou	290	78.0	90	137	47.2
Fort Kent	174	71.7	91	64	36.8
TOTALS OR AVERAGES	2,619	75.1	94	1,675	64.0%

Source: These statistics were compiled and computed by the five participating outreach agencies and the Division of Community Services

APPENDIX TABLE 4

Electric Utility
Residential Rates During
The Lifeline Program

CENTRAL MAINE POWER COMPANY:

May 2, 1975 - October 21, 1976	October 21, 1976 - Present
$3.00 first 30 kwh or less	$3.40 first 25 kwh or less
.0459 per kwh for 30-100 kwh	.0434 per kwh for 25-100 kwh
.0277 per kwh for 100-300 kwh	.0248 per kwh for 100-300 kwh
.0216 per kwh for 300-1000 kwh	.0202 per kwh for 300-1000 kwh
.0197 for all kwh over 1000 kwh	.0184 for all kwh over 1000 kwh

BANGOR HYDRO-ELECTRIC COMPANY:

July 16, 1974 - November 12, 1976	November 12, 1976 - Present
$1.88 for first 15 kwh or less	$2.15 for first 15 kwh or less
.0625 per kwh 15-75 kwh	.06943 per kwh for 15-75 kwh
.0237 per kwh for 75-500 kwh	.02392 per kwh for 75-500 kwh
.0174 for all kwh over 500 kwh	.01654 for all kwh over 500 kwh

MAINE PUBLIC SERVICE COMPANY:

April 17, 1973 - November 1, 1976	November 1, 1976 - Present
$1.35 first 8 kwh or less	Customer Service Charge $3.30
.066 per kwh for 8-80 kwh	.037 per kwh for 0-400 kwh
.030 per kwh for 80-300 kwh	.027 per kwh for 400-800 kwh
.023 per kwh for 300-600 kwh	.024 for all kwh over 800 kwh
.020 for all kwh over 600 kwh	

Source: The electric utilities' rate schedules on file with the Commission.

APPENDIX TABLE 5

Comparison of KWH Usage of
Lifeline Participants, 1975 vs. 1976

Central Maine Power Company

Month	1975 KWH	1976 KWH	Difference KWH	% Difference
January	253,121	271,163	18,042	7.1%
February	296,992	313,973	16,981	5.7
March	305,489	297,750	(7,739)	(2.5)
April	294,980	305,934	10,954	3.7
May	279,630	271,480	(8,150)	(2.9)
June	257,070	262,224	5,154	2.0
July	256,424	256,605	181	0.1
August	253,403	263,814	10,411	4.1
September	294,070	291,188	(2,882)	(1.0)
October	274,085	285,154	11,069	4.0
November	299,054	305,867	6,813	2.3
December	324,398	354,859	30,461	9.4
TOTAL	3,388,716	3,480,011	91,295	2.7%

This Table has been adjusted to exclude all multiple-tenant accounts.

Source: Information compiled by Central Maine Power Company and supplied to Commission.

APPENDIX TABLE 6

Changes in Usage, Years 1972 through 1976
A Random Sample of Lifeline Customers
Compared with Regular Residential Customers

Central Maine Power - Monthly Average KWH Usage

Year	Lifeline	Residential Portland	Residential Rockland
1972	210	466	507
1973	219	482	528
1974	216	495	554
1975	214	511	566
1976	228	554	610
% Change, 1972-1976	8.2%	18.8%	20.4%

(Lifeline Customers in Sample: 62)

Bangor Hydro-Electric - Monthly Average KWH Usage

Year	Lifeline Bangor	Lifeline Ellsworth	Residential Total System	Residential Bangor	Residential Ellsworth
1972	212	246	415	437	380
1973	216	237	428	460	388
1974	213	244	456	490	422
1975	218	238	434	464	402
1976	224	258	462	490	435
% Change, 1972-1976	5.6%	4.5%	11.3%	12.3%	14.5%

(Lifeline Customers in Sample; Bangor 70, Ellsworth 31)

Maine Public Service - Monthly Average KWH Usage

Year	Lifeline Caribou	Lifeline Fort Kent	Residential Total System
1972	356	216	458
1973	334	260	471
1974	345	272	480
1975	332	278	490
1976	334	278	514
% Change 1972-1976	-6.3%	28.7%	12.1%
1973-1976	-0.0%	7.1%	8.9%

(Lifeline Customers in Sample; Caribou 25, Fort Kent 20)

Source: Data supplied by the three electric utilities. In order to make statistics conform with other tables, we have converted average yearly kwh usage into average monthly kwh usage. For greater precision the percentages have been computed from the average yearly kwh usage figures.

APPENDIX TABLE 7

Monthly Comparison of Changes in Average KWH Usage of Regular Residential Customers and Lifeline Customers, 1975 vs. 1976

Central Maine Power Company

Residential Customers
(Total CMP System)

	Average monthly KWH			% Change	LIFELINE CUSTOMERS
	1976	1975	Change	per customer	% change
January	753	637	116	18.2%	7.1%
February	726	661	65	9.8%	5.7%
March	619	594	25	4.2%	(2.5%)
April	585	557	28	5.0%	3.7%
May	493	488	5	1.0%	(2.9%)
June	458	437	21	4.8%	2.0%
July	452	436	16	3.7%	0.1%
August	472	438	34	7.8%	4.1%
September	470	450	20	4.4%	(1.0%)
October	484	455	29	6.4%	4.0%
November	562	509	53	10.4%	2.3%
December	700	594	106	17.8%	9.4%
Yearly KWH	6,774	6,256	518	8.3%	2.7%

Source: Monthly reports supplied to Commission by Central Maine Power Company. Percentage changes of residential customers were computed by the Commission using these monthly reports. The percentage changes of lifeline customers were computed by Central Maine Power Company.

APPENDIX TABLE 8

Comparison of May 1976 Usage of Lifeline Participants with Their Usage in May 1975

Central Maine Power Company

Percentage decrease from May, 1975 to May, 1976 in lifeline participants' total kwh usage:	(2.9%)	
Total lifeline participants, May 1976 Note: This figure excludes all master metered housing projects.	1,153	
		Percent of total Participants
Lifeline participants using less kwh in 1976 than in 1975	530	46.0%
Lifeline participants whose kwh usage increased by 25.0% or more from May 1975 to May 1976	196	17.0%
Participants who increased 25.0% or more		
Lifeline participants increasing kwh usage more than 25.0% who, before the increase (but not necessarily after the increase) used less than 200 kwh per month.	150	76.5%
Lifeline participants increasing kwh usage more than 25.0% who, both before and after the increase, used less than 200 kwh per month.	112	57.1%

Source: Percentage decrease in lifeline kwh usage supplied by Central Maine Power Company, which excludes all master metered housing projects. All other data was derived by Commission from computer printout of changes in lifeline participants' usage from May, 1975 to May, 1976, supplied by the Company.

APPENDIX TABLE 9

Percentage of Electricity Consumed
By Lifeline Participants at Usage
Levels of Less than 500 KWH Per Month

Central Maine Power Company

Report Month	KWH usage of lifeline customers	KWH at lifeline rates	Percentage consumed at usage level of less than 500 KWH per month
January 1976	279,796	266,109	95.1%
February 1976	322,841	307,060	95.1%
March 1976	305,292	293,280	96.1%
April 1976	386,682	376,203	97.3%
May 1976	359,064	352,697	98.2%
June 1976	285,979	281,873	98.6%
July 1976	278,847	275,513	98.8%
August 1976	287,889	284,120	98.7%
September 1976	296,402	285,517	96.3%
October 1976	310,800	305,472	98.3%
November 1976	332,308	323,095	97.2%
December 1976	388,302	370,682	95.5%
TOTAL	3,834,202	3,721,621	97.1%

Source: The first column is from Central Maine Power Company's monthly reports. The second column was derived from the Company's monthly computations of its surcharges. The third column was computed by the Commission.

APPENDIX TABLE 10

Monthly Lifeline KWH As A Percentage of Total KWH in Lifeline Demonstration Municipalities

Central Maine Power Company

Month	KWH Usage of Lifeline Customers (incl. usage over 500 KWH)	KWH Surcharged During Month in Portland and Rockland	Total Supplied in Portland and Rockland	% KWH Usage of Lifeline Customers to Total Usage
February 1976	322,841	85,410,000	85,732,841	.38%
March 1976	305,292	48,557,000	48,862,292	.62
April 1976	386,682	39,117,000	39,503,682	.98
May 1976	359,064	36,922,000	37,281,064	.96
June 1976	285,979	35,829,000	36,114,979	.79
[illegible]y 1976	278,847	36,321,000	36,599,847	.76
[illegible]gust 1976	287,889	36,796,000	37,083,889	.78
September 1976	296,402	37,550,000	37,846,402	.78
October 1976	310,800	37,074,000	37,384,800	.83
November 1976	332,308	40,112,000	40,444,308	.82
December 1976	388,302	42,137,000	42,525,302	.91
TOTALS	3,554,406	475,825,000	479,379,406	.74%

Source: Figures on lifeline customers' usage and the KWH surcharged were supplied by Central Maine Power Company. The remaining figures were computed by the Commission.

APPENDIX TABLE 11

Comparison of Changes in Average Yearly KWH Usage of Regular Residential Customers and Lifeline Customers From 1975 to 1976

Bangor Hydro-Electric Company

KWH Usage	1975	1976	Percent Increase
Lifeline customers	426	437	2.6%
Residential customers	434	462	6.5
Bangor District	464	490	5.6
Ellsworth District	402	435	8.2

Source: Lifeline customers' increase figure comes from Lifeline hearing, February 17, 1977 (Transcript, p. 2). The remaining figures were derived from the Company's December 1976 monthly statement supplied to the Commission.

APPENDIX TABLE 12

Comparisons of Increases in Average Monthly KWH Usage of Regular Residential Customers With Lifeline Customers: May 1975 and May 1976 Bimonthly Billings

Maine Public Service Company

Average monthly KWH use of residential customers:

	1975	1976	Percent Difference
February	591	627	6.1%
March	547	586	7.1
April	524	549	4.8
May	479	486	1.5

Increase in lifeline participants' usage: May bimonthly billings

	1975	1976	Percent Difference
Total KWH	184,825	189,818	2.7%

Note: An approximate weighted computation can be made, based on the following premises. There is a 5-day gap between when the company reads meters and sends out bills. Therefore, May bimonthly billings include almost all April KWH usage by customers. Two thirds the March KWH usage and one third the May KWH usage will be in May billings. This is because say a May 20 bill will be for usage from March 15 to May 15. Some early May billings will also include a few days of February. The following computation can be made:

	1975	1976
February (5/28 - 5/29)	106	108
March (21/31)	371	397
April (25/30)	437	457
May (11/31)	170	172
Weighted Total	1,084	1,134
Residential % Difference		4.6%
Lifeline % Difference		2.7%

Sources: The average residential KWH usages for 1975 and 1976 are from the Company's regular monthly reports to the Commission. The lifeline customers' usages in May 1975 were compiled for the Commission by the Company. The May 1976 lifeline usages were compiled by the Commission from the Company's monthly computer printout on lifeline participants' usage.

APPENDIX TABLE 13

Monthly Savings of
Lifeline Participants

Participating Utility	Bill for 300 kwh Monthly Usage			Bill for 500 kwh Monthly Usage		
	Amount	Residential Minus Lifeline Rate	% Saving	Amount	Residential Minus Lifeline Rate	% Saving
REGULAR RESIDENTIAL RATES:						
Central Maine Power						
Rates to October 21, 1976	$13.38	$3.93	29.4%	$18.61	$2.86	15.4%
Rates on and after October 21, 1976	14.19	4.74	33.4	19.75	4.00	20.3
Bangor Hydro Electric						
Rates to November 12, 1976	13.62	4.17	30.6	20.01	4.26	21.3
Rates on and after November 12, 1976	14.47	5.02	34.7	20.96	5.21	24.9
Maine Public Service						
Rates to November 1, 1976	16.99	7.54	44.4	24.26	8.51	35.1
Rates on and after November 1, 1976	16.92	7.47	44.1	24.83	9.08	36.6
LIFELINE RATES:	$ 9.45	-	-	$15.75	-	-

NOTE: The above figures show bills, including the sales tax and an average fuel adjustment charge, for regular residential and lifeline services during the lifeline program. Each electric utility has two rates listed, since each utility obtained a rate increase during the program. A separate average fuel adjustment charge has been computed for the utilities' old and new rates.

Source: These statistics were compiled by the Commission, using the electric utilities' residential rate schedules on file at the Commission.

APPENDIX TABLE 14

Annual Savings of Lifeline Participants

Utility	Participant's Average Income Per Week	Yearly Saving Due to Lifeline at Usage Levels of 300 kwh/mo	Yearly Saving Due to Lifeline at Usage Levels of 500 kwh/mo	Yearly Saving Equals No. of Weeks Income at Usage Levels of 300 kwh/mo	Yearly Saving Equals No. of Weeks Income at Usage Levels of 500 kwh/mo
CENTRAL MAINE POWER					
Rates to 10/21/76					
Portland	$61.48	$47.04	$34.08	.77 wk	.55 wk
Rockland	58.86	47.04	34.08	.80 wk	.58 wk
Rates after 10/21/76					
Portland	61.48	57.24	48.60	.93 wk	.79 wk
Rockland	58.86	57.24	48.60	.97 wk	.83 wk
BANGOR HYDRO-ELECTRIC					
Rates to 11/12/76					
Bangor	56.63	50.04	51.12	.88 wk	.90 wk
Ellsworth	61.53	50.04	51.12	.81 wk	.83 wk
[illegible]s after 11/12/76					
[illegible]ngor	56.63	60.24	62.52	1.06 wk	1.10 wk
[illegible]llsworth	61.53	60.24	62.52	.98 wk	1.02 wk
MAINE PUBLIC SERVICE					
Rates to 11/1/76					
Caribou	50.90	90.48	102.12	1.78 wk	2.01 wk
Fort Kent	47.75	90.48	102.12	1.89 wk	2.14 wk
Rates after 11/1/76					
Caribou	50.90	89.64	108.96	1.76 wk	2.14 wk
Fort Kent	47.75	89.64	108.96	1.88 wk	2.28 wk

Source: These statistics were compiled by the outreach agencies (first column) and by the Commission and the Division of Community Services, using the data from the outreach agencies and the electric utilities' rate schedules on file at the Commission. (remaining columns)

APPENDIX TABLE 15

Survey of Actual Monthly Savings of Lifeline Customers for February 1976

CENTRAL MAINE POWER COMPANY (Monthly Billing)

AT LIFELINE RATES (Rate Actually Billed)

Customer	Kwh Used	Base Rate	Fuel Charge (only if Kwh over 500)	Total before Tax	Tax	Total
A	154	$4.62	-	$4.62	$ .24	$4.86
B	300	9.00	-	9.00	.45	9.45
C	497	14.91	-	14.91	.75	15.66
D	1007	25.94	$1.88	27.82	1.40	29.22

AT REGULAR RESIDENTIAL RATES

Customer	KWH Used	Base Rate	Fuel Charge	Total before Tax	Tax	Total
A	154	$ 7.71	$ .57	$8.28	$ .42	$8.70
B	300	11.75	1.11	12.86	.65	13.51
C	497	16.01	1.84	17.85	.90	18.75
D	1007	27.01	3.73	30.74	1.54	32.28

DIFFERENCE

Customer	KWH Used	Base Rate	Fuel Charge	Total before Tax	Tax	Total Saving	% Saved
A	154	$3.09	$ .57	$3.66	$.18	$3.84	44.1%
B	300	2.75	1.11	3.86	.20	4.06	30.1%
C	497	1.10	1.84	2.94	.15	3.09	16.5%
D	1007	1.07	1.85	2.92	.14	3.06	9.5%

BANGOR HYDRO-ELECTRIC COMPANY (Bimonthly Billing)

Customer	KWH Used 1 month	KWH Used 2 months	Lifeline Rates 2 months	Regular Rates 2 months	Difference 2 months	Difference 1 month	% Saved
A	151.5	303	$9.09	$17.00	$7.91	$3.96	46.5%
B	299	598	17.94	26.00	8.06	4.03	31.0%
C	491	982	29.46	37.81	8.35	4.18	22.1%
D	770.5	1541	51.54	43.18	8.36	4.18	19.4%
E	1171	2342	62.69	71.05	8.36	4.18	13.3%

APPENDIX TABLE 15 (Continued)

MAINE PUBLIC SERVICE COMPANY (Bimonthly Billing)

Customer	KWH Used 1 month	KWH Used 2 months	Lifeline Rates 2 months	Regular Rates 2 months	Difference 2 months	Difference 1 month	% Saved
A	148	296	$ 8.88	$ 17.76	$ 8.88	$ 4.44	50.0%
B	300.5	601	18.03	35.93	17.90	8.95	49.8%
C	489	978	29.34	51.21	21.87	10.94	42.7%
D	993.5	1987	67.01	87.91	20.90	10.45	23.8%
E	2200	4400	157.51	178.40	20.89	10.45	11.7%

Sources: February 1976 computer printout by Central Maine Power Company detailing each individual Lifeline participant's electrical use. "A", "B", "C" and "D" are actual lifeline participants. The only figures computed by the Commission are the % saved figures. Bangor Hydro-Electric Company and Maine Public Service Company figures were compiled by the Commission from computer printouts which detailed (though not to the extent of Central Maine Power's printouts) each individual lifeline participant's electrical use. "A", "B", "C", "D" and "E" are actual lifeline participants.

APPENDIX TABLE 16

Comparison of Total Monthly Bills at Lifeline Rates with What Those Bills Would Have Been At Residential Rates

Central Maine Power Company

	Total Monthly Billings At Lifeline Rates (incl. sales tax)	What Total Monthly Billings Would Have Been At Residential Rates (incl. sales tax)	Difference	Lifeline Rate as a percenta of Residentia Rates
January 1976	$ 8,516	$ 11,699	$ 3,183	72.8%
February 1976	9,882	13,823	3,941	71.5
March 1976	9,478	14,135	4,657	67.1
April 1976	11,972	18,686	6,714	64.1
May 1976	11,123	17,670	6,547	62.9
June 1976	8,907	13,509	4,602	65.9
July 1976	8,674	12,851	4,177	67.5
August 1976	8,941	13,058	4,117	68.5
September 1976	9,040	13,087	4,047	69.1
October 1976	9,662	14,689	5,027	65.8
November 1976	10,344	16,536	6,192	62.6
December 1976	11,989	18,002	6,013	66.6
TOTALS	$118,528	$177,745	$59,217	66.7%

Sources: Monthly computer printouts supplied to Commission by Central Maine Power Company. Differences, percentages and totals computed by Commission.

APPENDIX TABLE 17

Total Lifeline Surcharges Billed
By Electric Utilities

Utility	Amount
Central Maine Power	$56,743.93
Bangor Hydro-Electric	22,184.00
Maine Public Service	32,263.00
TOTAL SURCHARGES	$111,190.93

Sources: Central Maine Power Company, oral communication to Commission; Bangor Hydro-Electric, Lifeline hearing, February 17, 1977 (Transcript, p. 2); Maine Public Service, Lifeline hearing, February 17, 1977 (Transcript, p. 39).

APPENDIX TABLE 18

Monthly Lifeline Surcharges in Demonstration Municipalities of Participating Utilities
(Dollars per kilowatt hour)

Date	Central Maine Power	Bangor Hydro Electric	Maine Public Service
February 1976	.000035	.000083	-
March 1976	.000109	.000119	.00034
April 1976	.000138	.000074	.00077
May 1976	.000174	.000138	.00037
June 1976	.000185	.000111	.00092
July 1976	.000115	.000123	.00026
August 1976	.000109	.000127	.00063
September 1976	.000101	.000127	.00015
October 1976	.000102	.000110	.00060
November 1976	.000120	.000118	.00005
December 1976	.000143	.000119	.00043
January 1977	.000124	.000079	.00074
February 1977	-	.000102	(.00036)

The following examples show how the surcharge worked:

A customer in Portland with a bill for 500 kwh in November 1976 would have paid a surcharge of 6 cents.

A customer in Bangor with a bill for 1500 kwh in May 1976 would have paid a surcharge of 21 cents.

A customer in Caribou with a bill for 1000 kwh in January 1977 would have paid a surcharge of 74 cents.

Source: The electric utilities reported their surcharges each month to the Commission. This table is compiled from these reports.

APPENDIX TABLE 19

Monthly Administrative Costs
of Lifeline Program

Central Maine Power Company

	November 1975	December 1975	January 1976	February 1976
Payroll Cost				
Rate Dept.	$ 375.11	$ 113.93	$	$ 194.15
Accounting Dept.	1,008.73	420.58	195.60	185.01
Rockland District	100.93	56.10	104.70	64.02
Portland District	241.11	547.82	560.48	395.73
Legal Dept.	295.11	98.37		
Data Processing Dept.	4,192.02	2,005.01	1,523.77	684.80
Customer Service Dept.	389.31	536.52	368.20	275.28
Total Payroll	6,602.32	3,778.33	2,752.75	1,798.99
Expenses				
Personal Expenses	84.97	1.50	7.56	-
Computer Time	4,072.41	2,474.57	1,521.90	320.40
Total Expenses	4,157.38	2,476.07	1,529.46	320.40
TOTAL COSTS	$10,759.70	$6,254.40	$4,282.21	$2,119.39

	March 1976	April 1976	May 1976	June 1976
Payroll Cost				
Rate Dept.	$	$	$	$
Accounting Dept.	26.84	29.24	41.19	18.14
Rockland District	84.72	95.76	81.46	81.04
Portland District	73.06	77.41	76.20	107.17
Legal Dept.	302.19	315.69	159.97	76.77
Data Processing Dept.	452.04			
Customer Service Dept.	98.88	61.47	32.83	237.65
Total Payroll	1,037.73	579.57	391.65	520.77
Expenses				
Personal Expenses				
Computer Time	621.72	347.70	347.70	347.70
Total Expenses	621.72	347.70	347.70	347.70
TOTAL COSTS	$1,659.45	$927.27	$739.35	$868.47

APPENDIX TABLE 19 (Continued)

	July 1976	August 1976	September 1976
Payroll Cost			
Rate Dept.	$ 21.83	$ 22.19	$ 21.43
Accounting Dept.	90.90	87.06	65.73
Rockland District	90.19	82.61	78.04
Portland District	39.12	39.12	16.90
Legal Dept.			
Data Processing Dept.			
Customer Service Dept.	206.76	29.76	42.35
Total Payroll	448.80	260.74	224.45
Expenses			
Personal Expenses	41.89		
Computer Time	347.70	347.70	347.70
Total Expenses	389.59	347.70	347.70
TOTAL COSTS	$838.39	$608.44	$572.15

	October 1976	November 1976	December 1976
Payroll Cost			
Rate Dept.	$ 21.43	$100.50	$ 57.28
Accounting Dept.	62.55	73.26	104.57
Rockland District	81.51	62.38	91.17
Portland District	20.29	19.09	16.76
Legal Dept.			
Data Processing Dept.			
Customer Service Dept.	75.71		39.41
Total Payroll	261.49	255.23	309.19
Expenses			
Personal Expenses			
Computer Time	347.70	347.70	347.70
Total Expenses	347.70	347.70	347.70
TOTAL COSTS	$609.19	$602.93	$656.89

Source: These statistics were supplied monthly by Central Maine Power.

APPENDIX TABLE 20

Monthly Administrative Costs
of Lifeline Program

Bangor Hydro-Electric Company

	November 1975	December 1975	January 1976	February 1976
Payroll Cost				
Accounting Dept.	$ 533.78	$533.78	$656.30	$563.74
Customer Acct., Bgr.&E.	-	52.83	55.37	9.14
Computer Dept.	2,795.91	-	-	-
Total Payroll	3,329.69	586.61	711.67	572.88
Expenses				
Computer Machine	541.00	-	-	-
Computer Supplies	47.00	-	-	-
Legal Cost	622.50	-	-	-
Total Expenses	1,210.50	-	-	-
TOTAL COSTS	$4,540.19	$586.61	$711.67	$572.88

	March 1976	April 1976	May 1976	June* 1976
Payroll Cost				
Accounting Dept.	$146.29	$156.62	$212.43	$131.39
Customer Acct., Bgr.&E.	55.10	55.10	55.10	10.16
Computer Dept.	20.32	20.32	20.32	20.32
Total Payroll	221.71	232.04	287.85	161.87
Expenses				
Computer Machine	-	-	-	-
Computer Supplies	-	-	-	-
Legal Cost	-	-	-	-
Total Expenses	-	-	-	-
TOTAL COSTS	$221.71	$232.04	$287.85	$161.87

* The expenses during each month from June 1976 through March 1977 were identical.

Source: These statistics were supplied monthly by Bangor Hydro-Electric.

APPENDIX TABLE 21

Monthly Administrative Costs
of Lifeline Program

Maine Public Service Company

	November 1975	December 1975	January 1976	February 1976
Payroll Costs				
Caribou District	$ -	$ 56	$278	$ 225
Fort Kent District	-	35	87	192
Gen. and Mach. Acct.	267	274	102	76
Total Payroll	267	365	467	493
Expenses				
Consulting Serv.	-	-	-	2,740
Legal Serv.	-	555	-	-
Forms & Processing Cards	-	-	2	5
Miscellaneous	63	-	-	11
Total Expenses	63	555	2	2,756
TOTAL COSTS	$330	$920	$469	$3,249

	March 1976	April 1976	May 1976	June 1976
Payroll Costs				
Caribou District	$154	$171	$116	$ 75
Fort Kent District	139	155	20	21
Gen. and Mach. Acct.	425	392	543	253
Total Payroll	718	718	679	349
Expenses				
Consulting Serv.	-	-	-	-
Legal Serv.	-	-	-	24
Forms & Processing Cards	22	18	23	18
Miscellaneous	-	-	-	-
Total Expenses	22	18	23	42
TOTAL COSTS	$740	$736	$702	$391

APPENDIX TABLE 21 (Continued)

	July 1976	August 1976	September 1976	October 1976
Payroll Costs				
Caribou District	$ 47	$ 16	$ 14	$ 14
Fort Kent District	21	20	21	13
Gen. and Mach. Acct.	342	272	316	365
Total Payroll	410	308	351	392
Expenses				
Consulting Serv.	-	-	-	-
Legal Serv.	-	-	-	32
Forms & Processing Cards	-	18	-	-
Miscellaneous	-	-	23	18
Total Expenses	-	18	23	50
TOTAL COSTS	$410	$326	$374	$442

	November 1976	December 1976	January 1977	February 1977 (last month)
Payroll Costs				
Caribou District	$ 11	$ 3	$ 4	$ 2
Fort Kent District	14	1	3	3
Gen. and Mach. Acct.	201	181	181	98
Total Payroll	226	185	188	103
Expenses				
Consulting Serv.	-	-	-	-
Legal Serv.	-	32	-	-
Forms & Processing Cards	-	20	15	3
Miscellaneous	23	-	-	-
Total Expenses	23	52	15	3
TOTAL COSTS	$249	$237	$203	$106

Source: These statistics were supplied monthly by Maine Public Service.

APPENDIX TABLE 22

Electric Utility Administrative Costs
Per Lifeline Applicant

I. INITIAL ADMINISTRATIVE COSTS RELATED TO ESTABLISHMENT OF PROGRAM, THROUGH FEBRUARY 29, 1976

Central Maine Power Company

Administrative Costs through 2/29/76	$23,415.70
Number of applicants processed through 2/29/76	1,211
Cost per applicant	$19.34

Bangor Hydro-Electric Company

Administrative costs through 2/29/76	$6,411.35
Number of applicants processed through 2/29/76	557
Cost per applicant	$11.51

Maine Public Service Company

Administrative costs through 2/29/76	$4,968.00
Number of applicants processed through 2/29/76	420
Cost per applicant	$11.83

II. ONGOING ADMINISTRATIVE COSTS DURING REMAINDER OF PROGRAM, MARCH 1, 1976 TO END OF PROGRAM

Central Maine Power Company

Total Administrative costs 3/1/76 - 12/31/76 (10 months)	$8,082.53
Final number of active participants	1,517
Cost per participant per month	$.53

Bangor Hydro-Electric Company

Total Administrative costs, 3/1/76 - 3/31/77 (13 months)	$2,360.30
Final number of active participants	638
Cost per participant per month	$.28

Maine Public Service Company

Total Administrative costs, 3/1/76 - 2/28/77 (12 months)	$4,916.00
Final number of active participants	464
Cost per participant per month	$.88

Source: Based on data supplied to the Commission by the participating utilities.

APPENDIX TABLE 23

Administrative Costs of Establishing Lifeline Program Incurred by Public Utilities Commission, Division of Community Services and Outreach Agencies

Outreach Agencies*	$11,185.19
Division of Community Services**	5,036.01
Public Utilities Commission(estimate)***	3,500.00
	$19,721.20
Original Number of Applicants to 2/29/76	2,188
Cost Per Applicant	$9.01
Final Number of Applicants	2,619

If startup costs are spread over 12 month life of program: monthly cost of program per applicant: 63 cents.

* See Appendix Table 25.

** Division of Community Services, to February 29, 1976

Salaries	$3,911.60
Printing	826.44
Travel	297.97
	$5,036.01

*** No study of the Commission's costs have been made. The cost can, however, be broadly estimated. A reasonable figure would be about $3,500. This figure represents employee time expended.

APPENDIX TABLE 24

Costs Incurred by Individual Outreach Agencies in Establishing Lifeline Program, Through February 29, 1976

Portland:	
Cumberland-York Senior Citizens Council	
Salaries	$3,266.00
Travel	91.30
Postage	56.71
Telephone	100.00
Office Supplies	20.96
Portland Total	$3,534.97
Rockland:	
Mid-Coast Human Resources	
Rockland Total	$2,780.00
Bangor:	
Penquis C.A.P., Inc.	
Salaries	$600.00
Travel	99.75
Postage	21.44
Supplies	31.44
Total	$752.63
Senior Citizens Task Force	
Salaries	$525.00
Travel	97.20
Postage	37.81
Supplies	56.00
Total	$716.01
Bangor Tenants Union	
Salaries	$220.00
Travel	48.00
Supplies	20.00
Total	$288.00
Bangor Total	$1,756.64

APPENDIX TABLE 24 (Continued)

Ellsworth:
Washington-Hancock Community Agency

Salaries	$432.00
Travel	72.00
Telephone	31.00
Postage	45.00
Supplies	26.00
Volunteers' Time	132.00
Ellsworth Total	$738.00

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

Aroostook Community Action Project

Salaries	$515.10
Travel	51.68
Total	$566.78

Aroostook Regional Task Force of Older Citizens

Salaries	$1,530.40
Travel	259.25
Postage	12.85
Supplies	6.30
Total	$1,808.80

Caribou and Fort Kent Total $2,375.58

APPENDIX TABLE 25

Summary of Outreach Agencies' Administrative Costs Through February 29, 1976

	Total Cost	Number of Applicants Thru 2/29/76	Establishment Cost Per Applicant
Portland	$ 3,534.97	945	$ 3.74
Rockland	2,780.00	266	10.45
Bangor	1,756.64	423	4.15
Ellsworth	738.00	134	5.51
Caribou / Fort Kent	2,375.58	420	5.66
TOTAL	$11,185.19	2,188	$ 5.11

Source: Each outreach agency supplied the Commission with information concerning its administrative costs.

APPENDIX TABLE 26

Comparison of Central Maine Power's Regular Residential Rate, Lifeline Demonstration Program Rate, and Central Maine Power's Proposed Alternative Lifeline Rate
(Excludes Fuel Adjustment)

KWH	Regular Residential Rate*	Lifeline Demonstration Program Rate**	CMP Proposed Lifeline Rate***
0	$ 3.00	$ -	$ -
100	6.21	3.00	3.00
200	8.98	6.00	6.00
300	11.75	9.00	9.00
400	13.91	12.00	12.00
500	16.07	15.00	15.00
600	18.23	17.16	17.37
700	20.39	19.32	19.75
800	22.55	21.48	22.12
900	24.71	23.64	24.60
1,000	26.87	25.80	26.87
1,500	36.72	35.65	36.72
2,000	46.57	45.50	46.57

* See rate schedule shown in Appendix Table 4.

** Lifeline rate of 3 cent/KWH for first 500 KWH, regular residential rates above 500 KWH.

*** Lifeline rate of 3 cent/KWH for first 500 KWH, 2.374 cents for next 500 KWH and 1.97 cents for all KWH in excess of 1,000 KWH.

Source: Letter from Mr. Anderson of Central Maine Power to Commission dated October 22, 1975.