

96th Congress }  
1st Session }

COMMITTEE PRINT

ENERGY ASSISTANCE PROGRAMS AND  
PRICING POLICIES IN THE 50 STATES  
TO BENEFIT ELDERLY, DISABLED, OR  
LOW-INCOME HOUSEHOLDS

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A WORKING PAPER

PREPARED FOR USE BY THE

SPECIAL COMMITTEE ON AGING  
UNITED STATES SENATE



OCTOBER 1979

Printed for the use of the Special Committee on Aging

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U.S. GOVERNMENT PRINTING OFFICE

WASHINGTON : 1979

51-818

For sale by the Superintendent of Documents, U.S. Government Printing Office  
Washington, D.C. 20402

Stock No. 052-070-05145-1

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## PREFACE

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The U.S. Senate Special Committee on Aging has held hearings over the past few years on "The Impact of Rising Energy Costs on Older Americans" and "Energy Assistance for the Elderly." These hearings have documented that elderly persons use a higher percentage of their income for energy costs than other age groups. Specifically, in the winter of 1978-79, elderly paid approximately 30 percent of income on utility bills and are projected to have to pay as high as 50 percent this coming winter due to the June OPEC increases and rising fuel costs.

Assistance in meeting rising costs is essential. Even though many elderly receive cost-of-living increases in their social security and supplemental security income (SSI) benefits, the increases have not reflected the overwhelming increases in the cost of energy resources. In the past 5 years, social security and SSI have increased 42.7 percent and 24 percent, respectively. In contrast, fuel oil has risen 136.3 percent, natural gas has risen 126.7 percent, gasoline has risen 100.9 percent, and electricity has increased by 73.4 percent during the same period.

The energy assistance program is now being considered by the Congress. Several of the programs would allow the Governors to set the structures for the type of programs to be administered with the Federal assistance. Therefore, the committee has determined that the following report prepared by Cleveland State University for the Ohio Energy Credits Committee would be of valuable assistance to Governors, State legislatures, State and local programs administrators, and the public in determining what method of assistance can best benefit their elderly and low-income persons.

The Special Committee on Aging wants to recognize the State of Ohio and especially the Ohio Energy Credits Committee and Cleveland State University for allowing the committee to publish this report as a committee working paper. Representative Dennis Eckart, chairman of the Energy Credits Committee and David Sweet, dean, College of Urban Affairs, Cleveland State University, have provided valuable assistance to the committee for our hearings and analysis of the energy assistance proposals. Their efforts are most appreciated.

LAWTON CHILES.

*Chairman.*

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*Ranking Minority Member.*

## SUMMARY

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### CHAPTER I. INTRODUCTION

#### A. PURPOSE AND STRUCTURE

This report surveys more than 120 State energy assistance programs and energy pricing policies designed to help the elderly, the disabled, and other low-income persons deal with rising costs of energy which are planned or have been implemented in the 50 States. Coverage is focused on State-initiated programs, as opposed to federally funded programs which vary little from one State to another.

The study was prepared by the Institute of Urban Studies of Cleveland State University for the State of Ohio's Energy Credits Advisory Committee (ECAC) established by the State General Assembly to monitor and review the State's 1977-79 energy credits programs. Financial assistance from the ECAC is gratefully acknowledged, although the report and its recommendations do not necessarily reflect the opinions of the committee or its staff.

Each chapter contains a description of the range of programs planned or implemented by various States, followed by discussions of target populations, eligibility requirements, benefit schedules, marketing techniques, and program administration. There are six chapters in all:

- I. Introduction.
- II. Direct assistance programs (22 programs surveyed).
- III. General lifeline rates (29 programs surveyed).
- IV. Rate reductions for special groups (13 programs surveyed).
- V. Weatherization and conservation programs (23 programs surveyed).
- VI. Load management programs (35 programs surveyed).

The surveyed programs, while representative, do not comprise the total universe of programs developed at the State level to deal with the impact of rising energy costs on the poor and elderly. For that reason, the study does not attempt to calculate the overall fiscal magnitude of energy assistance programs carried out with non-Federal funds. It clearly indicates, however, that many States have made significant financial commitments to such programs.

The narrative portion of each chapter concludes with general observations and recommendations, plus lists of references and selected programs for further investigation addressed to policymakers in the several States. Detailed descriptions of 102 separate programs from 47 States are appended to the various chapters. Because of length, the report has been issued in two formats: A complete 420-page version and an abbreviated 120-page version which omits descriptions of individual programs.

The report should be of interest to State legislators, members of public utility commissions, and representatives of other agencies interested in programs which address the impact of rising energy costs on elderly and other low-income households.

The study serves as a framework for providing planners and regulators at each level of government with a coordinated, comprehensive, and reliable data base for use in assessing new programs or revisions in current policies. Information provided by the survey is particularly significant because of the requirements of the Public Utilities Regulatory Policies Act of 1978 that State regulatory commissions determine the appropriateness of six ratemaking standards. Other States' experiences with load management programs and lifeline rates, for example, should prove extremely useful to regulators seeking guidance and insight.

To our knowledge, the Ohio ECAC is the only agency which has undertaken a thorough evaluation of State programs in this area. However, this is an area in which public policy is evolving rapidly. Most ongoing State programs to deal with these problems have been implemented since 1977. New efforts to assist the elderly and low-income families are now under consideration in legislatures and public service commissions in many States. It is hoped, therefore, that this report will provide a needed overview of current thinking and progress in this area of State and local policy (pages 1-2).

As such, the study lays the groundwork for more comprehensive evaluation of current programs, assessment of the alternatives, dissemination of information, and provision of technical assistance to policymakers and regulators. The survey identifies for further study programs in each area that offer interesting approaches or solutions to problems.

## B. RESEARCH PROCEDURES

The study was initially designed to be based on a telephone survey of State public service commissions, offices on energy, offices on aging, departments of community service or human resources, legislative committees on energy, and legislative reference bureaus. In fact, it has been necessary to request full documentation for most of the programs discussed in the report. (A detailed description of research procedures will be found on pages 2-4. Copies of survey forms and interview protocols will be found in appendixes 1.1-1.5).

## C. OBSERVATIONS AND RECOMMENDATIONS

General conclusions reached by the staff during the course of the 6-month survey include the following:

(1) No single program will fully meet the needs of the elderly, the disabled, and other low-income households faced with rising costs of energy.

(2) Any energy assistance program should be linked with a weatherization and conservation program (page 5).

(3) In the long run, weatherization and conservation may be the single most cost-effective strategy for providing energy assistance to elderly and low-income households.

(4) A comprehensive approach appears to be important, both from the point of view of coordinating a variety of State and local delivery

efforts, and because of the need to provide consumers with packages of complementary services and programs which are mutually reinforcing (pages 5-6).

(5) Energy assistance programs should be simple and substantial if they are to accomplish their goals for the target population (page 6).

(6) Relatively little attention is currently being paid to the development of energy assistance programs focused on natural gas (as opposed to electricity) considering the importance of gas as a source of energy for residential consumers in most parts of the country (page 6).

(7) Significant potential exists to develop an agenda of practical solutions to alleviate the severity of the energy cost burden falling on the poor and elderly. This more comprehensive effort would involve refinement of the survey and further evaluation of the energy assistance programs now offered at the Federal, State, and local level; development of indepth review of alternative approaches and organizational structures for consideration; and establishment of a process for providing information and technical assistance to legislators, regulators, and other decisionmakers. The diversity of agencies and layers of government already involved in providing energy assistance to the poor and elderly clearly evidences the need for such a coordinated and comprehensive program.

#### D. THE NEED FOR REASSESSMENT

This appears to be an appropriate time for a major reassessment of residential energy policy, both on a State-by-State and on a national basis (pages 7-9).

(1) The need to assist low-income households to deal with rising costs of energy is recognized in almost every State in the Nation. Over half the States have implemented local energy assistance programs, in addition to those financed by the Federal Government.

(2) There appears to be a general lack of centralized information concerning possible energy assistance programs on both the State and national levels. Over and over again, agency personnel in various States contacted during the survey indicated their need for better information about current policy options being tested by other States. The comprehensive program recommended to develop an agenda of energy assistance approaches would meet this expressed need.

(3) The technology of energy conservation has changed significantly; consumers increasingly have both the incentive and the means to manage their total energy use, much as they manage other aspects of their household budgets. There are now many decisions a household can make that can reduce annual energy costs by \$100 or more.

(4) Most State policies regarding residential energy use were designed for an earlier time in which energy was relatively inexpensive and household use of energy could be taken as fixed in quantity.

(5) Residential energy policy may now be most effective when it helps consumers to help themselves cope with the high cost of energy. The cumulative effects of mutually reinforcing energy policies on consumer behavior are likely to be substantial.

(6) What is needed, therefore, is a reassessment of each State's policies relating to residential energy usage, as well as of programs to

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help the elderly and other low-income persons deal with the rising cost of energy within this overall context.

(7) Given the major initiatives now underway at the State level, it would seem important to maintain a continuous watch over Federal policy to ensure that Federal policies are effectively linked to those at the State and local level. Federal efforts could do much to strengthen and encourage the rapidly developing State initiatives described in this report.

### CHAPTER II. DIRECT AID PROGRAMS

#### A. INTRODUCTION AND OVERVIEW

This chapter describes 22 programs from 14 States designed to provide qualifying elderly and/or poor households with financial assistance in paying for the high cost of energy. One-time emergency assistance or crisis intervention programs have been excluded for the most part from the analysis.

Almost all of the programs analyzed in this chapter date from 1977 or 1978. Thirteen programs have been implemented. Since some of these programs were temporary, not all are still in operation (pages 10-12).

#### B. TARGET POPULATIONS AND ELIGIBILITY REQUIREMENTS

While some of the programs analyzed were directed towards low-income families without regard to age, more than half were focused on providing assistance to the elderly poor (pages 12-13).

#### C. DELIVERY SYSTEMS

Perhaps one-third of the programs studied provided assistance to qualified households in the form of credits on a State income tax. Four States granted credits through reductions in utility bills.

Several State programs made use of vouchers, energy stamps, two-party checks, or other types of restricted financial assistance which could be used only for the purchase of fuel. The level of benefits offered varied from \$50 in Oregon to \$500 in Wyoming,<sup>8</sup> with most States clustered between \$100 and \$200 (pages 13-14).

#### D. MARKETING

Marketing problems appear to have been of major concern in most States. Several States have implemented comprehensive public relations campaigns as an integral part of the total program structure. Wyoming's A-65 warrant program makes use of an "entitlement approach" that attempts to avoid the stigma that might be attached to participation in a welfare program (pages 15-16).

#### E. OBSERVATIONS

The chapter concludes that direct aid to the elderly and other low-income persons will be increasingly necessary as well as increasingly expensive during the next few years. Direct assistance programs, however, only mitigate the combined negative impacts of low incomes,

rising energy costs, and the inability of many elderly and poor persons to cope.

In the long run, helping poor people to use less high cost energy via weatherization and conservation programs should go hand-in-hand with programs to help them bear the costs of the energy that they do use. A combination of weatherization, conservation, and direct assistance promises to minimize long-run bureaucratic involvement in people's daily lives and be cost effective as well (pages 16-17).

#### F. PROGRAMS FOR FURTHER INVESTIGATION

Several programs are noted (apart from Ohio's energy credits program) which offer interesting approaches or possible solutions to concerns mentioned in the chapter (page 18):

Connecticut fuel assistance and supplementary emergency fund aid (1978).

Florida energy stamp program (1975).

Indiana energy assistance plan (1978).

Kentucky energy cost assistance program (1978).

Michigan 1-year assistance program (1978).

Oregon utility rate relief program (1978).

Wyoming A-65 warrant program (1978).

Possible fiscal implications are also shown for six programs, assuming that they were implemented in a State with a population the size of Ohio's (10.7 million inhabitants) (pages 18-19).

### CHAPTER III. GENERAL LIFELINE UTILITY RATES

#### A. INTRODUCTION AND OVERVIEW

This chapter describes 29 programs related to the lifeline concept of energy pricing and applicable to all residential customers of a given utility company. Utility rate reductions for special groups of customers (e.g., the elderly) are discussed in the following chapter.

Roughly one-third of the programs under study apply to both gas and electric utility rates; the remainder are limited to electric energy only. At least 13 of the programs discussed have been implemented, some only on a limited or experimental basis. At least five other programs have been given legislative approval with implementation still pending (pages 21-22).

#### B. LIFELINE AND INVERTED RATE STRUCTURES

The concept of a lifeline rate has evolved from the premise that a minimum amount of fuel energy is required to sustain living. A lifeline rate, therefore, is one in which an initial and perhaps "essential" amount of gas or electricity is priced at a lower rate than succeeding units.

A variant of this pattern occurs when the charge for the first block or quantity of power is frozen at a given level, while charges for the second and subsequent blocks are allowed to rise in response to inflationary pressures. The result is gradually to transform the typical declining block rate structure into an inverted or ascending rate structure.



Another variant is to impose a variable service charge that increases with increases in energy usage. Under the Minnesota variant of this plan, customers who consume very small quantities of energy are completely exempted from the charge, thus encouraging conservation (pages 22-25).

### C. DETERMINATION OF THE INITIAL BLOCK

To the extent that the initial "lifeline" quantity of energy is perceived as an absolute minimum necessary to sustain life, the initial block will tend to be small, and the revenue shortfall will therefore be limited. To the extent that a lifeline rate is expected to assist larger numbers of "average" households to meet the rising costs of energy, the initial block will be larger, and so will the shortfall in revenues to be recovered from other customers.

Where lifeline blocks have been specified, they have varied from 250 kilowatt-hours to 600 kilowatt-hours for electricity and from 20,000 to 26,000 cubic feet for gas. Lifeline block sizes ranging from 400 to 500 kilowatt-hours appeared in 8 out of 15 cases.

Evidence from Ohio survey data would indicate that a lifeline block of 0 to 300 kilowatt-hours per month would be exceeded by most elderly and low-income customers, while a lifeline block of 0 to 500 kilowatt-hours per month would include the majority of all Ohio customers in these two target groups.

In the case of California, the public service commission was charged by the legislature with determining basic minimum needs of the average residential user for five (now seven) specific end uses, under different climatic conditions. Each customer's minimum allowance therefore reflects his or her particular situation (pages 25-26).

### D. OTHER ASPECTS OF RATE STRUCTURE

In most programs where the recovery method has been specified, the revenue losses that result from imposing reduced rates on low-volume consumers are to be recovered in an equal manner from all classes of customers. In two experiments the revenue shortfall was to be recovered exclusively from residential users. One proposal (New York's energy savings incentive rate) provided that tax funds would be used to offset the loss (pages 26-27).

### E. OBSERVATIONS AND RECOMMENDATIONS

The issues of whether lifeline rates are discriminatory, whether utility rate structures should be used to redistribute income, how the choice of target population might affect rate structure, and how service charges might be used to benefit the poor and the elderly, are discussed on pages 27-28.

Lifeline rates, which offer minimum quantities of energy at low cost as a means of income redistribution, are contrasted with conservation rates designed to provide consumers with an incentive to restrict their purchases of energy by charging penalty rates for large volume users. In actual practice the rate structures used to implement these two quite different policies might well be identical (pages 28-29).

Finally, it is noted that conventional declining block rate structures, which in effect offer customer promotional discounts for quantity purchases, appear to be increasingly inconsistent with conservation goals.

Given the vehemence of the recent debate over lifeline, it is ironical that the increasing importance of conservation may lead many States' utility commissions to mandate ascending rate structures which benefit the small user and which end up looking much like lifeline rates, but are imposed for conservation purposes (page 29).

#### F. PROGRAMS FOR FURTHER INVESTIGATION

The following programs offer interesting approaches to some of the problems cited in the chapter (pages 29-31):

- California energy lifeline program (1975).
- Georgia Power Co. modified lifeline program (1977).
- Louisiana Public Service Commission general order (1978).
- Massachusetts residential rate freeze (1975).
- Michigan inverted residential rate (1976).
- New Jersey lifeline legislation (P.L. 440).
- New York 5-year lifeline experiments (1978).
- New York energy savings incentive rate (A.B. 12214).
- South Dakota ACORN proposal (S.B. 9).

### CHAPTER IV. UTILITY RATE REDUCTIONS FOR SPECIAL GROUPS

#### A. INTRODUCTION AND OVERVIEW

This chapter describes 13 programs which plan or provide special utility rate reductions for individual target populations. General rate reductions for all residential customers are discussed in the preceding chapter on lifeline utility rates.

Ten of the programs described in this chapter have actually been implemented, four on a temporary or experimental basis. All but two of these programs relate to electric utilities only. All but two of the programs implemented only took effect in 1978. It is clear, therefore, that programs involving special utility rates to benefit target populations are very new indeed (pages 34-36).

#### B. TARGET POPULATIONS AND ELIGIBILITY REQUIREMENTS

Seven of the programs are designed to benefit the elderly poor. Four additional programs are focused on elderly persons without regard to income. In one State (North Carolina) rate reductions were designed primarily for households who brought their homes up to approximately FHA minimum insulation standards (page 36).

#### C. RATE STRUCTURES

In several cases, eligible participants have been offered substantial reductions in rates for the first or "lifeline" block of energy consumed. In most cases, this lifeline or reduced rate has been superimposed on a declining block schedule. As a result, rates for additional units of energy

above the lifeline block may be lower than the initial or lifeline level (pages 37-39).

In the case of Michigan's senior citizen rate, elderly participants were offered a substantial discount for amounts of electricity under 350 kilowatt-hours, balanced by substantially higher rates for kilowatt-hours exceeding 350. Thus the new rate structure would have a zero shortfall if senior citizens do not change their consumption behavior from previous patterns.

#### D. PROGRAM ADMINISTRATION

Administrative responsibility for eight of these programs was given to the State department of revenue and treasury or the State tax commissioner. Several States have developed systems where administrative responsibility is shared between a department of revenue, a public service commission, and/or a community services department.

Several programs were under the sole administration of community services or its local designates. All of these CSA administered programs follow Federal eligibility guidelines applicable to AFDC and other similar programs (page 40).

#### E. OBSERVATIONS AND RECOMMENDATIONS

Criticisms leveled against general lifeline rates may also apply to rate reductions for special groups. This is particularly true for the general criticism against using rate or price changes as a method of redistributing income.

The problem of discrimination is especially serious in the case of targeted rate reductions for special groups, especially in view of the fact that more than 30 States have constitutional or legislative prohibitions against discriminatory utility rates (the Michigan program cited above may avoid this problem).

Another difficulty relates to the nature of the regulatory process and the responsibilities of public service commissions. Over and over again, PSC opinions have noted that commissions have no mandate to make social policy, and that special rates should most properly be determined by State legislatures.

Finally, it is noted that special rates may help target populations in the short run without solving the problem over the long run. Depending on elasticities of demand, special rates could conceivably result in large increases in energy use and create a need for further subsidies. If special rate reductions are to be considered, some thought should be given to combining them with conservation and weatherization measures as a condition of receiving assistance.

#### F. PROGRAMS FOR FURTHER INVESTIGATION

Several programs are noted which offer interesting approaches or solutions to the concerns mentioned in the chapter (pages 41-42):

Colorado gas lifeline rate (1978).

Maine demonstration lifeline program (1976-77).

Michigan optional senior citizens rate (1978).

New Jersey lifeline program (P.L. 440).  
New York proposed lifeline act (7013-A).  
North Carolina conservation rate (1978).  
Rhode Island A-65 rate (1978).

## CHAPTER V. WEATHERIZATION AND CONSERVATION PROGRAMS

### A. INTRODUCTION

This chapter describes a variety of weatherization and conservation programs proposed at the State and local level from around the country. A total of 23 programs from 11 different States are discussed as examples of the kind of weatherization and conservation activities which are either proposed or taking place around the country. No attempt has been made, however, to undertake a complete survey of this kind of activity. As in other chapters of this report most of the programs described are relatively new; all but a few have been developed over the last 2 years.

### B. AND C. STATE SUPPORTED WEATHERIZATION ASSISTANCE AND TAX INCENTIVES

State funds have been used to supplement Federal weatherization programs sponsored by the Community Services Administration and Department of Energy in a variety of ways, including provision of administrative services, conservation education programs, and supplementary grants or tax refunds to elderly and/or low income households (pages 45-47).

For example, Indiana has a program where the emphasis is on self help using trained senior citizens to assist other seniors. Colorado has a program to manufacture and distribute home insulation material through the department of corrections. Oregon has a veterans loan program for weatherization expenditure. Several States have proposed or implemented tax incentives to homeowners for the insulation of weatherization materials.

### D. UTILITY SPONSORED PROGRAMS

Many public utilities had become involved in providing weatherization loans for their customers a year or two before State government agencies started to act. These utility lending programs have recently been put under strict limitation by section 215-216 of the National Energy Conservation Act of 1978. The chapter continues with discussion of current approaches to loan programs by State regulatory agencies (pages 47-49).

### E. ENERGY AUDITS

The National Energy Conservation Policy Act will require utilities to provide audits for all residential customers who request the service, and several State government agencies are now examining the question of what type of audit might be most effective (page 50).

## F. MULTIUNIT DWELLINGS

The application of conservation programs to households who inhabit multiunit dwellings, particularly those with master meters, creates substantial problems for conservation policy.

Several States have considered or passed legislation which would prohibit master metering in all newly constructed or renovated residences (pages 50-53).

In North Carolina, public utility companies are prohibited from connecting to most new residential units with master metering. No new residential building will be occupied until it has been certified as being in compliance with minimum insulation standards.

The Wisconsin Public Service Commission has considered a 25-percent penalty charge on landlords who use master metered gas. This charge would create an escrow fund which would then be used to help landlords convert to individual meters.

The chapter points out that master metering is only one of several problems affecting the application of weatherization and conservation programs to multiunit dwellings.

Renters tend to have lower awareness of conservation practices than persons who occupy their own dwellings.

The potential for energy savings in apartment buildings tends to be difficult to measure, and this becomes a key issue in educating landlords about financially realistic improvements with reasonable payback periods.

A third problem is the fear that weatherization programs for multiunit dwellings might produce windfall benefits for landlords.

## G. INSULATION STANDARDS

Several States attempt to regulate thermal efficiency in new or existing structures by setting insulation standards. Some require that minimum standards be met before units can be occupied, utility services can be connected, or homes can be eligible for special loan programs. Minnesota requires that an energy disclosure report be completed prior to conveyance of a property (pages 53-54).

## H. EDUCATIONAL AND MARKETING PROGRAMS

Several States are focusing increasing attention on educational and marketing efforts as part of each State's overall conservation policy. Individual States have considered or adopted "truth in heating laws," do-it-yourself energy audits for prospective home buyers, statewide toll-free energy information hot lines, and a variety of other outreach programs to inform low income families of the potential advantages of conservation practices.

Another approach consists of providing consumers with better information about the actual daily costs of energy and about their own consumption patterns. The introduction of easy-to-read digital meters and better design of utility bills may be particularly effective (pages 54-55).

## I. POTENTIAL RATIONING VERSUS CONSERVATION

One seldom-mentioned barrier to conservation is the widespread expectation of future energy crises which may eventually lead to rationing, particularly of natural gas. In such a situation, present conservation efforts could penalize future gas allotments for a State as well as for an individual customer. It may well be in the long run interest of States to maximize rather than minimize present gas consumption (pages 56-58).

## J. WEATHERIZATION AND DIRECT ASSISTANCE

In other chapters of this report it was suggested that States may wish to link weatherization and conservation requirements to programs of direct assistance for elderly and other low income customers. This chapter discusses a number of problems that might arise. The staff concluded that effective weatherization and conservation programs should be a major part of any State's strategy to assist the elderly and other low income families (pages 58-59).

## K. OBSERVATIONS AND CONCLUSIONS

From the point of view of residential customers, policies are of two types:

Capital investments on insulation, flue dampers, automatic thermostats, electronic ignition, duct insulation, and the like which increase the efficiency of residential energy use and reduce the need for energy.

Behavioral changes which require an investment of time or effort or attention to change household activities in order to reduce energy consumption.

From the point of view of public policy, the range of options is even wider. Policies may include:

(1) Mandated behavior (for example, stricter enforcement of building codes).

(2) Insuring that all households have better information about their use of energy, including prohibition of master metering, introduction of digital meters, and better utility rate design, while increasing consumer awareness of the availability of services.

(3) Providing information concerning the benefits and methods of conserving energy through educational campaigns, home audits, truth-in-heating laws.

(4) Providing rewards for conservation behavior including incentive utility rate structures as well as low-cost loans or credits.

Finally, utility rate structures may have important impacts on conservation practices. It is difficult to reconcile quantity discounts for increased consumption under conventional declining block rate structures with policies to promote conservation.

Potential long-run savings from conserving behavior are very great. Moreover, conservation programs are probably mutually reinforcing in their impact on consumers. There may be substantial benefits, therefore, from more effective coordination of State policies in this area (pages 59-60).

## L. SELECTED PROGRAMS

The following examples illustrate some of the current State approaches to weatherization and conservation programs (page 61):

- Colorado Emergency Winterization Act (Prop. Bill No. 2).
- Oregon low-income elderly weatherization program (1977).
- North Carolina home insulation tax credit program (H.B. 1003).
- New York truth-in-heating law (A.B. 12238).
- Oregon energy efficiency rating system (S.B. 370).
- New York energy sales tax exemption (A.B. 10306).
- Indiana education for energy conservation program (1978).
- North Carolina conservation rate (1978).

## CHAPTER VI. LOAD MANAGEMENT PROGRAMS

## A. INTRODUCTION

This chapter describes 35 selected programs representing activities in 26 States designed to encourage the use of electrical energy during off-peak periods, thus reducing the need for high-cost peak-load energy production as well as the need for expenditures on additional capacity equipment. Such load management options may affect the welfare of elderly and other low-income households both positively and negatively.

Although load management programs have been in use since the 1940's, there has been an enormous growth of time-of-day and other load leveling programs during the last 5 years. Several States have already ordered electric utilities to develop load management options for their customers in connection with future rate increase applications (pages 65-68).

## TIME OF DAY (TOD)

One approach consists of dividing the day into two or three periods and assigning different rates or prices for energy consumed in each of these periods. Implementation requires a special meter and timing device to be attached to every dwelling unit. Potential savings from reduced peak load demand can be offset by added costs of meters, billing systems, and customer services required to administer a TOD rate. Appendix 6.1 provides an overview of selected TOD activities by State, as of July 1978.

## INTERRUPTIBLE SERVICE

A load-control device is the basis of a second type of load management. This is attached to the customer's heating system, cooling system, or hot water heater and turns the unit on or off to minimize peak demand for energy. Switching is accomplished through a utility-activated control device, an automatic time controlled device, or a temperature sensitive "smart thermostat." These systems are now undergoing extensive testing and experimentation in numerous States across the country (see appendixes 6.2 and 6.3).

## B. FEDERAL INVOLVEMENT

The Federal Government has been increasingly involved in developing load management capacity and is currently funding experimental programs (see appendix 6.4) in order to advance knowledge of load management technology. As a result of new procedural requirements imposed by the National Energy Act and new pressures at the State level, public service commissions must give prime consideration to the potential for reduction of peak power requirements in making decisions concerning new generating facilities and in utility rate determination (pages 68-69).

## C. FACTORS AFFECTING CONSUMER BEHAVIOR

An examination of time-of-day programs from the point of view of the consumer indicates that climate and seasonal load patterns may well make as much difference as peak hour rates in determining consumer response. Moreover it is the relative level of time-of-day premium rates compared with standard residential rates including all charges that is important. In many cases, the differential between peak and off-peak hours is completely swamped by the effect of service charges and other fixed costs. In other cases, the very complexity of the rate structure tends to overwhelm the consumer and obscures any economic advantage from changes in consumption. From the consumer's point of view, the savings incurred through time-of-day rates must be sufficient to convince households that their efforts to change consumption habits will be worthwhile (pages 69-71). Examples of educational materials designed to help customers make this decision are shown on page 72 and appendix 6.5.

## D. OBSERVATIONS AND RECOMMENDATIONS

The first conclusion is that low-volume electric users will probably not benefit significantly and may even find their situation worsened under TOD. Marketing programs need to be designed to insure that consumers are protected against unrealistic expectations. TOD options can probably be extended best to large users first.

In response to the requirements of the National Energy Act, utilities will find themselves increasingly involved in energy audits for both load management and weatherization activities. Utilities might well consider combining the required data base for these two activities.

Equally important might be cooperative efforts at data gathering by electric and gas utilities serving the same customers, since both will be affected by weatherization and both will require information produced by energy audits and load management programs.

Finally, the last two chapters dealing with weatherization and load management lead to the conclusion that utility bills are often difficult to understand, although the bill is the key source of information which each customer must use in making decisions. There is need, therefore, for more effective methods of billing customers so that they can effectively manage their energy consumption (pages 72-74).



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# ENERGY ASSISTANCE PROGRAMS AND PRICING POLICIES IN THE 50 STATES TO BENEFIT ELDERLY, DISABLED, OR LOW-INCOME HOUSEHOLDS

## Chapter I

### INTRODUCTION

#### A. PURPOSE AND STRUCTURE OF THE REPORT

This report surveys energy assistance programs and pricing policies planned or implemented by State and local governments in order to help the disabled, the elderly, and other low-income persons deal with rising costs of energy. Coverage is focused on State-initiated programs, as opposed to federally funded and coordinated programs which vary little from one State to another.

The study was prepared at the request of Ohio's Energy Credits Advisory Committee (ECAC), established by the State General Assembly to monitor the State's 2-year energy credits program and to advise the legislature concerning future pricing policies and methods of assisting the elderly, the disabled, and other low-income persons to deal with rising costs of energy.

To our knowledge, the Ohio ECAC is the only agency which has undertaken a thorough evaluation of State programs in this area. The report that follows should be of interest in other States, however, to legislators, members of public utility commissions, and representatives of other agencies interested in the problems of poor and elderly households faced with rising energy costs.

There is growing concern across the country to develop policies which will deal with these problems more effectively. New programs to assist these households are now under consideration in legislatures and public service commissions in the majority of States. This has now become an area in which public policy is evolving so rapidly that some of the following program descriptions are likely to become outdated even before the present study can be published. It is hoped, therefore, that this report will provide at least an overview of current thinking and progress in this area of State and local policy.

The study itself is the result of a 6-month telephone survey in which the research staff queried representatives of public utility commissions, departments of energy, offices on aging, legislative committees, and selected utility companies in all 50 States. Although it was originally the plan to collect most of the required information by telephone, most program descriptions are in fact based on primary documents (legislative acts, decisions, transcripts of hearing, and the like) secured from State or local agencies responsible for each program. Data collecting procedures are described in more detail in the next section of the chapter.

The present chapter describes the way in which the project was organized and data was collected. It concludes with general observations and recommendations for future policy. Examples of telephone interview protocols and other research materials are presented in appendix 1.2.

Subsequent chapters focus on various types of State action to assist elderly and other low-income persons faced with rising energy costs. Chapter II describes programs which provide direct financial assistance to the poor and the elderly. Chapters III and IV discuss general life-line pricing, inverted rate structures, and rate reductions for special groups of utility customers. Chapter V deals with weatherization and conservation programs. Chapter VI surveys major types of time-of-day and load management programs and their possible impact on the poor and the elderly.

Each chapter begins with an introductory description of the range of programs which have been considered or implemented in the various States. Subsequent sections discuss target populations, eligibility requirements, benefit schedules, program administration, marketing, and other problems of program implementation. The chapter concludes with general observations and recommendations, together with a list of selected programs for further investigation, addressed to policymakers in the several States. These observations and recommendations have been designed to provoke thought and discussion. It is not expected that everyone will agree with the conclusions set forth here.

The general information contained in each chapter is documented with detailed descriptions of individual State and local programs which have been appended to this report. These detailed descriptions now cover 102 of the 120 programs surveyed by the project staff and represent 47 of the 50 States.

Sources of information used in compiling this report are given both at the end of each chapter and following each individual program description. It is expected that many persons who read this report will want to secure further information about particular programs which appear to be especially relevant to conditions in their State or locality. The bibliographic source lists, and lists of contact offices are set up especially to assist such persons.

One major omission has turned up during the process of final editing. Since this project was originally undertaken to assist an Ohio legislative committee, the staff's primary effort was devoted to a survey of programs outside the State of Ohio. The result was that several Ohio programs were inadequately described in the main body of the report. References to Ohio programs have now been included as footnotes in order to reflect Ohio's leadership in developing programs to assist elderly and other low-income energy consumers. A more detailed survey of Ohio assistance programs will be found in volume I of the Ohio Energy Credits Advisory Committee's final report, issued April 1979.

## B. RESEARCH PROCEDURES

When this project was first planned, the basic method of information collection was to be the telephone survey. It was assumed that it would be possible to identify quickly the 20 or so States with interesting programs of assistance to elderly and other low-income energy

consumers and then secure description of these programs over the telephone.

The first step was to prepare a directory which listed the telephone numbers of key agencies in each State, including the State office on energy, the office on aging, the department of community service or human resources, the public utility commission, legislative energy committee offices, and the legislative reference bureau (see appendix 1.1 for a sample page). Each time an agency was contacted it was checked off so that other researchers would not duplicate inquiries.

At the same time, a standard format for conducting a telephone interview was drawn up, together with a checklist of topics to be covered in each telephone call (appendixes 1.2-3). A basic format was also set up for the description of each program to be surveyed (appendix 1.4).

The next task was to identify States with interesting or exemplary programs to assist the elderly and other low income households. Leads were secured from staff members of Ohio's Energy Credits Advisory Committee (ECAC), the National Regulatory Research Institute (NRRI) and the Council of State Legislatures, as well as from a variety of Federal agencies and from an exploratory study undertaken by David E. Jones. In addition, each official contacted by telephone was asked to recommend other relevant programs with which he or she was familiar.

During the second month, the basic approach to the investigation shifted. Several factors necessitated this change in strategy. For one thing, it had been expected that exemplary State programs would be identified quickly and that the main task of the staff would be to describe and evaluate these programs. Such was not the case. Initial attempts to identify relevant programs turned up only a small fraction of the programs that were eventually found. Although roughly half the States had been contacted, new programs were still being discovered more rapidly than descriptions of known programs could be prepared.

A major obstacle to the swift identification of exemplary programs was the general lack at both the State and Federal level of centralized information concerning energy-related activity. Often, one department or agency within a State was not even aware of a program or innovative experiment being conducted by another agency within the same State or had only incomplete or incorrect information. Although there were exceptions (Oregon, for example, has published a clear and concise booklet for its citizens), the general level of coordination and communication at the State level appeared to be distressingly low. Researchers could not help wondering how the poor, especially the elderly poor, were able to overcome this informational void.

Another factor which required a change in research strategy was the finding that the telephone survey could not suffice as the primary source of information. Locating an informant with full knowledge of each project turned out to be extremely difficult; "facts" gathered from one apparently well-informed official often turned out to be inconsistent with information secured from other sources.

As a result of these discoveries, the approach to data collection changed substantially, to an extent that was not fully realized at the time. Reliance on outside experts to provide leads was replaced by a systematic search for relevant programs. For example, one staff member was assigned the task of surveying public service commissions in

all 50 States (initial guidelines for this survey are reproduced as appendix 1.5).

At the same time, the staff began to seek full documentation for every program on the first call. Telephone queries were used primarily to secure documentation, to clarify individual points and to secure supplementary information about the implementation and current status of each program. Program descriptions already prepared were revised extensively during this stage of the project. Although the time required to complete the project increased, the quality of the information secured was appreciably improved.

Finally, the focus of the investigation shifted from a State-by-State to a program-by-program orientation. In part, this reflected the fact that few States were found to have coordinated statewide programs to assist the elderly and poor dealing with the high cost of energy. This new approach also resulted from the need to draft summary chapters for the present report. Each type of program (for example, direct assistance) was assigned to a particular staff member who was responsible for preparing an overview of all programs in that category. First-contact calls were still being made, but the resulting information was now routed to the researcher covering that topic.

During this period the following staff assignments evolved. Jeanne Clark had primary responsibility for chapter II on direct aid, chapter III on general and lifeline rate policy, and chapter IV on rate reductions for special populations. Jean Standish had primary responsibility for chapter V on weatherization and conservation, and chapter VI (with the help of William Wallis) on time-of-day and load management programs. Edric Weld prepared initial drafts for chapter I and parts of chapters II-IV and edited the final text. Darlene Jeris edited all program descriptions to help insure a common format and style of presentation. Gail Cintron took over most of the responsibility for the telephone survey, for preparing bibliographies, and for documents control. Rosemary Shepherd and Anne MacDonald had primary responsibility for putting the manuscript together. Despite the specificity of these assignments, the conclusions and recommendations presented in the following pages have general staff support and are truly a joint product of the endeavor.

Care has been taken to document, verify, and edit both chapter summaries and individual program descriptions. It had also been our intention to send a final draft of each program description back to the agency which had originally provided the information for verification. This turned out to be impossible to carry out, given limitations of budget and time. The staff requests that it be apprised of errors and omissions, as well as of programs which have changed appreciably since the final draft of this report was prepared (March 1979). Assistance of this kind will be most helpful and will be much appreciated. This information will be incorporated in an expanded version of this report designed for general distribution, if funding can be secured for such a project.

### C. OBSERVATIONS AND RECOMMENDATIONS

(1) A general conclusion reached by the staff after studying programs designed to assist the elderly, the disabled, and other low-income households which have been hard hit by rising costs of energy



is that no one type of program will meet the needs of these consumers. An effective energy assistance effort will probably require a combination of programs which would include at least the following elements:

Direct financial assistance to those least able to bear the rising costs of energy and/or least able to adjust their consumption downward.

Effective weatherization programs to assist low-income households to reduce their need for energy during the heating season.

Conservation rates or rate structures which would offer positive encouragement for weatherization and other energy-conserving measures.

Load management programs applicable to industrial and commercial as well as residential customers to reduce peak demand for energy and therefore slow down the need for construction and on-line maintenance of new capacity.

(2) It appears to be of particular importance that any chosen energy strategy should be linked with weatherization and conservation. Since weatherization by itself can result in a 25- to 30-percent saving in home heating costs, it can make a significant contribution to the reduction of energy costs for many households. Since weatherization is also permanent, it can be the most cost-effective strategy for assisting households to meet rising costs of energy over the long run. Provision of residential conservation incentive rates for dwelling units which meet minimum weatherization standards and which participate in a load management program merits particular attention. As more homes become weatherized, the once "regular" rates will in effect become penalty rates.

In practice, it may also be necessary to continue to provide direct assistance to those most impacted by accelerating energy costs, even though the recipients live in nonweatherized dwellings. Since the problem is long term in nature, however, the Energy Credits Advisory Committee might consider tying weatherization and conservation measures into direct aid and/or lifeline rates to the extent feasible.

(3) In the long run, a comprehensive approach will be required to deal with the problems of assisting those households most impacted by rising costs of energy. Development of comprehensive programs and effective coordination is particularly difficult in this area, not only because of the diversity of approaches which can be pursued but also because of the diversity of public and private agencies which necessarily become involved in overseeing and implementing energy policies. As more and more layers of government, Federal, State, and local, develop regulations and programs geared toward energy-related problems, it becomes apparent there is a need to deal somehow with scattered programs in a more comprehensive manner.

Coordination could take a variety of forms. One extreme would be a State cabinet-level department with responsibility for oversight, technical assistance, and evaluation of all energy related programs. Such an approach is currently under trial in New Jersey. Another option would be a "one-stop" program administered by a single State department which would combine direct assistance, weatherization, and consumer education, as has been proposed in Indiana. The first of these two approaches emphasizes coordination at the policymaking level. The second emphasizes administrative coordination toward the goal of making services more readily available to the client.

There are, of course, many other options which focus on cooperation or coordination involving individual aspects of energy policies relating to the poor and elderly. Some examples of such cooperative efforts are listed below:

A statewide clearinghouse to provide information to social service agencies, counselors, offices on aging, and other groups throughout the State who deal directly with poor and elderly clients, to keep caseworkers informed as to available programs.

A statewide educational and informational program directed toward potential consumers and clients of services, involving a wide range of media efforts.

Cooperation to publish a comprehensive guide describing programs developed by a variety of agencies. Staff members have found the State of Oregon's consumer booklet to be especially well presented.

Central monitoring and evaluation of all energy programs to identify both the impact of various energy-related programs and unfilled needs not covered by existing agencies. Such a statewide monitoring responsibility could be assigned to a joint legislative committee.

(4) Energy assistance programs should be simple comprehensible, and substantial, if they are to accomplish their goals.

The staff has encountered numerous examples of programs that were so complicated that many potential clients must have had great difficulty understanding them. We would expect that difficulties in understanding program descriptions must have been even greater for elderly clients. Under these circumstances, it is not surprising that many households have been reluctant to participate in programs though they stand to benefit substantially from this participation.

This problem of unnecessary complexity turns up most often in connection with time-of-day rates. For example, one plan offers clients the opportunity of saving perhaps \$2 a month if they can manipulate appropriately a rate structure which lists five separate components including a "customer charge" (service charge), an energy charge, an on-peak demand charge, an off-peak demand charge and a fuel adjustment charge. The small flyer that is sent to customers to describe this program only compounds the confusion.

Benefits should also be substantial as well as comprehensible. The staff was surprised to find numerous examples of direct assistance programs which provide the client with \$50 in benefits during the year. Given the fact that heating bills during a single winter month may be double this amount, it seems doubtful that benefits of this order of magnitude could make a significant difference in the ability of the poor or elderly household to meet rising costs of energy. The same comments apply equally, of course, to a lifeline discount of 12½ percent on electric bills which seldom exceed \$30 per month.

(5) It is surprising how little attention is currently being paid across the country to the development of programs focused on natural gas, as opposed to electricity. This is to be expected in parts of the country where fuel oil is the major source of heating energy, or where winter heating is not of major concern to most households. In Ohio, however, preliminary Elrick & Lavidge survey data indicate that annual expenditures on natural gas by elderly and low-income households tend to be much greater than annual expenditures on electricity. This leads-

us to conclude that emphasis should be placed on programs which deal with natural gas, if real assistance is to be provided to the elderly, the disabled, and other low-income persons. Moreover, weatherization and conservation programs which might slow the growth in total fuel consumption should receive high priority.

#### D. A TIME FOR REASSESSMENT

Perhaps the most important conclusion reached by the staff is that the time has arrived for major reassessment of residential energy policy on a State-by-State as well as a national basis. Several things have occurred which make such a reassessment especially appropriate at this time:

More than 6 years have passed since the oil embargo and the beginnings of the current phase of the energy crisis.

There are growing signs that substantial numbers of consumers have come to accept the notion that they no longer live in an energy-rich society and that the rising costs of energy can no longer be ignored.

The technology of energy use has changed significantly and promises to go on changing in ways that are making it far easier for consumers to adopt new behavior patterns (for example, clock thermostats, electronic furnace ignition systems).

The Federal Government has begun its move toward a comprehensive energy policy. Whatever one's opinion may be of progress to date, passage of the National Energy Act of (1978 Public Law 95-617-620) already imposes substantially new conditions on State public service commissions and on utility companies which promise to accelerate the need for change in residential energy policy.

In this new world, consumers are faced with a whole range of new decisions about energy use. Many of these decisions are far more complex than the question of whether to turn off the lights when one leaves a room, or turn off the pilot light on a furnace during the summer. For example:

It may or may not make sense now for a small family to buy a large hot water tank, if this will make possible the storage of heat from power received during off-peak hours.

It may or may not make sense for a family to add only moderate insulation to a large house, meanwhile reducing heat to unoccupied rooms, and to supplement furnace heat with a portable electric space heater.

It may or may not make sense for a family to buy an electric as opposed to gas kitchen range, if the local electric utility company expects to make a peakload pricing option available within the coming year.

To an increasing extent, consumers now have both the incentive and the means to manage their total energy use as effectively as they manage other aspects of their household budgets. Household energy management involves a series of complex choices between alternative sources of energy and between alternative energy-using activities, requiring major long-term capital investments as well as day-to-day adjustments in behavior. Many of these decisions also involve significant changes in habits and household routines learned over time. Other

changes will involve significant outlays for insulation and capital equipment, as present energy-using appliances are gradually replaced with more efficient models.

What is important is that there now are many decisions a household can make which will increase energy costs by \$100 or more annually in future years. Conversely, there are many conservation decisions that a household can make where the payoffs are likely to be at least as large. In some cases, the expected first year payoffs will be larger than benefits currently available under most of the direct aid or lifeline programs described in later chapters of this report. Some of these decisions require little or no financial outlay (for example, the manual turndown of a thermostat at night, or the installation of shower flow restrictors). Others have payback periods of 3 years or less, equivalent to 33½-percent interest tax-free on the investment (for example, caulking and weatherstripping, insulating, and fine-tuning a hotwater heater).

Meanwhile, most State policies regarding residential energy use were designed in an earlier time in which energy was relatively inexpensive and household energy use could be taken as fixed in quantity. The survey of lifeline rates which follows in chapter III, for example, concludes by contrasting lifeline utility rate policies, which originally attempted to reduce the cost of given "lifeline" quantities of energy purchased by low-income consumers, with conservation rate policies which attempt to reward utility customers who conserve while penalizing those who do not.<sup>1</sup> One policy deals with the high cost of energy by reducing the payments burden. The other deals with the problem by offering consumers an incentive to reduce their consumption. Paradoxically, it is possible to use exactly the same rate structure to accomplish either goal (see page 29). Nevertheless the two types of policy differ dramatically in their intent and in their message to the consumer. Increasingly, residential energy policy may be most effective when it helps consumers to cope more successfully with the high cost of energy.

Equally important, the effects of these policies will often tend to be cumulative. Consumers who are sensitized to managing their energy use through participation in a load management program may become far more responsive to a conservation program. What we are talking about is a fundamental change in attitudes and behavior patterns. A proper objective of public policy might be to speed up that change, so that what might otherwise be learned in a generation can now be learned in a much shorter time.

Almost all the 100-plus energy assistance programs which have been examined in this survey deal only with separate facets of the energy situation. Most of them are compensatory, attempting to offset the effects of rising energy costs rather than assisting people to deal more effectively with the changes that are underway. We suggest, therefore, that it is an appropriate time for States to reassess the whole range of policies relating to residential energy usage. So

<sup>1</sup> Later sections of this report refer to two different types of "conservation rate," and it may help to distinguish between them at this point. One encourages conservation through rate structure, by charging customers a higher and higher penalty rate for extra quantities of energy purchased. The other encourages conservation through rate levels by offering lower rates to those customers who can show that their dwellings meet minimum standards for insulation or who agree to adopt certain load management practices.

many changes have occurred in Federal regulations, energy saving technology, and knowledge of improved delivery systems (for example, energy audits) during the past 2 or 3 years that every State's programs probably need reexamination.

In all this, the needs of the elderly and other low-income persons require special consideration. Elderly and poor persons tend to spend larger than average portions of their incomes on energy and thus stand to benefit more than other households from conservation and better management of energy. At the same time, elderly and poor persons tend to have less financial ability to undertake such capital investments as may be required to achieve substantial energy savings. They are often less able than others to adapt to new modes of behavior necessary to cope effectively with the high costs of energy. For both reasons they will continue to need special assistance programs. The following pages describe the current state of the art in developing such programs. It is hoped that these pages can also contribute to the development of a knowledge base for the reassessment of residential energy policy, as we have proposed.

## Chapter II

# DIRECT FINANCIAL ASSISTANCE TO THE POOR AND THE ELDERLY

### A. INTRODUCTION AND OVERVIEW (22 PROGRAMS)

One way of helping the poor, the disabled, and the elderly to meet the burden of rising costs of energy is direct aid. Under direct aid policies, consumers receive direct financial assistance in paying their bills or compensation for expenses already incurred.

Direct aid programs are of the two basic types. On the one hand, most States have established some sort of emergency assistance or crisis intervention program under Federal guidelines to provide one-time assistance to low-income families who are unable to cope with rising energy costs. Another group of programs is designed to provide all qualifying elderly and/or poor households with regular income supplements or other financial assistance in paying for the high cost of energy. The following chapter is focused almost entirely on the second type of program.

The following pages describe 22 direct aid programs from 14 States. Of these programs, 13 from 8 different States have been implemented. Since some of these programs were temporary, designed to run for a year or less, not all of them are still in operation. Nine programs from seven States have been proposed but not adopted. Some of these proposals are still under discussion. Note that almost all of these proposals and programs date from 1977 or 1978. Only Florida and Pennsylvania have programs dating from as far back as 1975.

In most cases, these direct aid programs cover expenses for all types of fuel. The Connecticut and New Jersey programs, however, are limited to compensation for expenditures on gas, oil, or electricity. Florida's energy stamp proposal covered the cost of electric power only. The three proposed programs for the State of Indiana are explicitly limited to outlays for energy used in heating. Michigan's 1-year home heating program is restricted to outlays made through a heating and/or electric power supplier.

A table summarizing these 22 programs follows, together with a list indicating which of these programs have been implemented. Detailed summaries are provided for most of these programs in the last part of this chapter, beginning on page 19.

## SUMMARY: DIRECT AID PROGRAMS

State and program	Status	Primary target	Allowable fuels	Form of assistance	Administering agency
Colorado:					
Heating expense tax credit (H.B. 1075)	Not passed, 1978	Elderly	All	Tax credit	Department of Revenue.
Heating expense tax credit (H.B. 1467)	do	do	do	do	Do.
Connecticut:					
Low-income fuel assistance programs (3)	Implemented, 1978	Poverty families	Gas, oil, electric	1-time grant	DSS and DCA.
Supplementary emergency fuel aid program	do	do	do	do	DCA.
Florida: Energy stamp program (Florida Power Corp., 1975)	No action	do	Electric	Energy stamps	Family services.
Indiana:					
Utility bill adjustment (CSA proposals, 1978)	Implemented, 1978	Elderly plus poverty	Heating	Bill reduction	CSA.
Emergency energy assistance (CSA proposals, 1978)	do	Poverty families	All	Emergency assistance	CSA.
Kentucky: Energy cost assistance program (S.B. 279)	Passed, 1977	Elderly	do	2-party check	DSS.
Michigan:					
1-yr energy assistance program (Public Act 278)	1 yr, 1978	Elderly plus poverty	Heating	do	DSS.
Lifeline tax credit program (H.B. 4142)	Passed, 1978	Poverty families	All	Tax credit	Treasury.
Missouri: Energy stamp program (H.B. 95)	Not passed, 1978	Poverty	Public utility	Energy stamps	DSS.
New Jersey: Fuel coupon program (S.B. 860)	do	Poverty families	Public utility plus cil	Fuel coupons from energy relief fund (S.B. 859).	Treasury plus PSC.
Ohio: Energy credits program	Implemented, 1977	Elderly	All	Discount or cash	Tax commissioner.
Oregon: Rate relief program	Passed, 1978	do	do	1-time grant	Revenue.
Pennsylvania:					
Project HELP	1 yr, 1975	do	do	Fuel coupons	CSA.
Utility tax credit (S.B. 1603)	Postponed	do	do	Bill reduction	Revenue.
Fuel assistance program, 1978-79	Implemented	do	do	1-time grant	Welfare.
West Virginia: Lifeline credits program (S.B. 152)	Not passed, 1978	Elderly, low income	Gas and electric	Discount	Tax commissioner.
Wisconsin: Emergency fuel and utilities assistance program	Implemented, 1978	Poverty families	Utility bills	Loans	CSA.
Wyoming: A-65 warrant program (Enrolled Act No. 4)	do	Elderly	All	1-time grant	Revenue and CSA.

*Status on selected direct aid programs*

## Programs implemented:

Connecticut.....	Low income fuel assistance programs (3).
Connecticut.....	Supplementary emergency fuel aid program.
Indiana.....	Utility bill adjustment (CSA 1978).
Indiana.....	Emergency energy assistant (CSA 1978).
Kentucky.....	Energy cost assistance program.
Michigan.....	One-year energy assistance program.
Michigan.....	Lifeline tax credit program (H.B. 4142).
Ohio.....	Energy credits program.
Oregon.....	Rate relief refund.
Pennsylvania.....	Project HELP (1975).
Pennsylvania.....	Fuel assistance program (1978-79).
Wisconsin.....	Emergency fuel and utilities assistance.
Wyoming.....	A-65 warrant program.

## Programs proposed but not implemented:

Colorado.....	Heating expense tax credit (2 bills, 1978).
Florida.....	Energy stamp program (1975).
Missouri.....	Energy stamp program (H.B. 95).
New Jersey.....	Fuel coupon program (S.B. 860).
Pennsylvania.....	Utility tax credit (S.B. 1603).
West Virginia.....	Lifeline credit program (S.B. 152).

**B. TARGET POPULATIONS AND ELIGIBILITY REQUIREMENTS**

The target population for these direct aid programs varies considerably from program to program and State to State. In several cases, assistance is designed to be provided to the poor without respect to age.

## ASSISTANCE TO LOW-INCOME FAMILIES

State	Program	Eligibility criteria
Connecticut.....	Low income fuel assistance programs.....	(1) Families below Federal poverty levels. (2) Families with incomes up to 20 percent above poverty level, (3) Distribution guidelines not yet determined.
Do.....	Supplementary funding to emergency fuel aid program.	Qualified 1977 applicants who applied after funds were exhausted.
Florida.....	Energy stamp program (proposed 1975).....	AFDC or food stamp recipients.
Indiana.....	Emergency energy assistance project (proposed 1978).	(1) Households at or below 125 percent of poverty, (2) Households at or below Stat. median income.
Michigan.....	Lifeline tax credit program (H.B. 4142).....	All low-income households with home heating costs, excluding dependent students, and recipients of general assistance or AFDC.
Do.....	1-yr energy assistance program (Public Act 278).	Low-income households \$8,000 (1 person) to \$10,900 (7 persons).
Missouri.....	Energy stamp program (H.B. 95).....	DSS certified unable to pay utility bills.
New Jersey.....	Fuel coupon program (S.B. 860, proposed).....	Households at or below 200 percent of poverty.
Wisconsin.....	Emergency fuel and utilities assistance program.	Households with incomes at or below 125 percent of poverty.

The largest number of programs, both implemented and proposed, are focused on assistance to the disabled and the elderly. In most cases the elderly must meet both an age and income requirement, although two programs in the list below would be available to elderly persons receiving incomes up to the State median level. Certifiably disabled adults of any age are eligible under the same income limitations as stated for the elderly.



## ASSISTANCE TO THE ELDERLY AND DISABLED

State	Program	Age and other eligibility requirements
Colorado.....	Heating expense tax credit (H.B. 1075).....	65 and household income below \$3,300 for single, below \$4,300 for married.
Do.....	Heating expense tax credit (H.B. 1467).....	60 and household income below \$8,000 for single, below \$10,000 for married.
Indiana.....	Utility bill adjustment (CSA proposals 1978).....	65 and head of household with income at or below State median.
Kentucky.....	Energy cost assistance program (S.B. 279).....	62 and household income 125 percent of poverty level.
Michigan.....	1-yr energy assistance program (Public Act 278).....	65 and income greater than \$3,700 (1 person) but less than \$7,000.
Ohio.....	Energy credits program (1977-79).....	65 and household income under \$7,420.
Oregon.....	Rate relief program.....	60 and household income under \$5,000.
Pennsylvania.....	Project HELP (1975).....	65.
Do.....	Utility tax credit (S.B. 1603).....	65 and household income under \$7,500.
Wyoming.....	A-65 warrant program (1978).....	65 and household income below \$9,000 for single, below \$13,000 for married.
West Virginia.....	Lifeline credits program (S.B. 152).....	65 and head of household, utility customers, with income under \$10,000.

Several States have attempted to include renters as well as homeowners within their programs. Explicit provision for the inclusion of renters within the eligible population is made in Kentucky, Ohio, both Michigan programs, and the Wyoming program. Renters may also be eligible for assistance in other programs, although this is not always explicitly provided for. As with any program in which participation is restricted according to income or age, the problems of establishing and certifying eligibility are of major concern. Where such programs can be linked to current eligibility standards for other programs already administered by human service agencies, the costs of administering can be cut. Recognition of this fact is specifically noted in Florida's energy stamp proposal and the 1-year program in Michigan.

## C. DELIVERY SYSTEMS AND BENEFITS

Benefits are to be distributed to participants in a variety of ways. A few States provide direct cash payments to participants. For example, under the Connecticut program, a one-time grant of up to \$250 is available to families at or below Federal poverty levels. In Ohio, households using fuels other than electricity and gas and renters in master-metered apartments are eligible for a one-time cash payment of \$87.50. Am. Sub. S.B. 523 resulted in enrolling an additional 3,500 households. Under the Wyoming program, cash rebates are available for income taxes paid by elderly persons, up to \$440 for a single person and \$500 for married persons, and \$170 of this amount is explicitly labeled as energy cost relief.

## BENEFITS UNDER SELECTED DIRECT AID PROGRAMS

State and program	Maximum benefits	Total cost (millions)
Colorado:		
Heating expenses tax credit or refund (H.B. 1075).....	\$160.....	( <sup>1</sup> )
Heating expenses tax credit or refund (H.B. 1467).....	\$60.....	( <sup>1</sup> )
Connecticut: Low-income fuel assistance programs:		
(a) Families at or below Federal poverty level.....	\$250.....	<sup>2</sup> \$1
(b) Families at 120 percent of Federal poverty level.....	Amount undisclosed.....	<sup>2</sup> .3
(c) Other programs.....	Not yet determined.....	<sup>2</sup> 1.755
Florida: Energy stamp program (1976).....	Electricity costs 600 kWh maximum.....	<sup>3</sup> 53
Indiana: Utility bill adjustment.....	30 percent of final bill.....	<sup>3</sup> 25
Kentucky: Energy cost assistance.....	\$80.....	<sup>3</sup> 5
Michigan: 1-yr energy assistance program.....	\$200 (homeowner), \$160 (renter).....	<sup>3</sup> 38
Michigan: Lifeline tax credit.....	\$370.....	<sup>3</sup> 38
New Jersey: Emergency coupon program.....	( <sup>1</sup> ).....	( <sup>1</sup> )
New York: Lifeline—State aid.....	( <sup>1</sup> ).....	<sup>3</sup> 35
Ohio: Energy credits program.....	25-percent discount, \$87.50 cash 5 winter months.....	446
Oregon: Fuel and utility rate relief (H.B. 3007).....	\$50.....	<sup>3</sup> 7
Pennsylvania: S.B. 1603.....	15 to 35 percent bill reduction.....	( <sup>1</sup> )
Pennsylvania: HELP.....	\$70 (voucher booklet).....	( <sup>1</sup> )
Wyoming: A-65 warrant.....	\$440 (single), \$500 (married).....	<sup>2</sup> 2.5
West Virginia: Lifeline credits program, S.B. 152.....	\$100 credit on utility bill.....	( <sup>1</sup> )

<sup>1</sup> Not available.<sup>2</sup> Appropriated.<sup>3</sup> Estimate.<sup>4</sup> To date.

A variety of States have programs which make use of vouchers or stamps in order to provide financial assistance which can only be used to purchase energy. Michigan's energy assistance program, for example, provides renters with a two-party check which can then be endorsed by the recipient to the energy provider. A similar program has been approved in Kentucky. Other States which have proposals to provide eligible participants with restricted forms of financial assistance include Colorado, Florida, and Missouri (energy stamps), and New Jersey and Pennsylvania, both of which make use of fuel coupons.

In some cases assistance is provided in the form of reductions in utility bills. This is the case for Ohio's energy credit program for households which heat with electricity or gas, and Indiana and West Virginia proposals for the reduction of fuel bills.

Finally, Michigan has approved a program which will allow credit in the State income tax for home heating costs for low income households.

## D. ADMINISTRATION

Administration of the programs listed in the summary table has been assigned to a variety of State agencies.

Eight of the twenty programs discussed in these pages are under the administration of the department of revenue and treasury or the tax commissioner, which maintain separate eligibility guidelines for these programs. In two cases, administrative responsibility is shared between the department of revenue and the public service commission (New Jersey fuel coupon program) and community services (Wyoming A-65 warrant program), again with separate eligibility standards. This pattern of shared responsibility for various aspects of a program is actually used more often than the table would indicate. One example is Maine's demonstration lifeline rate program discussed in the previous chapter. This program was administered by the public utilities commission (PUC), but certification of eligibility was carried out by

the executive department's division of community services. Similarly, the State department of taxation carries out the mandate of Ohio's energy credits program, in distributing benefits to persons who were not customers of an oil or gas utility and to persons who rented their home or lived in a trailer.

Seven programs are under the administration of community services, or its local designates the departments of community affairs in Connecticut, family services in Florida, and welfare in Pennsylvania. All seven of the CSA-administered programs follow Federal eligibility guidelines, such as those applicable to aid to families of dependent children, food stamps, supplemental security income, and Federal poverty levels.

Two programs are handled by the department of social services under standardized Federal income guidelines, while Michigan's energy assistance program is DSS-administered but allows the utility company involved to construct the certification form, with DSS approval.

In most of these cases it would appear to be cost-effective to make use of existing eligibility mechanisms rather than to creating new ones.

### E. MARKETING

As with any program directed toward the poor and the elderly, the tasks of informing potential clients and securing their acceptance and participation are of major concern. Almost by definition, poor and elderly persons are likely to be less able than others to cope with their situations, seek help when it is needed, or respond to programs of assistance when these are made available.

In some States, the task of informing potential participants has been made easier by tying energy assistance and eligibility standards to existing programs of assistance to the poor or elderly. In other cases, utilities have agreed to provide potential clients with information about available assistance programs. This is particularly important in cases in which aid is triggered by a shutoff notice from the utility for nonpayment of utility bills as is generally the case with federally sponsored emergency assistance programs.

Since aid must be accessible to potential users and accepted by them for an assistance program to be effective, several States have implemented detailed publicity campaigns as an integral part of the program structure. Indiana's three-phase project and the 1-year Michigan program combine extensive use of the media with an outreach program by State community action and aging agencies. Assistance programs in Kentucky and Ohio also use public relations techniques to insure successful dissemination of program information and acceptance by potential clients. In many States, offices on aging are brought into the project to help in locating potential clients. The programs in Indiana, Wisconsin, and Wyoming have successfully used such cooperation between agencies.

In one case (the project HELP fuel stamp program in Lehigh County, Pa.), 3,000 volunteer hours (equivalent to 1½ person-years) were donated by community agencies to locate people who had a problem meeting utility bills. The program eventually served 3,100 families during a 1-year trial period.

The Ohio Commission on Aging (OCoA), tried to contact senior citizens through the 12 planning and service area agencies (PSA), the nutrition project directors, and the senior awareness network by using existing personnel and volunteers to answer telephone inquiries, help senior citizens fill out applications, make home visits if necessary to people needing help, and distribute applications. In addition, the utility companies were also required to notify each residential customer at least once every 4 months, in clear 10-point type, about the right of qualified persons to receive the credit. Each company was required to print "temporary heating discount" in 10-point type on each bill subject to a credit and was also required to read each qualified ECP customer's meter at least once between October 15, 1977 and November 15, 1977, and between March 15, 1978 and April 15, 1978. Later, the periodic 4-month notice distribution requirement was eliminated, and instead the companies were required to send notices to each residential customer at least once in May 1978 and again in August 1978.

#### F. OBSERVATIONS AND RECOMMENDATIONS

Direct assistance programs usually have the advantage of offering low-income people direct and immediate help in dealing with rising costs of energy. Tax credits or rebate programs may be an exception since credits and rebates tend to be slower than outright grants in reaching clients.

Issues of major concern in those States which have developed direct assistance programs to benefit the poor and/or elderly have included questions of how to certify eligibility, gain visibility for the program, and secure acceptance by potential clients. These issues have been discussed at some length in the preceding pages.

Special consideration needs to be given, however, to the promotional aspects connected with any assistance program. Aid should be accessible to potential users and accepted by them if a program is to be fully effective. Several States have therefore implemented extensive publicity campaigns as an integral part of the program. For example, Indiana's program coordinates use of the media with an extensive outreach program. Kentucky and Oregon also appear to have particularly useful information booklets describing available programs.

One problem with assistance programs for the elderly is the difficulty of securing participation by many of the persons most in need of help. Many elderly persons are reluctant to apply for special benefits. Others have difficulty both in learning about possible sources of assistance and in actually completing all procedures required to receive aid. Wyoming's A-65 warrant program makes use of an "entitlement" approach that attempts to avoid the stigma that might be attached to participation in a welfare program. The fact that certain entitlement programs have already been accepted by many of Ohio's elderly ("golden buckeye cards," metropolitan transit authority passes, etc.) may make this type of assistance far more acceptable to those who might need it most.

Officials in other States have frequently pointed to Ohio's energy credits program as a particularly good example of a prototype direct aid program for the elderly. The program focuses explicitly on heating

expenses during the high-cost winter months and covers all fuel types for both homeowners and renters. The aid amount is substantial; application has been simplified due to coordinated administrative efforts and the availability of a toll-free central information telephone number.

Finally, it is the general feeling of all who have worked on this project that direct assistance programs will not by themselves be adequate to deal with the problems that have been created for elderly and other low-income persons by rising energy costs.

The first need of elderly and other poor households is for adequate incomes or income supplements which will provide a minimum standard of living. Energy costs are expected to continue to rise, however, more rapidly than pensions, social security payments, welfare allowances, and other income supplements available to the elderly and other poor persons. The problem is not temporary. Continued and expanding programs of direct aid will therefore become increasingly needed and increasingly expensive during the next few years.

At the same time, the impact of rising energy costs on the elderly and other poor persons is often particularly severe because these persons are the least able to adjust their consumption to offset rising energy costs. Part of this is unavoidable; it is difficult to reduce energy usage below some minimum needed for health and comfort. But part of this is due to the fact that elderly and other poor persons too often live in old energy-wasteful houses and lack the means to change their situation.

We conclude that one fundamental goal should be to assist these people to weatherize their homes and to use energy more efficiently (and probably live more comfortably as a result), thus reducing the amount of energy they must purchase. A complementary goal would be to provide assistance to those who were still unable to afford supplies of energy sufficient to maintain minimum standards of health and comfort. Direct assistance programs are especially effective, and especially necessary, for those low-income and elderly households which may not be able to participate in weatherization and fuel assistance programs, due to circumstances beyond their control. For example, those who live in apartment complexes with master-metering can do little to increase energy efficiency through insulation or benefit from targeted rate reductions.

Direct assistance by itself, however, will only mitigate the combined impact of low-incomes, high energy costs, and inability to cope. In the long run, helping poor people to use less high cost energy should go hand in hand with programs to help them bear the costs of the energy that they do use. A combination of insulation, conservation, and direct assistance promises to minimize long-run bureaucratic involvement in people's daily lives and over the long run be cost effective as well.<sup>1</sup>

<sup>1</sup> Note that we have just received information of a proposed "utilicare" program in Missouri (H.B. 545, 21, and 485, dated Feb. 23, 1979) which would subsidize 60 percent of winter heating costs, to a maximum amount of \$50 per month, for eligible low-income elderly and disabled homeowners. In order to participate in the program, however, eligible homeowners must have either complied with Federal energy conservation insulation guidelines or made application for insulation assistance under a State or Federal program. In this way, energy subsidization is directly linked to participation in established weatherization programs.

## SOURCES OF FUNDING FOR SELECTED DIRECT AID PROGRAMS

State and program	Funding source	Funding level (millions)
Colorado:		
Heating expense tax credit (H.B. 1075)	State reserve for refunds	NS
Heating expenses tax credit/refund (proposed H.B. 1467)	do	NS
Connecticut: Low-income fuel assistance programs:		
1. Families at/or below Federal poverty level	General revenue	\$1
2. Families at 120 percent Federal poverty level	do	.3
3. Other programs	do	1.755
Florida: Energy stamp proposal (1976)	do	53
Indiana: Proposed emergency assistance project:		
Phase I—Utility adjustment	State excise tax exemption	25
Phase II—Emergency aid/weatherization	Department of energy and CSA	4
Phase III—Proposed consumer education	Seeking Federal funding, may use State funds	.961
Kentucky: Energy cost assistance proposals (S.B. 279)	General revenues, 1978-80	5
Michigan:		
1-yr energy assistance program	General revenues	38
Lifeline tax credit (H.B. 4142)	do	38
New Jersey:		
Emergency coupon program (S.B. 859;860)	Energy relief fund <sup>1</sup>	NS
Gambling proceeds for utility relief proposal (A.B. 126)	8 percent of gambling revenues	NS
New York: Lifeline electric rates (7013-A)	Utility State receipt tax refund	NS
Ohio: Energy credits program	General revenue	2.46
Oregon: Fuel and utility rate relief (H.B. 3007)	General fund July 1977 to June 1979	7
Pennsylvania: Project HELP	Federal funds	180
Wyoming: A-65 warrant program	General fund	\$2.5
West Virginia: Lifeline credits program (S.B. 152)	General revenues	NS

<sup>1</sup> Equal to 75 percent of public utility tax revenue received in excess of 1977 revenues until \$200,000,000 has accrued to the fund.

<sup>2</sup> To date.

## G. PROGRAMS FOR FURTHER INVESTIGATION

The following specific programs offer interesting approaches or possible solutions to some of the concerns mentioned. Estimated costs or appropriations are noted wherever possible.

## CONNECTICUT FUEL ASSISTANCE PROGRAMS (\$2.3 MILLION) AND SUPPLEMENTAL EMERGENCY FUEL AID (\$755,000)

These four programs are targeted to different low-income gas, oil, and electric consumers, and are administered by separate State agencies. The comprehensive scope of this program may be of interest to Ohio.

## FLORIDA ENERGY STAMP PROGRAM (\$53 MILLION)

This proposed program would have provided energy stamps to poor families currently receiving AFDC or food stamps for electric utility bills. The tie-in was to be made with such Federal programs to reduce costs and simplify administration.

## INDIANA ENERGY ASSISTANCE PLAN

Phase I of this three-phase plan would adjust the utility bills of poverty families and the elderly (\$25 million). Another phase deals with one-time financial assistance (\$7 to \$20 million). Coordination of all phases and programs are the responsibility of the community service administration, which would act as a clearinghouse for all activities.

KENTUCKY ENERGY COST ASSISTANCE PROGRAM, S.B. 279  
(\$5 MILLION)

By means of a two-party check, the elderly poor are assisted with their utility bills to a maximum of \$80 per household. This program has been unusually well documented, with an especially effective program operation manual.

MICHIGAN 1-YEAR ASSISTANCE PROGRAM, P.A. 278 (\$38 MILLION)

Substantial assistance, to a maximum amount of \$200 for homeowners and \$160 for renters, is provided for the low income and elderly. All major fuels are covered. Administration by the department of social service is intended to lessen costs through the use of existing operational methods.

OREGON UTILITY RATE RELIEF PROGRAM, H.B. 3007 (\$7 MILLION)

Eligible elderly taxpayers who meet department of revenue income limits will receive a \$50 grant. Claim is made with the department by the taxpayer for the homeowner or renter property tax refund, and therefore program coordination and efficiency is increased.

WYOMING A-65 WARRANT PROGRAM (\$2.5 MILLION)

This unique program provides for a direct cash payment, based on the concept of the "entitlement" of the elderly recipients to such assistance, with a maximum allowable amount of \$500 (\$400 if single). The average warrant issued is in the amount of \$380, and approximately 16,000 qualifying applicants from a total State population of 4 million, are expected to receive some assistance.

SELECTED DIRECT ASSISTANCE PROGRAMS AND THEIR FISCAL IMPLICATIONS

State and program	Fiscal impact		Fiscal implications for Ohio population (millions)
	Total (millions)	Per capita	
Connecticut: 4 programs to assist low-income families.....	\$3.0	\$ .96	\$10.3
Indiana: Utility bill adjustment.....	<sup>1</sup> 25.0	4.71	50.4
Kentucky: Emergency cost assistance.....	<sup>2</sup> 5.0	1.46	15.6
Michigan:			
(a) 1-yr energy assistance program.....	38.0	4.17	44.6
(b) Lifeline tax credit.....	38.0	4.17	44.6
Oregon: Utility rate relief program.....	7.0	3.01	32.1
Wyoming: A-65 warrant program.....	2.5	6.41	68.5

<sup>1</sup> Estimate.

<sup>2</sup> Appropriated.

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## FLORIDA

Florida Power Corp., Florida energy stamp program—a proposal, February 1975.

## INDIANA

General Assembly, Amendment IC 4-3-10, effective April 1, 1979, utility bill adjustment.

Office of Community Service Administration, Indiana emergency assistance program, phase I, II, and III, October 6, 1978.

## KENTUCKY

General Assembly, S.B. No. 279, signed November 30, 1978, energy cost assistance.

## MICHIGAN

General Assembly, H.B. No. 4371 (Public Act No. 278 of 1977), December 23, 1977, 1-year assistance experiment.

General Assembly, Enrolled H.B. 4142—Act No. 458 of 1978, October 16, 1978, tax credit.

## MISSOURI

General Assembly, S.B. 95, prefled December 1, 1978, energy stamp program.

## NEW JERSEY

General Assembly, S.B. 859, May 11, 1978, energy relief fund.

General Assembly, S.B. 860, February 14, 1978, energy coupon program.

## OREGON

General Assembly, H.B. 3007, July 1, 1978, elderly utility rate relief. Oregon Department of Energy, "Something New." August 1977.

## PENNSYLVANIA

General Assembly, S.B. 1603, introduced September 11, 1978, utility credit.

Community Action Committee of the Lehigh Valley, Inc., energy program, December 1, 1974.

## WEST VIRGINIA

General Assembly, S.B. 152, July 1978, utility discount for the elderly.

## WYOMING

General Assembly, Enrolled Act No. 4, signed May 5, 1978, elderly tax refund.



## Chapter III

# GENERAL LIFELINE UTILITY RATES FOR ALL RESIDENTIAL USERS

### A. INTRODUCTION AND OVERVIEW (29 PROGRAMS)

The concept of a lifeline rate has evolved from the premise that a minimum amount of fuel energy is required to sustain living. A lifeline rate, as defined in gas and electricity rate structures, is one in which an initial "essential" amount of gas or electricity is either priced at a lower rate than succeeding units of consumption or is set at the average of the rates for all other blocks of consumption.

Some 29 programs related to the lifeline concept of energy pricing are described in the following pages. At least 13 of these programs have been implemented, two on a limited experimental basis (Arizona and New York). In at least five other cases, general programs have been approved by a State legislature or public utility commission with implementation still pending (Louisiana, Minnesota, Missouri, New Jersey, and the District of Columbia). Eleven programs remaining consist of legislative proposals which did not pass in 1978. They are included in the following discussion as examples of the kinds of programs currently under consideration in various States across the country.

Roughly one-third of the programs under study apply to both gas and electric utilities. The remainder are limited to electric energy. Most of these programs date from 1977 or 1978. Several, however, originated before this time. California's Miller-Warren Act, for example, was passed in 1975. Other programs from Georgia, Massachusetts, Missouri, and the District of Columbia all date from the period 1973-75. Although not all of these programs explicitly involve "lifeline" rates, they were in fact designed to serve the same purpose as lifeline.

#### SUMMARY: LIFELINE RESIDENTIAL RATE PROGRAMS

State and program	Status	Energy source
Arizona: Tucson G and E experiment.....	1 yr 1976.....	Electric.
California: Miller-Warren Act.....	Implemented 1975.....	Gas and electric.
Delaware: S.B. 588.....	Not passed 1978.....	Do.
Georgia:		
Rate increase exemption.....	Ordered 1974.....	Electric.
Modified lifeline Georgia Power.....	Ordered, Sept. 18, 1977..... <sup>b</sup>	Do.
Illinois: H.B. 83.....	Not passed, 1977.....	Gas and electric.
Iowa: H.F. 1550.....	Not passed, 1975.....	Do.
Louisiana: Restructuring electrical rate schedules.....	Ordered, July 19, 1978.....	Electric.
Massachusetts: Residential rate freeze Boston Edison.....	Ordered, Sept. 30, 1975.....	Do.
Michigan: Inverted rate schedules Detroit Edison, Consumer Power.....	Experiment, 1976.....	Do.
Minnesota:		
Experimental service charge northern State power.....	Ordered, Mar. 20, 1978.....	Do.
Modified lifeline northern State power.....	Ordered, Aug. 31, 1978.....	Do.
Rate rollback, Minnesota P. & L.....	Ordered, June 19, 1978.....	Do.
H.F. 1243.....	Not approved.....	Gas and electric.

## SUMMARY: LIFELINE RESIDENTIAL RATE PROGRAMS—Continued

State and program	Status	Energy source
Missouri:		
Residential rate freeze, Kansas City Power & Light	Ordered, 1974	Electric.
Lifeline rate schedules, St. Joseph Union Electric	Ordered, 1978	Do.
New Jersey: Lifeline authorization, Public Law 440		
	1978	Gas and electric.
New York:		
5-yr lifeline experiments—Con. Ed., O.&R., LILCO	Ordered, Aug. 30, 1978	Electric.
Energy savings incentive rates 12214	Not passed, 1978	Do.
North Carolina: Residential rate freeze, Duke Power	Ordered, 1979	Do.
Ohio: Elimination of declining block, S.B. 467	Not passed, 1978	Do.
Rhode Island: Freeze for low-usage customer—Blackstone Valley Electric.	Ordered, 1976	Do.
South Dakota: ACORN lifeline proposal	Defeated, general election	Gas and electric.
Washington, D.C.:		
Exemption, Potomac Electric	PSC order, 1973	Electric.
Block rates order No. 5739	PSC order, 1978	Do.
West Virginia:		
Lifeline legislation, H.B. 943	Not passed, 1978	Do.
Lifeline legislation, H.B. 1694	do	Gas and electric.
Lifeline legislation, S.B. 37	do	Electric.
Lifeline legislation, S.B. 259	do	Gas and electric.
Wisconsin: Lifeline/welfare rates, A-1250	Pending, 1978	Do.

*Status of selected lifeline programs*

## Programs implemented:

Arizona	Tucson Gas and Electric experiment (1976).
California	Miller-Warren Act (1975).
Georgia	Modified lifeline (1977).
Georgia	Rate exemption (1974).
Massachusetts	Residential rate freeze (1975).
Michigan	Inverted rate schedules (1976).
Minnesota	Modified lifeline rate and service charge (1978).
Minnesota	Rate rollback (1978).
Missouri	Residential rate freeze (1974).
New York	Lifeline experiments (1978).
North Carolina	Residential rate freeze (1979).
Rhode Island	Low usage freeze (1976).
Washington, D.C.	Exemption (1973).

## Programs proposed but not implemented (sample only):

Delaware	S.B. 588 (1978).
Illinois	H.B. 83 (1977).
Iowa	H.F. 1550 (1975).
Louisiana	Restructuring rates order (1978).
Minnesota	H.F. 1234.
Minnesota	Modified lifeline order (1978).
Missouri	Lifeline rate order (1978).
New Jersey	Lifeline authorization (1978).
New York	Energy savings incentive rates (1978).
South Dakota	ACORN lifeline proposal (1978).
Washington, D.C.	Block rates, PSC order (1978).
West Virginia	Lifeline bills (4) (1978).
Wisconsin	Lifeline welfare rates bill (1978).

**B. LIFELINE AND INVERTED RATE STRUCTURES**

The next table displays some of the rate structures that have been developed under lifeline programs. The prototype structure is a first block with a lower rate than those charged for subsequent blocks, producing an inverted or ascending rate structure. An example of such a rate structure is the residential rates authorized for the Georgia Power Co. as of September 18, 1978.

	Winter	Summer
Block:		
Base charge	\$2.75	\$2.75
0 to 650 kWh (cents)	2.9	2.9
Over 650 kWh (cents)	3.19	4.39

A variant of this pattern is produced when the charge for the first block is frozen at a given level while the charges for the second and subsequent blocks are allowed to rise, typically until they exceed the first block by a minimum of 25 percent. Under this type of lifeline program, in which the rate for an initial block is frozen, increased revenues to cover rising energy costs and inflation can only be recouped from high-usage customers. As a result a declining block structure can be gradually transformed into an inverted rate structure. Examples of such programs include:

California's lifeline (1976).

Massachusetts, Boston Edison (1975) (1976).

Missouri, Kansas City Power & Light (1974).

New York's energy savings incentive rates (proposed in 1978).

North Carolina, Duke Power (1979).

District of Columbia, Potomac Electric (1973).

Another variant is the experimental service charge introduced by the Northern State Power Co. (Minnesota) from a commission order dated March 20, 1978.

RATE STRUCTURES FOR SELECTED LIFELINE PROGRAMS

State	Status of program	Initial block		Rate profile	Additional charges	Revenue recovery
		Size	Rate			
California Gas.....	Implemented.....	26 therms average.....	Frozen, Jan. 1 1976.....	Inverted.....	Service charge.....	All classes.
California Electric.....	do.....	500 kWh.....	do.....	do.....	do.....	Do.
Georgia.....	Ordered, Georgia Power.....	650 kWh.....	2.9 cents.....	S—Inverted, W—level <sup>1</sup> .....	\$2.75.....	Not stated.
Louisiana.....	Ordered, not implemented.....	To be determined.....				
Massachusetts.....	Ordered, Boston Edison.....	384 kWh.....	Exempt from increase.....	Inverted.....	Service charge.....	All classes.
Minnesota.....	Ordered, Northern State Power.....	300 kWh.....		S—2-level, W—flat <sup>1</sup> .....	Sliding scale service charge.....	To be determined.
Missouri.....	Ordered, Kanas City Power & Light.....	250 kWh, later 400 kWh.....	Exempt from increase.....	Inverted.....	Service charge.....	Not stated.
New York.....	Ordered, 3 companies.....	180 to 300 kWh.....	Not stated.....			Residential.
	Bill 12214.....	0 to 200 kWh.....	Lower than average.....		Not stated.....	\$35,000,000 State tax funds.
		200 to 400 kWh.....	Higher than average.....			
North Carolina.....	Ordered, Duke Power.....	350 kWh.....	Frozen.....	Inverted.....	Service charge.....	Not stated.
Washington, D.C.....	Ordered, Potomac Power.....	400 kWh.....	Exempt from increase.....	do.....	Not stated.....	All classes.

<sup>1</sup> S refers to the summer and W to the winter rate schedules.

## EXPERIMENTAL SERVICE CHARGE, NORTHERN STATE POWER CO.

	Original	Revised
Block:		
0 to 300 kWh.....	\$2.50	0
301 to 400 kWh.....	2.50	\$1.25
Over 400 kWh.....	2.50	2.50

This new sliding scale charge is superimposed on a flat energy charge during the summer months and on a two-step declining block rate structure during the winter. In this lifeline variation, therefore, it is the service charge which encourages conservation by rewarding minimum users.

## C. DETERMINATION OF THE INITIAL BLOCK

Two of the most difficult determinations to be made in the construction of a lifeline rate are the size of the initial bloc, and the method by which lost revenues can be recovered.

Since the size/cost factor determines the amount of reduced revenues, there is a direct correlation between size of initial block and method of revenue recovery. To the extent that the lifeline block is conceived as an absolute minimum quantity of gas or electricity necessary to sustain life, the block will tend to be small, the proportion of residential bills which are subsidized will also be small, and the total shortfall in revenue to be recovered from other customers will be limited. To the extent that the lifeline block is expected to provide a large proportion of all households with much assistance in meeting the accelerating costs of energy, the proportion of residential bills to be subsidized will be substantial, and so will the shortfall in revenues to be recovered from other customers.<sup>1</sup>

Of the 29 programs studied here, 15 have specified the size of this initial block, which varies from 250 kilowatt-hours (Missouri PSC order, 1974) to 650 kilowatt-hours (Georgia Power Co. experiment, 1977) for electricity and from 20,000 cubic feet (proposed but not implemented in Illinois and South Dakota) to 26,000 cubic feet (California) for gas. The average electricity block size of 400 to 500 kilowatt-hours appears in 8 cases out of the 15, with 5 of the 15 using 500 kilowatt-hours.

	<i>Kilowatt-hours</i>
Arizona.....	400
California (average).....	500
Delaware.....	500
Illinois.....	500
Minnesota.....	400
Minnesota.....	500
South Dakota.....	400
West Virginia.....	500

<sup>1</sup> In fact, any lifeline rate which reduces the cost of an initial block of energy initially benefits all customers who purchase nonzero amounts of energy. The net effect on any particular group of customers depends partly on the size of the block and partly on the method by which the shortfall in revenues is to be recovered.

Note that samples of elderly, disabled, and low-income (under \$7,500 per year) utility customers in Ohio who were surveyed by the Elrick & Lavidge Co. during 1977-78 consumed averages of approximately 400 kilowatt-hours per month over a 12-month period. This would indicate that an initial lifeline block of 0-300 kilowatt-hours per month would be exceeded by most elderly and low-income customers, while an initial block set at 500 kilowatt-hours per month would include the majority of all customers in these target groups. Typical monthly usage would probably be higher, of course, for customers living in Southern and Western States where air conditioning is customarily used for more than 3 months of the year.

Two programs deserve special mention in this regard. In the case of the Massachusetts Department of Public Utilities 1975 order exempting the first 384 kilowatt-hours of residential usage from a 20-percent rate increase, the commission noted that the growth of peak demand was not caused by the average residential user, that largest charges should be imposed on (industrial) classes which make the largest demands, and that average residential usage might properly be exempted from the rate increase. Average residential usage, computed to be 384 kilowatt-hours per month, could therefore be used to determine the amount to be exempted.

The California case is quite different. Here the public service commission (PSC) was explicitly charged by the legislature with determining basic minimum needs of the average user for five residential end-uses: lighting, cooking, refrigeration, water heating, and space heating. Hearings were held to consider the adequacy of lifeline block estimates by utility management, recommendations by PSC staff, and outside testimony. Interim lifeline allowances for each end-use were approved for a trial period and only made permanent on April 4, 1978 (Decision No. 88651, Case No. 9988).

	Electricity kilowatt-hours per month	Gas therms per month
Lifeline allowances, single-family dwellings:		
Basic allowance for lighting, cooking, and refrigeration .....	250	6
Cooking only .....	60	20
Water heating .....	250	55
Space heating (minimum) .....	550	

Provision was also made to develop lifeline allowances for electrical air conditioning and essential life support devices such as kidney dialysis machines and iron lungs.

In essence, the California lifeline program assumes that lifeline blocks should in fact provide basic minimum quantities of light and heat and that the approximate amounts of energy required to meet these minimum needs under different California climatic conditions can be identified. Usage in excess of these minima is available only at higher penalty rates.

#### D. OTHER ASPECTS OF RATE STRUCTURE

Turning to the problem of revenue recovery, the method of recovery has either not yet been determined or not been stated in 19 out of 29 programs. In 7 of the 10 remaining programs, the additional

revenues are to be drawn "in an equal manner from all classes of customers" (California, Delaware, Georgia, Illinois, Massachusetts, South Dakota, and West Virginia). Only the Arizona and New York experiments propose that lost revenues be recovered exclusively from the residential class. Only New York's energy savings incentive rate proposal provided tax funds to offset the loss.

Although the broader based method of recovery from all customer classes may be a more equitable solution, there is continued dissatisfaction from many commercial and industrial customers who believe that they are being unduly burdened.

Most lifeline programs do include a basically unaltered service charge. Only three States (Illinois, South Dakota, and West Virginia) proposed a lifeline rate that specified no extra charges, and all of these proposals failed to pass. Northern State Power Co. (Minnesota), as previously mentioned, employs a service charge that is scaled to energy consumption.

### E. OBSERVATIONS AND RECOMMENDATIONS

Much has been made of the fact that lifeline utility rates are discriminatory in that they involve price differentials which are not cost-based and do not reflect equivalent differences in resource costs. In fact, the amount of discrimination involved in lifeline rates is usually difficult to measure. Given the lack of good information about the costs of providing different quantities of energy, it is impossible to determine which set of prices would not be discriminatory. Under these circumstances, any choice of rate structure will be to some extent arbitrary and will mean that some consumers are bound to lose while others will gain. If discrimination is unavoidable, its avoidance should not be a primary criterion in the setting of utility rates. As long as total revenue covers all costs and provides the company with a return on investment sufficient to insure a continued flow of capital into the industry, the existence of possible discrimination is likely to be less of a problem than other familiar issues of efficiency, conservation, etc.<sup>2</sup>

The basic purpose of a lifeline rate is usually stated as assisting low-volume users to meet the burdens of rising energy costs by offering them a minimum amount of energy at a reduced rate. In general, one can object to programs which attempt to redistribute income via manipulations of prices. Among other things, such programs distort consumer choices. Artificial prices stimulate some customers to purchase larger amounts than they otherwise would have wanted, meanwhile signaling other customers to reduce their purchases.

The objection is not to the incentive effects of price differentials but to the fact that this is being done in the name of income redistribution. If society wishes to help the elderly, the disabled, and other low-income persons, this might better be done through a direct subsidy or through a discount or tax credit program (like Ohio's energy credits program) which has less distortion of prices and in which the costs are openly borne by the taxpayer.

<sup>2</sup>This point of view has recently appeared in public utility commission decisions with increasing frequency. For example, see Wisconsin Public Service Commission, 6630-ER-5, findings of fact and interim order, Charles J. Cuchetti, chairman, concurring; and 6680-GR-3, interim findings of fact and order.

If a lifeline rate were to be considered, however, a key decision would involve the specific purpose to be achieved. Should the proposed rate be designed (a) to provide minimum quantities of energy at low cost for those most in need, or (b) to assist larger numbers of "average" households to deal with the rising cost of energy. The choice of goal will determine much of the character of a lifeline program, including the size of the lifeline block, the amount of discount, and the method of revenue recovery. Thus, a program designed to provide minimum quantities of energy at low cost for those few people who are most in need will probably call for a small lifeline block but at substantial discount. By contrast, a program designed to assist the average household will require a much larger lifeline block which will include a substantial portion of the energy needs of the typical household unit. This may therefore require some restraint in setting the rate of discount (the first block-second block differential), in order to keep the amount of revenue that must be recovered from other customers classes under control.

If a lifeline rate structure were to be adopted, one method of implementing such a decision would be to impose a freeze on present first block utility rates, leaving customers who purchase larger quantities of energy to bear the brunt of inflationary increases in costs. This procedure was adopted in California and had been proposed for several other States. It has several advantages, including minimizing the disruption that might be caused by a major shift in rate structure.

Another policy alternative which should be considered would be the use of a variable service charge, to be set at zero for first block purchases, with a modest charge for middle-block purchases and a full-scale charge for purchases above, say, 600 kilowatt-hours. A word of caution, however, is needed at this point. Fixed service charges tend to be regressive in nature, increasing in relative importance as less and less energy is consumed. Preliminary modeling has shown that imposition of a service charge can have as much impact on the distribution of revenue burdens for a utility as most proposed changes in rate structure will have. Substituting a variable service charge for a fixed charge, however, may improve the lot of elderly and low-income customers who consume small quantities of energy. Where service charges are not already imposed, moreover, establishing a variable service charge will meet part of the utility's revenue requirement and thus constitute a means of avoiding rate increases for low volume customers in response to rising costs.

Finally, we may achieve the same result by other means. Consider the following paradox: A lifeline rate structure can be described as one in which the price per kilowatt-hour or per hundred cubic feet is held down for small-volume purchases. A conservation rate structure can be described as one in which the price per kilowatt-hour or per hundred cubic feet is increased as the volume purchased increases. In either case, the relative price of energy will be low for small volumes and high for large volumes. In fact, the rate structures which might be used to implement these two policies might well be identical. The difference lies in both intent and efficacy. Conservation rates use prices as signals and incentives to change behavior. This makes far more sense economically than lifeline rates which use prices as an attempt to redistribute income.



We suggest, therefore, that the debate over lifeline might be turned upside down. Instead of arguing about the desirability of charging low prices for small quantities of energy, it might be better if we focused our attention on the desirability of charging high prices for large quantities of energy. Such a policy would make use of the disincentive effects of high prices to encourage conservation, a task which the price system can often do very well.<sup>3 4</sup>

There is one related topic which we shall deal with briefly. This is the debate over marginal cost pricing and/or inverted rate structures. An enormous amount of rhetoric has been expended on these issues. We shall not enter into this controversy except to note the following:

(1) Any price system acts as a signaling and incentive system as well as a revenue recovery mechanism.

(2) Conventional declining block rates give the consumer a discount for additional units of energy purchased and therefore encourage high volume purchases. This discount can be very large. One Ohio company, for example, currently offers its residential customers a 79 percent discount for quantity purchases. Additional discounts may be offered via separate rate structures to customers with electric hot water heaters or all-electric homes.

(3) Declining block rate structures and other forms of promotional pricing provide customers with wrong signals, given the conditions that exist in today's world. A system which encourages customers to purchase large quantities of energy appears to be out-dated and out-of-step with a world of energy shortages, continued escalation of energy prices in the foreseeable future, and continued escalation of the capital cost of constructing additional generating facilities or discovering additional fuel reserves.

(4) In effect, the Nation will probably see a major shift toward level if not inverted rate structures, no matter what comes out of the present controversy over the legitimacy and relative merits of "lifeline" or of marginal cost pricing.

(5) It seems certain, therefore, that quantity discounts for energy will eventually disappear. This means that for large volume purchases of energy the price charged per kilowatt-hour or hundred cubic feet must eventually rise, relative to the price charged for small volume purchases.

(6) If the relative cost goes up for large volume purchases of energy, this is the same as saying that the relative cost goes down for small volume purchases. Again, the end result will be that some low income and elderly will benefit.

#### F. PROGRAMS FOR FURTHER INVESTIGATION

The following specific programs offer interesting approaches to some of the problems mentioned in this chapter.

##### CALIFORNIA ENERGY LIFELINE PROGRAM, 1975

This is one of the earliest and the most comprehensive of such programs in the country today, as it includes all regulated utilities and

<sup>3</sup> It is interesting to note that in discussing California's lifeline policy the California Public Service Commission has increasingly focused its attention on lifeline as a conservation measure rather than as a means of redistributing income.

<sup>4</sup> Many of the alternatives discussed here are tested against actual consumer data in our second report to the ECAC. See E. A. Weld, "Energy Pricing Policies and Their Possible Impact on Elderly and Low-Income Households."

all residential customers regardless of income. It is also an excellent example of the frozen first block approach to a lifeline structure. It has been fully operational since 1976, first on an interim and now on a permanent basis. There have been many unresolved problems and criticisms, however, mainly concerning the method of revenue recovery from all classes. Large industrial users feel that they have been unduly burdened by the program.

#### GEORGIA POWER CO. MODIFIED LIFELINE PROGRAM, 1977

As ordered by the Georgia Public Service Commission on September 18, 1977, a residential inverted summer rate and a level winter rate were established. This is an interesting example of a two-level lifeline rate structure.

#### LOUISIANA PUBLIC SERVICE COMMISSION GENERAL ORDER, 1978

This order concerning the restructuring of electrical rate structures is typical of the approach which mandates all electric utilities within the commission's jurisdiction to submit alternatives to the declining block structure. Such new rate structures must consider marginal or incremental pricing and must offer price incentives to conservers.

#### MASSACHUSETTS RESIDENTIAL RATE FREEZE, 1975

Boston Edison Co. was ordered to exempt the first 384 kilowatt-hours of residential usage from a granted 20-percent rate increase. This program is noteworthy for its justification by the MDPU of the discount on this computed average residential usage amount.

#### MICHIGAN INVERTED RESIDENTIAL RATE, 1976

As part of an ongoing study the two largest power companies in the State, Detroit Edison and Consumers Power, have implemented inverted rates for all residential customers. These are classic examples of ascending structures, with a special two-level rate for electric space heating and an optional elderly discounted rate (refer also to chapter on targeted rates).

#### NEW JERSEY LIFELINE LEGISLATION, P.L. 440, 1978

This bill authorizes the New Jersey Public Utility Commission to designate minimum quantities of electricity and gas to meet the survival needs of the average residential consumer and to be priced at the lowest effective rate. Eligibility is especially targeted to low income and the elderly. Coordinated administration is to be effected by the creation of a bureau of lifeline administration within the board of public utilities.

#### NEW YORK FIVE-YEAR LIFELINE EXPERIMENTS, 1978

This detailed, large-scale study was instituted by the New York Public Service Commission to investigate the complete range of marginal cost issues and lifeline concept. Aside from its unusually large

scope, it has one of the few lifeline programs to require that revenue shortfalls be recovered solely from the residential customer class.

NEW YORK ENERGY SAVINGS INCENTIVE RATE (A.B. 12214), 1978

Although it did not pass, this bill would have established a two-level lifeline block, with revenue recovery to be drawn from a \$35 million State fund allocation rather than from other ratepayers.

SOUTH DAKOTA ACORN S.B. 9, 1978

This bill, defeated in State election, would have provided minimum amounts (400 kilowatt-hours and 20,000 cubic feet) of electricity and gas with no additional charges. It was based on the California model, and attempted through referendum to extend the public service commission's authorization so that preferential treatment could be given to targeted groups.

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## Chapter IV

### UTILITY RATE REDUCTIONS FOR SPECIAL GROUPS

#### A. INTRODUCTION AND OVERVIEW (13 PROGRAMS)

One method of helping the elderly, the poor, and others faced with rising energy costs is to make energy available to these groups at lower prices than they would otherwise have to pay, by establishing special rate reductions tailored to their needs. (General rate reductions available to all consumers will be discussed in connection with lifeline rates.)

The following pages contain reports on 13 such programs involving separate utility rates for individual target populations. Ten of these programs have actually been implemented. All but two of these programs relate to electric utilities only. Four out of the ten programs have been implemented on a temporary or experimental basis. These short-term programs include experimental rate adjustments in Iowa, Maine, and Ohio (Toledo Edison). Colorado's gas lifeline rate was discontinued after a court challenge. Three other programs were proposed but never implemented. Central Maine Power's special rate for the elderly was disallowed by the Public Utility Commission, while Maine's H.B. 1669 and one New York bill failed to win legislative approval.

#### Programs implemented:

Colorado.....	Gas lifeline rate (1978).
Iowa.....	1-year A-65 rate (1977-78).
Maine.....	Demonstration lifeline A-65 rate (1976-77).
Massachusetts.....	A-65 lifeline program.
Michigan.....	Optional senior citizens' rate.
New Jersey.....	Lifeline program (P.L. 440).
North Carolina.....	Residential energy conservation rates.
Ohio.....	Toledo Edison experimental A-65 rate.
Rhode Island.....	Narragansett A-65 rate.
Utah.....	A-65 lifeline program.

#### Programs proposed but not implemented:

Maine.....	Residential lifeline rate (H.P. 1669).
Maine.....	Central Maine Power A-ELI rate.
New York.....	Lifeline block electric rates (7013-A).

SUMMARY: RATE REDUCTIONS FOR SPECIAL GROUPS

State and program	Status	Primary target	Fuels affected	Revenue recovery	Administering agency
Colorado: Gas lifeline rate	Implemented, Jan. 1, 1978. Disallowed, Mar. 29, 1978.	Elderly poor	Gas	All classes	Revenue.
Iowa: Lifeline electrical service demonstration program, 6 utilities.	1-year, 1977-78	do	Electric	Not stated	Revenue plus DSS.
Maine:					
Demonstration lifeline program (3 utilities; 2,619 participants).	Implemented 1-yr, 1976-77	do	do	All classes	PUC.
Lifeline Electrical Service Act, H.P. 1669	Not passed	do	do	All classes plus tax funds	PUC.
Rate A—ELI Central Maine Power	Disallowed by PUC, September 1978.	do	do	Not stated	Utility.
Massachusetts: A-65 lifeline program	Implemented, 1978	do	do	All classes	MDPU.
Michigan: Optional senior citizens rate	do	Elderly	do	Residential customers	PSC.
New Jersey: Lifeline legislation (Public Law 1977, ch. 440, 1978).	Passed, 1978	Low income	Electricity and gas	All classes (gambling tax revenues.)	Not yet determined.
New York: Lifeline block electric rates (7013-A).	Not passed, 1978	Elderly	Electric	Utility tax credit	NYPSC.
North Carolina: Residential energy conservation rates.	Implemented, September 1978	Conservers and elderly poor	Heating	Not stated	NCUC.
Ohio: 1-year Toledo Edison	Experimental, 1977-78	Elderly	Electric	do	Utility.
Rhode Island: A-65 rate Narragansett Electric	Implemented, Apr. 1, 1978	Elderly poor	do	do	PUC.
Utah: A-65 lifeline program	Implemented, Aug. 19, 1978	Elderly	do	do	PSC.

Note that few of these programs were implemented before 1978. Experiments were undertaken in 1976 and 1977 by three utilities in Maine and by the Toledo Edison Co. New Jersey's lifeline legislation for low-income families was originally passed by the legislature in 1976, although implementation did not come until 1978. It is clear, therefore, that programs involving special utility rates to benefit target populations are very new indeed.

## B. TARGET POPULATIONS AND ELIGIBILITY REQUIREMENTS

The target populations which these programs are designed to benefit consist of the elderly poor in seven out of the thirteen cases. Four additional programs from Michigan, New York, Ohio (Toledo Edison), and Utah are focused on the total elderly population.

By contrast, the New Jersey program is directed at low income residential consumers with maximum income for the head of household of \$9,000 single and \$12,000 married. This legislative requirement has been questioned by the board of public utilities' staff as being too high and thus requiring too large a shift in revenue burdens. The BPU staff has suggested that total household incomes from all sources be considered, rather than only income received by the head of household.

The North Carolina rate reductions are designed for households who bring their homes up to approximately the FHA minimum insulation standards. In addition, a small first block discount is also allowed to all households receiving supplementary security income who are blind, disabled, or age 65 or over. (2.79 cents versus 2.94 cents per kilowatt-hour). Eligibility criteria for all of these programs are summarized in the following table.

ELIGIBILITY CRITERIA FOR TARGETED RATE PROGRAMS

State	Program	Age and other eligibility criteria
Colorado	Gas lifeline rate	65 or disabled and receiving property tax or rent credit, with household income below \$7,300 for single, below \$8,300 for married.
Iowa	Lifeline demonstration program	65 and household income below \$6,000.
Maine	Demonstration lifeline program (1976-77)	62 and household income below \$4,500 for single, below \$5,000 for 2 or more persons, with permanent Maine abode.
	Lifeline Electrical Service Act, H.P. 1669	65 and household adjusted gross income below \$6,500.
	Proposed A-ELI rate Central Maine Power Co.	65 and SSI recipient, head of household.
Massachusetts	A-65 lifeline program	65 and head of household and SSI recipient.
Michigan	Optional residential senior citizens' rate	65 and head of household.
New Jersey	Lifeline legislation (Public Law 1977, ch. 440).	No age restriction. Head of household with income below \$9,000 single and below \$12,000 married.
New York	Lifeline block rates (7013-A)	65.
North Carolina	Residential energy conservation	No age or income restriction. Minimum weatherization standards.
	Senior citizen rate	65 or blind or disabled and SSI recipient.
Ohio	Toledo Edison R-01 rate	65 and head of household with income less than \$6,000.
Rhode Island	A-65 rate	65 and head of a household or principal wage earner and SSS recipient.
Utah	A-65 lifeline program	65 (note that PSC has also mandated cutoff levels for income and kilowatt-hour per month).



## C. RATE STRUCTURES

The amounts of rate reduction and the resulting rate structures for participating customers for the programs under study are shown in the table on page 39. Note the four basic patterns which emerge.

In several cases, eligible participants are offered substantial reductions in the rate for the first or "lifeline" block of energy consumed.

	Initial block	Discount (percent)
Program:		
Colorado Gas.....	0 to 25,000 ft <sup>3</sup> .....	50
Iowa.....	0 to 600 kWh.....	60
Maine, 1976-77.....	0 to 500 kWh.....	
Maine H.P. 1669.....	do.....	25
Massachusetts A-65.....	22 to 375 kWh.....	(1)
Michigan.....	0 to 300 kWh.....	29
Michigan.....	0 to 500 kWh <sup>2</sup> .....	(3)
New Jersey.....	0 to 300 kWh <sup>4</sup> .....	(3)

<sup>1</sup> Significant.

<sup>2</sup> Winter.

<sup>3</sup> Not determined.

<sup>4</sup> Summer.

Participants have usually been expected to pay regular residential rates for subsequent blocks after the first or lifeline block. Programs in Michigan and Maine (H.P. 1669), however, provide small discounts for a second block.

In most of these cases, this lifeline or reduced rate has been superimposed on a declining block schedule. As a result, while costs of small amounts of electricity have been reduced to participants, rates for additional units of energy above the initial or lifeline block may still be lower than the initial or lifeline level. Examples of this situation are Maine's 1976-77 experimental program and the Massachusetts A-65 lifeline program.

Alternatively, rate reductions for energy in an initial block have been superimposed on an inverted rate structure, or at least accompanied by attempts to raise rates for larger quantities of energy. This is the situation for New York's lifeline block rate proposal, which provided for a freeze on rates for the 0 to 200 kilowatt-hours block (set at a level not exceeding the average for all electricity as of January 1, 1978). This freeze was to last until rates for subsequent blocks had risen at least 25 percent above this lifeline level. In effect, the freeze on the initial block would be used as a means of the inverting the rate structure, at least for elderly participants in the program.

Another example of a rate reduction superimposed on an inverted rate structure is that of Michigan's senior citizen rates, implemented by both Detroit Edison and Consumers Power. Here the public service commission tried to devise a discount rate structure for senior citizens that would not be classified as unfair discrimination in favor of a single class. This solution was to create a rate structure which offered elderly participants a substantial discount for amounts of electricity under 350 kilowatt-hours, balanced by above average rates for kilowatt-hours exceeding 350. Thus, the total amount paid by senior citizens, assuming no change in consumption behavior would

remain unchanged, and the new rate structure would have a zero shortfall. Seniors would only gain if they, in fact, conserved sufficiently to consume less than 350 kilowatt-hours.

A different pattern is represented by Ohio's Toledo Edison and Narragansett Electric Power programs. In the Ohio case, qualifying senior customers were given a 12.2 percent discount from the company's R-01 rate schedule which was based on a declining block system. In the Rhode Island case, the A-65 rates declined in four blocks up to 395 kilowatt-hours per month, then jumped 80 percent for the next block, then declined gradually for succeeding blocks.

A fourth pattern is represented by North Carolina's residential energy conservation rate. In this case, eligible customers were offered discounts on the second and third blocks beginning at 350 and 1,300 kilowatt-hours, but no discount on the first block.

RATE STRUCTURE FOR TARGETED RATE PROGRAMS

State	Target population	Initial block		Rate profile	Additional charges	Revenue recovery
		Size	Rate			
Colorado gas lifeline	Elderly poor	25,000 ft <sup>3</sup>	50-percent discount	Flat	None	All classes. Not stated.
Iowa	do	600 kWh	60-percent discount	do	do	do
Maine, 1976-77	do	500 kWh (average savings 31 to 50 percent)	3 cents	Declining block	do	All classes 0.013 cents per kilowatt-hour.
Maine, H.P. 1669	do	500 kWh, next 500 kWh partial discount.	25-percent discount	3-step	do	All classes cost of service.
Maine, rate A-ELI	do	500 kWh	20-percent discount	Flat	do	Not stated.
Massachusetts, A-65 lifeline	do	22 to 375 kWh	Significant	Declining block	Not stated	All classes \$651,000 to \$905,000.
Michigan optional senior citizens	Elderly only	{ 300 kWh	29-percent discount	} Inverted	\$2.65 per month	Residential 0.017 cents per kilowatt-hour.
		{ Next 200 kWh	6-percent discount			
New Jersey lifeline	Low income	Winter (residence) 500 kWh, 100 therms. Summer (residence) 300 kWh, 20 therms.	Not stated	Declining block	Not stated	Not yet determined.
New York lifeline block	Elderly	200 kWh	Freeze at average rates Jan. 1, 1978.	Not stated		95-percent tax credit to utility (\$25,000,000).
North Carolina energy conservation.	Conservers	1st 350 kWh	No change	Inverted U	\$4.30 per month	Not stated.
		next 950 kWh	22-percent discount			
		over 1,300 kWh	16-percent discount summer, 20-percent discount winter.			
Ohio, Toledo	Elderly	1st 350 kWh	5-percent discount	Declining block	\$4 per month minimum	Do.
	do	All blocks, separate schedule.	12.2-percent discount			
Rhode Island A-65	Elderly poor	Separate schedule		Modified U	\$4.21 per month for 0 to 20 kWh.	Do.
Utah A-65 lifeline	Elderly	400 kWh		Declining block	\$3.25 per month	Do.

#### D. PROGRAM ADMINISTRATION

Eight of the programs discussed in these pages are under the administration of the department of revenue and treasury or the tax commissioner which maintains separate eligibility guidelines for these programs. In two cases administrative responsibility is shared between the department of revenue and the public service commission (New Jersey fuel coupon program) and community services (Wyoming A-65-warrant program). This pattern of shared responsibility for various aspects of a program is actually used more often than the table would indicate. One example is Maine's demonstration lifeline rate program. This program was administered by the public utilities commission (PUC), but certification of eligibility was carried out by the executive department's division of community services. Similarly, Ohio's State Department of Taxation carries out the mandate of Ohio's energy credits program in distributing benefits to persons who were not customers of an oil or gas utility and to persons who rented their home or lived in a trailer.

Seven programs are under the administration of community services, or its local designates the Department of Community Affairs. in Connecticut, Family Services in Florida, and Welfare in Pennsylvania. All seven of the CSA-administered programs follow Federal eligibility guidelines, such as those applicable to aid to families of dependent children, food stamps, supplemental security income, and Federal poverty levels.

Two programs are handled by the department of social services. under standardized Federal income guidelines, while Michigan's energy assistance program is DSS-administered but allows the utility company involved to construct the certification form, with DSS approval.

In most of these cases it would appear to be cost-effective to make use of existing eligibility mechanisms rather than to creating new ones.

#### E. OBSERVATIONS AND RECOMMENDATIONS

Many of the comments made in the previous chapter about lifeline rates (pages 27-31) could also apply to rate reductions for special groups.

This applies in particular to the general criticism levied against using rate or price changes as a method of redistributing income. Economists argue that changing the distribution of income by manipulating the prices that particular groups of people pay for specific goods is undesirable, partly because it distorts economic choices by distorting the signals and incentives which the price system provides, and partly because there is no way of identifying costs resulting from artificial prices. At the same time a special rate for a target population can be much easier to administer than a direct aid program, since no actual payments to beneficiaries are involved.

The problem of discrimination is far more serious in the case of targeted rate reductions for special groups in the population than for general lifeline rates applying to all customers equally. More than 30 States have constitutional or legislative prohibitions against discriminatory utility rates. Colorado's 1978 lifeline rate for low income,

disabled, and elderly users of natural gas was discontinued on this ground following a court test. Michigan, on the other hand, has implemented an optional senior citizen's rate which may be free from attack on this ground. The rate structure is more sharply inverted than the regular residential rate. The result is that senior citizens only pay a lower rate for kilowatt-hours consumed under 300 kilowatt-hours per month. All consumption over this level is at a premium rate. Thus there will be no discrimination (and no net benefit for the elderly population) if they consume according to the same patterns as the population as a whole. Participation will only benefit the elderly if they in fact use less-than-average amounts.

Another difficulty relates to the nature of the regulatory process and of public service commissions (PSC's). Over and over again, PSC opinions have noted the commission has no mandate to make social policy, and that the only organization which can properly determine whether one group in society should be helped or hurt by special rates is the State legislature. Whatever position one takes in this debate, it is clear that commission members are not usually accountable for their actions to any electorate and that this type of quasijudicial body may be better suited to carrying out social policy than to formulating it.

A seldom-voiced criticism is that special rates, like special subsidies, solve nothing over the long run. In fact, it is possible that they may make the situation worse. There may be a significant income effect resulting from the lowered rate.<sup>1</sup> Under these circumstances, a special rate reduction would tend to increase energy usage (sometimes requiring that even more subsidy be paid). Given a world in which energy costs and utility rates continue to rise, such a situation implies that the burden on other ratepayers of helping persons most hurt by high energy prices may well grow higher and higher with each passing year. Targeted rates tend to be self-perpetuating, and the need for them tends to be self-increasing. We expect that such a situation will be regarded as unacceptable by many.

We would therefore urge that if special rate reductions are to be considered, some thought be given to combining special rates with a conservation and weatherization program. In other words, that participation in programs to affect energy usage patterns (conservation) and needs for energy (weatherization) be required as a condition of receiving assistance. If this is to be the case, then some special provision should also be made to provide assistance to the poor and elderly to enable them to participate fully in such a program.

## F. PROGRAMS FOR FURTHER INVESTIGATION

The following specific programs offer interesting approaches to some of the problems mentioned earlier in this chapter:

### COLORADO GAS LIFELINE RATES, 1978

This rate, targeted to low income elderly consumers, provided a 50 percent discount on residential gas service for the first 25,000 or 27,500 cubic feet, with shortfalls to be recovered from all nondiscount cus-

<sup>1</sup> An income effect of a price change would exist if, when the price of a good goes down, the consumer feels richer and therefore responds by purchasing more of the good.

tomers. Although the rate was challenged as being discriminatory and subsequently was disallowed by the district court, it is an example of a rate discounted for gas only.

#### MAINE DEMONSTRATION LIFELINE, 1976-77

This 1-year program, authorized by the legislature and implemented by the PUC in cooperation with community services, studied the effects of the lifeline concept upon 2,619 low-income elderly participants and 6 electric utilities. A detailed evaluation highlights many of the problems common to targeted, discount rates.

#### MICHIGAN OPTIONAL SENIOR CITIZEN RATE, 1978

The first 300 kilowatt-hours per month used by those 65 and older who have applied for the discount is priced significantly lower (12 percent) than the regular residential inverted rate, while subsequent blocks are priced at substantially higher rates than those paid by regular residential customers. The planned result is that the new rates will not be classified as discriminatory since they will only benefit conservers and would produce no revenue shortfall if applied to the elderly as a class.

#### NEW JERSEY P.L. 440, 1978

The BPU has been authorized by State law to set lifeline quantities of gas and electricity and direct the implementation of this low income targeted program. The BPU staff recommendations concerning income eligibility, revenue recovery, and the creation of a separate administrating agency are especially interesting.

#### NEW YORK PROPOSED LIFELINE ACT 7013-A, 1978

Targeted to all elderly regardless of income, passage of this law would have frozen the rate of the first 200 kilowatt-hours of electric consumption to the average rate price of January 1, 1978, echoing the California approach. Although the lifeline block size is quite small, which would lessen the revenue shortfall, 95 percent of a utility's losses were to be recovered by means of a state tax credit; this is one example of lifeline costs being paid by taxpayers, not ratepayers.

#### NORTH CAROLINA CONSERVATION RATE, 1978

Representing a different approach toward the implementation of the targeted lifeline concept, this rate strongly encourages conservation, by offering a discount to those who meet State weatherization criteria. A special discount is also available to elderly SSI recipients for consumption under 350 kilowatt-hours.

#### RHODE ISLAND NARRAGANSETT ELECTRIC CO. A-65 RATE, 1978

This is an example of a separate rate schedule for the elderly poor which will benefit those eligible conservers who can confine their usage below 395 kilowatt-hours per month, but which offers no advantage to kilowatt-hour consumers in excess of this amount.

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## Chapter V

### WEATHERIZATION AND CONSERVATION

#### A. INTRODUCTION AND OVERVIEW

Weatherization and conservation programs stand as separate, distinct methods of meeting the growing difficulty of the poor in paying for energy costs. By permanently reducing energy waste and improving the thermal efficiency of residential dwellings, all persons including the poor, elderly, and handicapped can receive a monthly "discount" via lower energy bills of 25 percent or more.

The following pages give a brief overview of both weatherization and conservation activities which are either proposed or are taking place around the country. The focus is on programs originated at the State and local level, rather than on federally sponsored and funded programs which have been amply documented elsewhere. Tabular summaries are included along with the text to give some idea of the diversity of programs now being offered by various States. As in other areas, most of the programs are relatively new. Most of them have evolved from the energy crisis of 1973 and reflect the growing realization of our dwindling energy supplies.

#### B. STATE-SUPPORTED WEATHERIZATION ASSISTANCE

In 1975, Congress authorized the Community Services Administration (CSA) to provide assistance for programs and activities which included winterization of old and substandard dwellings in order to lessen the effects of the energy crisis on low-income individuals and families through direct weatherization grants to qualified families. A year later Congress passed the Energy Conservation and Production Act, authorizing the Department of Energy (DOE) to establish a supplementary home weatherization program for the same purpose. By 1978, the combined CSA and DOE programs allocations totaled \$130 million. Nevertheless, CSA estimated that, with their current funding level, they will not be able to assist even half of the poverty-occupied dwellings which need weatherization assistance.

State participation in federally funded weatherization programs has been very high. However, some States have gone beyond simple participation and have committed additional State funds for weatherization efforts.

As the weatherization program administrator from a Southern State said:

We considered it to be a basic policy question: Should we go after a temporary solution (subsidize the incomes of those most affected by the rising energy costs), or should we seek a more permanent solution. We chose weatherization.

State funds have therefore been used to assist low income, elderly, or handicapped in a variety of ways. In some cases funds have been spent to boost inadequate Federal financing allowed for administrative costs under Federal weatherization programs. In addition, decisions were made in States like Arkansas and Indiana to target conservation education programs to low-income elderly residents. Indiana's program is similar to the experimental program already underway by the Tennessee Valley Authority, where the emphasis is on "self help" with trained seniors assisting seniors.

Eligibility requirements for State-funded weatherization programs are varied. For example:

Many programs, like Michigan's proposed weatherization program for low income households (H.B. 6493) funded by both State and Federal funds, require that participants have incomes at or below 125 percent of federally defined poverty levels (up to approximately \$13,000 for a family of four).

Colorado's emergency weatherization act (proposed bill No. 2, 1978) requires participants to be 65 years of age or more or disabled, with household income under \$7,300 (\$8,300 if married), and weatherizing an owner occupied dwelling.

Oregon by contrast, is aiming its low income elderly weatherization refund program (S.B. 4) at participants 60 years of age or older, who receive an owner property tax refund based on their low income status, with incomes under \$7,500 per year, with homes assessed under \$30,000, and not eligible for a Federal weatherization grant when the voucher is received. A separate Oregon program is aimed at veterans who qualify for Oregon war veterans' funds.

SELECTED STATE-FUNDED CONSERVATION AND WEATHERIZATION PROGRAMS FOR LOW-INCOME, HANDICAPPED, OR ELDERLY RESIDENTS

State and program	Maximum benefits	State funding
Arkansas: Conservation education program....	Conservation techniques taught which will reduce fuel bills at little or no cost to consumer.	
Colorado:		
Proposed emergency winterization program (proposed bill No. 2, 1978).	\$1,200 for winterization services.....	\$2,200,000.
Proposed emergency winterization program (proposed bill No. 2, 1978).	Develop a program to manufacture and distribute home insulation material through the Department of Corrections.	\$1,300,000.
Indiana: Proposed education for energy conservation for low-income elderly—Phase III.	Conservation education and energy audits for and by senior citizens; one stop energy relief service.	\$961,138 (includes some undetermined Federal funding).
Michigan: Weatherization for low-income households (H.B. 6493).	Not available.....	Not available.
Oregon: Low-income and elderly weatherization refund program (S.B. 4).	\$300 voucher.....	\$4,000,000.
Kentucky: Over 60 weatherization program.	\$250.....	
Oregon: Veteran's loan program for weatherization through the Department of Veterans Affairs (H.B. 2156).	Low-interest loans with mandatory weatherization standards compliance for pre-1974 built homes being purchased. Loan available to vet homeowners as well.	
TVA: Conservation-education program.....	Conservation techniques to reduce fuel bills at little or no cost to consumer.	

SELECTED WEATHERIZATION AND CONSERVATION PROGRAMS AND THEIR FISCAL IMPACTS

State and program	Total	Per capita	Fiscal implication for Ohio population
Indiana: Proposed education for energy conservation for low-income elderly—Phase III.	\$961,138	\$0.18	\$1,932,300
Oregon: Low-income elderly weatherization program (S.B. 4).....	4,000,000	1.31	14,062,000
Colorado: Emergency Winterization Act (proposed bill 2).....	2,200,000	1.15	12,398,925

In some cases, local authorities at the municipal or county level have undertaken programs to encourage and assist the elderly or other low income groups in the population to increase the efficiency with which they use energy. The following programs are examples:

SELECTED REGIONAL OR MUNICIPAL WEATHERIZATION ASSISTANCE PROGRAMS

State and area	Program	Maximum benefits
New York: New York City.....	Operation open city's weatherization and energy conservation programs.	Materials plus labor, under \$350 for 1 to 2 family houses \$150 per dwelling unit for 3-plus units.
Pennsylvania: Lehigh Valley.....	Lehigh Valley home winterization experiment.	Average \$125 for materials plus labor.
Kansas: Wichita.....	Elderly house owners insulation program.	Zero interest loan for materials; free labor. Average \$143 per home.

C. STATE TAX INCENTIVES

In addition to direct aid for weatherization, several States contacted for the survey have provided tax incentives to homeowners for the installation of weatherization materials. This is in addition to the Federal income tax credit of up to \$300 which taxpayers can now receive for installed insulation and other energy conserving materials. Ohio's home improvement income tax credit, begun in 1978 (S.B. 68, 1977), is designed to augment the Federal credit by providing a 5-percent cost discount (up to \$65) on improvement over \$300.

SELECTED STATE TAX INCENTIVE PROGRAMS TO PROMOTE WEATHERIZATION

State	Tax incentive	Eligibility requirements	Materials covered
North Carolina (H.B. 1003).....	25 percent of cost improvements deductible from State personal income tax up to maximum of \$100 per dwelling.	Taxpayer who is liable for payment of materials; building occupied; built before Jan. 1, 1977; materials meet set standards.	Insulation, storm windows, storm doors.
New York proposed (A.B. 13089).	Sales tax exemption (6-percent sales tax).	None.....	Insulation, storm windows, storm doors.
Oregon (H.B. 2701).....	25 percent of cost of improvements deductible from State personal income tax, up to maximum of \$125.	Taxpayer; own dwelling which is occupied; not presently receiving other State weatherization aid; materials meet Oregon building code.	Insulation, storm windows, storm doors, electric ignition devices, certain fire-place and furnace devices, attic vents, caulking and more.
Indiana proposed (House enrolled act No. 1196).	Deduction from adjusted gross income the cost of weatherization improvements or \$1,000, whichever is less.	Taxpayer; residence at least 3 yrs old.	Any insulation material which is installed for the purpose of retarding heat into or out of a building.

D. UTILITY SPONSORED PROGRAMS

During the last 5 years, many utility companies have become involved in providing weatherization loans for their customers. These programs, which were approved by their respective regulatory agencies, have become controversial but have nevertheless become the prototype in modified form for new Federal regulations issued under section 215-216 of the National Energy Conservation Policy Act of 1978. Many of the past criticisms came from the banking industry which claimed that low-interest loans offered by utilities resulted in unfair competition. New regulations under the Energy Act prohibit loans by the utilities which exceed \$300, unless: (a) The loan program

is already in effect (grandfather clause); (b) the loan program is associated with a load management technique; or (c) the DOE Secretary waives the rule in a particular case.

Ohio Power offers the only independent loan program among the major utilities. Its residential insulation financing (RIF) program lends existing customers up to \$750 at 8 percent for insulating customer-owned-and-occupied, 1-to-4-family residences.

Some of the utility regulatory agencies have issued orders to the utilities to provide low or zero interest loans as long as the weatherization projects are cost justified. For example, the Idaho PUC, in order No. 14217, stated that the cost of "producing" a new source of conserved energy by investing in insulation and weatherization must be cheaper than the cost of providing an equivalent amount of energy through the building of new production facilities. This criterion can be used to determine which weatherization modifications are cost-justified and qualify to be underwritten by the utility and therefore included in the utility's rate base. As long as the long run incremental cost of constructing new sources of electric generation to meet increased future demand is greater than the cost of obtaining equivalent amounts of energy through weatherizing, all ratepayers are benefited, the PUC said.

In addition, all ratepayers would be obligated to support the necessary investments using low or interest free loans only until those loans are repaid. If, however, the utility had to invest in new plant construction ratepayers would have to support the plant with higher rates throughout the useful life of the plant.

The Pennsylvania Public Utilities Commission, in Docket No. 2, 1977, took another approach to the problem of gas utility involvement in weatherization programs. They did not think the utilities would compete with the home improvement industry or take any significant business away from commercial lending institutions inasmuch as projected conservation investments under the proposed utility programs were far in excess of that which would exist without the utilities direct involvement.

From the gas utility's viewpoint, capital invested in weatherization would yield a quicker and less risky return than investment of the same incremental capital in exploration, gasification projects, or new gas imports. In addition the utility would be able to serve more people with the same amount of gas.

The concept of utility sponsored low interest loans as a legitimate expense has not been eliminated by the National Energy Conservation Policy Act but rather it has been modified. As the cost of energy rises, the attractiveness of conserved energy as a new energy source will increase.

Finally, note that it may be feasible and cost justifiable for utilities to facilitate weatherization improvements by their customers by subsidizing the interest rates of conventional loans. These concepts may be worth a more in-depth study since they may provide an additional vehicle for assisting all utility energy users including the low income, elderly, and handicapped.

The following table shows the main features of a selection of utility-sponsored programs and illustrates the diversity of effort that has developed in this area.

SELECTED UTILITY SPONSORED CONSERVATION AND LOAN PROGRAMS

State	Utility	Program	Eligibility	Revenue recovery
Oregon (H.B. 2157 and H.B. 3265)	All	6.5 percent not to exceed \$2,000 company arranged private contractors, by request only, energy audits.	All residential space heating customers excludes mobile home dwellers.	
Iowa	Iowa Power & Light	9-percent interest, 3-yr payback, utility financed program, 6 yr old, \$500 maximum loan.	All residential customers	Recipient.
Pennsylvania (public utilities commission order).	All gas utilities	Gas utility loan program (under litigation—not in effect), audits, 0-to-3 percent interest loans.	do	Recipient and all class customers.
Pennsylvania	Columbia gas	6-percent interest, 3-yr payback, up to \$750.	Qualified residential customers	
Kansas	Kansas Power & Light	Free energy audit, monthly payments to utility but not financed by utility.		
Colorado	Colorado Public Service Co.	\$25 for audits, sells customer insulation materials, 8¼-percent interest, 30-mo. payback.	All residential customers	Recipients.
California (PUC docket No. 88551)	All	8 percent utility loans, 5-yr payback, insure to R-19.	do	Recipients and all class customers.
Wisconsin (PSC docket 05-6V-2)	All gas utilities	Loan up to \$2,500 or loan guarantee, payment made to the installer.	Residential customers in areas without loan programs—Utility as lender of last resort, owner occupied dwellings only.	do
Michigan (proposed PSC rules)	All, optional	Cost-benefit analysis of same-type building weatherization improvements, interest free loans for maximum of 7 yr, free audits.	All residential customers not in arrears with utility payments, including tenants with landlord's permission. Conservation measures must repay the cost within 7 yr.	do
New Jersey (energy master plan)	All, mandatory	Energy audits	All residential customers, by request.	
Illinois (H.B. 1560)	All, optional	Market-rate loan, utility option of 20 percent down, 36-mo. payback.		Recipient and all class customers (advertising costs not to exceed 30 cents per residential customer per year).

## E. ENERGY AUDITS

Since the National Energy Conservation Policy Act will require utilities to provide audits for all residential customers who request it, the type of audit offered has now become an important policy question. The New Jersey Department of Energy is presently conducting a study which may be of value to Ohio. They are field testing the desirability of implementing five different types of home energy audits. They are:

(1) An informal walk-through audit which can identify general home improvement needs.

(2) A workbook audit which provides the homeowner with accurate calculations on weatherization needs, the cost of installing them, and the amount of time it will take to recover that expense as a result of energy savings (payback).

(3) A thermographic study, which is an infrared photograph taken of an individual home, illustrating which areas of the home are responsible for the greatest heat loss.

(4) A computer printout, identifying specific weatherization needs of the home, based upon a questionnaire filled out by the homeowner.

(5) An onsite analysis of the potential energy savings of a residence, based upon fuel bill records, by a portable briefcase-sized computer.

Although the study has not yet been completed, it appears that the simple walk-through audit is equally as effective as the more expensive computer printouts or thermographic studies.<sup>1</sup> Consumers appear to be just as motivated to take weatherization improvement measures, and the information provided appears to be sufficiently accurate with the walk-through audit. The New Jersey DOE has developed their own audit form which shows weatherization priorities in simple-to-understand terms. The walk-through audits may be the most cost-effective method of conducting energy audits.

## F. RENTER-OCCUPIED UNITS AND MASTER METERING

The use of master meters for multiunit dwellings encourages the wasteful use of energy in at least two ways. Since increased energy costs can usually be passed on to tenants, there may be little incentive for landlords to upgrade the thermal efficiency of their apartments. Individual residents of unmetered apartments have no direct monetary incentive to conserve. Moreover, each resident pays for excessive energy use through higher rents even though the landlord or other tenants may in fact have been responsible for the inefficient use of energy.

A recent study sponsored by the U.S. Department of Energy compared electric consumption for master-metered and individually metered buildings. The study concluded that residents who had their utility charges separated from monthly rent payments used about 35 percent less electricity.<sup>2</sup>

<sup>1</sup> East Ohio Gas offers a free class B computerized audit, and completed 703 as of Dec. 31, 1978. It also offers a \$29.95 infrared photo program to detect heat loss. East Ohio customers can also enroll in a quarterly energy report program that provides them with usage comparisons to show their actual energy savings after insulation. For further information, refer to the final report and recommendations of the Ohio Energy Credits Advisory Committee, Mar. 31, 1979.

<sup>2</sup> U.S. Department of Energy/Institute of Behavioral Science Demonstration project, "Reducing Energy Waste in Master-Metered Buildings," Denver, Colo.

The Public Utility Regulatory Policies Act of 1978 prohibits the installation of electric master meters in new residential buildings unless "the longrun benefits to the electric consumers in such buildings exceed the costs of purchasing and installing separate meters in such buildings."

Ohio's energy credits program currently allows qualified senior citizens who live in master-metered apartments to obtain \$87.50 per year without any incentive or price signals to encourage conservation. ECP focuses explicitly on heating expenses during the high-cost winter months and covers all fuel types for both homeowners and renters.

Policies on master metering which have been planned or implemented in other States and which might be considered for adoption in Ohio include the following:

CALIFORNIA PUC DECISION NO. 88651, APRIL 4, 1978

The California PUC recommends that all new multiunit residential complexes be individually metered for gas and electricity. The commission found that it would be prohibitively expensive to require a mandatory retrofit of individual meters in existing units. However, the PUC intends to require utilities to furnish data encouraging voluntary installation of the submeters where "economically feasible." In addition, the PUC intends to phase out lifeline allowances for units not individually metered.

MARYLAND S.B. NO. 735, MAY 16, 1978

This requires the PSC to develop regulations for master meters which are converted to individual meters. To safeguard the occupants of the dwelling unit being converted to submeters the owner is required to determine any electric costs saved and to reduce the occupant's rent or payment accordingly.

NEW JERSEY N.J.A.C. 14A: 3-7.1 THROUGH 14A: 3-7.5

Master metering is prohibited in all newly constructed or renovated residences where changes or additional electric utility service is required.

NEW YORK ASSEMBLY BILL 5790, 1977

This proposed bill would have prohibited master metering in all newly constructed or renovated residences; renovation is defined as work which requires at least one apartment to be vacant while work proceeds. In addition, the bill requires the PSC to develop a special system of electric rates to encourage submetering. The rate would include the cost of installing the additional equipment and wiring, the overhead for billing and servicing, and provision of a reasonable profit in addition to the tenant's pro rata share of the master metering charge.

NORTH CAROLINA H.B. 1003, 1977

After January 1, 1978, public utilities are prohibited from connecting to a new residential unit with master metering except for solar assisted hot water, air-conditioner or central heating units. No new residential building will be occupied until it has been certified as being

in compliance with minimum insulation standards as set by the North Carolina building code. Inspection is by the county or municipality to enforce the standards. Suppliers of electric service cannot connect for service unless the building is in compliance.

#### WISCONSIN PSC ORDER (UNDER CONSIDERATION)

One proposal which is under consideration is to impose a 25-percent penalty charge on landlords who use master metered gas. This money would be set aside and could be used by the landlord to convert to individual meters.

Master metering, however, is only one of several problems which occur in attempting to encourage weatherization and conservation in apartment buildings. For example, a recent survey by the Eagleton Institute of Politics at Rutgers University found that occupants of rental units in New Jersey were less informed about the benefits and techniques of conservation than their counterparts in owner-occupied dwellings. Perhaps special education programs should be developed which are specifically targeted to apartment dwellers.

Another problem has been the difficulty in determining the potential for energy savings in apartment buildings. This is especially hard to do in old structures where there is a lack of historical information about their construction and modifications over the years. Rule-of-thumb calculations of heat loads may be grossly in error and an actual measurement of heat load and potential savings may be necessary. A study of the energy conservation potential in a 1900 vintage three-story apartment complex by the Princeton University Center for Environmental Studies quantified the building's energy waste and determined conservation strategies to reduce energy requirements by up to 30 percent with a payback period of under 5 years. Many of the proposed improvements were both simple to perform and inexpensive. The study pointed out the need to directly measure where energy is being wasted and the need to help landlords determine cost-justified improvements.

Recently the Wisconsin PSC ordered gas utilities to undertake an experimental study (PSC Order 05-GV-2). The utilities were asked to identify a target area containing a large number of rental units which, if possible, were built before 1940 and show indications that energy conservation modifications are needed. The managers of the apartments are to be shown the cost advantage of insulating and/or performing other modifications. The utility will then be ordered to inform the managers that gas service will not be continued under the current service rules and tariffs to any rental living unit not meeting energy efficient standards within 6 months after notice from the utility. Another idea being considered would prohibit gas hook-ups for potential tenants of individually gas metered apartments until the entire building was weatherized to certain standards. The ability of tactics such as these to force landlords to spend the money to weatherize their apartments remains to be seen. The important idea, as stated by one DOE official, was to determine financially realistic improvements with a reasonable payback period which the landlord could make. These may not be optimum level weatherization improvements or may not meet local code standards but would be attainable.



Another unresolved problem deals with the inequity in the CSA funded weatherization programs. Most areas around the country have effectively skirted the difficulty of weatherizing multiple dwellings by simply not doing them. As a result, over half the Nation's poor who are tenants rather than homeowners are not able to benefit from subsidized programs. Part of the problem deals with the fear of landlord enrichment.<sup>3</sup> The Pennsylvania Department of Community Affairs, in their proposed draft policy for renters, commented that by refusing to subsidize insulation of rental units for fear the landlord would reap windfall benefits, tenants will in effect be required to pay higher fuel bills. In the end, the choice is really between assisting a landlord or a utility.

The National Energy Conservation Policy Act (title 11, section 224, 1978) requires the Secretary of Energy to prepare a report on potential policy recommendations for energy conservation in apartment buildings. Ohio could possibly participate in the study and thus take a leadership role in this relatively unexplored area.

Other possible approaches to the weatherization problems of multiple-unit dwellings which deserve consideration include:

Mandatory posting of energy efficiency rating information in apartment buildings.

Education of tenant organizations so they may be able to pressure landlords to make weatherization improvements and so the tenants are more informed about simple energy conservation measures they can implement.

Mass media public service programs targeted towards landlord and tenant model weatherization projects.

Require a minimum number of federally funded weatherized units be apartments.

#### G. BASIC INSULATION STANDARDS

There have been attempts in various States to regulate the thermal efficiency in new or existing residential structures by setting insulation standards. Some examples are:

##### NEW JERSEY (N.J.A.C. 14A: 3-3.1 TO 3-3.5)

All new and renovated buildings must meet thermal efficiency standards set by the energy subcode of the uniform construction code. All newly installed gas burning central heating units must be equipped with an electric ignition device.

##### OREGON

Homes built before July 1, 1974 must meet the department of veterans affairs weatherization standards in order to be eligible for financing with a DVA low interest loan.

##### MISSOURI

The Missouri Public Service Commission recently withdrew its insulation standard ruling because it found that revisions in the national

<sup>3</sup> U.S. General Accounting Office, "Complications in Implementing Home Weatherization Programs for the Poor," HRD 78-149, Aug. 2, 1978.

code were too frequent to permit State codes to be adjusted accordingly. The public service commission found that it had insufficient authority and staff to enforce the standards. The PSC has requested the general assembly to provide uniform standards which can be easily revised and administered through local units of government.

#### OHIO

New home residential customers at East Ohio Gas must meet utility or "all-electric home" insulation standards in order to receive gas service.

#### MINNESOTA

A recently passed law requires that an energy disclosure report be completed prior to conveyance of the property.

### H. EDUCATIONAL AND MARKETING EFFORTS

Educational and marketing programs are beginning to take on an increasingly important role in energy conservation policy. As the price of energy rises relative to the prices of other goods, and as energy purchases account for a larger and larger portion of the consumer's budget, opportunities to conserve become a matter of real and personal (as opposed to theoretical and altruistic) concern to a larger and larger group of consumers. The New Jersey Department of Energy summed up the need for marketing efforts in their energy master plan by stating:

The importance of public information and education programs cannot be over-emphasized \* \* \* All the programs outlined earlier require decisionmaking on the part of the consumer, businessman, plant manager, or government official. If anyone is to make an intelligent choice, that person must not only be afforded the opportunity of examining all pertinent data, but also have that data presented in an understandable fashion.

Studies of household energy use where there has been a change of owners in a single dwelling unit show that new occupants of the same structure often have consumption levels that are quite unrelated to those of their predecessors. Variations in energy consumption for space heating appear to be determined primarily by the behavior of the resident rather than by structural features of the unit independent of the resident. The level of effort required to conserve energy and an individual temperature preferences are both important variables. Physical weatherization improvements alone are not likely to alter an individual's energy consumption patterns.<sup>4</sup>

Of key importance is the motivation required to make a person conserve. In the past, major appeals have usually been made primarily to each individual's citizenship responsibilities or to the economic rewards to be gained from conserving energy. A recent Princeton University study which investigated the degree of success of traditional conservation campaigns concluded that there was another key attitude

<sup>4</sup>Robert H. Socolow, "The Twin Rivers Program on Energy Conservation in Housing: Highlights and Conclusions," Energy and Buildings, Lausanne, Switzerland (April 1978).

which has not been tapped; a person's concern for comfort and health.<sup>6</sup> This may be particularly important in the case of elderly and other low income persons who are already making substantial financial sacrifices to purchase minimum quantities of energy. Enabling these people to increase the efficiency with which they use energy could make a major contribution not only to their finances but to their comfort.

Finally, the staff has concluded that the single most important factor which determines conserving behavior may well be the kind of information each family has about its daily use of energy. Several States have already moved to consider truth in energy legislation (New York), energy disclosure requirements (Minnesota), and the like. An entirely neglected area appears to be the possibility of improving the design of utility bills so that customers can better understand the monetary effects of energy usage. Provision perhaps on a loan basis of digital meter which displays both kilowatts and dollars and cents on a continuous basis and which can be located in the central living area. of a home might have even more dramatic effects.

The CSU staff has not attempted to survey the full range of educational and marketing techniques now in use across the country. The following examples, however, may illustrate the variety of approaches that are now being used:

#### CALIFORNIA

The energy commission has funded an outreach program which provides energy conservation information to low-income persons via a traveling van. Presentations are also available in Spanish.

#### NEW YORK

A proposed "truth in heating law" (assembly bill 12238) requires a seller to show potential buyers of a dwelling unit heating bills from the past 2 years. Simple provisions are designed to protect renters and buyers of a newly constructed dwelling unit.

#### NEW JERSEY

An "energy savings day's fair" has been organized by the New Jersey Public Interest Research Group and the New Jersey Department of Energy. The program was developed to inform low-income families of the inexpensive measures they can take to reduce home energy costs. A statewide student poster and project contest is planned. Prizes will be awarded in three categories: action-oriented projects, innovative media, and posters.

A free monthly newsletter and a statewide toll-free energy information hotline are also being established. See also the description of New Jersey's study of energy audits on a previous page.

#### OREGON

A do-it-yourself audit would allow prospective homebuyers to compare the relative energy costs of homes they are considering buying,

<sup>6</sup> Clive Sellman, John M. Darley, and Lawrence J. Becker, "Behavioral Approaches to Residential Energy Conservation," Center for Environmental Studies, Princeton, N.J., p. 10.

## I. POTENTIAL RATIONING VERSUS CONSERVATION

It should be noted that Americans are now receiving confusing signals concerning conservation which may be leading them in the opposite direction toward higher consumption. For example, many perceive it is to their advantage to consume higher, not lower, quantities of natural gas in the anticipation of eventual rationing by the Federal Government.

This perception was borne out in conversations with those in the energy field. A prominent heating-cooling contractor explained the difficulty he had in selling conservation-related equipment to industry. These businessmen had painful memories about the previous "energy crisis" in Ohio when available natural gas supplies were curtailed.

Utility regulatory agencies reflect the same concerns. The public service commission in a Midwestern State said the State:

\* \* \* must avoid taking any action which will cause less natural gas supplies to be allocated to it in the future. The record in this proceeding indicates that additional gas will be available to mitigate the impact of industrial curtailments due to the conservation efforts of new and existing customers.

They state further that if the Federal Government should decide to use the total natural gas sales as a criteria for future gas allotments, and the conserved gas had not been sold, the State would be unfairly penalized with a smaller allocation than that which presently exists.

The effects of these general concerns and their ability to undermine conservation efforts probably cannot be adequately dealt with at the State level. However, local policymakers should be aware of the deleterious effect which the fear of rationing can create for conservation strategies and programs.

Public policy can nevertheless effect conserving behavior in a variety of ways. For example:

Public authorities can mandate some kinds of behavior, for example through strict enforcement of building codes, as well as periodic internal and external inspection to enforce continued compliance.

Other policies are designed to increase the availability of services. This may involve requiring every utility to advertise opportunities for weatherization along with monthly utility bills, maintain lists of contractors, develop systems of evaluating contractor performance and ensuring minimum quality, provide homeowners with readily available credit with which to reduce energy use, perhaps including facilities for repayment in connection with monthly utility payments, and the like.

Another approach involves making information as to the benefits and methods of conserving energy more readily available to consumers. This would include a variety of educational campaigns, low cost home audits and energy efficiency rating systems, truth-in-heating laws, requirements that all suppliers of energy using equipment provide customers with information about the energy efficiency of each item, etc.

Another approach involves providing rewards to conserving behavior. These include special incentive utility rates that will reward fully insulated dwellings that meet prescribed standards.

Other incentives might include the provision of low cost loans or tax credits. In some cases, capital expenditures on weatherization and conservation can be directly subsidized.

A final but essential approach involves the prohibition of master metering to insure that all households, including renters in multifamily units, have measurements of the energy that they use and an incentive to conserve. Requiring digital meters and more readable utility bills might be equally effective for single-family homes.

There are several conclusions to be drawn from a study of these alternatives. The first, as we have already suggested, is that the range of policy options is very large. A second conclusion is that, with some households spending in excess of \$1,000 per year on utilities, the opportunity that exists for substantial savings as a result of conserving behavior is very great. The literature includes many mentions of savings on the order of 20 to 30 percent from attic insulation alone. The maximum gain that might be realized by the average family from a more comprehensive set of conservation behaviors is probably much greater than this. From the point of view of public policy, we expect that most of the conservation policies listed above are probably complementary and mutually reinforcing. It is quite possible that in a State like Ohio the more effective one conservation program becomes, the greater the payoff will be from additional conservation efforts by other State agencies, at least initially. This is because conservation involves basic changes in attitudes and behavior which tend to be mutually reinforcing.

This mutually reinforcing characteristic of conservation policies coupled with the wide range of available programs and the multiplicity of Federal, State, and local governments plus utility companies which can be involved, indicate that there may be substantial benefits from coordination of effort. It might be advantageous to look at the structure of a few State energy-related departments which have attempted to address this need for coordinated approaches to weatherization and conservation:

#### NEW JERSEY DEPARTMENT OF ENERGY

The first State cabinet level energy department in the Nation, it oversees the board of public utilities and serves as a technical resource for other departments. In addition it appears to have some clearing-house functions.

#### OREGON DEPARTMENT OF ENERGY

Has synthesized all major energy assistance programs into a very readable guidebook called *Something New*. It has taken programs which would otherwise be scattered and provided an excellent resource for all Oregon residents.

#### INDIANA OFFICE OF COMMUNITY SERVICES ADMINISTRATION

This agency is in the process of implementing a three-phase plan which would enable it to act as a clearinghouse for weatherization programs, direct energy assistance programs and consumer education and awareness.

An indepth analysis of the administrative structures which have been formed in other States as new programs were legislated may help Ohio to maximize its investment in energy assistance programs.

Finally, it is important to repeat our earlier observation that utility rate structures may have important impacts on conservation practices. Prices do constitute signals as well as incentives to customers to behave in particular ways. Whatever the other merits of declining block rate structures may be, they constitute a signaling system that encourages additional consumption by offering lower and lower prices the larger the quantity consumed. Some Ohio utility companies are now offering their residential customers more than a 75-percent discount on additional energy units consumed. It is difficult to reconcile discounts for quantity consumption of this magnitude with a policy of promoting conservation of energy by residential consumers.

We would suggest that serious consideration be given to implementation of conservation-based utility rate structures, discussed in somewhat more detail in connection with the section on pricing policies in this report. Conservation-based rates need to be explored in particular in connection with natural gas, since gas accounts for by far the largest portion of utility expenditures for most Ohio households, particularly during the winter months (households that heat with electricity or other fuels are obviously an exception to this statement). Note that such a conservation rate applied to natural gas could well be regarded as cost-based, in the sense that it would assist the utility to minimize its purchases of expensive supplementary winter supplies as well as minimizing the need for maintaining additional gas storage capacity.

## J. LINKING WEATHERIZATION TO DIRECT ASSISTANCE PROGRAMS

Other chapters of this report have concluded with recommendations that consideration be given to making available conservation-based utility rate options available as well as possibly including conservation as a requirement for participation in other energy programs. In essence, policies that subsidize inefficient use of energy will make less and less economic and political sense in a world characterized by steadily rising prices for energy. Over the long run, the problems that rising energy costs create for the poor and the elderly must be solved at least in part by helping these people to become more efficient in their use of energy.

If the legislators from the State of Ohio want to consider tying a weatherization requirement into qualifications for program participation, the following points might be considered.

(1) Before requiring weatherization, a program similar to the Indiana proposal might be established. The walk-through audit component could provide a data base to determine at the policy level the extent of weatherization improvements needed by the energy credits target population. In addition it would complement the direct assistance program by raising the senior citizen's knowledge about simple inexpensive ways to minimize fuel costs. Penetration of information into the target population may be significantly higher if it involves the elderly directly in the program administration and implementation. New Jersey's audit form is especially easy to understand.

(2) Prior to either reducing or eliminating the energy credits benefits to recipients who live in inadequately weatherized dwellings, it will be necessary to provide a weatherization program more inclusive than

the Federal programs with more liberal participation criteria. It must allow a variety of methods by which the elderly can upgrade the thermal efficiency of their homes within their budgets.

(3) It may be more economically realistic to develop less stringent weatherization standards for the program which will satisfy rather than maximize the thermal efficiency of the homes. A requirement of storm windows, doors, and other insulation to an R-19 factor may be sufficient.

(4) The transition to requiring weatherization for eligibility in the energy credits programs may move more smoothly if a reduction in benefits is done incrementally. For example, a recipient might be advised that their benefits would be reduced by one-quarter the following year if the home is not brought up to standard. The reduction could be spread out over 4 to 5 years.

(5) Renters who participate in the energy credit program pose special problems since they are dependent on their landlord to make improvements. It may be well worth the investment to research and develop a special program to encourage landlords to weatherize their properties and install individual meters. There is an excellent opportunity to develop and implement experimental programs in an area with a high number of apartment dwellers who are receiving energy credits benefits. The General Accounting Office (GAO) points out that 55 percent of all U.S. low-income households are renters, although only 24 percent are renters of single-family dwellings.

(6) New York energy sales tax exemption (Assembly Bill 10306, 1978). Homes insulated to accepted standards of energy efficiency would be exempted from the energy sales tax. The proposed exemption has the advantage of being visible each time a recipient pays a fuel or utility bill. It also applies to all common heating fuels.

(7) Indiana education for energy conservation phase III. The third component of Indiana's proposed statewide comprehensive energy relief program involves senior citizens who would be hired and trained to educate their peers in low or no cost conservation techniques by progressing through three distinct levels of involvement. At level I, brochures would be distributed through nutrition centers, golden age clubs, and social agencies. Level II provides a walk-through home energy audit and assessment of need. At level III, the completed forms would be screened and the client is scheduled for training services which include budget counseling and resource availability.

The nature of the program involves seniors and therefore will allow involvement and financial assistance by many agencies, Federal, State, and local. In addition it may also target the same population which is now participating in the energy credits program.

(8) North Carolina conservation rate, 1978. Representing a different approach toward the implementation of the targeted lifeline concept, this rate strongly encourages conservation by offering a discount to those who meet state weatherization criteria. A special discount is also available to elderly SSI recipients for consumption under 350 kilowatt-hours.

## K. OBSERVATIONS AND RECOMMENDATIONS

There was general agreement among the staff that effective weatherization and conservation programs should be a major part of any overall strategy to assist the elderly, the disabled, and other low-income families to deal with rising costs of energy.

Under weatherization and conservation, we include all programs which are designed to reduce the amount of energy actually used, as well as the amount needed by customers. Such policies benefit elderly, disabled, and other low-income persons faced with rising energy prices by reducing the amount of energy that they need to purchase. It may also benefit them indirectly to the extent that effective conservation reduces the need for utilities to add new (and usually more expensive) capacity.

The range of programs that are available to carry out such a policy is broad indeed, and includes far more options than are usually recognized. The list below is intended to indicate this range of alternatives and is not exhaustive by any means.

The first group of policies are those which increase the efficiency with which energy is used and therefore reduce the need for purchases of energy. This would include not only home insulation and weatherization programs, but capital investments in automatic flue dampers, nighttime thermostat controls, duct insulation, electronic ignition, energy conserving utility equipment, and the like.

An alternative approach to conservation involves the voluntary reduction in energy usage by households through maintaining the thermostat at a lower setting, turning the thermostat down during periods when members of the household are asleep or away, changing the setting on the hot water heaters, changing the way in which personal washing, dishwashing, and clothes washing are done so as to conserve energy and the like. Such behaviors require regular investments of time and perhaps some marginal sacrifice of comfort on the part of the family, as opposed to new capital outlays.

#### SOURCES OF FUNDING FOR SELECTED WEATHERIZATION AND CONSERVATION PROGRAMS

State and program	Funding level	Funding source
Arkansas: Weatherization—Unique statewide delivery system.	\$2,300,000.....	CSA, DOE, CETA, revenue sharing.
California: Utility-sponsored weatherization loan program, PUC docket No. 88551.	\$500 with 8-percent utility loans.	Recipients and all class rate-payers.
Colorado:		
Proposed emergency winterization program (bill No. 2).	\$2,200,000.....	General revenues.
Proposed emergency winterization program (division of correction; insulation manufacturing program establishment).	\$1,300,000.....	Do.
Proposed weatherization incentive warrants for elderly and disabled low-income (H.B. 1227).	NS.....	Do.
Indiana: Proposed education for energy conservation for low-income elderly—Phase III.	\$961,138.....	Seeking Federal funding may use State funds.
Kansas: Weatherization—Unique statewide delivery system.	\$2,300,000.....	CSA, DOE, CETA, revenue sharing.
Michigan:		
Low-income households home weatherization (H.B. 6493).	NS.....	General revenues.
Proposed utility-sponsored interest free loan program.	.....	Recipients, all class ratepayers.
New York: Proposed energy sales tax exemption (A.B. 10306, 1978).	.....	6-percent sales tax exemption on energy for energy efficient homes.
North Carolina: Weatherization tax credit (H.B. 1003).	Up to \$100 per building.....	Income tax credit.
Oregon:		
Weatherization tax credit.....	Up to \$125 per dwelling.....	State treasury tax refund revolving checking account.
Utility-sponsored weatherization loan program (H.B. 2157 and 3265).	Up to \$2,000 at 6.5-percent interest.	Recipients and all class rate-payers.
Low-income elderly weatherization refund (S.B. No. 4).	\$4,000,000.....	General revenues.
Pennsylvania: Gas utility-sponsored conservation loan program; 77 proposed rulemaking docket No. 2, PUC.	3-percent residential; 6-percent multifamily commercial loans.	Recipients and all class rate-payers.
Wisconsin: W.P. & L. residential gas conservation proposal (partially rejected).	\$8,100,000 per year.....	Do.



## L. SELECTED PROGRAMS FOR FURTHER INVESTIGATION

The following examples illustrate a few of the available approaches to providing assistance for weatherization beyond the federally-financed Department of Energy and Community Service Administration programs.

## COLORADO EMERGENCY WINTERIZATION ACT (PROPOSED BILL NO. 2)

This proposed bill would provide \$2.2 million from the State general fund for the weatherization of homes of eligible low-income, elderly, and disabled persons. An additional \$1.3 million from the general fund would be allocated to the Colorado Department of Corrections to manufacture and distribute home insulation materials.

## OREGON LOW-INCOME/ELDERLY WEATHERIZATION PROGRAM (S.B. 4)

This program is funded at \$3 million and has been operating since October 1977. It is directed at those low-income elderly who did not qualify for or participate in the federally funded weatherization program.

## NORTH CAROLINA HOME INSULATION TAX CREDIT PROGRAM (H.B. 1003)

An income tax credit is offered to homeowners for weatherization projects of 25 percent of the weatherization costs or a maximum of \$100 per home. Homeowners installing solar energy assistance equipment are also eligible to receive tax credit for up to \$1,000 in expenditure per home.

## NEW YORK TRUTH-IN-HEATING LAW (A.B. 12238)

This law requires a seller to show potential buyers (or a landlord to show potential tenants) heating bills from the past 2 years or (in the case of new buildings) a projected estimate of heating costs.

## OREGON ENERGY EFFICIENCY RATING SYSTEM (S.B. 370, 1977)

This do-it-yourself energy audit tool would allow prospective homebuyers to compare the relative energy efficiency of homes.

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## Chapter VI

### LOAD MANAGEMENT

#### A. INTRODUCTION AND OVERVIEW

Load management (load leveling) activities usually are directed towards encouraging the use of electrical energy during off-peak periods by means of time-differentiated pricing in order to minimize the growth of peakload demand and thus the need for new expenditures and/or to reduce operating costs. By reshaping the customer demands on an electric system a utility can increase its load factor, which is the ratio of the average load in kilowatts to its peak kilowatt load during a designated period.

#### THE DIMENSIONS OF THIS SURVEY

Within the last 5 years, utilities across the country have become increasingly active in developing both experimental and permanent time-of-day pricing (TOD) programs and load management incentives for their residential customers. The following summary includes 35 selected programs representing activities in 26 States. In some cases, such as California, Wisconsin, Connecticut, Vermont, North Dakota, and Maine, the public service commissions ordered the electric utilities to develop TOD and load management programs in connection with their rate increase applications.

General Order No. 40 of the Maine Public Utilities Commission, dated April 6, 1976, is an example of a commission mandate that future rate increase applications by electric utilities should include:

\* \* \* a responsible proposal involving peak load pricing or other substantial load management techniques for those customers having either time-of-day metering capability or metering capability which can economically be modified for time-of-day measurements of electric consumption.

The plan must include a schedule for determining the cost-benefit relation of peakload rates for all customer classes. In 1978, the New Hampshire Legislature mandated that utilities offer load management options.

Surprisingly, the concepts are not new. The United Illuminating Co., has offered a small time-of-day rate incentive since 1941 and presently serves about 50,000 Connecticut customers who are on the rate schedule.

#### TIME-OF-DAY

Time-of-day (TOD) pricing proposals usually involve the division of the day into two or three periods and the assignment of different prices to consumption in each of those periods. In theory, each hour could have a different price, but as a practical matter it is most feasible to

use a two-part (peak and off-peak) or three-part (peak, intermediate, which is often called "shoulder" and off-peak) rate. This rate structure can also be varied with the seasons to reflect the different system characteristics in winter and summer. It can be further modified for weekends and holidays. Its implementation requires a two-or-three-register meter and a timing device which in the short run are likely to cost substantially more than the price of a conventional meter for residential service.

Since the demand for electricity fluctuates on an hourly, seasonal and daily basis, interest in TOD pricing derives from the premise that if the load to be supplied had less daily and seasonal fluctuation, then the same amount of energy could be supplied with fewer facilities and with more efficient utilization of these facilities. The potential savings are of two types, namely a savings in fixed costs associated with facilities which will not have to be installed and a saving in variable costs which results principally from fuel savings obtained by using more efficient generating equipment. Such potential savings must be balanced against any added costs for meters, billing systems and customer services required for administration of a TOD rate.

The unique feature of TOD is its total reliance on customer responses to the time-differentiated price signals. It is important to note that in rate designs, such as that used by Connecticut Light and Power, customers must use 65 to 70 percent of their electricity during off-peak hours to benefit. Georgia P. & L. estimated participants in their TOD program saved an average of 7 percent during the year.

In most cases studied, residential TOD rates were offered on a voluntary basis. However, in five experimental programs, one each in Arkansas, Wisconsin, North Carolina, Rhode Island, and California, participation was at least in part mandatory. Customers usually were given the option of paying either a TOD rate bill or the regular rate, whichever was lowest. Appendix 6.1 will provide an overview of selected TOD activities by State.

#### INTERRUPTIBLE SERVICE

The second major type of electric load management removes the customer from the load management decision process once the customer agrees to participate in a program. This can be accomplished through the use of a utility-activated load control device which is usually attached to the customer's heating system, cooling system, or electric hot water heater. Another method uses an automatic time-controlled device which turns the customers' units on and off on a programmed schedule.

The single most important feature of this type of control is its certainty in reducing peakloads since either the utility is in control or the control device is automatic. By participating in this type of program, a customer may benefit through special utility rates or utility bill credits. The state-of-the-art in this field is quickly reaching the point where little discomfort or inconvenience is experienced by the customer, since the length of time the unit is switched off has been reduced. This is usually accomplished through cycling the controls on a systemwide basis (for example, 7 minutes off per hour or per quarter hour). Another breakthrough has occurred with the development of indoor temperature-sensitive systems which automatically respond by using a "smart

thermostat." The Pacific Gas & Electric Co., in San Francisco, Calif., is one example of a utility using this kind of comfort-control system to reduce peak demand.

## SELECTED UTILITY LOAD CONTROL PROGRAMS

State and utility (appliance, control device, number of customers)	Customer incentive	Program budget	Device and installation cost
Arkansas: Arkansas Power & Light Co.: Air-conditioner radio control, 6,000	-----	-----	\$90. 00-
California: Pacific Gas & Electric: Air-conditioner radio control, 30,000 (experimental)	\$5 per month, 5 summer months	(1)-----	120. 00-
Water heater radio control, 6,500 (experimental)	-----do-----	(1)-----	120. 00
Georgia: Cobb County Electrical Membership Corp.: Air-conditioner radio control, 11,000	\$21 credit (1 time)	\$500,000 (for 1st 5,000 customers).	100. 00-
Water heater radio control, 1,200	\$5.50 credit (1 time)	(1)-----	100. 00
Georgia Power Co.: Air-conditioner thermostatic control, 300 (experimental, completed)	\$5 per/ton, 4 mo.	\$297,239	(1)
Michigan: Detroit Edison: Water heater radio control, 199,000	Special rate	Program not separately administered.	100. 00-
Vermont: Washington Electric Cooperative, Inc.: Water heater timer, 829 (as of January 1978)	\$2 per month	(1)-----	83. 85-

<sup>1</sup> Not available.

Note: Please see app. 6.2 for additional program summaries.

Interruptible service has been available for years for large industrial users but offering residential customers the option is now also becoming popular. At Detroit Edison the option advanced beyond the experimental stage long ago and they now have 195,000 residential customers using radio-controlled hot water heaters. Their program originated in 1934 as a promotional venture to entice customers to buy electric rather than gas hot water heaters. The special rate for controlled water heater customers is 2.76 cents per kilowatt-hour rather than 3.95 cents per kilowatt-hour. In Ohio, the Buckeye Power Co. is offering load control devices to 35,000 of its space heating customers.

Another utility, Pacific Gas & Electric, experimentally controlled the air conditioners of 500 customers who were stratified both by income and housing age. They found 80-percent customer acceptance with no correlation between level of satisfaction and income. The program was a marginal financial success, with load management costs lower than estimated new construction prices. They felt the program needed further study to determine the long-term costs, maintenance, and customer satisfaction. They also pointed out radio-controlled units may compete with other nearby utilities sharing the limited radio frequency.

On the State level, public regulatory commissions are pursuing interruptible rate programs aggressively. For example, in January 1979, the California PUC ordered the State's five largest electric utilities to conduct a 44-month air conditioner and water heater control test. They estimate 246,000 consumers will participate, and the full evaluation of the program may result in an interruptible system option for all customers. Another example is in Wisconsin, where the public service commission (proceeding 6630-CF-12) just authorized the Wisconsin Electric Power Co. to purchase 150,000 load control units.

Some of the interruptible load management innovators are the small rural co-ops. For example, Cobb County Cooperative in Georgia (31,000 customers) now has 11,000 of their customers using radio controlled air-conditioners and 1,200 on interruptible water heaters. In its third year (1978), they were able to refund the air-conditioner participants \$21 and water heater customers \$5.50. The payments represent the savings the co-op earned by reducing their peak summer load purchases from the nearby Georgia Power Co. Between 1 to 7 p.m., air-conditioner service is interrupted 7 minutes every 20 minutes. During their first year they saved \$1.1 million with a capital investment of only \$955,000. They proudly boast of a payback period of only 10 months.

Washington Electric Co-operative, Inc., in Vermont, was able to increase its load factor 3.38 percent by installing automatic timer switches on their customers' 80-gallon-plus electric hot water heaters. The switches turned off the heaters between 6 to 10 p.m., the peakload hours. Although the co-ops situation is unique, in another Vermont report, rate engineers and economists estimate that a 1-percent increase in load factor is equivalent in revenue to a corresponding 2-percent rate increase.

An additional savings which this small utility (3,897 residential accounts) has discovered by reducing peak power demand is the reduction of the loss of energy which results when wires are loaded to capacity. The energy is lost due to the friction which is forcing electrical energy over relatively heavily loaded lines. The loss is in the form of conversion of energy from electrical to heat. They estimated line loss savings at \$1.04 per timer. This was the only report studied that included line loss savings in their savings estimates.<sup>1</sup>

## B. FEDERAL INVOLVEMENT

The Federal Government has become involved in developing TOD programs through the Department of Energy. At least 16 experimental programs have been cofunded by the DOE in 15 States, including Ohio (appendix 6.4). The overall objective of the experiments has been to advance the knowledge of load management technology. For example, the purpose of the Connecticut test was to determine the load characteristics of residential customers purchasing electricity under TOD, to measure the effect of rates on conservation, and to determine whether major appliance usage was deferred, thus inadvertently creating new "peaks" during the cheaper hours. The Arizona project (incomplete) developed 32 test TOD rates to measure customer use patterns under various price incentives and hours. In Vermont, six rate designs were used to test customer acceptance, response, cost, and the impact of the rates on utility revenues, load patterns, and cost. The Ohio study, in addition to testing local management technologies, sought to develop computer codes necessary to process the large quantities of data and to derive the cumulative probability under which the system will exceed certain load levels at specific time periods.

The Department of Energy has released some initial findings concerning TOD demonstration projects completed in six states. They have concluded that:<sup>2</sup>

<sup>1</sup> Vermont Public Service Board and Green Mountain Power Corp., "Investigations Into the Effects of Rate Structure on Customer Electric Usage Patterns," March 1977, p. 5.

<sup>2</sup> DOE "Electric Utility Rate Demonstration Programs Fact Sheet," November 1977, p. 2.



Customers have responded "significantly" to changes in electricity prices at all hours of the day, including peak periods.

Peak period kilowatt-hour price elasticity (that is responsiveness) appears to exceed off-peak elasticity.

TOD rates reduce residential customer peak demands even on the hottest days of the year.

Customer attitudes toward TOD rates have been "decidedly positive."

Congress has recently passed legislation requiring "to the maximum extent possible" the identification by State regulatory authorities of daily and seasonal differentiated time-of-use costs incurred by utilities in serving each customer class.

If the long-run benefits to the electric utilities of TOD appear to exceed metering and other costs associated with the rates, then the regulatory agencies can be expected to require utilities to offer TOD rates to its customers. This Federal mandate is actually an extension of the type of utility regulatory activity which has taken place during the past 5 years in many States.

A recently completed study (commissioned by the Nuclear Regulatory Commission and conducted by the Center for Natural Areas) surveyed the State power regulatory commissions nationwide to determine the decisionmaking factors used by each State in considering the long-run need for power and new generating facilities. Over half (55 percent) take into account the extent to which conservation would reduce demand for electric power. One-third of the States are presently giving prime consideration to the potential for reducing peak power requirements through peak load pricing and load management. Alternate energy sources such as solar, geothermal or cogeneration of energy are considered as having primary importance in 25 percent of the States.<sup>3</sup> These concerns have already been reflected in many rate hearings and commission orders; they soon will become procedural requirements for all rate hearings as a result of the National Energy Act.

### C. POTENTIAL BENEFITS AND FACTORS AFFECTING CONSUMER BEHAVIOR

The advantage of TOD is its potential for redistributing existing energy use patterns into a more efficient form, thereby retarding the need for additional generating capacity. If pricing differentials in these experiments or programs result in significant consumer shifts of usage to off-peak hours, this will become a viable means for increasing plant capacity without building costly new facilities. If, however, customers choose to pay the premium price, for example during a very hot day when they turn on their air conditioners, then the advantages to both the utility and customer are eliminated, since a utility's total generating capacity is determined by the peak demand placed on the system.

The particular climate of the utility service area is an important consideration which affects consumer behavior. Several studies have indicated customer usage patterns correlate with the climate more than with other factors. Electric air conditioners used during the

<sup>3</sup> John B. Hemphell and Stephen N. Solomon, "State Determination of the Need for Power," *Public Utilities Fortnightly*, Aug. 3, 1973, pp. 25-29.

summer or electric space heaters used during the winter affect total system loads significantly, especially during weather extremes. This results in a lower annual load factor which should be compensated for in the rate structure.

Wisconsin Power & Light, for example, recently DOUBLED the summer rate for residential customers. Those who consume over 500 kilowatt-hours per month will now compensate for the cost of the seasonal peak service. This rate structure attempts to fairly charge those customers for the true cost of providing service and also acts as a proper price signal. Some rate analysts argue that system load factor should be the principal objective in determining price structure.

The "price signal" of the on/off peak kilowatt-hour charges becomes more clear when seen as a ratio. For example, the United Illuminating Co. of Connecticut TOD option employs a very small differential between peak and off-peak rates. It is not surprising, therefore, that a recent study of their rates concluded that usage patterns were 75 to 95 percent dependent on weather variations, not on-peak-load pricing. A higher ratio (perhaps 4 to 1) might well have provided a stronger consumer incentive to shift.

From the consumer's point of view, the savings incurred through time-of-day rates must be sufficient to convince households that their efforts to change consumption habits will be worthwhile. This evaluation of effort versus savings needs to be weighed very carefully and may actually call for some type of technical assistance from the utility. The application form used by Northeast Utilities Co. in Connecticut will give some idea of the type of information necessary to make an educated decision concerning the savings potential for a household considering TOD (see appendix 6.5).

A chart from the Northeast Utilities Co. illustrates "typical" savings achieved by shifting the use of certain electrical appliances. Again, these savings are dependent on utility characteristics, customer characteristics, climate variations, plus the rate design itself. The results of a 2-year study by the Georgia Power Co. estimated TOD customers reduced their bills an average of 7 percent.

Once a customer has decided to transfer to a TOD rate schedule the design of the schedule itself becomes significant in determining energy consumption behavior patterns.

It is important when comparing TOD with standard residential rates to include all company charges in the equation. Time-of-day service charges are generally higher than regular service charges, and in some cases there is an additional surcharge for the cost of the special meter. The result may be that the effect of the rate differential between peak and off-peak hours is negated by the effect of service charges and other fixed costs. In other cases, the very complexity of the rate structure tends to overwhelm the consumer and obscures any economic advantage the consumer might gain from exercising restraint during peak hours.

Finally, the decision to take advantage of the cheaper off-peak rates is affected by the ever-increasing cost of energy which should make the savings more attractive to those attempting to control those costs. (Rising costs will also affect those citizens experimenting with solar energy systems. See appendix 6.6 for an overview of solar energy systems and the necessity for time-of-day rate schedules for those customers.) The following chart shows some examples of rate designs which indicate possible approaches to time-of-day rate alternatives.

## SELECTED EXAMPLES OF TIME-OF-DAY RATES

NOTE: The following rates all apply to monthly utility charges for electric service. Unless otherwise noted, all on-peak hours apply only Mondays through Fridays, excluding holidays. Off-peak rates apply to all other hours.

All rates include a fuel adjustment clause (which allows a utility to pass on fuel increases or decreases automatically). Minimum participation is 1 year.

## SELECTED EXAMPLES OF TIME-OF-DAY RATES

State, utility and on-peak hours	On-peak cents per kilowatt-hour	Off-peak cents per kilowatt-hour	Service charge	Peak/off-peak ratio	Comments
<b>Connecticut:</b>					
United Illuminating Co.: 7 a.m. to 11 p.m.	4.384	3.274	\$6.50	1.33/1	August 12, 1978, rate E-2.
Connecticut Light & Power: 8 a.m. to 8 p.m.	5.60	2.60	6.82	2.15/1	December 28, 1977, rate 7.
The Hartford Electric Light Co.: 8 a.m. to 8 p.m.	5.60	2.60	6.82	2.15/1	December 28, 1977, rate 7.
<b>Illinois: Commonwealth Edison Co.:</b>					
8 a.m. to 9 p.m., June-August.....	9.00	1.40	4.00	4.06/1	September 15, 1978. This is an example of 1 of 6 experimental TOD rates at Con. Ed.
8 a.m. to 9 p.m., September-May.....	7.32	1.40	4.00	5.23/1	Rate 1E1.
<b>Massachusetts: Massachusetts Electric Co.:</b>					
8 a.m. to 9 p.m., July-October.....	6.158	1.116	6.50	5.5/1	March 1, 1979, rate A-30, TOD metering charge \$2.30 without electric water heater controls; \$3.60 with water heater controls.
8 a.m. November-June.....	5.450	1.116	6.50	4.8/1	
<b>Montana: Montana-Dakota Utilities Co.:</b> 11 a.m. to 8 p.m.	6.9	1.25	4.50	5.5/1	September 15, 1977, rate 16-M, customer purchases the TOD meter. No fuel clause.
<b>New Hampshire:</b>					
<b>New Hampshire Electric Co.:</b>					
7 a.m. to noon, 3 p.m. to 8 p.m., July-September.	6.00	2.00	6.80	2/1	Application filed.
Noon to 3 p.m., 8 p.m. to 7 a.m., October-June.	4.00	2.00	6.80	2/1	
<b>Public Service Electric &amp; Gas Co.:</b>					
Noon to 10 p.m., June-October.....	13.28	2.50	6.10	5.3/1	June 1, 1978, rate RST.
Noon to 10 p.m., November-May.....	7.48	2.50	6.10	3/1	
<b>North Dakota: Northern States Power Co.:</b>					
9 a.m. to 9 p.m.	7.01	2.34	7.55	3/1	Application filed Sept. 26, 1978. 2 percent surcharge in most zones. Proposed revenue recovery clause; for each 0.001 cent kilowatt-hour loss of revenue due to TOD rate each monthly bill will include a 0.001 cent kilowatt-hour charge.
<b>Ohio: Dayton Power &amp; Light Co.:</b>					
Noon to 6 p.m., June 15 to Sept. 15.....	9.1	1.4	6.00	6.50/1	Experimental program.
Noon to 6 p.m., Sept. 16 to Nov. 14.....	4.1	1.4	6.00	2.93/1	
1 p.m. to 7 p.m., Nov. 15 to Feb. 15.....	9.1	1.4	6.00	6.50/1	
1 p.m. to 7 p.m., Feb. 16 to June 14.....	4.1	1.4	6.00	2.93/1	
<b>Virginia: Virginia Electric &amp; Power Co.:</b>					
9 a.m. to 9 p.m.	2.39	1.50	11.50	1.60/1	Jan. 1, 1978, rate schedule No. 1P.
<b>Wisconsin:</b>					
<b>Wisconsin Public Service Corp.:</b>					
9 a.m. to noon, 1 p.m. to 4 p.m., October-May.	14.50	1.81	2.75	8/1	Dec. 27, 1978, experimental schedule Rg-EU3. This is an example of 1 of 12 experimental rates.
9 a.m. to noon, 1 p.m. to 8 p.m., October-May	12.49	1.56	2.75	6.9/1	
<b>Wisconsin Electric Power Co.:</b>					
7 a.m. to 7 p.m., July-October.....	8.20	1.30	5.00	6.3/1	Jan 5, 1978, rate RJ2.
7 a.m. to 7 p.m., November-June.....	5.20	1.30	5.00	4/1	

1 Noon to 1 p.m., 4 p.m. to 9 a.m.

2 Noon to 5 p.m., 8 p.m. to 9 a.m.

*Typical savings with TOD rate by shifting use of electric appliances*

(Taken from Northeast Utilities TOD information sheet)

	<i>Typical savings (monthly)</i>
Examples of shift:	
Time-control on water heater means that 90 percent of water heating use off-peak (normal use: 54 percent)-----	\$3. 10'
Electric dryer use is 100 percent off-peak (normal use: 20 percent)---	. 90'
Dishwasher use is 100 percent off-peak (normal use: 50 percent)-----	. 30'
Bedroom air-conditioner use is 100 percent off-peak (normal use: 60 percent)-----	<sup>1</sup> 1. 20'
90 percent of air-conditioner use in other rooms is off-peak (normal use: 40 percent)-----	1. 90'
80 percent of lighting use is off-peak (normal use: 48 percent)-----	. 40'
80 percent of color TV use is off-peak (normal use: 65 percent)-----	. 15
90 percent of cooking use is off-peak (normal use: 30 percent)-----	. 90
	<i>Cost difference (yearly)</i>
Electric resistance heat:	
60 percent of use off-peak (additional cost of)-----	\$20
75 percent of use off-peak (saving of)-----	49'
85 percent of use off-peak (saving of)-----	94
Central air-conditioner:	
65 percent of use off-peak (saving of)-----	. 25'
90 percent of use off-peak (saving of)-----	\$10'

<sup>1</sup> Per unit.

NOTE.—The above are estimates only and reflect estimates which apply to Northeast Utility rates and other local factors.

## D. OBSERVATIONS AND RECOMMENDATIONS

## TECHNICAL ASSISTANCE

The ability of the poor, elderly, and handicapped to save money by using an alternative time-of-day (TOD) schedule depends very much on the specific customer. In general, low-quantity electric users will not save money when the increased service charge, cost of the more expensive meter, and their daily patterns of energy usage are all factored in. It is critical, therefore, that these low-income consumers have help in determining whether or not they will benefit and whether or not they should participate. TOD rate options include a 1-year service contract which would exacerbate a poor family's already difficult financial situation if they found either that their bills were higher or that they had to take extreme measures in load shifting in order to break even.

Marketing programs undertaken by utilities to sell the TOD concept should therefore be accompanied by a provision of sufficient technical assistance to the consumer to insure the protection of the consumer against unrealistic expectations. Customer savings will be the prime utility sales pitch and may attract those with the greatest need to save rather than those with the greatest ability to save. A detailed application form such as the one used by Northeast Utilities (see appendix 6.5), which can then be analyzed by an energy management expert may well help customers avoid miscalculations.

## MAKING TOD AVAILABLE TO LARGE USERS FIRST

Since time-of-day rates are relatively new in Ohio, the utilities that offer TOD options will probably pursue large volume-customers first. This would maximize the load shift per customer and allow utilities to maintain a more stable revenue structure while building a solid

data base of customer response to price signals. Several State regulatory commissions have approached the TOD rate change option by requiring the utilities to first make the rates available to large users. This more restrained approach is likely to benefit both the utility and the customer.

#### COMBINED WEATHERIZATION, LOAD MANAGEMENT, AND CONSERVATION DATA BASE

In response to the requirements of the National Energy Act, utilities will become increasingly involved in both load management and energy audit (weatherization) activities. It might be advantageous at the beginning stages of these activities to combine the data-base gathering for both. This would result in a more comprehensive understanding by the consumer of the alternate choices available to save money on energy.

As important, though, would be the increased information available to both utilities and utility regulators in determining cost-of-service rate designs. Instead of having utilities spend customer money twice to gather the information, a single complete energy management audit might be more economical. Since both time-of-use and weatherization audits are customer- and area-specific, the utility is the proper implementor of the audits.

It may be important to pursue this concept now before the two programs grow separately. Legislation might be required, since it is very likely that gas companies will be more involved in weatherization energy audits and electric utilities in load management. This would require a cooperative effort including sharing of costs and technical expertise in those areas of the State with separate gas and electric utilities.

#### SIMPLIFIED BILLING DESIGN

Utility bills can be difficult to understand. If TOD rates are implemented, bills sometimes become even less understandable. Yet a bill is the price signal which each consumer must rely upon in making energy use decisions. In the Ohio TOD experiment by the Dayton Power and Light Co., the initial bill was actually hand-delivered so that it could be explained to the customer. At the conclusion of the study, it was clear to the company that many participants still did not have a firm grasp on why there is a TOD price differential. For the sake of simplicity, Massachusetts Electric Co. rejected a three-part TOD pricing schedule and said that:

\* \* \* the optional (TOD) rate is more easily understood by the customer when listing only on/off time periods rather than a three-period rate including shoulder-period hours. The two-period rate is not only less complicated for the customer but it also involves significantly less meter reading and billing considerations.

We conclude that residential load management is just now about to come into its own. Rising energy prices plus new technology have several results:

The incentive for consumers to manage their energy usage so as to minimize cost is rising.

The ability of consumers to manage their energy use is increasing rapidly and promises to increase further as smart thermostats, digital meters, and other devices become more available.

The climate for consumers to accept the need for load management appears to be changing rapidly, particularly in some parts of the country.

We suggest however that both TOD and load management are only a part of the larger picture. The objective is the efficient use of energy for residential purposes. The need is to accelerate the process by which households learn to use energy wisely and economically. Load management is only one aspect of wise, or economical, or efficient use of residential energy. The more efficient households become as energy managers, the more able they will be to respond to and deal with suitable load management incentives.

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APPENDIX 1.1

Telephone Directory (Sample of State Entry)

CALIFORNIA

Sacramento (916)

Office of Legislative Council	445-2781
Legislature Bill Room	445-2323
Dept. of Aging (Director of Health and Welfare Agency)	322-5290
Energy Resources Conservation and Development Commission (Chairman)	322-3690
Public Utilities Commission	(415)557-0647
Rate Department	(415)557-3929

## APPENDIX 1.2

Telephone Interview Protocol

"The Institute of Urban Studies at Cleveland State University is conducting an overview survey of alternative energy assistance programs and pricing policies designed to assist the disabled, the elderly, and other low income persons.

The Institute is seeking information about how each state, through their regulatory agencies and legislatures, is responding to the problems created for the poor and elderly by rising energy costs through their current regulatory actions and alternative programs now under consideration."

Program Initiation

Initial motivation for the program  
 Specific law or regulation authorizing the program  
 Length of program authorization; length of program existence  
 Target population
 

- a. estimated population which is eligible
- b. estimated population participating

 Eligibility requirements

Program Implementation

Cost/Funding level and source  
 Administration of program

Program Evaluation

Strong points of the program  
 Problems/barriers since the start of the program  
 Future plans concerning the program  
 Pertinent documents (bills, rate design orders, tariff sheets)

Contact/Information Source

Name, Title, Phone, Address, Date

Possible References to Other Information Sources

Name, Title, Phone, Program

Request for Information

Send to: Prof. Edric A. Weld, Jr., Director of Research  
 Institute of Urban Studies, Cleveland State University  
 Cleveland, Ohio 44115  
 Tel.: (216) 687-2140

APPENDIX 1.3

Telephone Contact Sheet

PROGRAM: \_\_\_\_\_

RESEARCHER: \_\_\_\_\_

SOURCE:  
NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

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CALLED BY: \_\_\_\_\_

Format for Program Description

I. Program Description

Summary  
 Establishment  
 Legislative History  
 History of Program Evolution  
 Services Offered  
 Target Population  
 Eligibility Criteria  
 Provisions for Evaluation

II. Program Implementation and Operation

Promotion and Marketing  
 Selection of Recipients  
 Percent of Potential Target Population  
 Delivery of Benefits  
 Financing and Costs  
 Management and Staffing, Administrative Cost  
 Quality Control

III. Other Issues

Evaluation, internal and external  
 Problems, advantages  
 Future Plans

IV. Sources of Information

Name and Title  
 Address, telephone  
 Date of contact

V. Documentation

Notes:

- a. The above format is designed primarily for use in describing energy assistance programs or proposals and must be modified slightly for use in describing pricing policies.
- b. All of the points listed above will not apply to every program, nor will information be available on all relevant points for every program. Many descriptions, therefore, may actually be shorter than would be indicated from the complexity of the above outline.
- c. Each description will be sent in draft form to the person primarily responsible for supplying the information, with a request that the draft be checked for accuracy and that omissions be filled in. (Note that it proved impossible to carry out this step due to time and budget restrictions.)

APPENDIX 1.5Information about Rate Programs to be requested from Public Service Commissions

1. Tariff Sheets: These are the rate schedules which list the charges to the various class customers for electricity. There are usually 3 classes: residential, commercial, and industrial. These may be further subdivided. What we need to know are:

1. Old rates (for comparison)
2. New rates

If the Public Service Commission has ruled that there be a change in the distribution of rate charges (for example, to "freeze" the first block of K.W.H. in the residential rate and to make up that revenue by charging more to the industrial class) then it is important to get both the residential and industrial class rates so we can see the effect of that shift in rate charges. If many different rates are set in a particular utility's rate hearing, ask for a "typical" set of rates.

2. Public Service (or Utility) Commission's Orders: These are the official rulings by the commission, sometimes called "Findings of Fact, Conclusions of Law and Order." They often summarize the testimony of the actual rate hearing, and give the commission's justification for setting the rates where they did.
3. Proposed Rate Designs: Which were requested by the Public Service Commissions to the utility:

These special studies require the utility to design rate schedules which may reflect lifeline concepts, weighted cost of service concepts, etc. The designs may or may not be accepted by the Public Service Commissions, but are an important tool for the Commission in its decision-making process.

4. Testimony: Some Public Service Commissions may have copies of valuable testimony from their rate hearings which reflect the factors which the commissions considered in setting the rates.

A commission usually decides three things:

1. Overall revenue requirements of the utility
2. Allowable profit margin for the utility
3. The distribution of charges by rate class to cover the revenue and profit requirements

5. Court Cases: Rate cases have been taken to the courts, both at the State and Federal level. Some of the decisions are "landmark decisions" and should be included in our documentation.

6. State Legislation: Some State General Assemblies have passed laws requiring the Public Service Commissions to take certain actions. For example, in California it was the legislators who mandated a lifeline rate schedule for the residential class of users.

7. Special Utility Experiments: Many utilities are presently conducting special experiments in load management techniques like time-of-day pricing, energy storage, interruptible service. Copies of the programs and, especially, the evaluation of the programs should be sought.



APPENDICES TO CHAPTER IIDirect Financial Assistance to the Poor and the ElderlySpecific Programs

	<u>Page</u>
List of Individual Programs Surveyed.....	A.10
Program Descriptions.....	A.11

Direct Financial Assistance to the Poor and the ElderlyList of Individual Programs Surveyed

<u>State</u>	<u>Program</u>	<u>Page</u>
Colorado	Heating Expense Tax Credit, H.B. 1075.....	A.12
	Heating Expense Tax Credit, H.B. 1467	
Connecticut	Low Income Fuel Assistance Programs .....	A.14
	Supplementary Emergency Fuel Aid Program, 1978	
Florida	Proposed Energy Stamp Program .....	A.16
Indiana	Utility Bill Adjustment	
	Proposed Emergency Energy Assistance.....	A.20
Kentucky	Energy Cost Assistance Program, S.B. 279 .....	A.24
Michigan	One Year Energy Assistance Program, H.B. 4371 .....	A.27
	Lifeline Home Heating Program .....	A.31
	Lifeline Tax Credit Program, H.B. 4142 .....	A.33
Missouri	Energy Stamp Proposal, H.B. 95.....	A.36
New Jersey	Energy Relief Fund Proposal, S.B. 859; 860 .....	A.39
Oregon	Elderly Utility Rate Relief Program, H.B. 3007	A.42
Pennsylvania	Project HELP, (Fuel Stamp Program, 1975).....	A.44
	Utility Service Credit, S.B. 1603.....	A.46
	Fuel Assistance Program, 1978-1979 .....	A.48
West Virginia	Lifeline Legislation, S.B. 152.....	A.49
Wisconsin	Emergency Fuel and Utilities Assistance Program, 1978	A.50
Wyoming	A-65 Warrant Program.....	A.51

NOTE: Program descriptions are available for those individual programs for which page numbers are indicated.

## COLORADO

PROGRAM: Heating Expense Tax Credit (HB 1075)

This bill, which was indefinitely postponed in the Legislature, would have provided a tax credit or refund to offset the heating expenses of low income elderly residents. Administration was to be carried out by the Department of Revenue, with funds drawn from the State Treasury.

I. DESCRIPTION

A. Establishment: Although postponed indefinitely, this bill would have provided for a taxpayer credit or refund to offset the heating expenses of permanent residences.

1. It was to have become effective on July 1, 1978 and to apply to taxable years on or after January 1, 1978.
2. The General Assembly declared it to have been "a necessity for the immediate preservation of the public peace, health, and safety."

B. Eligibility Requirements: The following provisions must apply for the entire taxable year:

1. Age of head of household must be 65 or older (or surviving spouse of 58 or older)
  - . or certifiably disabled head of household of any age
2. Residency within the state must be for entire taxable year
3. Income from all sources cannot exceed:
  - . \$7,300 - single persons
  - . \$8,300 - married couples

- C. Administration: The executive director of the Department of Revenue shall have full responsibility to carry out the provisions of this Act.
- D. Procedure: The qualifying taxpayer must claim the refund on the income tax return form filed with the Department.
1. Individuals not having Colorado taxable income may claim the refund on such forms as may be provided by the executive director of the Department.
  2. All appropriate forms must be filed on or before the expiration of 24 months after the taxable year in which the credit or refund is claimed.
- E. Refund or Credit Amount: This shall be determined, not to exceed the amount of the heating expenses actually paid, according to the following formula:
1. Single = \$160 - 4% of income over \$3,300
  2. Married = \$160 - 4% of income over \$4,300
- F. Allocation: Funds shall be paid from the State reserve for refunds.

## II. SOURCE

Larry D. Thompson  
Legislative Council  
Room 46, State Capitol Building  
Denver, Colorado 80203  
Tel.: (303) 839-3521  
Date of contact: December 12, 1978

## III. DOCUMENTATION

House Bill 1075  
Colorado General Assembly  
LDO #78 0/01/1, 1978

## CONNECTICUT

PROGRAM: Low Income Fuel Assistance Programs

Four programs to provide financial assistance to low-income electric, gas, and oil consumers will be created. These programs will be administered separately by human services departments, with a total funding budget of over \$2.3 million.

I. DESCRIPTION

- A. Establishment: The State will provide one year grant assistance to low income gas, oil and electric consumers through these four programs:
1. One-time grants of up to \$250 to families at or below federal poverty levels.
    - a. Administration: Department of Social Services
    - b. Funding: \$1 million
  2. One-time grants (amount undisclosed) to families with incomes of up to 20% above federal poverty levels.
    - a. Administration: Department of Community Affairs
    - b. Funding: \$300,000
  3. Funded program (\$1 million) with distribution guidelines undecided as yet.
  4. Additional \$755,000 funding to state-administered Federal Energy Administration (FEA) emergency fuel aid programs.
    - a. Available to qualified 1977 applicants who applied after funds in the other three programs were exhausted.
    - b. Funds result from court challenge of FEA funding formula.

II. SOURCE

Nancy Pitblado  
Public Utilities Commission  
Hartford, Connecticut 06115  
Tel.: (203) 566-7882  
Date of Contact: October 17, 1978

III. DOCUMENTATION

"State Offers Utility Bill Aid"  
Michele Derus  
Connecticut News-Times  
November 14, 1978

PROGRAM: Proposed Energy Stamp Program

This program would provide assistance to low-income families for basic requirements of electrical energy. The utilization of certain federal programs and a "single voucher" system would cut costs and reduce fraud. Energy conservation would be encouraged because assistance would be limited to 600 KWH monthly electric usage.

I. DESCRIPTION

- A. Background: A task force of the Florida Governor's Petroleum Allocation and Energy Conservation Advisory Council had recognized the need for an Energy Stamp program with separate eligibility to be administered by the Division of Family Services.
1. This 1975 proposal, authored by the Florida Power Corporation was designed to reach the maximum number of needy households and minimize costs and time involved in implementation.
- B. Target Population: Between 73 percent and 88 percent of over 250,000 low-income families in Florida are receiving assistance through the federal Food Stamp and AFDC programs.
1. Considerable effort is expended to ascertain qualifying applicants and followed up to ensure continued eligibility in these programs.
  2. Both programs recognize monthly electric bills in their operation.

FLORIDA - 2  
(Proposed Energy Stamp Program)

- C. Provisions: The proposal provides that a monthly voucher be issued to all low-income households receiving AFDC and/or Food Stamps, and the vouchers would be redeemed by electric utilities for the amount of the customer's bill up to 600 KWH.
1. According to a Florida Power Company survey conducted in 1974, the maximum electric energy consumption possible while employing strict conservation measures is 600 KWH per month.
  2. One monthly voucher would be issued to each qualifying family by the Florida Division of Family Services.
    - a. Allowances for monthly electric bills, which are presently included in both Food Stamp and AFDC programs, would then be discontinued.
  3. The voucher would be stamped and presented, with cash if required, to the electric utility or municipal electric system as payment of the power bill.
  4. The utility would then present such vouchers for State reimbursement.
  5. In most cases the household will net less than 80 percent of their total monthly bill, and only households with the lowest incomes will receive 100 percent of their bill.



- D. Controls: Each qualifying customer would be given an identification number to aid the audit procedures.
1. Both the ID number and the actual amount of the bill would be stamped on the voucher.
  2. The value of the voucher would accurately reflect payment only for energy used.
- E. Cost: The Governor's Energy Conservation Council report (December 31, 1974) estimated that the program would cost approximately \$50 million in annual benefits under present conditions, and about \$3 million to administer.
- F. Funding: Application should be made immediately for federal revenue sharing funds, but if these are not obtained, State Legislature should consider this form of funding the highest priority in the coming session.

## II. ASSESSMENT

### A. Advantages:

1. Since each household knows its specific amount of maximum assistance, energy consumption exceeding this amount will be costly to the consumer and energy conservation will be encouraged.
2. The theft factor found in most stamp programs is eliminated since there is no issuance of stamps or other negotiable paper.

FLORIDA - 4  
(Proposed Energy Stamp Program)

3. Administrative costs are considerably reduced because  
the State can automatically provide the voucher to all  
eligible recipients of the AFDC and/or Food Stamp programs.

IV. SOURCE

Brock Lucas  
Public Information  
Florida Power Company  
Clearwater, Florida 33733  
Tel: (813) 866-4376  
Date of Contact: October 23, 1978

V. DOCUMENTATION

Florida Energy Stamp Program, A Proposal  
Florida Power Corporation  
February, 1975

## INDIANA

PROGRAM: Proposed Emergency Assistance Project

The Indiana Community Service Administration has proposed a three-phase emergency energy assistance program for low and middle income residents. Project goals are to reduce the impact of energy costs through adjusting fuel bills, providing one-time emergency assistance to low-income persons, and encouraging energy conservation with weatherization and educational programs.

I. DESCRIPTION

A. Phase I - Utility Bill Adjustment

1. Eligible households will have their primary and secondary heating fuel bill selectively adjusted by the utility as follows:

<u>Eligibility</u>	<u>Heating Bill Reduction</u>
Head is 65 years or older with income at or below state median	up to 30%
Income below 125% of federal poverty guidelines	up to 30%
Income at or below state median	up to 15%

2. An estimated 250,000 customers will participate.
3. The utility bill adjustment will be determined according to program guidelines and forwarded to each fuel supplier.
4. The fuel supplier/utility will receive a tax deduction from their quarterly Indiana sales tax which is equal to the total fuel cost adjustment given to households plus a negotiated administrative fee.

5. The estimated cost for Phase I is \$25 million and will be paid with a 4% sales tax revenue from utilities and fuel suppliers.

B. Phase II - Part A: Emergency Energy Assistance

1. One-time emergency assistance will include:
  - . payment of overdue fuel bills
  - . emergency housing, food, clothing, transportation
  - . thawing frozen water lines
2. Household income must be at or below 125% of the federal poverty guidelines.
  - . maximum assistance is \$250
  - . payment is directly to the vendor
  - . the estimated cost for Phase II is from \$7 million for 1979, federal funds

C. Phase II - Part B: Weatherization

1. The dwellings of those households whose income is at or below 125% of federal poverty guidelines will be eligible for approximately \$700 worth of home weatherization improvements.
2. Priority consideration will be given to eligible elderly and handicapped residents.
3. Department of Energy and Community Services Administration funding is estimated at \$4 million for 1978-79.
4. HUD, FHA, and Neighborhood Assistance Programs will be additional sources of funding.

D. Phase III - Consumer Education and Awareness

1. Eligible household members under Phase I and Phase II will be provided information regarding energy conservation techniques as well as financial counseling appropriate to their local needs.
2. This will be accomplished with extensive use of mass media:
  - . radio and TV public service announcements
  - . newspaper articles
  - . flyers, pamphlets, brochures
  - . residential energy audit check-list
  - . film and slide presentations
  - . community workshops
  - . in-home assistance by grantee trainers and out-reach personnel
3. Projected Customer Participation:
 

. Households receiving informational assistance	250,000
. Persons participating in work workshops	120,000
. Households receiving in-home assistance	10,000
4. Indiana's Office of Social Service may provide \$4.75 million for Phases I and III.\*
5. Community Service Administration, Department of Energy, Area Agencies on Aging will be additional sources of funding.

E. Administration: The Office of Community Services Administration (OCSA) will be the administering state agency.

1. Within this agency, a separate program unit will be established to operate the program and function as a clearinghouse for program activities.

2. Community Action Agencies (24) and their delegate agencies (4 area agencies and 1 municipal government) will contract for the delivery of energy assistance.
3. OCSA will be responsible for designating grantees who can effectively and efficiently deliver the services.

## II. SOURCE

Jean Merritt, Executive Director  
Office of Community Services Administration  
20 North Meridian Street  
Indianapolis, Indiana 46204  
Tel.: (317) 633-5488

## III. DOCUMENTATION

"Indiana Emergency Assistance Program" (Draft Copy)  
Office of Community Service Administration  
October 6, 1978

Phase III- Indiana Emergency Assistance Program  
Office of Community Service Administration  
December, 1978

Amendment IC 4-3-10  
Indiana Legislature  
Effective April 1, 1979

- \* NOTE: Subsequent information (December, 1978) indicates a funding level of \$961,138 is being sought from federal sources.

## KENTUCKY

PROGRAM: Energy Cost Assistance Program (SB 279)

The bill establishes a program to assist low income elderly and disabled households with high fuel bills during the winter months. Implementation, costing \$5 million for FY 1978-80, has begun by the Department of Human Resources with cooperation by other agencies and an extensive media campaign. Actual costs will be assessed each year, and payments adjusted accordingly.

I. DESCRIPTION

A. Establishment: Signed into law in 1978, this bill establishes a program to provide for heating cost assistance during the winter months for eligible low income elderly or disabled renters and homeowners.

1. Heating bills for the months of December through March will be adjusted.  
     . applications will be accepted until April 30

2. It has been estimated that there are over 64,000 eligible residents in the state.

B. Eligibility Criteria:

1. Age or disability: Recipient must be 62 years of age or older or be permanently and totally disabled or blind (or eligible for Medicaid or receiving SSI).
2. Income: A household must be at or below 125% of the poverty guidelines to qualify for the one-time payment, as follows:

<u>Payment</u>	<u>Monthly Household Income</u>
\$80 .....	Under \$197 for one person up to \$770 for 10 persons
\$60 .....	Under \$262 for one person up to \$1,027 for 10 persons
\$40 .....	Under \$328 for one person up to \$1,284 for 10 persons

- C. Funding: The program will provide \$5 million, drawn from general revenues, for each of the two fiscal periods from 1978-1980.
- D. Administration: The Department of Human Resources will administer the program with cooperative assistance from major utility companies and the Commissions on Aging and Community Action.

## II. OPERATION

### A. Delivery System:

1. To simplify the administration of the program, payment will be made by a two-party check if the household is a "continuous billing customer."
  - . Payment is made to the household, and not to the head of the household.
  - . The household endorses the check and forwards it to the utility company.
  - . This will avoid problems that occurred with SCIP in which federal funds to prevent utility shut-offs went to the states and agreements had to be signed with the utility company in every case.

### B. Marketing: An organized publicity campaign has begun, with extensive use of the media.

1. Brochures explaining the program operation and its guidelines have been printed and are being distributed to various agencies.
2. Special descriptive inserts will be included by the utilities in their regular customer mailings.



C. Future Adjustments: Participation costs have been projected, and assistance levels are reflective of these costs.

1. If the projection is not accurate at the end of the first year, payment will be adjusted in accord with the actual utilization of the plan so as to implement the plan as intended.

### III. SOURCE

Mr. Munson  
Center for Aging  
Bureau of Social Services  
Frankfort, Kentucky 40601  
Tel.: (502) 564-6930  
Date of Contact: October 13, 1978

Richard Heman  
Public Service Commission  
Frankfort, Kentucky 40601  
Tel.: (502) 564-3940  
Date of Contact: October 16, 1978

Debbie Smither  
Roy Butler  
Department for Human Resources  
275 East Min Street  
Frankfort, Kentucky 40601  
Tel.: (502) 564-7163 / 3556  
Date of Contact: October 16, 1978

### IV. DOCUMENTATION

Senate Bill 279  
Signed November 30, 1978

Kentucky News  
Department of Public Information  
November 30, 1978

## MICHIGAN

PROGRAM: One Year Energy Assistance Program, R.B. 4371

This energy assistance program provides that cost benefits for consumers be paid directly to their respective power company or energy provider. Low income households, especially the elderly, are eligible. Both home owners and renters are covered. The Department of Social Services administers the program.

I. DESCRIPTION

A. Establishment: Public Act Number 278 (Enrolled House Bill Number 4371) was signed into law on December 23, 1977 to take effect from January 15, 1978 to September 30, 1978.

B. Homeowner Eligibility/Assistance

1. Household: total (combined) income of:

Applicant	\$2,700
Additional residents	850 each
Payment =	\$ <u>130</u>

Applicant	\$3,700
Additional residents	1,200 each
Over 6 additional residents	800 each
Payment =	\$ <u>120</u>

2. Additional benefits: total (combined) income of:

Applicant	\$2,000	\$2,400	\$2,700	\$3,000
Additional residents	650	750	850	950
Over 6 additional residents	800	800	800	800
Payment =	\$ <u>70</u>	\$ <u>50</u>	\$ <u>30</u>	\$ <u>20</u>

3. Senior citizen assistance: one or two member households:

a. Income is between \$3,700 and \$7,000.

b. Payment = \$100

4. Total energy assistance (from all sources) cannot exceed \$200.

C. Renter Eligibility/Assistance

1. Electrical energy payment (when heat is included in rent):

Applicant	\$2,000	\$2,700	\$3,700
Additional residents	650	850	1,200
Over 6 additional residents	800	800	800
Payment =	\$ <u>160</u>	\$ <u>120</u>	\$ <u>80</u>

2. Senior Citizen Assistance: same eligibility as homeowners.

a. Payment = \$60

3. Total energy assistance (from all sources) cannot exceed \$160.

D. Revenue Recovery

- \$38,000,000 general fund appropriation, with \$950,000 included for administrative costs.
- Applicable federal funds are to be included.

II. IMPLEMENTATION

- A. Administration: Department of Social Services (DSS) administers and markets the program.

- DSS coordinates marketing through:
  - Area agencies on aging
  - County DSS offices
  - Energy providers (to their customers only)
  - Community service agencies

2. The DSS, with cooperation of the Department of Treasury, is responsible for income verification.

C. Method of Payment

1. Payment made to energy provider selected by DSS:
  - a. 90%: principle heating energy provider
  - b. 10%: electric energy provider
  - c. 100%: single source provided heat and electric

2. Payment made to energy provider not selected by DSS:

- a. Check sent to recipient requiring both recipient and energy provider endorsements

- D. Use of Payment: Energy provider shall accept issued check as payment on current statement, overdue account, or credit against future statements for these home heating fuels:

- . gas
- . electric
- . fuel oil
- . wood
- . coal
- . propane gas

III. ASSESSMENT

A. Future Plans

1. Energy providers are required to collect and furnish information regarding recipient's energy consumption which will be used to:
  - a. Identify high consuming households to be referred for participation in available weatherization and conservation programs.
  - b. Aid in structuring future energy programs.

## MICHIGAN

PROGRAM: Lifeline Tax Credit Program, H.B. 4142

This program allows a variable tax credit to be applied against State Income Tax by eligible home-heating consumers. Eligibility is based on income and household size, and the program is administered by the Michigan Department of Treasury.

I. DESCRIPTION

A. Establishment: September 28, 1978, the Michigan Legislature approved a home heating assistance program for low income households which allows a credit in the state income tax for home heating costs (House Bill No. 4142).

B. Eligibility: Income and size of household determine participation, according to the following table:

Exemptions:	1	2	3	4	5	6 or more
Credits:	\$200	\$240	\$280	\$310	\$340	\$370

1. The actual amount of rebate is reduced by 3.5% of household income, e.g. for a two person household.  
 $\$240 - (\$5,000 \times 3.5\%) = \$240 - \$175 = \$65$
2. Dependent students are ineligible
3. Recipients of General Assistance or Aid to Families with Dependent Children are ineligible
4. Only one credit may be claimed for a household
5. Renters are eligible for assistance

IV. SOURCE

Bob Nelson  
Deputy Director of Policy  
Public Service Commission  
123 West Allegan Rd., Suite 2  
Lansing, Michigan 48913  
Tel.: (517) 373-3240, ext. 0777  
Date of Contact: October 12, 1978

Judy Wells  
Legislative Service Bureau  
123 West Allegan Rd., Suite 2  
Lansing, Michigan 48913  
Tel.: (517) 373-0170  
Date of Contact: December 13, 1978

V. DOCUMENTATION

"Home Heating Assistance"  
Aging in Michigan, newsletter  
January, 1978

Public Act Number 278 (H.B. 4371)  
State of Michigan  
December 23, 1977

## MICHIGAN

PROGRAM: Lifeline Home Heating Program

This energy assistance program provides that cost benefits for consumers be paid directly to their respective power company. Eligibility is targeted to low income households, especially the elderly, and covers both home owners and renters. It is administered by the Department of Social Services.

I. PROGRAM DESCRIPTION:

- A. Establishment: Substitute House Bill #4371, passed into law, provides home heating cost assistance to eligible senior citizens and low income families.
- B. Eligibility: Households with one or two members in which one or both are age 65 years or older are eligible for some benefit if 1977 household income is \$7,000 or less. Other households must have 1977 incomes at or below the following range in order to qualify: from a low range of a one-person household with an income of \$3,700 or less to an open-ended high range of a seven or more person household with income of \$10,900 or more (\$800 added to qualifying income level for each person over seven).
- C. Services Offered: Payment to eligible applicants will be based on a sliding scale relating the total household income to the amount of assistance to be received.
- . The largest possible benefit will be \$200
  - . The minimum benefit will be \$60
- The actual payment will be made directly to the heating and/or electric power supplier.

- . Households who pay their own heating bills will receive a larger initial flat benefit and a second smaller benefit based on the amount of fuel consumed.
- . Households with heating energy included in the rent but who pay electric bills will receive a flat benefit amount for electrical usage.

II. PROGRAM OPERATION:

- A. Administration: The program will be administered by the Department of Social Services (DSS).
- . It is expected to be fully operational by the end of January, 1978.
- B. Promotion: An intensive outreach program is to be coordinated through county DSS offices and Area Agencies on Aging.

III. SOURCE: Bob Nelson  
Deputy Director of Policy  
Public Service Commission  
Tel.: (517) 373-3240 Ext. 0777  
Date of Contact: October 12, 1978

IV. DOCUMENTATION: "Home Heating Assistance"  
Aging in Michigan, newsletter  
January, 1978



II. OPERATION

- A. Administration: The Michigan Department of Treasury administers the program to decrease administrative costs.
- B. Cost: This program will cost the State of Michigan approximately \$38 million in the form of reduced tax revenues.
- C. Delivery of Benefits: If the allowable amount of the claim exceeds the State Income Tax due for the past year or if no tax is due, the amount of the claim not used as an offset against the State Income Tax will be paid directly to the claimant.
1. All fuel sources are covered by the tax credit.
  2. The total energy costs for one calendar year will be covered.
- D. Marketing: An amendment has been proposed to provide application forms and program information to:
1. Area Agencies on Aging
  2. County Offices of Social Services
  3. Community Action Agencies
  4. Utility companies may include program information with home heating bills

III. SOURCE

David A. Youngs  
Transportation/Energy Specialist  
Office of Services to the Aging  
Lansing, MI 48909  
Tel.: (517) 373-1343  
Date of Contact: October 6, 1978  
A.34

IV. DOCUMENTATION

Reprint Substitute for House Bill No. 4142  
State of Michigan  
June 15, 1978

Enrolled House Bill 4142 (Public Act 458)  
Michigan Legislature  
October 16, 1978

## MISSOURI

PROGRAM: Energy Stamp Proposal, SB 95

This bill would establish an energy stamp program to assist those persons unable to pay electric, gas, water, and sewer bills. Maximum assistance is limited to \$400/FY, and the program would be administered by DSS. Appropriation amounts and sources were not specified. It failed in Assembly.

I. DESCRIPTION

A. Establishment: This bill would establish an energy stamp program in the Department of Social Services (DSS) to assist those persons who may be unable to pay their utility bills.

1. It was pre-filed on December 1, 1978, but did not pass the Legislature.
2. The following utility corporations shall participate in the program:
  - . gas
  - . electricity
  - . sewer
  - . water

B. Eligibility: DSS shall determine what constitutes satisfactory proof of inability to afford the provisions of the service of the utility.

1. Authorization to purchase stamps shall be limited to:
  - . one person per household
  - . one authorization per year
2. Authorization requests shall be expeditiously processed to prevent termination of service.

C. Delivery System

1. Stamp design must be simple, and in such denominations as deemed necessary by DSS.
  - . face value must be in \$5 multiples
  - . purchase price must equal 1/3 of face value
  - . the date of purchase and the purchase price must be stamped on the authorization
2. Stamps may be purchased any time during the authorized fiscal year.
  - . for a maximum face value amount of \$400 for any authorized fiscal year
3. Stamps may be used as payment for services only to participating utility corporations.
  - . as a condition of doing business in the state, all gas, electric, water, and sewer corporations shall agree to participate in the program

D. Utility Reimbursement: Once monthly, an application for reimbursement may be presented to DSS, along with the cancelled energy stamps.

1. After auditing, a warrant equal to the entitled sum shall be granted to the corporation by the state treasurer.
2. Funds shall be appropriated for this purpose.

II. SOURCE

Lauren Hehmeyer  
Missouri State Library Information Services  
308 East High Street  
Jefferson City, Missouri 65101  
Tel.: (314) 751-2862  
Date of Contact: November 28, 1978

III. DOCUMENTATION

Senate Bill No. 95  
Missouri Legislature  
Pre-filed December 1, 1978

## NEW JERSEY

PROGRAM: Energy Relief Fund Proposal (SB 859; 860)

This bill mandates the establishment of an Energy Coupon Program administered to low-income families by the Board of Public Utilities, which is chiefly responsible for its structure and operation. Deficit funds are to be drawn from the Energy Relief Fund, created by SB 859, and are to be under the administration of the State Treasurer.

I. DESCRIPTION

- A. Establishment: Introduced on February 14, 1978 Senate Bill 860 would mandate the establishment of a state energy coupon program, to be funded through an Energy Relief Fund that is established by Senate Bill 859.
- B. Purpose: To provide families of modest means with the ability "to purchase the minimum amount of natural gas, oil, and electricity essential to their health and welfare at a time when costs of these necessities are rapidly escalating."
- C. Energy Coupon Program (SB 860)
1. Eligibility is limited to those heads of households whose incomes do not exceed 200 percent of the federally established poverty levels.
  2. Energy coupons are to be printed tickets or certificates issued by Board of Public Utilities (BPU) and sold by its designated agencies, such as:
    - . local and county aging offices
    - . welfare offices
    - . banks

NEW JERSEY - 2  
(Energy Relief Fund Proposal)

## 3. Administration shall be handled cooperatively between:

- . BPU, chief administrative responsibilities
- . State Treasurer, proceeds and disbursements

## 4. Discount amounts of coupons shall be determined on a sliding scale by the BPU:

- . correlating the percentage of discount to various ranges of eligible incomes
- . ascertaining the limits of available financial resources to implement provisions of the Act

## 5. Coupons shall be accepted at face value by:

- . all public utilities
- . all home heating oil suppliers and be redeemed at any bank.

D. Energy Relief Fund (SB 859)

## 1. The Fund shall be created through the passage of this Act, and half of the appropriations will be used for energy relief.

- . \$18,900,000 in the first year from a total amount of \$37,800,000

## 2. The Fund is financed by diverting 75% of the annual growth of the public utility tax revenue to the Fund.

## 3. The State Treasurer shall administer the energy relief funds as follows:

- . credit all receipts from coupon sales to the fund
- . make all disbursements to banks for redeemed coupons out of the Fund

NEW JERSEY - 3  
(Energy Relief Fund Proposal)

II. SOURCE

Chief Council  
Legislative Service Agency  
Trenton, New Jersey 08625  
Tel: (609) 292-4625  
Date of Contact: November 13, 1978

III. DOCUMENTATION

Senate Bill 860  
New Jersey Legislature  
Introduced February 14, 1978 (on file)

Senate Bill 859  
New Jersey Legislature  
Dated May 11, 1978 (on file)



## OREGON

PROGRAM: Elderly Utility Rate Relief Program (HB 3007)

The passage by the Oregon Legislature in 1977 of HB 3007 provides for an across-the-board \$50 refund in 1977 and 1978 to those low income elderly taxpayers who have filed for HARRP refunds. Seven million dollars from the General Fund has been appropriated to the Department of Revenue for this program.

I. DESCRIPTION

- A. Establishment: In 1977 the Oregon Legislature passed House Bill 3007, which provides fuel and utility relief of \$50 to qualifying participants over a two year period (1977-78).
- B. Eligibility: To benefit from the program, participants must:
1. Be taxpayers age 60 or older;
  2. Have annual household income of less than \$5,000;
  3. Be eligible and file for owner or renter refund from the Department of Revenue.
- C. Restrictions: To avoid overlap with federal programs, program participants cannot accept:
1. An elderly rental assistance refund for any year in which they accept Utility Rate Relief Assistance;
  2. Any Homeowner and Renter Refund Program (HARRP) assistance for any year in which they accept Utility Rate Relief Assistance.
- D. Refunds: To be granted in October, 1977 and October, 1978, whichever is the greater amount:
1. Rental assistance for that year, or
  2. Renter refund plus fuel and utility rate relief refund.

- E. Allocation: A total of \$7 million has been appropriated from the General Fund for the period July 1, 1977 through June 30, 1979. At this time, there are no additional appropriation plans to replenish funds.

F. Administering Agency: Department of Revenue

II. SOURCE

Patty Newton  
Legislature Distribution Center  
Room 49 Capitol Building  
Salem, Oregon 97310  
Tel.: (503) 378-8891  
Date of Contact: October 28, 1978

III. DOCUMENTATION

"Something New!"  
Oregon Department of Energy  
August, 1977

House Bill 3007  
Oregon State Legislature  
July 1, 1977

## PENNSYLVANIA

PROGRAM: Project HELP (Fuel Stamp Program), 1975

This energy voucher program lasted for one year and benefitted 11,000 low income persons.

I. DESCRIPTION

- A. Background: This fuel stamp program was called "Project HELP", an acronym for Heating for Elderly Low-income Persons.
- B. Eligibility: Income, and not age, was the only requirement as follows:

<u>No. of persons</u>	<u>Monthly income</u>
1	\$194
2	225
3	320
4	480

- a. Determined under Supplemental Security Income limitations.
- C. Administration: The Community Action Council administered the program and asked other agencies to cooperate in locating people who had difficulties meeting fuel costs.
- D. Promotion: 3,000 volunteer hours were donated to appeal to the community to make the program possible.
- E. Operation:
1. Applications were available at the Community Action Council.
  2. Eligible applicants were sold a "voucher booklet".
  3. The booklet was worth \$70, and was sold for \$20.
  4. One booklet was sold to each eligible household per year.
  5. Vouchers could be used to purchase coal, natural gas, electricity, and other fuels, and as payments for water bills.

II. ASSESSMENT

- A. Results: The program benefitted 11,000 persons in 3,100 households in its one year of operation.
- B. Evaluation: Program ended in 1975, but no official reason was given for its termination.

III. SOURCE

Robin Florez  
Lehigh County Area Council on Aging  
Allentown, Pennsylvania  
Tel.: (215) 434-9471  
Date of Contact: October 23, 1978

O.C. Lange  
Supervisor, Customer Relations  
Pennsylvania Power and Light Company  
Allentown, Pennsylvania  
Tel.: (215) 821-5151  
Date of Contact: December 14, 1978

IV. DOCUMENTATIONEnergy Program

Community Action Committee of the Lehigh Valley, Inc.  
Revision of February, 1975

"Project HELP Analysis", August 7, 1976  
Third Quarter Report - Energy Program, September 9, 1975  
Community Action Committee

## PENNSYLVANIA

PROGRAM: Utility Service Credit

Proposed legislation would allow low-income elderly to take a 15% to 35% discount off their utility bills.

I. DESCRIPTION

- A. Status: The bill will be up for consideration in the Senate Appropriations Committee on November 13, 1978.
- B. Eligibility: 65 years or over, or disabled, with an annual income of less than \$7,499.
- C. Benefits: A 15% to 35% discount could be taken off eligible customer's utility bills.
1. Credits against utility service costs will be given depending on income according to the following schedule:

<u>Household Income</u>	<u>Credit</u>
\$ 0 - 3,499	35%
3,500 - 4,499	30%
4,500 - 5,499	25%
5,500 - 6,499	20%
\$6,500 - 7,499	15%

- D. Revenue Recovery: Utilities would be partially reimbursed for their loss with a 25% tax credit against its liability for the Utilities Gross Receipt Tax.

II. SOURCE

Howard Kolus  
 Office for the Aging  
 Department of Public Welfare  
 P.O. Box 2675  
 506 Health and Welfare Building  
 Harrisburg, PA 17120  
 Tel.: (717) 787-5350  
 Date of Contact: October 23, 1978  
 A.46

## PENNSYLVANIA

PROGRAM: Fuel Assistance Program, 1978-1979

Provides emergency fuel assistance up to \$75.00 per year to persons in need of money to purchase fuel.

I. DESCRIPTION

- A. Operation: On an emergency basis, funds are available to purchase fuel.
1. If a case worker from the welfare department knows of such a person, the area Council on Aging is contacted.
- B. Delivery of Benefits: An eligible person can receive a one-time payment of up to \$75.00 per year.
- C. Administration: The Department of Public Welfare administers the program.
- D. Funding: A combination of federal, state, and county funds have been set aside for this program:
1. The largest sources are Social Security and Title XX funds.

II. SOURCE

Robin Florez  
Lehigh County Area Council on Aging  
Allentown, Pennsylvania  
Tel.: (215) 434-9471  
Date of Contact: October 6, 1978

Robert Wartmann  
Department of Public Welfare  
Harrisburg, Pennsylvania 17120  
Tel.: (215) 821-6619  
Date of Contact: October 23, 1978

A.48

## WEST VIRGINIA

**PROGRAM:** Proposed Lifeline Legislation: Senate Bill # 152

The planned apparatus to operate a lifeline rate to low income elderly and low income disabled residents was to have been provided by this bill.

**I. PROGRAM DESCRIPTION:**

**A. Establishment:**

This bill, introduced in 1977 by the Committee on Energy, Industry, and Mining, set up the legislative apparatus to provide a lifeline system of utility rate relief to low income (documented to be less than \$10,000) senior residents (age 65 or older) and totally and permanently disabled residents. Qualifiers must be head-of-household and purchase gas or electricity for their own homestead.

**B. Delivery Method:**

Every public utility, beginning in 1979, shall grant a total credit (maximum amount \$100) against the periodic billing of each qualified claimant (labeling such discount "Temporary Discount") without adding any other charge. A penalty is to be established for fraudulently filed claims, and a tax credit or reimbursement policy will allow the public utilities to recoup losses.

**II. PROGRAM IMPLEMENTATION:**

Senate Bill #152 passed in the Senate only.

**III. SOURCE:** Michael Harmon  
Council of Senior West Virginians  
Tel.: (304) 342-5430  
October 13, 1978

**IV. DOCUMENTATION:** Copy of Senate Bill #152, on file.

## WISCONSIN

PROGRAM: Emergency Fuel and Utilities Assistance Program, 1978

Loans are made available to low income households to help pay utility bills between December and March.

I. DESCRIPTION

A. Eligibility: The annual income of a household must be at or below 125% of the federal poverty level.

B. Services

1. Notice of discontinuance of utility service to a residential customer must include notification of the Emergency Fuel and Utilities Assistance Program.
2. Loans, not exceeding \$200 per household, are available to help pay utility bills incurred between December 1 and March 1.

C. Funding: Twenty percent matching funds are required of participating counties.

II. SOURCE

Holly W. Higgins  
Research Assistant  
National Conference of State Legislatures  
1405 Curtis Street  
Denver, Colorado 80202  
Tel.: (303) 623-6600  
Date of Contact: October 11, 1978

III. DOCUMENTATION

National Conference of State Legislatures  
Wisconsin, Chpt. 418, Sec. 351  
pg. X  
10/19/78



## WYOMING

PROGRAM: A-65 Warrant Program

This unique direct aid program to the elderly and disabled provides a maximum direct cash payment of \$500. General revenues cover the cost of the program in the form of an apportionment. Administration is handled by the Tax Commission in conjunction with the County Auditor and Area Aging Offices.

I. DESCRIPTION

A. Establishment: The Enrolled Act #4 amended the present Tax Refund to the Elderly and Disabled Act by broadening the eligibility and refund bases, and was signed into law on May 5, 1978.

B. Eligibility:

1. Age

- . 65 or older (either spouse)
- . 19 or older (if permanently and totally disabled)
- . 60 or older (until remarried, if once qualified)

2. Total Income

- . single: from \$4,500 or less to \$9,000
- . married: from \$6,750 or less to \$13,500

C. Benefits:

1. Warrants are issued as a refund and partial exemption of taxes paid under the following, and for the following maximum amounts:

	<u>SINGLE</u>	<u>MARRIED</u>
. Sales and Use Tax Refund	\$120	180
. Property Tax Relief (whether home is owned or rented)	150	150
. Energy Cost Relief	<u>170</u>	<u>170</u>
	\$440	\$500

II. IMPLEMENTATION

- A. Marketing: Publicity is coordinated from the Department of Revenue and Taxation with the County Assessors' offices (23) and the Governor's Committee for the Aging.
1. All those who receive Homestead Exemption or government-subsidized income are contacted.
  2. Extensive media advertising has been done by CAA's and County Auditor's office.
- B. Administration:
1. Eligibility applications created and processed by the County Assessors' offices must be filed by applicants before June 15, with a listing of their total previous year's income.
  2. The state warrant, with explanatory material, must be forwarded to qualifying applicants by December 20 of the same year.
  3. The recipient may use the warrant for any purpose, without restriction or further accountability.
- C. Revenue Recovery: Refunds are payable from the general fund.
1. An appropriation is made by this Enrolled Act from the general fund in the amount of 2- $\frac{1}{2}$  million dollars to finance the above provisions.

III. ASSESSMENT:A. Marketing Techniques: Excellent according to the Tax Commission.

1. Out of a total state population of around 4 million, almost 16,000 qualifying applicants will receive some income assistance through this program.
2. The average warrant issued is in the amount of \$380, well above the median amount.

IV. SOURCE:

James E. Petry  
Director of Revenue  
The Department of Revenue and Taxation  
Wyoming Tax Commission  
2200 Carey Avenue  
Cheyenne, Wyoming 82002  
Phone: (307) 777-7582  
Date of Contact: November 28, 1978

V. DOCUMENTATION:

Enrolled Act #4  
Signed May 5, 1978

"Notice to the Elderly and Disabled"  
Suggested notice for publication by County Assessors

Distribution Chart of Prorated Refund Amounts  
Department of Revenue and Taxation

## APPENDICES TO CHAPTER III

General Lifeline Utility Rates for all Residential UsersSpecific Programs

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General Lifeline Utility Rates for all Residential UsersList of Individual Programs Surveyed

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California	Energy Lifeline Program: Miller-Warren Act, 1975 .....	A.60
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Georgia	Rate Increase Exemption, 1974	
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Missouri	Residential Rate Freeze, (K.C.P. & L, 1974)	
	Lifeline Rate Schedules, (St. Joseph Power and Union Electric, 1978)	
New Jersey	Lifeline Legislation, (P.L. 440, A. 1830).....	A.79
New York	NYPSC Policy with Regard to Lifeline.....	A.82
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	Energy Savings Incentive Rate (12214).....	A.92
North Carolina	Residential Rate Freeze, (Duke Power, 1979)	
Ohio	Elimination of Declining Block, S.B. 467	
Rhode Island	Freeze for Low Usage Customers, 1976	
South Dakota	ACORN Resolution, SJR 9, 1978.....	A.95

General Lifeline Utility Rates for all Residential UsersList of Individual Programs Surveyed, Cont.

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Washington D.C.	Exemption, (Potomac Electric Co., 1973)	
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West Virginia	Proposed Lifeline Legislation, H.B. 943.....	A.98
	Proposed Lifeline Legislation, H.B. 1694.....	A.99
	Proposed Lifeline Legislation, S.B. 37.....	A.100
	Proposed Lifeline Legislation, S.B. 259.....	A.102
	National Citizens/Labor Energy Coalition.....	A.103
Wisconsin	Lifeline Welfare Rates, (A-1250)	

NOTE: Program descriptions are available for those individual programs for which page numbers are indicated.

## ARIZONA

PROGRAM: Tucson Gas and Electric Modified Lifeline Experiment

The Arizona Public Service Corporation conducted a limited modified lifeline experiment in which the declining block rate structure was flattened and a service charge was added, for all residential customers. Conservation efforts were essentially discouraged because 300 KWH must be consumed if there is to be a reduction in the customer's bill.

I. PROGRAM DESCRIPTION: Tucson Gas and Electric Company, in compliance with the Arizona Public Services Corporation systematic rate restructure studies, conducted a limited experiment in 1976.

II. PROGRAM OPERATION:

A. Rate: The utility adjusted the rate so that it reflected a more flattened structure than the historic declining block structure, as follows:

SUMMER - May through October Billings		
First 100 kwh or less per month		\$6.95 per month
All additional kwh per month @		5.1386¢ per KWH
Minimum bill \$6.95 per month per meter		
WINTER - November through April Billings		
First 100 kwh or less per month		\$6.95 per month
Next 500 kwh per month @		5.1386¢ per kwh
Next 400 kwh per month @		3.8138¢ per kwh
All additional kwh per month @		2.7586¢ per kwh
Minimum bill \$6.95 per month per meter		

\* The break point was 400 kwh.

\* An extra service charge was added to each customer's bill.

B. Recipients: All classes of residential customers were eligible, providing that the customer's household is individually metered.

It was intended that low income users would benefit from the rate change, although arguments made before the Commission were not based purely on social issues.

III. PROGRAM ASSESSMENT: The study results indicated that, although low income customers were targeted to be the main benefactors of the rate change, such benefits did not accrue to many of them.

- A. Very low users of electricity (below 300 kwh per month) indicated a rise in their electric bill.
- B. Moderate users of electricity (approximately 400 kwh per month) did notice some lowering of their electric bill.
- C. Conservation, as applied to limited usage of electricity, was therefore discouraged.

In order to effect a reduction on electric utility costs, a customer must consume at least 300 KWH per month.

IV. SOURCE: Fred Young  
Utility Division Engineer.  
Arizona Corporation Commission  
2222 West Encanto Blvd.  
Phoenix, Arizona 85009  
Tel.: (602) 271-4251  
Date of Contact: November 1, 1978

V. DOCUMENTATION: Residential Electric Rate  
Tuscon Gas and Electric Company  
Tuscon, Arizona  
Effective August 4, 1976

Testimony (Lifeline Issues)  
Arizona Corporation Commission  
1976  
pp. 56-57



## CALIFORNIA

PROGRAM: Energy Lifeline Program, Miller-Warren Act, 1975

This is one of the earliest, most comprehensive programs in the country today, which includes all regulated utilities and all residential customers, regardless of income. Although there are many unresolved problems and criticisms, the program has been fully operational since 1976 - initially on an interim, and now on a permanent basis.

I. DESCRIPTION

A. Legislative History:

1. The California Utility Commission introduced the lifeline concept in 1968, as a special purpose telephone service to low-income shut-ins.
2. The policy of an inverted rate schedule was first rejected by the California Commission in 1974, but was accepted in 1975 as a result of the enactment of lifeline legislation.
3. Prior to the National Energy Act (1978), the state legislature enacted the Miller-Warner Energy Lifeline Act (1975), which stated:
  - "... light and heat are basic human rights and must be made available to all people at low cost for basic minimum quantities."
  - Assembly Bill 167, an act adding #739 to the Public Utilities Code, approved by Governor of California, September 23, 1975.

4. The California Public Utilities Commission was charged with determining basic minimum needs for electricity and gas of the average user in five residential end-users: lighting, cooking, refrigeration, water heating, and space heating.
    - Later usage extended to include submetered renting end-users and use of electricity for air conditioning.
    - Separate metering was to be encouraged by public utilities in existing residential complexes and required in all new residential structures.
    - Water pump and life-support systems were included at a later date.
  5. Commission hearings were held to consider both the adequacy of lifeline estimates by utility management, and Commission staff recommendations.
- B. Establishment: The California Energy Lifeline Program was implemented in 1976 by an act of the legislature; it is the broadest lifeline program in the country.
1. Approval was initially on an interim basis, and on April 4, 1978, the Commission adopted the lifeline plan on a permanent basis.

C. Purposes:

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

D. Participants: All private regulated utilities and all customers, regardless of income level.

II. OPERATIONA. Lifeline Allowances:1. Electricity End Uses:

	<u>Single-family Dwellings</u> (In Kilowatt-hours per month)	<u>Unmetered Units of Multifamily Structures</u>
. Basic allowance for lighting, cooking, and refrigeration	250	190
. Water heating	250	200
. Space heating, winter November 1 - April 30:		
Zone 1, mild	550	330
Zone 2, temperature	800	480
Zone 3, cold winter	1,120	675
Zone 4, very cold winter	1,420	850

2. Gas End Uses

<u>Climatic Zone</u>	<u>Single-family Dwellings and Metered Units of Multiunit Complexes</u> (Therms Per Month)		
	<u>Cooking</u>	<u>Water Heating</u>	<u>Space Heating</u>
1	6	20	55
2	6	20	80
3	6	20	115
4	6	20	140

. Each of the three types of lifeline allowances is to be a separate allowance.

A.62

**B. Delivery of Benefits:**

1. The statute requires determining a lifeline allowance for each residential end-user rather than for each residential customer.
2. In the case of master-metered residential apartments, the landlord is given an allowance of 190 KWH per month multiplied by the number of apartments in his complex.
3. Each customer is allowed only one lifeline allowance or set of allowances; i.e., only for the principle residence.

**C. Use: Consumers maximize the benefit of lifeline rates when they limit their use of electricity and gas to the basic allowance.**

1. In this way, the complex general purpose of the no-eligibility requirement policy ties together both welfare and conservation goals.
2. For 1976, approximately fifty percent of Pacific Gas and Electric residential electric sales and 17 percent of total system electric sales were at lifeline rates.
3. The lifeline sales as a percentage of total sales are expected to trend higher.

**D. Costs:**

1. As of December 1, 1977, the average system electric rates had increased by 72 percent above the level of January 1, 1976.

2. Although the statute authorizes a subsidy increase for an energy utility company after rates for the system have risen by 25 percent or more, as of August, 1978, such authorization had not been made.
3. According to PG&E, the increased burden on gas subsidies is unfairly carried by commercial and industrial billings.

. In a 1978 rate case, PG&E reported that residential customers paid a negative 2 percent rate of return while large industrial customers were required to pay a 42% rate of return.

### III. ASSESSMENT

#### A. Problems:

1. Certain types of users (e.g., farmers, business and industrial users) complain of having to pay an excessive share of the revenue.
2. Since residential consumers pay less than full cost, other classifications of customers must make up the revenue deficiency and this may cause price increases in other goods and services.
3. In some cases the goal of conservation is obstructed because substantial numbers of low income users are in the outer usage intervals, due to inferior housing, etc.

4. No equitable formula has been devised for filtering  
lifeline benefits to single room or nursing home  
residents.
5. Adoption of uniform customer account numbers by all  
utilities to ensure proper verification of lifeline  
entitlements would simplify administration.

IV. SOURCE

James Armstrong, Electric Consultant  
California Public Utility Commission  
San Francisco, California 94102  
Tel.: (415) 322-990  
Date of Contact: October 6, 1978

V. DOCUMENTATION

Assembly Bill 167 (Miller-Warren)  
California Legislature, December 4, 1974  
Amended in Assembly, March 17, 1975

Decision Number 86087, Case Number 9988  
Public Utilities Commission of California  
October 7, 1975

Decision Number 88651, Case Number 9988  
Public Utilities Commission of California  
April 4, 1978

Decision Number 89196, Case Number 9988  
Public Utilities Commission of California  
August 8, 1978

Schedule No. D-1, Pacific Gas and Electric Company  
Effective January 5, 1979

News, Public Utilities Commission  
San Francisco, California 94102, April 4, 1978

"California's Lifeline Policy", Albin J. Dahl  
Public Utilities Fortnightly  
August 31, 1978, pp. 13-22.

"California Rate Experiments: Lifeline or Leadweight?"  
William Symons, Jr., Public Utilities Fortnightly  
October 26, 1978, pp. 11-15.

California's Approach to Conservation-Oriented Ratemaking  
Public Utilities Commission  
December, 1978

## GEORGIA

PROGRAM: Modified Lifeline, (Georgia Power 1977)

A Georgia Public Service Commission ruling of September 18, 1977 adopted a residential inverted summer rate and a level rate for winter. The break even point is 650 KWH.

I. DESCRIPTION

A. Availability: The new rates are effective for one year throughout the Georgia Power Company's service area.

B. Applicability: All domestic uses of a residential customer in a separately metered single family dwelling unit.

C. Monthly Rate

## 1. Winter (October through May)

First 650 KWH . . . . . @ . . . . . 2.9¢ per KWH  
Over 650 KWH . . . . . @ . . . . . 3.19¢ per KWH

## 2. Summer (June through September)

First 650 KWH . . . . . @ . . . . . 2.9¢ per KWH  
Over 650 KWH . . . . . @ . . . . . 4.39¢ per KWH

MINIMUM MONTHLY BILL: \$3.50

D. Budget Billing Option: When annual billing exceeds \$300, the customer has the option of paying a budgeted bill which is the average total cost of customer's bill divided by twelve.

II. ASSESSMENT

A. Evaluation: To date, there is no evaluation.

III. SOURCE

Ralph McLemore, Director  
Georgia Public Service Commission  
244 Washington Street, S.W.  
Atlanta, Georgia 30334  
Tel.: (404) 656-4538  
Date of Contact: October 11, 1978

IV. DOCUMENTATION

Residential Service Schedule R-4A  
(page 2-1 Tenth Revised)  
Georgia Power Company  
Effective: January 5, 1979



## ILLINOIS

PROGRAM: Proposed "lifeline" legislation  
House Bill 83

This bill proposed that the Illinois Commerce Commission determine the amounts of gas and electricity necessary for minimum monthly household needs and set a specified rate schedule accordingly.

I. DESCRIPTION

- A. Legislative history: The bill was introduced in January, 1977 and was subsequently defeated on the third reading.
- B. Provisions: The Illinois Commerce Commission was to determine the volume of gas and the quantity of electricity necessary to supply the minimum household energy needs of the average residential user, such amounts being referred to as "lifeline" amounts.
1. Such amounts could not be less than 20 therms of gas and 240 kwh of electricity per month.
  2. The utility company would be required to file a schedule of rates and charges applicable to the lifeline amounts. These lifeline rates could not be greater than comparable rates in effect as of January 1, 1977.
  3. No rate increases would be allowed until the average system rate increased more than 25% over the January 1, 1977 rate.
- C. Amendment: An amendment to House Bill 83:
- . Set the lifeline amount of electrical power at the first 500 kwh per month, except that in a household using electrical space heating the lifeline amount should be the first 1,200 kwh per month for the period from November 1 through May 31.
  - . Prohibited any minimum charge, service charge, or other periodic charge for the lifeline amount.

II. SOURCE

Stanley M. Johnston  
Deputy Secretary  
State of Illinois  
Legislative Reference Bureau  
Room 112 State House  
Springfield 62706  
Tel. (217) 782-6625  
October 20, 1978

III. DOCUMENTATION

- . House Bill 83, January 7, 1977
- . Amendment to House Bill 83, April 22, 1977.

## LOUISIANA

PROGRAM: Lifeline Electric Rate Order

As ordered on July 19, 1978, each electric company within PSC jurisdiction must submit restructured rate schedules that offer alternatives to the present declining block structure. Such rates must be cost-effective and must encourage conservation.

I. DESCRIPTION

- A. Establishment: The Public Service Commission of Louisiana ruled on July 19, 1978 that all electric utility companies within PSC jurisdiction must submit restructured residential, commercial, and industrial rate schedules.
- B. Justification of Order:
1. As a result of the change in the "economy of scale", the declining block structure may be inappropriate.
    - . Costs of fuel and capital have increased dramatically in the last several years.
  2. The present structure does not provide a consumer incentive to conserve energy.
- C. Future Plans: Hearings were to be scheduled within ninety days to consider which revisions may be deemed the most appropriate.
- D. Evaluation: A sizeable number of Commissions across the country have called for similar action to be taken concerning the appropriateness of the declining block structure in the light of today's economy.
1. The National Energy Act of 1978, recently passed, mandates such rate structure considerations by each Commission within the next two to three years.

LOUISIANA  
(Lifeline Rate)

II. SOURCE

Roy F. Edwards  
Public Utilities Chief Accounts Examiner  
Public Service Commission  
Suite 1630 One American Place  
Baton Rouge, Louisiana 70825  
Tel.: (504) 389-5867  
Date of Contact: November 1, 1978

III. DOCUMENTATION

General Order

In re: Restructuring of Electrical Rate Schedules  
Louisiana Public Service Commission  
July 19, 1978

## MASSACHUSETTS

PROGRAM: Residential Rate Freeze, (Boston Edison, 1975)

The Boston Edison Company (BEC) was ordered to exempt the first 384 KWH of residential usage from a granted 20% rate increase. Revenue deficiencies were recovered proportionally from all other customers. A discrimination charge was not upheld by the Court of Appeals.

I. DESCRIPTION

- A. Establishment: The Massachusetts Department of Public Utilities granted a 20% interim rate increase as requested by the BEC but ordered that the first 384 KWH of residential usage be exempted from the increase.
- B. Justification: Company studies showed that growth in peak demand was not caused by average residential users.
1. Average residential usage amount was computed as 384 KWH per month.
  2. Charges should be imposed on the large class users (industrial) which make the greatest system demands.
  3. Since there was inconclusive evidence relating income to usage, no special consideration for low-income customers was allowed.
- C. Revenue Recovery: Revenue lost due to the exemption will be recovered proportionately from all other classes, including residential users of over 384 KWH.

- D. Subsequent Court Ruling: The Massachusetts Court of Appeals upheld the Commission decision on April 4, 1978 (ELCON Electricity Update) stating that it was within the Commission's jurisdiction to increase one group of customers over another.

II. SOURCE

R.D. Saunders, Manager  
Rate Research and Forecasting Department  
Boston Edison Company  
800 Boylston Street  
Boston, Massachusetts 02199  
Tel.: (617) 424-2253  
Date of Contact: December 13, 1978

III. DOCUMENTATION

D.P.U. 18200/18200-A  
Department of Public Utilities  
Commonwealth of Massachusetts  
September 30, 1975  
pp. 37-48

D.P.U. 18200/18200-A Amended Order  
Department of Public Utilities  
Commonwealth of Massachusetts  
October 17, 1975

## MICHIGAN

PROGRAM: Inverted Rate Schedules, 1976

The two major electric utilities in Michigan have used an inverted residential rate schedule since 1976. An exception to this shift in pricing policy that was designed to reward conservers is the all-electric winter rate, which maintains the traditional declining profile.

I. DESCRIPTION

- A. Establishment: Since 1976, the two largest power companies in the state, Detroit Edison and Consumers Power, have implemented an inverted rate schedule for all general residential consumers. This change from the traditional declining block profile to an inverted one was a result of generic Public Service Commission hearings concerning the cost effectiveness of rate structures.

- B. Residential Inverted Rate Schedule: (\$2.65/mo. service charge)

	<u>Det. Ed./KWH</u>	<u>Con. Power/KWH</u>
0 - 500	4.25¢	3.96¢
500 - 1000	4.65¢	4.36¢
over 1000	5.05¢	4.76¢

- C. All-Electric Homes Winter Rate Schedule (Nov. - May)

	<u>Det. Ed./KWH</u>	<u>Con. Power/KWH</u>
0 - 600	4.25¢	3.96¢
over 600	3.86¢	3.82¢

1. This declining block schedule reflects the policy decision to avoid placing "an undue burden" on those consumers who responded to former pricing signals by investing in all-electric homes.

2. The rate is only effective in the winter months; all residential consumers are on the regular inverted schedule from June through October.

II. SOURCE

Mr. Maxwell  
 Energy Office Representative  
 Public Service Commission  
 Lansing, Michigan 48913  
 Tel.: (517) 373-8590  
 Date of Contact: February 8, 1979

III. DOCUMENTATION

Rate Book for Electric Service  
 Prepared by Rate Department, PSC  
 Detroit Edison Company  
 Effective September 29, 1978  
 Domestic Rate Schedule  
 (Sixth Revised Sheet No. D1 & 2)  
 Domestic Space Heating Rate Schedule  
 (Sixth Revised Sheet No. D2)

Consumers Power Company Rate Schedules  
 Effective August 1, 1978  
 Residential Service Rate "A"  
 (Original Sheet No. E1 & 2)  
 Optional Residential Service (Space Heating) Rate  
 (Original Sheet No. E4)



## MINNESOTA

PROGRAM: Modified Lifeline Rate and Service Charge, (Northern State Power, 1978)

On an individual case basis, the Minnesota Public Service Commission is modifying residential rate structures in favor of the low KWH users.

I. DESCRIPTION

- A. Purpose: In making their decision, the Minnesota Public Service Commission stated in the Commission Order dated 3/20/78:

We believe the rate structures finally adopted should communicate the desirability of conservation and should have a disincentive for the use of electricity beyond what is adequate to cover basic and essential quantities . . . the record here forcefully shows the need for some kind of rate relief so that low income household, and most especially those of senior citizens, may continue to use modest quantities of electricity for essential uses.

- B. Experimental Service Charge:

(Previous fixed service charge: \$2.50)

0 - 300 KWH:	service charge omitted
301 - 400 KWH:	\$1.25 service charge
Over 400 KWH:	\$2.50 service charge

C. Rates

- The present rates for residential users are:
  - October - May: two step declining block up to 500 KWH
  - June - September: flat energy charge for all KWH consumed

2. The Minnesota Public Service Commission in its supplemental order dated 8/31/78, said:

The PSC reaffirms its intention to develop residential rates which will encourage conservation and maintain reasonably low rates for essential uses of electricity while not unduly burdening present space heating customers.

## II. ASSESSMENT

### A. Evaluation

1. There are no conclusions since the service charges have just been implemented.
2. The new residential rate structure is not determined; however, it will be a lifeline rate.

## III. SOURCE

Minnesota Public Service Commission  
Commissioner Satterlee or  
Terry Karkela, staff  
77th Floor American Center Bldg.  
Saint Paul, Minnesota 55101  
Tel.: (612) 296-7107  
Date of Contact: October 6, 1978

Lorraine Pelton  
Central Files  
Department of Public Service  
77th Floor American Center Bldg.  
Saint Paul, Minnesota 55101

## IV. DOCUMENTATION

Northern State Power Company Order  
Docket Number E-002/GR-77-611  
Department of Public Service  
State of Minnesota  
March 20, 1978

The Lifeline Rate Concept

Steven Mintz  
Office of Consumer Affairs/Special Impact  
Department of Public Service  
State of Minnesota  
Received June 24, 1975

## NEW JERSEY

PROGRAMS: Lifeline Legislation, (P.L. 440, A. 1830)

This bill authorizes the New Jersey Public Utility Commission to designate a minimum quantity of electricity and gas to meet the survival needs of the average residential consumer and to be priced at the lowest effective rate. The Board of Public Utilities (BPU) made recommendations for program specifications and is conducting hearings on the matter.

I. DESCRIPTION

- A. Establishment: This bill empowers the New Jersey Board of Public Utilities to establish a rate for gas and electricity which is less than or equal to the lowest effective rate.
1. Recommendations to the legislature concerning lifeline and other methods of relief will be made through a committee.
- B. Target Population: Low income residential consumers with the following maximum income for head of household:
1. Married: \$12,000  
2. Single: \$9,000
- C. Revenue Recovery: Through restructuring the rate structure for all classes of electricity and gas users with a separate recovery method to maintain a lifeline rate for eligible customers who are 65 years of age or older, or disabled.
- II. IMPLEMENTATION PLANS: The BPU makes the following program recommendations and is conducting hearings before determining final specifications.

A. Minimum usage amounts:Seasonal Rates

	<u>October - April</u>	<u>May - September</u>
Electricity	500 KWH	300 KWH
Gas	100 therms	20 therms

B. Lowest Effective Rates: Different surcharges should be placed on each utility's lowest effective rate.

1. If bill is amended to provide for public funding, a statewide lifeline rate would be less discriminatory.
2. A uniform statewide surcharge is preferred if the "lowest effective rate" concept is eliminated.

C. Income Qualifications: The \$12,000 income cut-off may be too high, and perhaps all sources of income should be considered.

1. A large shift in revenues between lifeline customers and other classes of customers (approximately \$100,000,000) would occur.

D. Administration: A state agency, Bureau of Lifeline Administration in the Rates and Accounts Division of BPU, should administer the program.

1. A "welfare-type" agency would stigmatize the program for the elderly.
2. The utilities do not have access to customer income information; therefore, they are hesitant to process or police the program.
3. The administrative agency should be funded by the State.

III. ASSESSMENT

A. Problems: The "general" language of the bill does not specify an administrative agency.

1. The questions of funding and implementation cannot be answered until the agency is determined.

IV. SOURCE

Vaughn M. Donovan, Director  
 Division of Rates and Accounts  
 Board of Public Utilities  
 110 Raymond Boulevard  
 Newark, New Jersey 07102  
 Tel.: (201) 648-2744  
 Date of Contact: October 11, 1978

V. DOCUMENTATION

Copy of Assembly Bill, No. 1830,  
 April 5, 1976

Direct Testimony of Vaughn M. Donovan ... and Walter P. Szymanski....

September 15, 1978

Testimony of Dr. Fred S. Grygiel....  
 September 15, 1978

## NEW YORK

PROGRAM: NYPSC Policy with Regard to Lifeline

On the basis of testimony submitted in 1976 the Commission found 8-30-78 that lifeline proponents had not shown that their reforms would meet the burden of proof set by the Commission but did order a five year study of elasticities demand and consumer response to rates based on full marginal cost data.

I. DESCRIPTION

- A. History (Marginal Cost Principle): On 1-29-75 the New York Public Service Commission instituted a generic rate case (No. 26806) designed to re-investigate the following issues concerning rate design for electric power utilities:
1. The extent to which overlapping principles of incremental cost and peak responsibility pricing should be applied to rate making.
  2. The impact that marginal cost based rates would have on the goal of holding down the cost of electric service to consumers.
  3. The economic benefits of marginal cost based rates.
  4. The choice of appropriate consumer groupings for the study of incremental costs of service.

B. Marginalist Issue: This issue was addressed in Opinion 76-15 issued 8-10-76 in which the PSC determined that marginal costs are relevant to a determination of just and reasonable electric rates. It was asserted, however, that the guiding principle in implementing this principle would be gradualism consistent with appreciable improvement. (p. 32).

1. On 12-2-75 the Long Island Lighting Company (LILCO) was directed to submit testimony on the lifeline rate issues, and the order was amended to include other utilities on 1-2-76. The record on lifeline was certified to the Commission on 12-16-76.

C. Lifeline Concept: The Commission issued Opinion No. 78-20 on 8-30-78, determining the relevances of the lifeline concept to electric rate structures and ordering five year lifeline experiments (summarized separately) by three utility companies. The remainder of the opinion is abstracted below.

1. The Burden of Persuasion: Advocates of lifeline proposals "bear a heavy burden of persuasion." They must demonstrate:
  - . that lifeline rates are not unlawfully discriminatory (Public Service Law Section 65.2 prohibits differing utility charges for substantially the same services);
  - . that they can in fact achieve their purpose of providing assistance to the needy;
  - . that the benefit to the needy does not result from the placing of an undue burden on other customers;



- . that they can be administered simply;
  - . and, finally, that they will not significantly distort price signals to induce uneconomic consumption patterns (pp. 7-8)
2. Equitable Lifeline Proposals: These are proposals that rate structures should intentionally offer some consumers service at less than cost, in order to reduce the amount these consumers spend on electricity and thus equitably redistribute income in favor of this group.
- . Lifeline proponents in this case have not advocated an income test, but have proposed a discount per KWH in the initial blocks available to all customers and a surcharge to be placed on all residential sales in higher blocks, in order to avoid discrimination between residential consumers with the same usage (pp. 8-9).
  - . The Commission concluded that initial block discounts would be an ineffective means of dealing with this problem of the effect of rising electric rates on the poor, injuring some poor and benefiting some affluent, and they would also distort price signals by encouraging uneconomic use of electricity (pp. 19-20).
3. Cost-Justified Lifeline Proposals: Lifeline rates could be based on the following assumptions:
- . that low income households may cost less to serve than average residential consumers because of demand characteristics, namely a mix of appliances whose normal use should produce high customer load factors (pp. 20-21);
  - . that the poor live in densely populated urban areas and would benefit from lower distribution costs if such costs were allocated on a mileage basis (pp. 21-22);
  - . that customers could be offered a lower rate if they agree to keep their maximum demand below a certain level, with a circuit breaker which will trip if the contracted-for demand is exceeded.

4. The PCS concluded that none of these proposals had been developed sufficiently to warrant adoption, nor had it been shown that any of them were likely to produce reasonable cost based benefits for needy customers (p. 22).

D. Marginal Cost Rebates - The Chemung Approach

1. The proposal offered by Prof. Robert H. Frank on behalf of Chemung County Neighborhood Legal Services, Inc., is the only one which attempts to tie the problem of mitigating the impact of higher electric rates on the poor to the Commission's efforts to develop rates that reflect more closely the marginal costs of electric consumption (pp. 22-24).
  - . For economic efficiency, each consumer should be charged the marginal cost of providing him with service.
  - . Marginal cost is defined as including (1) replacement cost of electric plant including cost increases attributable to inflation, and (2) marginal social costs of production including production externalities (like increased air and water pollution) and alleged imperfections in factor input markets (like the failure of coal prices to reflect the cost of restoring stripmined land).
  - . Marginal costs are substantially above average costs and present rates and would, therefore, produce revenues far in excess of fair return on capital.
  - . The surplus revenues should be returned to consumers in a manner that will not alter the marginal cost price signals, and preferably through rebates that would favorably redistribute income.

2. The Commission was unwilling to embrace Prof. Frank's rebate proposal inclusion of social costs as questionable, and found the rebate mechanism to be insufficiently defined, but the approach deserves further evaluation (pp. 26-27).

E. Marginal Cost Rebates and Elasticity of Demand: This is a key unknown factor for which the PSC has virtually no empirical data (for New York) on:

1. The extent to which high volume customers would respond to higher prices by a significant cutback in consumption.
2. The extent to which low volume customers would increase consumption in response to lower rates.
3. Information about the relative elasticity of low-use electric customers by income group.
  - . Without such information, the Chemung approach might "redistribute income to wealthy low use customers rather than poor ones."
4. The Commission concluded by ordering a five year experiment to investigate customer elasticities in response to marginal cost based rates (see separate description).
  - . Three of the six commissioners, in a concurring opinion, lamented the lack of more positive action.

II. SOURCE

Richard C. King  
Senior Siting Council  
Department of Public Service  
Empire State Place  
Albany, New York 12223  
Tel.: (518) 474-2530  
Date of Contact: October 11, 1978

III. DOCUMENTATION

Opinion Number 78-20, Case Number 26806  
New York Public Service Commission  
Issued August 30, 1978

## NEW YORK

PROGRAM: Five Year Lifeline Experiment, 1978

The NYFSC has ordered three downstate electrical utility companies to develop five year lifeline experiments (opinion 78-20 issued 8-30-78) involving samples of perhaps 750 customers and control groups of 750 customers already taking part in on-going residential load studies, using slot time-of-day rates based on full marginal cost data with an initial lifeline block.

I. DESCRIPTION

- A. History: The proposed experiment grows out of a generic rate case (No. 26806) instituted by the New York Public Services Commission (PSC) on 1-29-75 and designed to investigate marginal cost issues concerning rate design of electric power utilities.
1. On 10-15-75 a PSC staff motion argued that "the full range of issues concerning transition to and implementation of marginal cost and/or time-based primary systems should be explored," and that a full record on the lifeline rate concept should be developed.
  2. This record is summarized in Opinion No. 78-20 issued 8-30-78 determining the relevance of the lifeline concept to electric rate structures and ordering lifeline experiments by three utility companies. Three out of six commissioners concurred in Opinion 78-20 but "with little enthusiasm," arguing that low income consumers needed immediate relief, not just a five-year experimental study.

**B. Purpose:**

1. To provide data on customer electricity response to full marginal cost based rates, adjusted to revenue requirement constraints;
2. To determine the impact of such a rate design on needy customers;
3. To explore the possibility of a rebate scheme for low usage customers (Opinion 78-20, pg. 27 and Appendix pg. 1).

**C. Location and Utilities Involved:** Two experiments are to be undertaken by three down-state utility companies, Consolidated Edison Company of New York, Inc. (Con Edison), Long Island Lighting Company (LILCO), and Orange and Rockland Utilities, Inc.

1. These companies were chosen because the companies have pronounced summer peaks and relatively poor load factors, increasing the possibility that marginal cost based rates will be in excess of average costs.

**II. OPERATION****A. Sample Size:** The PSC staff recommended randomly selected samples of 400 Con Edison, 200 LILCO, and 150 Orange and Rockland general use residential customers.

1. The three companies already have on-going residential load studies involving equal numbers of customers (400, 200 and 150) who would be used as control groups.

- . Income data should be required as a condition of entering.
  - . A customer education program should be part of the initial customer selection process.
- B. Rates: Flat time-of-day rates based on full marginal cost data should be charged, with the excess revenue over requirements used to create a low initial lifeline block of perhaps 180 KWH for Con Edison and 300 KWH for LILO and Orange and Rockland.
1. It may be desirable to drop the customer charges and create different lifeline blocks for summer peak and off-peak, and winter peak and off-peak.
  2. Annual year end graduated incentive payments should be used to compensate those customers whose bills would be higher under lifeline and marginal cost based rates.
- C. Time Frame: The study should run for a five year period.
1. The first one to two years might be required to update marginal cost data, prepare rate design, order masters, select samples, secure PSC approval for experimental rate, check masters, etc.
  2. Consequently it will take  $2\frac{1}{2}$  to  $3\frac{1}{2}$  years before the first year's data will become available.

NEW YORK - 4  
(Lifeline)

II. SOURCE

Richard C. King  
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Department of Public Service  
Empire State Plaza  
Albany, New York 12223  
Tel.: (518) 474-2530  
Date of Contact: October 11, 1978

III. DOCUMENTATION

Opinion Number 78-20, Case Number 26806  
New York Public Service Commission  
Issued August 30, 1978



## NEW YORK

PROGRAM: Proposed Energy Savings Incentive Rate (12214)

This proposed legislation would provide for a two-block lifeline rate for the first 400 KWH. It is somewhat unique in that shortfall is to be recovered by the utilities in the form of a tax credit. Fiscal implications for the first year are estimated at \$35 million.

I. DESCRIPTION

- A. Establishment: This proposed bill, #12214, would amend the public service and tax laws to provide for an energy savings incentive plan.
1. It would permit the establishment of an energy savings incentive (lifeline) electric rate with a tax credit to recover utility revenue shortfall.
- B. Justification: "Electric rates for residential consumers should be revised in order to encourage energy conservation by customers who use electricity for other than basic necessities and to provide rate relief to those who are small use customers."
1. The assumption of this legislation is that those on fixed incomes use less than average amounts of electricity.
    - . they use only the amounts needed for necessities
  2. The present declining block system poses an improper burden on those who use small amounts of electricity.

C. Energy Incentive Rate Profile

1. The first 200 KWH per month (survival usage level) shall be priced below the current effective rate.
  - . schedule to be known as the "basic energy savings incentive rate"
2. The first 400 KWH per month (breakeven usage level) shall be priced above the survival usage level rates.
  - . schedule to be known as the "supplemental energy savings incentive rate"
3. The above rates must be filed by each utility within PSC jurisdiction, and include the following:
  - . any applicable service charges
  - . a method of passing on utility shortfall rebates to all residential customers
  - . a method of preventing any utility bill increase or decrease for consumption in excess of breakeven level

D. Revenue Recovery: A "state electric energy savings incentive allocation" of \$35 million from the general fund shall be disbursed as applicable according to one of the following plans:

1. The utility shall have a credit against gross receipt tax equal to 95% of shortfall due to implementation of incentive rates.
2. The utility shall have a credit equal to (100% of) shortfall caused by incentive rates.
  - . incentive rates shall be frozen until its average revenue falls 25% below revenue from all other residential sales, or until the allocation has been depleted

E. Future Plans

1. A comprehensive and aggressive information and education program for electric customers shall be designed and implemented by the PSC.
  - . in cooperation with the Consumer Protection Board
2. The PSC shall also investigate the feasibility and consequences of electric rate reform that has been:
  - . implemented in other states
  - . proposed but not implemented in New York

II. SOURCE

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 Legislative Representative  
 Public Utility Law Project (PULP)  
 55 Columbia Street  
 Albany, New York 12207  
 Tel.: (518) 449-3375  
 Date of Contact: December 20, 1978

II. DOCUMENTATION

"Energy Savings Incentive Plan" (12214)  
 New York Legislature  
 1978

## SOUTH DAKOTA

PROGRAM: ACORN Resolution, SJR 9, 1978

This initiated measure, sponsored by a consumer group (ACORN) and defeated by the people of South Dakota on November 7, 1978, gave authorization to the SDPUC to order the implementation of lifeline rates for gas and electricity sized to PUC specifications. The careful treatment given to discrimination authority and severability problems (which have plagued most lifeline measures) make this Act especially interesting.

I. DESCRIPTION

- A. Establishment: The Association of Community Organizations for Reform Now (ACORN) initiated a measure which was submitted to a vote of the people of South Dakota on November 7, 1978.
1. The measure was defeated by a 5 to 3 margin.
    - . for - 91,707
    - . against - 140,899
- B. Senate Joint Resolution 9: This law was to have provided for "Lifeline Rate Reform and Energy Conservation" by means of the following steps:
1. Heat and light are necessities that must be made available to all people at low cost for basic minimum quantities.
  2. Large volume customers have the greatest opportunity and responsibility to conserve, while residential customers are paying unjustifiably high prices for energy.
    - . eventually, the declining block structure and promotional discounts to high volume users are to be eliminated.

3. Therefore, the Public Utilities Commission shall designate lifeline quantities of gas and electricity at rates significantly lower than present rates.
    - . minimum quantity of electricity to be 500 KWH/month per customer
    - . minimum quantity of gas to be 20 mcf/month per customer (with Commission option of setting lower amounts during the non-peak season from March through October)
    - . rates to be applicable to both single- and master-metered principal residences
  4. In designating lifeline quantities, the Commission may consider:
    - . Space and water heating
    - . Lighting, cooking, and food refrigeration
    - . Other differentials in energy needs between customers whose needs are supplied by gas and electricity
- C. Time Period: Within ninety days, and after Commission hearings, every public utility shall file and implement rates in accordance with this Act.
- D. Revenue Recovery: Shortfall shall be recovered in an equitable manner from all classes, with no class having a percentage increase greater than the average increase.
1. An exception to this percentage increase clause is made for large commercial and industrial users.

E. Preferential Treatment: This law repeals all conflicting former State and Commission statutes, thereby empowering the State and/or the Commission to set rates which may, at some future date, prove to be discriminatory to some customer classes.

1. In addition, severability (i.e., a portion of a law is proved to be invalid, and the whole law is declared invalid) is to be limited solely to such portions of the Act held to be invalid.

II. SOURCE

Patricia Wilcox deHuek  
Staff Attorney  
Legislative Research Council  
State Capitol Building  
Pierre, South Dakota 57501  
Tel.: (605) 773-3251  
Date of Contact: December 9, 1978

III. DOCUMENTATION

Senate Joint Resolution 9  
South Dakota Legislature  
Defeated in referendum November 7, 1978 (on file)

Correspondence  
Patricia Wilcox deHuek  
December 13, 1978 (on file)

## WEST VIRGINIA

PROGRAM: Proposed Lifeline Legislation: House Bill No. 943

Proposed legislation would provide minimum rates to residential customers for the first five hundred hours of electricity consumed and reduced rates during off-peak hours.

I. DESCRIPTION

A. Establishment: This bill was introduced on January 13, 1978 to the West Virginia legislature to provide the lowest unit cost of any rates charged to residential customers for the first 500 KWH consumed.

1. Public utilities would also offer lower prices for electricity consumed during off-peak periods.

B. Evaluation

1. Beginning in 1979, the lifeline service rate would be reviewed at a public hearing every three years.
2. Revenue loss would be regained in an equitable manner by the utilities from all classes of energy.
3. This bill would have encouraged energy conservation and maximum usage of present power facilities.

II. ASSESSMENT: House Bill 943 failed to pass.

III. SOURCE

Michael Harmon  
Council of Senior West Virginians  
Tel.: (304) 342-5430  
October 13, 1978

IV. DOCUMENTATION

Copy of House Bill 943

A.98

## WEST VIRGINIA

PROGRAM: Proposed Lifeline Legislation: House Bill #1694

This proposed legislation covers many aspects of the regulation of public utilities by the Public Service Commission, including the establishment of a lifeline rate.

I. DESCRIPTION

A. Establishment

1. This bill, introduced to the legislature on February 23, 1978, stated that energy conservation is a public mandate, and listed measures to insure that public utilities would encourage such a policy through:
  - \* rate reductions
  - \* utility burden-of-proof-clauses
  - \* public hearings
  - \* the use of a competitive bidding system
  - \* a lifeline service of electricity and gas
2. The Lifeline rate is determined by the Energy Commission of the legislature and shall be filed by the utilities without any additional charges.

II. ASSESEMENT: House Bill #1694 failed to pass.

III. SOURCE

Michael Harmon  
 Council of Senior West Virginians  
 Tel.: (304) 342-5430  
 Date of Contact: October 13, 1978

IV. DOCUMENTATION

Copy of House Bill #1694, on file



## WEST VIRGINIA

PROGRAM: Proposed Lifeline Legislation: Senate Bill #37

This bill proposed to establish a residential lifeline rate for the first 300 KWH of electricity consumed.

I. DESCRIPTION

- A. Purpose: To require electric utilities to provide a specified minimum amount of electric power at fixed reasonable rates for state residents.
- B. Provisions
1. A lifeline rate of no more than three cents per KWH of electricity for the first three hundred KWH of electrical power for residential customers was to be included in the discrimination clause of the state code regulating the electric public utilities.
  2. This lifeline rate would not be supplemented by any type of service or minimum charge.
  3. The rate could be increased at times of peak system demand with the approval of the Public Service Commission (PSC).
  4. The PSC would hold public hearings to review the lifeline rate and report the findings to the state legislature.
- C. Revenue Recovery: Revenue losses would be recovered from all classes of energy

II. ASSESSMENT

- A. Result: Senate Bill #37 did not pass either House of the West Virginia Legislature.

III. SOURCE

Michael Harmon  
Council of Senior West Virginians  
Tel.: (304) 342-5430  
Date of Contact: October 13, 1978

IV. DOCUMENTATION

Senate Bill No. 37

## WEST VIRGINIA

PROGRAM: Proposed Lifeline Legislation: Senate Bill #259

This proposed legislation attempts to be comprehensive in the scope of its reform measures concerning the utility rate decreases and an increased degree of public viability.

I. DESCRIPTION

A. Establishment: This bill, introduced to the West Virginia Legislature on January 30, 1978, stated a number of provisions designed to reduce the rates of public utilities and increase their visibility and viability with the general public by means of:

1. Establishing "burden of proof" policy for the utilities
2. Prohibiting "piggyback" rate increases
3. Setting up public hearings on rate changes
4. Directing utilities to pay advertising costs from stockholder dividends
5. Requiring utilities to initiate lifeline rates for all residential customers
6. Requiring the public service commission to study the feasibility of peak load pricing schedules

II. ASSESSMENT: The fate of Senate Bill #259 is unclear

III. SOURCE

Michael Harmon  
Council of Senior West Virginians  
Tel.: (304) 342-5430  
Date of Contact: October 13, 1978

IV. DOCUMENTATION

Senate Bill No. 259

A.102

## WEST VIRGINIA

PROGRAM: National Citizens/Labor Energy Coalition

A strong coalition of diverse groups with common legislative interests was formed in 1975 to encourage passage of reform legislation, including high priority utility rate reduction.

I. DESCRIPTION

- A. Establishment: The National Citizens/Labor Energy Coalition was formed in 1975, and consists of statewide and regional groups which have similar interests regarding needed state legislation.
- B. Participation: Membership is over 70,000 and each group retains local autonomy while uniting when necessary to provide a stronger voice.
- C. Activities
1. The Coalition publishes a lengthy newsletter which encourages lobbying and provides detailed legislative information on upcoming House and Senate bills.
  2. The group has also intervened in consumer rate disputes.

II. ASSESSMENT

- A. Recommendations: An annual polling of issues and concerns among the membership revealed that utility reform was named the single most important issue.
1. The lifeline concept was the most popular method of rate reduction.

2. The lifeline form favored by the Coalition is a \$25.00 increase in Supplemental Security Income (SSI) rather than a utility credit method.
3. The Council feels this supplemental income would broaden eligibility and cost the State less.

III. SOURCE

Michael Harmon  
Council of Senior West Virginians  
Tel.: (304) 342-5430

IV. DOCUMENTATION

- ✓ Coalition on Legislation for the Elderly Newsletters

## APPENDICES TO CHAPTER IV

Utility Rate Reductions for Special GroupsSpecific Programs

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Utility Rate Reductions for Special GroupsList of Individual Programs Surveyed

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NOTE: Program descriptions are available for those individual programs for which page numbers are indicated.

## COLORADO

PROGRAM: Gas Lifeline Rates, 1978

The Public Utilities Commission adopted a lifeline rate which provided a 50% discount to certain low income, elderly, and disabled residential customers. A Colorado District Court held that the lifeline rate violated that state's statute which prohibited preferential rates for identical service.

I. DESCRIPTION

- A. Establishment: The Public Utilities Commission (PUC) ordered the establishment of a lifeline rate in September, 1978.
- B. Eligibility
1. 65 years or older
  2. Receiving full disability benefits
  3. Receiving property tax or rent credit through homestead exemption
    - \* Income less than \$7,300, single
    - \* Income less than \$8,300, married
- C. Provisions: 50% lifeline discount on rates paid for the first 25 million cubic feet (mcf) of natural gas (27.5 in some areas) for seven months, beginning January, 1978.
- D. Administration: Department of Revenue
- E. Revenue Recovery: A surcharge on all customers would cover the costs of the lifeline rate, including administration.



II. ASSESSMENTA. Colorado District Court Hearing - March 29, 1978

## 1. Mountain State Legal Foundation argument:

- Public Utilities Commission attempted to create social policy through rate reduction.
- Approving lifeline rates would set a precedent for the arbitrary redistribution of wealth by PUC (taxation without representation).
- The state legislature should accomplish any necessary subsidization to the needy.

B. District Court ruled:

1. The discounted gas rate is preferential, and violates the State Code because two different rates are being charged for the same service.
2. Adoption of the program exceeds the Commission's constitutional authority.

C. Plans

1. Attorney General will meet with Public Utilities Commission members to review the court order.
2. The Public Utilities Commission may appeal its decision.
3. Consideration (hearing case number 77-99909) of similar rate programs by the Utah Public Service Commission has caused MSLF to file a similar brief before the Utah Commission.

III. SOURCE

Stephen Shipping  
 Mountain State Legal Foundation  
 1845 Sherman Street  
 Denver, Colorado 80203  
 Tel.: (303) 861-0244  
 Date of Contact: December 14, 1978

Harry Galligan  
 Public Relations  
 Public Utilities Commission  
 Denver, Colorado 80203  
 Tel.: (303) 839-3198  
 Date of Contact: November 1, '78

IV. DOCUMENTATION

"Court Voids Reduced Gas Rates"  
 Joseph Seldner  
The Denver Post  
 March 29, 1978

"PUC Welfare Role Ruled Illegal"  
The Litigator  
 Mountain States Legal Foundation publication  
 Spring, 1978

"Utilities Commission Order Ruled Illegal"  
Action Update  
 Mountain State Legal Foundation publication  
 Spring, 1978

Brief of Plaintiff - Appellee Mountain State Legal Foundation  
 Number 28151, District Court, Denver  
 State of Colorado  
 July 14, 1978

Brief of Mountain State Legal Foundation  
 Case Number 77-999-09  
 Public Service Commission  
 State of Utah  
 Winter, 1978

Interim Decision and Order...Establishing Discounted Gas Rates  
 Decision No. 91365  
 Public Utilities Commission  
 September 28, 1977

## MAINE

PROGRAM: Lifeline Demonstration, 1976-77

This was a one-year demonstration lifeline program for electricity mandated by the Legislature in 1975, with a flat rate of 3¢/KWH for the first 500 KWH used. Thoroughly evaluated by and under the administration of the Public Utilities Commission, the program covered six municipalities within the service areas of Maine's three largest electric utilities.

I. DESCRIPTION

A. Establishment: The program was established by action of the Maine Legislature (P.L. 1975, C.585, 35 M.R.S.A., C.4, Secs. 81-85) and signed into law June 26, 1975.

1. The stated purpose of the law was to enable older citizens:

"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."

2. The Public Utilities Commission (PUC) was given responsibility for the program.

. assistance from the Executive Department's Division of Community Services (DCS) proved to be essential in the operation of the program

3. PUC was charged with:

. holding hearings to review the program upon completion

. reporting its findings to the legislature

B. Coverage: The program was to be applied to six demonstration municipalities, or one large city and one small town located within the service area of each of the state's three largest utilities.

1. Portland, Bangor, and Caribou had populations over 10,000.
2. Rockland, Ellsworth, and Fort Kent had a total population of 126,386 in 1970.

. this was equivalent to 12.7% of the state's 997,000 inhabitants

C. Target Population

1. Persons eligible were residential customers 62 years or older with a permanent abode in Maine.
2. Household income must be under \$4,500 (or \$5,000 for households with two or more members) for the previous calendar year.

. approximately 14 percent of Maine's population age 60 and over lived in the six demonstration municipalities according to the 1970 census.

3. A total of 2,619 persons participated in the program.

. this was equivalent to 2 percent of the 126,386 persons residing in the demonstration area.

Total Participants	2,619
Average Income	\$ 2,938
Average Age	75.1
Percent Living Alone	59%

D. Administration:

1. Under the direction of the DCS an outreach agency for each demonstration area was chosen to:
  - . publicize the program
  - . sign up applicants
  - . certify the financial status of each applicant
2. There were serious problems in getting information to potentially eligible customers.
  - . extensive publicity and personal contacts were necessary to reach potential applicants
3. Monthly per applicant costs were:
  - . 75¢ for FUC, DCS, outreach agencies
  - . \$5.48 for utilities

E. Lifeline Rate: A flat 3¢ per KWH rate for the first 500 KWH.

1. No minimum charge, fuel adjustment charge, service charge, connection charge, or other periodic charge.
  - . usage over 500 KWH at regular residential rates
2. Loss of revenue to electric utilities not including administrative cost of the program was to be offset by a per KWH surcharge on all non-lifeline customers in the demonstration communities.

3. Average savings per customer ranged from 31% to 50 % less than regular rates.
  - . lifeline customers used less electricity than regular residential customers (264 KWH vs. 521 KWH)
  - . lifeline customers showed about the same pattern of consumption during 1976 as they had during 1972-1975

## II. EVALUATION

- A. PUC Assessment: The PUC published a detailed assessment of the lifeline demonstration program, dated July 1977, which concludes that:

"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."

1. However, lifeline "is not a substitute either for overall redesign of electric rates or for a comprehensive program ..."
2. The major problem is how to pay for lifeline.
  - . the per kilowatt surcharge was clearly unpopular especially in northern areas where high proportions of elderly in the population (up to 22 percent) and high participation rates meant that surcharges were large.

- B. Future Plans: A bill (H.P. 1669, L.D. 1867, 108th Legislature) was introduced to establish a permanent lifeline rate for residential customers 65 years of age or older with combined annual household adjusted gross income of \$6,500 or less.

1. The lifeline rate would be equal to:
  - . 75 percent of the applicable base bill rate for the first 500 KWH

A.114

- . partial reduction for the second  
500 KWH
  - . regular residential rates for utilization  
in excess of 1,000 KWH
2. Lost revenues to each utility would be deemed to be a cost  
of service for the purpose of determining just and  
reasonable rates.
  3. No action has been taken on this bill to date.
  4. Note that the FUC is now considering a rate case involving  
Central Main Power which would move away from declining  
block rates toward higher introductory service charges.

III. SOURCE

John D. Molloy, Attorney  
Public Utilities Commission  
Augusta, Maine 04333  
Tel.: (207) 289-2446  
Date of Contact: October 11, 1978

IV. DOCUMENTATION

Report of Public Utilities Commission to the  
108th Legislature on the Lifeline Demonstration Program  
July 1977

H.P. 1093, L.D. 1317, Final Version  
Maine Legislature  
Signed June 26, 1975

## MASSACHUSETTS

PROGRAM: Lifeline Program, A-65

Labeled by the Public Utilities Commission as a "limited experiment in social rate-making," the program offers reduced rates to low income elderly Massachusetts Electric Company customers for monthly consumption from 22 KWH to 375 KWH. Problems include determining fair usage amounts and which customer class(es) should finance these reduced rates.

I. DESCRIPTION

A. Eligibility: The following qualifications must be met:

1. Head of household must be at least 65 years of age;
2. He/she must receive supplemental security income (SSI);
3. Annual certification of compliance must be made  
to the Company.

B. Benefits: Significant discounts are available for consumption between 22 KWH and 375 KWH per month.

C. Comparison of Rates

<u>Rate A-65</u>		<u>Rate A-22</u>	
\$1.83	first 22 KWH	\$1.83	first 22 KWH
2.436¢	next 28 KWH	5.974¢	next 28 KWH
1.895¢	next 150 KWH	4.372¢	next 150 KWH
1.615¢	next 175 KWH	3.673¢	next 800 KWH

1. Both the special elderly rate and the regular domestic rate do not charge the customer for zero use in any month.
2. The prices under both rates may be adjusted from time to time to reflect changes in the Primary Service for Resale Rate of the Company's supplier (New England Power Company).



D. Problems:

1. A conflict exists in determining which group of customers should finance rate A-65. According to:
  - . the Massachusetts Electric Company, residential customers alone should pay;
  - . the Massachusetts Department of Public Utilities (M.D.P.U.) rules that all customer classes should share payment equally
  
2. To promote equitable treatment to all classes of consumers, M.D.P.U. requires regular bi-monthly reports from the Massachusetts Electric Company on the actual revenue effects of the rates.

II. SOURCE

Margaret A. Lynch  
 Director of Consumer Services  
 Public Utilities Commission  
 Tel.: (617) 727-3503  
 Date of Contact: October 15, 1978

Roger Conner  
 Massachusetts Electric Company  
 Tel.: (617) 366-9011  
 Date of Contact: January 4, 1979

III. DOCUMENTATION

Investigation by the Department on Its Own Motion as to the Propriety of the Rates and Charges Set Forth in Schedules M.P.D.U., Nos. 398 to 413 . . .

Department of Public Utilities  
 Commonwealth of Massachusetts  
 May 31, 1978

Domestic Rate A-65  
 Massachusetts Electric Company  
 Effective November 1, 1978

Domestic Rate A-22  
 Massachusetts Electric Company  
 Effective November 1, 1978

## MICHIGAN

PROGRAM: Optional Residential Senior Citizen Rate

The Michigan Public Utilities Commission has ordered the two largest electric utilities to offer a special rate to customers age 65 and older, without income limitations. The discount offered is substantial but is applied only to the first block (300 KWH); subsequent blocks are priced higher than their regular residential rate counterparts. Thus, the rate appears to be self-policing and self-supporting.

I. DESCRIPTION

A. Establishment: Effective September 29, 1978, Detroit Edison and Consumers Power electric utilities offer an optional elderly rate.

1. A long-standing goal of the Michigan Public Utilities Commission has been to provide a special discounted rate to senior citizens.
2. During investigation into this matter, the PUC learned from the State Attorney General that such a discount would be disallowed due to its discriminatory, preferential treatment of one consumer group over others.
3. It was recommended that an optional rate be constructed which would provide the usage data needed to substantiate the claim that many elderly persons are indeed low-usage consumers.

B. Eligibility: Head of household must document his/her age to be 65 years or older, and must be a permanent resident.

C. Rate Schedule: (\$2.65/mo. service charge)

	<u>Det. Ed./KWH</u>	<u>Con. Power/KWH</u>
0-300	2.75¢	2.60¢
300-500	5.75¢	5.45¢
over-500	7.75¢	6.70¢

1. This first block is smaller in size than that of the regular residential inverted rate (0-500) and less costly (2.75¢ compared to 4.25¢ for Detroit Edison customers).
2. Subsequent blocks under this Optional Rate are more costly than their regular inverted rate counterparts.
3. The PUC explanation for this, aside from the nationwide movement toward conservation, is that voluntary participation by seniors in this experiment will yield the factual data necessary to support the existence of a correlary between higher income/higher energy usage.
4. For this reason there are no income eligibility restrictions; it is believed that the structure of the rate itself will cause it to be self-policing.
5. Thus, administrative and other cost details are simplified for the consumer and for the utilities.

D. Revenue Recovery: The shortfall in revenue may be made up from a .017¢/KWH increase from non-participating resident consumers.

1. It would appear, however, that the higher cost of usage blocks over 300 will cause the rate schedule to be self-supporting.

## II. SOURCE

Mr. Maxwell  
Energy Office Representative  
Public Service Commission  
Lansing, Michigan 48913  
Tel.: (517) 373-8590  
Date of Contact: February 7, 1979

Bob Nelson  
Deputy Director of Policy  
Public Service Commission  
Tel.: (517) 373-3240, Ext. 0777  
Date of Contact: October 12, 1978

## III. DOCUMENTATION

Rate Order #U-5502  
Public Utilities Commission  
State of Michigan  
1976  
pp. 61-70

Rate Book for Electric Service  
Prepared by Rate Department, PSC  
Detroit Edison Company  
Effective September 29, 1978  
Senior Citizen Domestic Service Rate Schedule  
(Original Sheet No. D 1.3)

Consumers Power Company  
Effective August 1, 1978  
Optional Residential (Senior Citizen) Service Rate "A-2"  
(Original Sheet No. B 3)

## MISSOURI

PROGRAM: Silver Haired Legislature Group

Missouri has a strong coalition of senior citizens promoting an energy rate-rebuilding program. Their high degree of visibility, mainly through the Silver Haired Legislature Group, has accomplished much in promoting high priority items such as the lifeline concept.

I. DESCRIPTIONA. Background

1. There has been no successful legislation in Missouri to assist residential consumers with their energy bills.
2. The Missouri Office on Aging and the Missouri Association of Area Agencies on Aging have organized a state-wide group of seniors, the Silver Haired Legislature Group.
3. The group holds mock legislative sessions periodically, and makes recommendations to the General Assembly.
4. The group's highest priority is some form of energy rate relief.

II. ASSESSMENTA. Evaluation

1. Since concern is high among this segment of the rate-paying population, it seems likely the state would make legislative provision to alter energy rate structures.

2. The utilities are unwilling to take the first step.
3. Although hearings have been held by the Public Utilities Commission on certain "lifeline" proposals, they have produced nothing substantial as yet.

III. SOURCE

Ken Radiman  
Customer Services, Rates Analyst  
Public Utilities Commission  
Tel.: (314) 751-4020  
Date of Contact: October 10, 1978

## NEW JERSEY

PROGRAM: Lifeline Electric and Gas Rates (P.L. 440)

Legislation allowing a lifeline utility rate to be established in the state was enacted in March, 1978. The matter is now before the Board of Public Utilities, which must structure the plan before it can be implemented.

I. PROGRAM DESCRIPTION:

- A. Legislative History: The proposed lifeline legislation A-1830 was signed into law as PL-1977, Ch. 440 on March 2, 1978.
- B. Services Offered: Under the law, eligible customers will be charged a lifeline rate for the minimum quantity of electricity and minimum volume of gas necessary to supply the minimum energy needs of the average residential user. Uses of energy include space and water heating, cooling, lighting, cooking, and refrigeration. The lifeline rate will be the lowest effective rate per kilowatt hour and per therm at which electricity and gas are sold to any class of customers of the utility company.
- C. Eligibility: To qualify for the lifeline rate, a married couple or head of household must have an annual income not in excess of \$12,000 exclusive of social security. A single person must have an annual income not in excess of \$9,000 exclusive of social security.
- D. Projected number of eligible persons: The staff of the New Jersey Board of Public Utilities estimates that 1,500,000 persons in the state will be eligible for the lifeline rates.

II. PROBLEMS:

The legislation is now before the New Jersey Board of Public Utilities, which must define certain concepts and organize aspects of the plan before it can be implemented.

A. Key concepts Board must define:

- . average residential user
- . minimally adequate standard of living
- . lifeline increment
- . lowest effective rate

B. Minimum usage amounts: BPU staff recommendation of seasonal rates:

<u>October - April</u>	<u>May - September</u>
Electricity: 500 KWH	300 KWH
Gas: 100 therms	20 therms

C. Lowest Effective Rates: BPU staff recommends different surcharges for each utility be placed on that utility's lowest effective rate.

1. If bill is amended to provide for public funding, a statewide lifeline rate would be less discriminatory.
2. If "lowest effective rate" concept is eliminated, a uniform statewide surcharge would be preferred.

D. Income Qualifications: BPU staff submits that \$12,000 income cut-off level may be too high.

1. Would cause a substantial shift in revenues between lifeline customers and other classes of customers (approximately \$100,000,000).
2. Perhaps all sources of income should be considered.



E. Program Administration: BPU staff recommends that a state agency (a Bureau of Lifeline Administration in the Rates and Accounts Division of BPU) be the administrator.

1. A "welfare-type" agency would adversely stigmatize the program for the elderly.
2. The utilities themselves do not have access to customer income information, and are therefore hesitant to process or police the program.
3. The administrative agency should be funded by the State.

F. Funding: The Board of Public Utilities staff is of the opinion that statewide public funding, possibly through an energy stamp program, is desirable.

### III. ASSESSMENT

A. The major problems deal with the "general" language of the bill.

1. The administrative agency must first be decided.
2. Then, the questions of funding and implementation can be dealt with.

<p>IV. <u>SOURCES</u>: Vaughn M. Donovan, Director          Division of Rates and Accounts,          Board of Public Utilities          110 Raymond Boulevard          Newark, New Jersey 07102          Tel.: (201) 648-2744          Date of Contact: October 11, 1978</p>	<p>Robert Iacullo          State of New Jersey          Department of Energy          Board of Public Utilities          Rates Division          Tel.: (201) 648-2744          October 10, 1978</p>
--	---

V. DOCUMENTATION: State of New Jersey  
 Assembly, No. 1830  
 Introduced January 19, 1976

State of New Jersey  
 Department of Energy, Board of Public Utilities  
 In the Matter of the Board's Investigation of Lifeline  
 Electric and Gas Rates Pursuant to PL-1977, Chapter 440  
 Docket Number 784-311

Direct Testimony of Vaughn M. Donovan ... and  
 Walter P. Szymanski ... , also Dr. Fred S. Grygiel  
 September 15, 1978

## NEW JERSEY

PROGRAM: Gambling Proceeds to Aid Elderly and Handicapped

The constitutional amendment that allowed the establishment and operation of gambling casinos in Atlantic City included a provision that a percentage of net proceeds accruing to the state from such operations be earmarked for use by elderly and/or disabled citizens to help pay utility bills.

I. PROGRAM DESCRIPTION:

- A. Legislative History: Article IV, Section VII, paragraph 2 of the New Jersey Constitution was amended by referendum to allow the Legislature to authorize the establishment and operation of gambling casinos in Atlantic City.
- B. Funding: 8% of gambling revenues are put into a fund administered by the State Treasurer and can be used by eligible senior citizens and disabled citizens to help pay utility bills.

II. SOURCE: Ron Muzyk  
 Division of Aging  
 Department of Community Affairs  
 Trenton, New Jersey 08675  
 Tel.: (609) 292-4833

III. DOCUMENTATION:

State of New Jersey, Assembly Concurrent Resolution, No. 126,  
 Introduced January 19, 1976.

## NEW YORK

PROGRAM: Lifeline Block Electric Rates (7013-A)

This bill would have authorized the Public Utility Commission of New York to establish a lifeline electric block, 200 KWH/month maximum, at a rate to be determined for all public electric utilities and eligible elderly low-usage consumers. It did not pass the 1978 Legislature.

I. DESCRIPTION

- A. Establishment: This bill, introduced by the Senate on January 4, 1978, would have provided for the establishment of lifeline electric rates for senior citizens.
1. It was aimed at easing the plight of those elderly consumers on limited incomes who are unable to afford sufficient service to meet their minimum energy needs.
- B. Eligibility: Electric utility customers who:
1. Are over age 62 and do not share residence with more than one other person who is less than 62 years of age;
  2. Do not live in a multiple dwelling.
- C. Lifeline Allowance: 200 KWH/month, maximum
1. The specific amount will be determined by the Public Utilities Commission (PUC) by dividing each public utilities' revenues for 1977 by the total number of KWH sold by that utility during 1977.

2. The rate per KWH of this lifeline amount will also be determined by the PUC.
  - . the rate shall not exceed the average residential rate in effect for that utility on January 1, 1977
  - . it shall not include any minimum or periodic charge
3. The rate shall not be increased by the PUC until the average system rate for the utility has increased 25% over the January 1, 1978 level.
  - . any subsequent increases shall not exceed an amount equal to the proportional average increase of all customer classes

D. Revenue Recovery: The utility shall receive a gross receipt tax credit for 95% of revenue shortfall caused by the lifeline rate.

1. The tax commission shall be authorized to formulate any necessary provisions.

E. Time Period: The Act was to have been implemented three months after passage, and would remain in effect for two years.

## II. SOURCE

Joyce Q. Chupka  
Legislative Representative  
Public Utility Law Project (PULP)  
55 Columbia Street  
Albany, New York 12207  
Tel.: (518) 449-3375  
Date of Contact: December 20, 1978

## III. DOCUMENTATION

7013-A (Lifeline Block Electric Rates)  
New York Legislature  
Dated January 4, 1978

## NORTH CAROLINA

PROGRAM: Residential Energy Conservation Rates

The North Carolina Public Service Commission recently adopted a separate, lower residential conservation rate schedule for all residents bringing their homes up to approximately the F.H.A. minimum insulation standards.

I. DESCRIPTION

A. Establishment: The program began in September 1978.

B. Applicability

1. Individually metered residential customers in houses, condominiums, mobile homes, or apartments irrespective of the source of energy for environmental space conditioning or water heating.
2. Thermal control products installed in the homes must meet Duke Power's Energy Efficient Structure Program, April 1978 revision (approximately F.H.A. standards).
3. Criteria for the installation of electric heating and water heating:
  - a. Electric heat pumps must have two-stage heating thermostats.
  - b. Total heat loss cannot exceed 30 BTU per square foot of net heated area, including duct or pipe losses.
  - c. Water heaters are the automatic insulated storage type, 30 gallon capacity or larger.

C. Conservation RatesJuly - October

2.94¢/KWH	first 350 KWH/month
3.51¢/KWH	next 950 KWH/month
3.04¢/KWH	all over 1300 KWH/month

November - June

2.94¢/KWH	first 350 KWH/month
3.51¢/KWH	next 950 KWH/month
2.68¢/KWH	all over 1300 KWH/month

(\$4.30 basic facilities charge for each period)

- For customers receiving Supplemental Security Income under the program administered by the Social Security Administration and who are blind, disabled, or 65 years of age or older, the rate for the first 350 KWH shall be 2.79¢/KWH. Additional service is to be charged at the regular rates.

D. Regular Residential RatesJuly - October

2.94¢/KWH	first 350 KWH
4.49¢/KWH	next 950 KWH
3.64¢/KWH	all over 1300 KWH

November - June

2.94¢/KWH	first 350 KWH
4.49¢/KWH	next 950 KWH
3.37¢/KWH	all over 1300 KWH

(\$4.30 basic facilities charge for each period)

II. SOURCE

Mr. Ed Tucker  
 Electric Division, North Carolina Utilities Commission  
 P.O. Box 991  
 Raleigh, N.C. 27611  
 Tel.: (919) 733-2267  
 Date of Contact: October 15, 1978

A.130

III. DOCUMENTATION

NCUC Docket No. E-7, Sub 237  
September 8, 1978

NCUC Docket No. E-7, Sub 197  
February 9, 1976

## RHODE ISLAND

PROGRAM: Narragansett Electric Co. A-65 Rate

As ordered by the Rhode Island Public Utilities Commission, the Narragansett Electric Company offers reduced electric rates to qualifying low income elderly. Although the same service charge applies as that for regular residential, the discount percent is fairly substantial.

I. DESCRIPTION

- A. Establishment: The Narragansett Electric Company (NE) offers currently qualified elderly customers reduced rates under RI PUC No. 501, effective from April 1, 1978.
- B. Eligibility Criteria: Customers must annually certify on forms provided by the utility that they meet all the following qualifications:
1. 65 years of age or older
  2. Head of a household or principal wage earner
  3. Presently receiving Supplemental Security Income (SSI)
- C. Rate Structure: NE purchases power from New England Power Co. (NEP) and rates are adjusted from time to time to reflect changes in NEP rates for resale. A-65 rates effective October 17, 1978 are shown below.

	<u>Nov. - June</u>	<u>July - Oct.</u>
Zero Use	\$2.04	\$2.04
0-20 KWH	\$2.21	\$2.21
Next 30 KWH	4.570¢	4.570¢
Next 150 KWH	3.480¢	3.480¢
Next 175 KWH	3.100¢	3.250¢
Next 225 KWH	5.420¢	5.550¢
Next 1400 KWH	4.850¢	5.050¢
Next 2000 KWH	4.260¢	4.550¢

1. Note that winter rates per KWH first fall from 4.570¢ to 3.100¢ or by 30% for consumption between 375 and 600 KWH per month, with gradual declines in rates for succeeding blocks.



RHODE ISLAND  
(A-65 Rate)

II. SOURCE

Lisa Rohr  
Department of Business Regulation  
Public Utilities Commission  
100 Orange Street  
Providence, Rhode Island 02903  
Tel.: (401) 277-3500  
Date of Contact: October 16, 1978

III. DOCUMENTATION

Domestic Rate A-65  
R.I.P.U.C. No. 501  
Narragansett Electric Company  
Effective: October 17, 1978

## UTAH

PROGRAM: A-65 Lifeline Program

As ordered by the Public Service Commission, Utah Power and Light Company currently operates a reduced rate schedule for consumers aged 65 or over. Opponents argue that it is unlawfully discriminatory for the Commission to have so ordered, and a rehearing has been granted by the Courts.

I. DESCRIPTION

A. Establishment: The Utah Power and Light Company currently designates, within their tariff, a separate rate structure for senior citizens, as ordered by the Public Service Commission on August, 1978.

B. Eligibility: Residential customers at least 65 years of age.

1. The commission ruled that criteria must also include cut-off levels for:

- income
- kilowatt hours used per month

2. To date, age verification remains the sole criterion employed by the power company

C. Rate Structure

1. Residential Service under Senior Citizen Rate

<u>RATE A</u>	<u>RATE B</u>	(water heating)
7.5¢ - first 60 KWH	- 7.5¢	
5.7¢ - next 140 KWH	- 5.7¢	
3.9¢ - next 200 KWH	- 2.3¢	
4.4¢ - all additional KWH	- 4.4¢	

## 2. Regular Residential Rate

<u>RATE 1</u>	<u>RATE 2</u> (water heating)
8.6¢ - first 60 KWH	8.6¢
6.6¢ - next 140 KWH	6.6¢
4.4¢ - all additional KWH	4.4¢

II. ASSESSMENTA. Problems: A petition for a rehearing has been granted by the Court

1. The basic dispute concerns whether such an order to implement a lifeline program is within the jurisdiction of the Public Service Commission or if it is a matter to be handled by the legislature.

Statutes now state that the Commission cannot discriminate

2. The program has been charged as discriminatory.

B. Future Plans: A final order will result at the conclusion of the rehearing which should be concluded within 30 to 90 days.III. SOURCE

Victor Gibb  
Public Service Commission  
Salt Lake City, Utah 84114  
Tel.: (801) 533-5518  
Date of Contact: October 13, 1978

Lynne Walton  
Customer Service  
Utah Power and Light Company  
40 East First South  
P.O. Box 30898  
Salt Lake City, Utah 84140  
Tel.: (801) 350-3535  
Date of Contact: December 15, 1978

IV. DOCUMENTATION

Schedule Numbers 1, 2, 5, 32  
Utah Power and Light Company  
Effective August 19, 1978

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Weatherization and Conservation  
List of Individual Programs Surveyed

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NOTE: Program descriptions are available for those individual programs for which page numbers are indicated.

A.138-A.139

## ARKANSAS

PROGRAM: Weatherization - Unique Statewide Delivery System

I. PROGRAM DESCRIPTION:

- A. Establishment: The federally funded program began with a small experimental pilot program funded through the Community Services Administration in 1975-76 for the northern part of the state. The following year the state also received federal funding from the Department of Energy for weatherization.
- B. Funding: During the past 20 months approximately \$2.3 million dollars has been received for the program including some from Revenue Sharing and \$800,000 left over from the Special Crisis Intervention Program.
- C. Eligibility Criteria: Standard federal requirements.

II. IMPLEMENTATION:

- A. Statewide Delivery System: Arkansas is unique in having all funding administered through the Arkansas Department of Local Services rather than through the 19 local Community Action Agencies scattered throughout the state. A statewide program was desired because through the original pilot study it was determined such a structure would:
1. Allow the state to better leverage the money to get:
    - . Better prices for insulation materials
    - . Better contract with CETA
    - . Better training for technical assistants and administrators.
  2. Minimize duplication of effort and bureaucratic red tape. Arkansas was the first state in the nation to be certified for both 1977 and 1978. Arkansas is not a large state and there were not a lot of special interest groups involved which might hold things up.

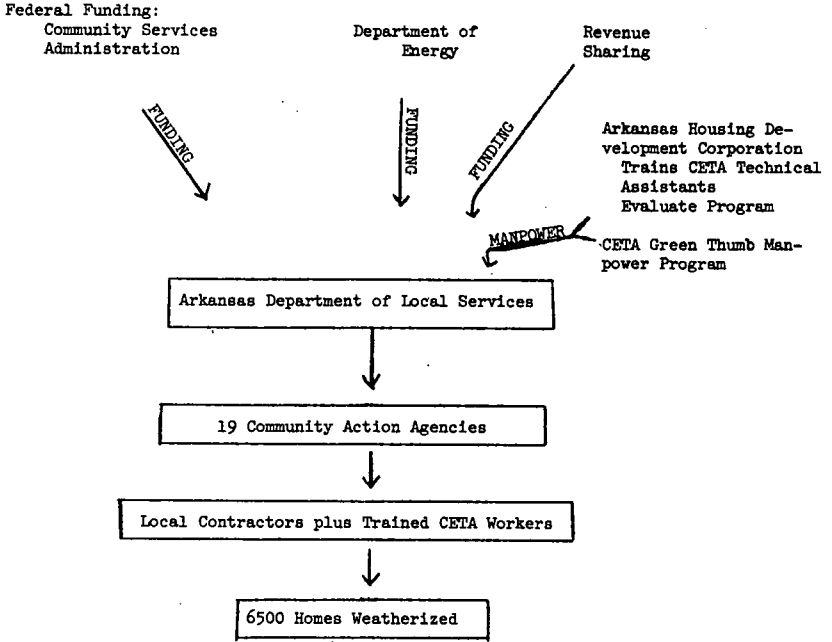
B. Quality Control: The Department of Local Services spot checks the work to make sure contractors have performed according to agreement. There have been only a few instances of cheating where, for example, the insulation was not poured to required thickness. The state has been able to economize with materials. For example, a 30 lb. bag of cellulose insulation averages \$4.00 as opposed to twice the price in other states.

C. Comment: Mr. Ivory feels that the state made a policy decision concerning energy and energy costs. They could either go after a temporary solution or a permanent solution like the weatherization program. They chose the latter.

III. SOURCE: George Ivory  
Department of Local Services  
Tel.: 371-1201



ARKANSAS DELIVERY SYSTEM FOR WEATHERIZATION PROGRAM



## CALIFORNIA

PROGRAM: Home Insulation Loan/Incentive Program

The California Public Utilities Commission on March 7, 1978, mandated all electric and gas utilities to offer low interest loans and other incentives to encourage improved insulation of the homes within their service areas. This program, and other conservation-oriented programs, will be monitored by a Conservation Branch in the Utilities Division of the Commission.

I. DESCRIPTION

A. History: The California Public Utilities Commission ordered one utility to offer low interest financing for the purpose of retrofitting insulation (Decision Number 88272, December 20, 1977).

1. Pacific Gas and Electric Company offers loans up to \$500 at 8% interest with payback terms of up to five years.

B. Establishment: In line with vigorous efforts toward conservation-oriented ratemaking, the Commission ordered all gas and electric utilities within its jurisdiction to implement an insulation incentive/loan program (Decision Number 88551, March 7, 1978).

1. Home insulation loan program: Utilities provide low interest (8%) loans to customers improving their home insulation.
2. Insulation incentive program: Conservation devices will be provided to encourage customers to insulate ceilings to a minimum thermal resistance of R-19.

II. IMPLEMENTATION

A. Problemá: There was concern for the lack of specification requirements in the insulation incentive program.

1. Seven utilities and two other interested parties petitioned for rehearing.
2. Commission granted limited rehearings to clarify the details.

III. ASSESSMENT

A. Commission Evaluation Policy: A Conservation Branch has been established in the Utilities Division of the Commission.

1. Conservation programs of major utilities are reviewed and evaluated (and thereby encouraged).
2. New and/or improved conservation practices, projects, and studies are brought to the Commission's attention; therefore, they can both initiate changes and assess program effectiveness more easily.

IV. DOCUMENTATION

"California's Approach to Conservation-Oriented Ratemaking"  
Public Utilities Commission of California  
December 1, 1978  
pp. 4-6

## CALIFORNIA

PROGRAM: Conservation Voltage Reduction Program (CVR)

The upper voltage limit of electric utilities was reduced from 3% to 5%. This program has been the most effective conservation effort in California and has had a negligible cost. In one year, the equivalent of over one million barrels of oil were saved.

I. DESCRIPTION

A. Establishment: CVR was initiated into Pacific Gas and Electric's Application No. 55509 in 1977.

B. Operation: Distribution voltage is reduced in two phases:

1. Upper voltage limit is reduced 3% to 122 volts.
2. Upper voltage limit is reduced an additional 2% to 120 volts and the lower limit is always held at 114 volts.

II. ASSESSMENT

A. Evaluation

1. By the end of 1977, most California Electric Utilities had implemented the first phase.
2. Implementing the second phase will take longer because capital improvements are required.
3. The first phase resulted in the savings of an equivalent of 1.29<sup>4</sup> million barrels of oil.
4. In 1978, an estimated 4.07 million barrels will be saved.

III. SOURCE

David Sweet, Dean  
College of Urban Affairs  
Cleveland State University  
Cleveland, Ohio 44115

IV. DOCUMENTATION

"California's Approach to Conservation-Oriented Ratemaking"  
Public Utilities Commission of California  
December 1, 1978  
pp. 4-5

## COLORADO

PROGRAM: Proposed Weatherization Incentive Warrants for Elderly and Disabled Low Income, HB 1227

Warrants for qualified low income elderly and disabled would be automatically mailed to residents to use for weatherization projects. Future warrants are contingent upon proof that specific energy-saving improvements have been made. Postponed indefinitely, 1978.

I. DESCRIPTION

- A. Purpose: Utility heating expenses have had a severe impact on elderly and disabled low-income persons. Home insulation and heating system improvements assistance would best aid them in meeting those expenses.
- B. Provisions: Automatic Assistance
1. 1978: a \$300 warrant would be issued to all those who qualify for an income tax credit.
  2. 1979: Those who submit ceiling insulation receipts totaling at least \$240 will receive a \$200 warrant.
  3. 1980: Those who submit storm door and window receipts will receive a \$250 warrant for the purpose of making furnace adjustments and installing clock thermostats.
  4. An explanatory letter printed in both English and Spanish would be enclosed with each check explaining the program.
- C. Funding: The program would be financed through the State Treasury. The funding level was not determined.

COLORADO - 2  
(Weatherization Incentive  
Warrants)

II. SOURCE

Mr. Larry D. Thompson  
Legislative Council  
Room 46 State Capitol  
Denver, Colorado 80203  
Tel.: (303) 839-3521

III. DOCUMENTATION

House Bill 1227  
State of Colorado  
Fifty-first General Assembly, Second Session

## COLORADO

PROGRAM: Attic Insulation Program of the Public Service Company of Colorado

This utility company provides free inspection and estimates for attic insulation, sells insulation, and arranges for contractors. Thirty-month financing and monthly billing are available upon customer's request. An estimated 38% of the insulation jobs are financed through the utility.

I. DESCRIPTION

A. History: Since the program was started in 1975, 23,000 homes have been insulated and a total of 54,000 inspected.

1. An estimated 300,000 homes in the service area are under-insulated.
2. Average cost of providing adequate insulation is \$245.

B. Purpose: The insulation program was initiated as a corporate decision and was designed independently of the Utility Regulating Commission with the purpose of helping customers keep their utility bills down.

1. Any revenues accruing from the program are used to offset costs of the program.

C. Operation

1. A utility representative inspects the home and provides an estimate.
2. The representative sells the insulation material to the customer.



3. A contractor installs the insulation.
4. Upon customer request, the utility finances the work at  $8 \frac{3}{4}\%$  interest over a thirty-month period.

## II. IMPLEMENTATION

- A. Labor: Four full-time and 92 part-time estimators are employed, and contracts are made with 50 different contractors.
- B. Materials: Insulation materials are rock wool, fiberglass, and cellulose.
- C. Quality Control: The utility inspects a random sample of insulated homes, and conducts a follow-up of inspections at the request of the customer.
- D. Publicity: Originally, bill stuffers and television advertising were used, but demand is now so high that there is little advertising.

## III. DOCUMENTATION

Mr. David Davia and Mr. Joseph Petroglia  
Public Service Commission of Colorado  
Tel.: (303) 571-7511

## COLORADO

PROGRAM: Colorado Public Service Company Conservation Program, Energy Audits

Consumer representatives will conduct energy audits of residences in an effort to help customers improve the thermal efficiency of their homes, and increase their awareness of energy usage and care of appliances.

I. DESCRIPTION

A. Background: A previous energy conservation effort resulted in the upgrading of insulation in over 30,000 homes.

1. Gas energy usage in these homes was reduced by over 12%.

B. Services

1. Walk-through energy audits of residential electric users, costing approximately \$25.00, will include:

- . Inspection of insulation, windows, walls, weatherstripping, caulking, crawl spaces, and basements.
- . Information concerning the utilization of passive solar energy.

2. All classes of customers will be offered technical assistance and recommendations on energy efficiency through utilization of:

- . Walk-through general audits
- . Computer aided general audits
- . Specialized lighting analysis
- . Publication of user conservation manuals
- . Expansion of an ongoing irrigation pump testing program

II. DOCUMENTATION

Public Utilities Fortnightly  
August 3, 1978

## COLORADO

PROGRAM: Colorado Emergency Winterization Act  
Proposed Bill No. 2

This program would provide financial aid by winterizing residences owned and occupied by low-income elderly or disabled persons.

I. PROGRAM DESCRIPTION:

A. Legislative history: This bill was introduced by the Interim Committee on Transportation and Energy. It is essentially the same bill that failed last year. It proposes adding state money to federal funds for winterization. If enacted, it would become effective July 1, 1979.

B. Provisions:

1. The bill provides state funds through the governor's office for the purpose of winterizing residences occupied by certain low-income elderly or disabled persons.
2. It provides that the Colorado Office of Human Resources shall administer the distribution of funds to local organizations to provide labor and materials and to audit evaluations for improving the heating and heat retention of certain residences, for saving energy, and for reducing fuel costs.
3. It declares that this act is necessary for "the immediate preservation of the public peace, health, and safety."

C. Services offered: Winterization services include the providing of materials and expertise and the securing of the needed labor for installing conservation measures. Conservation measures are those which will improve the thermal performance of an eligible residence

through one or more of the following:

- Reduction of infiltration, i.e., repairing or patching windows, roofs, walls, or cracks; weatherstripping doors and windows; insulating attics, floors, walls, and exposed heating ducts.
- Increase of thermal resistance, as by foundation banking, mobile home skirting, and the installation of permanent storm doors and windows.
- Increase of heating source efficiency, as by replacing furnace filters, adjusting burners, installing flue restrictors, wrapping water and steam pipes, adjusting hot air flow, installing recuperators or heat recirculators, and installing clock thermostats.

D. Eligibility criteria:

1. Age or disability: Either 65 years or over or determined to be disabled for the year during which the winterization services are sought.
2. Income: Income in all cases above must not exceed \$7,300 from all sources. In the case of a married couple, one of whom is disabled, such income shall not exceed \$8,300.
3. An eligible residence is a dwelling owned and occupied by an eligible person.

II. PROGRAM IMPLEMENTATION AND OPERATION:

A. Financing

1. Funds: For the implementation of the act, \$2,200,000 is to be appropriated to the governor's office for allocation to the Colorado Office of Human Resources for the fiscal year beginning July 1, 1979.

For the same period, \$1,300,000 is to be allocated to the division of correctional industries for the establishment of a program for the manufacture and distribution of home insulation materials. An amount not yet determined is to be taken from the capital construction fund for the construction of facilities for the manufacture and distribution of such materials.

2. Guidelines for expenditure: The maximum expenditure allowed for each residence, excluding labor costs, is to be \$1,000.
  - If a volunteer labor, CETA workers, or federal trainees are not available, an additional \$200 may be used.
  - All insulation materials must be purchased from the division of correctional industries of the department of corrections. If this is not done, state funding for that agency will be withdrawn.
  - The purchase of tools shall be governed by regulations of DOE and CSA.

B. Administration and Evaluation

1. The program would be administered by the Colorado Office of Human Resources. This office would distribute funds to the various administering agencies in a specified ratio. It would also:
  - Coordinate this program with federal emergency energy conservation programs.
  - Monitor administering agencies in order to evaluate performance.
  - Control the quality of services provided.

- Evaluate energy savings and cost-effectiveness.
  - Establish guidelines for a system of priorities of eligible persons, which shall include household income, type and unit price of heating fuel, condition of the residence and the potential for improvement, and the percentage of income spent on fuel for heating.
2. The administering agencies would, in their turn:
- Document eligibility of persons and residences.
  - Provide winterization services for those eligible, with consideration going first to those with highest priority.
  - Secure labor from volunteers or CETA or federal training programs.
  - Employ qualified supervisors to oversee the installation of conservation measures.
  - Document the condition of the residence prior to winterization, the work performed, the cost of materials and labor, and, in 10% of the residences, note the amount of heating fuel used before and after winterization.

III. SOURCE: Larry Thompson  
State of Colorado  
Legislative Council  
Colorado General Assembly  
46 State Capitol  
Denver, Colorado 80203

IV. DOCUMENTATION: Interim Committee - Transportation and Energy  
Proposed Bill No. 2  
LDO No. 79 0139/1

## ILLINOIS

PROGRAM: Utility-sponsored insulation

This 1977 plan offered by Northern Illinois Gas provided free ceiling insulation for customers over 65.

I. PROGRAM DESCRIPTION:

A. History of program: It was offered by Northern Illinois Gas (NIGAS) in 1977. It is no longer in effect.

B. Services offered: Free ceiling insulation up to \$350.

II. PROGRAM IMPLEMENTATION:

A. Delivery of benefits: In the plan, contractors estimated the cost, and NIGAS paid up to \$350. If the estimate was higher, the senior citizen could pay the extra amount.

B. Eligibility: NIGAS worked with the Illinois Commerce Commission in setting up the following eligibility criteria:

- . Age: 65 years and over
- . Income: Under \$4,600

III. EVALUATION:

They did not get the response they expected. They anticipated about 1,000 jobs but only got about one-half that amount.

IV. SOURCES: Betsy Anderson and Richard Komer  
Northern Illinois Gas  
Naperville, Illinois  
Tel. (312) 355-8000  
October 16, 1978

## ILLINOIS

**PROGRAM:** Proposed legislation concerning home insulation  
House Bill 1560

The bill provided for assistance  
and financing of home attic insula-  
tion by public utilities.

I. **PROGRAM DESCRIPTION:**

- A. **Legislative history:** The bill was introduced March 31, 1977 and  
was subsequently tabled after much discussion.
- B. **Provisions:** The Illinois Commerce Commission was to permit any  
utility, gas or electric, to institute a home insulation  
assistance and financing program for its residential custo-  
mers in accordance with the act and to adopt the require-  
ments to implement the act.

II. **PROGRAM IMPLEMENTATION:**

- A. The public utility would arrange for a licensed contractor,  
approve the estimate, direct the work to begin, and  
arrange for inspection of work.
- B. The public utility could provide for payment by the customer  
through the customary periodic billing procedure or make  
financial arrangements with lending institutions.
- C. Advertising would be subject to the provisions of the act and  
the approval of the Commission.

III. **SOURCE:** Stanley M. Johnston  
Deputy Secretary  
State of Illinois  
Legislature Reference Bureau  
Room 112, State House  
Springfield 62706  
Tel. (217) 782-6625  
October 16, 1978

IV. **DOCUMENTATION:** House Bill 1560



## KENTUCKY

PROGRAM: Weatherization: Crisis Intervention

I. PROGRAM DESCRIPTION:

A. Funding: Crisis Intervention program, working through the Community Action Agencies, will make weatherization improvements up to a maximum of \$250 per year.

B. Eligibility:

1. Income: Requirements set by federal guidelines
2. Renters: A person or family who rents and pays utilities is eligible for weatherization assistance if the landlord agrees to the improvements and agrees not to raise the rental fees or eject the tenant for a specified period after the improvements are made. There are similar requirements for landlords who pay the heating bills.

II. PROGRAM IMPLEMENTATION

- A. Workers: Community Action Agencies hire under-employed or unemployed workers to do the weatherization work.
- B. Types of weatherization which may be performed. Installing insulation and weatherstripping; caulking; replacing broken windows; sealing loose-fitting windows and doors with plastic; repairing and adjusting heating systems when necessary.
- C. Estimated effectiveness: A 20% increase in yearly income, which includes reduction in cold-weather illnesses as well as reduced fuel expenses was realized from the weatherization improvements.

KENTUCKY - 2  
(Crisis Intervention)

III. DOCUMENTATION: Kentucky News  
Commonwealth of Kentucky  
Department of Public Information  
Department for Human Resources  
Bureau for Social Services  
October 17, 1977

## MICHIGAN

PROGRAM: Low Income Household Home Weatherization Act: HB 6493

A state funded weatherization assistance program for low income households using both public and private contractors and monitored through a special Home Weatherization Program Review Board. Enacted into law January 6, 1979.

I. DESCRIPTION

- A. Purpose: To assist low income households to insulate their homes.
- B. Eligibility: The following qualifications must be met:
1. Households with an income level less than 125% of the income level prescribed by the Bureau of Labor Statistics as low income for the household size under consideration.
  2. Units must be owner occupied and the dwelling subject to ad valorem taxation.
- C. Benefits: Weatherization improvements including attic insulation, windows, doors, caulking and weatherstripping.
- D. Administration: State Energy Administration of the Department of Commerce with the assistance of the Department of Social Services and by contract with other state agencies.
- E. Marketing: Information will be distributed through "all available channels" including:
1. County offices of Social Services
  2. Area Agencies on Aging
  3. Community Action Agencies

F. Funding Distribution:

1. 90% will be divided on the basis of total low income households in the county,
2. One-half of the funds awarded in a county over 100,000 population will be to competitively bidding private contractors; the rest by public contractors.
3. Up to 10 percent of the grant money appropriated may be used for model programs such as:
  - . Weatherization of rental units
  - . Furnace retrofit devices
  - . Cost sharing weatherization for those not over 50% above low income level

G. Funding Level: Appropriations have not yet been determined.H. Evaluation and Monitoring: A Home Weatherization Program Review Board will be created within the Department of Commerce and will include:

1. The Directors of the State Energy Administration, Departments of Labor, Social Services, Office of Services to the Aging, Management and Budget, Housing Development Authority, or their designates.
2. Four members from the public including recipients of the program who will be reimbursed on a per diem basis for expenses.
3. One member from industry.

I. Purpose of the Review Board:

1. Establish with administration advice criteria for contractor eligibility.
2. Coordinate weatherization programs with other federal and state supported programs.
3. Review annually the weatherization plan.
4. Evaluate progress of program components.
5. Hear appeals from contractors denied contracts.

J. Public Contractors: Review Board public contractor criteria will include:

1. Applicant agency's experience, ability to secure matching funds or services, local government endorsement, proposed management plan, marketing plan, and coordination with other human services programs.
2. Public contractors will include local government agencies, nonprofit businesses or public service agencies.

II. SOURCE

Mr. William C. Fuller  
Legislative Service Bureau  
Stoddard Building, Suite 2  
123 W. Allegan  
Lansing, Michigan 48913  
Tel.: (517) 373-0170  
Date of Contact: December 28, 1978

III. DOCUMENTATION

Enrolled House Bill 6493  
State of Michigan  
Signed into law: January 6, 1979

## NEW YORK

PROGRAM: Proposed Truth-In-Heating Act: Assembly Bill 12238

This legislation proposes to inform prospective purchaser or lessee of heating requirements of buildings. Introduced at the request of the Governor; failed.

I. DESCRIPTION

- A. Purpose: To protect residential energy users and encourage energy conservation by providing heating requirements to a prospective purchaser or lessee prior to sale or lease of the property.
- B. Disclosure Provisions:
1. Within 15 working days a seller or lessor must, upon request of the prospective purchaser or lessee, deliver a two-year set of heating bills or summary as provided by the law.
  2. The fuel heating bills must in turn be provided to the property owner by the retail vendor who may charge a small fee for providing the record.
- C. Penalty: Any seller, lessor or retail vendor who violates the law will be liable for \$250 per violation if convicted.
- D. Legal Title: Non-disclosure constitutes grounds for a prospective buyer or lessee to take title to or possession of premises but will not affect the legal title.

A.163

NEW YORK - 2

(Proposed Truth-In Heating)

II. SOURCE:

Mr. Jerry Worthings  
New York Legislative Commission on  
Energy Systems  
Assembly P.O., Box 167  
Albany, New York 12248  
Tel.: (518) 472-5570

III. DOCUMENTATION:

Assembly Bill 12238  
State of New York  
March 30, 1978

## NEW YORK

PROGRAM: Proposed Energy Sales Tax Exemption, Assembly Bill 10306, 1978

The bill, if enacted would exempt a 6% sales tax on energy for those residents whose 1-3 family homes meet certain insulation standards.

I. DESCRIPTION

- A. Background: Only a small percentage of all homes in New York are insulated to current energy efficient standards. Full insulation would result in significant energy savings. The bill did not pass.
- B. Purpose: To encourage the insulation of homes by exempting the sales tax of energy sold to those residences conforming to accepted standards of energy efficiency.
- C. Provisions: Owners of a one, two, or three-family residence will qualify for a certificate of insulation if:
1. Their home meets the minimum insulation criteria of enacted law Section 135-E.
  2. This will exempt the resident from paying a sales or use tax on:
    - . gas
    - . electricity
    - . fuel oil
    - . other energy purchased for use in the residence
- D. Implementation:
1. Classes of persons and organization authorized to issue certificates would include:
    - . architects
    - . professional engineers



NEW YORK- 2  
(Energy Sales Tax Exemption)

- . state and municipal building inspectors,
  - . utilities participating in home energy conservation programs
  - . certified contractors.
2. The resident would file a copy of the obtained certificate with the energy seller.
  3. The energy seller must then furnish the information to the State Energy Office and must show the tax exemption clearly on all future bills to the resident.

II. SOURCE

Mr. Jerry Worthings  
Legislative Commission on Energy Systems  
Assembly P.O. Box 167  
Albany, New York 12248  
Tel.: (518) 449-2816  
Date of Contact: October 31, 1978

III. DOCUMENTATION

Assembly Bill 10306  
State of New York  
February 16, 1978

## NORTH CAROLINA

PROGRAM: Home Weatherization Tax Credit: HB 1003

Provides up to \$100 income tax credit for  
weatherization improvementsI. DESCRIPTION

A. Background: The North Carolina General Assembly passed HB 1003  
June 29, 1977.

1. It is known as the "Energy Conservation Act of 1977."
2. Section 5, Chapter 105 was amended to include an  
income tax credit for weatherization.

B. Provisions: From January 1, 1977-December 31, 1978 any person who  
installs new or additional insulation, storm windows will receive  
an income tax credit equal to 25% of the cost of materials up to  
\$100 per building.

C. Eligibility:

1. Taxpayer must be liable for payment of materials.
2. The home must be constructed and occupied prior to  
January 1, 1977.
3. Materials must meet minimum standards.
4. The tax credit cannot exceed taxes imposed for the  
taxable year.

D. Controls: To secure credit receipts for payment plus a brief description of materials must be provided upon the request of the Secretary of Revenue.

II. SOURCE

Mr. Ed Tucker  
North Carolina Utilities Commission  
P.O. Box 991  
Raleigh, North Carolina 27611  
Tel.: (919) 733-2267  
October 15, 1978

III. DOCUMENTATION

House Bill 1003 (Energy Conservation Act of 1977)  
State of North Carolina  
June 29, 1977

## OREGON

PROGRAM: Publicly-Owned Utilities and Oil Heat Dealers Weatherization Program  
House Bill 3265, passed

I. PROGRAM DESCRIPTION:

Publicly-owned utilities and fuel oil dealers:

A. Can provide free information to the public on energy conservation

B. Will, at the request of their space heating customers:

1. Conduct complete home energy audits
2. Provide lists of local contractors
3. Provide information on  $6\frac{1}{2}\%$  low interest weatherization loans.

II. DOCUMENTATION: a) Energy Conservation Incentive Programs for Oregon Residents  
Summary Sheet, Oregon Department of Energy

b) House Bill 3265

## OREGON

PROGRAM: Privately-Owned Utilities Weatherization Program  
House Bill 2157, passed

I. PROGRAM DESCRIPTION:

Privately-owned gas and electric utilities:

A. Can provide free information to the public on energy conservation

B. Will, at the request of their space heating customers:

1. Conduct complete home energy audits.
2. Arrange for installation of insulation or other energy-saving measures.
3. Arrange for  $6\frac{1}{2}\%$  low interest financing.

II. DOCUMENTATION:a) Energy Conservation Incentive Program for Oregon Residents  
Summary Sheet, Oregon Department of Energy

b) House Bill 2157

## OREGON

PROGRAM: State Veterans Weatherization Loan  
House Bill 2156, passed

I. PROGRAM DESCRIPTION

- A. Homes built before July 1, 1974 must meet weatherization standards of the Oregon Department of Veterans Affairs in order to be financed with a low-interest mortgage loan from the state DVA.
- B. The cost of weatherization improvements to meet DVA standards can be added to the principal of the home loan at the same low interest rate.
- C. Veterans wishing to make energy conservation improvements on homes already financed or refinanced by DVA may obtain low-interest loans for this purpose also.

- II. DOCUMENTATION:
  - A. Energy Conservation Incentive Programs for Oregon Residents  
Summary Sheet, Oregon Department of Energy
  - B. Weatherization Incentive for Oregonians  
Oregon Department of Energy
  - C. House Bill 2156

## OREGON

PROGRAM: Weatherization Tax Credit  
House Bill 2701, passed

Personal income tax credit for 25% of certain weatherization materials to a maximum of \$125.

I. PROGRAM DESCRIPTION:

Individual homeowners who make certain home energy improvements can claim a personal income tax credit for 25 percent of the cost of purchasing and installing weatherization materials up to a maximum of \$125. Credit applies to all work done between October 4, 1977 and January 1, 1984.

II. PROGRAM IMPLEMENTATION

To claim the credit, work must be certified on a form provided by the Oregon Department of Revenue, and signed by a local building inspector or registered contractor.

III. ITEMS WHICH QUALIFY FOR TAX CREDIT (Those with an asterisk (\*) must meet the requirements of the Oregon state building codes in effect at the time the weatherization is done.)

A. Insulation

- \*1. Ceiling
2. Exterior walls
- \*3. Concrete walls of heated basements or crawl space
4. Frame walls of heated basements
- \*5. Under floors over unheated spaces
- \*6. Heating system supply and return air ducts in unheated spaces
7. Hot water heaters and hot water pipes in unheated spaces

**B. Windows and Doors**

- \*1. Double glazing windows and storm windows
2. Double glazing doors and storm doors
3. Weatherstripping

**C. Fireplaces**

- \*1. Outside air inlet
2. Glass screen
3. Special grates with heat exchanger in the grate
4. Heat exchanger

**D. Furnaces**

- \*1. Replacement of old furnace burner unit with higher efficiency unit
- \*2. Replacement of converted solid fuel gravity furnace with modern forced air furnace

**E. Miscellaneous**

- \*1. Electric ignition devices for gas appliances
- \*2. Automatic water heater scheduler
3. Water flow regulating devices on any hot water outlet
- \*4. Attic ventilation (fans, vents)
5. Dehumidifiers and humidifiers, plug-in type
- \*6. Dehumidifiers and humidifiers, permanently installed
7. Timed thermostats
- \*8. Ground cover in crawl spaces
9. Cost of renting equipment to blow in insulation
10. Caulking



IV. ITEMS WHICH DO NOT QUALIFY FOR TAX CREDIT

- A. Siding
- B. Roofing
- C. Carpeting
- D. Microwave ovens and other appliances
- E. Fluorescent lighting fixtures and bulbs
- F. Dimmer switches
- G. Heat pumps
- H. Wood stoves and heaters
- I. Ceiling to floor air circulators
- J. Thermal draperies and insulating shades
- K. Radiator temperature control valves
- L. Furnace tune-up and cleaning
- M. Appliance electricity consumption meter
- N. New gasketing for refrigerators, freezers, and ovens

V. ITEMS NOT LISTED ABOVE

Weatherization materials not listed above may qualify for a tax credit as "items primarily designed to improve the efficiency of space heating and energy utilization of a dwelling." They will be considered on an individual basis by the Department of Revenue.

OREGON - 4  
(Weatherization Tax Credit)

- VI. DOCUMENTATION:
- A. Energy Conservation Incentive Programs for Oregon Residents  
Summary Sheet, Oregon Department of Energy
  - B. Weatherization Incentives for Oregonians  
Oregon Department of Energy
  - C. House Bill 2701

## OREGON

PROGRAM: Low Income Elderly Weatherization Refund  
Senate Bill No. 4

An emergency state funded weatherization refund program for seniors not participating in federal weatherization programs. Appropriates \$4 m. from the General Fund. Passed.

I. DESCRIPTION

- A. Provisions: This act provides a voucher of up to \$300 for eligible senior citizens who make certain energy conservation improvements in their home. It is designed to help those who do not qualify for a federally funded weatherization program.
- B. Eligibility:
1. 60 years of age or older on January 1, 1977.
  2. Must have received a 1976 refund under the Homeowners and Renters Refund Program.
  3. Own a home with a 1976-77 assessed value of less than \$30,000.
  4. Have a 1976 household income of less than \$7,500.

II. PROGRAM IMPLEMENTATION

1. The Oregon Department of Revenue automatically mails a refund voucher to those eligible.
2. To claim a Weatherization Refund, the claimant must return the completed voucher to the Department of Revenue, along with proof that the weatherization work has been done (copies of job orders, work contracts, receipts, or cancelled checks).

- C. Eligible Improvements: Includes but not limited to caulking weatherstripping and other infiltration preventative materials, insulation, storm doors and windows, and dehumidifiers.
- D. Appropriations: July 1, 1977 - 1979; \$4 million is appropriated to the Department of Revenue out of the General Fund.

III. SOURCE:

Ms. Patty Newton  
Oregon State Legislature  
Capitol Building, Room 49  
Salem, Oregon 97310  
Tel.: (503) 378-8891

IV. DOCUMENTATION:

Energy Conservation Incentive Programs for Oregon Residents  
Summary Sheet, Oregon Department of Energy

Weatherization Incentives for Oregonians  
Oregon Department of Energy

Senate Bill No. 4

## OREGON

PROGRAM: Energy Efficiency Rating System, Amended SB 370,1977

Requires the Energy Conservation Board to adopt a voluntary energy efficiency rating system for single family residences.

I. DESCRIPTION

- A. Purpose: To provide a simple concise means for citizens to compare the energy efficiency of any single family residence.
- B. Rating System: It is to take into account factors including but not limited to heat loss characteristics of:
- . ceilings
  - . floors
  - . windows
  - . doors
  - . heating ducts
- C. Operation: Upon adoption of the rating system the Department of Energy will publicize the, "availability of the system and encourage its voluntary use in real estate transactions."

II. SOURCE

Patty Newton  
Oregon State Legislature  
Capitol Building, Room 49  
Salem, Oregon 97310  
Tel.: (503) 378-8891  
Date of Contact: November 9, 1978

III. DOCUMENTATION

S.B. 370  
State of Oregon  
1977 Regular Session

## PENNSYLVANIA

PROGRAM: Weatherization

Pennsylvania's major effort is in the area of weatherization. Their program was begun in late 1975, and is now the largest in the country. Since its inception, 34,579 homes have been completely weatherized.

I. PROGRAM DESCRIPTION:

- A. Funding: The program was funded first by the state, but it is now funded by CSA and Department of Energy.
- B. Eligibility: By income, not by age, although 90% of the participants are seniors. The Department of Energy's income limitation is 100% of the national poverty level.

II. PROBLEMS:

Until the passage of the National Energy Act, which raises the eligibility criteria back to 125% of the poverty level, all local projects are unable to keep sufficient numbers of eligible households in the system, resulting in monthly completions below their potential capacity.

- III. SOURCE: James Surnak  
Assistant Director for Programs  
Office of Community Energy  
Department of Community Affairs  
Harrisburg, Pennsylvania 17120  
Tel.: (717) 787-2576

IV. DOCUMENTATION:

Pennsylvania Weatherization: Program Status Report  
Department of Community Affairs  
Commonwealth of Pennsylvania  
August, 1978

## WISCONSIN

PROGRAM: Comprehensive Gas Conservation Program

In September, 1977, the Wisconsin Public Service Commission required all Class A gas utility companies to develop a variety of conservation programs dealing with consumer information and education, conservation, loan financing and guarantees, household inspection and planning assistance and a comprehensive conservation plan which included conservation utility rates.

I. DESCRIPTION

- A. Establishment: Class A Gas Utility Residential Insulation Program,  
Docket Number 05-GV-2, signed September 22, 1977.

B. Mandatory Consumer Information and Education:

1. Each utility must compile lists of all public and private energy conservation, weatherization, energy-audit, or related programs offered to its residential customers, and must fully inform them of these and programs offered by the company itself.
2. Both mass media and direct customer contact are to be used.
3. The cost of these information and education programs is treated as a utility cost-of-service.

C. Mandatory Inspection and Conservation Planning Assistance:

1. Each gas utility company must provide energy inspection services for residential customers, to assist them in determining the type and amount of conservation work needed on their premises.

2. The cost of this service is treated as a utility cost-of-service.
3. Upon customer request, each utility is also required to provide a list of recommended and certified conservation materials applicators, and have a program of post-installation inspection.

D. Utility Conservation Loans and Relationship to Bank Programs:

1. Each utility must make available information on conservation loan programs offered by banks, savings and loan associations, and credit unions in the service area.
2. Each utility must offer a program of conservation improvement loans to its customers whenever such a program is not in effect by a bank, savings and loan association or credit union within the service area.

E. Financing Utility Conservation Programs:

1. Utility loans or loan guarantees are available only to owner-occupiers and are limited to a maximum of \$2500.
2. Upon completion of conservation work performed through the loan program, the utility makes payment directly to the contractor and begins the process of collecting appropriate payments from the customer.
3. Consumer loans are not recoverable by means of disconnect procedures.
4. The volume of gas saved which can be attributed to such improvements is considered a "new" source of natural gas.



F. Priorities of Utility Loan Program:

1. Customers who propose the following home improvements

will be given priority:

- a. attic ventilation
- b. caulking
- c. weather stripping
- d. automatic setback thermometers
- e. storm windows and doors.

2. Other forms of home energy efficiency improvements will be considered next.

G. Comprehensive Energy Conservation Plan:

1. Each gas utility company must have a comprehensive plan of energy conservation for its residential customers.
2. In addition to the listed home improvements, each company must also consider other measures in the plan which it deems adequate and cost-justified.
3. A conservation utility rate must be included in the utility's conservation proposal.
4. Each utility must also require that certain construction standards be met before new gas service can be provided.

III. SOURCE:

Diane Brinson  
Public Information and Consumer Affairs  
Public Service Commission of Wisconsin  
Madison, Wisconsin  
Tel.: (608) 255-1241  
October 9, 1978

IV. DOCUMENTATION:

Docket Number 05-GV-2, "Class A Gas Utility Residential Insulation Program."

## WISCONSIN

PROGRAM: WP&L Residential Gas Conservation Proposal

This prototype gas conservation model includes a significantly reduced conservation rate of 10-15% tied to an aggressive weatherization plan that provides for loans and furnace modifications free of charge, consumer education, and intensive research and development programs. Costs were to be absorbed by all rate-payers, but this was disallowed by the PSC.

I. DESCRIPTION

A. Establishment: Predating the Public Service Commission of Wisconsin Order (Docket Number 05-GV-2, dated September 22, 1977) that all Class A gas utilities within PSC jurisdiction adopt and submit conservation programs for residential customers, Wisconsin Power and Light Company submitted the following proposal.

1. The proposal was dated May 16-20, 1977.
2. See program description of Wisconsin PSC Order 05-GV-2 for complete Findings of Facts and Order details.

B. Components of Comprehensive Plan (to encourage Weatherization and Conservation):

1. Conservation Rate (schedule not completely developed at this time).
  - . applicable to customers whose dwellings meet certain minimal structural insulation requirements
  - . "while the specific design of the conservation rate would be addressed in rate design hearings, we anticipate a 10-15% rate differential between the conservation rate and the normal rate." (Testimony: Dale Moody, PSC Order No. 05-GV-2, p. 13)

2. Furnace Modification
  - . performed free of charge if customer dwelling meets all structural requirements (R-38, etc.)
  - . performed at half price if customer dwelling meets certain other standards (R-19, etc.)
3. Job Certification and Inspection
  - . offered free to the customer by the utility
4. Interest-free weatherization loans
  - . with costs incurred for up to three years but payments levelized over seven years
  - . with customer responsible for repayment of total loan principle and WP&L responsible for total interest charge
  - . with the further stipulation that conservation rate will not begin until loan is paid off
5. Education and Marketing
  - . conservation workbooks for do-it-yourself audits to inform customer of what must be done to become eligible for conservation rate
  - . community-wide publicity efforts (media, schools, mobile and stationary displays, etc.)
6. Research and Development
  - . demonstration retrofitted and energy-efficient model homes
  - . further research into alternate fuels, retrofit devices, heating efficiency problems, etc.

C. Estimated Costs: \$8.1 million per year

1. Costs are to be recovered from all ratepayers on the premise that all are benefitting by the gas conserved.
2. Although this proposal is more costly it is estimated that it could save 25% more gas per year.
  - . as opposed to the estimated 9% per year saved by ceiling insulation alone
3. Fluctuating costs (interest, bad loan expense, and furnace modifications) could be put in the form of a conservation clause.
  - . or be included in the purchase gas adjustment clause

D. Customer Response

1. This is the essential element in any weatherization/conservation program.
2. Very high initial response is expected as the conservation rate should provide an excellent incentive to weatherize.
3. Increased incentive through improved customer feedback will be implemented.
  - . by means of a revised data processing system which would require \$50,000 and one year to implement

E. Anticipated Problems

1. The proposal does not consider the plight of fixed, low-income persons.

2. In order that gas conserved by Wisconsin residents be available to Wisconsin residents, federal legislation must be passed to prevent future cuts in allocated amounts based on current consumption.
3. Legislation is needed to protect the company from discrimination claims by customers who have already insulated.
  - . charging that services now available were not available to them when they insulated
4. Conflicts may arise from agencies (i.e., Consumer Products Safety Commission) protesting the use of certain unendorsed retrofit devices.
5. Anti-trust violations and/or union jurisdiction conflicts may arise if certain retrofit devices and installers are selected and others are not.

## II. IMPLEMENTATION

### A. PSC Disallowance

1. In an Order (Docket 6680-GR-3) dated October 26, 1978 the Commission rejected the proposal to provide a reduced (conservation) rate as inappropriate.
 

"The sale of natural gas at a rate below the cost of supplying that commodity to other residential customers having similar operating characteristics is not appropriate, and a proper price signal should provide an adequate incentive for all present customers to conserve."
2. All 10 Class A gas utilities were cautioned to consider only those conservation rate designs which would present proper price signals.

- . any innovative, properly-priced designs  
"would be welcome"
3. Conservation rate proposals should be presented to the  
PCS by the utility at the time it files for rate relief.

### III. SOURCE

Mr. Paul Newman  
Wisconsin Public Service Commission  
Madison, Wisconsin  
Date of Contact: January 21, 1979  
Tel.: (608)266-3411

### IV. DOCUMENTATION

Docket Number 05-GV-2  
Wisconsin Public Service Commission  
Testimony: Dale Moody (Wisconsin Power  
and Light Company), pp. 13-15  
Exhibits: 51, 52, Dated May 16-20, 1977  
Findings of Fact and Order: Dated September 22, 1977

Correspondance: to all Class A Utilities  
Re: Clarification of Conservation Proposed Order  
Wisconsin Public Service Commission  
November 21, 1978

APPENDICES TO CHAPTER VI

Load Management.

Specific Programs

Load Management Technical Data and Summary Charts.	A.189
List of Individual Programs Surveyed.....	A.201
Program Descriptions.....	A.202

Load ManagementAppendices

<u>Appendix</u>	<u>Title</u>	<u>Page</u>
6.1	Status of Time-of-Day Rates under Consideration.....	A.190
6.2	Summary: Selected Interruptible Load Management Programs in Operation.....	A.192
6.3	Summary: Selected Interruptible Load Management Experiments.....	A.194
6.4	Peak Load Management - Experimental Rates and Techniques.....	A.195
6.5	Technical Data Section of Northeastern Utility TOD Rate Application Form.....	A.198
6.6	TOD and Solar Energy Equipment.....	A.199



APPENDIX 6.1  
 STATUS OF TIME-OF-DAY RATES UNDER CONSIDERATION  
 FILED OR ORDERED INTO EFFECT\*

<u>STATE</u>	<u>STATUS</u>
Alaska	space heating for commercial and residential
California	all classes, mandatory for large power customers
Connecticut	commercial, residential
Delaware	large use customers, time of use demand charge proposed residential TOD option
Florida	large use customer option
Georgia	
Illinois	large general mandatory
Iowa	interruptible industrial customers
Kansas	
Maine	TOD or load management mandatory in subsequent rate increase applications (general order No. 40)
Massachusetts	mandatory TOD rate option; all classes (Department of Public Utilities DPU18810, Dec. 29, 1977)
Michigan	mandatory large commercial and industrial
Minnesota	large use customer option
Nebraska	large general service, summer only
New Hampshire	option all customers (HB 4 mandated)
New Jersey	mandatory for high tension power
New Mexico	wholesale schedule
New York	mandatory large use customers one schedule determined by New York courts to be illegal; appeal pending
North Carolina	cotton gins
North Dakota	large use customers; included in interruptible option

## APPENDIX 6.1--Continued

<u>STATE</u>	<u>STATUS</u>
Ohio	optional residential space heating
Oregon	public drainage pumping
Pennsylvania	
South Dakota	large use customer option
Tennessee	Mandatory at one utility for large use customers
Utah	optimal residential and commercial customers
Virginia	Both voluntary and mandatory for some residential customers. Mandatory for comparison billing only.
Wisconsin	Mandatory for large use residential customers at one utility. Mandatory large use customers at three utilities.

\* from Edison Electric Institute Status of Rate Structure Innovations,  
By State, July, 1978.

Appendix 6.2

SUMMARY: SELECTED INTERRUPTIBLE LOAD MANAGEMENT PROGRAMS IN OPERATION

<u>State</u>	<u>Utility</u>	<u>Appliance</u>	<u>Control</u>	<u>No. of Participants</u>	<u>Comments</u>
Arkansas	Arkansas Power & Light	Air Conditioner	Radio (Also time switch program)	6,000	Proposed system-wide
California	So. Cal. Edison	Air Conditioner	Radio + Carrier Current	14,000 planned	
Georgia	Cobb County Electrical	Air Conditioner	Radio Time Switch	11,000	
Kentucky	Kentucky Utilities	H.W. Heater (80 gal. encouraged)	Time Switch	35,000	
Massachusetts	Mass. Electric Includes some Narragansett (R.I.)	H.W. Heater	Clock Control 50,000 with 2-dial meters	129,000	
Michigan	Detroit Edison	H.W. Heater	Radio	199,000	100 MegaWatts of load flexibility
North Carolina	Lumber River Electric	H.W. Heater	Radio	3,000	
Ohio	Buckeye Power	H.W. Heater	Radio	400,000	
Vermont	Washington Elect. Coop.	H.W. Heater	Radio Time Switch	829	1.1 KW/unit saved
Wisconsin	Wis. Electric Power	H.W. Heater	Radio	est. 112,500	115 MW demand reduction 75% penetration

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## Appendix 6.2--Continued

<u>State</u>	<u>Utility</u>	<u>Appliances</u>	<u>Control</u>	<u>Dates</u>	<u>No. of Participants</u>	<u>Comments</u>
New York	LILCO	H.W. Heater	Bi-directional Radio	1978	700	
New York	Con. Edison	H.W. Heater	Ripple	planned	800	
North Carolina	Carolina Power and Light	H.W. Heater	Bi-directional line carrier	1977	690	
Vermont	Green Mountain Power	H.W. Heater Space Heater	Ripple and mag. tape	1974- 1977	20	Positive changes in load curves for participants
Vermont	Washington Elect. Coop.	H.W. Heater	Time Switch	1975 permanent	850	Cost effective 1.1 KW/unit saved
Wisconsin	Wisc. Electric Power	H.W. Heater	Bi-directional line carrier	1976 continuing	500	82% customer acceptance

Appendix 6.3

SUMMARY: SELECTED INTERRUPTIBLE LOAD MANAGEMENT EXPERIMENTS

<u>State</u>	<u>Utility</u>	<u>Appliances</u>	<u>Control</u>	<u>Dates</u>	<u>No. of Participants</u>	<u>Comments</u>
Arkansas	Arkansas Power & Light	Air Conditioner	Direct radio & mag. tape	1975	308	Up to 4.17 KW Coincident demand per unit reduction 6,000 units planned
California	San Diego Gas & Electric	H.W. Heater Air Conditioner Space Heater	Bi-directional line carrier	1977 1978	315	
Florida	Florida Power	H.W. Heater Air Conditioner	Radio	1977 Continuing	100	"Good Customer Acceptance"
Florida	Florida Power	H.W. Heater Central Heating and Cooling	Bi-directional Radio	1978 Continuing	250	
Georgia	Georgia Power	Air Conditioner	Temperature Activated Time Cycling 15 min. cycles	1975	300 plus control	Reduced mean demand by 1.4 KW/unit
Massachusetts	Boston Edison	H.W. Heaters	Bi-directional line carrier	1977	750	
Michigan	Detroit Edison	H.W. Heater	Bi-directional line carrier	1977	700	
Mississippi	Miss. Power & Light	H.W. Heater Air Conditioner	Ripple Control & mag. tape	1976 1977	180 plus control	Very high customer acceptance
New Jersey	Public Service	Air Conditioner	Time cycling		38	

## Appendix 6.4

## PEAK LOAD MANAGEMENT - EXPERIMENTAL RATES AND TECHNIQUES

DEPARTMENT OF ENERGY  
ELECTRIC UTILITY RATE DEMONSTRATION PROGRAM \*

<u>STATE/SPONSOR</u>	<u>PARTICIPATING UTILITY(S)</u>	<u>TIME PERIOD</u>	<u>COMMENTS</u>
Arizona - Solar Research Commission	Arizona Public Service Company	6/75-12/76 Completed	Three-part TOD, multiple peak/off-peak ratios. Residential, voluntary. Demonstrated customer and utility controlled load management devices. Assessed societal and economic implications of TOD rates and load management systems.
Arkansas - Public Service Commission	Arkansas Power & Light Company	6/75-9/77 Completed	Three-part TOD, different peak/off-peak and seasonal ratios. All service classes, mandatory.
California - Energy Resources Conservation and Development Commission and Public Utilities Commission	Pacific Gas and Electric Co. San Diego Gas & Electric Co. Southern Calif. Edison Co. Sacramento Muni- cipal Utility District	7/76-8/78	TOD rates, interruptible rates, off-peak rate incentives. All service classes, both voluntary and mandatory participation. Will assess impact of TOD rates.
California - Los Angeles - City	Department of Water and Power	6/75-9/79	TOD and other rates. Multiple peak/off-peak ratios and peak periods. Residential, voluntary. Will assess customer response, impact on utility.

## Appendix 6.4--Continued

<u>STATE/SPONSOR</u>	<u>PARTICIPATING UTILITY(S)</u>	<u>TIME PERIOD</u>	<u>COMMENTS</u>
Connecticut - Public Utilities Commission	Connecticut Light and Power Co.	6/75-3/77 Completed	Three-part TOD. Residential, voluntary. Incentives for customer to invest in load control devices. Tested customer response to TOD, potential cost savings.
Michigan - Public Service Commission	Detroit Edison	8/75-12/77	Energy Management Program. Industrial, voluntary. Monetary incentives offered to encourage investment in load control devices.
New Jersey - State Energy Office	Jersey Central Power & Light	6/75-5/80	Two-part TOD, different peak/off-peak and seasonal ratios. Residential, mandatory. Bi-directional load management system. Will assess response to TOD rates, and feasibility of load management system.
New York - Public Service Commission	Consolidated Edison	1/76-6/77 Completed	Two-part TOD and seasonal rates (not a function of the study). Residential and commercial, voluntary and mandatory participation. Assessed aspects of load management.
North Carolina - Utilities Commission	Carolina Power and Light Blue Ridge Electric Membership Corp.	7/76-8/79	Three-part TOD rates, demand rates, TOD energy charge. Residential, mandatory. Will assess customer response, implications for utility system.
Ohio - Public Utilities Commission	Dayton Power and Light Co. Toledo Edison Co. Buckeye Power Co.	6/75-3/78	Two-part TOD, seasonal. Residential, voluntary. Also testing interrupt and heat storage. Will examine customer consumption patterns, aspects of load control and heat storage.

## Appendix 6.4--Continued

<u>STATE/SPONSOR</u>	<u>PARTICIPATING UTILITY(S)</u>	<u>TIME PERIOD</u>	<u>COMMENTS</u>
Oklahoma - Edmond - City	Edmond Municipal Electric Co.	12/76-6/78	TOD and other rates. Residential, mandatory. Will assess consumption patterns, customer acceptance.
Puerto Rico - Commonwealth	Water Resources Authority	7/76-7/80	TOD rates (Survey marginal cost approach). Residential, voluntary. Measure changes in consumption, estimate savings for utility and customers.
Rhode Island - Public Utilities Commission	Blackstone Valley Electric Co.	9/76-10/78	Three-part TOD rate. Residential and super-markets, <u>mandatory</u> . Will assess customer response, benefits of rate structure.
Vermont - Public Service Board	Green Mountain Power Co.	11/74-1/77 Completed	Various rates, including TOD and interruptible. Residential, voluntary. Tested customer response to rate forms, and their impact.
Washington - State Energy Office	Seattle City Light Clark County PUD Puget Sound Power & Light Co.	9/76-10/78	Inverted rates. All classes, voluntary. Conservation feedback to customers. Cash rebates for conservation. Will assess relationship between income and energy use, means of providing customer conservation feedback.
Wisconsin - Public Service Commission	Wisconsin Public Service Corp.	9/75-11/80	Combinations of TOD and other rates. Residential, Will assess effect of rates, other aspects.

\* From: Electric Utility Demonstration Program, Fact Sheet  
Economic Regulatory Administration, Regulatory Institutions Office  
Department of Energy

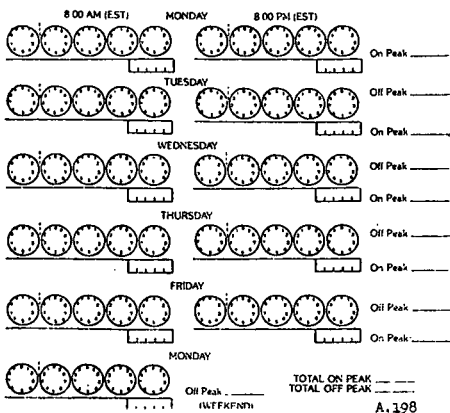


Appendix 6.5

TECHNICAL DATA SECTION OF NORTHEAST UTILITY TOD RATE APPLICATION FORM.

**PLEASE ANSWER ALL QUESTIONS SO WE CAN DO A PROMPT AND THOROUGH ANALYSIS OF YOUR ENERGY USE**

1. Are you interested in TOD?  yes  no
2. What type of dwelling do you live in?  single family house  2 or 3 family house  apartment  condominium
3. How is this dwelling used?  year-round residence  seasonal — primarily summer  seasonal — primarily winter
4. Do you own  or rent  ?
5. How many rooms are there that are used for living space? \_\_\_\_\_
6. How many bathrooms? \_\_\_\_\_
7. What is the primary fuel used for heating?  electric  city gas  oil  bottled gas  other \_\_\_\_\_
8. What type of heating system do you have?  electric baseboard  warm air  heat pump  hot water or steam  other \_\_\_\_\_
9. Do you have any additional room heaters? What type and how many?  electric \_\_\_\_\_  gas \_\_\_\_\_  oil/wood \_\_\_\_\_  
 none  other \_\_\_\_\_
10. How do you heat your water?  oil furnace  city gas  bottled gas  separate oil-fired  electric  furnished by landlord  
 don't know  other \_\_\_\_\_
11. If you have an electric water heater, what size tank is it? \_\_\_\_\_ gallons  don't know
12. Are you presently on the controlled water heater rate?  yes  no  don't know
13. What type of kitchen range do you have?  gas  electric
14. Do you have a microwave oven?  yes  no
15. What type of refrigerator do you have and how many of each type?  electric 1-door \_\_\_\_\_  electric 2-door, frost-free \_\_\_\_\_  
 electric 2-door \_\_\_\_\_
16. Do you have a separate freezer (other than freezer section of refrigerator) and, if so, what type and how many?  chest  chest, frost-free \_\_\_\_\_  upright \_\_\_\_\_  upright, frost-free \_\_\_\_\_  none
17. Do you have a clothes washer?  yes  no
18. Do you have a clothes dryer and what type?  electric  gas  none
19. Do you have a dishwasher?  yes  no
20. How many television sets do you have?  1  2  3 or more  none
21. Do you have central air conditioning?  yes  no
22. Do you have any room air conditioners and how many? In bedrooms:  yes  no  1  2  3 or more; in other rooms:  yes  no  1  2  3 or more
23. Do you have a dehumidifier?  yes  no
24. How many people are living in your household?  1  2  3  4  5  6  7 or more
25. Of the adult members in your household, how many are home during the daytime on weekdays? \_\_\_\_\_
26. How many children do you have of preschool age? \_\_\_\_\_
27. Which of the following activities would you be willing or be able to defer to off-peak periods?  clothes washing  clothes drying  
 bathing  dishwashing  baking
28. Is your present monthly use of electricity likely to:  remain the same  increase  decrease?



A. 198

**INCOME STANDARDS**

Those who qualify as low-income customers will receive special consideration in the selection process for TOD rates. To determine if you qualify, check the monthly gross income figure opposite your household size on this chart. If your monthly income is within the gross standard, mark the box next to that income category.

Gross Income Limits		
Household Size	Monthly Gross Income	
1	310	<input type="checkbox"/>
2	410	<input type="checkbox"/>
3	510	<input type="checkbox"/>
4	610	<input type="checkbox"/>
5	710	<input type="checkbox"/>
6	810	<input type="checkbox"/>
7	890	<input type="checkbox"/>
8	970	<input type="checkbox"/>
9	1050	<input type="checkbox"/>

## Appendix 6.6

TOD AND SOLAR ENERGY EQUIPMENT

The advancing technology regarding solar energy devices has resulted in a growing number of families investing in solar equipment to be used with electric backup to heat their homes and hot water supply. In many states such as New York, Oregon and North Carolina, laws have been passed to facilitate the installation of the equipment and to tie it into electric utility systems. For example North Carolina (HB 1003) and Oregon (SB 339) offer tax credits; New York has protected consumers against fraudulent sales practices by passing a "Solar Energy Products Warranty Act" (A.B. 9140). Another New York bill (which failed) would give owners of solar energy collection devices the right to apply for unobstructed future use of the solar energy, or "solar access rights".

Tax credits are currently available from the federal government for installation of equipment which transmits or uses solar, geothermal, or wind energy to heat or cool a dwelling. A taxpayer may apply for credit up to 30% of the cost up to \$2,000 and 20% for expenditures between \$2,000 and \$10,000.

There are several problems which must be looked into if solar heating is to be encouraged as a prime energy source. This also ties into time-of-day pricing efforts. The winter peak demand of solar heating customers is the same as those using electric heat. Since solar heating systems rely on electric utilities for the backup energy often needed during extreme weather conditions, they exacerbate the peak load requirements of a utility by necessitating a backup service which is idle most of the time. As a result the cost of service to solar heating customers is actually greater. Charging higher rates, however, would result in adverse public reaction and would place a constraint on the solar space-heating market. The solution may be to place solar customers on time-of-day rates, to encourage the use of backup energy storage units which can store utility electricity that has been purchased during off-peak hours.<sup>1</sup>

1. Robert K. Koger, "Regulatory Constraints on Solar Energy and Thermal Storage Installations", Public Utilities Fortnightly, January 19, 1978.

Although solar energy devices may not be financially feasible for low income and elderly families living in single homes, the utilization of such devices in government-subsidized apartment complexes may present interesting possibilities. For an in-depth understanding of these systems possibilities, Summary of Utility Load Management Programs, Arthur D. Little, Inc. would be helpful.

Time-of-Use and Load Management ProgramsList of Individual Programs Surveyed

<u>State</u>	<u>Program</u>	<u>Page</u>
Arizona	Electrical Energy Load Management Demonstration Project.....	A.202
	Arizona Public Services Time-of-Use Study.....	A.207
Arkansas	Arkansas Demand Management Demonstration Study.....	A.209
Connecticut	Peak Load Pricing Test.....	A.213
Florida	Florida Power Company Time-of-Day Pricing Experiment.....	A.218
	Florida Power Company Uni-Directional Demand Metering Experiment.....	A.222
Indiana	Indiana and Michigan Electric Experimental Power Storage.....	A.224
Maryland	Public Service Commission - Electric Metering and Ignition Devices, S.B. No. 735.....	A.225
Minnesota	Proposed Weighted Rates for Large Glass Electric Users.	A.228
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North Dakota	Proposed Time-of-Day and Load Management Rates.....	A.240
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South Carolina	Time-of-Day Load Control Experiment.....	A.246
Vermont	Public Service Board Order: Time-of-Day Rates.....	A. 48
	Water Heating Load Management Program.....	A.250
Virginia	Time of Usage Experiment.....	A.23
Wisconsin	Time-of-Day Rate Experiment.....	A.244

NOTE: Program descriptions are available for those individual programs for which page numbers are indicated.

## ARIZONA

PROGRAM: Electrical Energy Load Management Demonstration Project

This cooperative experiment examined time-of-usage rate structures, promotional load-shaping applications, and supervisory load control. Results were mixed.

I. DESCRIPTION

A. Background: The experiment ran from June, 1975 through December, 1976.

1. Several tasks were not completed as scheduled, but are now being completed as Arizona Public Service Company funded projects.
2. Participants in the project, in cooperation with the U.S. Department of Energy, included:
  - Arizona Public Service Company (APS)
  - Dynamic Science, Inc. (DSI)
  - Arizona Corporation Commission (ACC)
  - Arizona Solar Energy Research Commission (ASERC)

B. Tariff Incentive Response Demonstration

1. Sample: 210 residential customers were randomly selected from the APS service area in Phoenix and Yuma, with 175 of the residences located in Phoenix.
2. Meters: A two-meter system provided three KWH registers - peak, mid-peak, and total consumption.
3. Rates: Separate prices were assigned to the amount of change in peak, mid-peak, and off-peak consumption.

- Usage data for the same period in the previous year (May - October, 1975) served as base line data in determining the change in consumption.
- 32 different rate structures were applied in the project (see table on page 5).

C. Promotional Load-Shaping Applications: Three essentially "proof of concept" demonstration projects were undertaken:

1. Solar space heating and cooling
  - One system was installed to investigate viability of application of solar energy for heating and cooling
2. Domestic water heating by exhaust heat from space cooling
  - Two homes were fitted with waste heat recovery systems
3. Solar heating of domestic hot water
  - To test retrofit of solar hot water system with existing electric hot water heater in one home

D. Supervisory Load Control Demonstration

1. Ninety-six homes in a relatively new all-electric subdivision in northwest Phoenix had utility-controlled shut-off devices fitted to the air-conditioning unit.
2. Customer participation was voluntary.

II. ASSESSMENT

A. Tariff Incentive Response Project

1. Time-of-day pricing appeared to have had some effect on peak-period energy use, but the exact relationship could not be reliably quantified.

2. A short-run elasticity of KWH consumption with respect to income was found.
3. Generally, it was felt that the length of the experiment was too short for test households to make adjustments in consumption patterns.

B. Promotional Load-Shaping Applications

1. Solar space heating and cooling is not cost effective.
2. Domestic hot water heating by air-conditioning waste heat
  - Holds promise for future applications
  - Has overall favorable customer reaction
3. Solar heating of domestic hot water may be cost effective and further study is recommended.

C. Supervisory Load Control

1. Lower-than-normal temperatures in test period made it difficult to assess full impact of demonstration.
2. General test customer attitude was very positive.

IV. SOURCES

Jane Christophersen  
Office of Utility Systems  
Economic Regulatory Administration  
U.S. Department of Energy  
Washington, D.C. 20461

Joseph M. Branom, Jr.  
Rate Services  
Arizona Public Service Company  
P.O. Box 21666  
Phoenix, Arizona 85036

V. DOCUMENTATION

Arizona Electrical Energy Load Management Demonstration Project  
Final Report, February 1978  
Arizona Solar Energy Research Commission  
1700 W. Washington Street  
Phoenix, Arizona 85007

Arizona Electrical Energy Load Management Demonstration Project, Appendix B  
February 14, 1977  
Arizona Solar Energy Research Commission  
1700 W. Washington Street  
Phoenix, Arizona 85007



SUMMARY OF THE RATE LEVELS

Rates (¢/KWH)

<u>T&amp;W Type</u>	<u>Hours</u>	<u>5 Customers Each</u>															
		<u>R1</u>	<u>R2</u>	<u>R3</u>	<u>R4</u>	<u>R5</u>	<u>R6</u>	<u>R7</u>	<u>R8</u>	<u>R9</u>	<u>R10</u>	<u>R11</u>	<u>R12</u>	<u>R13</u>	<u>R14</u>	<u>R15</u>	<u>R16</u>
Peak	2-5	16	15	15	14	14	13	13	13	12	12	11	11	10	10	9	8
Mid-Peak	9-2,5-10	5	4	7	4	6	3	4	7	5	6	4	7	4	6	5	4
Off-Peak	10-9	3	2	4	2	4	3	2	3	1	3	2	4	1	3	2	1

<u>T&amp;W Type</u>	<u>Hours</u>	<u>5 Customers Each</u>					
		<u>R17</u>	<u>R18</u>	<u>R19</u>	<u>R20</u>	<u>R21</u>	<u>R22</u>
Peak	2-7	12	12	11	10	9	6
Mid-Peak	9-2,7-10	4	6	4	6	4	4
Off-Peak	10-9	2	4	2	3	2	1

<u>T&amp;W Type</u>	<u>Hours</u>	<u>5 Customers Each</u>					
		<u>R23</u>	<u>R24</u>	<u>R25</u>	<u>R26</u>	<u>R27</u>	<u>R28</u>
Peak	2-10	9	8	7	6	5	4
Mid-Peak	9-2	4	3	4	3	4	3
Off-Peak	10-9	2	2	2	1	3	1

<u>H Type</u>	<u>Hours</u>	<u>8 Customers Each</u>					
		<u>R29</u>	<u>R30</u>	<u>R31</u>	<u>R32</u>	<u>R33</u>	
Peak	2-5	13	9	13	7	Control Group - 10 customers Rate: 85% of 1975 Average ¢/KWH Minimum: 85% of Current Standard Rate Min. Maximum: 100% of 1976 Bill on Current Standard Rate	
Mid-Peak	9-2,5-10	5	5	3	5		
Off-Peak	10-9	2	2	3	2		

A.206

## ARIZONA

PROGRAM: Arizona Public Services Time-of-Use Study (Revised)

The Arizona Public Service Corporation conducted a limited time-of-use experiment in which the declining block rate structure was flattened and a service charge was added for all residential customers. Conservation efforts were discouraged because 300 KWH must be consumed for a reduction in the customer's bill.

I. DESCRIPTION

- A. Establishment: Tucson Gas and Electric Company, at the request of the Arizona Public Services Corporation, conducted a limited experiment in time-of-day pricing.

II. OPERATION

- A. Rates: The utility adjusted the rates to reflect a flatter structure than the former declining block structure, as follows:

SUMMER - May through October Billings	
First 100 KWH or less per month	\$6.95 per month
All additional KWH per month	5.1386¢ per KWH
Minimum bill \$6.95 per month per meter	
WINTER - November through April Billings	
First 100 KWH or less per month	\$6.95 per month
Next 500 KWH per month	5.1386¢ per KWH
Next 400 KWH per month	3.8138¢ per KWH
All additional KWH per month	2.7586¢ per KWH
Minimum bill \$6.95 per month per meter	

- a. The break even point was 400 KWH.
- b. An extra service charge was added to each customer's bill.
- B. Eligibility: All classes of residential customers providing the household was individually metered.

1. Low income users were the intended beneficiaries of the rate change.

III. ASSESSMENT

A. Results: Although low income customers were targeted as the main benefactors of the rate change, such benefits did not accrue to many of them.

1. Very low users of electricity (below 300 KWH per month) indicated a rise in their electric bill.
2. Moderate users of electricity (approximately 400 KWH per month) did notice some lowering of their electric bill.
3. Conservation, as applied to limited usage of electricity, was discouraged since a customer had to consume at least 300 KWH per month to reduce electric utility costs.

IV. SOURCE

Fred Young  
Utility Division Engineer  
Arizona Corporation Commission  
2222 West Encanto Blvd.  
Phoenix, Arizona 85009  
Tel." (602) 271-4251  
Date of Contact: November 1, 1978

V. DOCUMENTATION

Residential Electric Rate  
Tucson Gas and Electric Company  
Tucson, Arizona  
Effective August 4, 1976

## ARKANSAS

PROGRAM: Arkansas Demand Management Demonstration Study

Time-of-day and seasonal rates for residential and commercial customers were tested in this federally-funded project. One conclusion is that customers are willing to shift their electric usage patterns when given pricing alternatives as incentives. The primary source of short run price elasticity may be in air conditioning or other heat sensitive usage.

I. PROGRAM PARTICIPANTS: This study was sponsored by the Arkansas Public Service Commission and was conducted by Touche Ross & Company in cooperation with Arkansas Power and Light Company. The project was funded by the Federal Energy Administration (now part of the Department of Energy).

II. DESCRIPTION

- A. Sites: Four cities were selected as experimental sites for the study. The sites were chosen through computer analysis so that they closely resembled the consumption and demographic patterns of the total Arkansas Power and Light service area.
- B. Test Customers: The major design criterion was to simulate the actions of the utility as if the test rates were being implemented system-wide. This rules out the use of voluntary participants. Participants in each city were selected to represent the total system population.
- C. Rates
1. Experimental tariffs were designed to reflect long-run incremental costs. The primary tariff areas tested were:

- Increased summer-winter differentials
  - Flattened block energy tariffs
  - Time-of-day tariffs
2. Three sets of experimental rates were developed for both the residential and commercial classes (see chart on page 4).

I. PROGRAM ASSESSMENT

1. The residential time-of-day group reduced both their energy and demand levels during the peak period in the summer months. However, when appliance stock, family size, and income were held constant, the time-of-day group had higher energy consumption over the summer, and higher monthly load factors compared to the control group. The reverse was true on the day of the system peak.
2. Time-of-day had little or no effect on residential customers in the winter.
3. Medium usage time-of-day customers (401-900 KWH) exhibited the largest reductions in both energy and demand levels.
4. Small, low income, high income and large customers exhibited lower responses to TOD rates than medium size and medium income customers.
5. Time-of-day participants peak demand occurred outside the peak period hours.

ARKANSAS DEMAND MANAGEMENT STUDYEXPERIMENTAL RATE SCHEDULERESIDENTIAL CUSTOMER CLASS

	<u>Summer*</u>	<u>Winter*</u>
Time-of-Day	\$3.00 Customer Charge 8.43¢ per KWH 11 AM to 7 PM 1.39¢ per KWH all other hours	\$3.00 Customer Charge 1.24¢ per KWH 11 AM to 7 PM 1.17¢ per KWH all other hours
Seasonal #1 (all incremental capital costs were allocated to the summer time period)	\$3.00 Customer Charge 4.14¢ per KWH	\$3.00 Customer Charge 1.17¢ per KWH
Seasonal #2 (Production and transmission plant costs were allocated to the summer peak period, but distribution costs were spread over the entire year)	\$3.00 Customer Charge 3.53¢ per KWH	\$3.00 Customer Charge 1.79¢ per KWH

CONTROL RATE SCHEDULERESIDENTIAL CUSTOMER CLASS

## NET MONTHLY RATE

<u>Summer Rate*</u>	<u>Winter Rate*</u>
\$1.15 for the first 15 KWH or less	\$1.15 for the first 15 KWH or less
3.80¢ per KWH for the next 40 KWH	3.80¢ per KWH for the next 40 KWH
2.70¢ per KWH for the next 145 KWH	2.70¢ per KWH for the next 145 KWH
1.75¢ per KWH for the next 500 KWH	1.75¢ per KWH for the next 200 KWH
1.15¢ per KWH for all additional KWH	.80¢ per KWH for all additional KWH

\* When Load is 4 KW or more, the number KWH at 4.0¢ is:  
4KW to not over 20 KW -- 100 KWH per KW of Load  
Over 20 KW -- 800 KWH + 60 KWH per KW of Load

I. SOURCE

Jane F. Christophersen  
Office of Utility Systems  
Economic Regulatory Administration  
U.S. Department of Energy  
Date of Contact: 12-11-78  
Tel.: (202) 254-9755

V. DOCUMENTATION

Arkansas Demand Management Demonstration Study  
Final Report  
Arkansas Public Service Commission  
1977

## CONNECTICUT

PROGRAM: Peak Load Pricing Test

This partially federally-funded load management experiment found that test customers in different usage strata were able to shift their usage from the peak period to the off-peak period, and consumed less electricity than did control customers.

I. DESCRIPTIONA. Participating Agencies:

1. Connecticut Light and Power Company (conducted in their service area)
2. Connecticut Public Utilities Control Authority
3. Connecticut Department of Planning and Energy Policy
4. Connecticut Office of Consumer Counsel
5. Northeast Utilities
6. Federal Energy Administration (now part of the Department of Energy)

B. Participating Customers

1. Sample customers usage has been recorded for the previous year as part of a residential class load test.
2. Customers were assigned to strata according to their annual electric consumption.

<u>Stratum</u>	<u>Annual Consumption per Customer (KWH)</u>
1	0 - 6,300
2	6,301 - 9,400
3	9,401 - 13,500
4	13,501 - 23,000
5	Over 23,000



3. 199 test group customers and 192 control group customers participated in the test.
4. Usage data before and after the introduction of the experimental rate structure were compared.

C. Experimental Rate Structure

1. Rates were derived from cost studies conducted by Northeast Utilities.
2. Rates were designed as a strong incentive for test customers to shift their consumption.
3. A three-part peak load pricing rate was used, consisting of:
  - a.) Peak
  - b.) Intermediate
  - c.) Off-peak periods

Experimental Rate Structure

<u>Season</u>	<u>Period</u>	<u>Time</u>	<u>Cost/KWH</u>
Winter	Peak	9 - 11 a.m., 5 - 7 p.m.	\$.16
	Intermediate	All other hours	.03
	Off-peak	9 p.m. - 8 a.m.	.01
Summer	Peak	10 a.m. - 12 noon, 1 - 3 p.m.	.16
	Intermediate	All other hours	.03
	Off-peak	9 p.m. - 8 a.m.	.01

. Additional monthly service charge - \$2.00

- D. Duration: The peak load pricing test ran from October 15, 1975 until October 15, 1976.

## II. ASSESSMENT

### A. Results

1. Customers in each usage stratum and the test group as a whole shifted use from the peak period.
  - a. The average test group customer used 10% of annual consumption in the peak period, as compared to 13% for the control group.
  - b. 42.4% of annual consumption for the average test group customer occurred off peak compared to 37.4% for the average control group customer.
2. The average test customer in Strata 2, 3, and 4 used less electricity than did the average control group customer by 4.1%, 6.2%, and 0.1% respectively.
  - a. Statistical comparability between test and control groups was not valid in Strata 1 and 5.
3. A large majority of test customers had a favorable response to this test rate.

## III. SOURCE

Jane F. Christophersen  
Office of Utility Systems  
Economic Regulatory Administration  
U.S. Department of Energy  
Tel.: (202) 254-9755  
Date of Contact: 12-11-78

## IV. DOCUMENTATION

Connecticut Peak Load Pricing Test  
Final Report  
May 1977  
Public Utilities Control Authority

PEAK LOAD PRICING TEST  
 DISTRIBUTION OF ANNUAL ELECTRICITY CONSUMPTION BY RATE PERIODS  
 AVERAGE CUSTOMER  
 SAMPLE GROUPS COMPARED

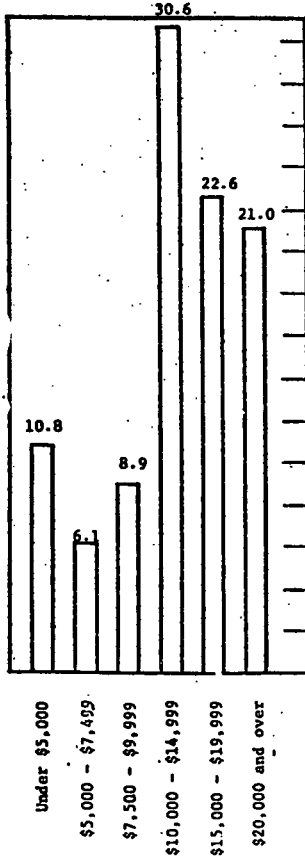
	Test Group Prior Year		Test Group		Control Group		Difference Test Group vs Control Group Distribution*
	kWh	%	kWh	%	kWh	%	%
STRATUM 1							
Peak	459.6	12.2	458.9	10.6	672.4	13.2	-19.7
Intermediate	1812.2	48.2	2057.2	47.6	2504.2	49.4	-3.6
Off-Peak	1483.5	39.6	1797.1	41.8	1890.2	37.4	11.8
TOTAL	3755.4	100.0	4313.4	100.0	5066.9	100.0	
STRATUM 2							
Peak	1034.3	13.1	764.1	10.3	1004.5	13.0	-20.8
Intermediate	3934.7	49.9	3608.2	48.9	3878.4	50.4	-3.0
Off-Peak	2913.0	37.0	3002.1	40.8	2801.1	36.6	11.5
TOTAL	7882.0	100.0	7374.5	100.0	7684.1	100.0	
STRATUM 3							
Peak	1414.1	13.3	1020.0	10.0	1446.2	13.3	-24.8
Intermediate	5354.5	50.4	4963.3	48.7	5511.9	50.7	-3.9
Off-Peak	3852.6	36.3	4189.2	41.3	3895.6	36.0	14.7
TOTAL	10621.3	100.0	10172.6	100.0	10853.8	100.0	
STRATUM 4							
Peak	2065.0	13.0	1540.9	10.0	1917.2	12.5	-20.0
Intermediate	7750.0	49.0	7204.0	46.9	7576.6	49.6	-5.4
Off-Peak	5994.9	38.0	6614.6	43.1	5769.2	37.9	13.7
TOTAL	15810.0	100.0	15359.5	100.0	15263.0	100.0	
STRATUM 5							
Peak	3610.7	12.3	2403.7	8.8	3198.3	12.5	-29.6
Intermediate	13345.7	45.8	12239.8	45.0	11976.3	47.0	-4.3
Off-Peak	12175.5	41.9	12554.9	46.2	10298.7	40.5	14.1
TOTAL	29132.0	100.0	27198.5	100.0	25473.4	100.0	
WEIGHTED AVERAGE							
Peak	1058.1	12.8	822.0	10.0	1120.4	13.0	-23.1
Intermediate	4021.1	48.8	3890.5	47.6	4270.8	49.6	-4.0
Off-Peak	3166.3	38.4	3467.3	42.4	3221.6	37.4	13.4
TOTAL	8245.6	100.0	8180.0	100.0	8612.9	100.0	

\*Test Group % - Control Group %  
 Control Group %

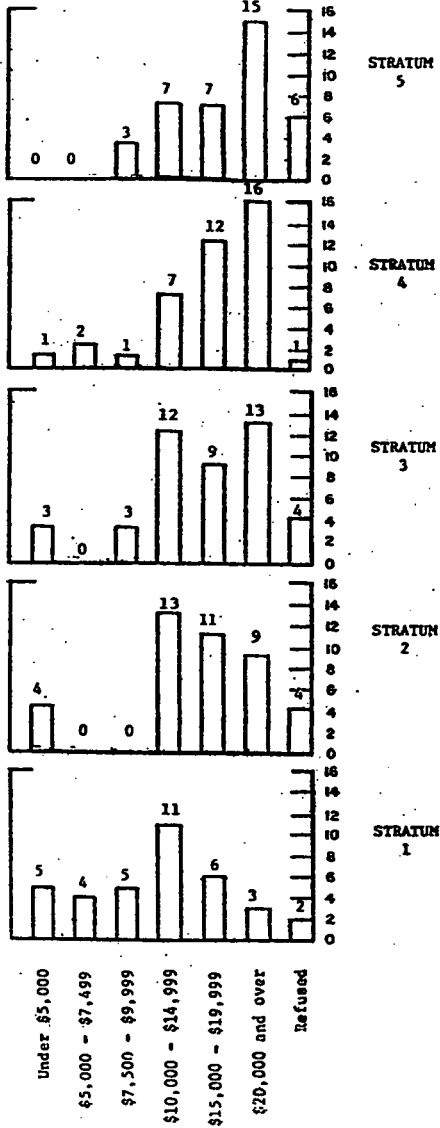
CHARACTERISTICS OF THE TEST GROUP

INCOME

WEIGHTED TEST GROUP-  
Percentage of respondents  
in each income group ("Refused"  
data excluded)



Responses in each stratum  
of the test group



## FLORIDA

PROGRAM: Florida Power Company Time-of-Day Pricing Experiment

In 1975, special rates were available to selected customers who used metered off-peak power. Evaluation.

I. DESCRIPTION

- A. Purpose: Assess customer response to a time and price-differentiated rate structure which included:
1. Determine customer understanding and acceptance of a time-of-day rate.
  2. Analyze customer electric consumption patterns and their effect on system capacity and energy requirements.
  3. Develop an economic evaluation of the implementation of a residential time-of-day rate structure.
- B. Funding: The experiment was established and funded by the Florida Power Company.
- C. Participation: Approximately 250 volunteer customers, both high and low electricity users, representing a statistical cross-section of residential KWH users in the Tampa-Clearwater area.
- D. Services: Florida Power estimated the customers would save an average of 10% on their electric bill by taking advantage of the lower time-of-day rates.
1. The savings incentive was the only control factor; participants had complete control over electricity usage.
  2. The experimental rates were higher than normal rates for on-peak usage, lower for off-peak hours.

E. Rates Per Month:

Customer Charge	\$2.50
First 750 KWH	.08284 per KWH
All additional KWH	.07985 per KWH

For usage at non-peak hours, the charges were reduced by  
\$.06186 per KWH.

F. Peak Hours: The designated hours were as follows:

1. For the billing months of April through October: 1:00 p.m. - 9:00 p.m. (excluding Saturdays and Sundays)
2. For the billing months of November through March: 7:00 a.m. - 11:00 a.m. and 5:00 p.m. - 9:00 p.m. (excluding Saturdays and Sundays)

II. ASSESSMENTA. Customer Acceptance

1. Only 11% of the customers having the option of taking service under the experimental rate elected to do so.
2. Only 3% of the lower use customers (lowest 40% average monthly usage groupings) having the option of taking service under the experimental rate elected to do so.
3. The experimental group of customers generally found the rate to be acceptable and understandable.
  - a. About 88% of these customers indicated they would continue on the rate if it were offered.

4. Of those experimental customers indicating they would continue on the experimental rate if it were offered, only about one-fourth indicated they would continue if required to make a contribution (about \$100 - \$150) toward the additional cost of a special meter.

B. Load Characteristics

1. Experimental rate customers reduced consumption during the designated peak hour periods.
2. The experimental customers imposed lower demands coincident with the Company's experienced system peak than the control group customers.
3. Full implementation of the experimental rate would reduce system peak demands during the summer season but would have virtually no effect on winter peaks.
4. No appreciable loss of diversity affecting the distribution system was noted.
5. The experimental customers significantly reduced total energy consumption during the summer months compared to the control group customers.

C. Economic Evaluation: The cost of providing service to the time-of-day customers was higher than the revenues generated to provide that service.

1. When test results were applied to future years, the revenue requirements per KWH for the residential class were higher under time-of-day rates than conventional rates.

III. SOURCE

Brock Lucas, Public Information  
Florida Power Company  
Clearwater, Florida  
Tel.: (813) 866-4376  
October 23, 1978

IV. DOCUMENTATION

Florida Power Corporation  
Residential Experimental Time-of-Day Rate Study Report  
St. Petersburg, Florida  
September 1977



## FLORIDA

PROGRAM: Florida Power Company Uni-Directional Demand Metering Experiment

In this experiment, air conditioners and water heaters are radio-controlled by the power company to test the effects of reducing peak load demand.

I. DESCRIPTION

- A. Purpose: To test feasibility of using radio-controlled air conditioning units and hot water heaters to reduce peak load demand.
- B. Funding: The experiment was established and funded by the Florida Power Company.
- C. Eligibility: About 100 customers are participating in the program which is nearly one year old.
- D. Operation
1. Florida Power Company supplies radio control units and attaches them to the customers' air conditioners and heaters.
  2. When it appears the company is approaching a peak load period, the company signals the units to switch off the air conditioners and hot water heaters.
  3. When demand decreases, the units are switched on again.
  4. Important to the experiment is that customers are unable to override the signal.
- E. Rate Structure: Participants in the experiment receive credits.
- |                         |                  |
|-------------------------|------------------|
| water heater credit:    | \$2.00 per month |
| air conditioner credit: | \$3.00 per month |

II. ASSESSMENT

A. Evaluation: No conclusions have been drawn.

1. Many more customers applied for the special rates than participated.
2. Participants do not seem to object to the inconvenience of the turn-offs.

III. SOURCE

Brock Lucas, Public Information  
Florida Power Company  
Clearwater, Florida  
Tel.: (813) 866-4376  
Date of Contact: October 23, 1978

## INDIANA

PROGRAM: Indiana and Michigan Electric Experimental Power Storage

Customers heat an installed storage unit using off-peak power, which provides heat during the day.

I. DESCRIPTION

A. Participation: Approximately 50 residential customers

B. Operation

1. Utility installs a storage unit in customer's home.
2. The unit is charged with electricity during off-peak nighttime hours.
3. The customer is penalized if electricity is purchased for the unit during on-peak hours.
4. The unit provides heat throughout the day

C. Rate Structure

<u>500 KWH</u>	<u>Service</u>
\$ 6.80	Heat storage from 11:00 p.m. to 7:00 a.m.
\$32.80	On-peak penalty charge
\$21.14	Non-experimental average cost

II. ASSESSMENT

A. Evaluation: No conclusions have been reached.

III. SOURCE

Sherry O'Brian  
 Indiana Public Service Commission  
 Tel.: (317) 633-5473  
 Date of Contact: October 20, 1978

## MARYLAND

PROGRAM: Public Service Commission - Electric Metering and Ignition Devices  
Senate Bill No. 735

This act provides for the installation and regulation of electric metering and sub-metering devices in apartment houses, condominiums, and cooperatives by the Public Service Commission. Provision is made for the handling of complaints regarding this act. The Commission is to develop specifications for certification of ignition devices for gas appliances on or before July 1, 1979.

I. DESCRIPTION

A. Legislative history: This bill was approved in May, 1978 and became effective July 1, 1978.

B. Provisions

1. The Public Service Commission is to promulgate rules, regulations, and standards under which any owner, operator, or manager of an apartment house not metered separately for each dwelling unit may install sub-metering devices.
  - a. If the owner, etc., elects to install sub-meters during the term of a lease which includes the cost of electricity, the owner shall determine any electric costs saved and reduce the occupant's rent or payment accordingly.
  - b. The owner, etc., may not impose any additional utility cost except that imposed by the utility.
  - c. The utility may impose an additional maximum service charge of \$1.00 per month to cover administrative costs and billing.
  - d. The owner, etc., must maintain and make available to the occupant adequate records regarding sub-metering.

- e. Utility companies are subject to enforcement.
  - f. All submetering equipment is subject to the same standards and record-keeping requirements as the meters installed by electric utilities.
  - g. Complaints may be handled by a landlord-tenant commission or by the Consumer Protection Agency of the county or municipal corporation, if one exists; otherwise, complaints can be handled by the consumer protection division of the Attorney General's office.
2. The Public Service Commission is to develop, on or before July 1, 1979, in cooperation with the affected industry and consumer representatives, the specifications for certification of intermittent ignition devices.
- a. Intermittent ignition device - ignition device which is activated only when the gas appliance is in operation.
  - b. Gas Appliance - includes any new residential-type furnace, air conditioner, heater, refrigerator, stove, range, dishwasher, dryer, decorative fireplace log, etc., except a water heater which uses a gaseous fuel for operation and is automatically ignited.
3. The specifications shall:
- a. Conserve primary energy sources
  - b. Not affect the competitive position of gas appliances
  - c. Consider installation costs and maintenance costs
  - d. Provide for public health and safety
4. The Commission may find no alternative to the pilot light; however, if an alternative device is certified, no device equipped with a pilot light will be permitted to be manufactured 90 days after certification or sold 24 months after certification.

II. DOCUMENTATION

Public Service Commission - Electric Metering and Ignition Devices  
Article 78 - Public Service Commission Law  
Section 54F  
Annotated Code of Maryland  
Senate Bill No. 735

A.227

## MINNESOTA

PROGRAM: Proposed Weighted Rates for Large Class Electric Users

A weighted cost of service was offered by Minnesota Power and Light Co. assigning the greatest share of new bulk power supply generation and transmission costs to Large Class Power users. Proposal rejected. Evaluation.

I. DESCRIPTION

- A. History: In 1976, the Minnesota Public Service Commission (PSC) directed Minnesota Power and Light to:

"file with it a proposal or proposals for just, equitable, and efficient revenue allocations by class and individual customers which will recognize the responsibility of customers for increased costs due to major plant additions at the time which they are placed in service."

- B. Purpose: Assign the greatest share of new bulk power supply generation and transmission costs to the Large Power Class users.

1. They consume 74% of the system's electricity and are responsible for the system's massive load growth.

- C. Justification for Weighted Cost of Service: The consideration that non-cost factors are justifiable was held by the Minnesota Supreme Court case in St. Paul Area Chamber of Commerce v. Public Service Commission, 1977, which stated:

"Once revenue requirements have been determined it remains to decide how, and from whom, the additional revenue is to be obtained. It is at this point that many countervailing considerations, come into play. The Commission may then balance factors such as cost of service, ability to pay, tax consequences, and ability to pass on increases in order to achieve a fair and reasonable allocation of the increase among consumer classes. This determination must

result in rates which are just and reasonable and rates shall not be unreasonably preferential, unreasonably prejudicial or discriminatory, but shall be sufficient, equitable and consistent in application to a class of consumers. Minn. St. 216B.03. It is clear that when the commission acts in this area it is operating in a legislative capacity, as the above cases have stated. The careful balancing of public policies and private needs is not a matter for the courts, unless statutory authority has been exceeded or discretion abused.

1. The Minnesota PSC believes other factors, not easily quantifiable, should also be considered:
  - a. Value of service
  - b. Billing impact
  - c. Ability to pass on increases
  - d. Ability to write off electric costs on taxes
2. Some members of the Large Power Class whose needs have contributed to M.P. & L.'s expansion are not on line yet.
  - a. Since this additional load growth may lead to higher costs of capital, it must be accounted for to determine revenue allocations among the classes.

## II. IMPLEMENTATION

### A. Overview of Rate Base Allocation (Modified Embedded Cost of Service)

1. Initially, the PSC determined that if Residential Class revenues were increased, the increase would be less than the overall increase.



- a. With further consideration, the Commission decided residential rates should be increased by approximately 7.9% to slightly increase the ratio of residential rate of return to overall rate of return which existed under prior rates.
2. Rates for the general service class would not be increased to bring their rate of return closer to the overall rate of return.
3. The Large Power Class revenue shall be increased to its embedded cost of service level primarily by increasing KW billing demand charges.
- a. KW billing demand charges are minimum charges to large users, whether electricity is used or not, plus a flat rate per additional billing demand above the minimum.
- B. Large Users Rates

Old Rates - 3000 KW billing demand or less: \$16,300  
For each additional KW billing demand: \$4.75

Old Energy Charge - 1.05¢ per KWH

New Rates - 3000 KW billing demand or less: \$25,500  
For each additional KW billing demand: \$7.75

New Energy Charge - 1.064¢ per KWH

- C. Residential Rates: A representative rate schedule from Duluth, Minnesota:

Old Rates - Service charge: \$2.75  
0 - 700 KW: 3.44¢ per KWH  
Over 700: 2.4¢ per KWH

New Rates - Service charge: \$2.75  
0 - 350 KW: 3.503¢ per KWH  
351 - 700: 4.369¢ per KWH  
Over 700: 2.8¢ per KWH

III. ASSESSMENT

A. Conclusions: Although weighted allocation would place future costs of growth on those who caused growth in the past, it does not account for either economies of scale which may have accrued from past growth or any other benefits to the system.

1. The Commission decided in this case, given those constraints, the weighted cost proposal should not be used for designing rates.
2. The final rate allocation order took into account that the load growth responsibility should be considered in determining revenue allocations.

IV. SOURCE

Terry Karkela, Chris Sandberg  
Staff Members  
Department of Public Service  
7th Floor American Center Building  
Kellogg and Roberts Streets  
St. Paul, Minnesota 55101  
Tel.: 612-296-7107  
Date of Contact: October 10 and October 31, 1978

V. DOCUMENTATION

Minnesota Power and Light Docket E-015/GR-77-360

## MISSISSIPPI

PROGRAM: Pilot Time-of-Day Program

In its third year of operation, this experimental time-of-day study of two utilities will not yield results for several more years. Problems exist, however, concerning the hesitancy of customers to volunteer for the program.

I. DESCRIPTION

A. Establishment: The Mississippi Public Service Commission is conducting an experimental program in time-of-day pricing.

B. Eligibility

1. Each of the two power utilities in the state was asked to monitor four hundred customers.

2. Participation was on a voluntary basis by the customers.

C. Evaluative Provisions: The study has been running for three years and according to the Commission Director, will continue for several more years.

1. Update reports have been submitted to the Commission.

2. Final evaluations and conclusions will be released when the program has ended.

II. ASSESSMENT

A. Problems: One surprising report from the utility companies involved difficulty in recruiting 400 customers.

1. No cost was attached to customer participation in the program.

2. Participating consumers could potentially save on their utility bills.

B. Future Plans: The Mississippi Commission has cautiously considered other methods of rate stabilization.

1. Fuel adjustments on electric energy have been rolled into the basic rates, as ordered by the Commission, according to a set formula.
2. A lifeline concept was considered but the Commission now feels that perhaps it might cause more harm than good.

III. SOURCE

Charles Keith Howle  
Director of Utilities  
Mississippi Commission  
P.O. Box 1174  
Jackson, Mississippi 39205  
Tel.: (601) 354-7265  
Date of Contact: November 3, 1978

## MISSOURI

PROGRAM: Peak Awareness Program

Two Missouri electric companies began a two year experimental educational program to increase volunteer customer cutback in electricity during peak demand days.

I. DESCRIPTION

## A. The program has three phases:

1. Education: Customers of St. Joseph Light and Power and Union Electric Companies will be informed about the concept of "peak demand" and ways of reducing consumption during those periods.

The customers will learn about the related benefits of delayed growth in peak demand, i.e., its effect on their electric service.

2. Implementation: Potential peak load days will be chosen as "electric conservation days" through radio, television, and other news media.

The advertisements will contain suggestions for conserving electricity.

3. Evaluation: A sample of customers will be chosen to estimate the effectiveness of the notices and determine which actions will be taken to conserve electricity.

II. DOCUMENTATIONPublic Utilities Fortnightly

July 20, 1978

p. 46

## NEW HAMPSHIRE

PROGRAM: Mandatory Filing of Time-of-Use Rates by Electric Utilities HB 4

Effective January 1, 1979 enacted HB 4 will require all electric utilities to file optional time-of-use rates for all their customers classes with the New Hampshire Public Utilities Commission.

I. DESCRIPTION:

- A. Purpose: To conserve electricity and discourage excessive consumption of electricity.
- B. Procedure: Optional time-of-use rates will be filed by all public electric utilities based on costs to the utility and will reflect:
1. costs at different times of the year,
  2. costs at different hours of the day and days of the week.
- C. Participation: All electric utility customers must be offered TOD optional rates.

II. SOURCE:

Mr. Edgar D. Stubbs, Jr., Rate Engineer  
New Hampshire P.U.C.  
Concord, N.H. 03301  
Tel.: (603) 271-2452  
Date of contact: January 9, 1979

III. DOCUMENTATION:

HB 4, State of New Hampshire  
Approved June 23, 1978

## NEW YORK

PROGRAM: Model of the Effects of Energy Conservation and Load Leveling Policies for New York City

Theoretical peak load pricing approaches were used with Consolidated Edison data to justify marginal and incremental rate cost methods. A residential time-of-day experiment was initiated and a conservation marketing experiment completed. Projected effects of conservation measures on load growth were analyzed. This report includes parts dealing with residential customers only.

I. DESCRIPTION

- A. Establishment: The report was prepared by the New York State Department of Public Service under contract to the Federal Energy Administration.
- B. Purpose: The study was a systematic attempt to integrate energy conservation opportunities with peak load pricing alternatives, including proposed:
1. Incremental cost and peak responsibility pricing;
  2. Adoption of new regulations, i.e. efficiency standards for new appliances and thermal standards for buildings;
  3. Comparison of various theoretical analyses with empirical results obtained by a Con Edison energy conservation marketing program.
- C. Participation: 600 customers from Consolidated Edison's service area:
1. The service area includes approximately 70% of Westchester County.
    - . 8,700,000 people in 3,100,000 households
    - . 70% of residential dwellings are apartments

2. The energy use patterns of these customers are similar to national averages.

Residential electricity usage for space and water heating, and central air conditioning is lower than average.

- D. Justification: The costs incurred to the public as a result of utilities expending environmental resources in order to meet increasing demand must be internalized through more stringent regulations.

1. Expanding utility capacity is costly.
2. The costs should be borne by the loads which require the expansion.
3. Charging the full incremental price of electricity based on system cost or offering incentives to use off peak periods are the two methods considered in the study to flatten peak residential loads.

- E. Time-of-Day Experimental Rates: Residential and Religious Customers (Non-Space Heating)

Energy Charge (per KWH)

- . On peak Monday-Friday 10:00 a.m.-10:00 p.m.
- . On peak summer billing May 15 - Oct. 15
- . On peak winter billing Oct. 16 - May 14
- . Off peak (including fuel adjustment and revenue taxes as 5-25-77)



Customer Charge

- . 600 customers are participating; 300 are those residential or religious (SC No. 1) customers whose consumption exceeds 2000 KWH annually.
- . The remaining 300 randomly selected volunteers will receive an annual \$75 incentive payment.

II. ASSESSMENTA. Marginal or Incremental Cost Methodology

1. Provides a better base for rate design structure than strictly historical or embedded cost methods since it more accurately charges each customer the true costs of providing the energy.
2. This approach is likely to be most successful with customers having the most elastic demand for electricity.
3. Rate structures based on current or future costs are the only costs which can be subject to economizing.

B. Time-of-Day Experiment: Results have not been analyzed as of yet.

C. Time-of-Day Rates as a Load Management Technique

1. Weather sensitive as opposed to time-of-day rate structures may be more effective in reducing residential peak loads (due to heavy use of room air conditioning).
2. The average marginal cost of providing electricity for new air conditioning demand is two to three times the cost for other end uses.

3. Customer purchase of diurnal cool storage for central air conditioners and diurnal storage of hot water may some day be successful in shifting peak residential summer loads.
4. New York City has an economic advantage of using gas for heating and central air cooling units, so that rapid shifts are unlikely to occur.
5. FEA appliance efficiency standards effective in 1980 will help flatten residential peak loads.

D. Conclusions

1. Well designed information systems effectively reduce air conditioning consumption on peak days.
2. State regulatory agencies are almost twice as effective as other sources of conservation information.
3. Advertisement is more effective when included with a utility bill, rather than a separate mailing.
4. Respondents indicated they would wait until the temperature reached 85.4<sup>0</sup>F. rather than the control groups' 81.5<sup>0</sup> F. before turning on their air conditioners.

III. SOURCE

Ms. Jane Christophersen  
U.S. Department of Energy  
Washington, D.C.

IV. DOCUMENTATION

"New York: An Examination of the Integrated Effects of Adopting Various Energy Conservation and Load Leveling Policies for the Metropolitan Area of New York City."  
February, 1978

## NORTH DAKOTA

PROGRAM: Proposed Time-of-Day and Load Management Rates

Per request of the North Dakota P.S.C., Northern States Power has filed TOD and load management rates for their 58,000 customers. Residential customers with electricity as stand by for other primary fuel would have mandatory TOD rates. All others are voluntary. Included in the proposal is a revenue recovery clause to compensate for potential loss of revenue from load shifts. Only residential rates included in write-up.

I. DESCRIPTION

- A. Purpose: To offer incentives to customers who can curtail or interrupt their usage during peak demand in order to shift usage which may result in lower average costs to consumers.
- B. Participants: Northern States Power Company has filed with the North Dakota Public Service Commission for time-of-day and load management rates for all of NSP's major classes of customers who choose to participate.
- . NSP Electric Rate Case No. 9634, filed 9/26/78
  - . North Dakota P.S.C. requested the development of off-peak rates and load management techniques by NSP
  - . NSP serves 58,000 customers in Fargo, Grand Forks and Minot areas
- C. Residential TOD Rate Schedule

Customer charge per month: \$6.05 (or \$7.40 for zone NBa)  
Energy Charge:

on peak energy	5.78¢/KWH
off peak energy	1.86¢/KWH

Fuel Clause: Bills subject to Fuel Clause Rider

Minimum monthly charge: \$6.05 (or \$7.40 for Zone NBa)

on peak: 9 a.m.-9 p.m. Monday-Friday, excluding  
legal holidays  
off peak: all other hours

1. The monthly customer charges are designed to recover the additional costs of metering and billing involved in TOD rates.

Terms of Service:

1. Customer will remain on TOD rate not less than 12 months,
2. Available to customers in single or duplex homes,
3. Mandatory rate for residential customers using electricity as a standby for other primary fuels.

II. ASSESSMENT:

1. Time of use rates are new to the system.
2. Customers will have to decide for themselves whether the rates are to their advantage.
3. Since participation is voluntary (with one exception) the amount of load shifting is not predictable.
4. The rates contain a revenue loss protection clause which allows the company to recover any short-fall in revenues on a surcharge basis.

Loss is defined as:

- . the difference in revenue if only regular rates were used and actual total revenues collected by class.
- . Revenue loss will be recovered from each class by both time-of-use and standard rate customers.

III. SOURCE:

Robert Tubbs  
Public Service Commission  
State Capitol Building  
Bismark, North Dakota 58505  
Tel.: (701) 224-2400  
Date of Contact: November 2, 1978

IV. DOCUMENTATION:

Northern States Power Company  
Letter of explanation to Ms. Janet Sauter, Secretary  
Public Service Commission of North Dakota  
re NSP Electric Rate Case No. 9634  
September 26, 1978

## RHODE ISLAND

PROGRAM: Time-of-Day Demonstration Project

This one year experiment involving 170 customers will assess the feasibility of adopting time-of-day pricing on a larger scale.

I. DESCRIPTION

- A. Establishment: The experiment was set up by the Rhode Island Public Utility Commission's Division of Public Utilities (RIPUC).
- B. Purpose: Assess the cost of implementing time-of-day pricing and determine whether customers shift enough energy use away from peak hours to make the change worthwhile.
- C. Participants: The experiment involves 170 randomly selected customers of the Blackstone Valley Electric Company (BVE), a utility serving customers located in or north of Providence.
1. A new meter which records electricity consumption by fifteen minute intervals on magnetic tape was installed without charge at each sample customer's residence.
- D. Funding: A Federal Energy Administration (FEA) grant is funding the experiment.
- E. Marketing:
1. Flyers entitled, "Time-of-Day Rates" explained the program in question-and-answer form, and also provided examples of rate computations.
  2. RIPUC dealt with customer relations, not the BVE.

RHODE ISLAND - 2  
(Time-of-Day Demonstration)

II. OPERATION

A. Time-of-Day Hours:

	Summer <u>June - August</u>	Winter <u>September - May</u>
Peak, Monday - Friday	9 a.m. - 6 p.m.	8 a.m. - 9 p.m.
Shoulder, Monday - Friday	6 p.m. - 10 p.m.	-----
Off-peak Monday - Friday	10 p.m. - 9 a.m.	9 p.m. - 8 a.m.
Sat., Sun., Six Holidays	All Day	

B. Rate Structure: For the three summer months (June - August) of 1978, the following rates were in effect:

Customer charge (fixed)	\$3.40
Demand charge	\$1.38/KWH
Based on KWH used during the <u>peak</u> hours of the month with the heaviest consumption.	
Distribution Charge	\$1.42 per KWH
Based on KWH used during the hour (peak, off-peak) of the month with the heaviest consumption.	
Energy Charge	
Peak	.0338/KWH
Shoulder	.0238/KWH
Off-Peak	.0185/KWH
Fuel Adjustment Charge	(Varies)
Applies to all EVE customers	

1. Customers using electricity at off-peak hours during the summer months received the following discounts in addition to any reductions in the monthly demand charge:

Shoulder (evening)	1¢/KWH of 30% reduction
Off-Peak	1.53¢/KWH of 45% reduction

2. Alternatively, off-peak charges were only 55 percent of peak-hour charges per KWH.

III. ASSESSMENT

No information to date.

IV. SOURCE

Ms. Lisa Rohr  
Assistant Administrative Office  
State of Rhode Island  
Public Utilities Commission  
100 Orange Street  
Providence, R.I. 02903

V. DOCUMENTATION

"Time of Day Rates. Some Facts, Some Questions, Some Answers."

R.I.P.U.C. brochure



## SOUTH CAROLINA

PROGRAM: Time-of-Day Load Control Experiment

In Florence, South Carolina, the Carolina Power and Light Company will conduct a two year experiment utilizing uni-directional appliance control devices to control residential electricity usage. Participating volunteers will be compensated, and the results will help determine the feasibility of expanding this conservation method to all customers.

I. DESCRIPTION

- A. Establishment: The South Carolina Public Service Commission ordered Carolina Power and Light Company (CP & L) to conduct a two year experiment in Florence, S.C., by controlling power to certain appliances in 225 volunteers' homes through radio operated switches.
1. The experiment will enable the CP & L to determine the extent to which peak loads can be controlled and potential energy saved.
- B. Promotion: To insure a sufficient number given a free appliance inspection, and \$25 at the beginning of the experiment and \$25 or \$50 at its conclusion.
1. The greater amount will be given to those volunteers whose electric heat and air conditioning have been controlled.
  2. Most of the controlled appliances are not operating therefore, power interruptions should not excessively inconvenience the volunteers.

III. ASSESSMENT

A. Evaluation: CP & L will report to the Commission at the conclusion of the experiment:

1. The effect on demand for power created by controlling usage through a load control devise
2. Feasibility of system wide implementation on a non-voluntary basis
3. Participants reactions to the program

IV. SOURCE

Joe S. Jones, III  
Public Information Director  
South Carolina Public Service Commission  
P.O. Drawer 11649  
Columbia, South Carolina 29211  
Tel.: (803) 758-8510  
Date of Contact: November 8, 1978

V. DOCUMENTATION

News Release, Public Service Commission  
State of South Carolina  
March 11, 1978

## VERMONT

PROGRAM: Public Service Board Order: Time-of-Day Rates

The Public Service Board ordered the Central Vermont Public Service Corporation to develop an optional time-of-day rate (TOD). The first TOD rates in Vermont were approved in October 1974.

I. DESCRIPTION

A. History

1. In September 1974, the Vermont Public Service Board ordered Central Vermont Public Service Corporation (CVPS) to develop rates based on time-of-day demand metering principles.
2. Public Service Board approved rates filed by CVPS in October 1974, but modified the optional rate.

- B. Rates: The regular residential rate (R1) and the optional time-of-day rate (R11) are as follows:

Seasonal Peak Rates (January 1 through April 30)

	<u>R-1</u>	<u>R-11 (Optional)</u>
Energy (per KWH)	0.5¢	0.5¢
Capacity (per KWH)	peak 2.76¢ base 1.5¢	9.82¢ peak hours 1.4¢ off peak hours
Customer Charge (per month)	\$5.00	\$5.00
<u>TOTAL</u>	\$5.00 + 4.76¢ KWH	\$5.00 + peak: 10.32¢/KWH off-peak: 1.9¢/KWH

Off Season Rates (May 1 through December 31):

	<u>R-1</u>	<u>R-11 (Optional)</u>
Energy (per KWH)	0.5¢	0.5¢
Capacity (per KWH)	1.5¢	1.4¢
Customer Charge	\$5.00	\$5.00
<u>TOTAL</u>	\$5.00+	\$5.00+
	2.0¢ per KWH	1.9¢ per KWH

1. The Board insisted that R11 be modified so that the maximum capacity charge off-peak during any season would be 1.15¢ per KWH.
2. CVPSC was already offering an off-peak water heating rate, (R3).

Off-Peak Water Heating - R3

Energy (per KWH)	0.5¢
Capacity (per KWH)	.95¢
Customer Charge	\$2.50
<u>TOTAL</u>	\$2.50+
	1.45¢ per KWH

II. SOURCE

John C. Romano  
 Utilities Analyst  
 State of Vermont Public Service Board  
 120 State Street  
 Montpelier, Vermont 05602

III. DOCUMENTATION

Findings and Final Order  
 October 31, 1974  
 No. 3744  
 Vermont Public Service Board

## VERMONT

PROGRAM: Water Heating Load Management Program

A voluntary program to shift water heater use to the off-peak period has been accepted by residential customers and is proving effective.

I. DESCRIPTIONA. Purpose

1. The Washington Electric Cooperative, Inc. (WECI), is attempting to shift water heater use to the system's off-peak period to reduce purchased power costs and annual peak demand (WECI purchases its peak power from a Vermont utility).
2. Maintain minimum possible residential rates.

B. Eligibility: Volunteer residential customers of the WECI with electric water heaters which meet either of the following specifications:

1. Heating element of 3000 watts or larger
2. Capacity of 40 gallons or larger (for sufficient carryover capacity)

C. Operation

1. Questionnaires to solicit water heater information and assess likelihood of customer participation were mailed.
2. WECI installed time clocks on water heaters at no cost to customers.

3. Participating customers receive a \$2.00 credit per month.
4. Time clock shuts off a customer's water heater from 6:30 pm to 10:30 pm during Daylight Savings Time, and from 5:30 pm to 9:30 pm during Standard Time.

D. Program Costs

1. As of January, 1978, time clocks and installation cost \$83.85.
2. For each installation, the payback period of the capital investment is approximately 22 months.
3. The average savings per timer was \$46.37 for 1977.
4. Necessary consumer information and educational programs were an estimated \$3.50 per timer.
5. Annual program operating costs are approximately \$9 per timer.
6. Maintenance is estimated at \$1 per timer.

II. ASSESSMENT

- A. Evaluation: The program has been successful in reducing peak demand.
1. 849 timers were installed as of February 28, 1978.
  2. Although new connections should have raised demand by 3.4%, WECI experienced a 4.2% reduction in KW demand in the last three months of 1977 as compared to the same period in the previous year.
  3. System and substation load factors have improved.

III. SOURCE

Mrs. Jacques  
Washington Electric Co-operative, Inc.  
East Montpelier, Vermont 05651  
Date of Contact: 12/20/78  
Tel.: (802) 223-5245

IV. DOCUMENTATION

Report on Water Heater Timer Load Management Program  
Washington Electric Co-operative, Inc.  
3/30/78

Report on Water Heater Timer Program  
Washington Electric Co-operative, Inc.  
5/18/77

## VIRGINIA

PROGRAM: Time of Usage Experiment

The volunteer program was swamped with 17,000 applicants; 2,000 were chosen to participate in the effort to flatten peak usage for the Virginia Electric and Power Company.

I. PROGRAM DESCRIPTION:

- A. Peak Periods: 10 am - 10 pm, weekdays
- B. Rates: "Reduced during off-peak hours and higher rates during on-peak hours."
- C. Selection of participants: Volunteers were selected from applicants, using random sampling.
- D. Length of participation: All participants will contract to stay on the program for one year beginning with the date of the meter installation.

II. ASSESSMENT: Although many utility companies have documented the problems encountered in using volunteers to participate in a study or experiment, it was very interesting to note that this study attracted many more volunteers than needed.

III. DOCUMENTATION: Public Utilities Fortnightly  
August 3, 1978  
p. 42



## WISCONSIN

PROGRAM: Time-Of-Day Rate Experiment

I. PROGRAM DESCRIPTION:

A time-of-day rate experiment is being conducted by the Wisconsin Public Service Corporation in cooperation with the State of Wisconsin Public Service Commission. Usage patterns of a group of residential users are being monitored. These patterns will be analyzed to estimate price elasticities of demand in peak and off-peak periods, and to evaluate the costs and benefits of such pricing schemes.

II. DOCUMENTATION:

Generic Environmental Impact Statement on Electric Utility Tariffs  
State of Wisconsin Public Service Commission, Docket #1-AC-10

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A.254

